FINAL REPORT

SPS-1 PROJECT 3501
STRATEGIC STUDY OF STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS
IH-25 NORTHBOUND
DONA ANA COUNTY, NEW MEXICO

FHWA/LTPP

SOUTHERN REGION COORDINATION OFFICE

APRIL 1996

BRENT RAUHUT ENGINEERING INC.

8240 Mopac, Suite 220 • Austin, Texas 78759 • (512) 346-0870 • FAX (512) 346-8750

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TABLE OF CONTENTS

	PAGE
TABLE OF CONTENTS	i
LIST OF FIGURES	ii
LIST OF TABLES	iii
INTRODUCTION	1
SPS-1 GENERAL EXPERIMENT DESIGN	1
SELECTION/NOMINATION OF IH-25	1
PRECONSTRUCTION MONITORING	5
CONSTRUCTION	5
POSTCONSTRUCTION MONITORING	6
MATERIALS SAMPLING AND TESTING	6
SUMMARY	8
APPENDIX A - SITE BACKGROUND INFORMATION	A.1
APPENDIX B - SURFACE PROFILE DATA	B.1
APPENDIX C - MATERIALS SAMPLING AND TESTING PLAN	C.1
APPENDIX D - CONSTRUCTION DATA	D.1
APPENDIX E - PHOTOGRAPHS	E.1

LIST OF FIGURES

FIGURE	TITLE	PAGE
1	LAYOUT OF TEST SECTIONS	4

LIST OF TABLES

TABLE	TITLE	PAGE
1	EXPERIMENT DESIGN FOR SPS-1	2
2	PROPOSED TEST SECTION LAYOUT	3
3	COMPLETION DATES	7

FINAL REPORT - SPS-1 PROJECT 3501

STRATEGIC STUDY OF STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS IH-25, NORTHBOUND DONA ANA COUNTY, NEW MEXICO

INTRODUCTION

The Strategic Highway Research Program (SHRP), in conjunction with the Federal Highway Administration (FHWA) developed the Long Term Pavement Performance (LTPP) program to study the various factors that affect pavement performance. These studies are designed to provide information about varying pavement design, materials and environmental effects on pavement performance.

The objective of the SPS-1 experiment is discussed below. This project is one of sixteen projects located across the United States. This SPS-1 project is located in the northbound lanes of IH-25, between Rincon and Hatch, New Mexico. The letting date was November 1994 and construction began in September 1995. This report covers the site-selection, coordination and monitoring activities for all phases of construction of the SPS-1 project. Any detailed information not found in this report may be found in the LTPP data base on the Regional Information Management System (RIMS) at the Southern Region Coordination Office (SRCO), in Austin, Texas, and the National Information Management System (NIMS) in Washington, DC.

SPS-1 General Experiment Design

The objective of the SPS-1 study is to enhance understanding of the strategic factors that influence the performance of flexible pavements. This SPS-1 project addresses factors including drainage, base type and thickness, and asphalt surface thickness as they relate to pavement performance. The experiment design for the SPS-1 experiment is shown in Table 1. The SPS-1 in New Mexico fulfills the requirements for the dry no-freeze climatic region with fine-grained subgrade (Column "V"). Twelve distinct test sections are located at the project site, varying in thickness and layer type. A detailed layout of each of the twelve sections is shown in Table 2 and Figure 1.

For additional information on the experiment design for SPS-1, please refer to "Specific Pavement Studies Experiment Design and Research Plan for Experiment SPS-1, Strategic Study of Structural Factors for Flexible Pavements", dated February 1990.

Selection/Nomination of IH-25

The SPS-1 project on IH-25 in Dona Ana County, New Mexico was nominated on 11 March 1993. Appendix A includes the project nomination and information forms with pertinent correspondence. This project is a four-lane divided highway with 12-foot test sections, 10-foot outside shoulders and a 4-foot shoulder along the passing lane. The estimated traffic includes 18% heavy trucks, with an annual 393,000 ESALs. The project is located between the Rincon and Hatch interchanges. There were no driveways or ramps located within the project that would

TABLE 1. EXPERIMENT DESIGN FOR SPS-1

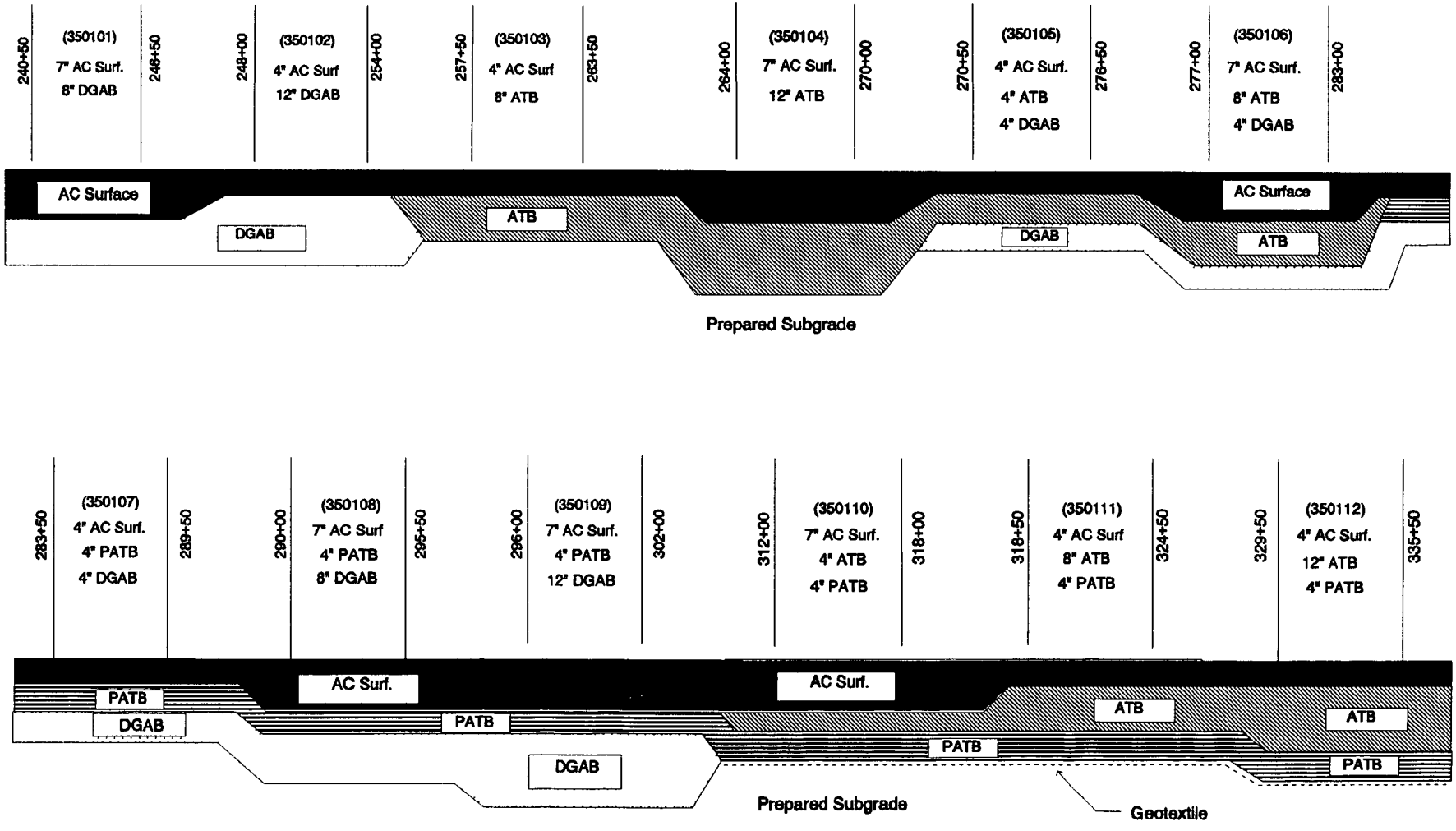
PAVEMENT STRUCTURE COMBINATIONS				FACTORS FOR MOISTURE, TEMPERATURE, SUBGRADE TYPE AND LOCATION															
				WET								DRY							
				FREEZE				NO FREEZE				FREEZE				NO FREEZE			
				FINE		COARSE		FINE		COARSE		FINE		COARSE		FINE		COARSE	
DRAINAGE	BASE TYPE	TOTAL BASE THICK	SURF THICK	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
NO	AGG	8"	4"		K1		M1		O1		Q1		S1		U1		W1		Y1
			7"	J1		L1		N1		P1		R1		T1		V1		X1	
		12"	4"	J2		L2		N2		P2		R2		T2		V2		X2	
			7"		K2		M2		O2		Q2		S2		U2		W2		Y2
	ATB	8"	4"	J3		L3		N3		P3		R3		T3		V3		X3	
			7"		K3		M3		O3		Q3		S3		U3		W3		Y3
		12"	4"		K4		M4		O4		Q4		S4		U4		W4		Y4
			7"	J4		L4		N4		P4		R4		T4		V4		X4	
	ATB / 4" AGG	8"	4"	J5		L5		N5		P5		R5		T5		V5		X5	
			7"		K5		M5		O5		Q5		S5		U5		W5		Y5
		12"	4"		K6		M6		O6		Q6		S6		U6		W6		Y6
			7"	J6		L6		N6		P6		R6		T6		V6		X6	
YES	PATB / AGG	8"	4"	J7		L7		N7		P7		R7		T7		V7		X7	
			7"		K7		M7		O7		Q7		S7		U7		W7		Y7
		12"	4"		K8		M8		O8		Q8		S8		U8		W8		Y8
			7"	J8		L8		N8		P8		R8		T8		V8		X8	
		16"	4"		K9		M9		O9		Q9		S9		U9		W9		Y9
			7"	J9		L9		N9		P9		R9		T9		V9		X9	
	ATB / PATB	8"	4"		K10		M10		O10		Q10		S10		U10		W10		Y10
			7"	J10		L10		N10		P10		R10		T10		V10		X10	
		12"	4"	J11		L11		N11		P11		R11		T11		V11		X11	
			7"		K11		M11		O11		Q11		S11		U11		W11		Y11
		16"	4"	J12		L12		N12		P12		R12		T12		V12		X12	
			7"		K12		M12		O12		Q12		S12		U12		W12		Y12

AGG = Dense-graded Untreated Aggregate Base
ATB = Dense-graded Asphalt Treated Base
PATB = 4" Thick Open-graded Permeable Asphalt-treated Drainage Layer Underneath ATB or Over AGG Base
4" AGG = 4" Thick Dense-graded Untreated Aggregate Base Layer Underneath ATB

TABLE 2. PROPOSED TEST SECTION LAYOUT

Section	Cross-Section	Begin Station	End Station	Transition (Ft.)
350101 (V1)	4″ AC Surf. 8″ DGAB	241+00	246+00	250
350102 (V2)	4″ AC Surf. 12″ DGAB	248+50	253+50	450
350103 (V3)	4″ AC Surf. 8″ ATB	258+00	263+00	150
350104 (V4)	7″ AC Surf. 12″ ATB	264+50	269+50	150
350105 (V5)	4″ AC Surf. 4″ ATB 4″ DGAB	271+00	276+00	150
350106 (V6)	7″ AC Surf. 8″ ATB 4″ DGAB	277+50	282+50	150
350107 (V7)	4″ AC Surf. 4″ PATB 4″ DGAB	284+00	289+00	125
350108 (V8)	7″ AC Surf. 4″ PATB 8″ DGAB	290+25	295+25	125
350109 (V9)	7″ AC Surf. 4″ PATB 12″ DGAB	296+50	301+50	1100
350110 (V10)	7″ AC Surf. 4″ ATB 4″ PATB	312+50	317+50	150
350111 (V11)	4″ AC Surf. 8″ ATB 4″ PATB	319+00	324+00	600
350112 (V12)	4″ AC Surf. 12″ ATB 4″ PATB	330+00	335+00	- - -

FIGURE 1. LAYOUT OF TEST SECTIONS



disrupt the stream of traffic. The project begins at Milepost 36.5 and ends at Milepost 38.3, witha total length of 1.8 miles. Of the twelve sections, eight were constructed on areas that originally contained fill from the constructed roadway and four were constructed on areas that were cut during the original construction of the roadway. The beginning of the original project location offered for nomination was shifted from Station 246+00 to 240+50 after subsurface exploration results were obtained. Detailed plan/profiles are provided with the nomination forms and subsurface exploration results.

The project was accepted for inclusion in this experiment by the FHWA on 29 September 1994. Letting occurred in November 1994 to K. Barnett & Sons, Inc.

PRECONSTRUCTION MONITORING

Preliminary materials investigations were conducted by the New Mexico State Highway and Transportation Department (NMSHTD). The test sections were tentatively accepted by NMSHTD and included in their pavement designs. The FHWA expressed concerns over the possible high variability of the subgrade materials resulting from the number of cut/fill transitions. Subsurface exploration performed by the NMSHTD, for subgrade confirmation, indicated a few areas of sand and gravel above the reddish-brown silty clay material. During construction, the thin sand and gravel was removed from atop the clay subgrade. Considering the culverts located at the site, the sections were relocated to avoid any large box culverts. The remaining culverts within the test sections were small and at depth, and should not create any undue influence on the test sections.

CONSTRUCTION

In August 1995, the sand and gravel detected from the construction of the subgrade was removed. It was necessary to stabilize the top 8 inches of subgrade with 4% lime for all test sections, to facilitate construction. Upon completion of the stabilization, approximately 12-18 inches of the silty-clay subgrade material was used on top of the stabilized layer to bring the subgrade back to grade elevation. On 6 September 1995, subgrade sampling was performed by Law/Crandall, Inc. of Phoenix, Arizona.

The weather station was installed on 21 September 1995 on the west side of IH-25, adjacent to the southbound lane at the Rincon interchange. Subgrade preparation was delayed due to rain during 22-28 September.

Pavement layer placement proceeded according to schedule with no deviations from the design plans. Close attention and coordination was given by the SRCO representative to the placement of the edge drains and filter fabric. The dense graded aggregate base (DGAB) was placed on the prepared subgrade once densities were achieved. The DGAB was graded and stringlined for the edge drain placement for Test Sections 07, 08 and 09. The permeable asphalt treated base (PATB) was placed with a track-mounted CAT AP 1050 and rolled with a Dynapak Model CC421 static steel-wheel roller. The roller made four coverages to compact the PATB. The contractor succeeded in limiting truck traffic on the PATB to avoid rutting. The asphalt treated base (ATB) was placed and then rolled with a 30-ton Raygo Ranger 2-66 double-drum vibratory roller for breakdown with four coverages. The 20-ton Dynapak pneumatic roller followed with

approximately ten coverages. The finishing roller was a small Dynapak double-drum steel-wheel roller with approximately four static coverages. The paving procedure used for the ATB was identical to the procedure used for the HMAC surface layer.

A few minor problems were encountered during the construction of the SPS-1 test sections. An area of tender mix was spotted after the first lift of ATB at the north end of Section 12 near Station 335+00 in the outside lane and shoulder. The tender mix was attributed to a bad truckload of mix. The contractor salvaged the mix with more rolling efforts on the ATB. On 25 October, it became apparent that the air voids were at 6 to 7.5% for the ATB. An increase to the number of coverages for the roller maintained proper densities. On 26 October, the batch plant lost a bearing delaying paving operations of the ATB layers until 30 October. The air voids came back within parameters when the batch plant started production on 30 October, after being repaired. It was observed during the collection of cross-section elevations by SRCO personnel for Section 04, that the ATB layer was 2 inches short of the required 7 inches throughout the section. A fifth lift of ATB was provided to achieve the proper layer thickness. The open-graded friction course was placed on 4 March 1996, completing the paring.

In addition to the standard SPS-1 section construction, an experiment proposed by the NMSHTD, in cooperation with the Alliance for Transportation Research and the University of New Mexico, was approved for construction at this site. The experiment involves the installation of acoustical sensing equipment to determine weight and classification of vehicles and the detection of pavement distress. The equipment was scheduled to be placed at Station 270+90 one foot below the top of subgrade in the transition area of Section 05 on 27 November.

The sign placement and pavement markings are scheduled to be done once the open-graded friction course is applied on 4 March 1996. Traffic was opened on the test sections 16 November.

No other extraordinary events or difficulties were observed during construction of the SPS-1 site. Table 3 provides the dates for the completion of the placement, sampling and testing, and cross-profile elevation readings.

POSTCONSTRUCTION MONITORING

Upon completion of construction of the SPS-1 project, it will be necessary to monitor the performance of the pavement. This involves manual surveys, FWD testing and profilometer testing. LTPP directives indicate that the manual surveys and profilometer testing need to be performed biennially. FWD testing is to be performed annually. The first set of monitoring is scheduled to be performed in March 1996.

Material Sampling and Testing

Postconstruction coring began on 14 November 1995. The coring was performed successfully with a 24-inch long drill bit with a 4-inch diameter. Specific samples and the corresponding tests to be performed are designated in the materials sampling plan located in Appendix C.

TABLE 3. COMPLETION DATES

Activity	Test Section											
	350101	350102	350103	350104	350105	350106	350107	350108	350109	350110	350111	350112
Subgrade Prep	Oct 2	Oct 2	Sept 27	Sept 27	Sept 27	Sept 27	Sept 21	Sept 21	Sept 21	Sept 18	Sept 18	Sept 18
Subgrade Sampling	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6	Sept 6
Subgrade Density	Oct 5	Oct 5	Oct 5	Oct 5	Oct 5	Oct 5	Sept 28	Sept 27	Sept 27	Sept 27	Sept 27	Sept 27
Subgrade Elevation	Oct 5	Oct 5	Oct 3	Oct 3	Oct 3	Oct 3	Oct 2	Sept 27	Sept 27	Sept 26	Sept 26	Sept 26
DGAB Placement	Oct 16	Oct 16			Oct 16	Oct 16	Oct 10	Oct 10	Oct 10			
DGAB Sampling	Oct 16	Oct 16			Oct 16	Oct 16	Oct 16	Oct 16	Oct 16			
DGAB Density	Oct 16	Oct 16			Oct 16	Oct 16	Oct 16	Oct 16	Oct 16			
DGAB Elevation	Oct 17	Oct 17			Oct. 17	Oct 17	Oct 10	Oct 10	Oct 10			
Edge Drain Trench							Oct 16	Oct 16	Oct 10	Oct 2	Oct 2	Sept 27
Edge Drain Placement							Oct 16	Oct 16	Oct 16	Oct 5	Oct 5	Oct 3
Geotextile Placement										Oct 9	Oct 5	Oct 3
PATB Placement							Oct 17	Oct 17	Oct 17	Oct 10	Oct 5	Oct 5
PATB Sampling							Oct 5	Oct 5	Oct 5	Oct 5	Oct 5	Oct 5
PATB Elevation							Oct 18	Oct 18	Oct 18	Oct 10	Oct 10	Oct 5
ATB Placement			Oct 26	Oct 30	Oct 27	Oct 27				Oct 23	Oct 24	Oct 24
ATB Sampling			Oct 27	Oct 31	Oct. 27	Oct 27				Oct 25	Oct 25	Oct 25
ATB Density			Oct 27	Oct 31	Oct 27	Oct 27				Oct 25	Oct 25	Oct 25
ATB Elevation			Oct 27	Oct 30	Oct 30	Oct 30				Oct 25	Oct 25	Oct 25
HMAC Placement	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13
HMAC Bulk Sampling	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15	Nov 15
HMAC Coring	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14
HMAC Density	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14
HMAC Elevation	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 14	Nov 13	Nov 13	Nov 13	Nov 13	Nov 13	Nov. 13
Weather Station Inst.	Sept 21											
Pavement Marking												
Sign Placement												

SUMMARY

Having completed the observations of the construction for this SPS-1 project, located on IH-25, north of Las Cruces, New Mexico, it appears that this project will contribute significantly to the LTPP objectives by providing valuable information about the structural factors affecting flexible pavements. The efforts of the NMSHTD, and their willingness to participate in this study, is greatly appreciated. Special thanks goes to Keun Wook-Yi, Frank Guzman and Jerry Cordova, whose work made this project possible. We also want to express our appreciation to K. Barnett & Sons, Inc., for their hard work in completing a quality job in a timely fashion.

Currently, monitoring efforts are scheduled and we will continue noting changes in the surface distress, surface profile and structural capacity, and compare the data with other projects of this nature around the country in an attempt to improve existing structural design methods.

APPENDIX A

SITE BACKGROUND DATA

U.S. Department of Transportation
Federal Highway Administration

RECEIVED OCT 0 3 1994

Memorandum

HNR40-0894-3800001

6300 Georgetown Pike
McLean, Virginia 22101

Subject: ACTION: Specific Pavement Study (SPS) - New Mexico Incentive Funds for SPS-1

Date: September 29, 1994

From: Director, Office of Engineering and Highway Operations Research and Development

Reply to Attn of: HNR-40

To: Mr. Dale E. Wilken
Acting Regional Federal Highway Administrator (HEO-06)
Fort Worth, Texas

All questions concerning the proposed design and construction of a SPS-1 project in New Mexico for the Long-Term Pavement Performance (LTPP) program has been satisfactorily resolved and the project has been accepted into the program. The project site is located on I-25 between the Rincon and Hatch Interchanges in Dona Ana County.

The inclusion of this site into the LTPP program allows New Mexico State Highway and Transportation Department (SHTD) to be eligible for incentive funds associated with the SPS experiment. This memorandum authorizes the obligation of $50,000 of appropriation code 380 funds subject to the following:

1. New Mexico SHTD's continued agreement to conform to all of the design and participation requirements of the experiment.

2. Funds are to be used for reimbursement of costs associated with the SPS project that include: (a) the purchase and/or installation of weigh-in-motion and/or automated vehicle classification equipment; (b) conventional sampling and materials testing; and/or (c) traffic control expenditures that are incurred as part of these data collection activities.

The Federal share for the first $50,000 of the above work is 100 percent. Costs in excess of $50,000 may be eligible for reimbursement as part of the regular Federal-aid construction and/or research programs. The appropriation code 380 and the Fiscal Management Information System and regular Federal-aid procedures are to be used to track expenditures. By copy of this memorandum, we are requesting the Program Analysis Division (HFS-30) to increase New Mexico's obligation limit by $50,000 for the 380 program. These 380 funds do not lapse but are expected to be used within 5 years of this authorization.

Information from this site and the other SPS-1 locations will contribute significantly to achieving the goals of the LTPP program. Participation of the New Mexico SHTD and the cooperation and assistance of the FHWA Region 6 and New Mexico Division staff in the LTPP program is appreciated.

Upon receipt of this memorandum, the New Mexico Division Office is requested to officially notify New Mexico SHTD of the approval of the SPS-1 site and

availability of the incentive funds.

Any questions concerning the incentive funds should be directed to Mr. Monte Symons at (703) 285-2730. Questions related to the project status, testing, and/or coordination should be directed to either Mr. Symons or Mr. Morris Reinhardt, LTPP Southern Regional Engineer. Mr. Reinhardt can be reached at (512) 346-7477.

Charles J. Nemmers, P.E.

cc:
Mr. Morris Reinhardt

Brent Rauhut Engineering Inc.

March 16, 1993

Mr. Monte Symons
Federal Highway Administration
LTPP Division (HNR-40)
Turner-Fairbank Highway Research Center
6300 Georgetown Pike, Room F-215
McLean, Virginia 22101

Subject: New Mexico SPS-1 Nomination.

Dear Monte,

This letter transmits the nomination forms for an SPS-1 project located on IH-25, north of Las Cruces, New Mexico. We have had an opportunity to review this nomination and recommend its acceptance, contingent on verification of the subgrade materials. Project constraints make it necessary to seek a variance on the location of test sections over a cut/fill transition. Our preliminary review of this site found that while it will be possible to locate 12 test sections in what appears to be a consistent subgrade area, it will likely be necessary to locate one of the sections over a cut/fill transition.

Copies of the plan/profile sheets are enclosed with this nomination. However, the quality of the copies is quite poor, and may be difficult to interpret.

Subsequent to your approval of this project, we will work with the New Mexico State Highway and Transportation Department to verify the subgrade materials along the project. If there is any additional information you require, please let me know.

I appreciate the opportunity to provide you this information. If you have any questions or comments, please do not hesitate to contact me. Thank you for your consideration in this matter.

Sincerely,

Mark P. Gardner, P.E.
Project Engineer, SRCO

MPG:dmj

Enclosure: As stated.

cc.w/Enc: Homer Wheeler, RE-SRCO
Jim Stokes, NM-SHTD
Shiraz Tayabji, PCS/LAW

8240 Mopac, Suite 220 • Austin Texas 78759 • (512) 346-0870 • FAX (512) 346-8750

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SHEET A. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE New Mexico SHRP SECTION NO 350100

GENERAL PROJECT INFORMATION

PROJECT LOCATION

ROUTE NUMBER I-25

ROUTE SIGNING [X] Interstate [] U.S. [] State [] County

Other _____

PROJECT LOCATION Start Milepost 36.5 End Milepost 38.3

Start Station 246 + 00 End Station 328 + 00

DIRECTION OF TRAVEL [X] North B. [] South B. [] West B. [] East B.

PROJECT LOCATION DESCRIPTION Project is between the Rincon and Hatch Interchanges, approximately 40 miles north of Las Crusas, New Mexico.

COUNTY Dona Ana

HIGHWAY AGENCY DISTRICT NUMBER 1

SHRP ENVIRONMENTAL ZONE

[] WET FREEZE [] WET NO-FREEZE [] DRY FREEZE [X] DRY NO-FREEZE

SIGNIFICANT DATES

LATEST DATE OF APPROVAL NOTIFICATION FROM SHRP _____

CONTRACT LETTING DATE 11/94

ESTIMATED CONSTRUCTION START DATE _____

ESTIMATED DATE TEST SECTIONS OPENED TO TRAFFIC _____

ESTIMATED CONSTRUCTION COMPLETION DATE _____

PROJECT DESCRIPTION

PROJECT TYPE [] New Route [X] Removal and Reconstruction [] Parallel Roadway

Other _____

FACILITY [X] Divided [] Undivided NUMBER OF LANES (One Way) 2

DESIGN TRAFFIC DATA

ANNUAL AVERAGE DAILY TRAFFIC (TWO DIRECTIONS) 6384

% HEAVY TRUCKS AND COMBINATIONS (OF AADT) 18.2

ESTIMATED 18K ESAL RATE IN STUDY LANE (1,000 ESAL/YR) 393

TOTAL DESIGN 18K ESAL APPLICATIONS IN DESIGN LANE 7,541,776

DESIGN PERIOD (Years) 20

SHEET B. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE New Mexico SHRP SECTION NO 350100

AGENCY'S PAVEMENT STRUCTURE DESIGN FOR SITE

LAYER[1] NO.	LAYER[2] DESCRIPTION CODE	MATERIAL TYPE[3] CLASS CODE	THICKNESS[4] (INCHES)	STRUCTURAL[5] COEFFICIENT
1	SUBGRADE (7)	5 1		
2	0 5	2 3	7.0	0.10
3	0 4	0 1	8.0	0.40
4	0 3	0 2	0.6	0.00
5			.	0.
6			.	0.
7			.	0.
8			.	0.
9			.	0.

STRUCTURAL DESIGN METHOD [x] 1972 AASHTO [ ] 1986 AASHTO [ ] Modified AASHTO

Other

AASHTO DESIGN RELIABILITY FACTORS R% S_o

OUTSIDE SHOULDER TYPE

[ ] Turf [ ] Granular [x] Asphalt Concrete [ ] Surface Treatment

[ ] PCC [ ] Curb and Gutter Other

OUTSIDE SHOULDER WIDTH (Feet) 10

SUBSURFACE EDGE DRAINS [ ] Yes [x] No

NOTES

1. Layer 1 is the natural occurring subgrade soil. The pavement surface will have the largest assigned layer number.

2. Layer description codes:
   Surface Layer ..... 03 Base Layer ..... 05 Subgrade 07
   Subsurface HMAC .. 04 Subbase Layer ..... 06 Embankment (Fill) 11

3. Refer to Tables 1 through 4 for material class codes.

4. If subgrade depth to a rigid layer is known, enter this depth for subgrade thickness, otherwise leave subgrade layer thickness blank.

5. Enter AASHTO structural layer coefficient value, as appropriately modified, used in pavement design or typical coefficient used by agency for this material. For the subgrade, enter either AASHTO soil support value or resilient modulus value (psi) used in design.

SHEET C. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE New Mexico SHRP SECTION NO 350100

TEST SECTION LAYOUT

NUMBER OF TEST SECTIONS ENTIRELY ON: FILL 8 CUT 4

SHORTEST TRANSITION BETWEEN CONSECUTIVE TEST SECTIONS (Feet) 100

VERTICAL GRADE (Avg %) (+ upgrade; - downgrade) Max. ± 2 %

HORIZONTAL CURVATURE (Degrees) [] Tangent 0 °

COMMENTS ON DEVIATIONS FROM DESIRED SITE LOCATION CRITERIA Due to space limitations, it may be necessary to locate a test section over a cut/fill transition. Note that cut materials are used as fill elsewhere on the project, so material type should be relatively consistent.

OTHER SHRP TEST SECTIONS

DOES AGENCY DESIGN CONFORM TO GPS-1 OR GPS-2 PROJECT CRITERIA? [X] YES [] NO

DISTANCE TO NEAREST GPS TEST SECTION ON SAME ROUTE (Miles) 119

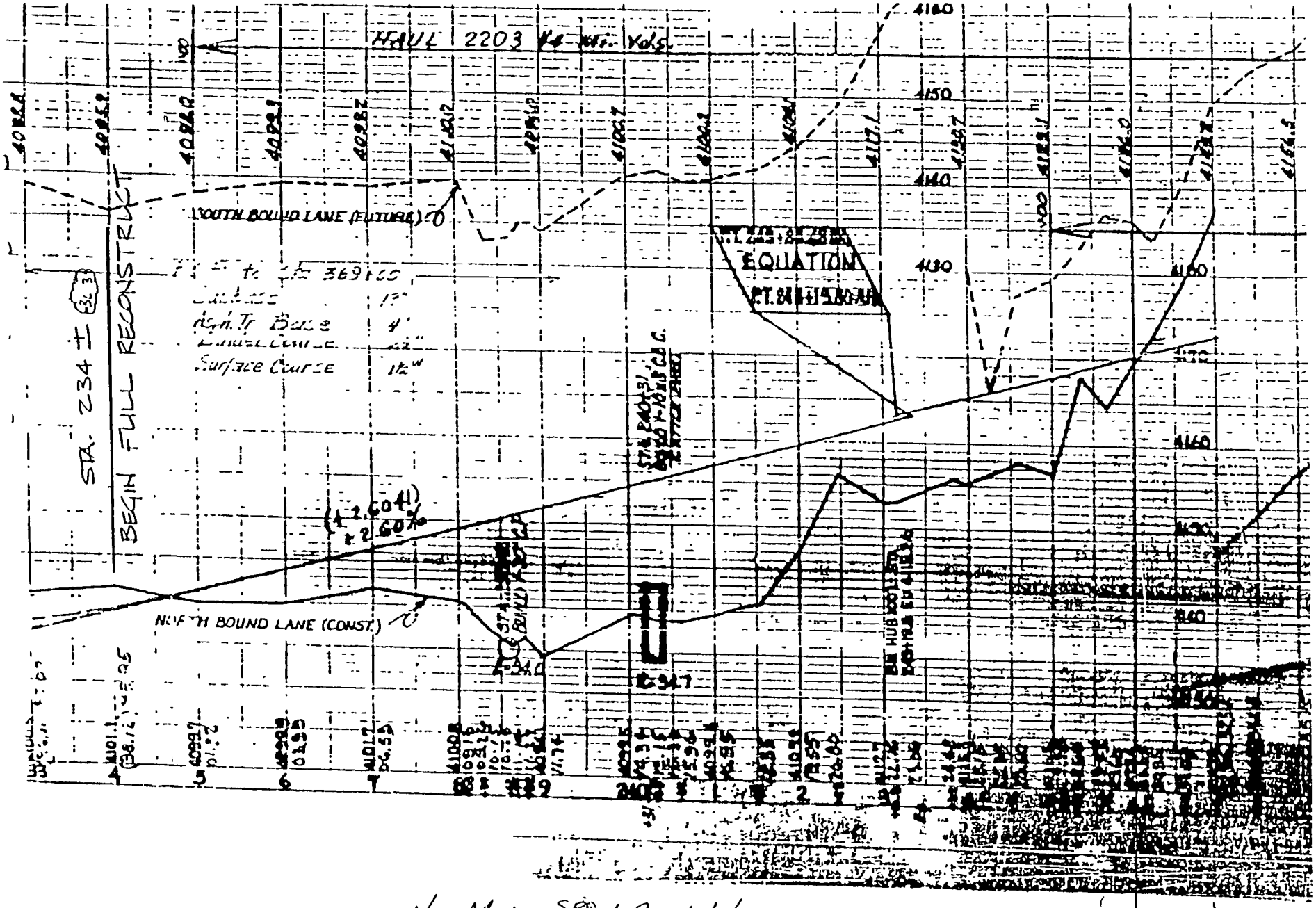
TEST SECTION NUMBER OF NEAREST GPS SECTION 356033

SUPPLEMENTAL TEST SECTIONS

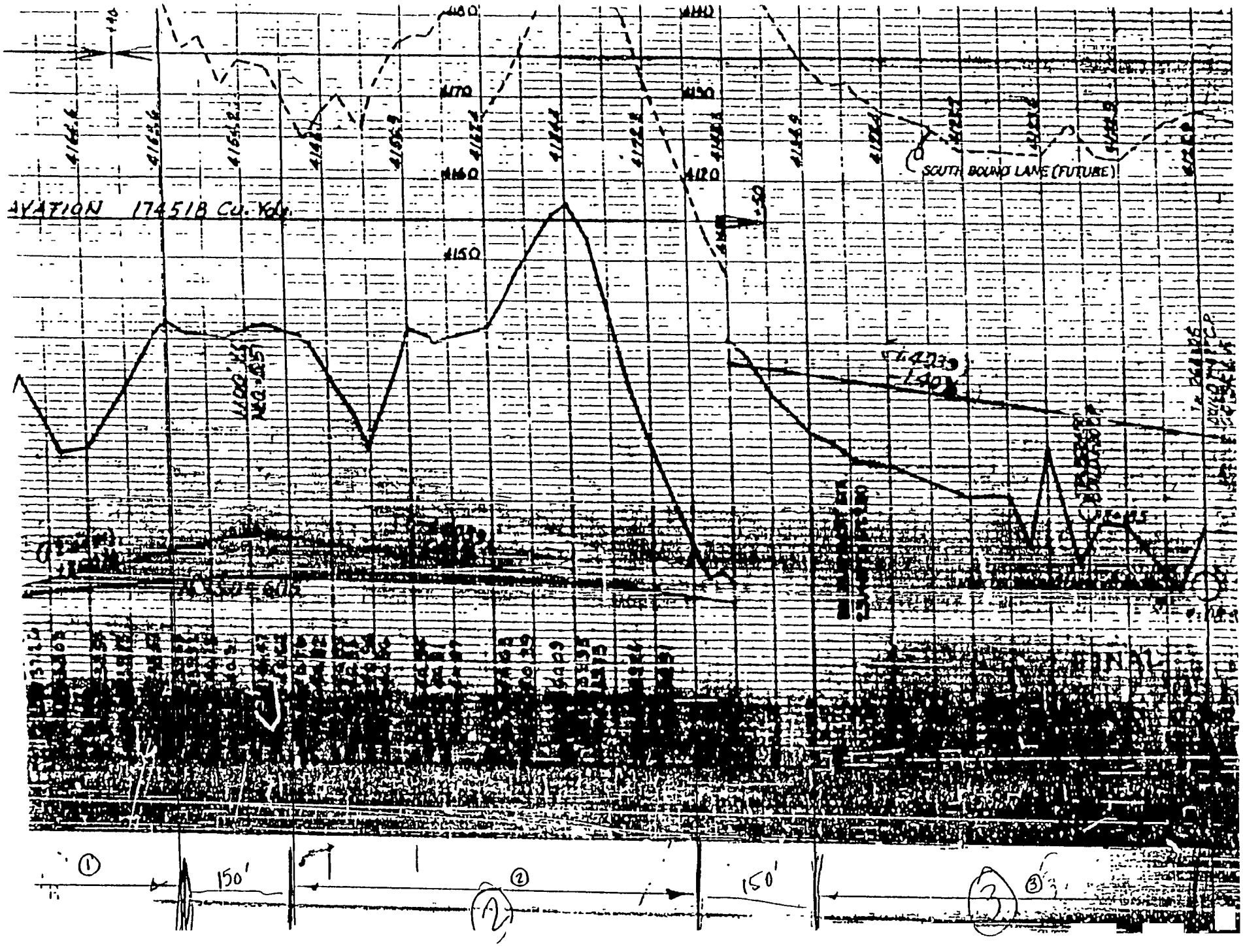
IF SUPPLEMENTAL EXPERIMENTAL TEST SECTIONS ARE PROPOSED, COMPLETE THE FOLLOWING

TOTAL NUMBER OF SUPPLEMENTAL TEST SECTIONS

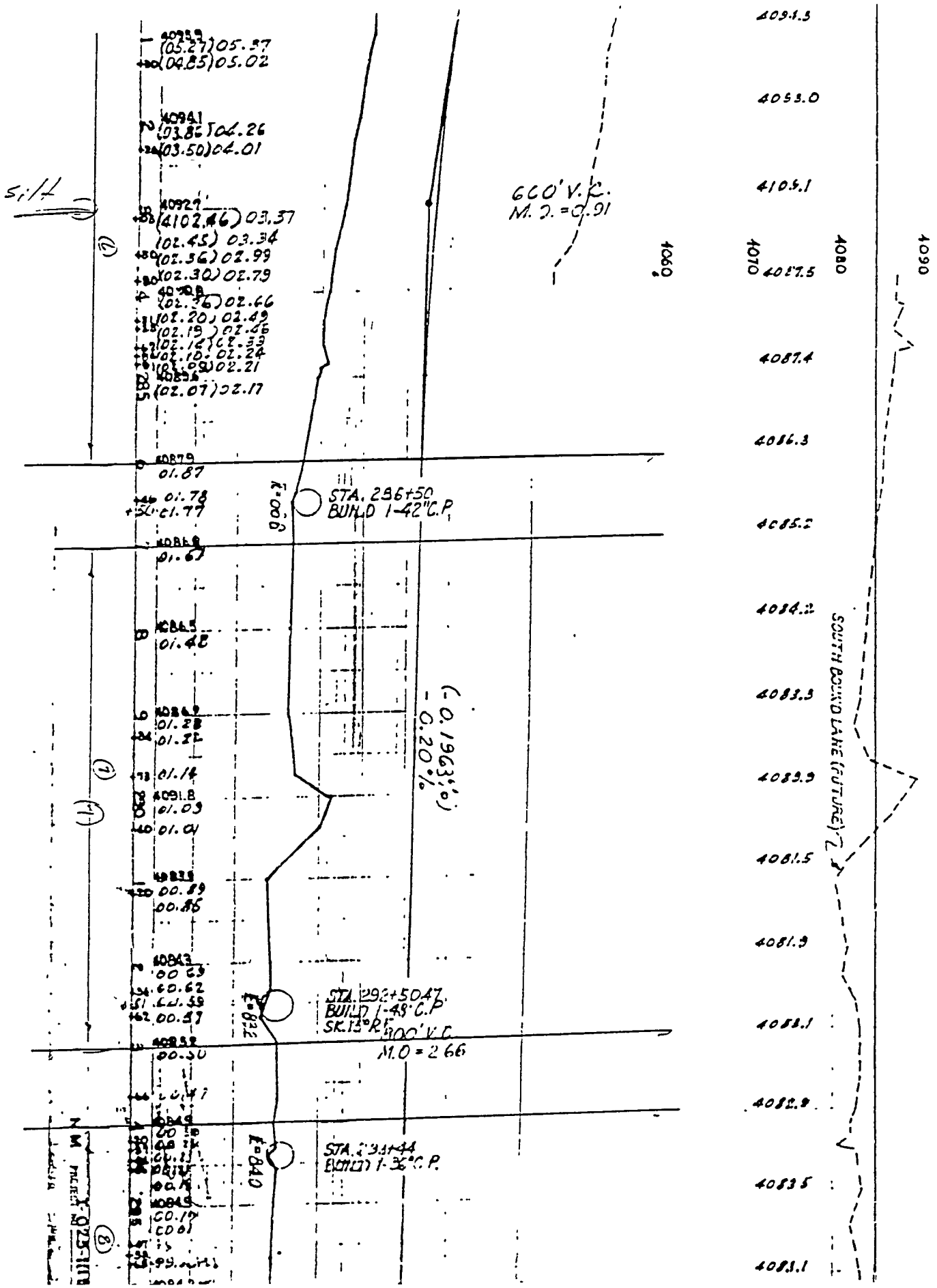
FACTORS TO BE INVESTIGATED

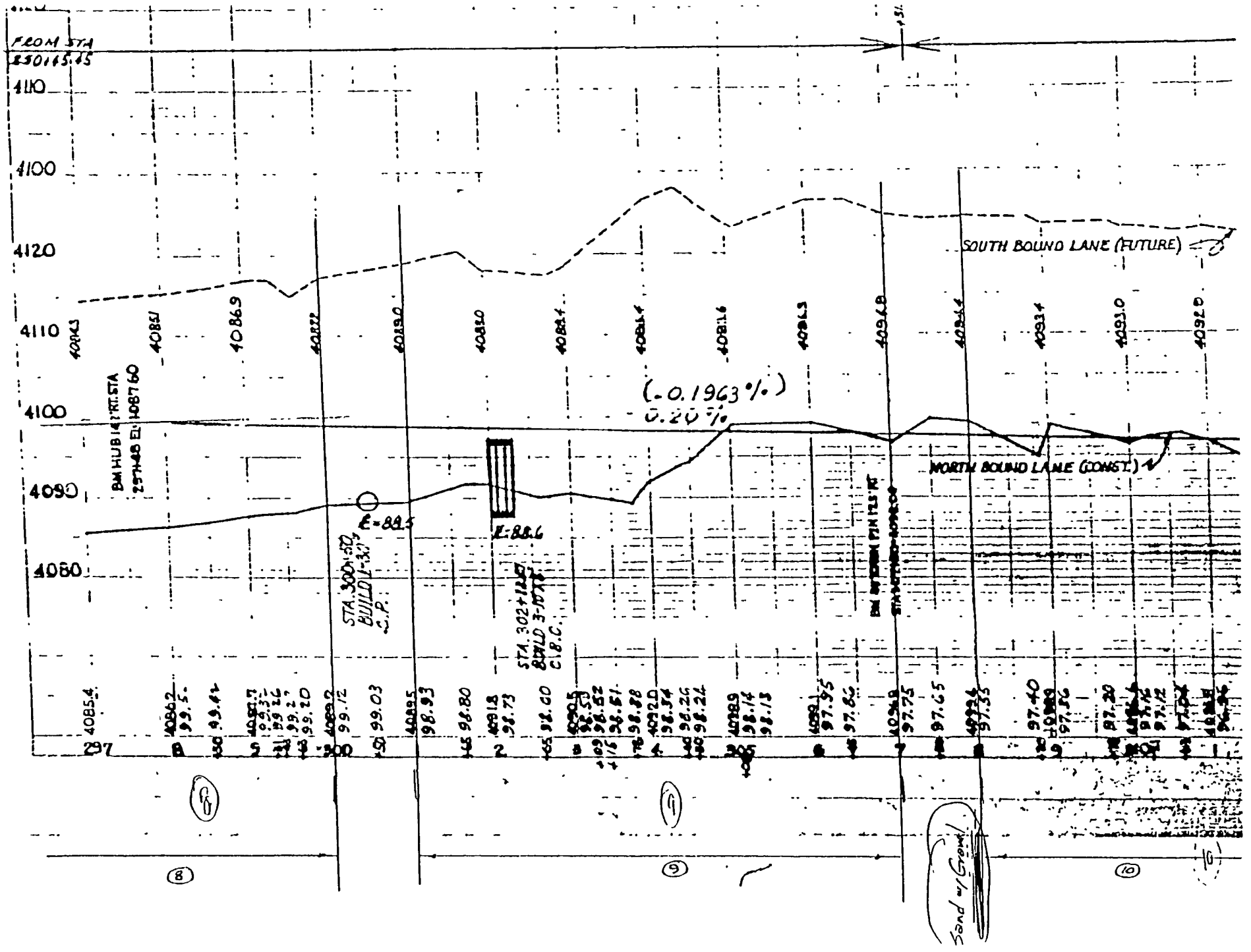


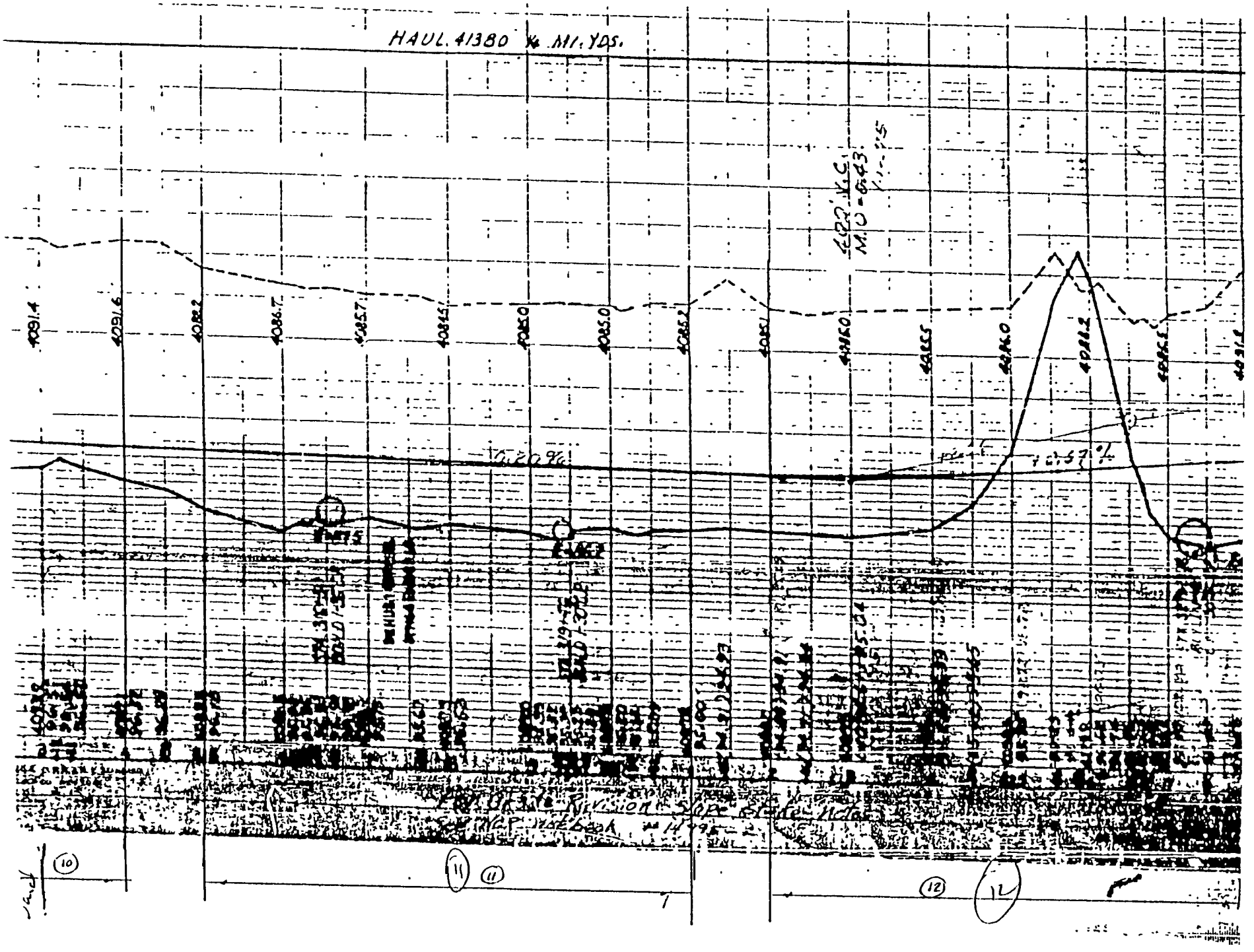
New Mexico SPR-1 Candidate
IH-25 N of Las Cruces.


AVATION 174518 CU. YDS.
SOUTH BOUND LANE (FUTURE)
150'
150'

SHRINK.
40975
HAUL 272523 1/8 MI
SOUTH BOUND LANE (FUTURE)
EXC. 35080 Cu. Yds.
(-1.4039 %)
NORTH BOUND LANE (CONST)
BM HUB 150' RT STA
268+00 EL= 4120.19
BM HUB 140' RT STA.
277+58 EL 4107.36
MP 37


600' V.C.
M.O. = 0.91
STA. 286+50
BUILD 1-42" C.P.
(-0.1963%)
-0.20%
STA. 292+50.47
BUILD 1-48" C.P.
SK. 12° R.F.
900' V.C.
M.O = 2.66
STA. 299+44
BUILD 1-36" C.P.
SOUTH BOUND LANE (FUTURE)
4090
4080
4070
4060


FROM STA
4110
4100
4120
4110
4100
4090
4080
SOUTH BOUND LANE (FUTURE)
NORTH BOUND LANE (CONST.)
(-0.1963%)
0.20%
BM HUB 14 RT. STA
4087.60
E=88.5
E=88.6
STA. 300+50
BUILD 1-3.2%
C.P.
STA. 302+12.5
BUILD 3-10%
C.B.C.
297
300
Sand w/ Gravel


HAUL 41380 ¼ MI. YDS.
4091.4
4091.6
4088.2
4086.7
4085.7
4084.5
4085.0
4085.0
4085.2
4085.1
4086.0
4086.5
4088.0
4088.2
4088.5
4091.8
0.20%
+0.57%
(10)
(11)
(11)
(12)
(12)

Brent Rauhut Engineering Inc.

July 30, 1993

Mr. Monte Symons
Federal Highway Administration
LTPP Division (HNR-40)
Turner-Fairbank Highway Research Center
6300 Georgetown Pike, Room F-215
McLean, Virginia 22101

Subject: New Mexico SPS-1 Project.

Dear Monte,

This letter is provided to transmit additional information pertaining to the candidate SPS-1 project in New Mexico in an effort to settle some of the concerns with this project.

Enclosed you will find a copy of the plan sheets showing the revised section layout and a table showing the results of our subsurface exploration. The layout has been revised to avoid the large box culvert previously under Section 9. Once again, I apologize for the poor quality of the copies, but these are simply the best that are available at this time.

Given the geometric constraints, it is impossible to avoid all of the culverts. However, all culverts within test section bounds are small and at depth, so they should not create an anomalous situation.

You will note that there is minimal room for transitions between some of the test sections. I have discussed this at length with David Catanach, the Pavement Design Engineer for the New Mexico State Highway and Transportation Department (SHTD). After a thorough review, David has assured me that they will be able to make the transitions necessary and he feels that the construction will meet our criteria. We have agreed that close supervision will be necessary during construction.

The results of our subgrade exploration were generally helpful. Two bore holes (BH-3 and BH-5) found a thin layer of sand and gravel between the pavement structure and subgrade, which will be removed during construction. Bore Hole 6 encountered a sand subgrade, so the layout was revised to avoid the area characterized by this boring. Otherwise, fine-grained subgrade was encountered at all locations.

8240 Mopac, Suite 220 • Austin, Texas 78759 • (512) 346-0870 • FAX (512) 346-8750

I hope these findings satisfy the expressed concerns. New Mexico is moving ahead with the design of the project and, pending concurrence from the FHWA and the New Mexico SHTD Project Development Section, the project is scheduled for a letting date of November 1994.

As always, please contact me with any questions you may have.

Sincerely,

Mark P. Gardner, P.E.
Project Engineer, SRCO

MPG:dmj

Enclosures: As stated.

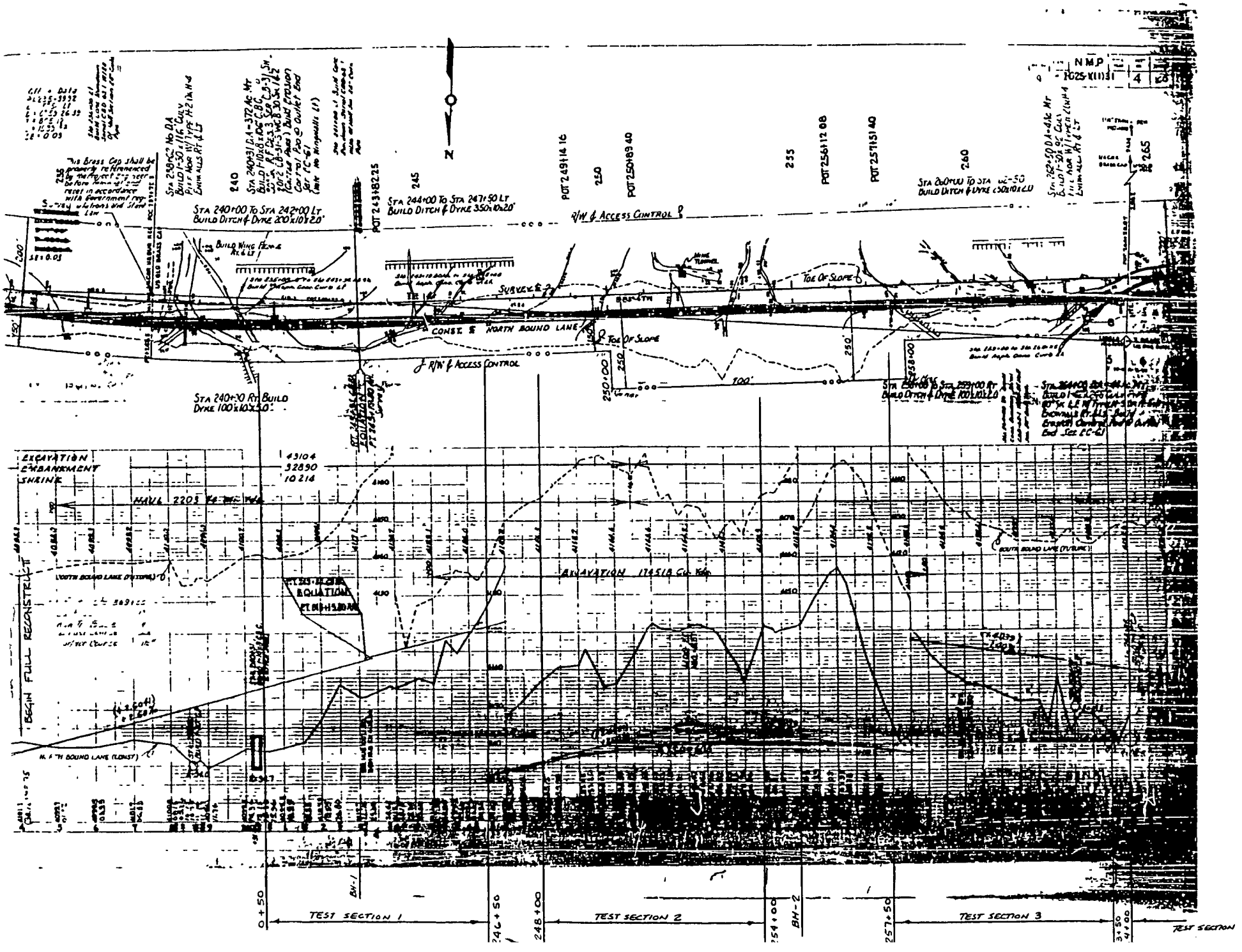
cc.w/Encs: Shiraz Tayabji, PCS/LAW

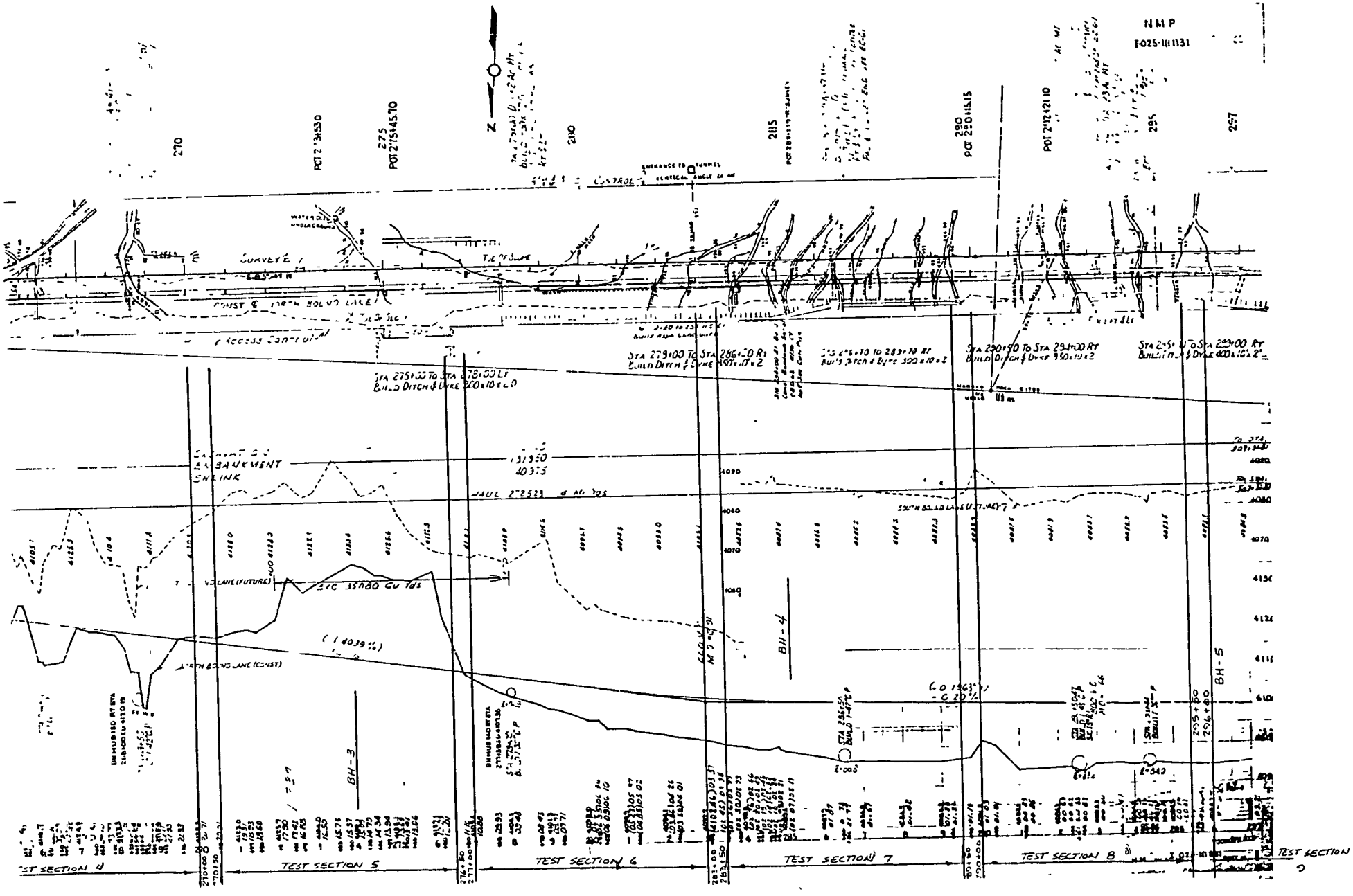
cc.w/o Enc: David Catanach, NM-SHTD
Homer Wheeler, RE-LTPP/SRCO

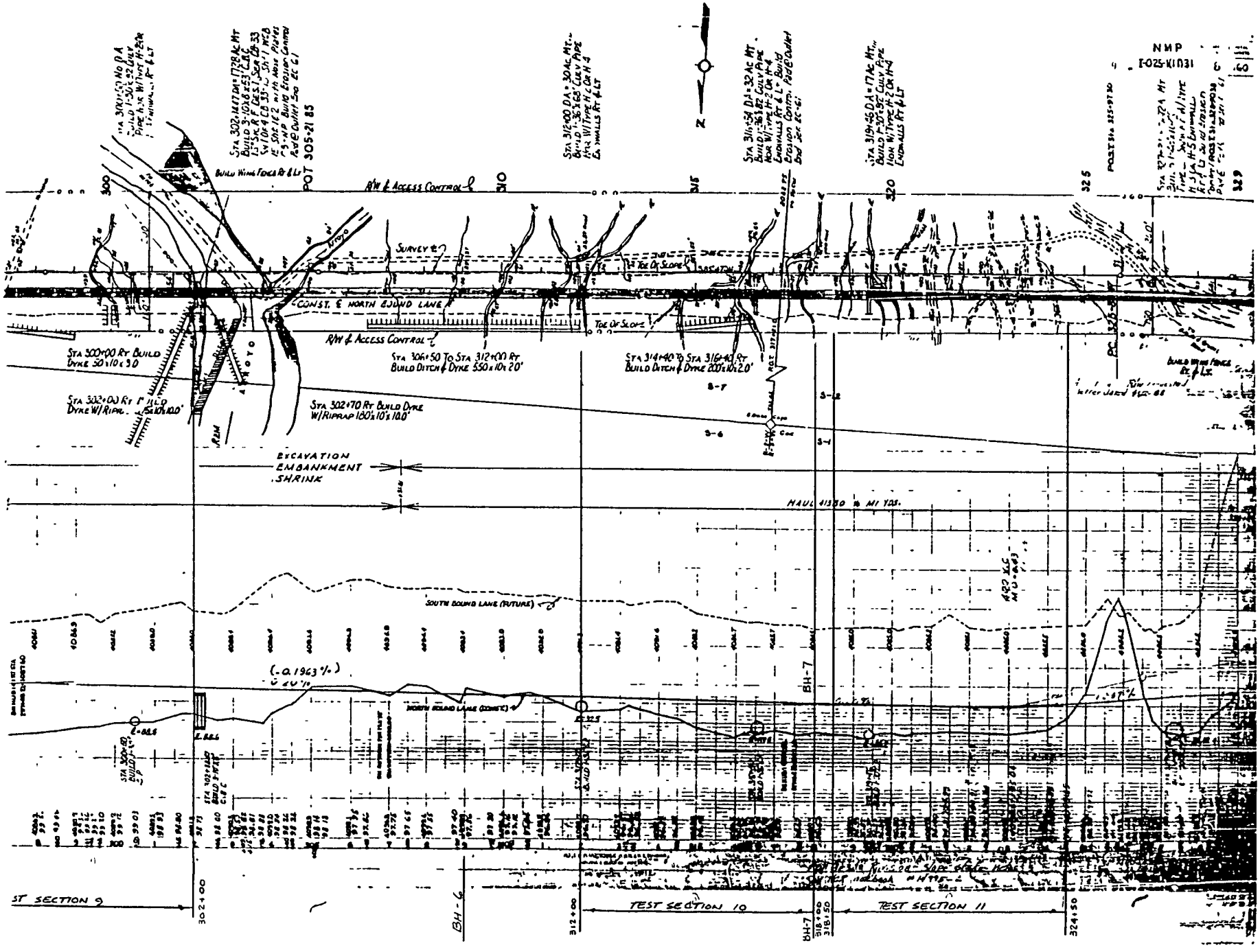
SUBSURFACE EXPLORATION RESULTS

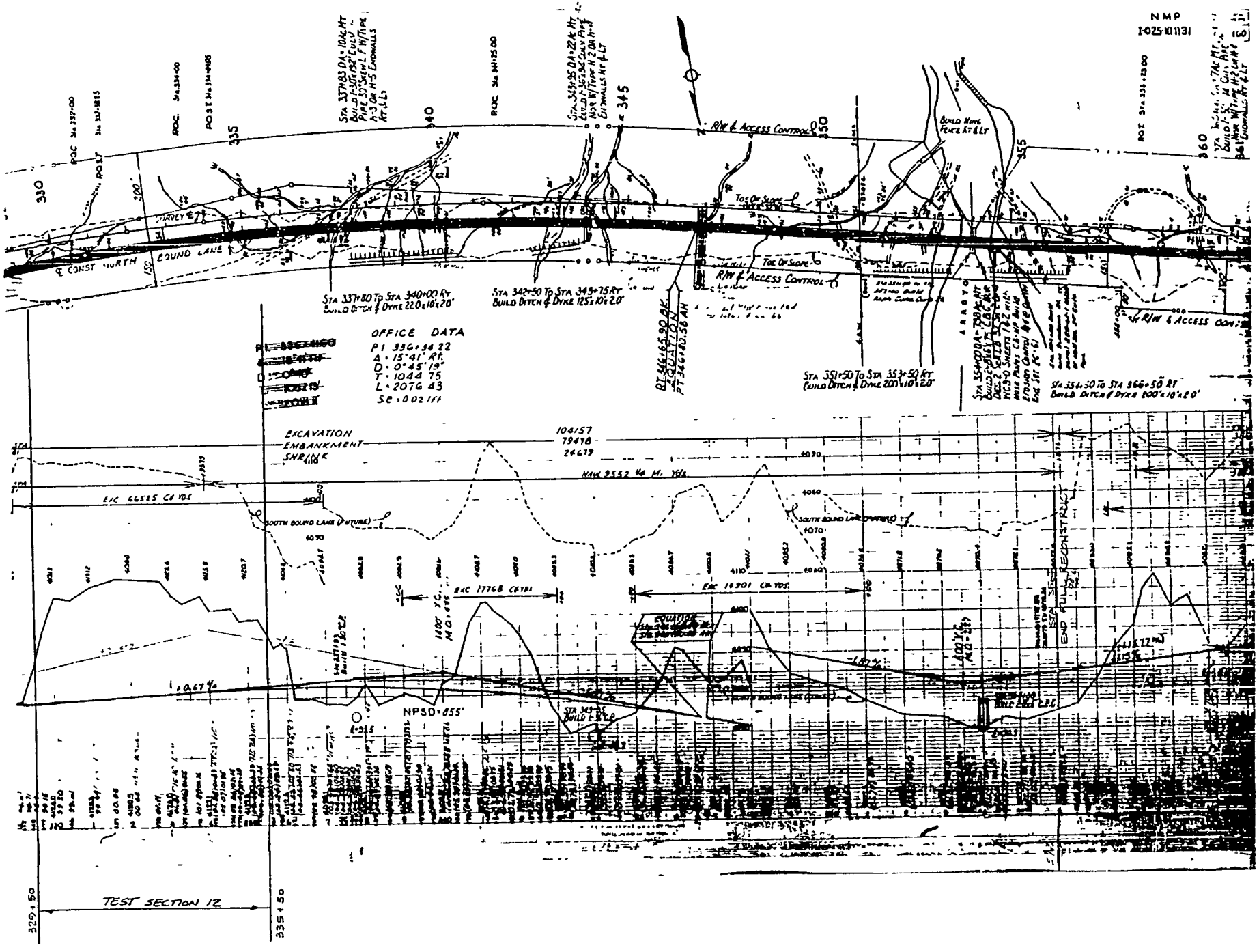
NEW MEXICO CANDIDATE SPS-1

Bore Hole Nº.	Station	Findings
BH-1	243 + 00	Drilled to total depth of 6′. Uniform subgrade including reddish-brown silty clay, slightly damp, some gravel.
BH-2	255 + 00	Drilled to 6′. Found reddish-brown clay with gypsum seams and some gravel. Seams of gray silty clay as well.
BH-3	274 + 00	Drilled to 6′. Found approximately 1½′ of tan sand and gravel, underlaid by reddish-brown clay with gypsum seams.
BH-4	285 + 00	Drilled to 6′. Found reddish-brown silty clay with some gravel for full depth.
BH-5	296 + 00	Drilled to 6′. Found approximately 1′ of tan sand and gravel, underlaid by reddish-brown silty clay.
BH-6	309 + 00	Drilled to 6½′. Found reddish-brown fine sand with gravel.
BH-7	318 + 00	Drilled to 6′. Found reddish-brown clay to 3′, underlaid by reddish-brown sand.


NMP
R/W & ACCESS CONTROL
SURVEY ℄
TOE OF SLOPE
CONST ℄ NORTH BOUND LANE
STA 240+00 TO STA 242+00 LT
BUILD DITCH & DYKE 200'x10'x2.0'
STA 244+00 TO STA 247+50 LT
BUILD DITCH & DYKE 350'x10'x2.0'
STA 260+00 TO STA
BUILD DITCH & DYKE
STA 240+30 RT BUILD
DYKE 100'x10'x5.0'
EXCAVATION
EMBANKMENT
SHRINK
HAUL 2205
EXCAVATION 174518 Cu. Yds
BEGIN FULL RECONSTRUCT
NORTH BOUND LANE (TEMP)
SOUTH BOUND LANE (FUTURE)
TEST SECTION 1
TEST SECTION 2
TEST SECTION 3
TEST SECTION


NMP
270
275
280
285
290
295
257
BH-3
BH-4
BH-5
TEST SECTION 4
TEST SECTION 5
TEST SECTION 6
TEST SECTION 7
TEST SECTION 8
TEST SECTION 9


NMP
I-025-K(103)
60
POT 305+21.85
R/W & ACCESS CONTROL
CONST. & NORTH BOUND LANE
SURVEY ℄
TOE OF SLOPE
STA 300+00 RT BUILD DYKE 50'x10'x3.0'
STA 302+70 RT BUILD DYKE W/RIPRAP 180'x10'x10.0'
STA 306+50 TO STA 312+00 RT BUILD DITCH & DYKE 550'x10'x2.0'
STA 314+40 TO STA 316+40 RT BUILD DITCH & DYKE 200'x10'x2.0'
EXCAVATION
EMBANKMENT
SHRINK
SOUTH BOUND LANE (FUTURE)
NORTH BOUND LANE (CONST.)
(-0.1963 %)
BH-6
BH-7
TEST SECTION 9
TEST SECTION 10
TEST SECTION 11
300
305
310
315
320
325
329


NMP
I-025-1(1131)
R/W & ACCESS CONTROL
TOE OF SLOPE
SOUTH BOUND LANE
STA 337+80 TO STA 340+00 RT
BUILD DITCH & DYKE 220x10x2.0'
STA 342+50 TO STA 345+75 RT
BUILD DITCH & DYKE 125x10x2.0'
STA 351+50 TO STA 353+50 RT
BUILD DITCH & DYKE 200x10x2.0'
STA 354+50 TO STA 366+50 RT
BUILD DITCH & DYKE 800x10x2.0'
OFFICE DATA
PI 336+34.22
Δ = 15°41' RT.
D = 0°45'19"
T = 1044.75
L = 2076.43
SE = 0.02 ft
EXCAVATION
EMBANKMENT
SHRINK
104157
79498
24659
HAUL 3552 YD. M. YDS
EXC 66525 CB YDS
EXC 17768 CB YDS
EXC 18301 CB YDS
1600' V.C.
NPSD = 855'
0.67%
END FULL RECONSTRUCT
TEST SECTION 12
329+50
335+50

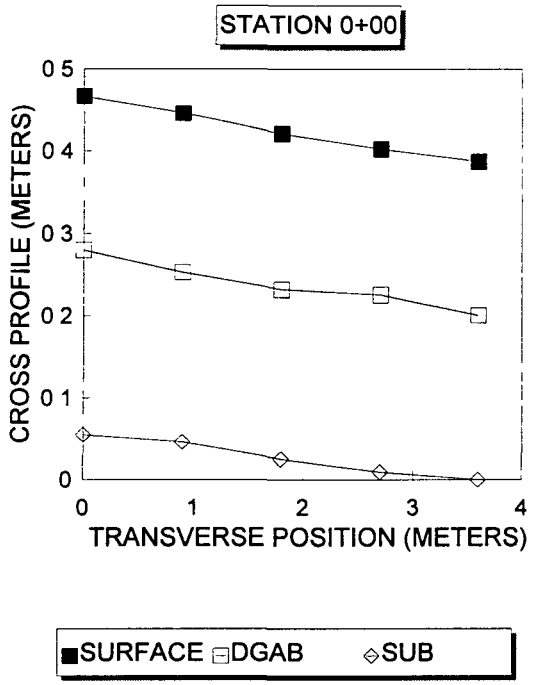
APPENDIX B

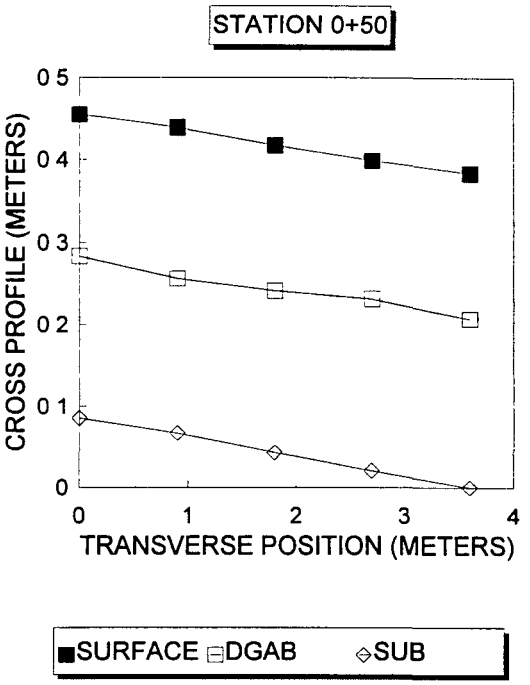
SURFACE PROFILE DATA

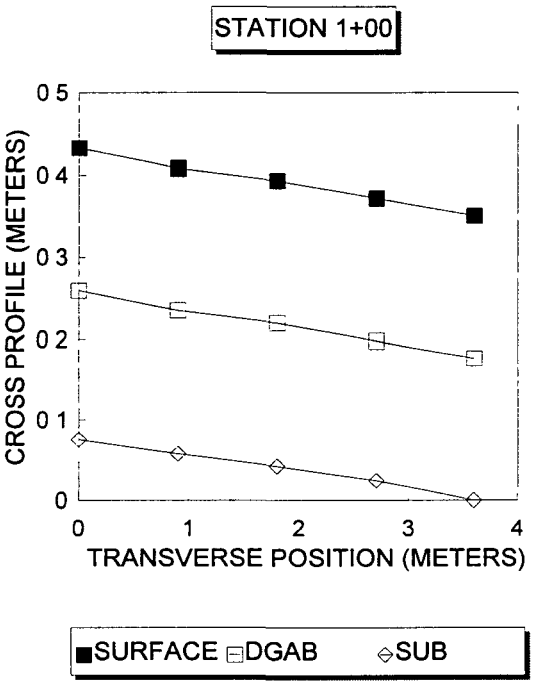
SECTION 350101 New Mexico

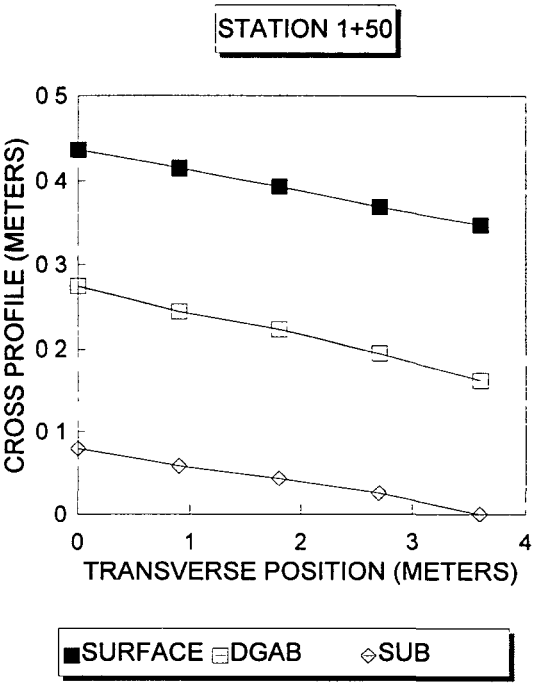
Trans. Offset	0.0M DGAB Thickness (M)	0.0M HMAC Thickness (M)	0.9M DGAB Thickness (M)	0.9M HMAC Thickness (M)	1.8M DGAB Thickness (M)	1.8M HMAC Thickness (M)	2.7M DGAB Thickness (M)	2.7M HMAC Thickness (M)	3.6M DGAB Thickness (M)	3.6M HMAC Thickness (M)
0+00	0 226	0 186	0 207	0 192	0 207	0 189	0 216	0 177	0 201	0 186
0+50	0 198	0 171	0 189	0 183	0 198	0 177	0 210	0 168	0 207	0 177
1+00	0 183	0 174	0 177	0 174	0 177	0 174	0 174	0 174	0 177	0 174
1+50	0 195	0 162	0 186	0 171	0 180	0 171	0 171	0 174	0 162	0 186
2+00	0 210	0 152	0 198	0 168	0 204	0 158	0 207	0 155	0 204	0 168
2+50	0 201	0 177	0 192	0 186	0 186	0 183	0 183	0 183	0 174	0 201
3+00	0 238	0 174	0 238	0 174	0 253	0 165	0 262	0 158	0 274	0 168
3+50	0 229	0 146	0 210	0 146	0 216	0 137	0 229	0 140	0 213	0 165
4+00	0 198	0 152	0 201	0 152	0 204	0 140	0 210	0 137	0 210	0 146
4+50	0 216	0 134	0 207	0 137	0 201	0 128	0 198	0 131	0 192	0 158
5+00	0 183	0 152	0 171	0 146	0 171	0 140	0 165	0 149	0 158	0 168
AVG	**0 207**	**0.162**	**0 198**	**0.166**	**0.200**	**0.160**	**0 202**	**0.159**	**0.198**	**0 172**
MIN	**0 183**	**0 134**	**0 171**	**0 137**	**0.171**	**0.128**	**0.165**	**0 131**	**0.158**	**0.146**
MAX	**0 238**	**0.186**	**0 238**	**0.192**	**0.253**	**0.189**	**0.262**	**0 183**	**0.274**	**0 201**
STD	**0.017**	**0.015**	**0 018**	**0.017**	**0.022**	**0 020**	**0.027**	**0 017**	**0 031**	**0 014**

SECTION 350101

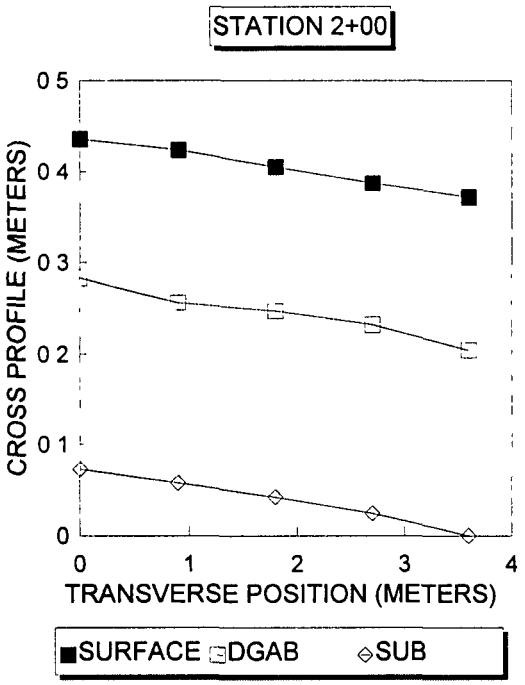


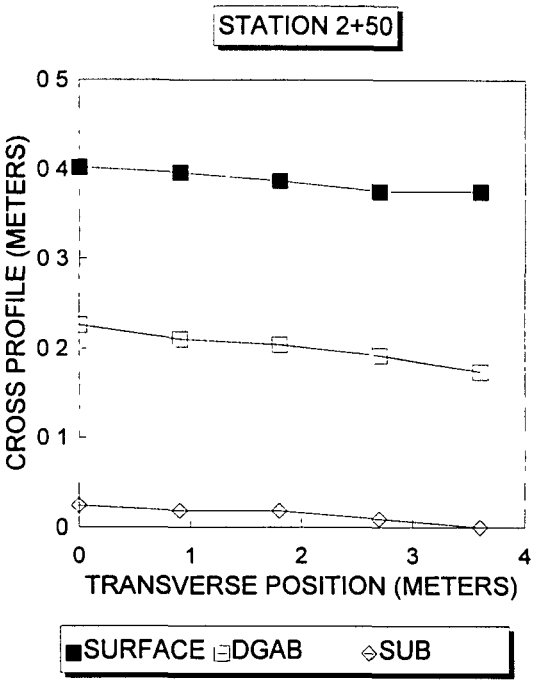


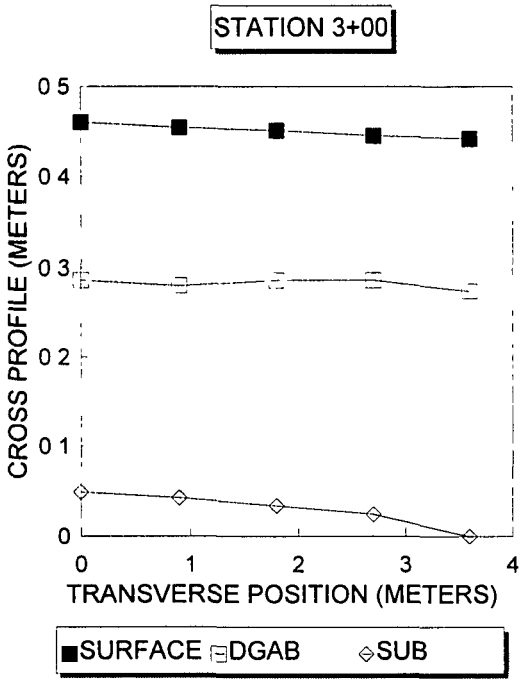


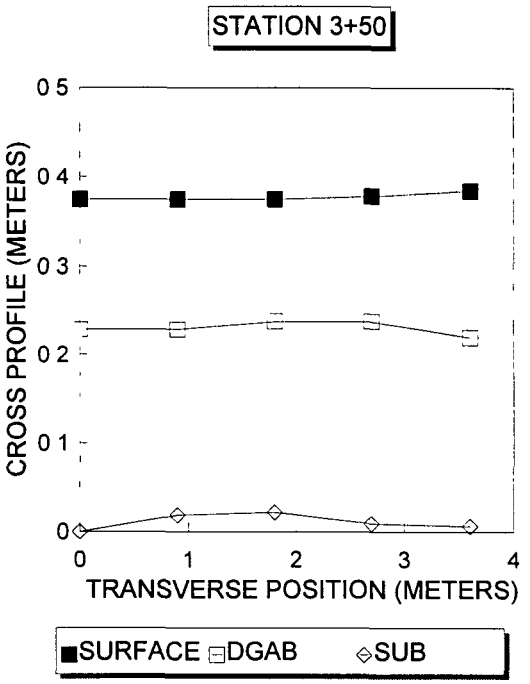


SECTION 350101

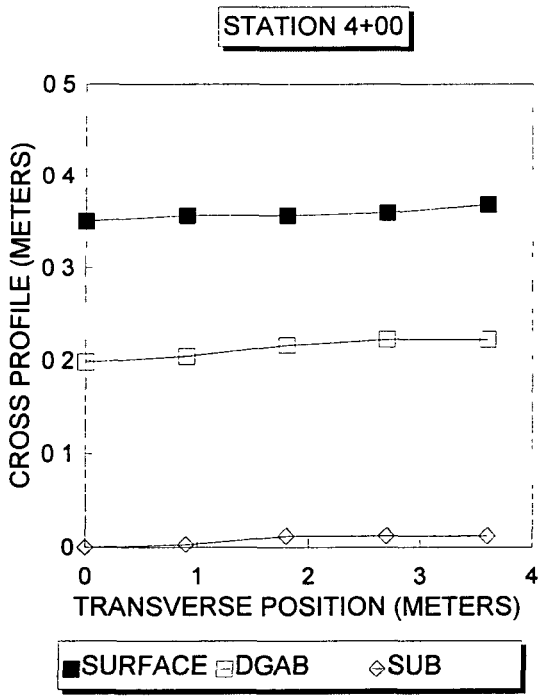


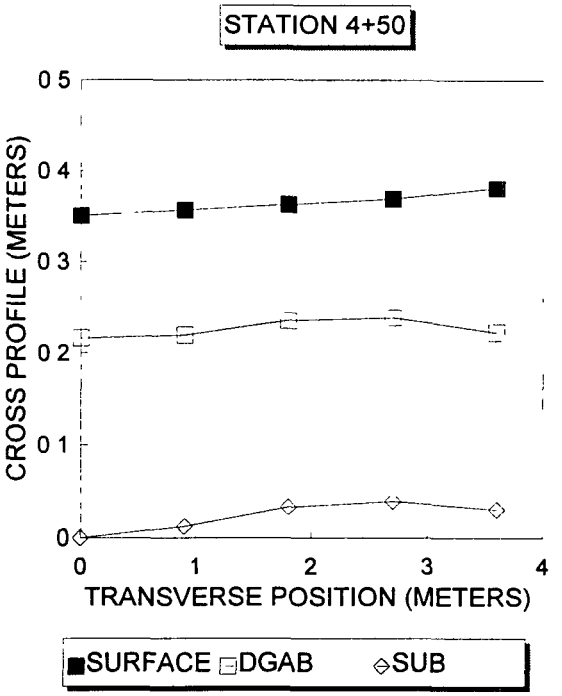


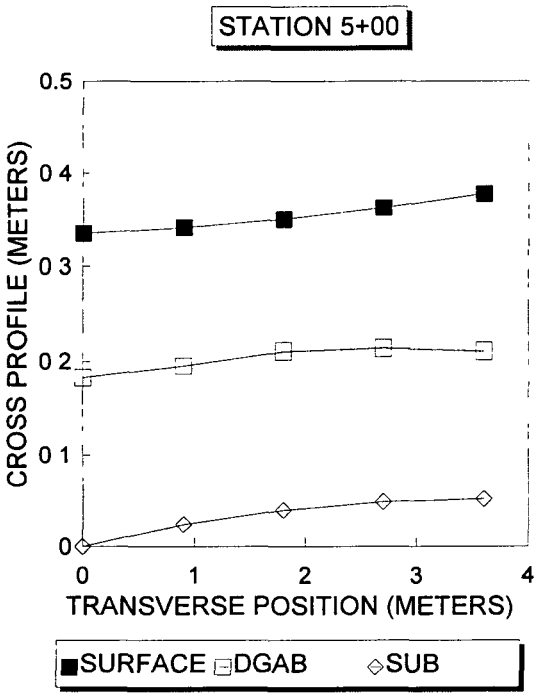




SECTION 350101



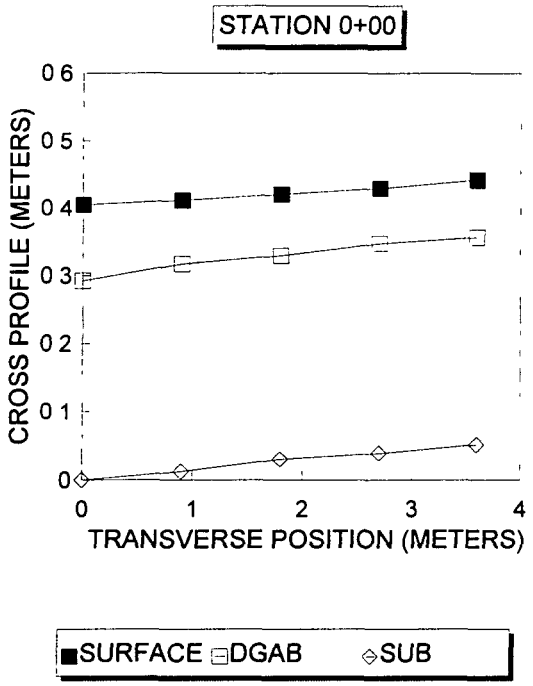


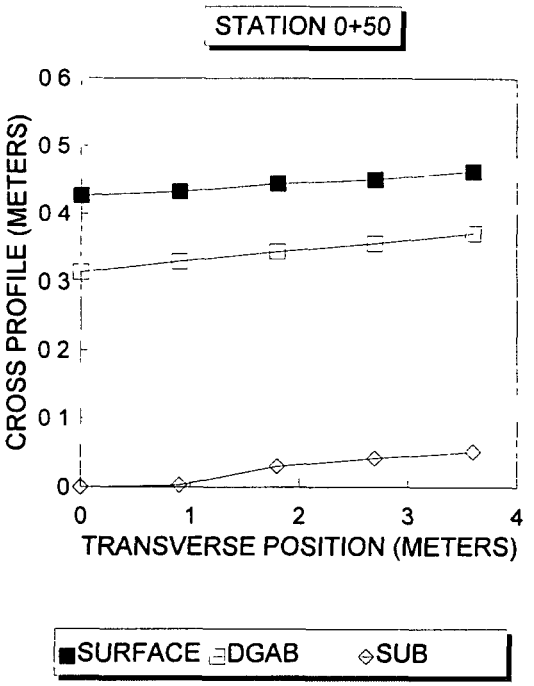


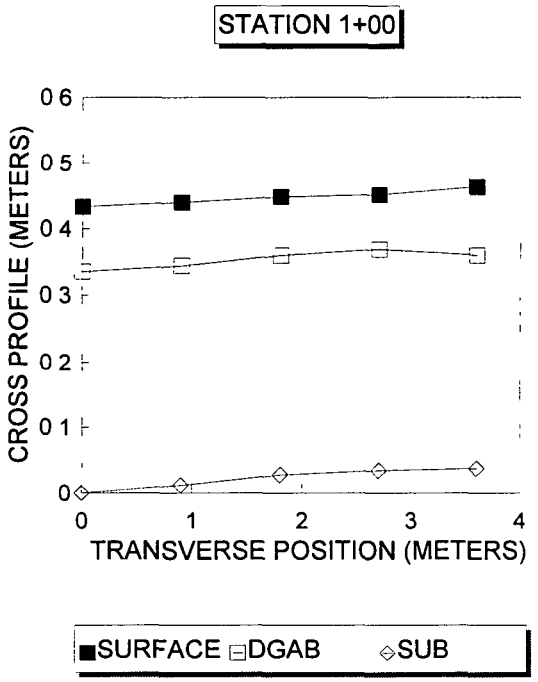
SECTION 350102 New Mexico

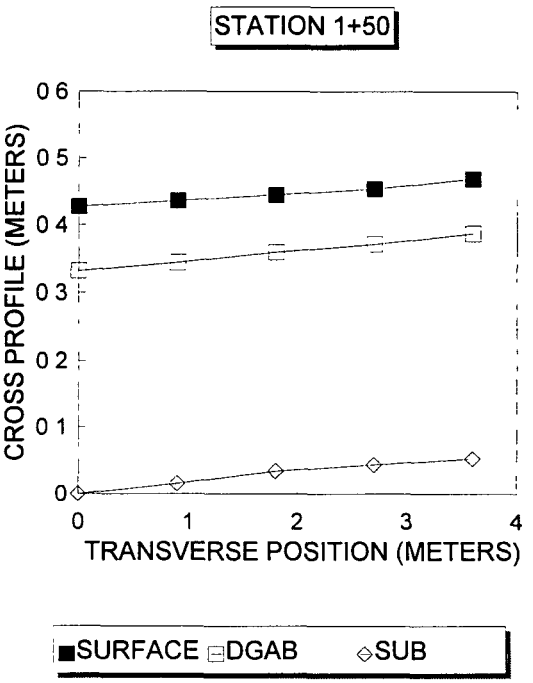
Trans. Offset	0.0M		0.9M		1.8M		2.7M		3.6M	
	DGAB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	HMAC Thickness (M)
0+00	0 293	0 113	0 305	0 094	0 299	0 091	0 308	0 082	0 305	0 085
0+50	0 314	0 113	0 326	0 104	0 314	0 101	0 314	0 094	0 320	0 091
1+00	0 335	0 098	0 332	0 094	0 332	0 088	0 335	0 082	0 323	0 104
1+50	0 332	0 094	0 329	0 091	0 326	0 085	0 329	0 082	0 335	0 082
2+00	0 299	0 110	0 308	0 101	0 323	0 088	0 341	0 085	0 344	0 094
2+50	0 290	0 122	0 305	0 110	0 314	0 101	0 317	0 098	0 317	0 094
3+00	0 238	0 122	0 238	0 110	0 238	0 101	0 241	0 101	0 244	0 104
3+50	0 293	0 116	0 296	0 104	0 296	0 098	0 287	0 091	0 277	0 110
4+00	0 283	0 119	0 283	0 113	0 293	0 098	0 293	0 098	0 299	0 113
4+50	0 326	0 122	0 317	0 125	0 314	0 116	0 314	0 113	0 305	0 122
5+00	0 314	0 149	0 320	0 146	0 332	0 137	0 347	0 131	0 357	0 131
AVG	**0.301**	**0 116**	**0 305**	**0 108**	**0.307**	**0 100**	**0.311**	**0.096**	**0 311**	**0 103**
MIN	**0 238**	**0 094**	**0 238**	**0 091**	**0.238**	**0.085**	**0 241**	**0 082**	**0 244**	**0.082**
MAX	**0 335**	**0.149**	**0 332**	**0 146**	**0 332**	**0.137**	**0 347**	**0 131**	**0.357**	**0 131**
STD	**0 026**	**0 014**	**0 026**	**0.015**	**0 026**	**0.014**	**0 029**	**0 014**	**0 030**	**0 014**

SECTION 350102

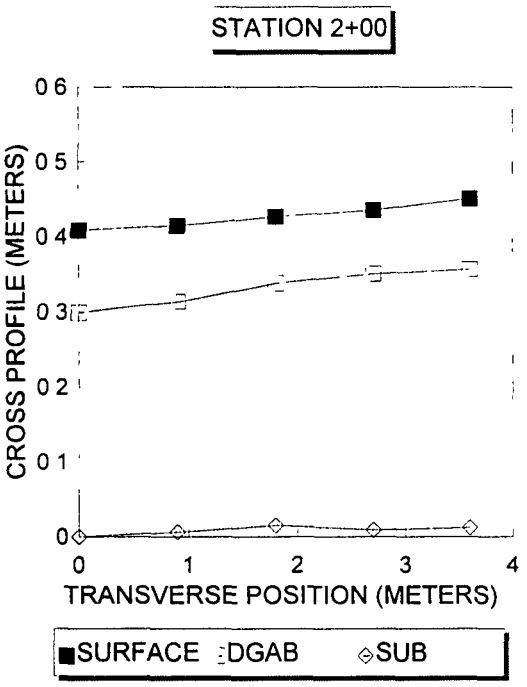


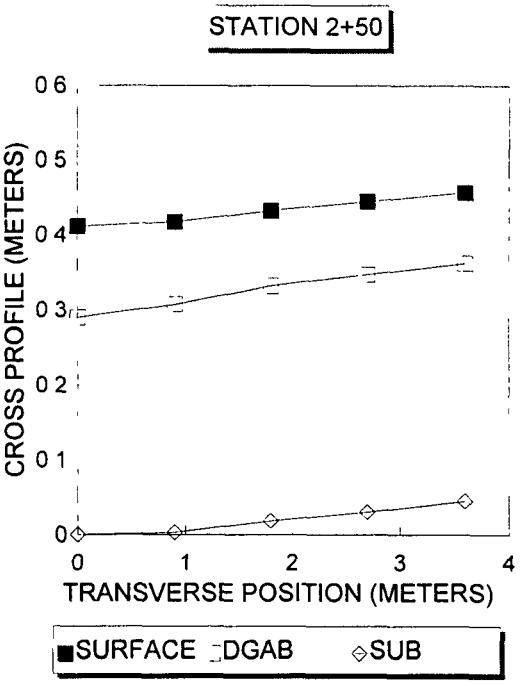


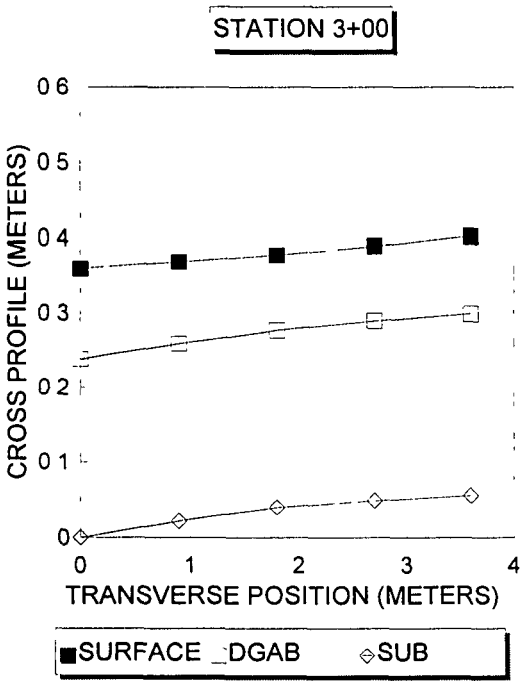


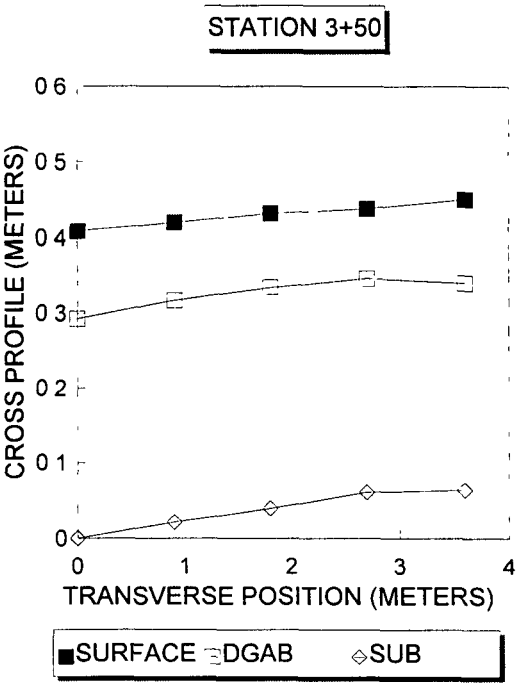


SECTION 350102

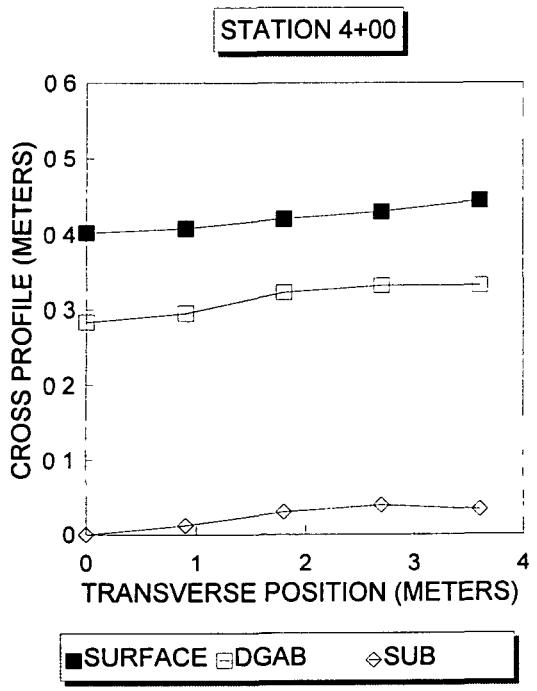


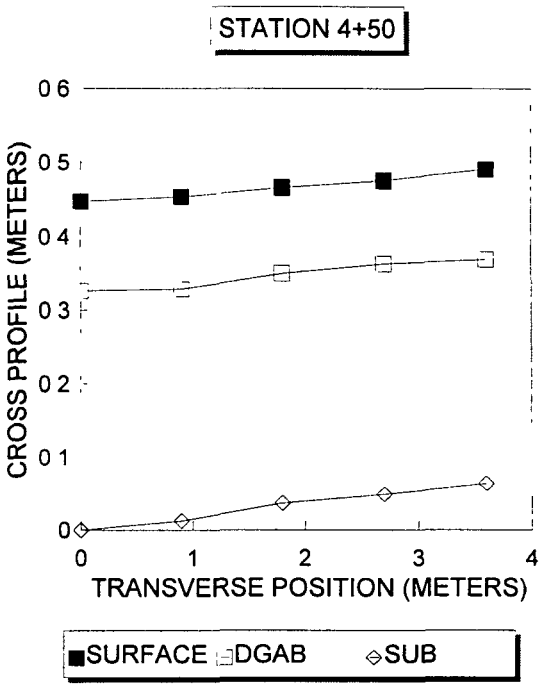


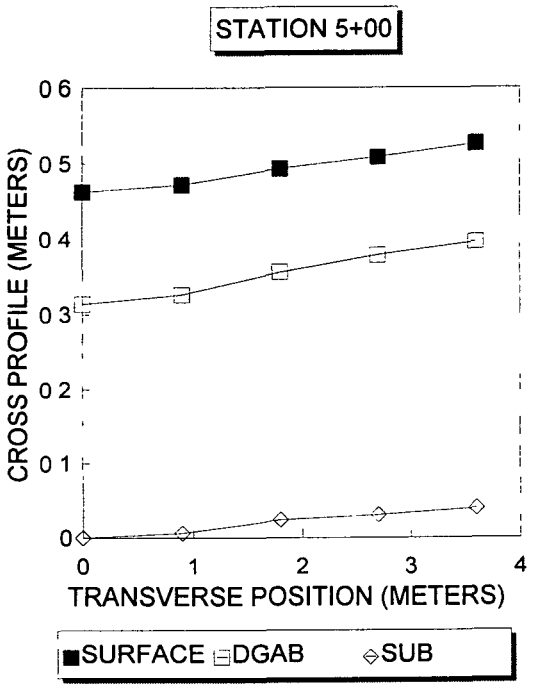




SECTION 350102



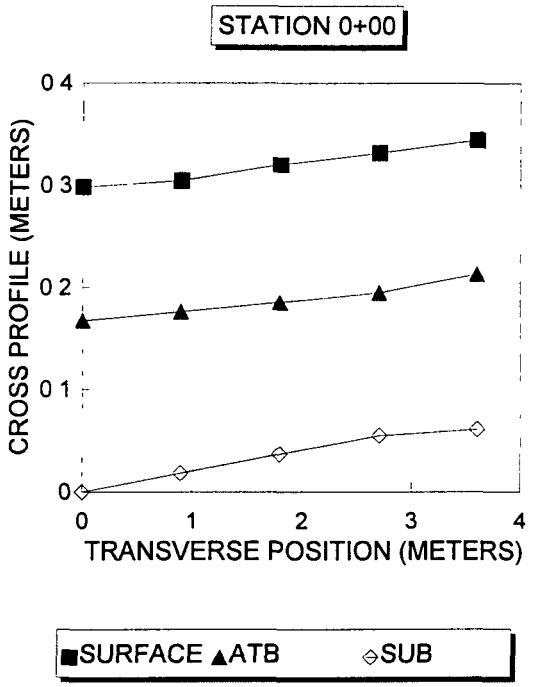


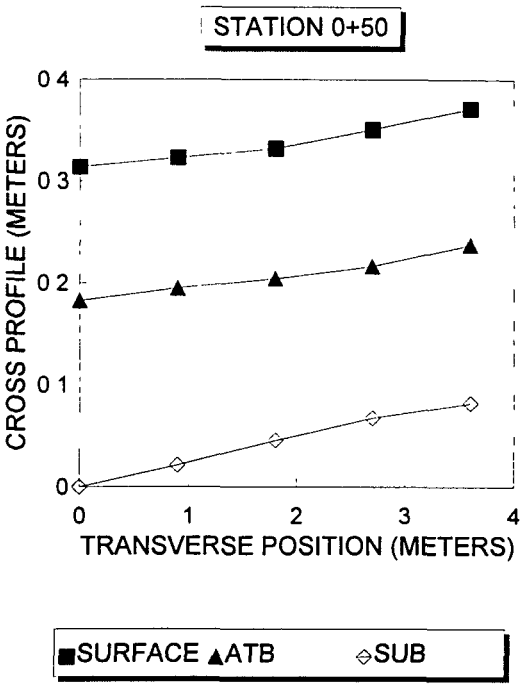


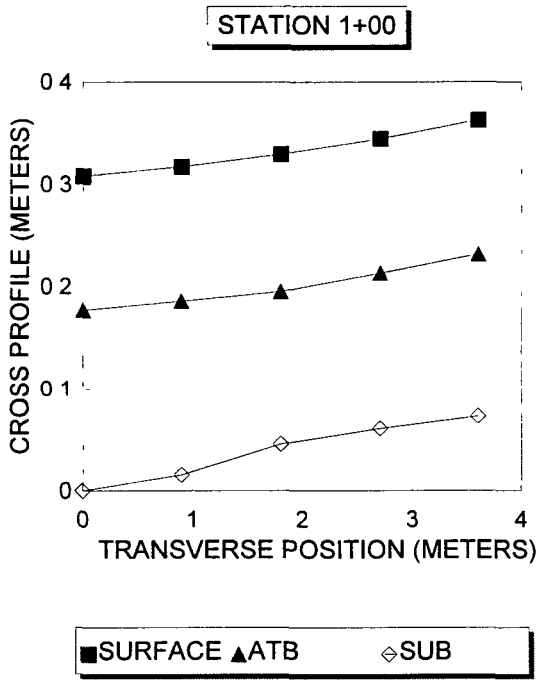
SECTION 350103 New Mexico

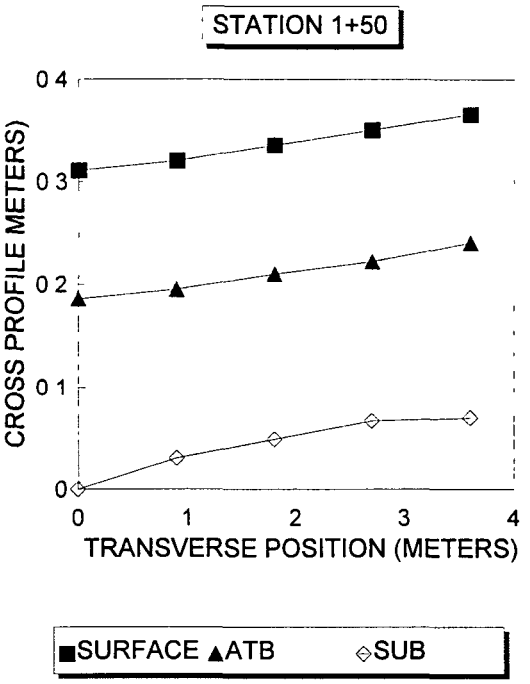
Trans. Offset	0.0M ATB Thickness (M)	0.0M HMAC Thickness (M)	0.9M ATB Thickness (M)	0.9M HMAC Thickness (M)	1.8M ATB Thickness (M)	1.8M HMAC Thickness (M)	2.7M ATB Thickness (M)	2.7M HMAC Thickness (M)	3.6M ATB Thickness (M)	3.6M HMAC Thickness (M)
0+00	0 168	0 131	0 158	0 128	0 149	0 134	0 140	0 137	0 152	0 131
0+50	0 183	0 131	0 174	0 128	0 158	0 128	0 149	0 134	0 155	0 134
1+00	0 177	0 131	0 171	0 131	0 149	0 134	0 152	0 131	0 158	0 131
1+50	0 186	0 125	0 165	0 125	0 162	0 125	0 155	0 128	0 171	0 125
2+00	0 192	0 128	0 186	0 128	0 174	0 131	0 171	0 131	0 180	0 128
2+50	0 189	0 125	0 183	0 125	0 171	0 131	0 171	0 128	0 183	0 125
3+00	0 183	0 134	0 180	0 131	0 168	0 137	0 174	0 134	0 186	0 134
3+50	0 168	0 125	0 171	0 125	0 171	0 131	0 183	0 131	0 204	0 128
4+00	0 162	0 131	0 162	0 128	0 149	0 131	0 158	0 131	0 171	0 128
4+50	0 165	0 140	0 168	0 131	0 168	0 131	0 165	0 128	0 177	0 131
5+00	0 158	0 155	0 165	0 146	0 162	0 146	0 168	0 140	0 189	0 137
AVG	**0 175**	**0 132**	**0 171**	**0 130**	**0.162**	**0 133**	**0 162**	**0 132**	**0 175**	**0.130**
MIN	**0 158**	**0 125**	**0 158**	**0 125**	**0.149**	**0 125**	**0.140**	**0 128**	**0 152**	**0.125**
MAX	**0 192**	**0 155**	**0 186**	**0 146**	**0.174**	**0.146**	**0.183**	**0 140**	**0.204**	**0.137**
STD	**0 011**	**0 008**	**0 008**	**0 006**	**0.009**	**0 005**	**0 012**	**0 004**	**0 015**	**0 004**

SECTION 350103

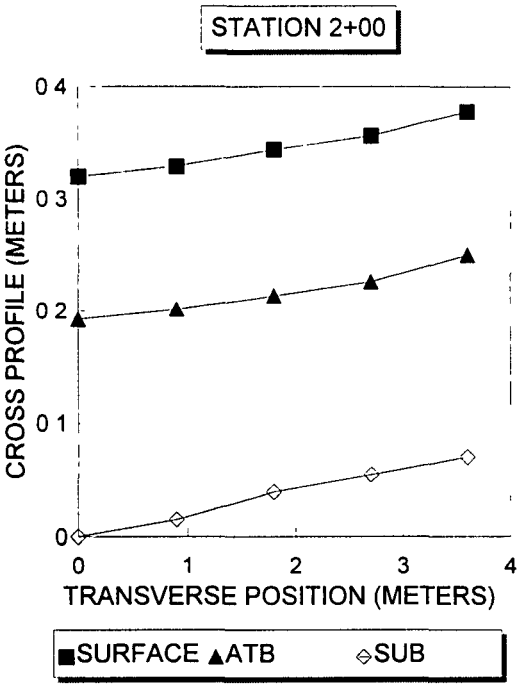


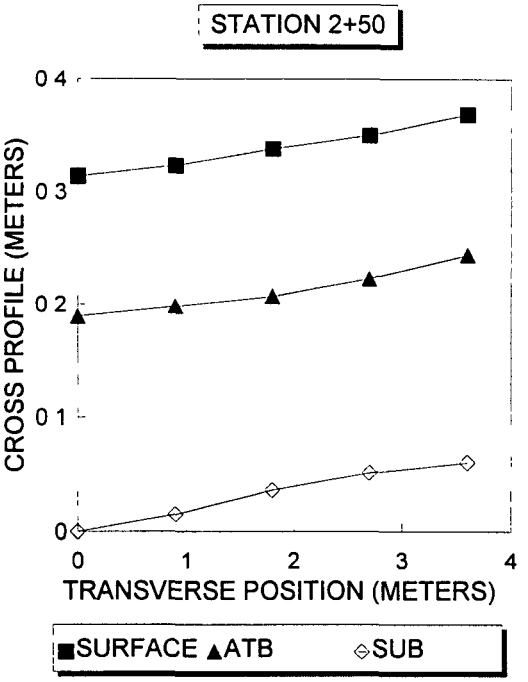


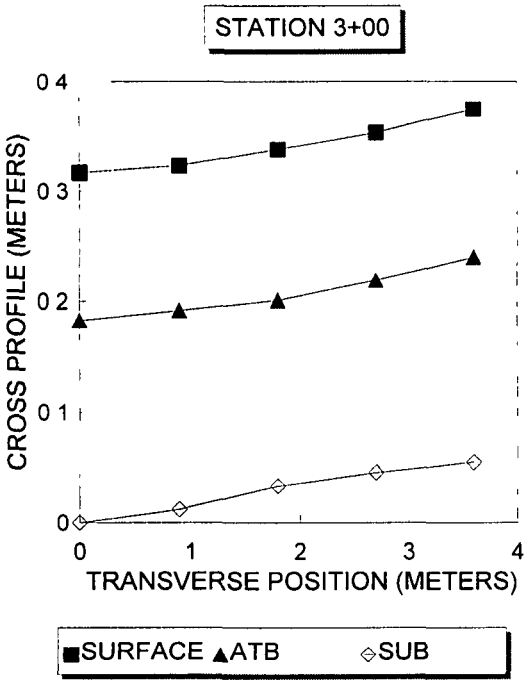


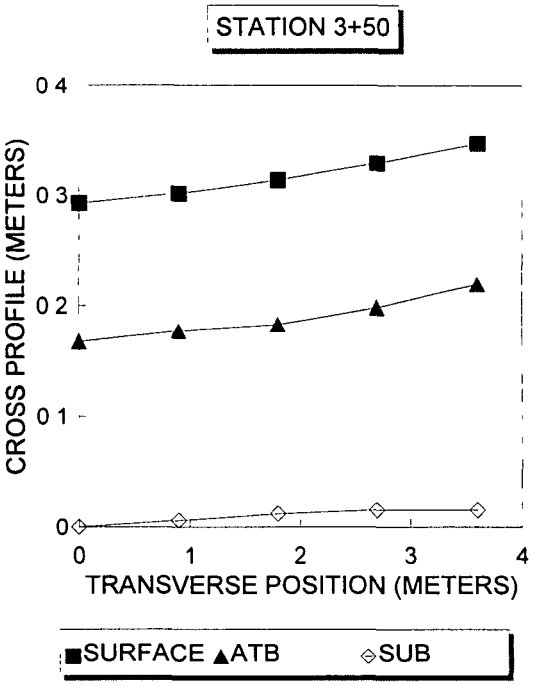


SECTION 350103

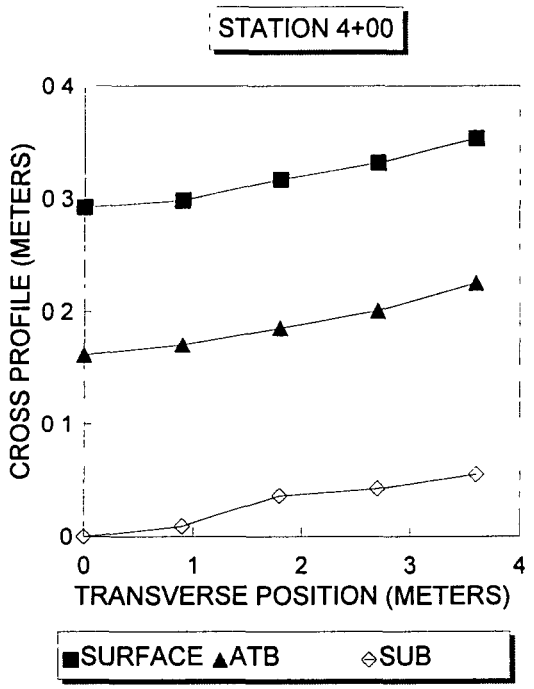


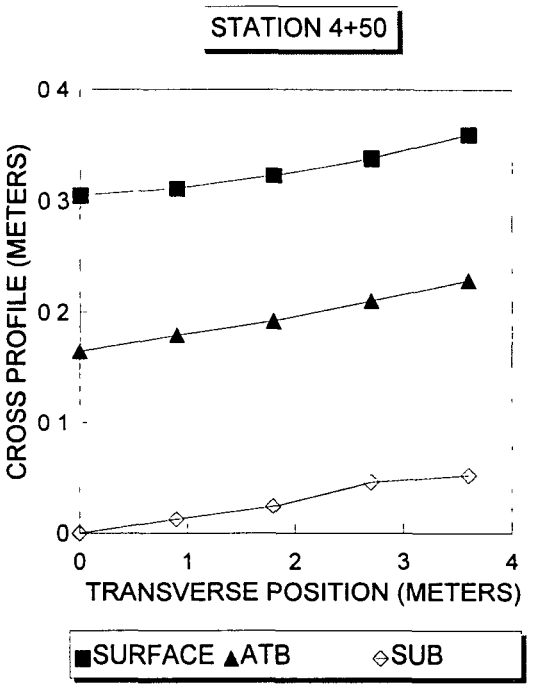


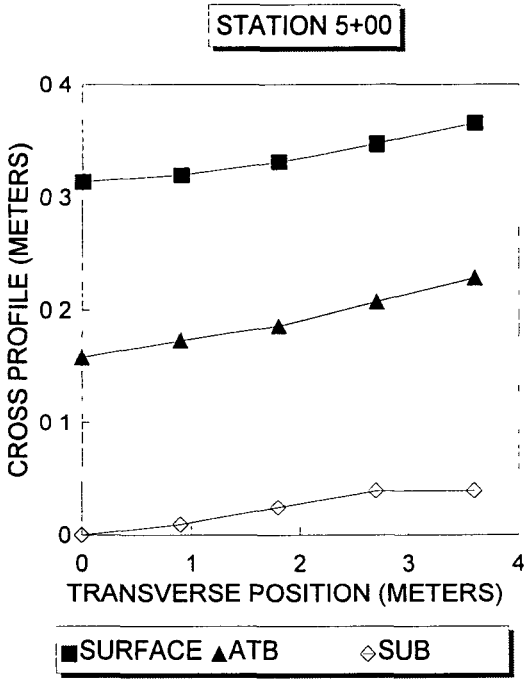




SECTION 350103



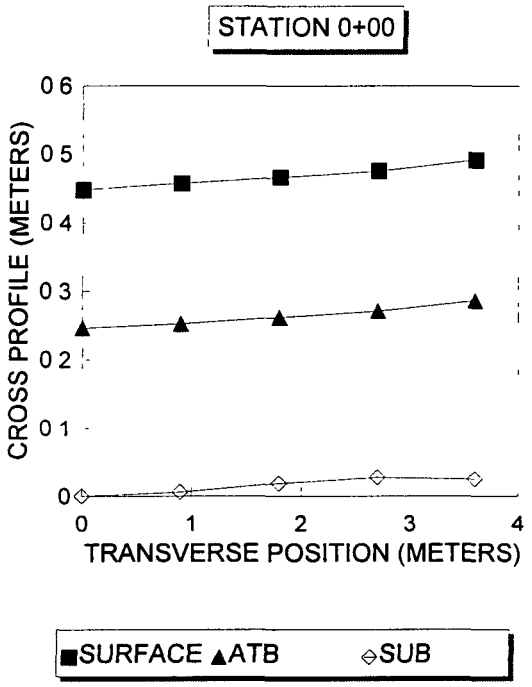


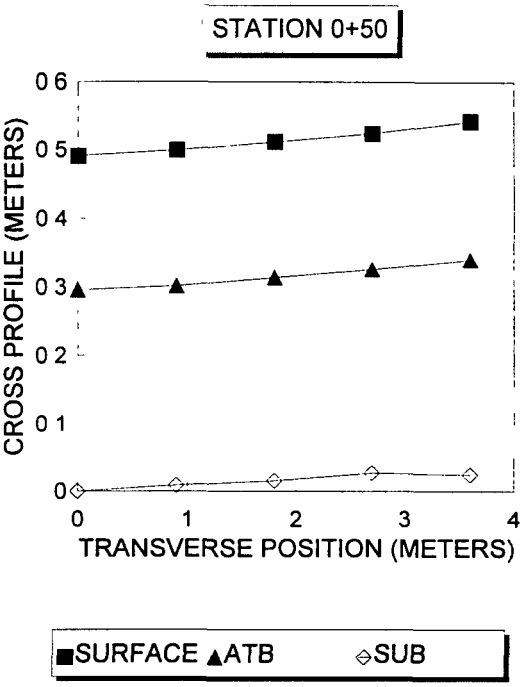


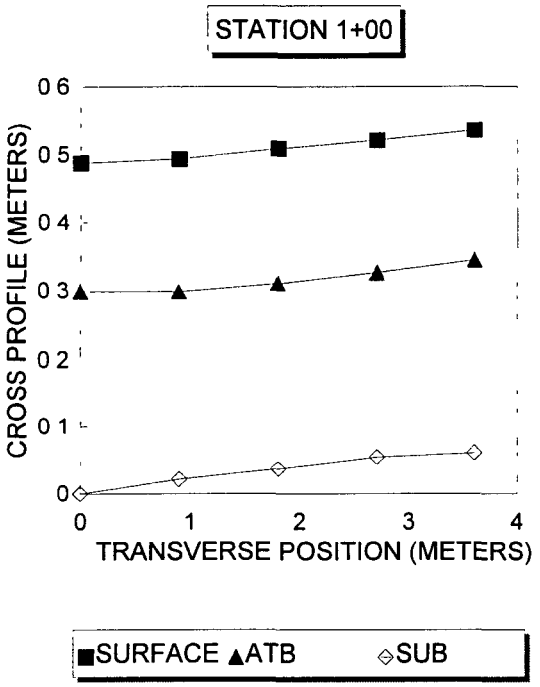
SECTION 350104 New Mexico

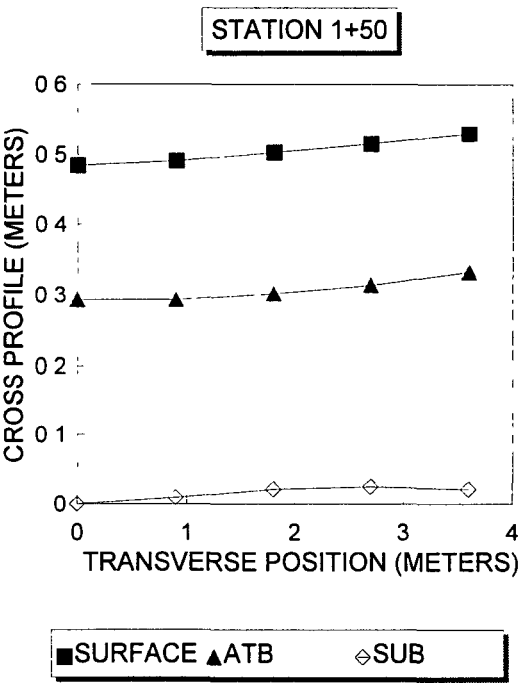
Trans. Offset	0.0M ATB Thickness (M)	0.0M HMAC Thickness (M)	0.9M ATB Thickness (M)	0.9M HMAC Thickness (M)	1.8M ATB Thickness (M)	1.8M HMAC Thickness (M)	2.7M ATB Thickness (M)	2.7M HMAC Thickness (M)	3.6M ATB Thickness (M)	3.6M HMAC Thickness (M)
0+00	0 247	0 201	0 247	0 204	0 244	0 204	0 244	0 204	0 262	0 204
0+50	0 296	0 195	0 293	0 198	0 299	0 198	0 299	0 198	0 317	0 201
1+00	0 299	0 189	0 277	0 195	0 274	0 198	0 271	0 195	0 283	0 192
1+50	0 293	0 192	0 283	0 198	0 280	0 201	0 290	0 201	0 311	0 198
2+00	0 311	0 201	0 314	0 207	0 308	0 204	0 314	0 201	0 329	0 201
2+50	0 311	0 198	0 311	0 195	0 299	0 195	0 296	0 192	0 299	0 195
3+00	0 287	0 201	0 283	0 198	0 299	0 198	0 311	0 195	0 329	0 195
3+50	0 302	0 198	0 302	0 192	0 296	0 204	0 296	0 198	0 299	0 201
4+00	0 338	0 192	0 326	0 195	0 308	0 192	0 311	0 186	0 308	0 198
4+50	0 311	0 195	0 302	0 189	0 299	0 192	0 293	0 189	0 302	0 195
5+00	0 311	0 204	0 314	0 195	0 317	0 192	0 329	0 189	0 326	0 195
AVG	**0 300**	**0 197**	**0 296**	**0.197**	**0.293**	**0.198**	**0 296**	**0 195**	**0 306**	**0 198**
MIN	**0 247**	**0 189**	**0 247**	**0.189**	**0.244**	**0.192**	**0 244**	**0 186**	**0 262**	**0 192**
MAX	**0.338**	**0 204**	**0 326**	**0.207**	**0.317**	**0.204**	**0 329**	**0.204**	**0 329**	**0 204**
STD	**0 021**	**0 005**	**0.021**	**0 005**	**0.019**	**0 005**	**0 022**	**0 006**	**0 020**	**0 004**

SECTION 350104

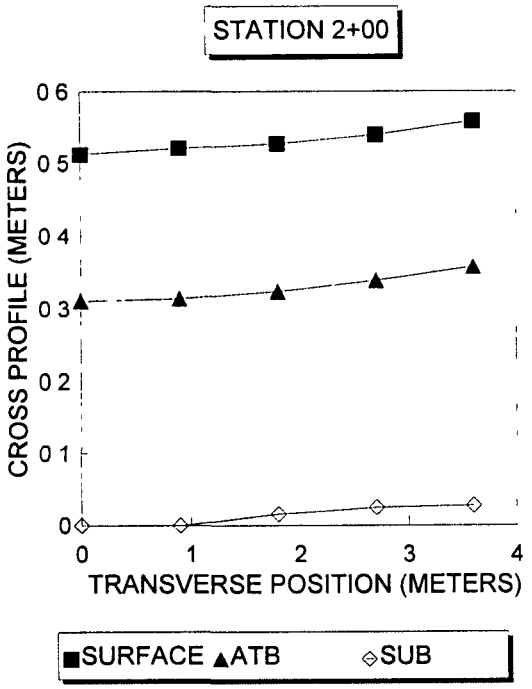


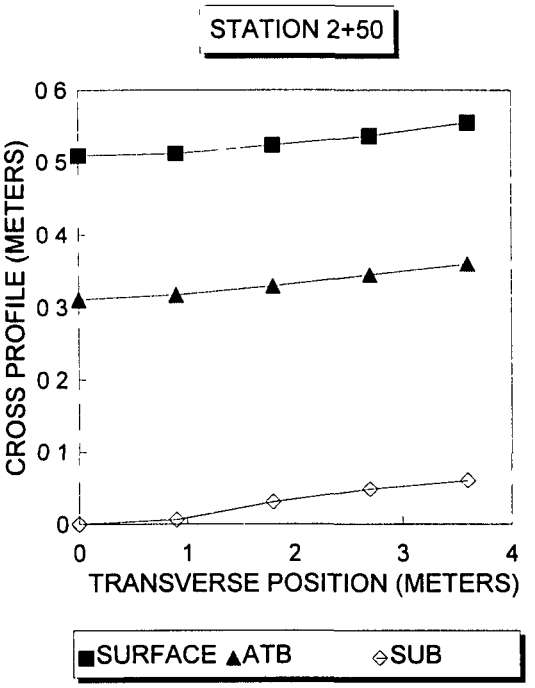


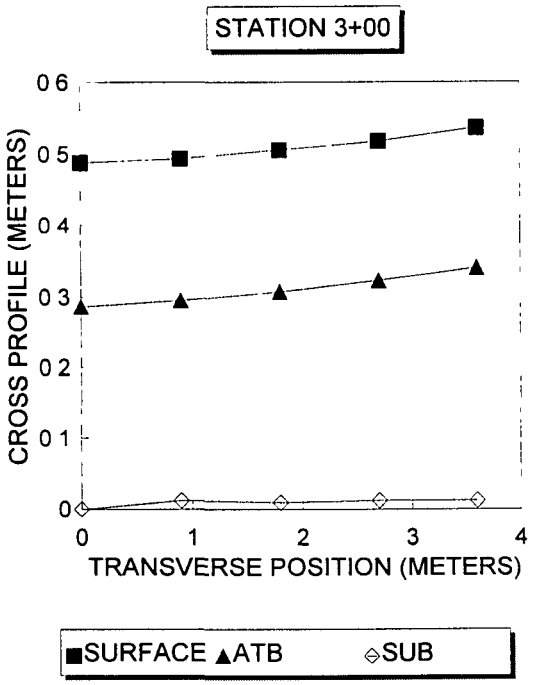


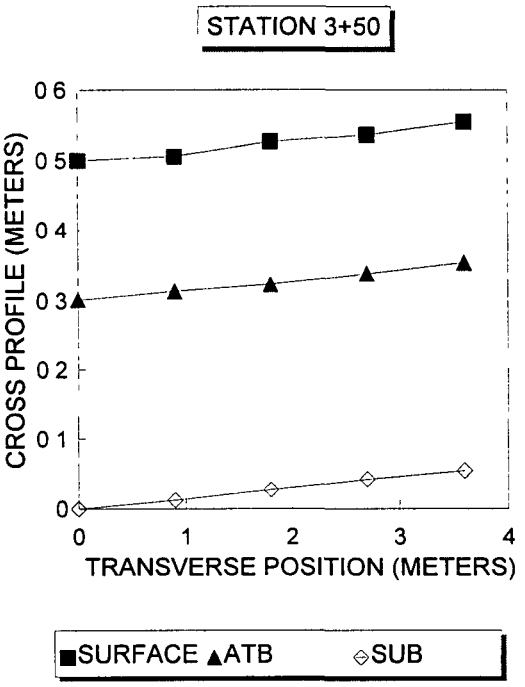


SECTION 350104

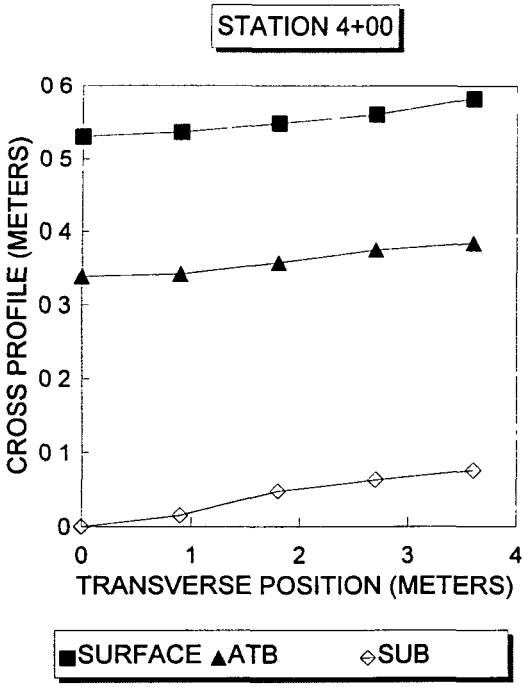


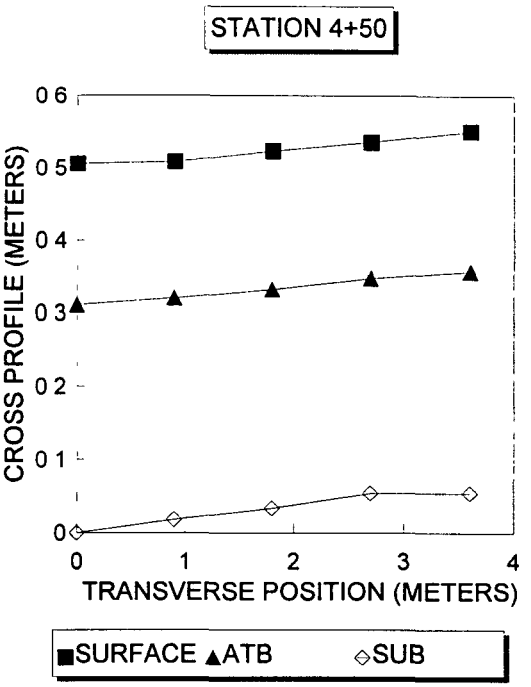


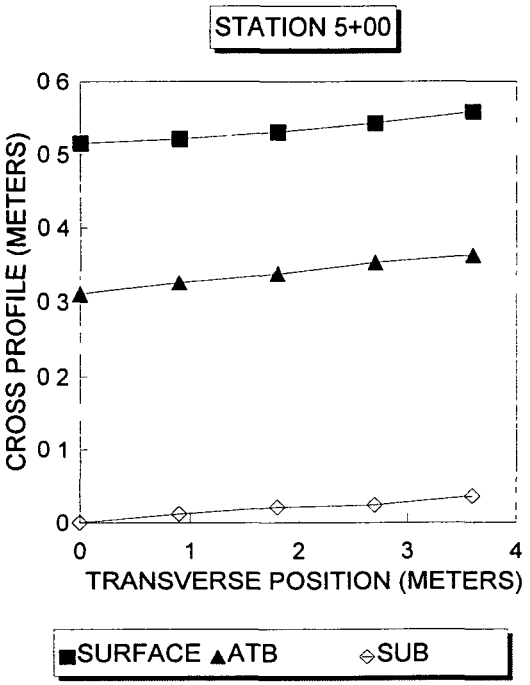




SECTION 350104



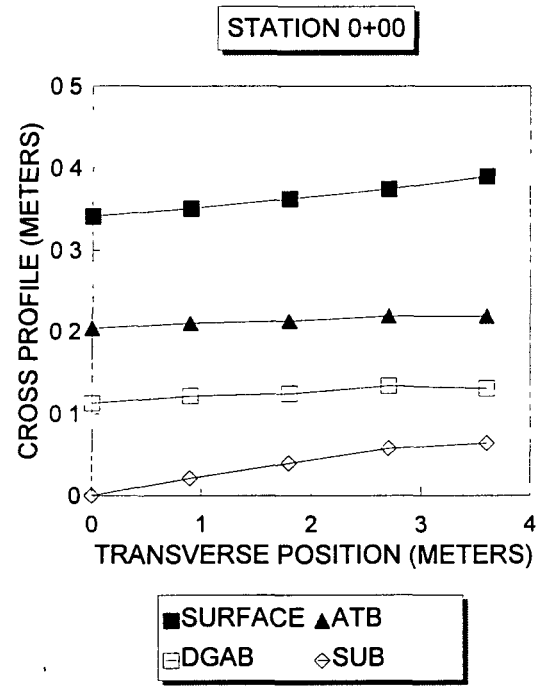


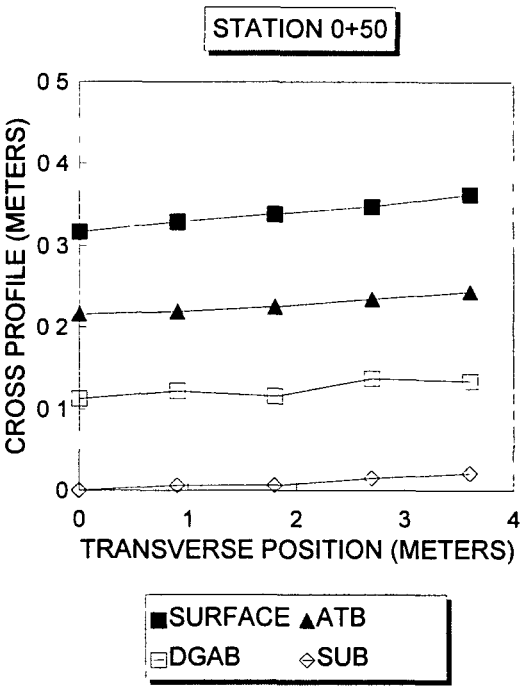


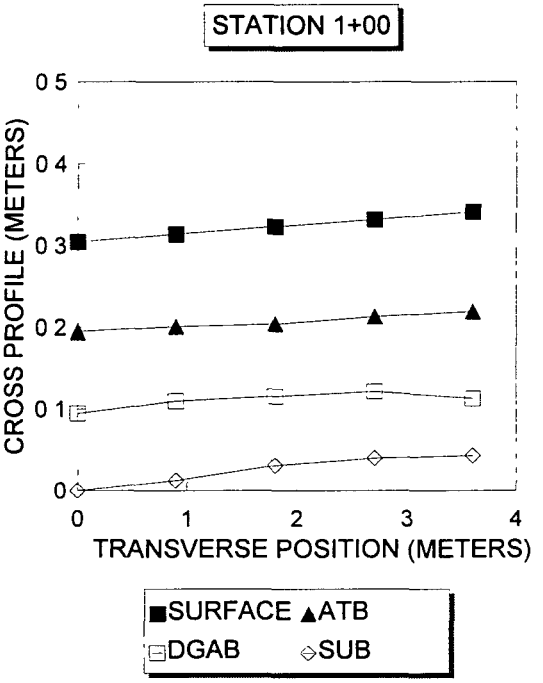
SECTION 350105 New Mexico

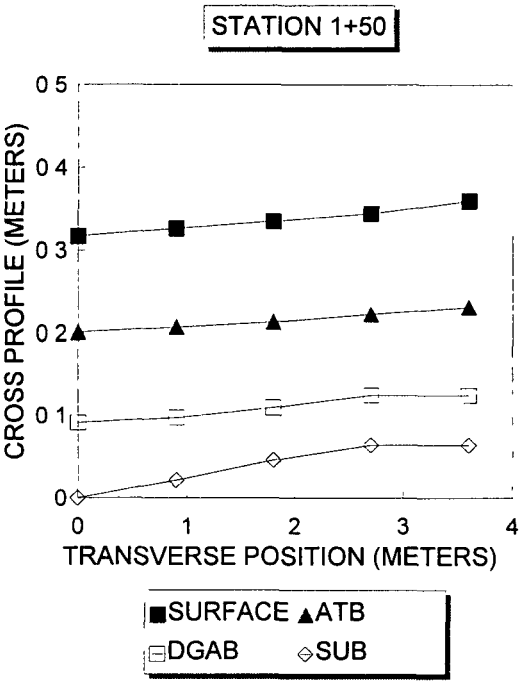
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)
0+00	0 113	0 091	0 137	0 101	0 088	0 140	0 085	0 088	0 149	0 076	0 085	0 155	0 067	0 088	0 171
0+50	0 113	0 104	0 101	0 116	0 098	0 110	0 110	0 110	0 113	0 122	0 098	0 113	0 113	0 110	0 119
1+00	0 094	0 101	0 110	0 098	0 091	0 113	0 085	0 088	0 119	0 082	0 091	0 119	0 070	0 107	0 122
1+50	0 091	0 110	0 116	0 076	0 110	0 119	0 064	0 104	0 122	0 061	0 098	0 122	0 061	0 107	0 128
2+00	0 088	0 094	0 122	0 088	0 085	0 122	0 079	0 082	0 125	0 082	0 079	0 122	0 076	0 091	0 128
2+50	0 091	0 110	0 113	0 094	0 101	0 116	0 101	0 091	0 122	0 098	0 088	0 122	0 107	0 098	0 128
3+00	0 088	0 107	0 116	0 094	0 098	0 113	0 082	0 091	0 113	0 082	0 085	0 116	0 082	0 088	0 116
3+50	0 116	0 094	0 113	0 125	0 088	0 110	0 125	0 082	0 113	0 125	0 085	0 116	0 128	0 101	0 116
4+00	0 098	0 101	0 107	0 107	0 101	0 107	0 091	0 098	0 110	0 094	0 091	0 110	0 104	0 094	0 116
4+50	0 070	0 113	0 110	0 073	0 110	0 110	0 076	0 107	0 113	0 098	0 101	0 113	0 098	0 119	0 110
5+00	0 116	0 107	0 113	0 107	0 104	0 116	0 098	0 101	0 122	0 094	0 101	0 116	0 085	0 110	0 113
AVG	**0 098**	**0.103**	**0 114**	**0 098**	**0 098**	**0.116**	**0 091**	**0 095**	**0 120**	**0 092**	**0.091**	**0 120**	**0.090**	**0.101**	**0.124**
MIN	**0 070**	**0 091**	**0 101**	**0 073**	**0 085**	**0 107**	**0 064**	**0 082**	**0 110**	**0 061**	**0 079**	**0.110**	**0 061**	**0.088**	**0 110**
MAX	**0 116**	**0 113**	**0 137**	**0 125**	**0 110**	**0.140**	**0.125**	**0 110**	**0 149**	**0 125**	**0.101**	**0 155**	**0 128**	**0 119**	**0 171**
STD	**0 014**	**0 007**	**0.009**	**0 015**	**0 008**	**0 009**	**0.016**	**0 009**	**0 011**	**0.018**	**0 007**	**0 012**	**0.020**	**0 010**	**0.016**

SECTION 350105

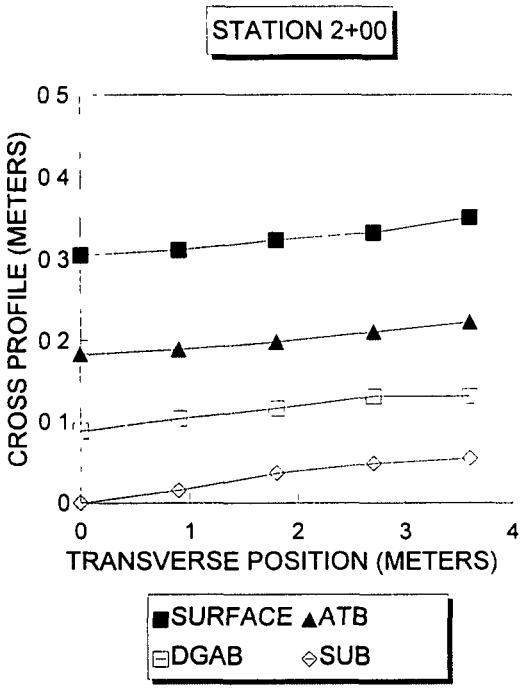


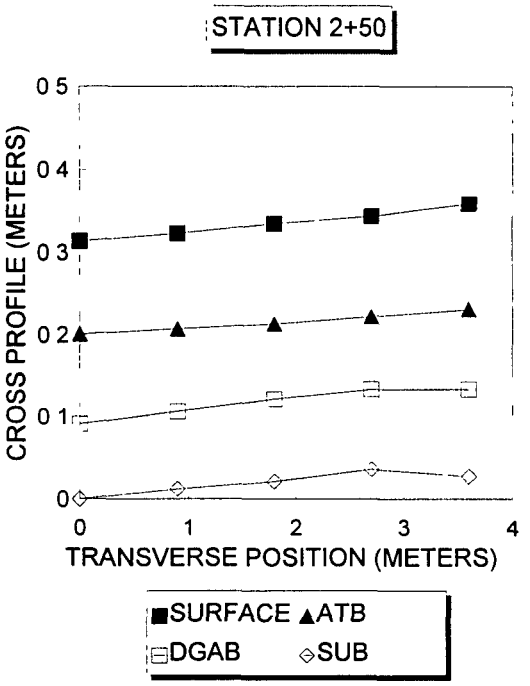


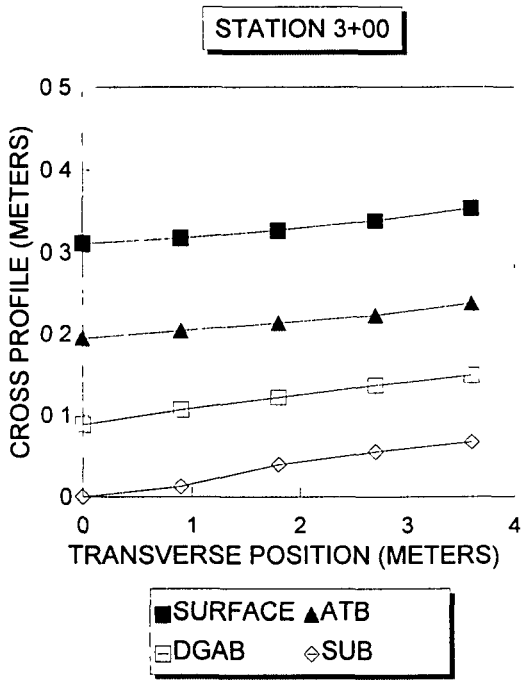


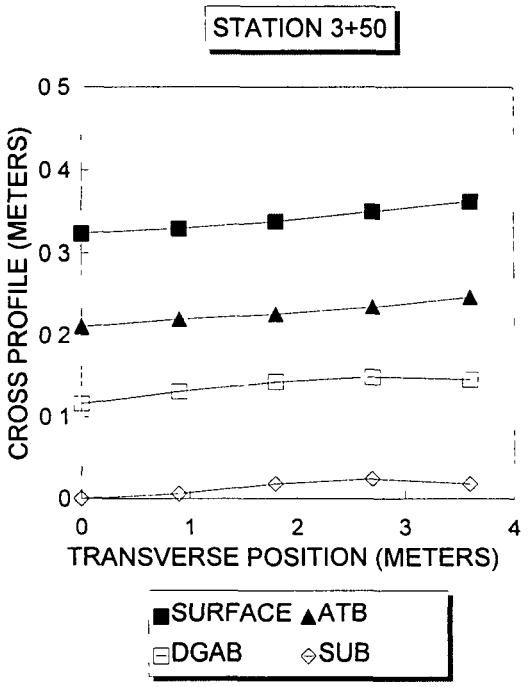


SECTION 350105

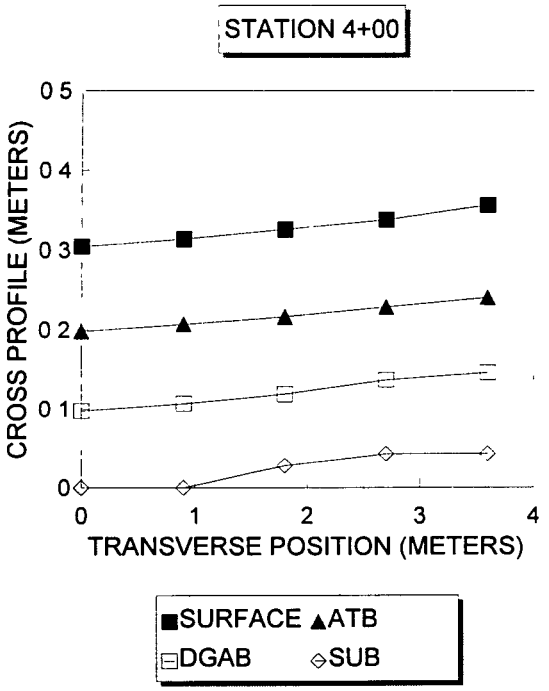


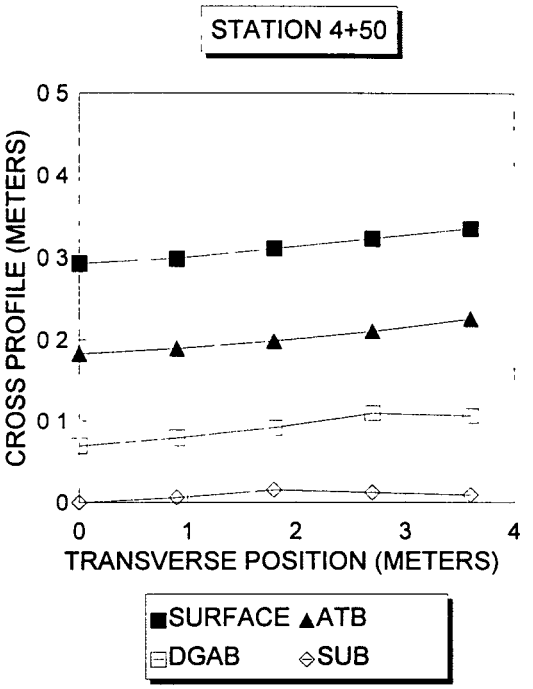


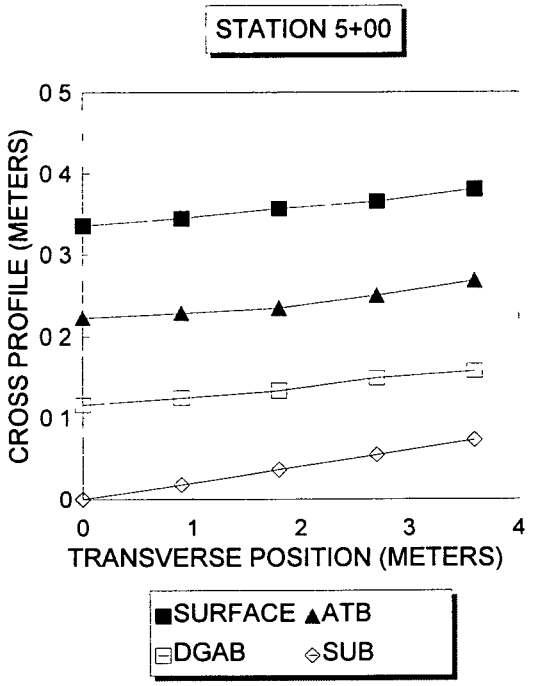




SECTION 350105



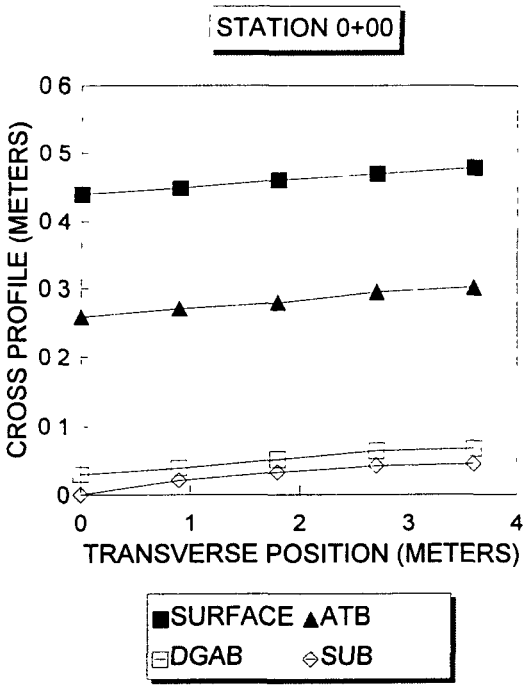


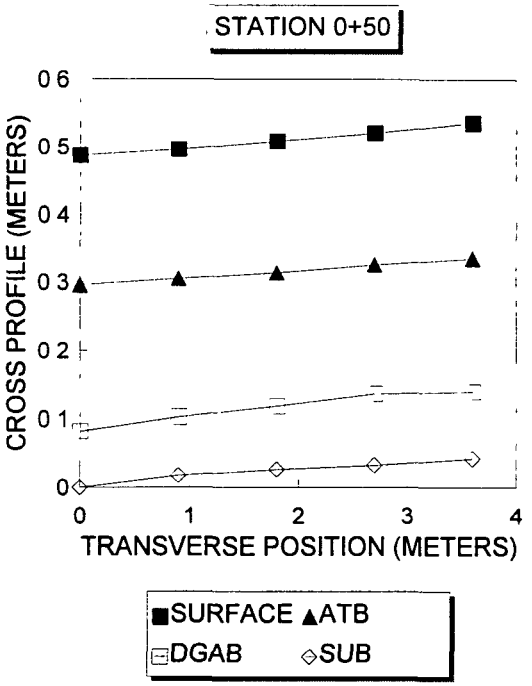


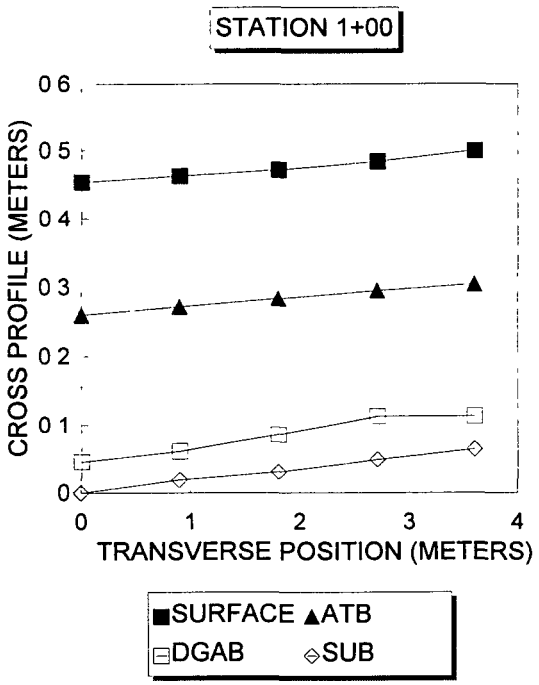
SECTION 350106 New Mexico

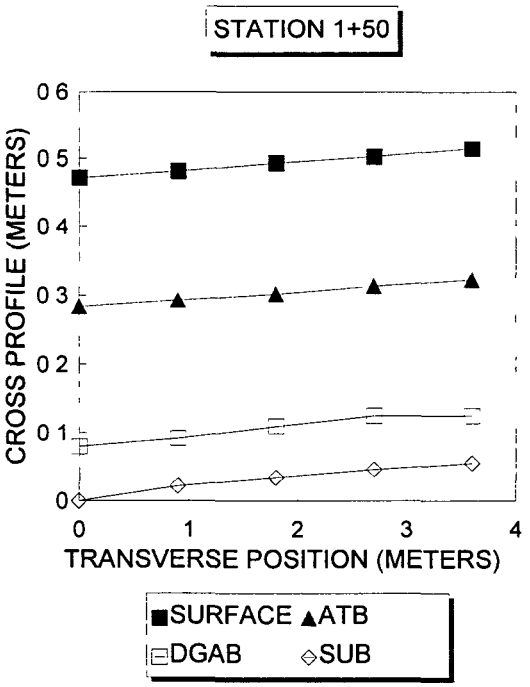
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)
0+00	0 030	0 229	0 180	0 018	0 232	0 177	0 018	0 229	0 180	0 021	0 232	0 174	0 021	0 235	0 177
0+50	0 082	0 213	0 192	0 085	0 201	0 192	0 091	0 195	0 195	0 104	0 189	0 195	0 098	0 195	0 201
1+00	0 046	0 213	0 195	0 043	0 210	0 192	0 055	0 198	0 189	0 064	0 183	0 189	0 049	0 192	0 195
1+50	0 079	0 204	0 189	0 070	0 201	0 189	0 076	0 192	0 192	0 079	0 189	0 189	0 070	0 198	0 192
2+00	0 082	0 201	0 192	0 073	0 201	0 192	0 088	0 189	0 195	0 082	0 186	0 195	0 082	0 198	0 198
2+50	0 101	0 207	0 195	0 091	0 207	0 195	0 091	0 198	0 195	0 091	0 189	0 198	0 082	0 192	0 204
3+00	0 098	0 213	0 195	0 094	0 210	0 195	0 104	0 198	0 198	0 110	0 192	0 195	0 116	0 186	0 204
3+50	0 101	0 201	0 195	0 104	0 198	0 192	0 110	0 192	0 195	0 107	0 192	0 195	0 079	0 201	0 210
4+00	0 073	0 198	0 189	0 064	0 201	0 189	0 073	0 195	0 192	0 082	0 192	0 195	0 073	0 192	0 204
4+50	0 058	0 198	0 171	0 064	0 192	0 180	0 061	0 186	0 186	0 055	0 177	0 192	0 064	0 158	0 204
5+00	0 076	0 201	0 186	0 067	0 198	0 192	0 055	0 201	0 201	0 040	0 201	0 204	0 024	0 207	0 207
AVG	**0 075**	**0 207**	**0 189**	**0 070**	**0 205**	**0.190**	**0 075**	**0.198**	**0.193**	**0 076**	**0 193**	**0 193**	**0 069**	**0 196**	**0.200**
MIN	**0 030**	**0 198**	**0 171**	**0 018**	**0 192**	**0.177**	**0 018**	**0.186**	**0.180**	**0 021**	**0 177**	**0 174**	**0 021**	**0 158**	**0.177**
MAX	**0.101**	**0.229**	**0 195**	**0 104**	**0 232**	**0 195**	**0 110**	**0.229**	**0 201**	**0 110**	**0 232**	**0.204**	**0.116**	**0 235**	**0 210**
STD	**0.021**	**0 009**	**0 007**	**0 023**	**0 010**	**0 006**	**0.025**	**0 011**	**0 006**	**0 027**	**0 014**	**0 007**	**0 027**	**0 017**	**0.009**

SECTION 350106

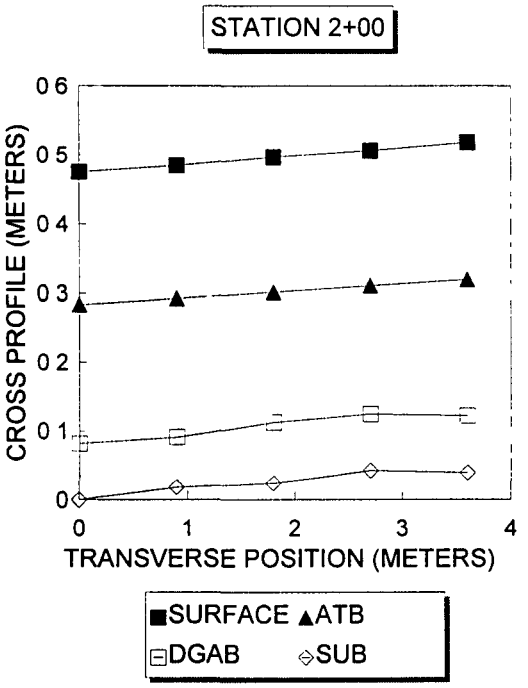


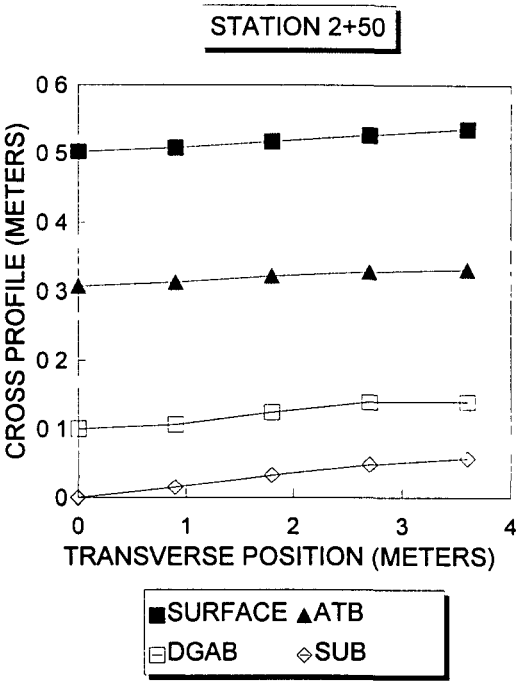


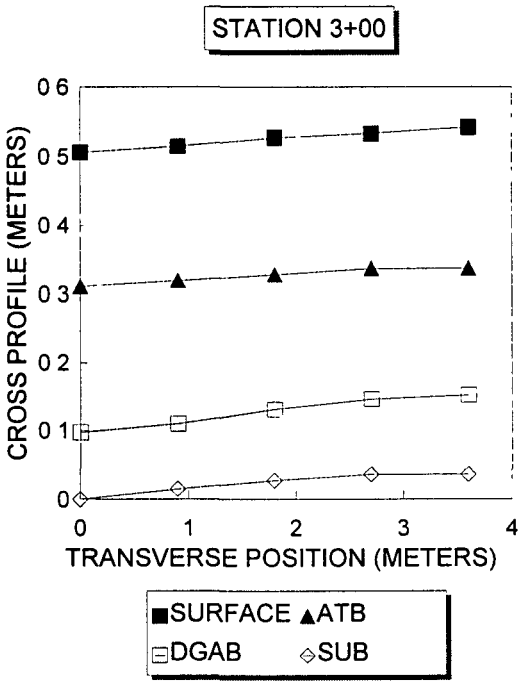


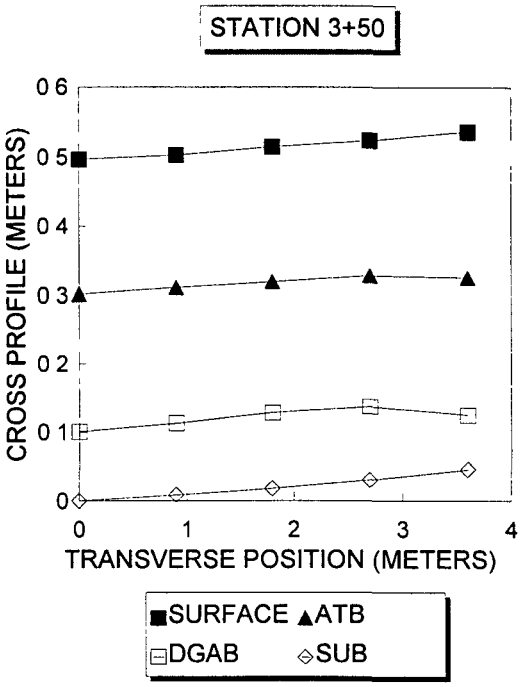


SECTION 350106

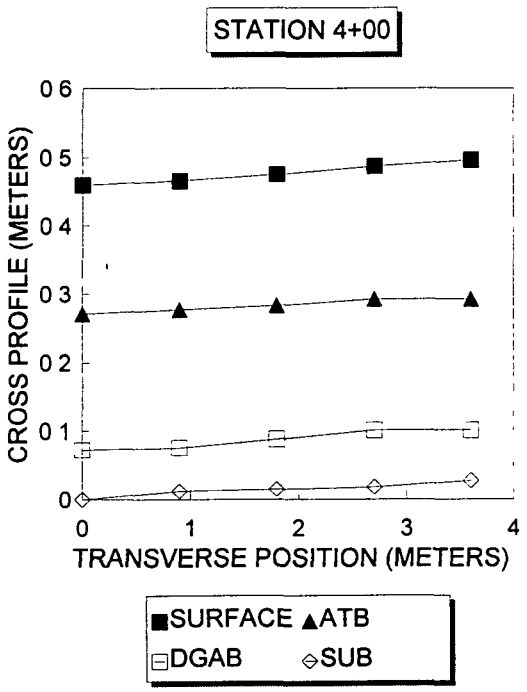


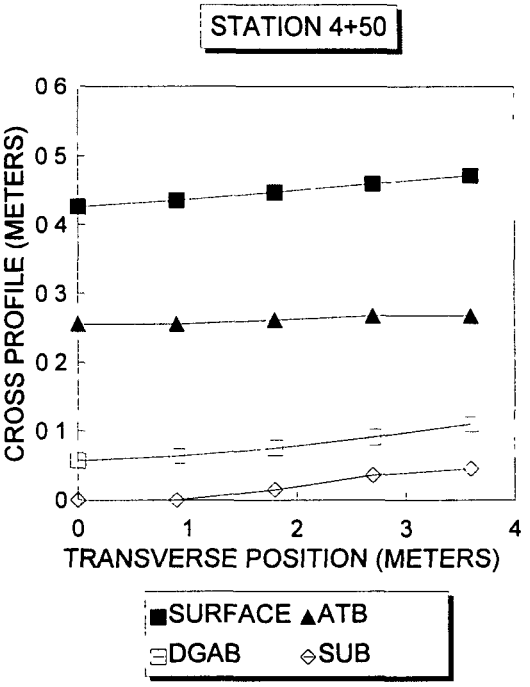


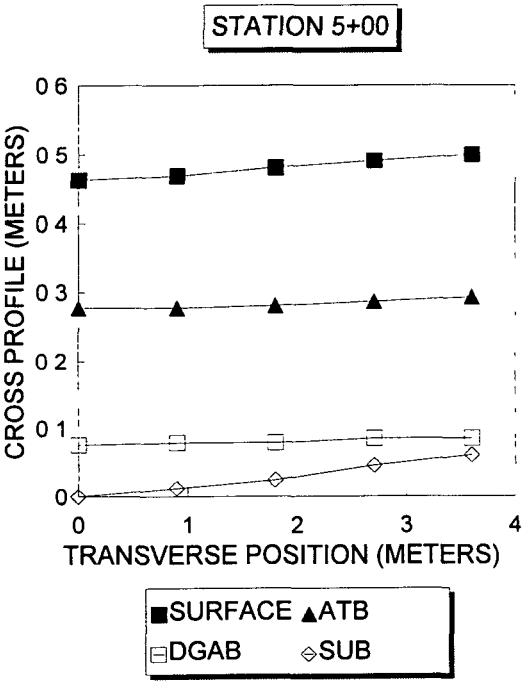




SECTION 350106



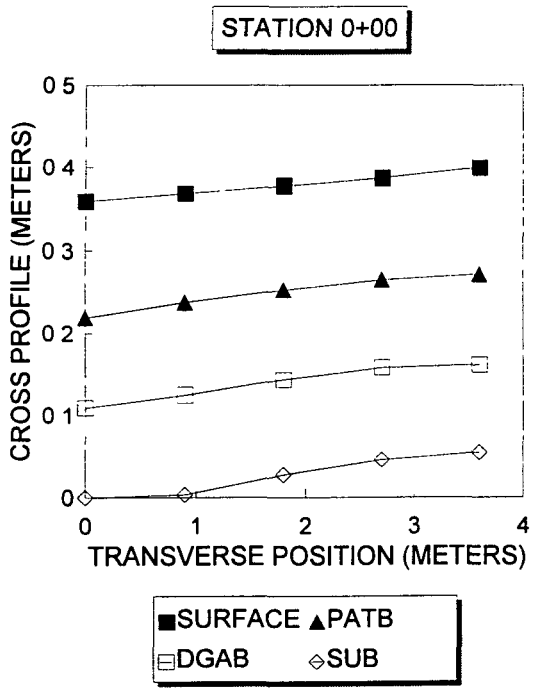


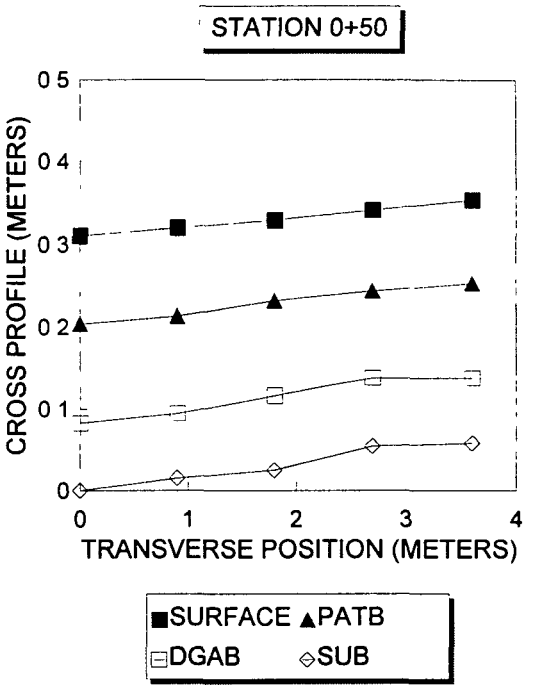


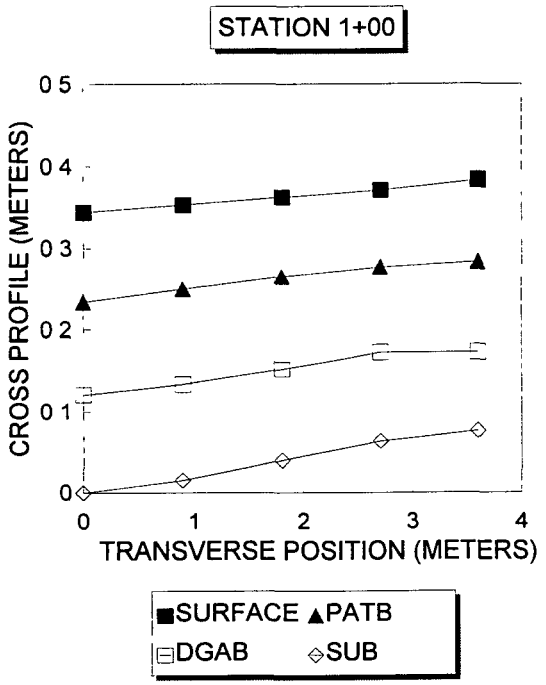
SECTION 350107 New Mexico

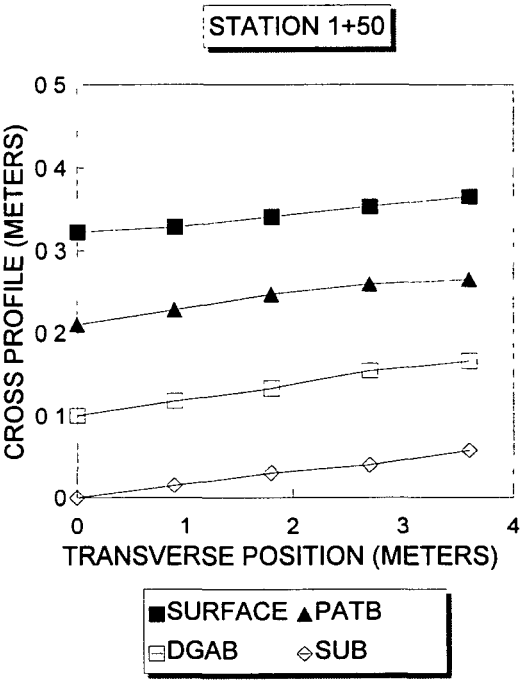
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)
0+00	0 110	0 110	0 140	0 122	0 113	0 131	0 116	0 110	0 125	0 113	0 107	0 122	0 107	0 110	0 128
0+50	0 082	0 122	0 107	0 079	0 119	0 107	0 091	0 116	0 098	0 082	0 107	0 098	0 079	0 116	0 101
1+00	0 122	0 113	0 110	0 119	0 116	0 104	0 113	0 113	0 098	0 110	0 104	0 094	0 098	0 110	0 101
1+50	0 101	0 110	0 113	0 104	0 110	0 101	0 104	0 113	0 094	0 116	0 104	0 094	0 110	0 098	0 101
2+00	0 110	0 116	0 107	0 113	0 116	0 101	0 122	0 110	0 098	0 119	0 101	0 098	0 110	0 098	0 104
2+50	0 122	0 122	0 104	0 137	0 107	0 104	0 143	0 107	0 094	0 149	0 094	0 098	0 134	0 110	0 104
3+00	0 104	0 122	0 104	0 113	0 107	0 104	0 119	0 101	0 098	0 116	0 091	0 098	0 094	0 098	0 101
3+50	0 091	0 119	0 107	0 094	0 113	0 101	0 091	0 110	0 101	0 088	0 098	0 104	0 052	0 110	0 116
4+00	0 088	0 107	0 107	0 085	0 107	0 104	0 088	0 107	0 104	0 094	0 101	0 104	0 076	0 104	0 116
4+50	0 091	0 104	0 116	0 088	0 104	0 119	0 094	0 101	0 107	0 094	0 098	0 107	0 067	0 113	0 119
5+00	0 082	0 098	0 152	0 082	0 104	0 143	0 079	0 104	0 140	0 085	0 107	0 140	0 076	0 107	0 146
AVG	**0.100**	**0 113**	**0 115**	**0 103**	**0.110**	**0.111**	**0.106**	**0.108**	**0.105**	**0 106**	**0 101**	**0.105**	**0.091**	**0.106**	**0 112**
MIN	**0.082**	**0 098**	**0 104**	**0.079**	**0 104**	**0.101**	**0 079**	**0 101**	**0.094**	**0 082**	**0.091**	**0.094**	**0 052**	**0.098**	**0 101**
MAX	**0 122**	**0 122**	**0 152**	**0 137**	**0.119**	**0.143**	**0.143**	**0.116**	**0.140**	**0 149**	**0.107**	**0.140**	**0.134**	**0.116**	**0 146**
STD	**0 014**	**0 008**	**0 015**	**0.018**	**0.005**	**0 014**	**0.018**	**0.005**	**0 014**	**0.019**	**0.005**	**0.013**	**0.022**	**0 006**	**0.014**

SECTION 350107

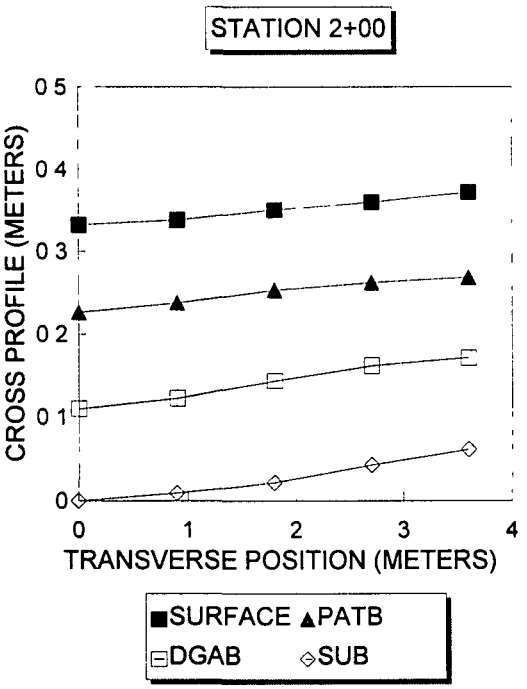


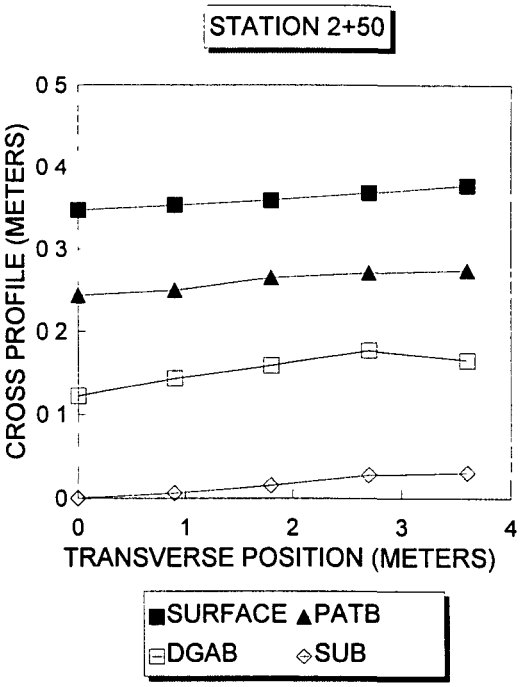


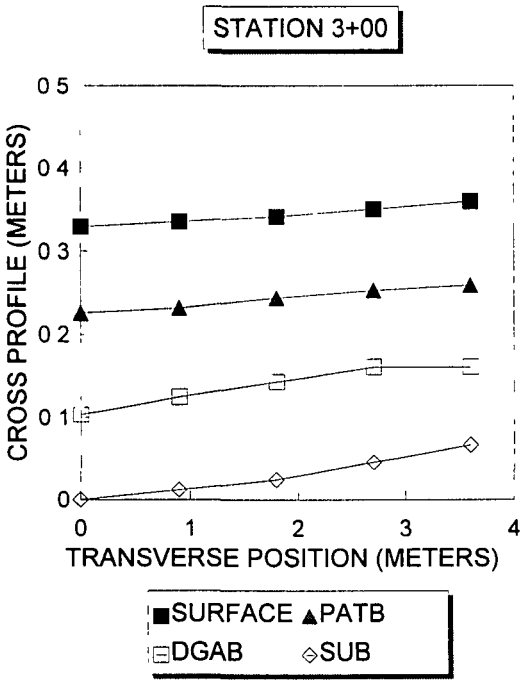


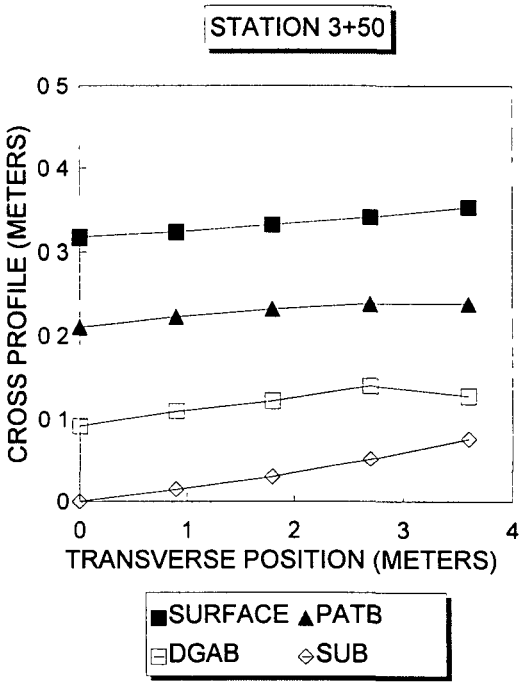


SECTION 350107

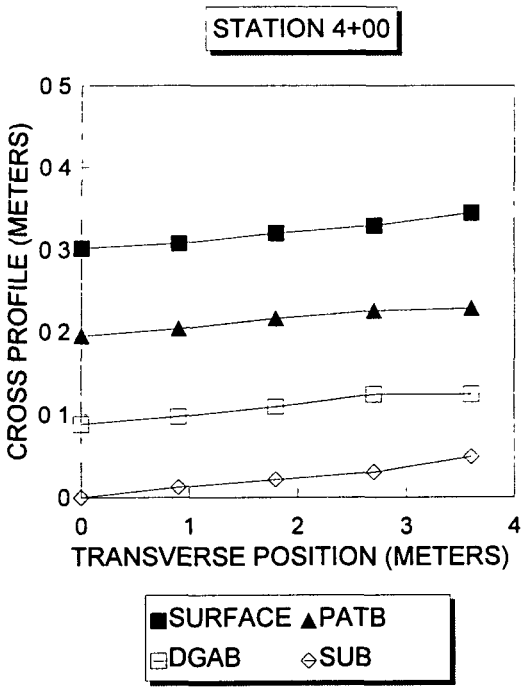


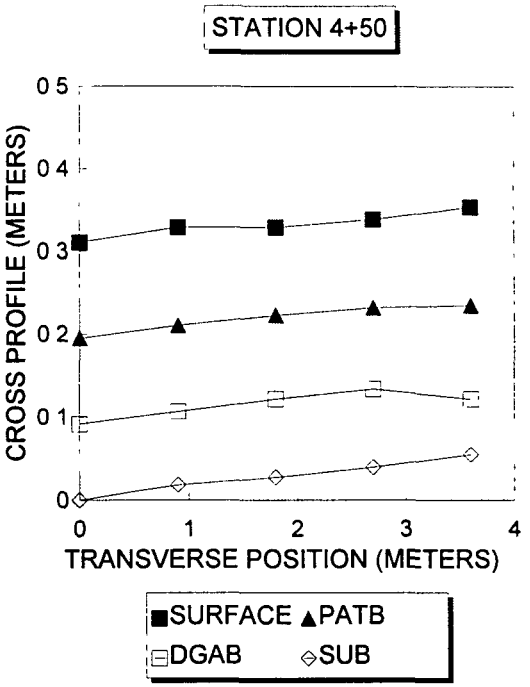


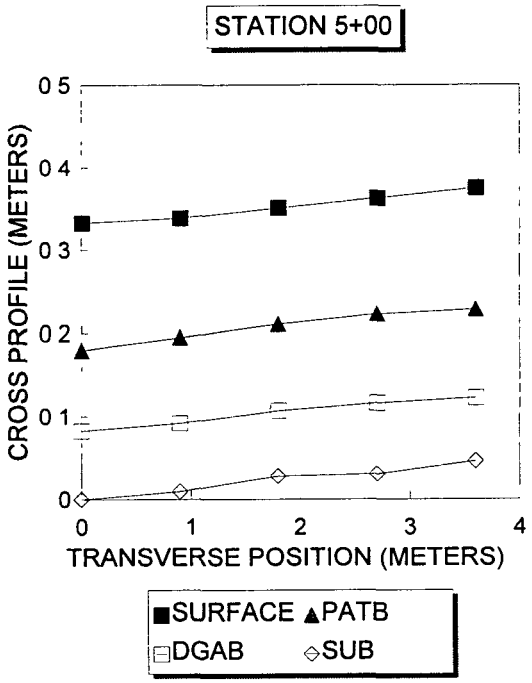




SECTION 350107



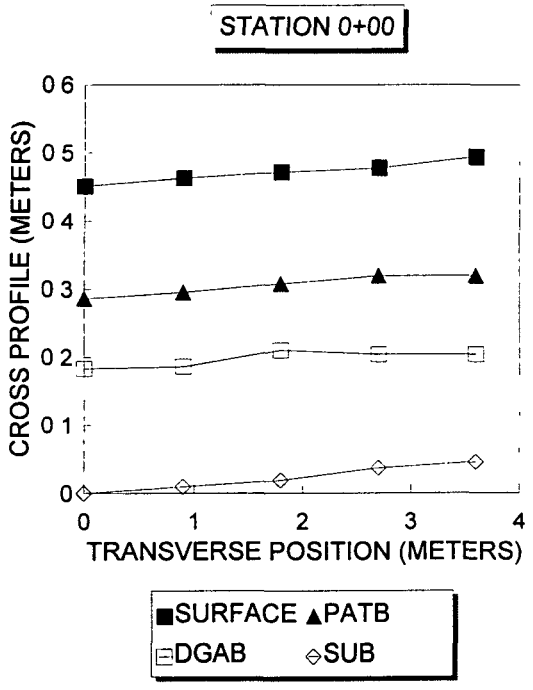


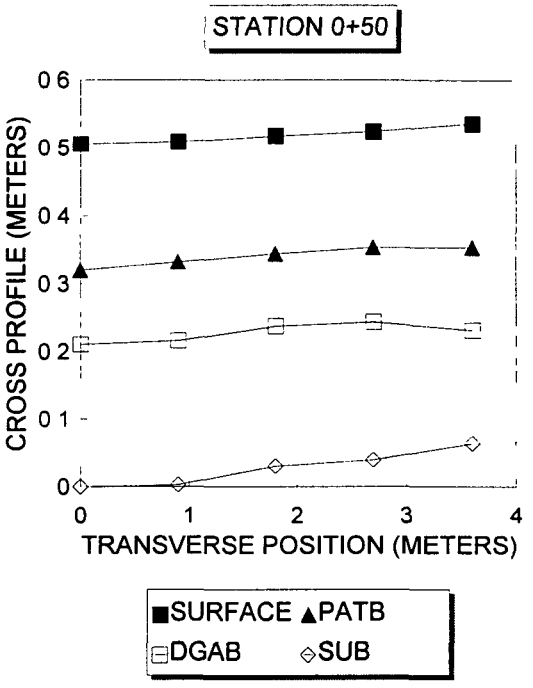


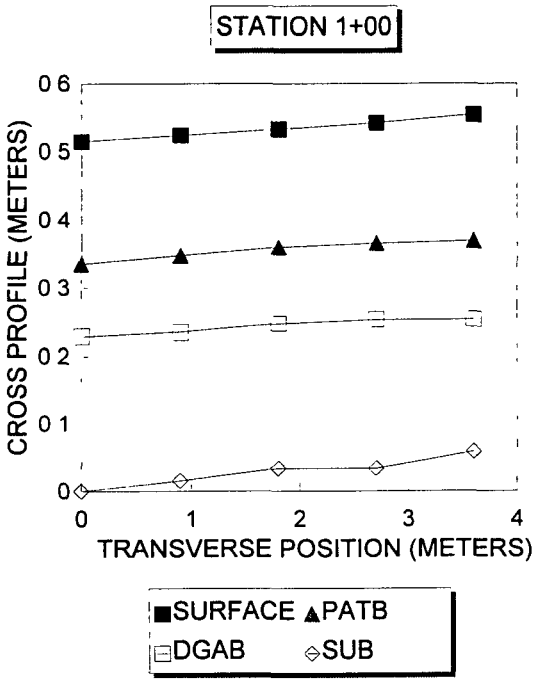
SECTION 350108 New Mexico

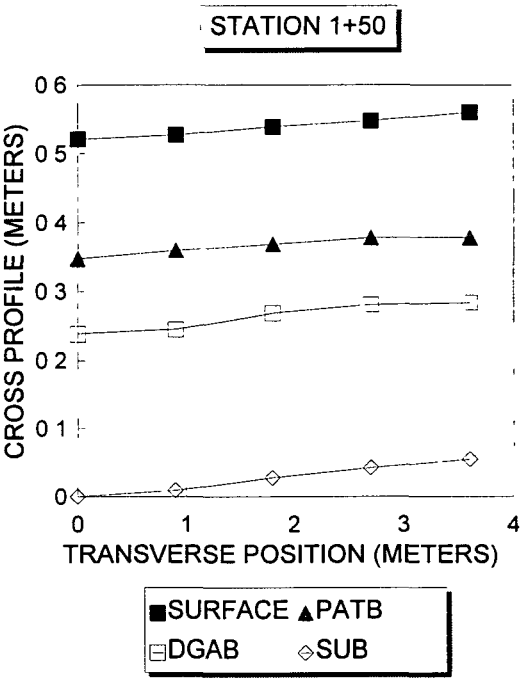
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)
0+00	0 183	0 104	0 165	0 177	0 110	0 168	0 192	0 098	0 165	0 168	0 116	0 158	0 158	0 116	0 174
0+50	0 210	0 110	0 186	0 213	0 116	0 177	0 207	0 107	0 174	0 204	0 110	0 171	0 168	0 122	0 183
1+00	0 229	0 107	0 180	0 219	0 113	0 177	0 213	0 113	0 174	0 219	0 113	0 177	0 195	0 116	0 186
1+50	0 238	0 110	0 174	0 235	0 116	0 168	0 241	0 101	0 171	0 238	0 098	0 171	0 229	0 094	0 183
2+00	0 219	0 104	0 171	0 216	0 107	0 168	0 198	0 113	0 171	0 183	0 119	0 177	0 180	0 119	0 186
2+50	0 210	0 110	0 177	0 207	0 110	0 177	0 213	0 101	0 171	0 219	0 098	0 174	0 198	0 113	0 183
3+00	0 183	0 113	0 177	0 189	0 110	0 174	0 207	0 104	0 165	0 219	0 088	0 168	0 201	0 113	0 177
3+50	0 192	0 110	0 171	0 192	0 113	0 174	0 201	0 110	0 168	0 207	0 119	0 168	0 207	0 119	0 180
4+00	0 207	0 116	0 177	0 201	0 116	0 168	0 204	0 113	0 162	0 198	0 116	0 168	0 180	0 119	0 177
4+50	0 186	0 107	0 183	0 180	0 119	0 171	0 192	0 116	0 168	0 192	0 116	0 171	0 201	0 113	0 180
5+00	0 198	0 113	0 186	0 198	0 113	0 174	0 201	0 113	0 165	0 204	0 110	0 168	0 189	0 113	0 183
AVG	**0 205**	**0.109**	**0 177**	**0.203**	**0 113**	**0.172**	**0.206**	**0.108**	**0.168**	**0 205**	**0 109**	**0 170**	**0 191**	**0 114**	**0.181**
MIN	**0 183**	**0.104**	**0 165**	**0.177**	**0 107**	**0 168**	**0.192**	**0.098**	**0 162**	**0 168**	**0.088**	**0 158**	**0.158**	**0 094**	**0 174**
MAX	**0 238**	**0.116**	**0 186**	**0.235**	**0 119**	**0.177**	**0.241**	**0.116**	**0 174**	**0 238**	**0.119**	**0 177**	**0.229**	**0.122**	**0.186**
STD	**0 018**	**0 004**	**0 006**	**0 017**	**0 003**	**0 004**	**0.013**	**0 006**	**0.004**	**0 019**	**0 010**	**0.005**	**0.019**	**0 007**	**0.004**

SECTION 350108

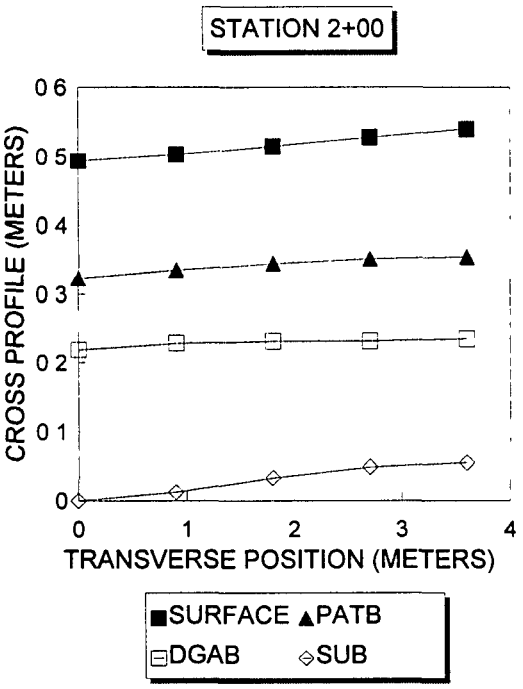


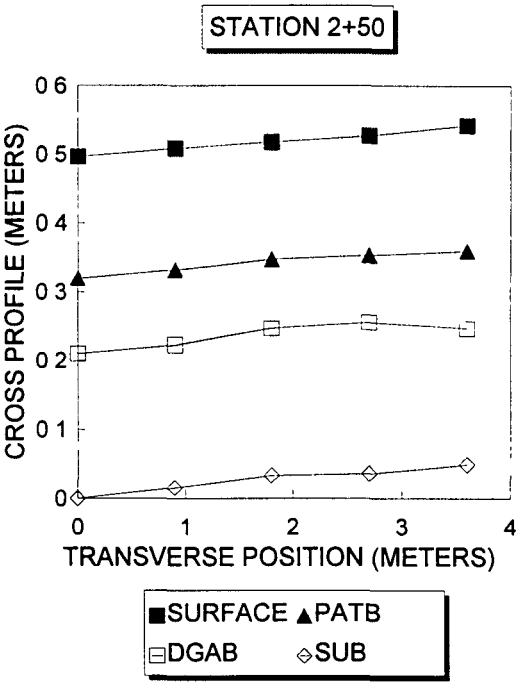


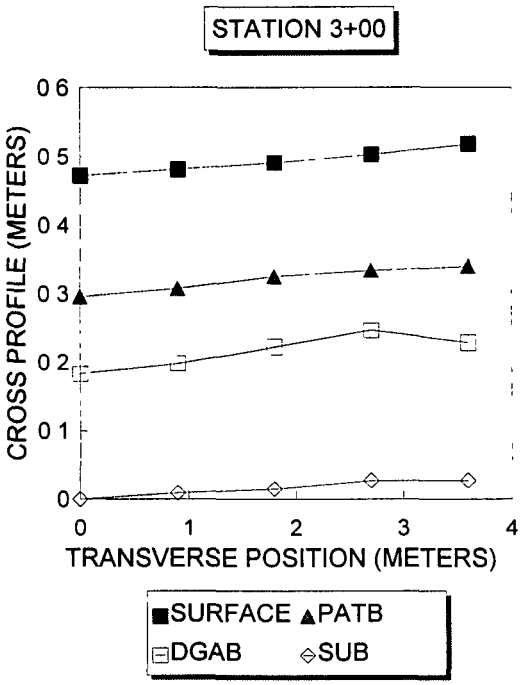


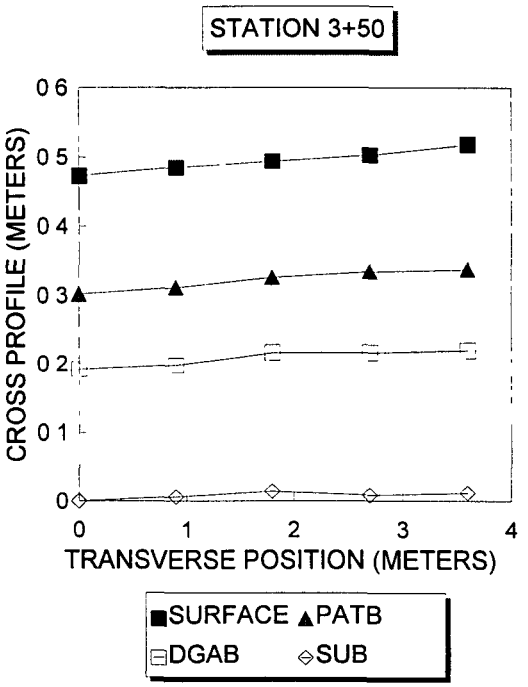


SECTION 350108

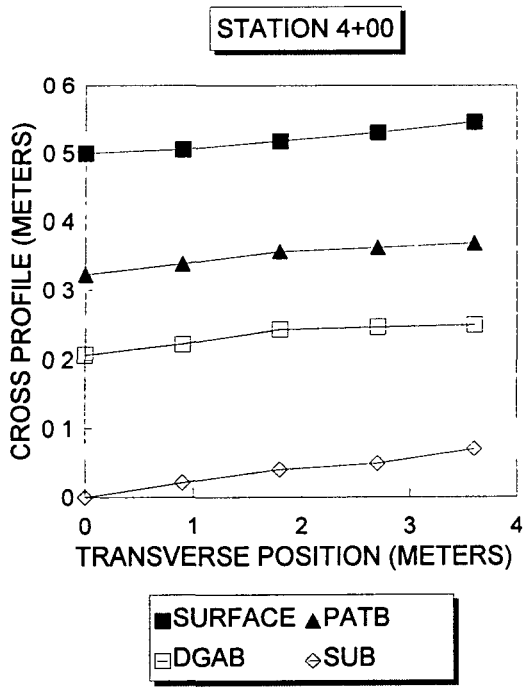


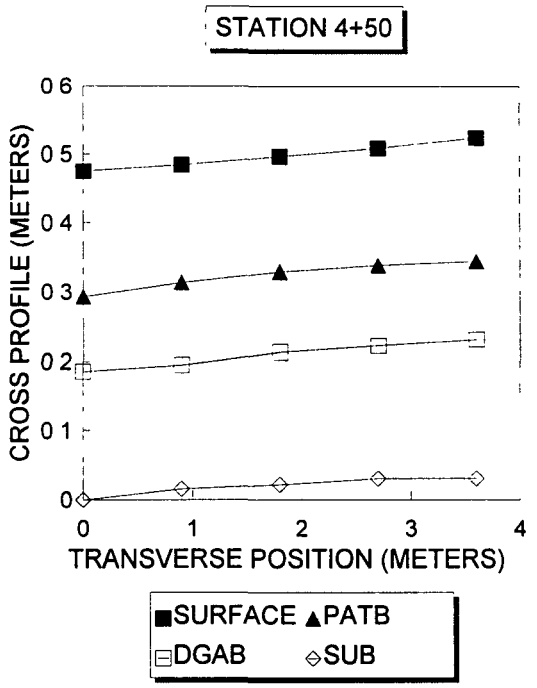


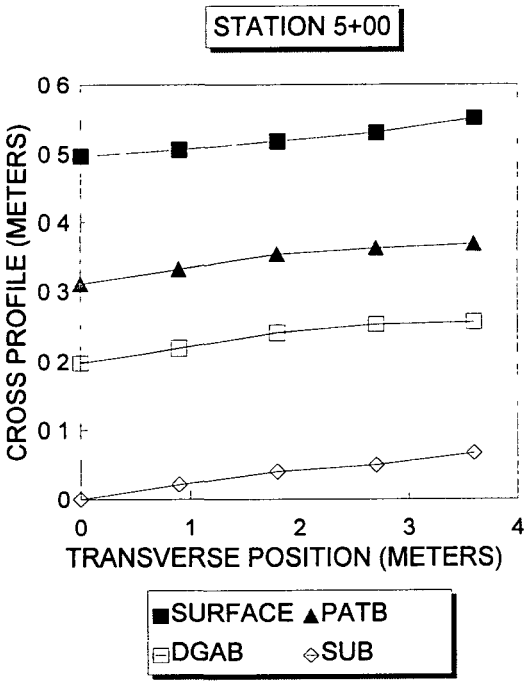




SECTION 350108



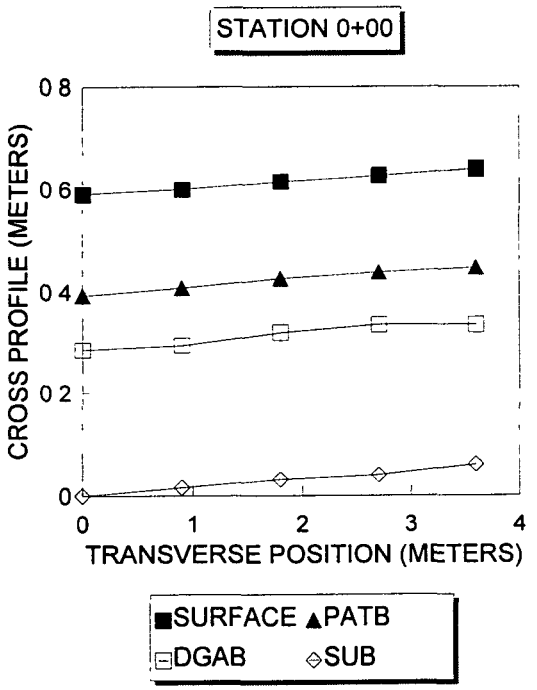


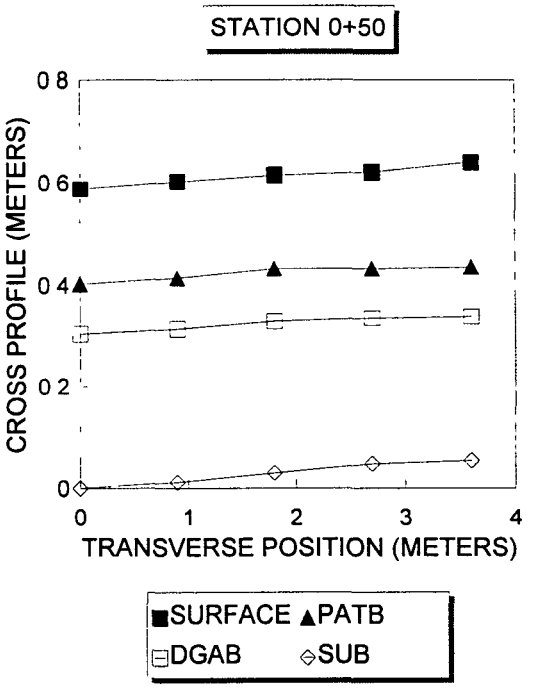


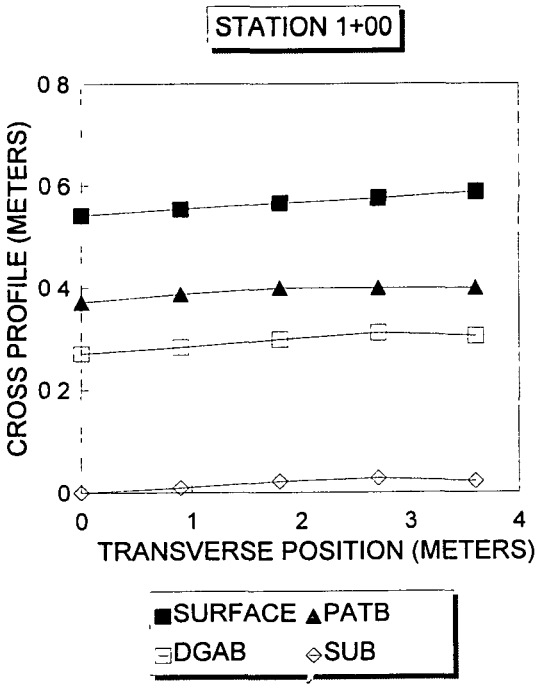
SECTION 350109 New Mexico

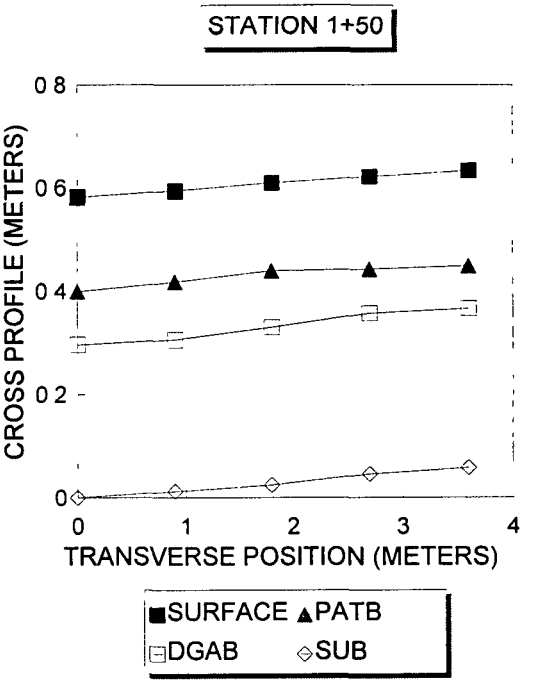
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)	DGAB Thickness (M)	PATB Thickness (M)	HMAC Thickness (M)
0+00	0 287	0 107	0 198	0 280	0 113	0 192	0 290	0 107	0 189	0 296	0 104	0 189	0 274	0 113	0 192
0+50	0 305	0 098	0 186	0 302	0 101	0 189	0 299	0 104	0 183	0 287	0 098	0 189	0 283	0 098	0 204
1+00	0 271	0 101	0 171	0 274	0 104	0 168	0 277	0 101	0 168	0 283	0 088	0 177	0 283	0 094	0 189
1+50	0 296	0 104	0 183	0 293	0 113	0 177	0 305	0 110	0 171	0 311	0 085	0 180	0 308	0 082	0 186
2+00	0 280	0 116	0 189	0 283	0 116	0 180	0 283	0 107	0 174	0 293	0 094	0 171	0 296	0 085	0 186
2+50	0 293	0 110	0 189	0 290	0 116	0 183	0 305	0 107	0 180	0 302	0 098	0 177	0 329	0 082	0 186
3+00	0 323	0 104	0 186	0 326	0 107	0 183	0 311	0 107	0 180	0 302	0 101	0 186	0 311	0 098	0 195
3+50	0 326	0 101	0 180	0 320	0 110	0 177	0 326	0 101	0 174	0 323	0 082	0 177	0 323	0 085	0 183
4+00	0 308	0 098	0 180	0 302	0 104	0 177	0 314	0 098	0 171	0 317	0 085	0 177	0 332	0 079	0 189
4+50	0 311	0 098	0 180	0 320	0 107	0 171	0 314	0 101	0 162	0 302	0 098	0 168	0 293	0 085	0 174
5+00	0 280	0 098	0 201	0 277	0 101	0 192	0 283	0 104	0 186	0 283	0 101	0 186	0 283	0 119	0 195
AVG	**0.298**	**0 103**	**0.186**	**0 297**	**0.108**	**0.181**	**0 301**	**0.104**	**0.176**	**0 300**	**0 094**	**0.180**	**0.301**	**0 093**	**0.189**
MIN	**0 271**	**0 098**	**0.171**	**0 274**	**0.101**	**0.168**	**0 277**	**0.098**	**0 162**	**0 283**	**0 082**	**0 168**	**0 274**	**0.079**	**0.174**
MAX	**0 326**	**0 116**	**0.201**	**0 326**	**0 116**	**0.192**	**0.326**	**0 110**	**0.189**	**0.323**	**0 104**	**0.189**	**0 332**	**0 119**	**0.204**
STD	**0.017**	**0 006**	**0.008**	**0 018**	**0.005**	**0.008**	**0 015**	**0.004**	**0 008**	**0 013**	**0.007**	**0 007**	**0 019**	**0 012**	**0.007**

SECTION 350109

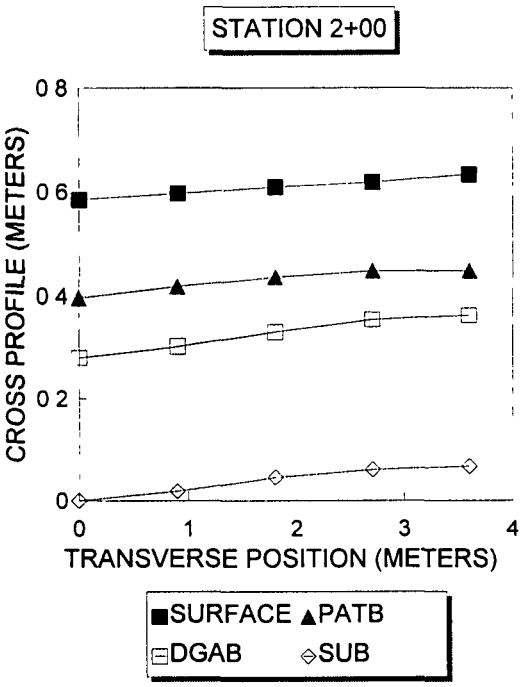


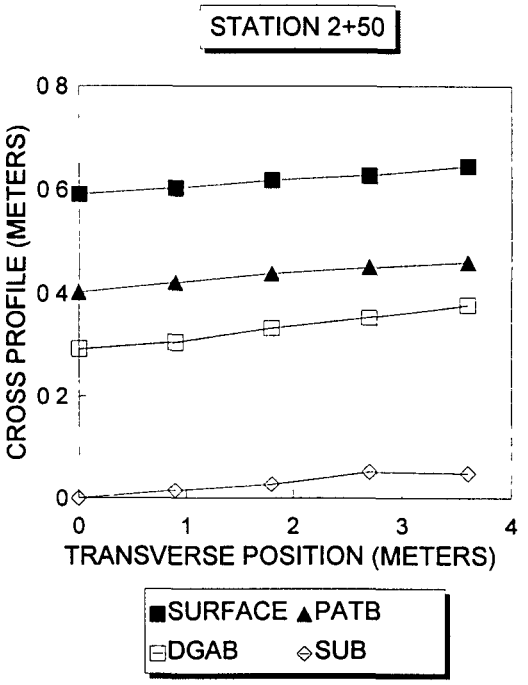


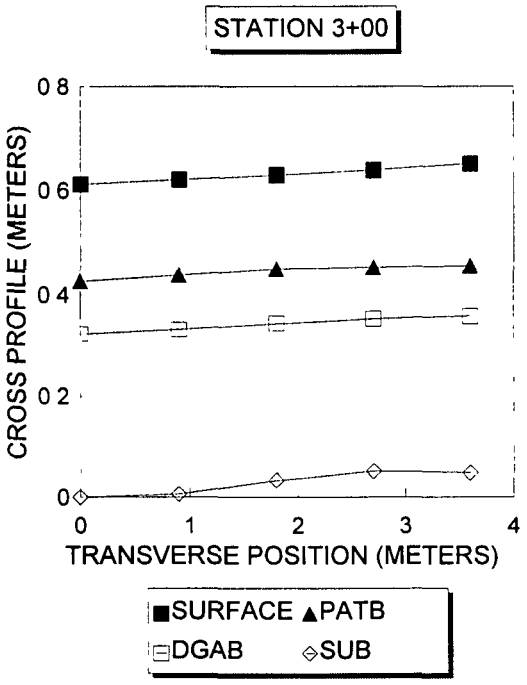


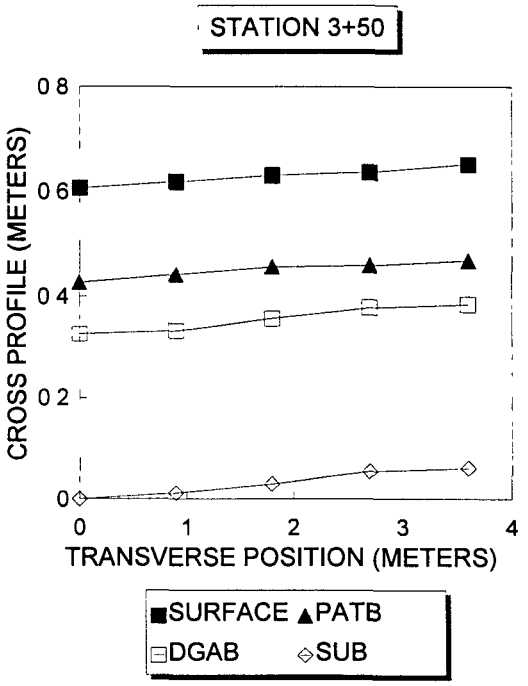


SECTION 350109

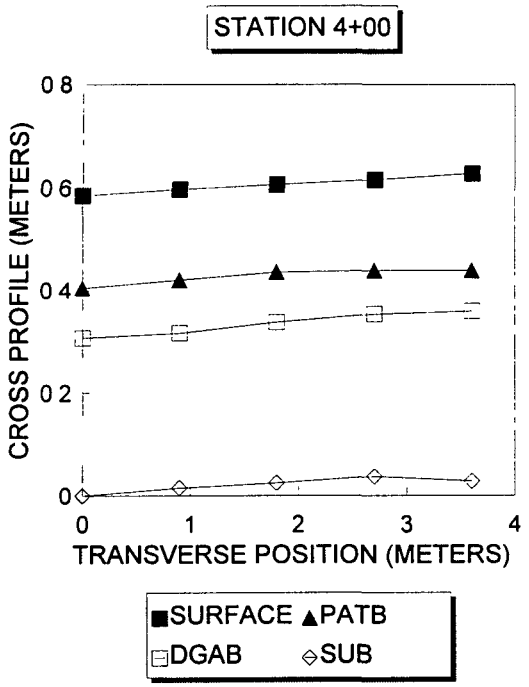


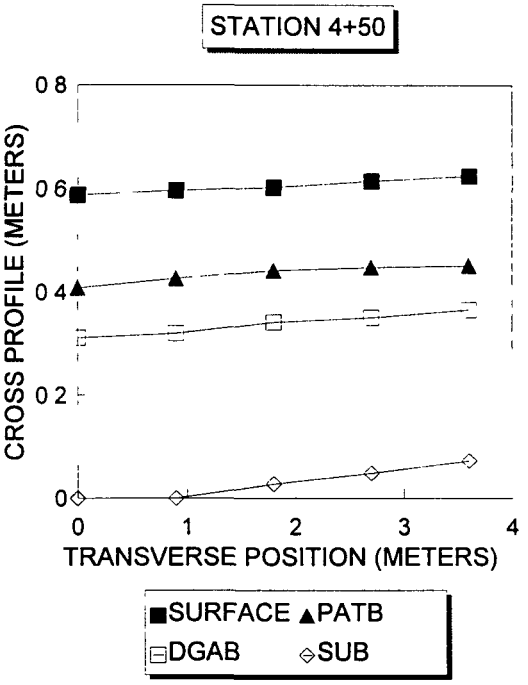


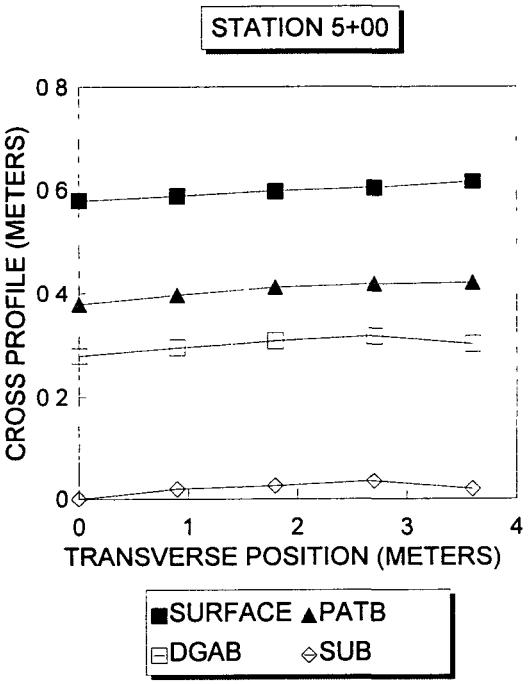




SECTION 350109



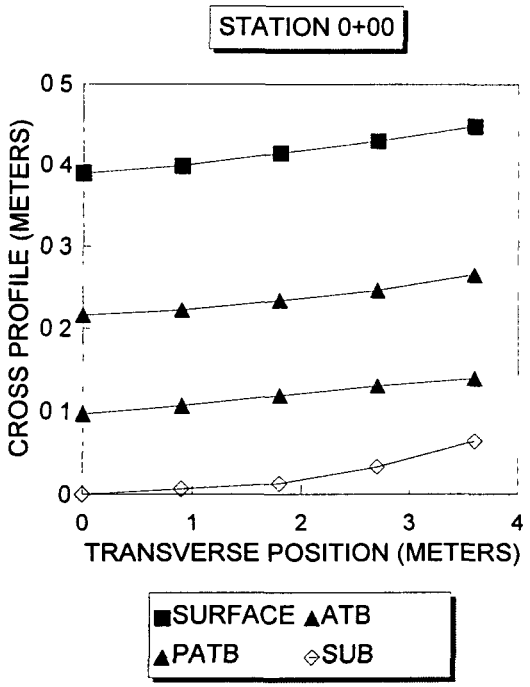


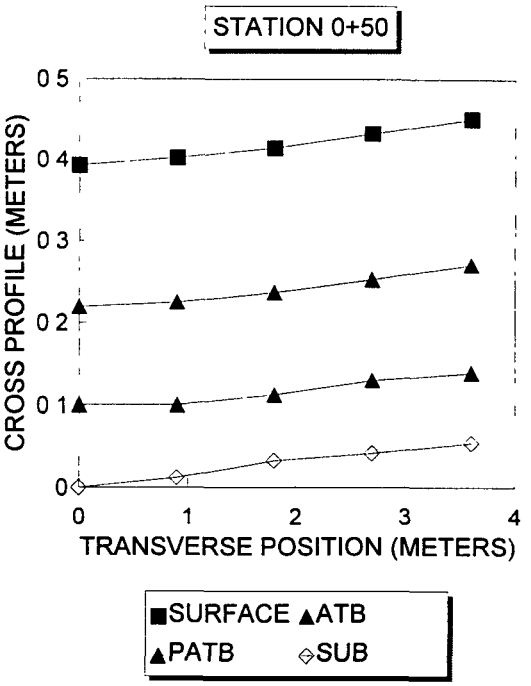


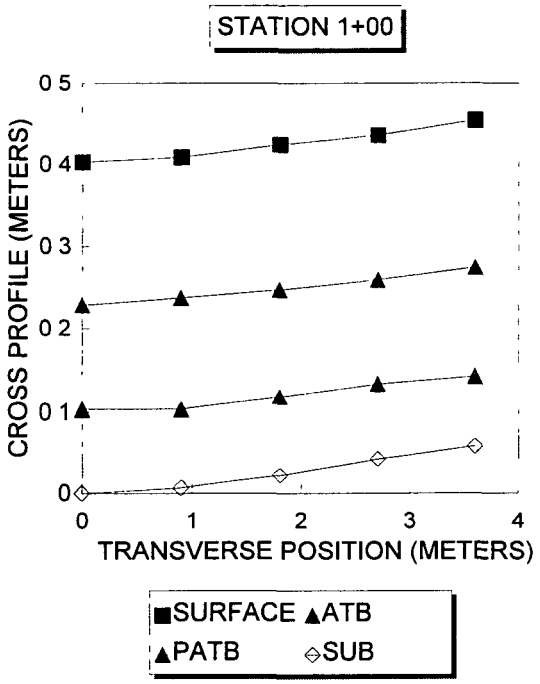
SECTION 350110 New Mexico

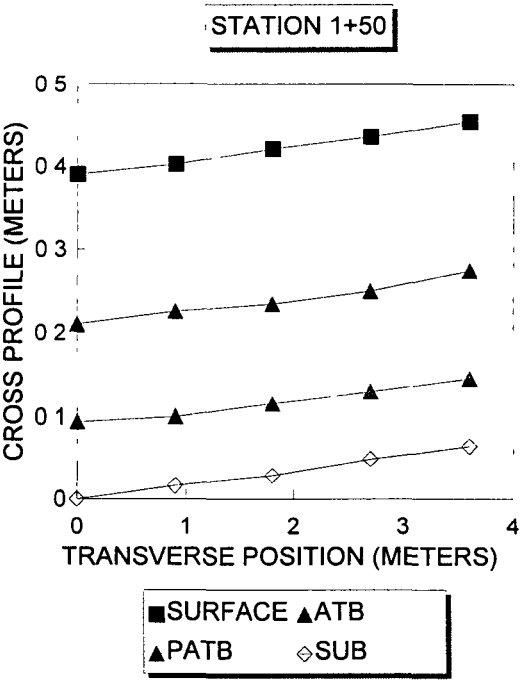
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)
0+00	0 098	0 119	0 174	0 101	0 116	0 177	0 107	0 116	0 180	0 098	0 116	0 183	0 076	0 125	0 183
0+50	0 101	0 119	0 174	0 088	0 125	0 177	0 079	0 125	0 177	0 088	0 122	0 180	0 085	0 131	0 180
1+00	0 104	0 125	0 174	0 098	0 134	0 171	0 098	0 128	0 177	0 091	0 125	0 177	0 085	0 131	0 180
1+50	0 094	0 116	0 180	0 085	0 125	0 177	0 088	0 119	0 186	0 082	0 119	0 186	0 082	0 128	0 180
2+00	0 085	0 119	0 168	0 082	0 119	0 177	0 082	0 119	0 186	0 085	0 119	0 189	0 113	0 122	0 189
2+50	0 094	0 119	0 177	0 088	0 125	0 180	0 091	0 131	0 183	0 094	0 125	0 186	0 110	0 128	0 195
3+00	0 091	0 116	0 174	0 085	0 119	0 177	0 082	0 122	0 180	0 091	0 119	0 183	0 098	0 125	0 189
3+50	0 101	0 113	0 171	0 091	0 119	0 165	0 082	0 122	0 177	0 094	0 119	0 177	0 085	0 131	0 177
4+00	0 110	0 113	0 174	0 094	0 116	0 174	0 094	0 119	0 174	0 101	0 119	0 174	0 085	0 128	0 174
4+50	0 101	0 110	0 186	0 094	0 119	0 180	0 091	0 122	0 180	0 101	0 125	0 180	0 098	0 131	0 183
5+00	0 094	0 110	0 180	0 098	0 119	0 177	0 098	0 119	0 180	0 107	0 122	0 183	0 098	0 128	0 189
AVG	**0 098**	**0 116**	**0 175**	**0.091**	**0.121**	**0 175**	**0.090**	**0 122**	**0 180**	**0 094**	**0.121**	**0 181**	**0.092**	**0 128**	**0 183**
MIN	**0 085**	**0 110**	**0 168**	**0 082**	**0 116**	**0.165**	**0 079**	**0 116**	**0 174**	**0 082**	**0 116**	**0.174**	**0 076**	**0 122**	**0 174**
MAX	**0 110**	**0 125**	**0 186**	**0.101**	**0.134**	**0 180**	**0 107**	**0 131**	**0 186**	**0 107**	**0.125**	**0 189**	**0.113**	**0 131**	**0 195**
STD	**0 006**	**0 004**	**0.005**	**0 006**	**0 005**	**0.004**	**0 008**	**0 004**	**0 004**	**0 007**	**0.003**	**0 004**	**0 011**	**0 003**	**0 006**

SECTION 350110

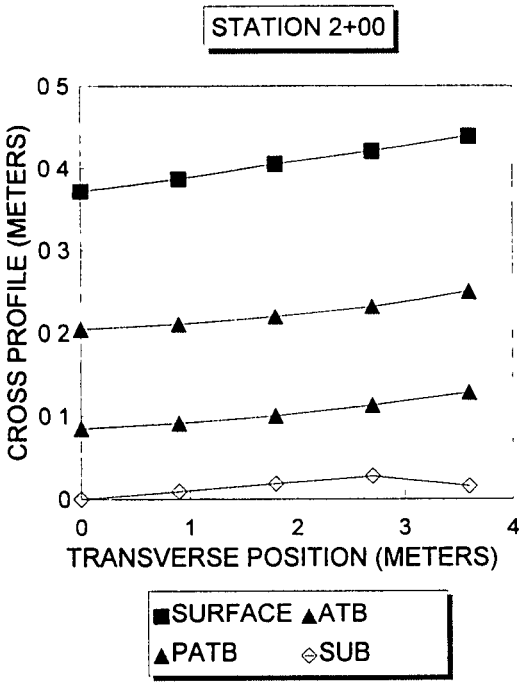


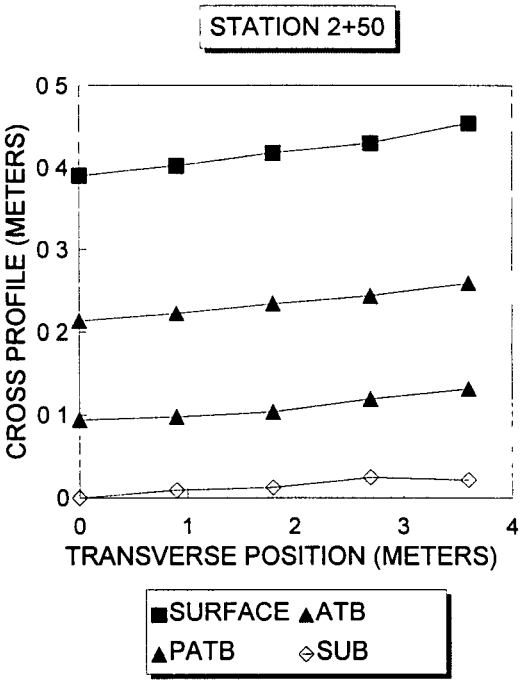


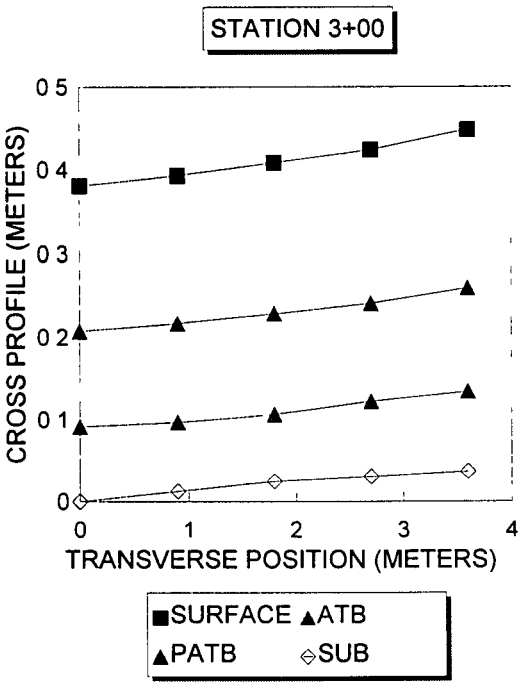


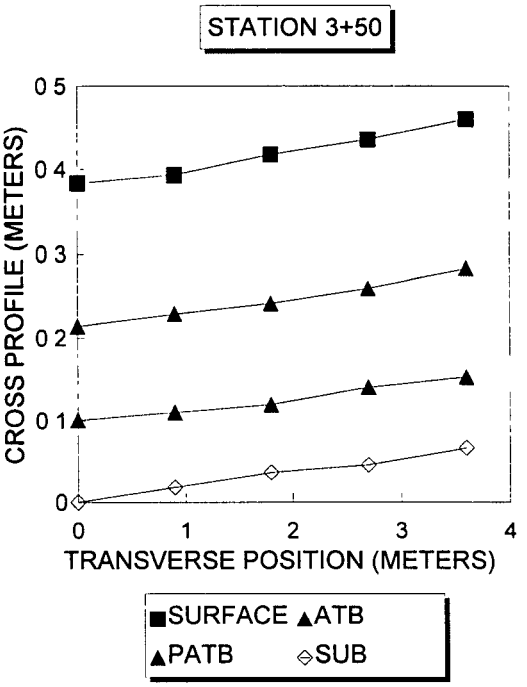


SECTION 350110

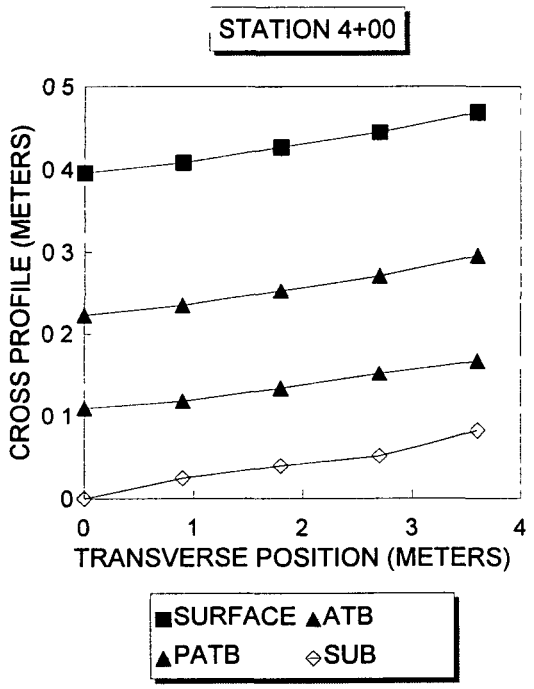


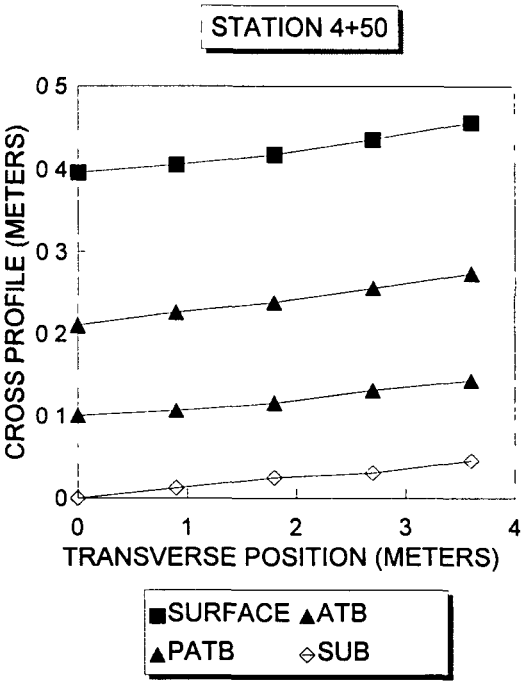


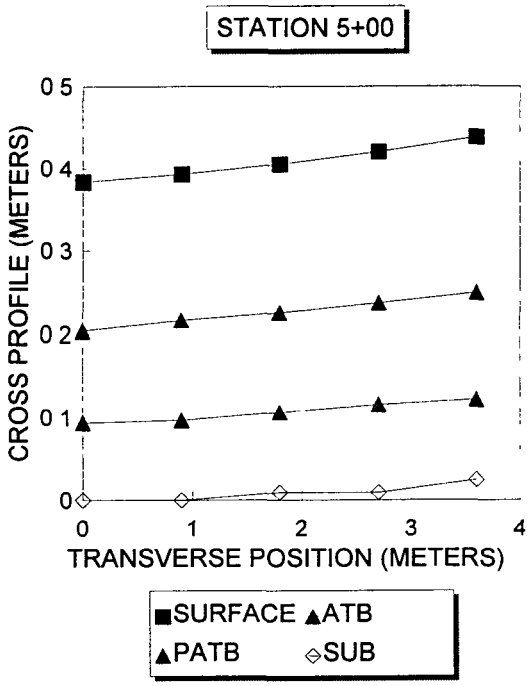




SECTION 350110



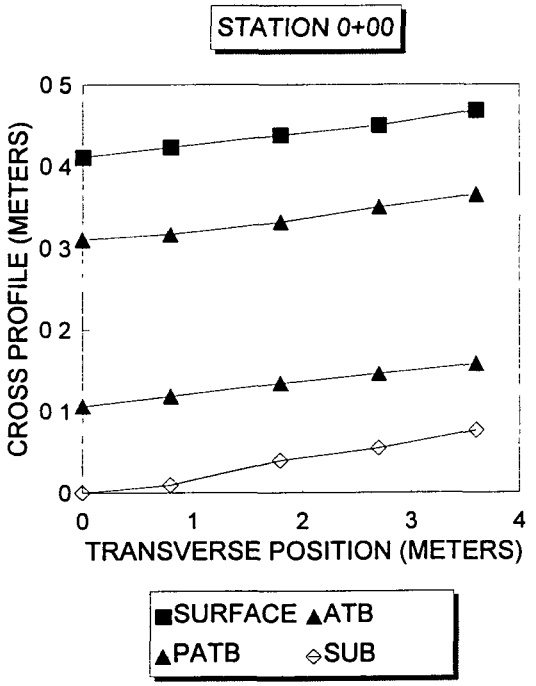


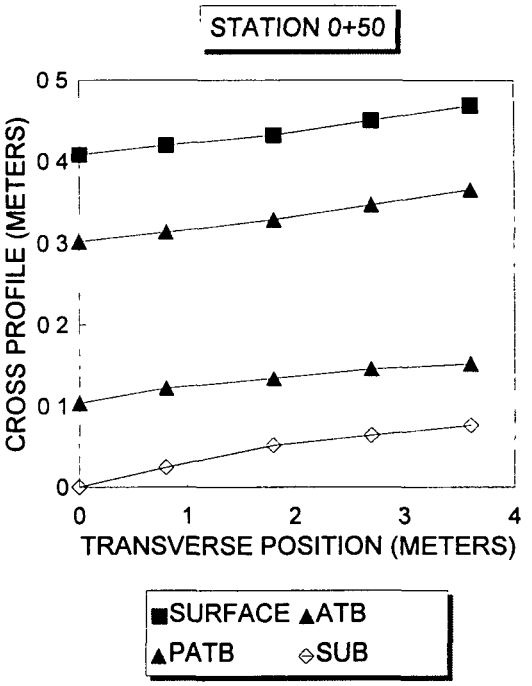


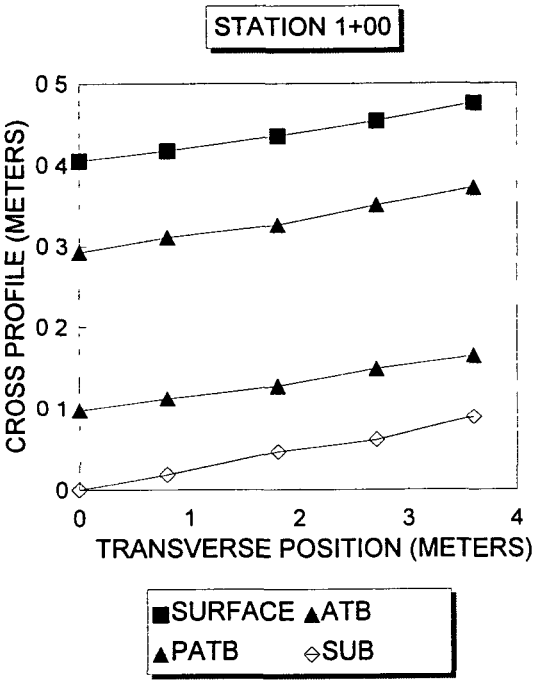
SECTION 350111 New Mexico

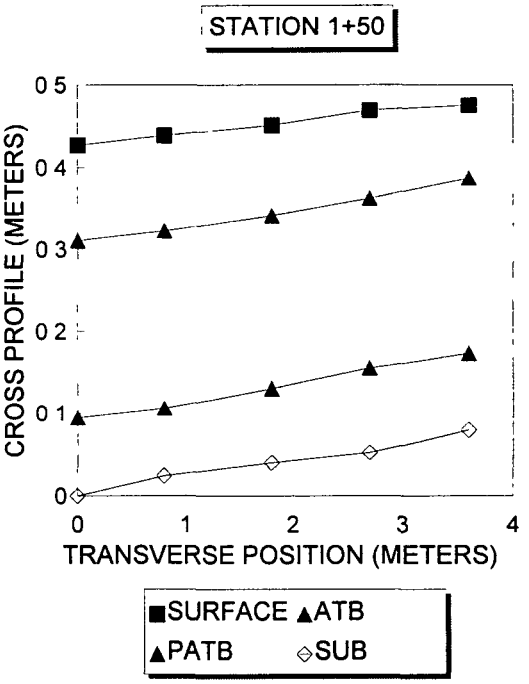
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)
0+00	0 107	0 204	0 101	0 110	0 198	0 107	0 094	0 198	0 107	0 091	0 204	0 101	0 082	0 207	0 104
0+50	0 104	0 198	0 107	0 098	0 192	0 107	0 082	0 195	0 104	0 082	0 201	0 104	0 076	0 213	0 104
1+00	0 098	0 195	0 113	0 094	0 198	0 107	0 082	0 198	0 110	0 088	0 201	0 104	0 076	0 207	0 104
1+50	0 094	0 216	0 116	0 082	0 216	0 116	0 091	0 210	0 110	0 104	0 207	0 107	0 094	0 213	0 088
2+00	0 104	0 204	0 110	0 098	0 213	0 104	0 088	0 213	0 104	0 098	0 213	0 098	0 088	0 216	0 101
2+50	0 079	0 201	0 107	0 076	0 201	0 110	0 079	0 201	0 107	0 082	0 207	0 104	0 088	0 204	0 116
3+00	0 107	0 219	0 104	0 094	0 210	0 110	0 091	0 207	0 113	0 091	0 207	0 113	0 076	0 210	0 116
3+50	0 113	0 201	0 110	0 107	0 195	0 116	0 094	0 198	0 116	0 091	0 198	0 110	0 085	0 201	0 116
4+00	0 110	0 195	0 110	0 107	0 195	0 107	0 101	0 195	0 113	0 088	0 198	0 110	0 094	0 207	0 110
4+50	0 125	0 201	0 113	0 116	0 201	0 107	0 110	0 195	0 113	0 104	0 198	0 113	0 085	0 198	0 119
5+00	0 122	0 201	0 110	0 104	0 213	0 104	0 101	0 207	0 104	0 091	0 198	0 107	0 107	0 192	0 110
AVG	**0 106**	**0 203**	**0.109**	**0.099**	**0 203**	**0 108**	**0 092**	**0.202**	**0.109**	**0.092**	**0.203**	**0 106**	**0.087**	**0.206**	**0 108**
MIN	**0 079**	**0 195**	**0.101**	**0 076**	**0 192**	**0 104**	**0 079**	**0.195**	**0 104**	**0 082**	**0.198**	**0 098**	**0.076**	**0 192**	**0 088**
MAX	**0 125**	**0.219**	**0 116**	**0.116**	**0 216**	**0 116**	**0.110**	**0.213**	**0 116**	**0 104**	**0.213**	**0 113**	**0.107**	**0.216**	**0 119**
STD	**0.012**	**0 007**	**0.004**	**0 011**	**0.008**	**0 004**	**0 009**	**0.006**	**0 004**	**0 007**	**0.005**	**0.005**	**0 009**	**0.007**	**0 009**

SECTION 350111

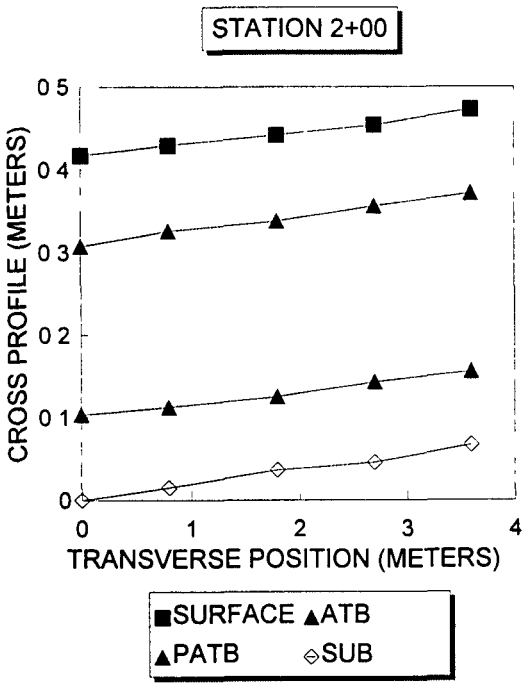


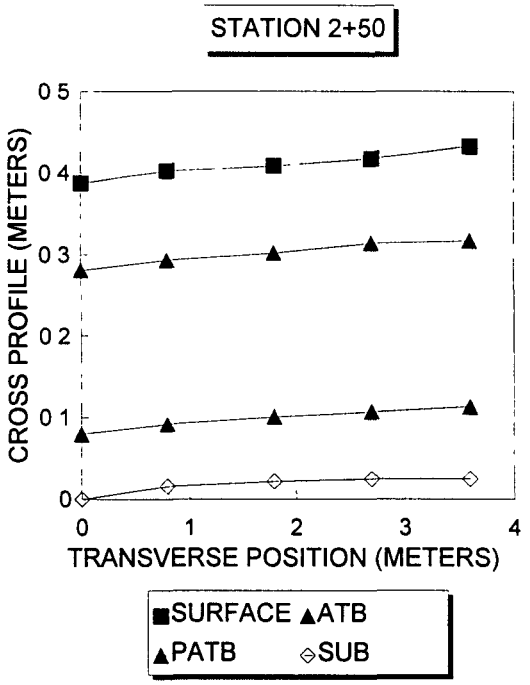


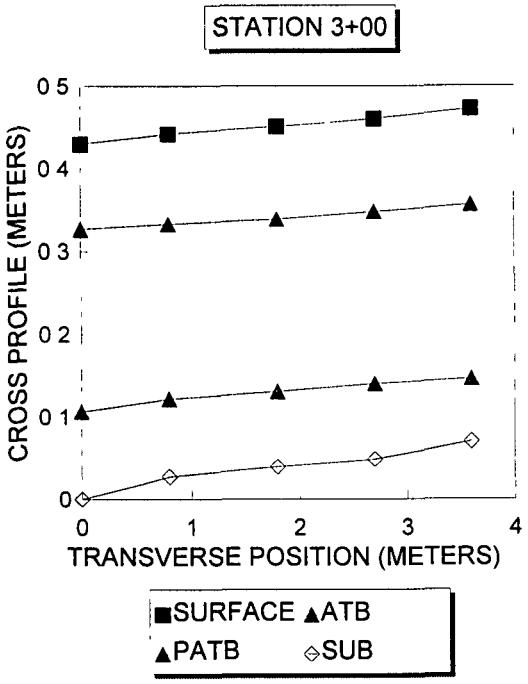


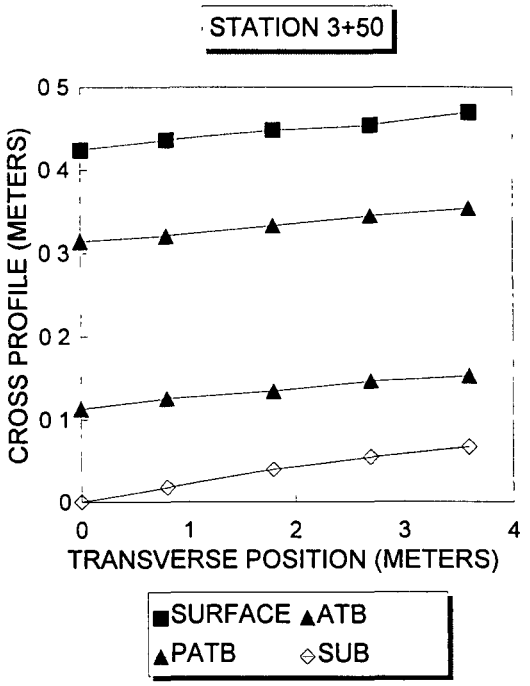


SECTION 350111

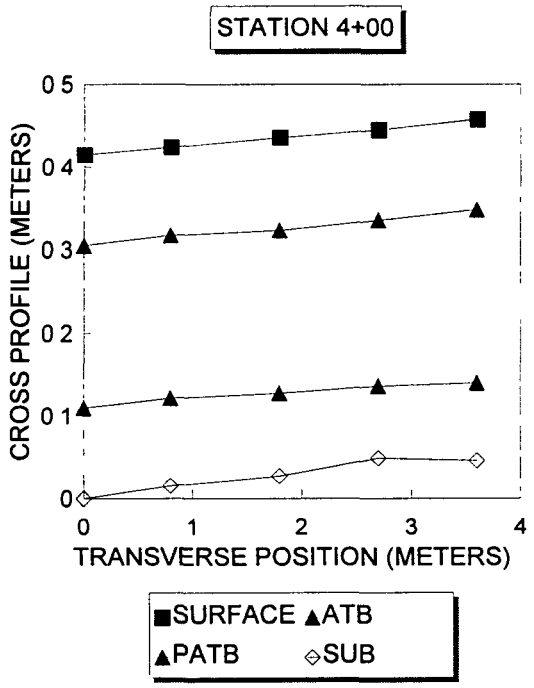


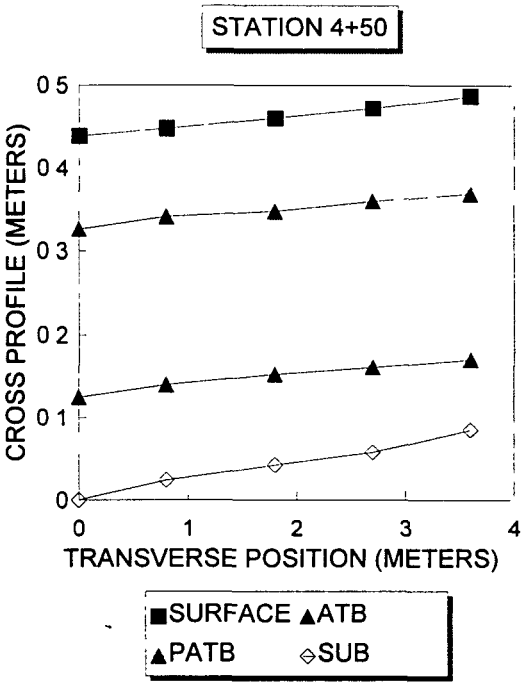


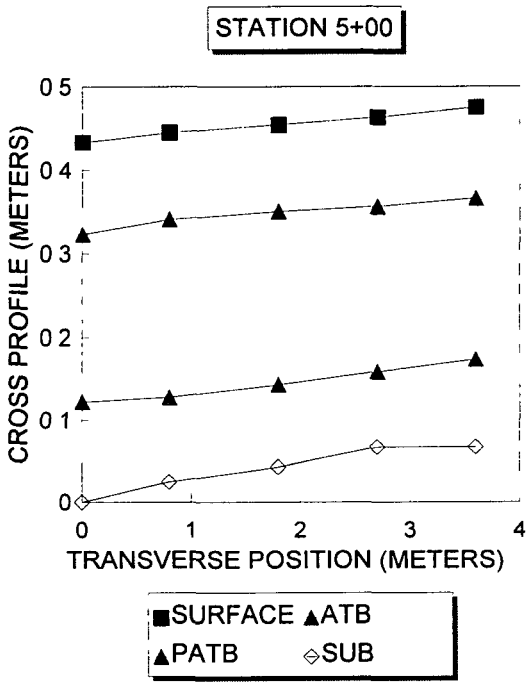




SECTION 350111



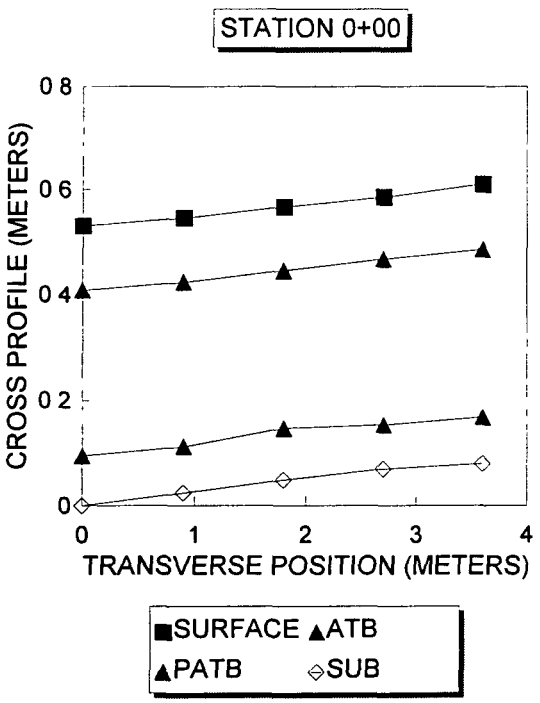


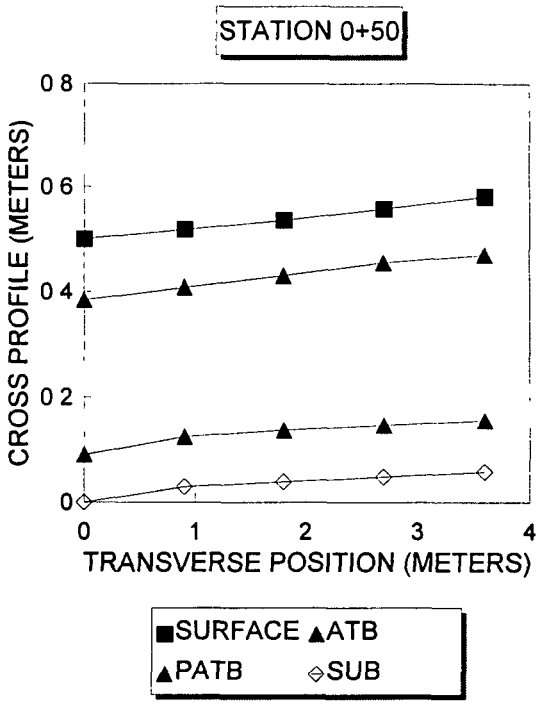


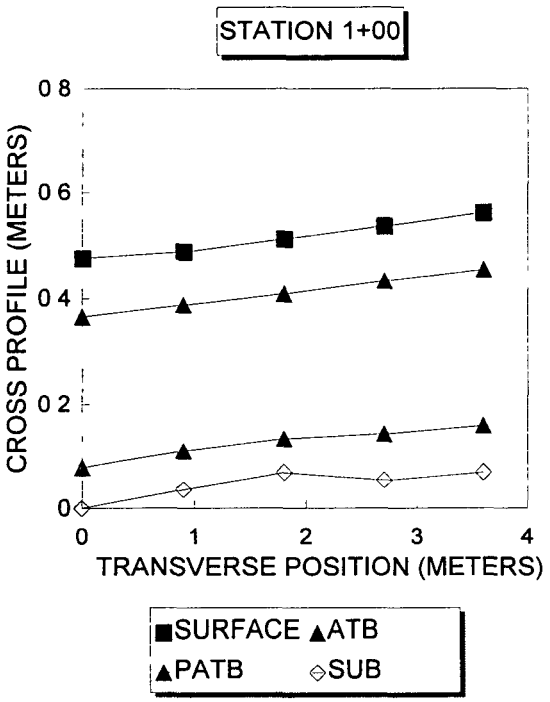
SECTION 350112 New Mexico

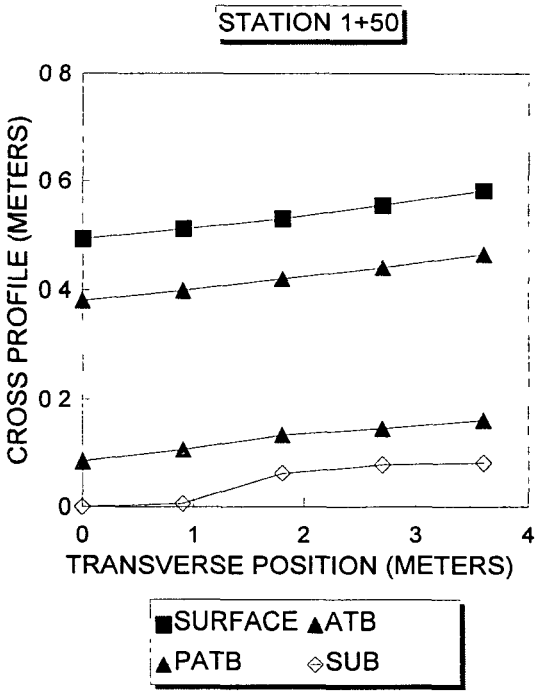
Trans. Offset	0.0M			0.9M			1.8M			2.7M			3.6M		
	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)	PATB Thickness (M)	ATB Thickness (M)	HMAC Thickness (M)
0+00	0 094	0 314	0 122	0 088	0 311	0 122	0 098	0 299	0 122	0 082	0 314	0 119	0 088	0 317	0 125
0+50	0 091	0 293	0 116	0 094	0 283	0 110	0 098	0 293	0 107	0 098	0 308	0 104	0 098	0 314	0 113
1+00	0 079	0 287	0 110	0 073	0 277	0 101	0 064	0 274	0 104	0 088	0 290	0 104	0 088	0 296	0 107
1+50	0 085	0 296	0 113	0 101	0 293	0 113	0 070	0 287	0 110	0 067	0 296	0 113	0 079	0 305	0 116
2+00	0 085	0 290	0 101	0 079	0 283	0 104	0 079	0 280	0 104	0 079	0 296	0 098	0 070	0 293	0 104
2+50	0 088	0 277	0 110	0 076	0 280	0 110	0 082	0 277	0 110	0 079	0 296	0 107	0 091	0 308	0 110
3+00	0 076	0 293	0 119	0 070	0 293	0 116	0 085	0 277	0 116	0 091	0 287	0 113	0 085	0 299	0 116
3+50	0 082	0 299	0 116	0 079	0 302	0 113	0 098	0 290	0 116	0 088	0 296	0 113	0 104	0 305	0 116
4+00	0 091	0 293	0 122	0 088	0 283	0 116	0 094	0 274	0 113	0 094	0 287	0 116	0 088	0 290	0 113
4+50	0 085	0 274	0 125	0 076	0 268	0 116	0 076	0 271	0 110	0 076	0 283	0 110	0 082	0 296	0 113
5+00	0 101	0 293	0 116	0 107	0 290	0 107	0 091	0 287	0 104	0 110	0 296	0 104	0 101	0 305	0 104
AVG	**0 087**	**0 291**	**0 115**	**0 085**	**0.288**	**0.111**	**0 085**	**0.283**	**0.110**	**0 087**	**0.295**	**0.109**	**0 089**	**0 302**	**0.112**
MIN	**0 076**	**0 274**	**0 101**	**0 070**	**0 268**	**0 101**	**0 064**	**0.271**	**0 104**	**0 067**	**0.283**	**0.098**	**0.070**	**0.290**	**0.104**
MAX	**0 101**	**0.314**	**0.125**	**0.107**	**0 311**	**0.122**	**0 098**	**0.299**	**0.122**	**0 110**	**0 314**	**0.119**	**0 104**	**0 317**	**0 125**
STD	**0 007**	**0 010**	**0 007**	**0 011**	**0 011**	**0 006**	**0 011**	**0.008**	**0 006**	**0.011**	**0.009**	**0.006**	**0 009**	**0 008**	**0.006**

SECTION 350112

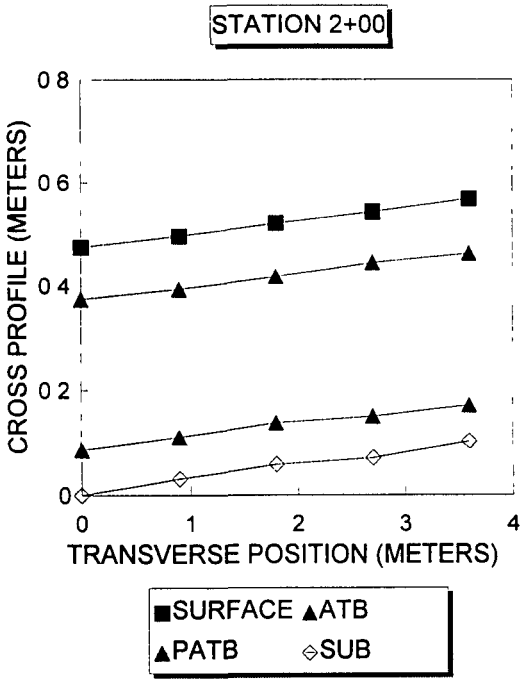


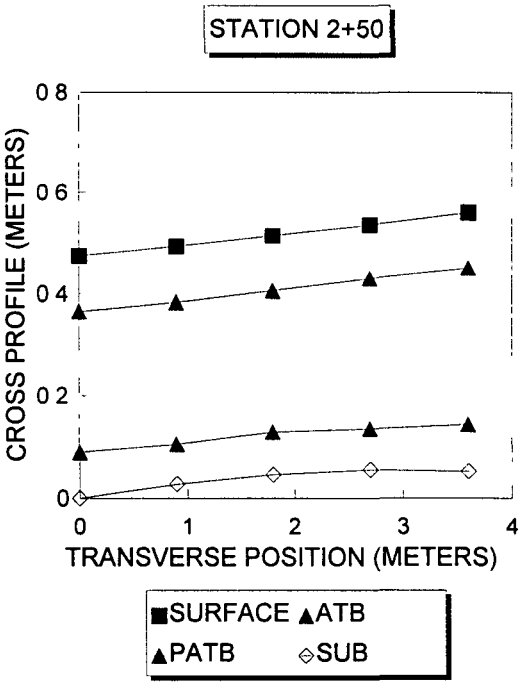


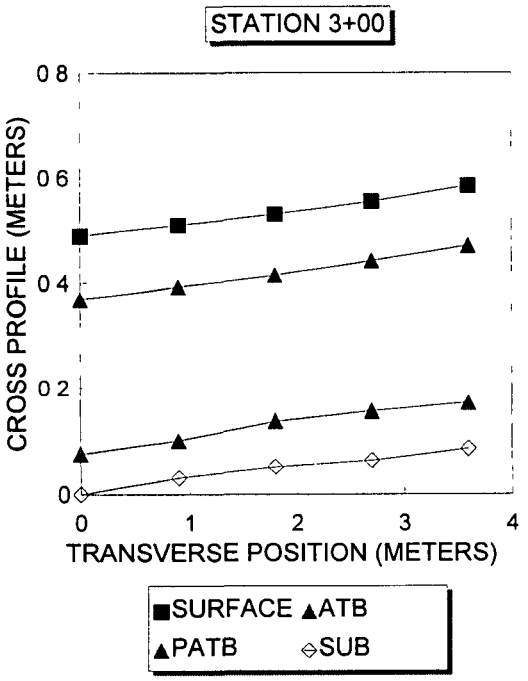


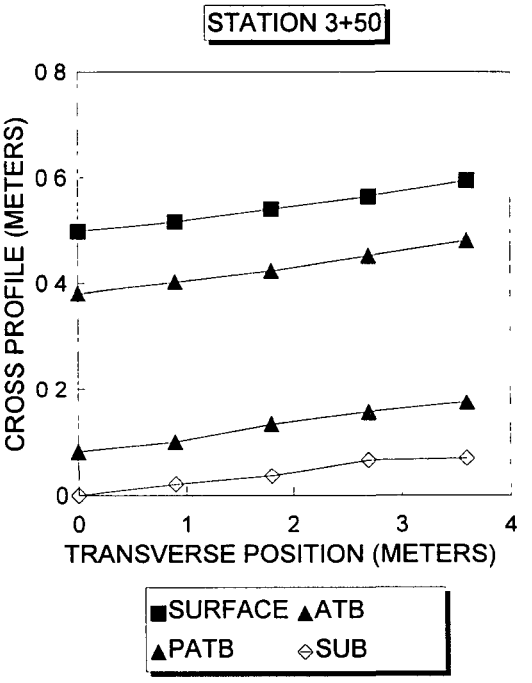


SECTION 350112

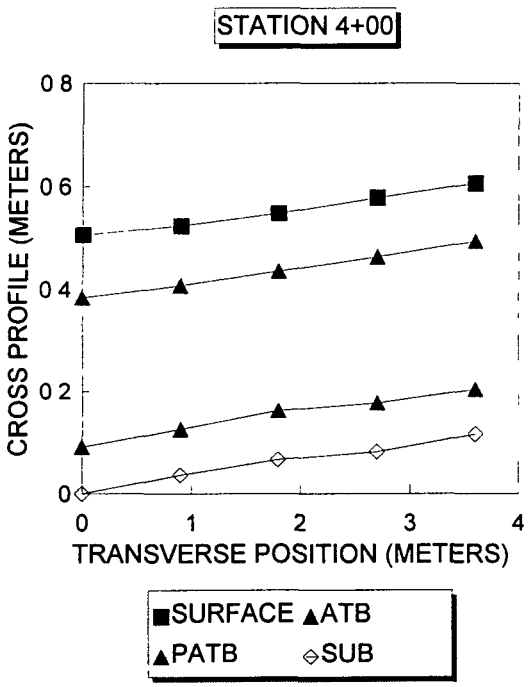


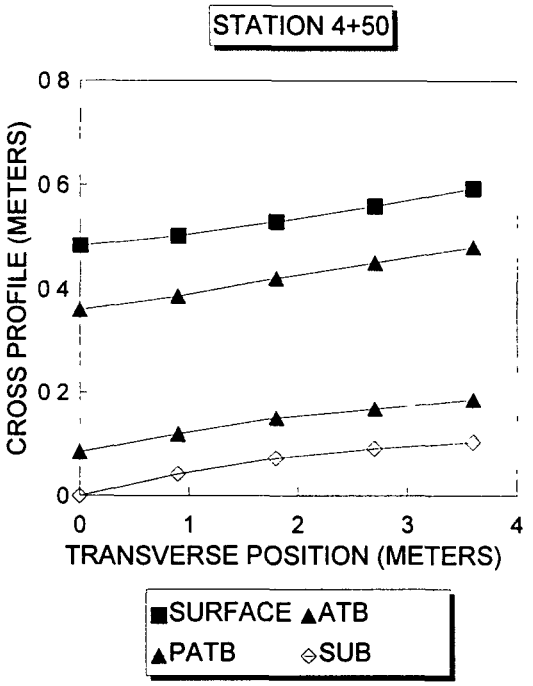


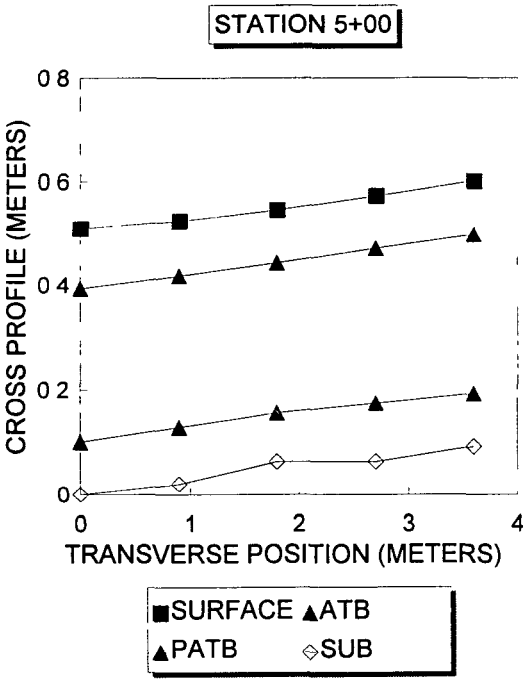




SECTION 350112







APPENDIX C

MATERIAL SAMPLING AND FIELD TESTING PLAN

Brent Rauhut Engineering Inc.

June 8, 1994

Mr. David R. Catanach, P.E.
Pavement Design Engineer
Testing & Design Section - Materials Lab
New Mexico State Highway
& Transportation Department
P.O. Box 1149
Santa Fe, New Mexico 87504-1149

Subject: New Mexico SPS-1 Project (350100) Material Sampling and Testing Plan.

Dear David,

Enclosed is the draft plan for field sampling and material testing activities for the New Mexico SPS-1 project, located on IH-25 in Dona Ana County, New Mexico. This plan details the field testing, material sampling and laboratory material testing to occur as part of the SPS-1 project construction. This plan has been prepared in accordance with guidelines prepared by the FHWA/LTPP Division.

If you have any questions or comments regarding the information provided in the material sampling and testing plan, do not hesitate to call me. This document has been submitted to the FHWA/LTPP and their Technical Assistance Contractor, for review and approval.

Sincerely,

Mark P. Gardner, P.E.
Project Engineer, SRCO

MPG:dmj

Enclosure: As stated.

cc.w/Enc: Monte Symons, FHWA/LTPP-DC
John Miller, PCS/Law

cc.w/o Enc: Jim Stokes, NM-SHTD
Homer Wheeler, RE-SRCO
Kuen-Wook Yi, NM-SHTD

8240 Mopac, Suite 220 • Austin, Texas 78759 • (512) 346-0870 • FAX (512) 346-8750

MATERIAL SAMPLING
AND
TESTING PLAN

NEW MEXICO SPS-1 PROJECT 350100
IH-25 NBL, DONA ANA COUNTY, NEW MEXICO

PREPARED BY:

BRENT RAUHUT ENGINEERING INC.
FHWA/LTPP SOUTHERN REGION COORDINATION OFFICE
8240 MOPAC, SUITE 220
AUSTIN, TEXAS 78759

JUNE 1994

MATERIAL SAMPLING AND TESTING PLAN
NEW MEXICO SPS-1 PROJECT (350100), IH-25 NBL
DONA ANA COUNTY, NEW MEXICO

INTRODUCTION

As part of their participation in the FHWA/LTPP studies, the State of New Mexico has elected to construct an SPS-1 project to study the structural factors for flexible pavements. This project will consist of multiple test sections with similar details and materials along IH-25, in the northbound lane, in Dona Ana County, New Mexico. It is the intent of this document to provide a complete plan for the material sampling, testing, and laboratory material testing that will occur as a part of this project.

This document has been prepared in accordance with guidelines provided by the Federal Highway Administration entitled "Specific Pavement Studies Material Sampling and Testing Requirements for Experiment SPS-1, Strategic Study of Structural Factors for Flexible Pavements (Draft), September 1993". Recognizing the apparent variability in the construction of roadway projects, the goal of this effort is to develop a sampling and testing plan for the project materials that will be consistent with other projects in this experiment, and therefore make the information obtained suitable for analysis.

The objective of the SPS-1 study is to more precisely determine the relative influence of strategic factors on the performance of flexible pavements. The factors addressed in this study include drainage, base type and thickness, and asphalt surface thickness. New Mexico's involvement in the study will provide critical information in the dry, no freeze environmental zone, on a fine-grained subgrade soil. The data produced by this experiment will be used to evaluate existing design methods and performance equations. The interaction of the factors previously discussed will be determined in combination with the effect of environmental region and soil type. The effects of these factors will be studied under realistic performance conditions with significant materials and construction control. Herein lies the need for a sampling and testing plan, provided in the following pages.

This sampling and testing plan has been developed by Brent Rauhut Engineering, Inc. the Southern Region Coordination Office under contract to the Federal Highway Administration. If, during the construction activities, any questions arise regarding the sampling and/or testing to be conducted, one should first coordinate these questions with the New Mexico State Highway and Trasportation Department, who may refer them to the Southern Region Coordination Office.

This document has been prepared in three distinct parts, each covering a particular area of this rather formidable exercise. The three sections are:

A. General Layout Information

B. Materials Sampling and Testing

C. Laboratory Material Testing

The General Layout section provides tables and figures of the layout showing the twelve test sections along the roadway and the layer structure of each test section.

The Material Sampling and Testing section defines in detail all of the material samples to be obtained, testing to be performed in the field, and provides an itemized list showing where each sample is to be shipped for laboratory testing.

Finally, the Laboratory Material Testing section outlines the laboratory material test program to be conducted and provides tracking charts showing the testing to be performed on each sample of each material in each laboratory.

SECTION A

GENERAL LAYOUT INFORMATION

SECTION A

GENERAL LAYOUT INFORMATION

This section of the plan provides a description of the SPS-1 project in terms of the location of the test sections along the roadway. Table A.1 lists the test sections in order of increasing station, providing an indication of the cross-section of each test section. Table A.2 tracks the test sections from the beginning of the first section at Station 240 + 50 to the end of the last section at Station 335 + 50. This table indicates transition areas between sections and the variation of pavement layer materials within these transitions.

Finally, Figure A.1 depicts the layout of the test sections along the roadway and shows the variation of material type and layer thickness.

The referenced project stationing was provided by the New Mexico SHTD in the form of preliminary project plans. If there are significant changes in alignment or stationing, this plan should be reviewed closely to determine if revisions are warranted.

TABLE A.1. TEST SECTION LAYOUT
NEW MEXICO SPS-1, IH-25 NBL, DONA ANA COUNTY, NEW MEXICO

Section (Cell ID)	Cross Section	Begin Station	End Station
350101 (V1)	7″ AC Surface	240 + 50	246 + 50
	8″ DGAB		
350102 (V2)	4″ AC Surface	248 + 00	254 + 00
	12″ DGAB		
350103 (V3)	4″ AC Surface	257 + 50	263 + 50
	8″ ATB		
350104 (V4)	7″ AC Surface	264 + 00	270 + 00
	12″ ATB		
350105 (V5)	4″ AC Surface	270 + 50	276 + 50
	4″ ATB		
	4″ DGAB		
350106 (V6)	7″ AC Surface	277 + 00	283 + 00
	8″ ATB		
	4″ DGAB		
350107 (V7)	4″ AC Surface	283 + 50	289 + 50
	4″ PATB		
	4″ DGAB		

TABLE A.1. TEST SECTION LAYOUT
NEW MEXICO SPS-1, IH-25 NBL, DONA ANA COUNTY, NEW MEXICO
(Continued)

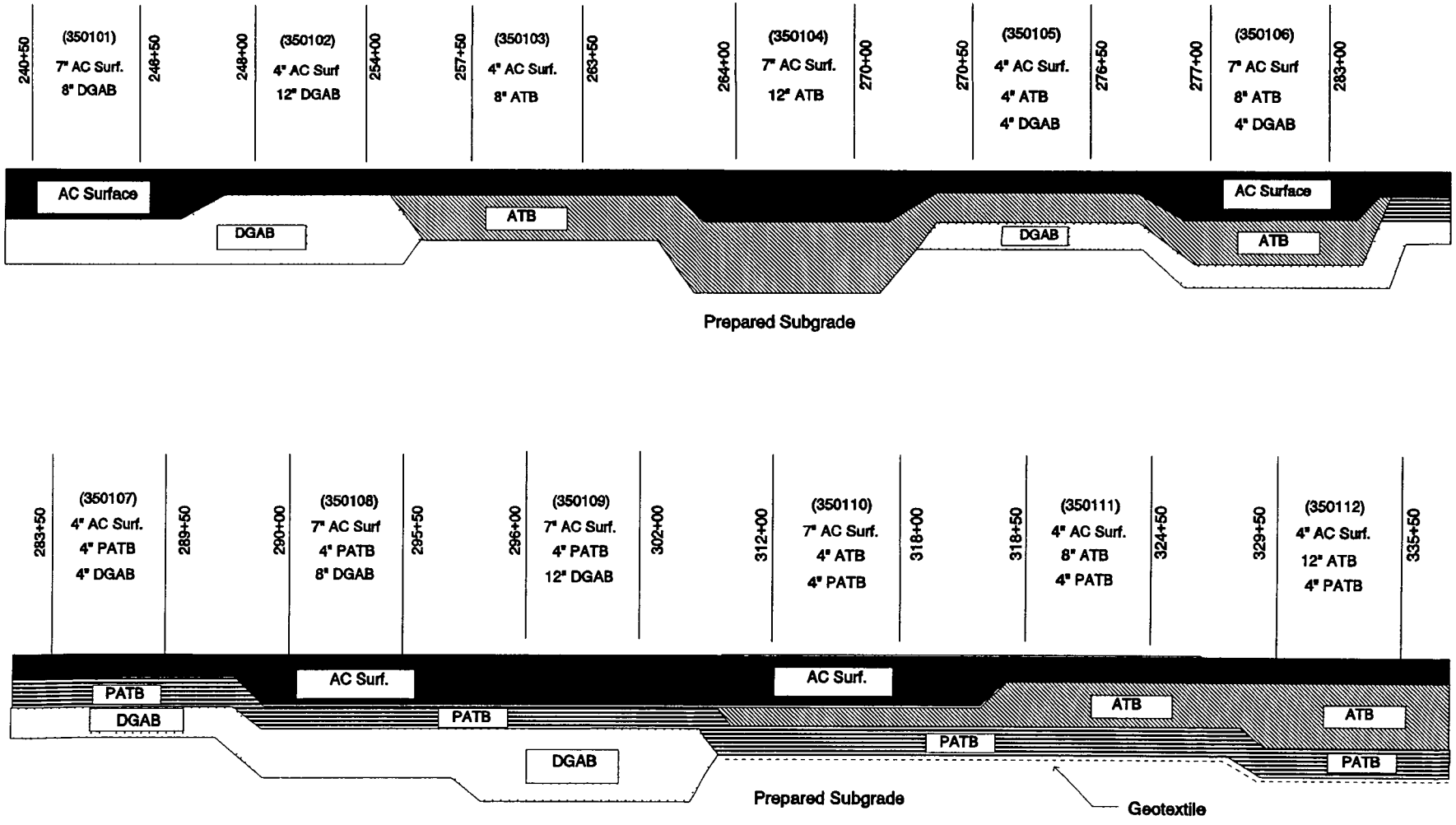
Section (Cell ID)	Cross Section	Begin Station	End Station
350108 (V8)	7″ AC Surface	290 + 00	295 + 50
	4″ PATB		
	8″ DGAB		
350109 (V9)	7″ AC Surface	296 + 00	302 + 00
	4″ PATB		
	12″ DGAB		
350110 (V10)	7″ AC Surface	312 + 00	318 + 00
	4″ ATB		
	4″ PATB		
350111 (V11)	4″ AC Surface	318 + 50	324 + 50
	8″ ATB		
	4″ PATB		
350112 (V12)	4″ AC Surface	329 + 50	335 + 50
	12″ ATB		
	4″ PATB		

TABLE A.2. ORDERING OF SECTIONS ALONG CENTER LINE STATIONING NEW MEXICO SPS-1, IH-25 NBL, DONA ANA COUNTY, NEW MEXICO

Begin Sta.	End Sta.	Section ID	Thickness (In.)			
			AC Surface*	ATB	PATB	DGAB
240+50	246+50	350101	7	0	0	8
246+50	248+00	Transition	7-4	0	0	8-12
248+00	254+00	350102	4	0	0	12
254+00	257+50	Transition	4	0-8	0	12-0
257+50	263+50	350103	4	8	0	0
263+50	264+00	Transition	4-7	8-12	0	0
264+00	270+00	350104	7	12	0	0
270+00	270+50	Transition	7-4	12-4	0	0-4
270+50	276+50	350105	4	4	0	4
276+50	277+00	Transition	4-7	4-8	0	4
277+00	283+00	350106	7	8	0	4
283+00	283+50	Transition	7-4	8-0	0-4	4
283+50	289+50	350107	4	0	4	4
289+50	290+00	Transition	4-7	0	4	4-8
290+00	295+50	350108	7	0	4	8
295+50	296+00	Transition	7	0	4	8-12
296+00	302+00	350109	7	0	4	12
302+00	312+00	Transition	7	0-4	4	12-0
312+00	318+00	350110	7	4	4	0
318+00	318+50	Transition	7-4	4-8	4	0
318+50	324+50	350111	4	8	4	0
324+50	329+50	Transition	4	8-12	4	0
329+50	335+50	350112	4	12	4	0

* Combined Binder and Wearing Course Thickness

Figure A.1. LAYOUT OF TEST SECTIONS
NEW MEXICO SPS-1, IH-25, NBL
DONA ANA COUNTY, NEW MEXICO



SECTION B

MATERIAL SAMPLING AND TESTING

SECTION B

MATERIAL SAMPLING AND TESTING

This section of the plan provides for the material sampling and testing activities that occur in the field. Tables B.1 and B.2 provide the scope of the material sampling and testing activities, respectively. Table B.3 describes special sampling needs for the Materials Reference Library and provides contact information to coordinate sample shipping arrangements.

Figures B.1 through B.18 show the locations and numbering scheme for the many samples and tests scheduled. Figures B.2 through B.6 show the sampling and testing to occur for each stage of the paving, while Figures B.7 through B.18 show all sampling and testing scheduled for each test section.

Finally, Tables B.4 and B.5 list samples to be shipped to the state laboratory (or their designee), and those samples to be shipped to the FHWA/LTPP testing contractor, respectively. Shipment of samples to the FHWA/LTPP testing contractor, LAW Engineering in Atlanta, Georgia, should be coordinated through the Southern Region Coordination Office.

TABLE B.1. SCOPE OF MATERIAL SAMPLING
NEW MEXICO SPS-1, IH-25 NBL, DONA ANA COUNTY, NEW MEXICO

Material And Sample Description	Nº. Of Samples	Sample Location
Asphalt Concrete		
Coring - 4″ Diam. Cores	60	C1-C60
Bulk Sampling - Surface Mix (200 lb/sample)	3	B16,B17,B18-From Paver
Bulk Sampling - Asphalt Cement (5 gal/sample)	3	B19,B20,B21-From Plant
Asphalt Treated Base		
Coring - 4″ Diam. Cores	34	C11-C30, C47-C60
Bulk Sampling (200 lb/sample)	3	B13,B14,B15-From Paver
Permeable Asphalt Treated Base		
Bulk Sampling (100 lb/sample)	3	B10,B11,B12-From Paver
Dense-Graded Aggregate Base		
Bulk Sampling (400 lb/sample)	3	B7,B8,B9
Moisture Content Samples	3	B7,B8,B9
Subgrade		
Thin-Walled Tubes (2 per hole)	36	A1-A18
Bulk Sampling (400 lb/sample)	6	B1-B6
Moisture Content Samples	6	B1-B6

TABLE B.2. SCOPE OF FIELD TESTING
NEW MEXICO SPS-1, IH-25 NBL, DONA ANA COUNTY, NEW MEXICO

Material And Test Description	Nº. Of Tests	Location Designation
Asphalt Concrete		
In Situ Density (Nuclear Gauge)	36	T88-T123
Asphalt Treated Base		
In Situ Density (Nuclear Gauge)	21	T67-T87
Dense-Graded Aggregate Base		
In Situ Density, Moisture Content (Nuclear Gauge)	24	T43-T66
Subgrade		
In Situ Density, Moisture Content (Nuclear Gauge)	42	T1-T42
Shoulder Auger Probe	12	S1-S12

TABLE B.3. MATERIAL SAMPLING FOR THE MATERIALS REFERENCE LIBRARY (MRL) NEW MEXICO SPS-1, IH-25 NBL, DONA ANA COUNTY, NEW MEXICO

Material And Sample Description	Nº. Of Samples	Sample Location
Asphalt Cement (5 Gallon Containers Each Type Used - Surface, ATB, PATB)	3	From Plant
Aggregate (55 Gallon Drum Each Blend - Surface, ATB)	1	From Plant
Finished Asphaltic Concrete Mix (5 Gallon Containers Each - Surface, ATB, PATB)	3	From Paver

Note: Containers for this sampling will be provided by the LTPP Materials Reference Library (MRL). Scheduling information including (1) date containers needed, (2) state agency contact name, and (3) shipping address and telephone number should be provided to the MRL Contractor as soon as it is feasible to do so. The contact name, address and telephone number for the MRL Contractor are as follows:

Mr. Andrew Brigg
Nichols Consulting Engineers, Chtd.
1885 So. Arlington Ave., Suite 111
Reno, Nevada 89509
(702) 329-4955

These samples should be labeled according to applicable guidelines provided elsewhere and shipped to the MRL Contractor upon completion of sampling activities.

FIGURE B.1 SITE LAYOUT WITH SAMPLING AREAS
NEW MEXICO SPS-1, IH-25 NBL
DONA ANA COUNTY, NEW MEXICO

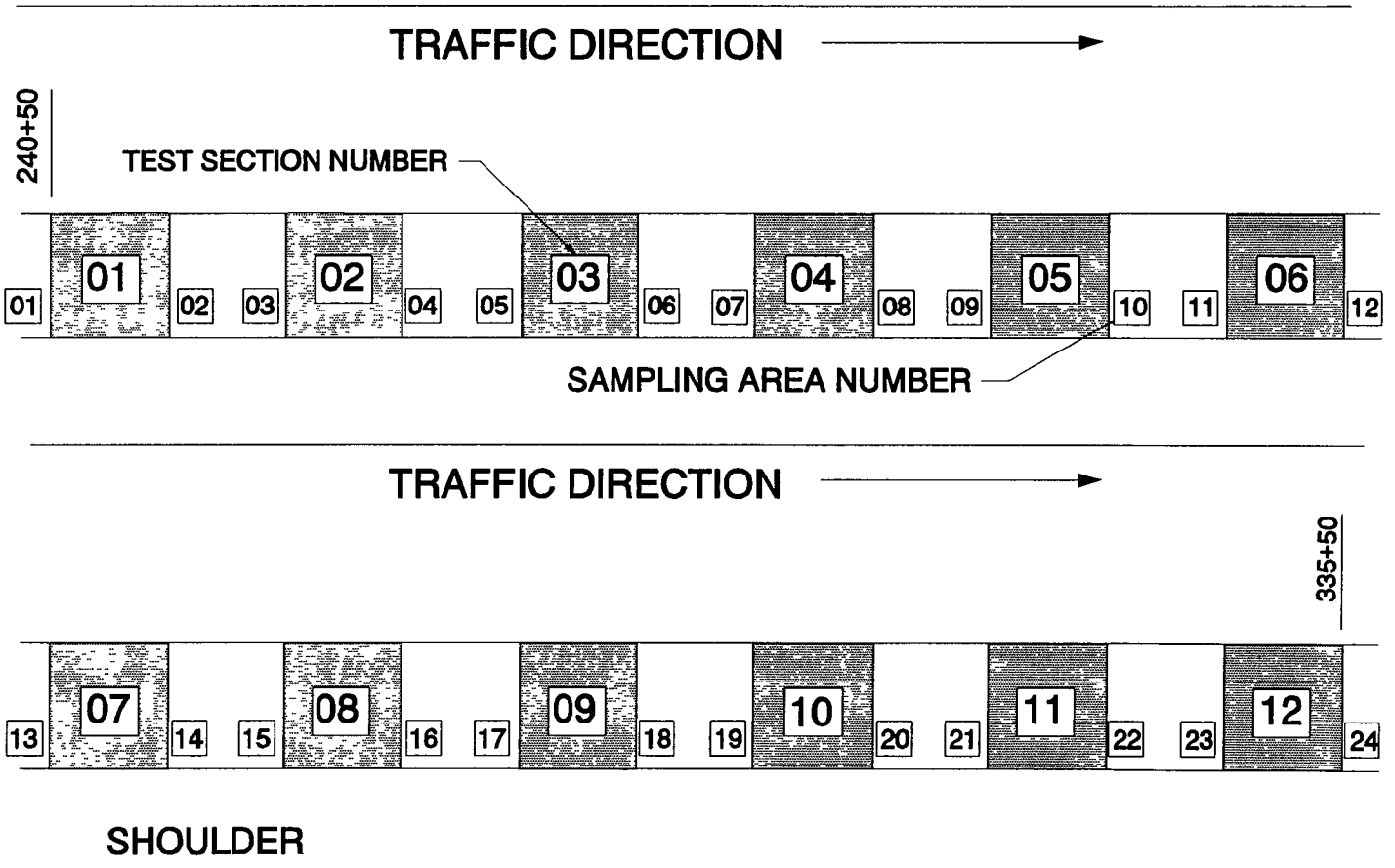
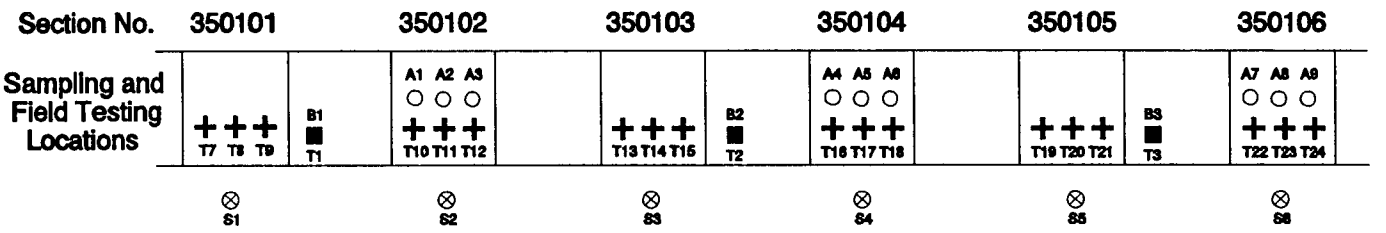
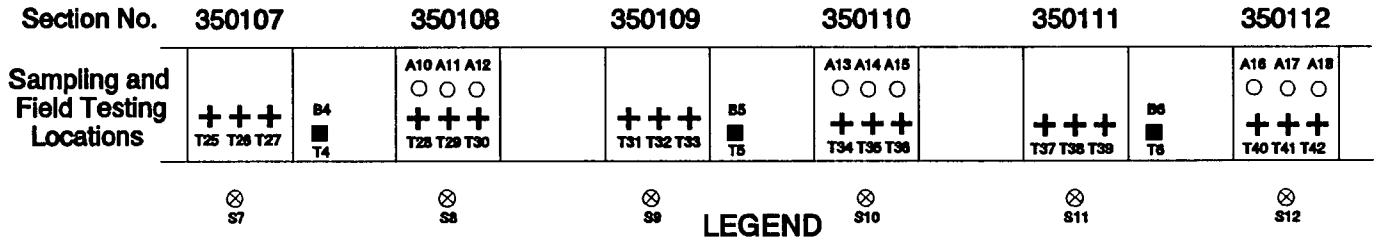


FIGURE B.2 SAMPLING AND TESTING LOCATIONS FOR SUBGRADE
NEW MEXICO SPS-1, IH-25
DONA ANA COUNTY, NEW MEXICO





LEGEND

■ 2 X 2 bulk sampling location (B1 - B6)

○ Shelby tube/splitspoon sampling to 4' below top of subgrade (A1 - A18).

⊗ Shoulder probe (S1 - S12)

\+ Location of in situ density testing (T1 - T42)

Note: Nuclear density/moisture testing must be conducted at bulk sampling locations prior to excavation.

FIGURE B.3 SAMPLING AND TESTING LOCATIONS FOR DGAB
NEW MEXICO SPS-1, IH-25 NBL
DONA ANA COUNTY, NEW MEXICO

Stage of Construction	DGAB / Prep. Sg.		DGAB / Prep. Sg.						DGAB / Prep. Sg.		DGAB / Prep. Sg.	
Section No.	350101		350102		350103		350104		350105		350106	
Sampling and Field Testing Locations	+ + + T43 T44 T45	B7 ■ T46	+ + + T47 T48 T49		N/A		N/A		+ + + T50 T51 T52	B8 ■ T53	+ + + T54 T55 T56	

Stage of Construction	DGAB / Prep. Sg.		DGAB / Prep. Sg.		DGAB / Prep. Sg.							
Section No.	350107		350108		350109		350110		350111		350112	
Sampling and Field Testing Locations	+ + + T57 T58 T59		+ + + T60 T61 T62	B9 ■ T63	+ + + T64 T65 T66		N/A		N/A		N/A	

LEGEND

+ Location of in situ density testing (T43 - T66)

■ Location of bulk sampling of DGAB (B7 - B9)

Note: Nuclear density/moisture testing must be conducted at bulk sampling locations prior to excavation.

Prep. Sg. - Prepared Subgrade

DGAB - Dense Graded Aggregate Base

FIGURE B.4 TESTING LOCATIONS FOR ATB
NEW MEXICO SPS-1, IH-35 NBL
DONA ANA COUNTY, NEW MEXICO

Stage of Construction	DGAB / Prep. Sg		DGAB / Prep. Sg.		ATB / Prep Sg.		ATB / Prep. Sg.		ATB / DGAB / Prep Sg		ATB / DGAB / Prep Sg	
Section No.	350101		350102		350103		350104		350105		350106	
Sampling and Field Testing Locations	N/A		N/A		+ + + T67 T68 T69		+ + + T70 T71 T72		+ + + T73 T74 T75		+ + + T76 T77 T78	

Stage of Construction	PATB / DGAB / Prep. Sg.		PATB / DGAB / Prep. Sg.		PATB / DGAB / Prep. Sg.		ATB / PATB / Prep. Sg.		ATB / PATB / Prep Sg.		ATB / PATB / Prep Sg	
Section No.	350107		350108		350109		350110		350111		350112	
Sampling and Field Testing Locations	N/A		N/A		N/A		+ + + T79 T80 T81		+ + + T82 T83 T84		+ + + T85 T86 T87	

LEGEND

+ Location of in situ density testing (T67 - T87)

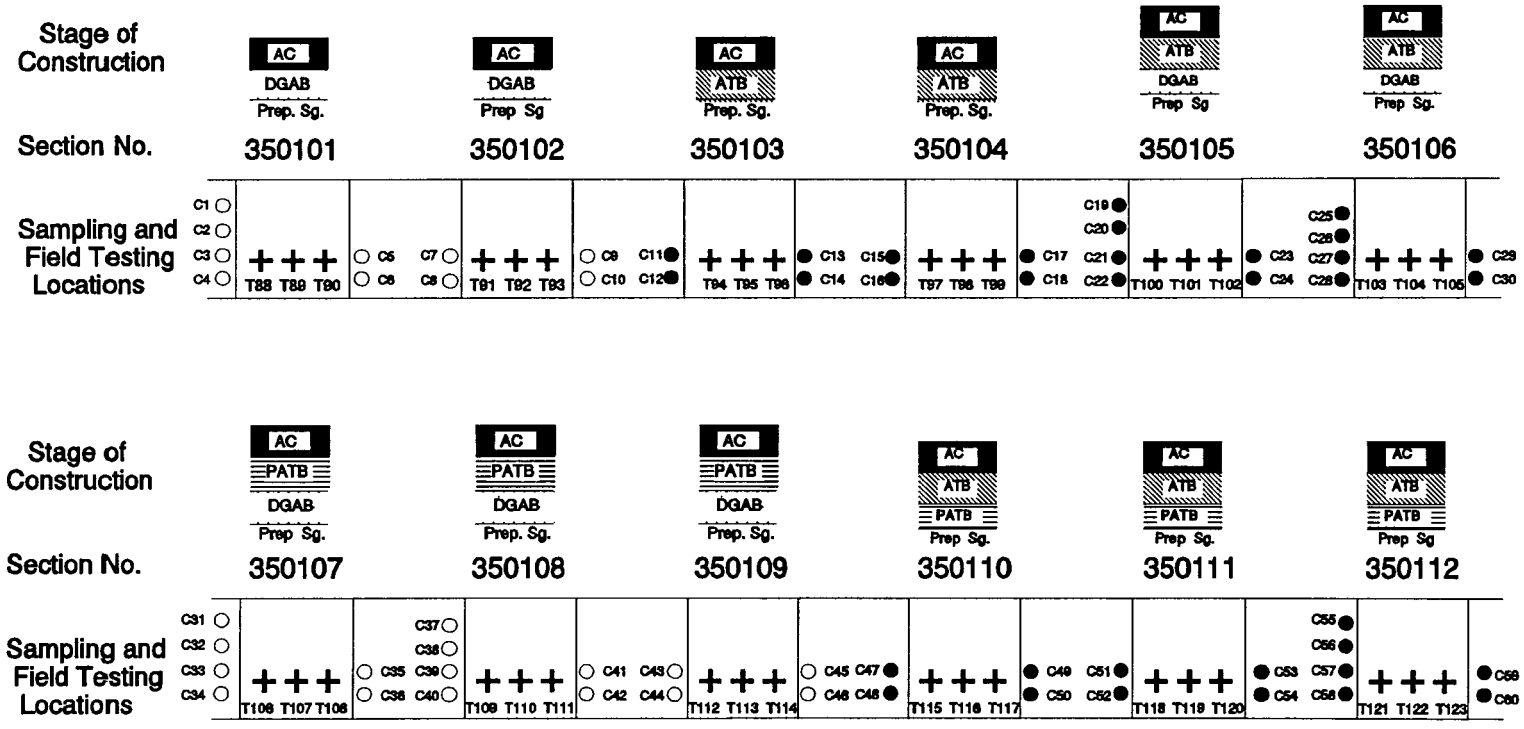
Prep. Sg. - Prepared Subgrade

PATB - Permeable Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

ATB - Asphalt Treated Base

FIGURE B.5 SAMPLING AND TESTING LOCATIONS FOR AC SURFACE
NEW MEXICO SPS-1 , IH-25 NBL
DONA ANA COUNTY, NEW MEXICO



LEGEND

○ 4" OD Core of Asphalt Concrete Surface Only (C1 - C10, C31 - C46)

● 4" OD Core of Asphalt Concrete Surface and Treated Base (C11 - C30, C47 - C60)

+ Location of in situ density testing (T88 - T123)

Prep. Sg. - Prepared Subgrade

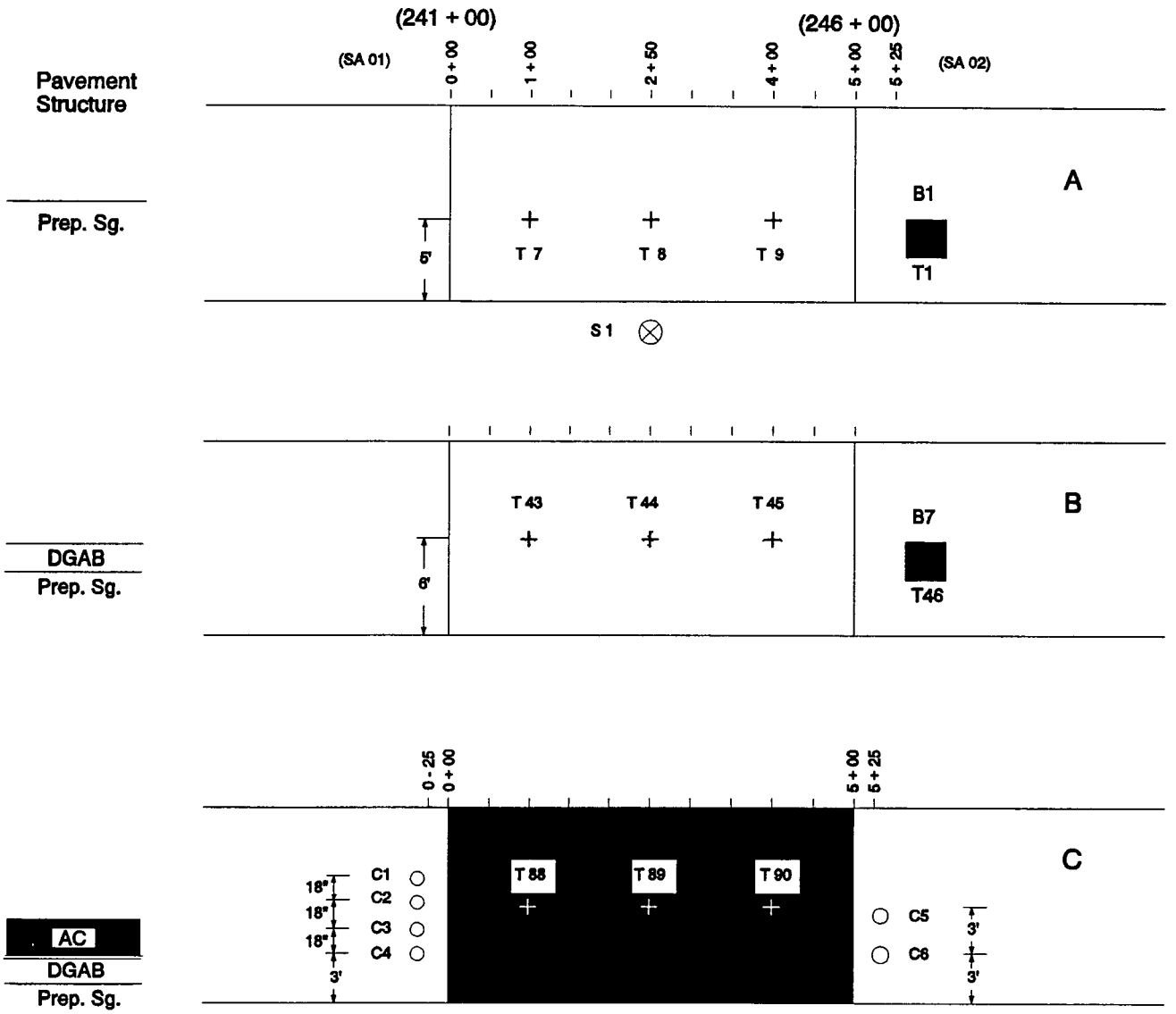
PATB - Permeable Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

ATB - Asphalt Treated Base

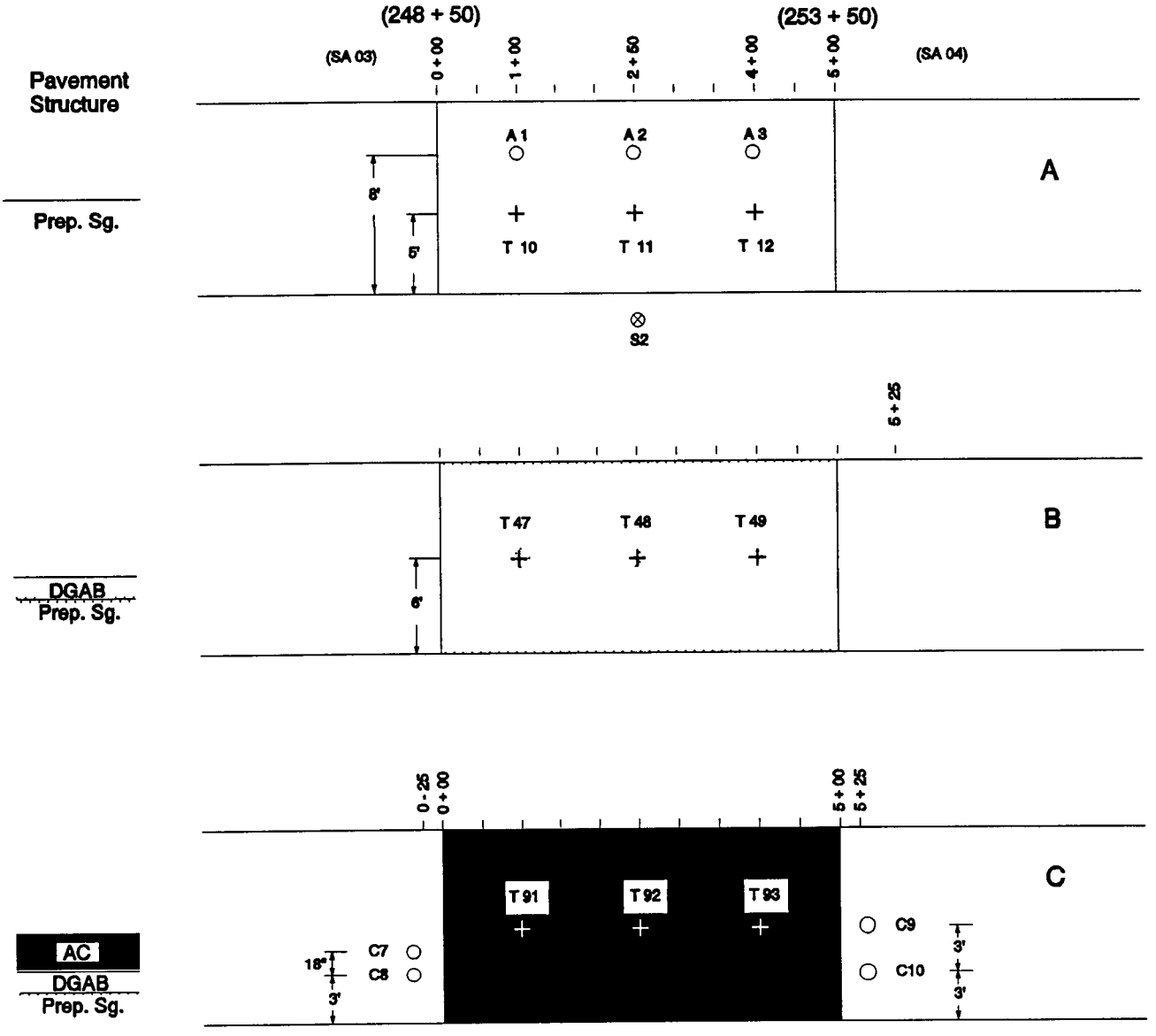
AC - Asphalt Concrete Surface

FIGURE B.6 SAMPLING AND TESTING PLAN FOR TEST SECTION 350101



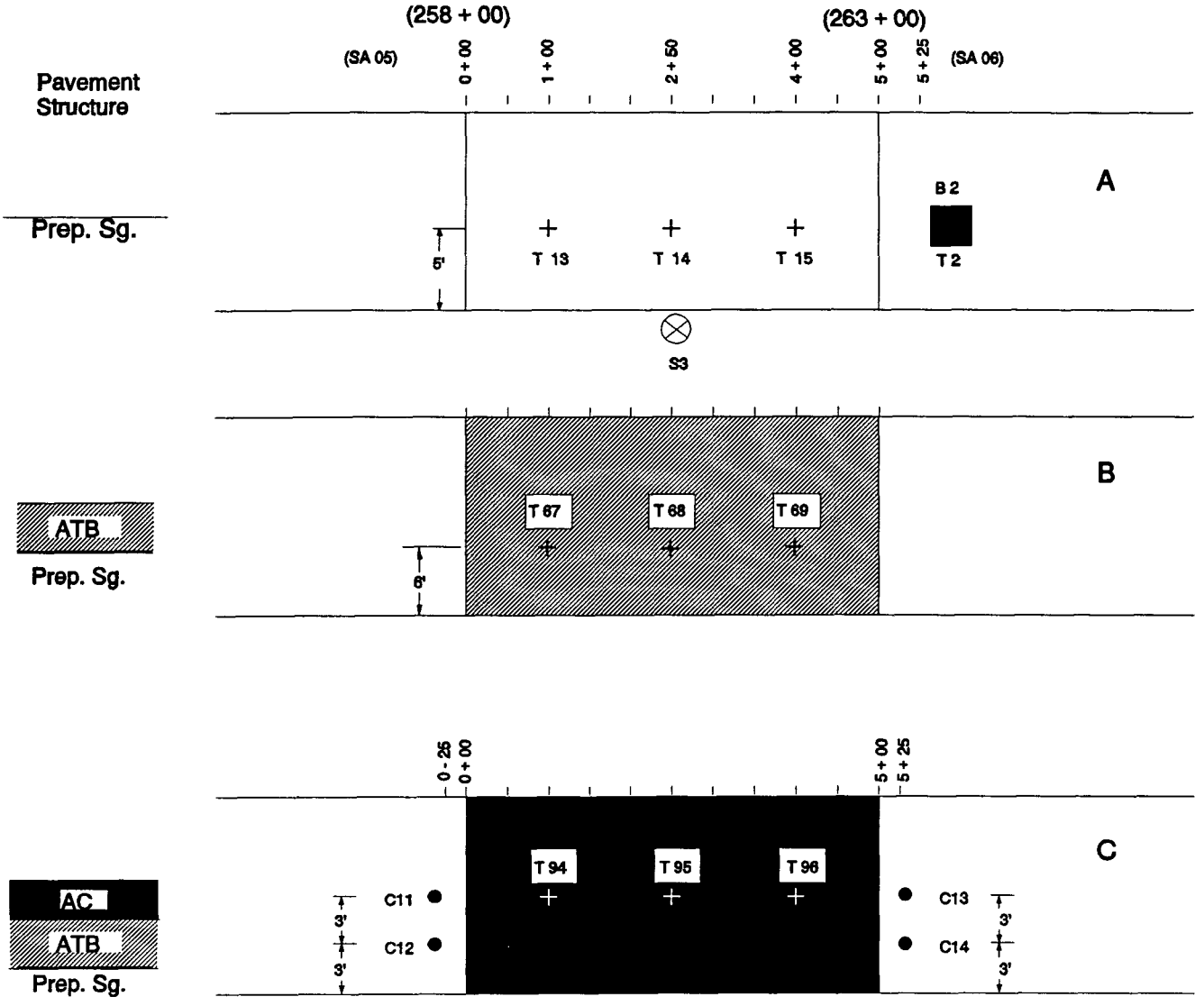
A Testing on prepared Subgrade (T1, T7 - T9, S1, B1)
B Testing on compacted DGAB (T43 - T46, B7)
C Testing on finished AC Surface (T88 - T90)
Coring AC Surface (C1 - C6)

FIGURE B.7 SAMPLING AND TESTING PLAN FOR TEST SECTION 350102



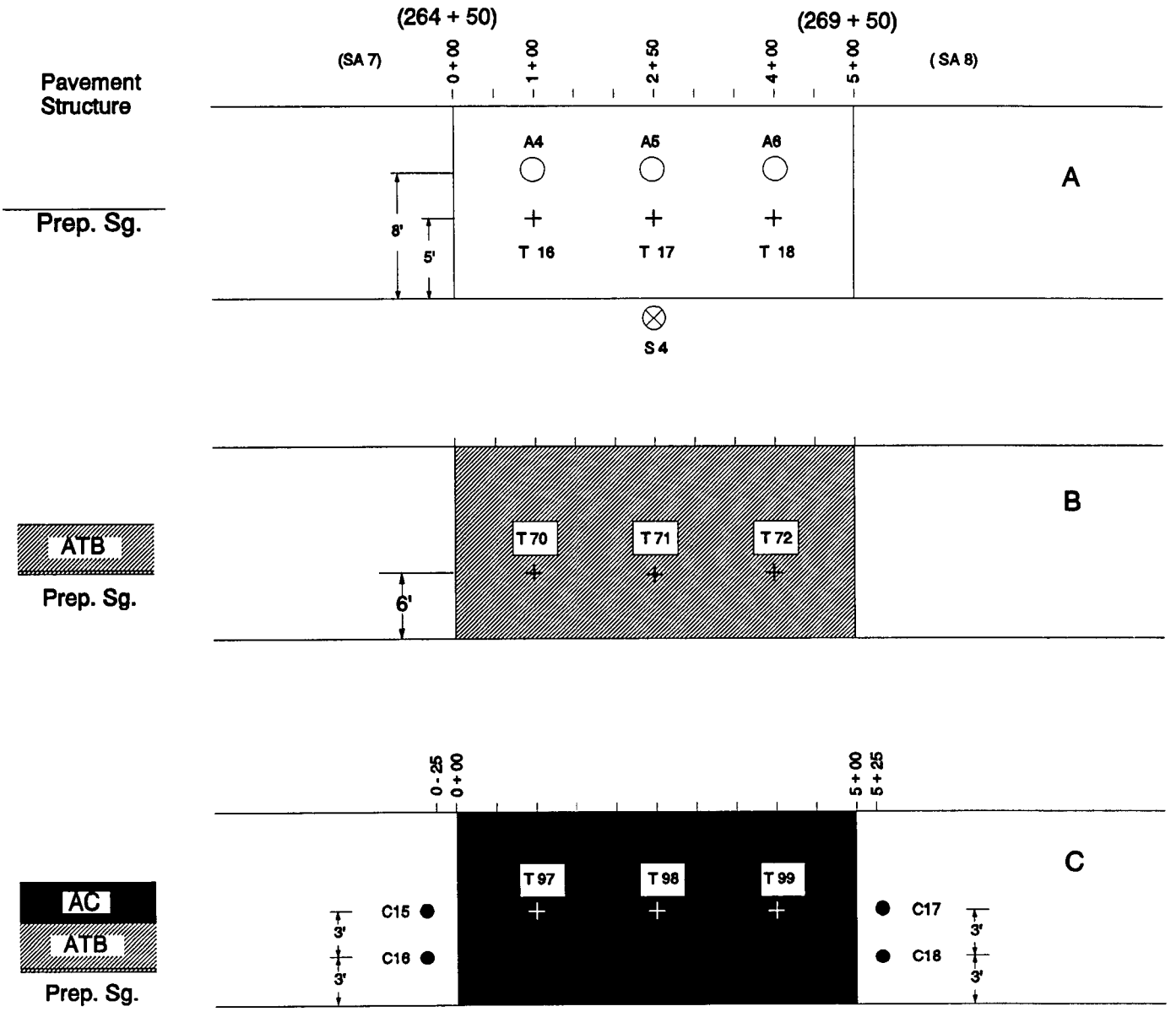
A Testing on prepared Subgrade (T10 - T12, A1 - A3, S2)
B Testing on compacted DGAB (T47 - T49)
C Testing on finished AC Surface (T91 - T93)
Coring AC Surface (C7 - C10)

FIGURE B.8 SAMPLING AND TESTING PLAN FOR TEST SECTION 350103



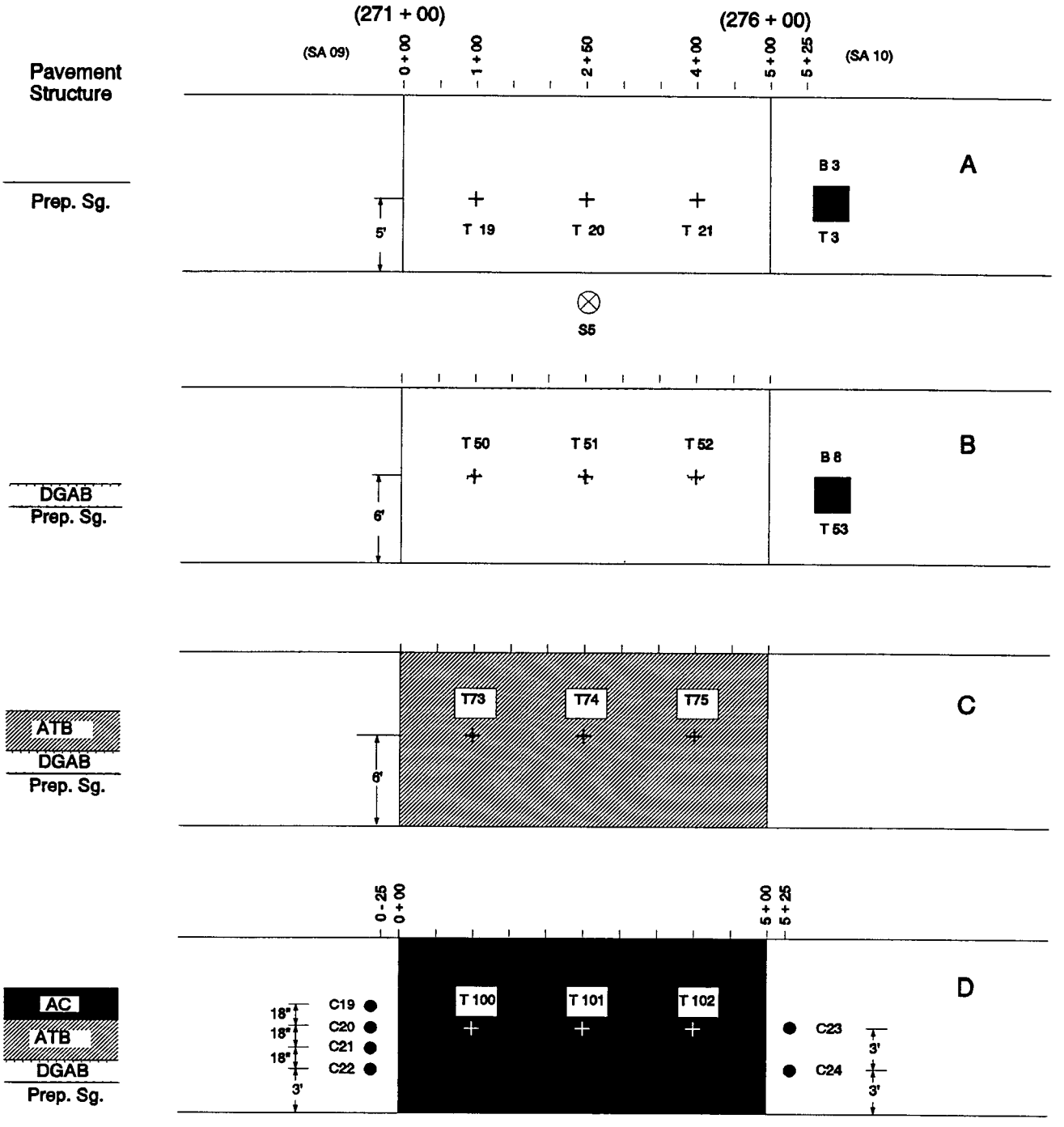
A Testing on prepared Subgrade (T2, T13 - T15, B2, S3)
B Testing on compacted ATB (T67 - T69)
C Testing on finished AC Surface (T94 - T96)
Coring AC Surface and bound layers (C11 - C14)

FIGURE B.9 SAMPLING AND TESTING PLAN FOR TEST SECTION 350104



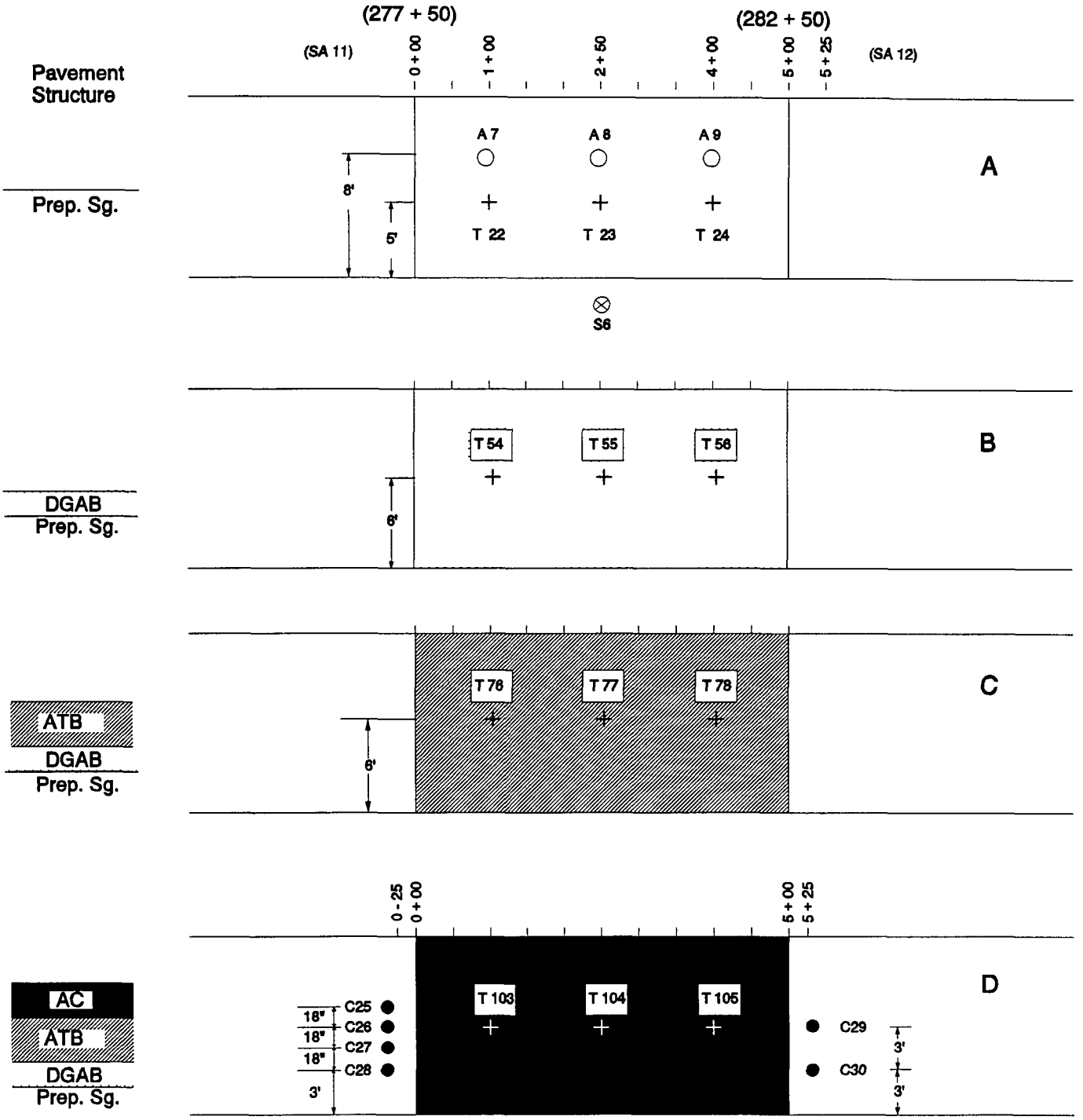
A Testing on prepared Subgrade (T16 - T18, A4 - A6, S4)
B Testing on compacted ATB (T70 - T72)
C Testing on finished AC Surgace (T97 - T99)
Coring AC Surface and bound layers (C15 - C18)

FIGURE B.10 SAMPLING AND TESTING PLAN FOR TEST SECTION 350105



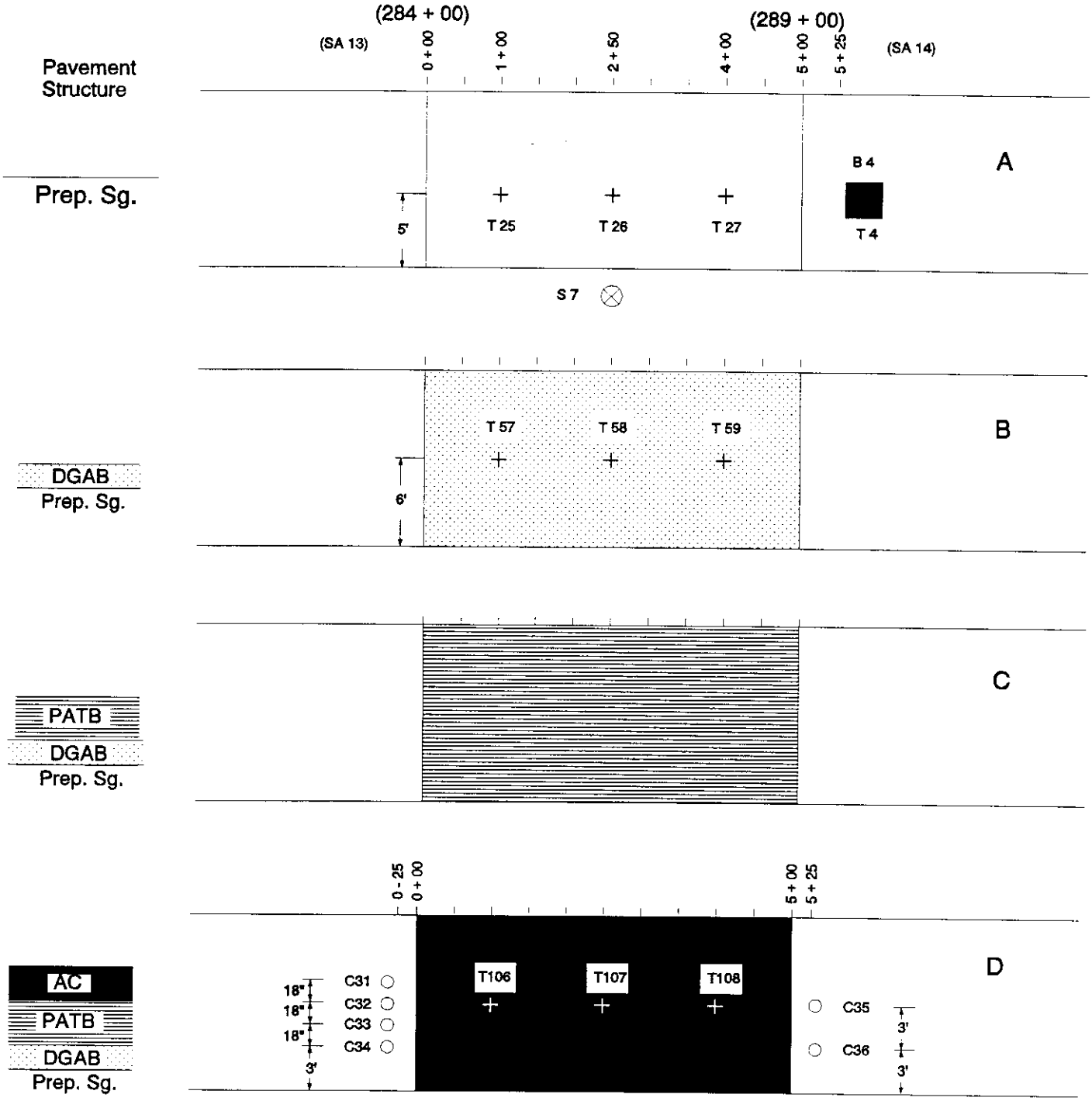
A Testing on prepared Subgrade (T3, T19 - T21, B3, S5)
B Testing on compacted DGAB (T50 - T53, B8)
C Testing on compacted ATB (T73 - T75)
D Testing on finished AC Surface (T100 - T102)
Coring AC Surface and bound layers (C19 - C24)

FIGURE B.11 SAMPLING AND TESTING PLAN FOR TEST SECTION 350106



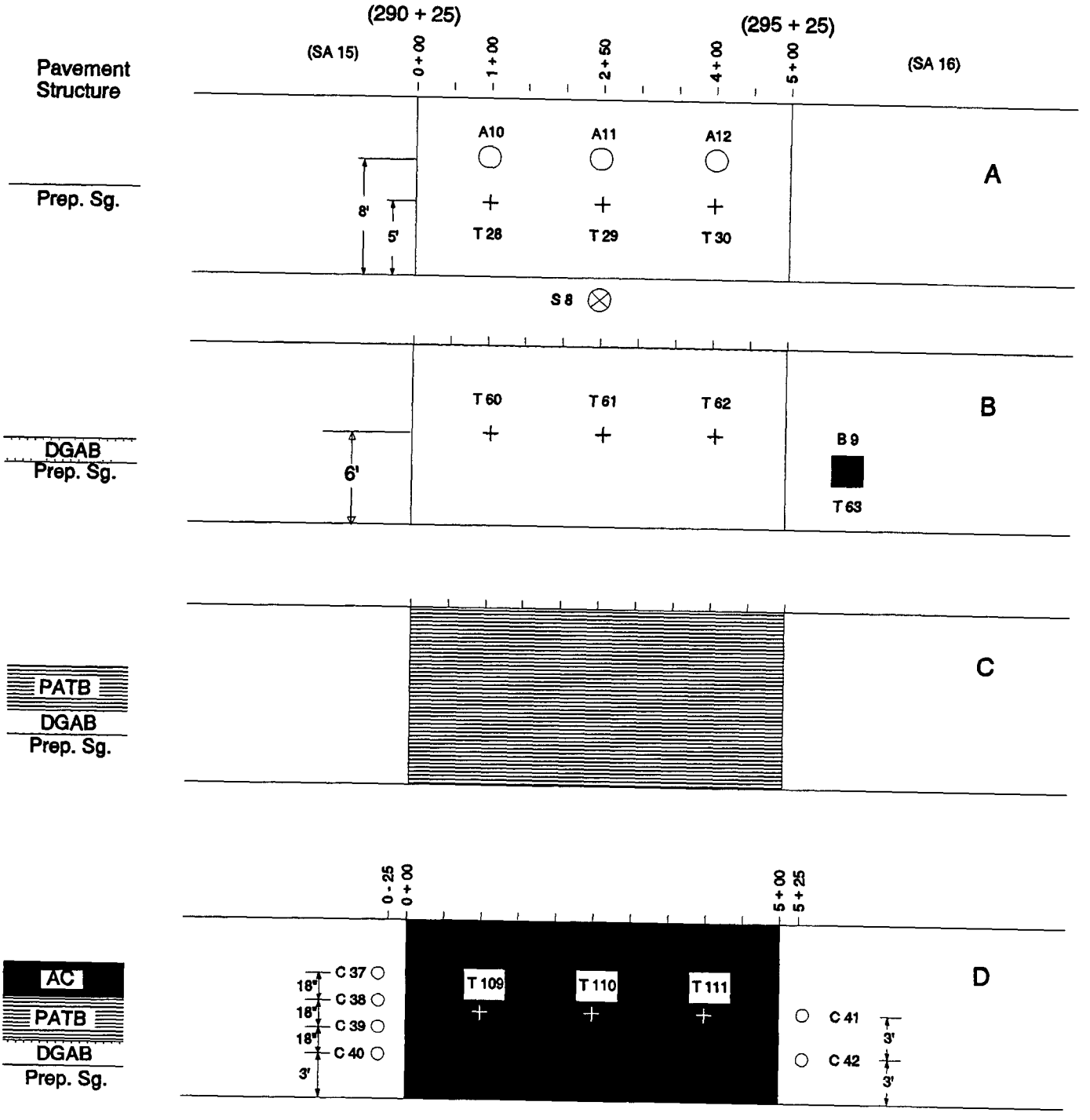
A Testing on prepared Subgrade (T22 - T24, A7 - A9, S6)
B Testing on compacted DGAB (T54 - T56)
C Testing on compacted ATB (T76 - T78)
D Testing on finished AC Surface (T103 - T105)
Coring AC Surface and bound layers (C25 - C30)

FIGURE B.12 SAMPLING AND TESTING PLAN FOR TEST SECTION 350107



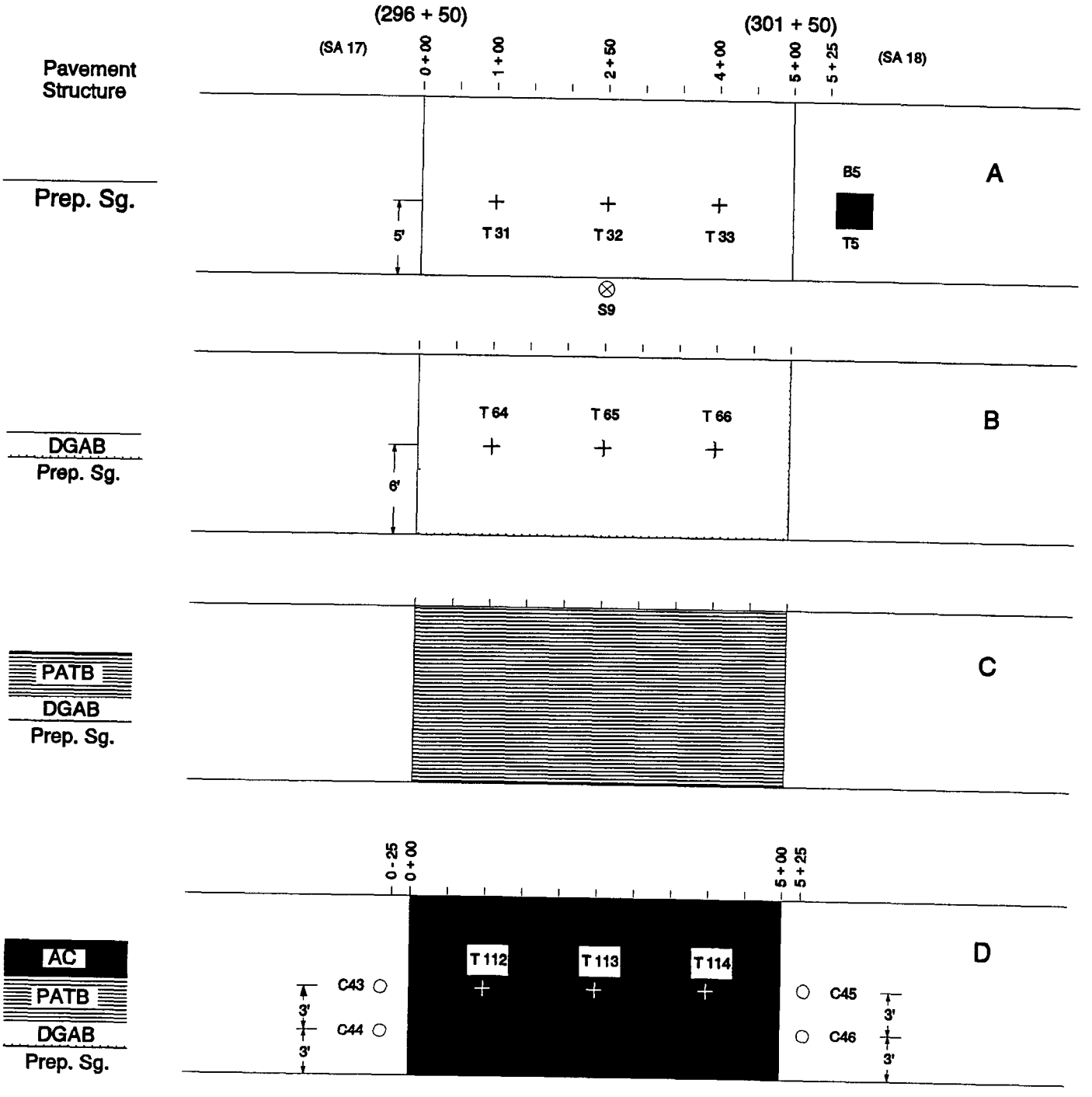
A Testing on prepared Subgrade (T4, T25 - T27, B4, S7)
B Testing on compacted DGAB (T57 - T59)
C No testing on compacted PATB
D Testing on finished AC Surface (T106 - T108)
Coring AC Surface only (C31 - C36)

FIGURE B.13 SAMPLING AND TESTING PLAN FOR TEST SECTION 350108



A Testing on prepared Subgrade (T28 - T30, A10- A12, S8)
B Testing on compacted DGAB (T60 - T63, B9)
C No testing on compacted PATB
D Testing on finished AC Surface (T109 - T111)
Coring AC Surface only (C37 - C42)

FIGURE B.14 SAMPLING AND TESTING PLAN FOR TEST SECTION 350109



A Testing on prepared Subgrade (T5, T31 - T33, B5, S9)
B Testing on compacted DGAB (T64 - T66)
C No testing on compacted PATB
D Testing on finished AC Surface (T112 - T114)
Coring AC Surface only (C43 - C46)

SECTION C

LABORATORY MATERIAL TESTING

SECTION C

LABORATORY MATERIAL TESTING

It is the intent of this section of the sampling and testing plan to provide an outline for the laboratory testing that is planned for the New Mexico SPS-1 project. The previous section ended with lists of samples to be shipped to each of two laboratories; the state designated laboratory and the FHWA/LTPP contracted laboratory. In this section, the tests to be performed on each sample are listed.

Table C.1 provides a reference project layer numbering scheme. It is important that the two laboratories reference the same layer by number to ensure meaningful results.

Table C.2 provides a listing of the tests to be performed for each material type and pavement layer, and the associated laboratory testing protocol. It is imperative that the protocols listed be strictly followed during testing.

Tables C.3 through C.8 provide tracking tables for the state designated laboratory for each material type. These tables itemize the testing to occur on each sample and provide an indication of whether the sample is to be disposed of. Tables C.9 through C.14 provide similar information for the FHWA/LTPP contracted laboratory.

TABLE C.1. PROJECT LAYER NUMBERING

Layer Nº.	Description
1	Subgrade
2	Dense Graded Aggregate Base (DGAB)
3	Permeable Asphalt Treated Base (PATB)
4	Dense Graded Asphalt Treated Base (ATB)
5	Hot Mix Asphalt Concrete Surface Course

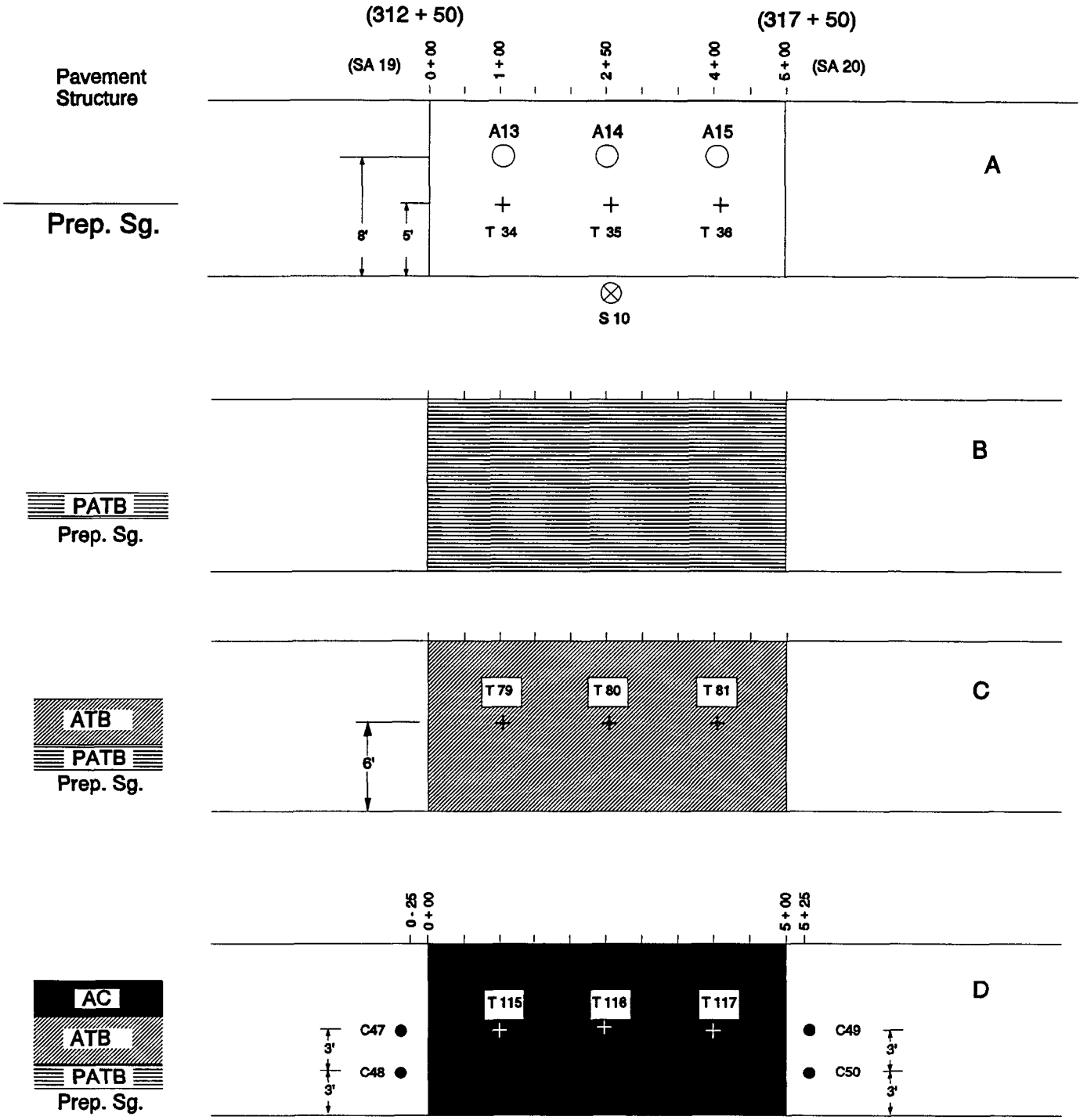
TABLE C.2. SAMPLES TO BE USED FOR LABORATORY MATERIALS TESTING

Material Type and Properties	LTPP Designation	LTPP Protocol	Minimum Nº. of Tests per Layer	Sampling Location	Test Conducted by: State	FHWA
SUBGRADE						
Sieve Analysis	SS01	P51	6	B1-B6		X
Hydrometer to 0.001 mm	SS02	P42	6	B1-B6		X
Atterberg Limits	SS03	P43	6	B1-B6		X
Classification	SS04	P52	6	B1-B6		X
(Visual-manual only on thin-wall tubes)			18	A1-A18	X	X
Moisture-Density Relations	SS05	P55	6	B1-B6		X
Resilient Modulus	SS07	P46	6	A2, A5, A9, A11, A14, A17		X
(If thin-wall tube is not available)			6	B1-B6		X
Unit Weight (If thin-wall tube is not available, test is not conducted)	SS08	P56	6	A1, A4, A8, A10, A13, A16	X	
Natural Moisture Content	SS09	P49	6	B1-B6		X
Unconfined Comp. Strength (If thin-wall tube is not available, test is not conducted)	SS10	P54	6	A1, A4, A8, A10, A13, A16	X	
Permeability	SS11	P57	3	A3, A7, A18	X	
Permeability	UG09	P48	6	B1-B6	X	
DENSE GRADED AGGREGATE BASE						
Particle Size Analysis	UG01	P41	3	B7-B9		X
Sieve Analysis (Washed)	UG02	P41	3	B7-B9		X
Atterberg Limits	UG04	P43	3	B7-B9		X
Moisture-Density Relations	UG05	P44	3	B7-B9		X
Resilient Modulus	UG07	P46	3	B7-B9		X
Classification	UG08	P47	3	B7-B9		X
Permeability	UG09	P48	3	B7-B9	X	
Natural Moisture Content	UG10	P49	3	B7-B9		X
PERMEABLE ASPHALT TREATED BASE						
Asphalt Content (Extraction)	AC04	P04	3	B10-B12 From Paver	X	
Extracted Aggregate:						
Gradation of Aggregate	AG04	P14	3	B10-B12 From Paver	X	

TABLE C.2. SAMPLES TO BE USED FOR LABORATORY MATERIALS TESTING (Continued)

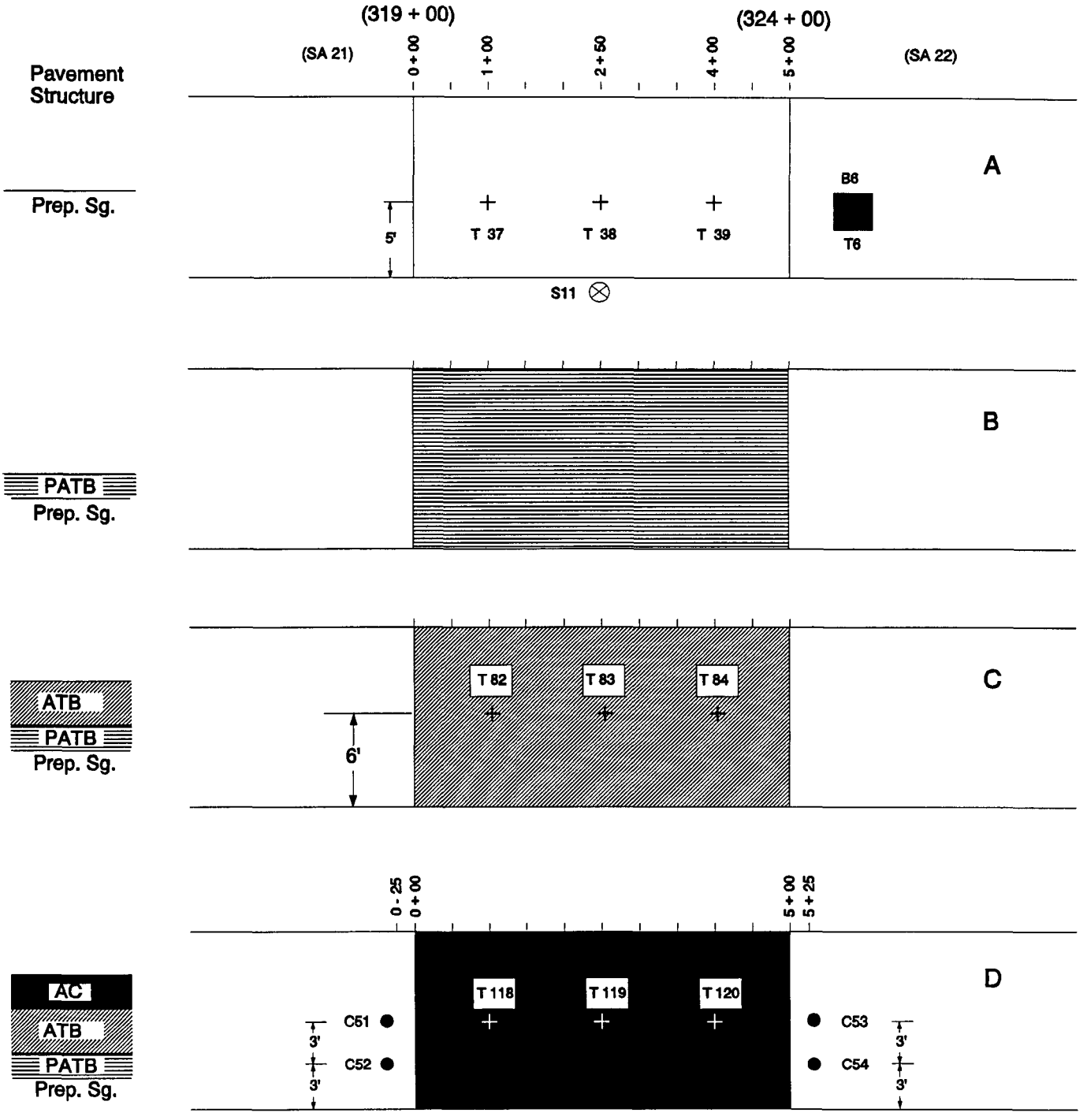
Material Type and Properties	LTPP Designation	LTPP Protocol	Minimum Nº. of Tests per Layer	Sampling Location	Test Conducted by: State	FHWA
ASPHALT TREATED BASE						
Core Examination/Thickness	AC01	P01	34	C11-C30, C47-C60	X	X
Bulk Specific Gravity	AC02	P02	34	C11-C30, C47-C60	X	X
Maximum Specific Gravity	AC03	P03	3	B13-B15 From Paver	X	
Asphalt Content (Extraction)	AC04	P04	3	B13-B15 From Paver	X	
Moisture Susceptibility	AC05	P05	3	B13-B15 From Paver	X	
Resilient Modulus	AC07	P07	9	C19-C21, C25-C27, C55-C57		X
Tensile Strength	AC07	P07	12	C19-C22, C25-C28, C55-C58		X
Extracted Aggregate:						
Specific Gravity:						
Coarse Aggregate	AG01	P11	3	B13-B15 From Paver	X	
Fine Aggregate	AG02	P12	3	B13-B15 From Paver	X	
Gradation of Aggregate	AG04	P14	3	B13-B15 From Paver	X	
NAA Test for Fine Aggregate	AG05	P14A	3	B13-B15 From Paver	X	
Particle Shape						
Asphalt Cement:						
Abson Recovery	AE01	P21	3	B13-B15 From Paver	X	
Penetration at 25° C, 46° C (77° F, 115° F)	AE02	P22	3	B13-B15 From Paver	X	
Specific Gravity 16° C (60° F)	AE03	P23	3	B13-B15 From Paver	X	
Viscosity at 25° C (77° F)	AE04	P24	3	B13-B15 From Paver	X	
Viscosity at 60° C, 135° C (140° F, 275° F)	AE05	P25	3	B13-B15 From Paver	X	

FIGURE B.15 SAMPLING AND TESTING PLAN FOR TEST SECTION 350110



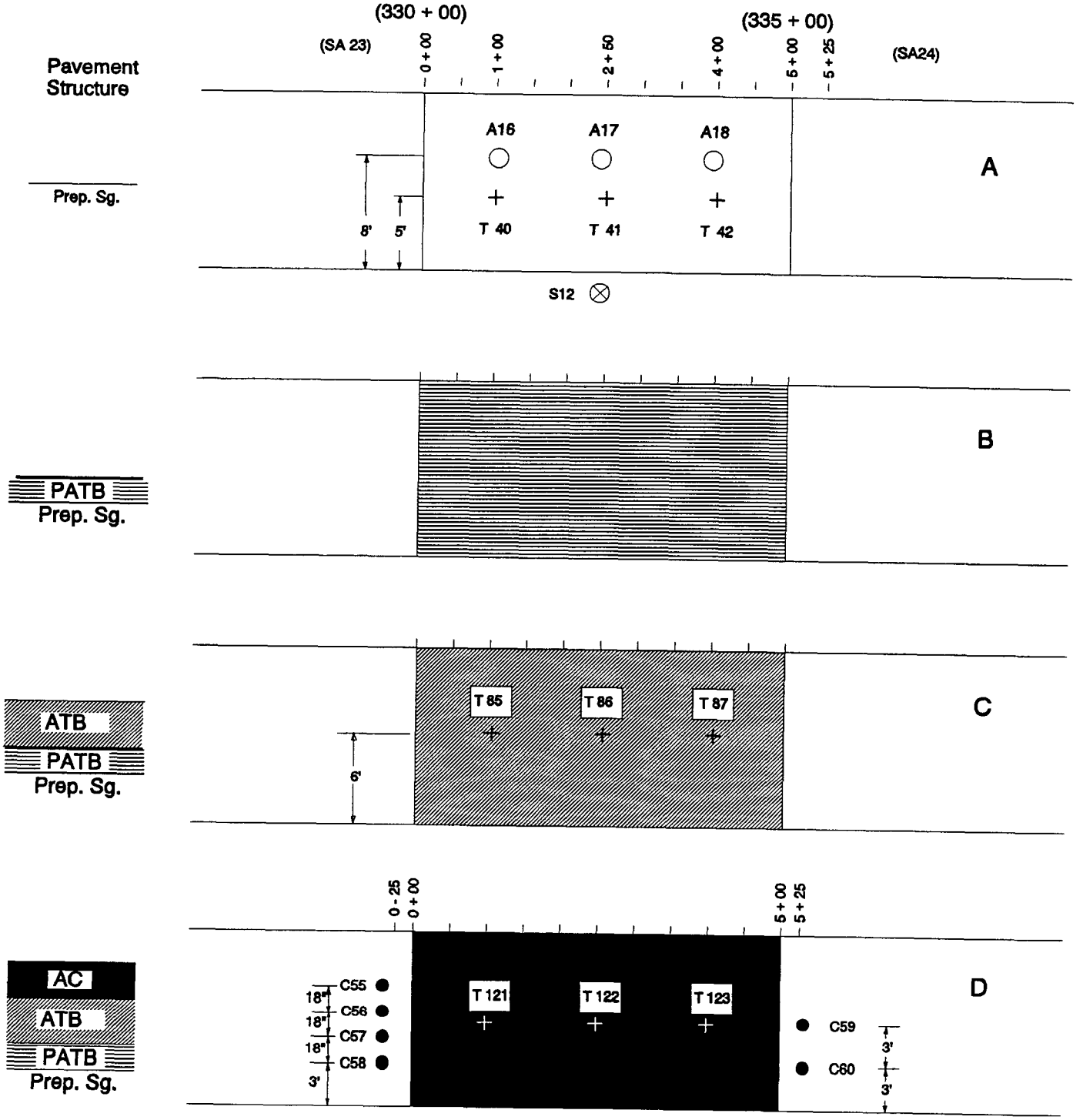
A Testing on prepared Subgrade (T34 - T36, A13 - A15, S10)
B No testing on compacted PATB
C Testing on compacted ATB (T79 - T81)
D Testing on finished AC Surface (T115 - T117)
Coring AC Surface and bound layers (C47 - C50)

FIGURE B.16 SAMPLING AND TESTING PLAN FOR TEST SECTION 350111



A Testing on prepared Subgrade (T6, T37 - T39, B6, S11)
B No testing on compacted PATB
C Testing on compacted ATB (T82 - T84)
D Testing on finished AC Surface (T118 - T120)
Coring AC Surface and bound layers (C51 - C54)

FIGURE B.17 SAMPLING AND TESTING PLAN FOR TEST SECTION 350112



A Testing on prepared Subgrade (T40 - T42, A16 - A18, S12)
B No testing on compacted PATB
C Testing on compacted ATB(T85 - T87)
D Testing on finished AC Surface (T121 - T123)
Coring AC Surface and bound layers (C55 - C60)

TABLE B.4. SAMPLES TO BE SHIPPED TO THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location	Sample Number	Lab Test Number	Type of Sample
Asphalt Concrete			
C5	CA05	2	102 mm (4 in.) Core
C6	CA06	2	102 mm (4 in.) Core
C7	CA07	1	102 mm (4 in.) Core
C8	CA08	1	102 mm (4 in.) Core
C9	CA09	2	102 mm (4 in.) Core
C10	CA10	2	102 mm (4 in.) Core
C12	CA12	1	102 mm (4 in.) Core
C13	CA13	2	102 mm (4 in.) Core
C14	CA14	2	102 mm (4 in.) Core
C15	CA15	1	102 mm (4 in.) Core
C16	CA16	1	102 mm (4 in.) Core
C18	CA18	2	102 mm (4 in.) Core
C23	CA23	2	102 mm (4 in.) Core
C24	CA24	2	102 mm (4 in.) Core
C29	CA29	2	102 mm (4 in.) Core
C30	CA30	2	102 mm (4 in.) Core
C35	CA35	2	102 mm (4 in.) Core
C36	CA36	2	102 mm (4 in.) Core
C41	CA41	2	102 mm (4 in.) Core
C42	CA42	2	102 mm (4 in.) Core
C43	CA43	1	102 mm (4 in.) Core
C44	CA44	1	102 mm (4 in.) Core
C45	CA45	2	102 mm (4 in.) Core
C46	CA46	2	102 mm (4 in.) Core
C47	CA47	1	102 mm (4 in.) Core

TABLE B.4. SAMPLES TO BE SHIPPED TO THE STATE LABORATORY (OR THEIR DESIGNEE) (Continued)

Sample Location	Sample Number	Lab Test Number	Type of Sample
C48	CA48	1	102 mm (4 in.) Core
C50	CA50	2	102 mm (4 in.) Core
C51	CA51	1	102 mm (4 in.) Core
C52	CA52	1	102 mm (4 in.) Core
C53	CA53	2	102 mm (4 in.) Core
C54	CA54	2	102 mm (4 in.) Core
C59	CA59	2	102 mm (4 in.) Core
C60	CA60	2	102 mm (4 in.) Core
B16	BA01	3	91 kg (200 lb) bulk sample
B17	BA02	3	91 kg (200 lb) bulk sample
B18	BA03	3	91 kg (200 lb) bulk sample
B19	BC01	3	19 l (5 gal) bulk sample of asphalt cement
B20	BC02	3	19 l (5 gal) bulk sample of asphalt cement
B21	BC03	3	19 l (5 gal) bulk sample of asphalt cement
Asphalt Treated Base			
C12	CT12	1	102 mm (4 in.) Core
C13	CT13	2	102 mm (4 in.) Core
C14	CT14	2	102 mm (4 in.) Core
C15	CT15	1	102 mm (4 in.) Core
C16	CT16	1	102 mm (4 in.) Core
C18	CT18	2	102 mm (4 in.) Core
C23	CT23	2	102 mm (4 in.) Core
C24	CT24	2	102 mm (4 in.) Core
C29	CT29	2	102 mm (4 in.) Core
C30	CT30	2	102 mm (4 in.) Core

TABLE B.4. SAMPLES TO BE SHIPPED TO THE STATE LABORATORY (OR THEIR DESIGNEE) (Continued)

Sample Location	Sample Number	Lab Test Number	Type of Sample
C47	CT47	1	102 mm (4 in.) Core
C48	CT48	1	102 mm (4 in.) Core
C50	CT50	2	102 mm (4 in.) Core
C51	CT51	1	102 mm (4 in.) Core
C52	CT52	1	102 mm (4 in.) Core
C53	CT53	2	102 mm (4 in.) Core
C54	CT54	2	102 mm (4 in.) Core
C59	CT59	2	102 mm (4 in.) Core
C60	CT60	2	102 mm (4 in.) Core
B13	BT20	3	91 kg (200 lb) bulk sample
B14	BT21	3	91 kg (200 lb) bulk sample
B15	BT22	3	91 kg (200 lb) bulk sample
Permeable Asphalt Treated Base			
B10	BT01	3	45 kg (100 lb) bulk sample
B11	BT02	3	45 kg (100 lb) bulk sample
B12	BT03	3	45 kg (100 lb) bulk sample
Dense-Graded Aggregate Base			
B7	BG01	2	45 kg (100 lb) bulk sample
B8	BG02	2	45 kg (100 lb) bulk sample
B9	BG03	2	45 kg (100 lb) bulk sample
Subgrade			
B1	BS01	2	45 kg (100 lb) bulk sample
B2	BS02	2	45 kg (100 lb) bulk sample
B3	BS03	2	45 kg (100 lb) bulk sample
B4	BS04	2	45 kg (100 lb) bulk sample

TABLE B.4. SAMPLES TO BE SHIPPED TO THE STATE LABORATORY (OR THEIR DESIGNEE) (Continued)

Sample Location	Sample Number	Lab Test Number	Type of Sample
B5	BS05	2	45 kg (100 lb) bulk sample
B6	BS06	2	45 kg (100 lb) bulk sample
A1	TS01	3	Thin-Wall Tube
A3	TS05, TS06	3	Thin-Wall Tube
A4	TS07, TS08	3	Thin-Wall Tube
A6	TS11, TS12	3	Thin-Wall Tube
A7	TS13, TS14	3	Thin-Wall Tube
A8	TS15, TS16	3	Thin-Wall Tube
A10	TS19, TS20	3	Thin-Wall Tube
A12	TS23, TS24	3	Thin-Wall Tube
A13	TS25, TS26	3	Thin-Wall Tube
A15	TS29, TS30	3	Thin-Wall Tube
A16	TS31, TS32	3	Thin-Wall Tube
A18	TS35, TS36	3	Thin-Wall Tube

TABLE B.5. SAMPLES TO BE SHIPPED TO THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location	Sample Number	Lab Test Number	Type of Sample
Asphalt Concrete			
C1	CA01	1	102 mm (4 in.) Core
C2	CA02	1	102 mm (4 in.) Core
C3	CA03	1	102 mm (4 in.) Core
C4	CA04	1	102 mm (4 in.) Core
C11	CA11	1	102 mm (4 in.) Core
C17	CA17	2	102 mm (4 in.) Core
C19	CA19	1	102 mm (4 in.) Core
C20	CA20	1	102 mm (4 in.) Core
C21	CA21	1	102 mm (4 in.) Core
C22	CA22	1	102 mm (4 in.) Core
C25	CA25	1	102 mm (4 in.) Core
C26	CA26	1	102 mm (4 in.) Core
C27	CA27	1	102 mm (4 in.) Core
C28	CA28	1	102 mm (4 in.) Core
C31	CA31	1	102 mm (4 in.) Core
C32	CA32	1	102 mm (4 in.) Core
C33	CA33	1	102 mm (4 in.) Core
C34	CA34	1	102 mm (4 in.) Core
C37	CA37	1	102 mm (4 in.) Core
C38	CA38	1	102 mm (4 in.) Core
C39	CA39	1	102 mm (4 in.) Core
C40	CA40	1	102 mm (4 in.) Core
C49	CA49	2	102 mm (4 in.) Core
C55	CA55	1	102 mm (4 in.) Core
C56	CA56	1	102 mm (4 in.) Core

TABLE B.5. SAMPLES TO BE SHIPPED TO THE FHWA-LTPP TESTING CONTRACTOR LABORATORY (Continued)

Sample Location	Sample Number	Lab Test Number	Type of Sample
C57	CA57	1	102 mm (4 in.) Core
C58	CA58	1	102 mm (4 in.) Core
Asphalt Treated Base			
C11	CT11	1	102 mm (4 in.) Core
C17	CT17	2	102 mm (4 in.) Core
C19	CT19	1	102 mm (4 in.) Core
C20	CT20	1	102 mm (4 in.) Core
C21	CT21	1	102 mm (4 in.) Core
C22	CT22	1	102 mm (4 in.) Core
C25	CT25	1	102 mm (4 in.) Core
C26	CT26	1	102 mm (4 in.) Core
C27	CT27	1	102 mm (4 in.) Core
C28	CT28	1	102 mm (4 in.) Core
C49	CT49	2	102 mm (4 in.) Core
C55	CT55	1	102 mm (4 in.) Core
C56	CT56	1	102 mm (4 in.) Core
C57	CT57	1	102 mm (4 in.) Core
C58	CT58	1	102 mm (4 in.) Core
Dense-Graded Aggregate Base			
B7	BG01	2	136 kg (300 lb) Bulk Sample
B8	BG02	2	136 kg (300 lb) Bulk Sample
B9	BG03	2	136 kg (300 lb) Bulk Sample
B7	MG01	2	Moisture Content Jar Sample
B8	MG02	2	Moisture Content Jar Sample
B9	MG03	2	Moisture Content Jar Sample

TABLE B.5. SAMPLES TO BE SHIPPED TO THE FHWA-LTPP TESTING CONTRACTOR LABORATORY (Continued)

Sample Location	Sample Number	Lab Test Number	Type of Sample
Subgrade			
B1	BS01	2	136 kg (300 lb) Bulk Sample
B2	BS02	2	136 kg (300 lb) Bulk Sample
B3	BS03	2	136 kg (300 lb) Bulk Sample
B4	BS04	2	136 kg (300 lb) Bulk Sample
B5	BS05	2	136 kg (300 lb) Bulk Sample
B6	BS06	2	136 kg (300 lb) Bulk Sample
A2	TS03	3	Thin wall Tube Sample
A2	TS04	3	Thin wall Tube Sample
A5	TS09	3	Thin wall Tube Sample
A5	TS10	3	Thin wall Tube Sample
A9	TS17	3	Thin wall Tube Sample
A9	TS18	3	Thin wall Tube Sample
A11	TS21	3	Thin wall Tube Sample
A11	TS22	3	Thin wall Tube Sample
A14	TS27	3	Thin wall Tube Sample
A14	TS28	3	Thin wall Tube Sample
A17	TS33	3	Thin wall Tube Sample
A17	TS34	3	Thin wall Tube Sample
B1	MS01	2	Moisture Content Jar Sample
B2	MS02	2	Moisture Content Jar Sample
B3	MS03	2	Moisture Content Jar Sample
B4	MS04	2	Moisture Content Jar Sample
B5	MS05	2	Moisture Content Jar Sample
B6	MS06	2	Moisture Content Jar Sample

TABLE C.2. SAMPLES TO BE USED FOR LABORATORY MATERIALS TESTING (Continued)

Material Type and Properties	LTPP Designation	LTPP Protocol	Minimum Nº. of Tests per Layer	Sampling Location	Test Conducted by: State	FHWA
ASPHALTIC CONCRETE SURFACE AND BINDER						
Core Examination/Thickness	AC01	P01	60	C1-C60	X	X
Bulk Specific Gravity	AC02	P02	60	C1-C60	X	X
Maximum Specific Gravity	AC03	P03	3	B16-B18 From Paver	X	
Asphalt Content (Extraction)	AC04	P04	3	B16-B18 From Paver	X	
Moisture Susceptibility	AC05	P05	3	B16-B18 From Paver	X	
Creep Compliance	AC06	P06	3	C11, C17, C49		X
Resilient Modulus	AC07	P07	18	C1-C3, C19-C21, C25-C27, C31-C33, C37-C39, C55-C57		X
Tensile Strength	AC07	P07	24	C1-C4, C19-C22, C25-C28, C31-C34, C37-C40, C55-C58		X
Extracted Aggregate:						
Specific Gravity:						
Coarse Aggregate	AG01	P11	3	B16-B18 From Paver	X	
Fine Aggregate	AG02	P12	3	B16-B18 From Paver	X	
Gradation of Aggregate	AG04	P14	3	B16-B18 From Paver	X	
NAA Test for Fine Aggregate	AG05	P14A	3	B16-B18 From Paver	X	
Particle Shape						
Asphalt Cement:						
Abson Recovery	AE01	P21	3	B16-B18 From Paver	X	
Penetration at 25° C, 46° C (77° F, 115° F)	AE02	P22	3	B16-B18 From Paver	X	
Specific Gravity 16° C (60° F)	AE03	P23	3	B16-B18 From Paver	X	
Viscosity at 25° C (77° F)	AE04	P24	3	B16-B18 From Paver	X	
Viscosity at 60° C, 135° C (140° F, 275° F)	AE05	P25	3	B16-B18 From Paver	X	
Asphalt Cement: (From Tanker or Plant)						
Penetration at 25° C, 46° C (77° F, 115° F)	AE02	P22	3	B19-B21 From Paver	X	
Specific Gravity 16° C (60° F)	AE03	P23	3	B19-B21 From Paver	X	
Viscosity at 25° C (77° F)	AE04	P24	3	B19-B21 From Paver	X	
Viscosity at 60° C, 135° C (140° F, 275° F)	AE05	P25	3	B19-B21 From Paver	X	

TABLE C.3. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C5	CA05	2	AC01/P01	AC02/P02			Yes	(a)	No
C6	CA06	2	AC01/P01	AC02/P02			Yes	(a)	No
C7	CA07	1	AC01/P01	AC02/P02			Yes	(a)	No
C8	CA08	1	AC01/P01	AC02/P02			Yes	(a)	No
C9	CA09	2	AC01/P01	AC02/P02			Yes	(a)	No
C10	CA10	2	AC01/P01	AC02/P02			Yes	(a)	No
C12	CA12	1	AC01/P01	AC02/P02			Yes	(a)	No
C13	CA13	2	AC01/P01	AC02/P02			Yes	(a)	No
C14	CA14	2	AC01/P01	AC02/P02			Yes	(a)	No
C15	CA15	1	AC01/P01	AC02/P02			Yes	(a)	No
C16	CA16	1	AC01/P01	AC02/P02			Yes	(a)	No
C18	CA18	2	AC01/P01	AC02/P02			Yes	(a)	No
C23	CA23	2	AC01/P01	AC02/P02			Yes	(a)	No
C24	CA24	2	AC01/P01	AC02/P02			Yes	(a)	No
C29	CA29	2	AC01/P01	AC02/P02			Yes	(a)	No
C30	CA30	2	AC01/P01	AC02/P02			Yes	(a)	No
C35	CA35	2	AC01/P01	AC02/P02			Yes	(a)	No
C36	CA36	2	AC01/P01	AC02/P02			Yes	(a)	No
C41	CA41	2	AC01/P01	AC02/P02			Yes	(a)	No
C42	CA42	2	AC01/P01	AC02/P02			Yes	(a)	No
C43	CA43	1	AC01/P01	AC02/P02			Yes	(a)	No
C44	CA44	1	AC01/P01	AC02/P02			Yes	(a)	No
C45	CA45	2	AC01/P01	AC02/P02			Yes	(a)	No
C46	CA46	2	AC01/P01	AC02/P02			Yes	(a)	No
C47	CA47	1	AC01/P01	AC02/P02			Yes	(a)	No
C48	CA48	1	AC01/P01	AC02/P02			Yes	(a)	No

TABLE C.3. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE) (Continued)

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C50	CA50	2	AC01/P01	AC02/P02			Yes	(a)	No
C51	CA51	1	AC01/P01	AC02/P02			Yes	(a)	No
C52	CA52	1	AC01/P01	AC02/P02			Yes	(a)	No
C53	CA53	2	AC01/P01	AC02/P02			Yes	(a)	No
C54	CA54	2	AC01/P01	AC02/P02			Yes	(a)	No
C59	CA59	2	AC01/P01	AC02/P02			Yes	(a)	No
C60	CA60	2	AC01/P01	AC02/P02			Yes	(a)	No
B16	BA01	3	See Figure C.1				No	(a)	Yes
B17	BA02	3	See Figure C.1				No	(a)	Yes
B18	BA03	3	See Figure C.1				No	(a)	Yes
B19	BC01	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes
B20	BC02	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes
B21	BC03	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes

Note: All of the core specimens noted herein shall be stored for possible future use. In the future, these specimens may be used to evaluate test procedures for the SUPERPAVE program.

TABLE C.4. TRACKING TABLE OF ASPHALT TREATED BASE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C12	CT12	1	AC01/P01	AC02/P02			Yes	(a)	No
C13	CT13	2	AC01/P01	AC02/P02			Yes	(a)	No
C14	CT14	2	AC01/P01	AC02/P02			Yes	(a)	No
C15	CT15	1	AC01/P01	AC02/P02			Yes	(a)	No
C16	CT16	1	AC01/P01	AC02/P02			Yes	(a)	No
C18	CT18	2	AC01/P01	AC02/P02			Yes	(a)	No
C23	CT23	2	AC01/P01	AC02/P02			Yes	(a)	No
C24	CT24	2	AC01/P01	AC02/P02			Yes	(a)	No
C29	CT29	2	AC01/P01	AC02/P02			Yes	(a)	No
C30	CT30	2	AC01/P01	AC02/P02			Yes	(a)	No
C47	CT47	1	AC01/P01	AC02/P02			Yes	(a)	No
C48	CT48	1	AC01/P01	AC02/P02			Yes	(a)	No
C50	CT50	2	AC01/P01	AC02/P02			Yes	(a)	No
C51	CT51	1	AC01/P01	AC02/P02			Yes	(a)	No
C52	CT52	1	AC01/P01	AC02/P02			Yes	(a)	No
C53	CT53	2	AC01/P01	AC02/P02			Yes	(a)	No
C54	CT54	2	AC01/P01	AC02/P02			Yes	(a)	No
C59	CT59	2	AC01/P01	AC02/P02			Yes	(a)	No
C60	CT60	2	AC01/P01	AC02/P02			Yes	(a)	No
B13	BT20	3	See Figure C.1				No	(a)	Yes
B14	BT21	3	See Figure C.1				No	(a)	Yes
B15	BT22	3	See Figure C.1				No	(a)	Yes

TABLE C.5. TRACKING TABLE OF PERMEABLE ASPHALT TREATED BASE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B10	BT01	3	AC04/P04	AG04/P14			No	(a)	Yes
B11	BT02	3	AC04/P04	AG04/P14			No	(a)	Yes
B12	BT03	3	AC04/P04	AG04/P14			No	(a)	Yes

TABLE C.6. TRACKING TABLE OF DENSE GRADED AGGREGATE BASE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B7	BG01	2	UG09/P48				No	(b)	Yes
B8	BG02	2	UG09/P48				No	(b)	Yes
B9	BG03	2	UG09/P48				No	(b)	Yes

TABLE C.7. TRACKING TABLE OF SUBGRADE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B1	BS01	2	No testing - samples stored				Yes	(b)	No
B2	BS02	2	No testing - samples stored				Yes	(b)	No
B3	BS03	2	No testing - samples stored				Yes	(b)	No
B4	BS04	2	No testing - samples stored				Yes	(b)	No
B5	BS05	2	No testing - samples stored				Yes	(b)	No
B6	BS06	2	No testing - samples stored				Yes	(b)	No
A1	TS01	3	SS04/P52	SS08/P56	SS10/P54		No	(c)	Yes
A3	TS05	3	SS04/P52	SS11/P57			No	(c)	Yes
A4	TS07	3	SS04/P52	SS08/P56	SS10/P54		No	(c)	Yes
A6	TS11	3	SS04/P52				No	(c)	Yes
A7	TS13	3	SS04/P52	SS11/P57			No	(c)	Yes
A8	TS15	3	SS04/P52	SS08/P56	SS10/P54		No	(c)	Yes
A10	TS19	3	SS04/P52	SS08/P56	SS10/P54		No	(c)	Yes
A12	TS23	3	SS04/P52				No	(c)	Yes
A13	TS25	3	SS04/P52	SS08/P56	SS10/P54		No	(c)	Yes
A15	TS29	3	SS04/P52				No	(c)	Yes
A16	TS31	3	SS04/P52	SS08/P56	SS10/P54		No	(c)	Yes
A18	TS35	3	SS04/P52	SS11/P57			No	(c)	Yes
A3	TS06	3					Yes	(c)	No
A4	TS08	3					Yes	(c)	No
A6	TS12	3					Yes	(c)	No
A7	TS14	3					Yes	(c)	No
A8	TS16	3					Yes	(c)	No
A10	TS20	3					Yes	(c)	No
A12	TS24	3					Yes	(c)	No
A13	TS26	3					Yes	(c)	No
A15	TS30	3					Yes	(c)	No
A16	TS32	3					Yes	(c)	No
A18	TS36	3					Yes	(c)	No

TABLE C.8. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C1	CA01	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C2	CA02	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C3	CA03	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C4	CA04	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C11	CA11	1	AC01/P01	AC02/P02	AC06/P06		No	(a)	Yes
C17	CA17	2	AC01/P01	AC02/P02	AC06/P06		No	(a)	Yes
C19	CA19	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C20	CA20	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C21	CA21	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C22	CA22	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C25	CA25	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C26	CA26	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C27	CA27	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C28	CA28	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C31	CA31	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C32	CA32	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C33	CA33	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C34	CA34	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C37	CA37	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C38	CA38	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C39	CA39	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C40	CA40	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C49	CA49	2	AC01/P01	AC02/P02	AC06/P06		No	(a)	Yes
C55	CA55	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C56	CA56	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C57	CA57	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C58	CA58	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes

TABLE C.9. TRACKING TABLE OF ASPHALT TREATED BASE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C11	CT11	1	AC01/P01	AC02/P02			No	(a)	Yes
C17	CT17	2	AC01/P01	AC02/P02			No	(a)	Yes
C19	CT19	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C20	CT20	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C21	CT21	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C22	CT22	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C25	CT25	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C26	CT26	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C27	CT27	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C28	CT28	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C49	CT49	2	AC01/P01	AC02/P02			No	(a)	Yes
C55	CT55	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C56	CT56	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C57	CT57	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C58	CT58	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes

TABLE C.10. TRACKING TABLE OF PERMEABLE ASPHALT TREATED BASE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer (4)				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
No permeable asphalt treated base testing will be conducted by the FWHA-LTPP Testing Contractor									

TABLE C.11. TRACKING TABLE OF DENSE GRADED AGGREGATE BASE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location	Sample No.	Lab Test No.	Steps Involved in Laboratory Handling and Testing Sequence								
			Required Laboratory Tests Per Layer						Extra Sample	Sample Storage	Sample Disposed ?
			First	Second	Third	Fourth	Fifth	Sixth			
B7	BG01	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
B8	BG02	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
B9	BG03	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
B7	MG01	2	UG10/P49						No	(b)	Yes
B8	MG02	2	UG10/P49						No	(b)	Yes
B9	MG03	2	UG10/P49						No	(b)	Yes

TABLE C.12. TRACKING TABLE OF SUBGRADE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location	Sample No.	Lab Test No.	Steps Involved in Laboratory Handling and Testing Sequence								
			Required Laboratory Tests Per Layer						Extra Sample	Sample Storage	Sample Disposed ?
			First	Second	Third	Fourth	Fifth	Sixth			
B1	BS01	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55		No	(b)	Yes
B2	BS02	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55		No	(b)	Yes
B3	BS03	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55		No	(b)	Yes
B4	BS04	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55		No	(b)	Yes
B5	BS05	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55		No	(b)	Yes
B6	BS06	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55		No	(b)	Yes
A2	TS03	3	SS04/P52	SS07/P46					No	(c)	Yes
A5	TS09	3	SS04/P52	SS07/P46					No	(c)	Yes
A9	TS17	3	SS04/P52	SS07/P46					No	(c)	Yes
A11	TS21	3	SS04/P52	SS07/P46					No	(c)	Yes
A14	TS27	3	SS04/P52	SS07/P46					No	(c)	Yes
A17	TS33	3	SS04/P52	SS07/P46					No	(c)	Yes
B1	MS01	2	SS09/P49	SS07/P46 *					No	(b)	Yes
B2	MS02	2	SS09/P49	SS07/P46 *					No	(b)	Yes
B3	MS03	2	SS09/P49	SS07/P46 *					No	(b)	Yes
B4	MS04	2	SS09/P49	SS07/P46 *					No	(b)	Yes
B5	MS05	2	SS09/P49	SS07/P46 *					No	(b)	Yes
B6	MS06	2	SS09/P49	SS07/P46 *					No	(b)	Yes
A2	TS04	3							Yes	(c)	No
A5	TS10	3							Yes	(c)	No
A9	TS18	3							Yes	(c)	No
A11	TS22	3							Yes	(c)	No
A14	TS28	3							Yes	(c)	No
A17	TS34	3							Yes	(c)	No

*** Note:** SS07/P46 testing for bulk subgrade samples only required when tube samples are not available or suitable for testing.

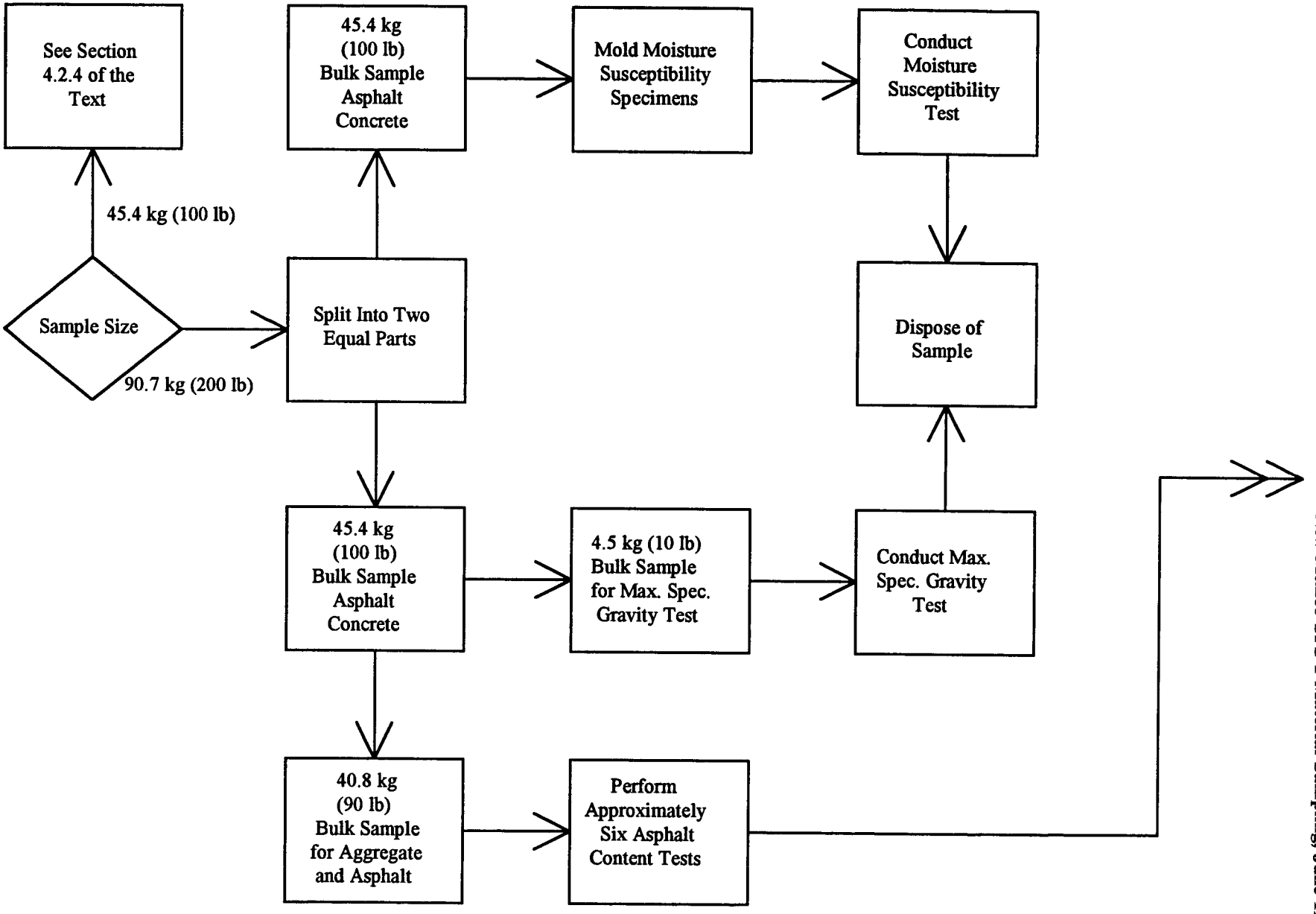


FIGURE C.1. FLOWCHART FOR ASPHALT CONCRETE BULK SAMPLES

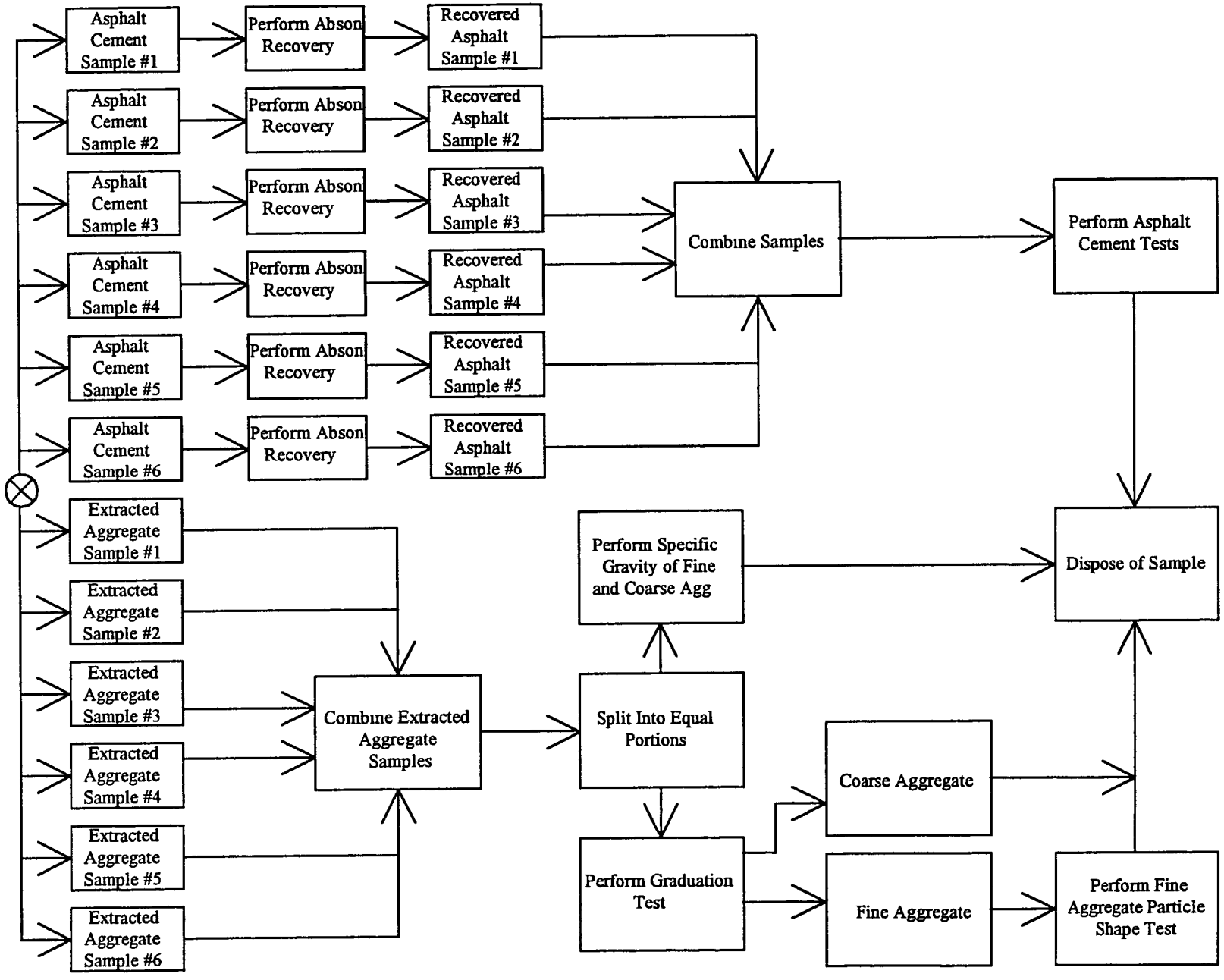


FIGURE C.1. FLOWCHART FOR ASPHALT CONCRETE BULK SAMPLES (Continued)

APPENDIX D

CONSTRUCTION DATA

New Mexico SPS-1

NEW MEXICO STATE HIGHWAY & TRANSPORTATION DEPARTMENT

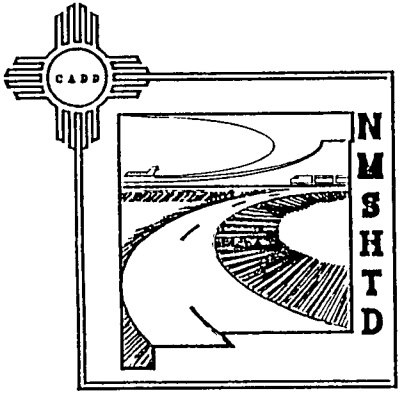
CONSTRUCTION PLANS

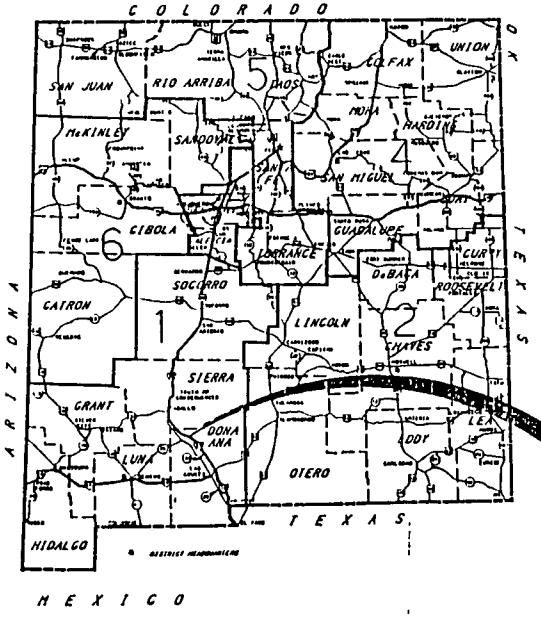
IM-025-1 (64) 37

DONA ANA COUNTY

CN 1470

PSE Sept 8th 1994
Training Room 2 (60) @ 8:30 am





I-25, RINCON INTERCHANGE-NORTH TO SOUTH OF HATCH INTERCHANGE

APPROVED: _____ DATE: _____

DESIGN DIVISION DIRECTOR
P.E. NO. 6409

D.2

F.H.W.A. REGION NO. 6	SHEET NO
NEW MEXICO PROJECT NO	
IM-025-1(64)37	1-8

GENERAL NOTES

1 THE EARTHWORK QUANTITIES ARE BASED ON A SHRINKAGE FACTOR OF 20% IN ROADWAY EMBANKMENT.

2 THE DESIGN "R" VALUE FOR THIS PROJECT IS 29 MATERIAL WITH AN "R" VALUE LESS THAN THE DESIGN "R" VALUE SHALL NOT BE PLACED IN OR BE ALLOWED TO REMAIN WITHIN THE TOP TWO FEET OF THE FINISHED SUBGRADE THIS SHALL INCLUDE DETOUR SUBGRADES AT S H R P SECTIONS ONLY REMOVE EXISTING SURFACING AND EXISTING SAND LAYER (FROM APPROXIMATELY 4" TO 15" OF SAND SEE TYPICAL SECTIONS) AND REPLACE WITH A-6 OR A-7 MATERIAL; ALL OTHER RECONSTRUCTION AREAS MUST MEET DESIGN "R" VALUE REQUIREMENTS

3. THE EARTHWORK HAUL ON THIS PROJECT WILL BE CONSIDERED AS INCLUDED IN THE CONTRACT PRICE FOR ITEMS 203001 UNCLASSIFIED EXCAVATION AND 203010 BORROW AS APPLICABLE, AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR

4 IF A PAVEMENT DROP-OFF IS CREATED DURING CONSTRUCTION, THE CONTRACTOR SHALL INITIATE PROTECTIVE ACTION IN ACCORDANCE WITH THE DEPARTMENT'S CURRENT "DROP-OFF POLICY" THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR.

5 THE CONTRACTOR SHALL WARP SLOPES WHERE NECESSARY TO STAY WITHIN THE RIGHT-OF-WAY OR CONSTRUCTION EASEMENT LIMITS.

6 IF THE DISTRICT MATERIALS LABORATORY DETERMINES THAT HYDRATED LIME SHALL BE ADDED TO THE O G F C AFTER CONDUCTING THE NECESSARY TESTS THEN THE HYDRATED LIME WILL BE MEASURED AND PAID FOR UNDER ITEM 401150 - HYDRATED LIME

7 NO MATERIAL PITS HAVE BEEN DESIGNATED FOR THIS PROJECT THE CONTRACTOR MAY OBTAIN SPECIFICATION BORROW OR SURFACING MATERIAL FROM ANY ACCEPTABLE SOURCE ALL MATERIAL PIT ACTION SHALL BE GOVERNED BY SECTION 106 OF THE STANDARD SPECIFICATIONS

8 THE CONSTRUCTION CLEAR ZONE FOR THIS PROJECT IS 36 FEET FROM THE EDGE OF THE DRIVING LANE THE CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIAL WITHIN THE CONSTRUCTION CLEAR ZONE UNLESS THE EQUIPMENT OR MATERIAL IS PROPERLY SHIELDED UTILIZING CURRENT SAFETY DESIGN AND INSTALLATION METHODS THE SAFETY DESIGN FOR SHIELDING SHALL BE PROVIDED BY THE CONTRACTOR AND MUST BE APPROVED BY THE PROJECT MANAGER BEFORE IMPLEMENTING THIS WORK. INCLUDING DESIGN INSTALLATION AND REMOVAL OF THE SHIELDING, SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR

9. INFORMATION PERTAINING TO THE MONUMENTATION PLANS FOR THIS PROJECT MAY BE OBTAINED FROM THE DISTRICT MONUMENTATION SURVEYOR/PROJECT MANAGER

10. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT HORIZONTAL AND VERTICAL CONTROL SURVEY MONUMENTS (MARK) FROM DAMAGE PRIOR TO INITIATING CONSTRUCTION IF DURING THE COURSE OF CONSTRUCTION OPERATIONS THE CONTRACTOR DISTURBS OR DESTROYS A MARK THE CONTRACTOR SHALL ESTABLISH A NEW MARK IN COMPLIANCE WITH THE STANDARDS AND PROCEDURES SET FORTH IN THE "GEODETIC MARK PRESERVATION GUIDEBOOK" NATIONAL GEODETIC SURVEY, MARCH 1990 CONTACT: NGS MARK PRESERVATION CENTER - NOAA TELEPHONE (303)766-3608

11. THE CONTRACTOR SHALL PLACE A SHOP MADE STATION MARKER AT EVERY FIFTH STATION AND AT EVERY EQUATION THE MARKER SHALL BE 1" X 5 X 14 BLACK ON WHITE WITH 3 HIGH STENCILED NUMBERS THE MARKER SHALL HAVE TWO HOLES DRILLED FOR MOUNTING AND SHALL BE TIED WITH WIRE ON THE FENCE OR MOUNTED ON AN APPROPRIATE SHOP MADE POST APPROXIMATELY FOUR FEET ABOVE THE GROUND STATION MARKERS SHALL BE RESET ON NEW FENCE AS NECESSARY THIS WORK WILL BE CONSIDERED AS INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR

12 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REMOVALS REQUIRED TO COMPLETE THE PROJECT ADDITIONAL REMOVALS NOT SHOWN ON THE PLANS WILL BE DESIGNATED BY THE PROJECT MANAGER THIS WORK WILL BE CONSIDERED AS INCLUDED IN THE CONTRACT PRICE FOR ITEM 202001 "REMOVAL OF STRUCTURES AND OBSTRUCTIONS" AND THE CONTRACTOR WILL NOT RECEIVE ADDITIONAL COMPENSATION FOR UNLISTED REMOVALS.

13. THE CONTRACTOR SHALL PROPERLY HANDLE AND DISPOSE OF ALL ASPHALT PAVEMENT MATERIAL REMOVED ON THE PROJECT BY EITHER:
- PLACING WITHIN THE NEW ROADWAY PRISM AT LEAST 2 FEET BELOW SUBGRADE AND BURYING AT LEAST 1 FOOT MEASURED NORMAL FROM EXPOSED SLOPES; OR
- HAULING TO AN APPROVED LANDFILL IN ACCORDANCE WITH THE REGULATIONS OF THE NEW MEXICO SOLID WASTE ACT; OR
- IF APPROVED BY THE PROJECT MANAGER THE CONTRACTOR SHALL BREAK DOWN ASPHALT SURFACING REMOVED ON THE PROJECT DOWN TO A 2 INCH MAXIMUM SIZE AND HAUL AND STOCKPILE THE MATERIAL AT A LOCATION DESIGNATED BY THE PROJECT MANAGER PAYMENT FOR THIS WORK WILL BE CONSIDERED AS INCLUDED IN THE CONTRACT PRICE FOR UNCLASSIFIED EXCAVATION AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR

14 SALVAGEABLE MATERIALS FROM THIS PROJECT ARE TO BE HAULED AND STOCKPILED AT NATCH PATROL YARD HAUL OF SUCH MATERIAL SHALL BE PERFORMED DURING NORMAL WORKING HOURS AS DIRECTED BY THE PROJECT MANAGER PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 202001-REMOVAL OF STRUCTURES AND OBSTRUCTIONS.

15 THE CONTRACTOR SHALL MAINTAIN AND UP TO DATE SET OF AS-BUILT PLANS FOR THE PROJECT THESE PLANS SHALL BE KEPT CURRENT WITHIN TWO WEEKS AT ALL TIMES AND SHALL BE SUBJECT TO REVIEW BY THE PROJECT MANAGER THROUGHOUT THE PROJECT AND WILL BE REVIEWED BY THE PROJECT MANAGER FOR ACCURACY AND COMPLETENESS AT LEAST ONCE EVERY 30 DAYS THE FINAL AS-BUILT PLANS SHALL BE SUBMITTED TO THE PROJECT MANAGER PRIOR TO FINAL PAYMENT

16 ITEMS DESIGNATED FOR REMOVAL WITHOUT SALVAGE, UNSUITABLE CONSTRUCTION MATERIALS AND DEBRIS FROM CLEARING AND GRUBBING ARE TO BE PLACED IN AN ENVIRONMENTALLY SUITABLE DISPOSAL SITE SECURED AND COORDINATED BY THE CONTRACTOR, WITH THE APPROPRIATE REGULATORY AGENCIES AND IN ACCORDANCE WITH SECTION 110 CONTROL OF ENVIRONMENT THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER IN WRITING, OF THE DETAILS OF THE DISPOSAL OPERATIONS BORROW MATERIAL ROCK WASTE, VEGETATIVE DEBRIS ETC. SHALL NOT BE PLACED IN WETLAND AREAS OR AREAS WHICH MAY IMPACT ENDANGERED SPECIES OR ARCHAEOLOGICAL RESOURCES AN ARCHAEOLOGICAL SURVEY AND ENVIRONMENTAL CLEARANCE SHALL BE OBTAINED BY THE CONTRACTOR BEFORE DISPOSAL SITES ARE ACCEPTED IN ACCORDANCE WITH SUB-SECTION 107 23 CONTRACTORS RESPONSIBILITY FOR ARCHAEOLOGICAL CLEARANCE

17 THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING AND CLEANUP OF SPILLS ASSOCIATED WITH PROJECT CONSTRUCTION AND SHALL REPORT AND RESPOND TO SPILLS OF HAZARDOUS MATERIALS SUCH AS, GASOLINE, DIESEL MOTOR OILS SOLVENTS, CHEMICALS, TOXIC AND CORROSIVE SUBSTANCES, AND OTHER MATERIALS WHICH MAY BE A THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING PAST SPILLS ENCOUNTERED DURING CONSTRUCTION AND OF CURRENT SPILLS NOT ASSOCIATED WITH CONSTRUCTION REPORTS SHALL BE MADE IMMEDIATELY TO THE N M ENVIRONMENT DEPARTMENT EMERGENCY RESPONSE TEAM AT 827-4308 OR 470-3657 AND TO THE PROJECT MANAGER

18 ALL WORK IN THE VICINITY OF LIVE STREAMS, WATER IMPOUNDMENTS WETLANDS OR IRRIGATION SUPPLIES SHALL BE EFFECTED IN SUCH A MANNER AS TO MINIMIZE VEGETATION REMOVAL, SOIL DISTURBANCE AND EROSION CROSSINGS OF LIVE STREAMS WITH HEAVY EQUIPMENT SHALL BE MINIMIZED AS DETERMINED BY THE PROJECT MANAGER EQUIPMENT REFUELING MAINTENANCE AND CEMENT DUMPING IN THE VICINITY OF WATER COURSES IS STRICTLY PROHIBITED AND SHALL BE PERFORMED IN PROPER CONTAINMENT AREAS

19 THE CONTRACTOR SHALL STRICTLY ADHERE TO THE REVEGETATION AND EROSION CONTROL PLANS AS SHOWN ON SHEETS 4-1 TO 4-14 ALL DEVIATIONS FROM THIS PLAN MUST HAVE PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT THE USE OF EROSION CONTROL MEASURES SHALL BE INCLUDED IN ACCORDANCE WITH THE NPDES GENERAL PERMIT COMPLIANCE THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE NEW MEXICO WATER QUALITY ACT AND APPLICABLE CLEAN WATER ACT PERMITS AND REGULATIONS

20 THE CONTRACTOR SHALL CLEAN ALL EXISTING STRUCTURES THAT ARE TO REMAIN OPERATIONAL PRIOR TO INITIATING STRUCTURE EXTENSION WORK STRUCTURES SHALL BE CLEAN AT THE TIME OF FINAL PROJECT ACCEPTANCE THIS WORK WILL BE CONSIDERED AS INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR

21. THE CONTRACTOR IS HEREBY ADVISED THAT UTILITY RELOCATION BY UTILITY COMPANIES WILL BE DONE CONCURRENTLY WITH CONSTRUCTION THE CONTRACTOR SHALL PROVIDE FOR UTILITY WORK IN CONJUNCTION WITH CONSTRUCTION OPERATIONS AND SHALL COORDINATE THE SCHEDULING OF WORK WITH THE RESPECTIVE UTILITY COMPANIES THE CONTRACTOR SHALL PROVIDE FOR THESE CONTINGENCIES WHEN BIDDING THIS PROJECT AND NO CLAIM FOR DELAYS DUE TO UTILITY WORK WILL BE ALLOWED.

22 ALL CONSTRUCTION TRAFFIC CONTROL DEVICES IN THIS CONTRACT SHALL BE PROVIDED WITH HIGH RETROFLECTIVITY SHEETING AS SHOWN ON THE TRAFFIC CONTROL PLANS

23 WHEN POLYMERIZED ASPHALT CEMENT IS USED AS BITUMINOUS MATERIAL IN OPEN-GRADED FRICTION COURSE THE AMBIENT TEMPERATURE AND CHILL FACTOR SHALL BE A MINIMUM OF 60° F WHEN THE AMBIENT TEMPERATURE IS 90° F. OR ABOVE THE CHILL FACTOR WILL NOT BE CONSIDERED

24 THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TREES AND BUSHES THAT CAN MATURE TO 4" DIAMETER OR LARGER, WITHIN THE CLEAR ZONE AND THROUGHOUT THE MEDIAN THE REMOVAL SHALL BE ACCOMPLISHED BY INDIVIDUALLY HAND CUTTING EACH TREE/BRUSH OR BY ANY OTHER MEANS BY WHICH THE SURROUNDING ESTABLISHED VEGETATION IS NOT DAMAGED PAYMENT FOR SAID WORK SHALL BE MADE UNDER SECTION 201-CLEARING AND GRUBBING

25 THE CONTRACTOR IS ADVISED THAT (1) ONE WEIGH-IN-MOTION SCALE AND (1) ONE WEATHER STATION WILL BE REQUIRED FOR THE COMPLETION OF THIS PROJECT THE WEIGH-IN-MOTION SCALE SHALL BE LOCATED AT STA 207+00, ACROSS BOTH DRIVING LANES OF SOUTHBOUND AND NORTHBOUND LANES; THE WEATHER STATION SHALL BE LOCATED AT STA 207+00 300 LT OF CENTERLINE APPROXIMATELY 12 000 CU YDS OF MATERIAL WILL BE REQUIRED TO RAISE WEATHER STATION SITE 20 TO APPROXIMATE 1-25 LANE ELEVATIONS THE PROJECT MANAGER WILL HAVE THE FINAL DECISION AS TO BOTH LOCATIONS AND THE HEIGHT OF FILL REQUIRED FOR WEATHER STATION SITE BOTH WEATHER STATION SITE AND WEIGH-IN-MOTION SCALE SHALL BE PAID FOR AS (LUMP SUM) ITEMS; THE MATERIAL REQUIRED FOR RAISING THE WEATHER STATION SITE SHALL BE INCIDENTAL TO UNIT BID PRICE FOR ITEM NO 203000 - UNCLASSIFIED EXCAVATION AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR SEE SHEET 2-39 FOR WEATHER STATION DETAILS

NO	DESCRIPTION	DATE	BY
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

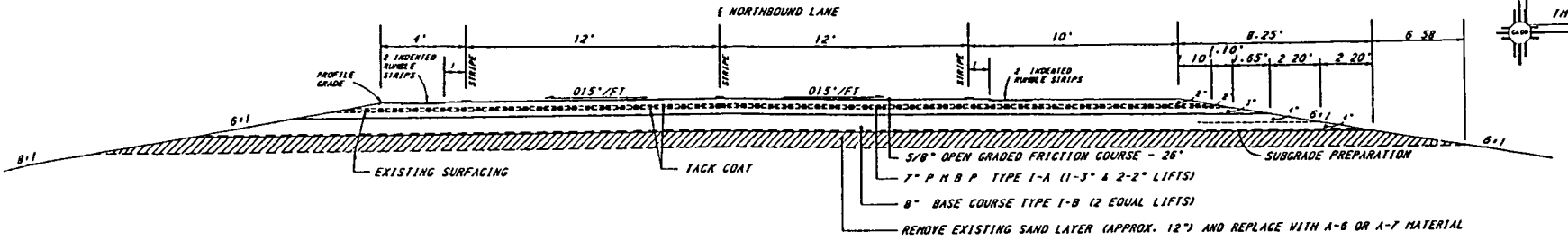
GENERAL NOTES SHEET

DATE 19 . SCALE 1"=10 SHEET OF

IM-025-1(64)37 SHT. 1-8

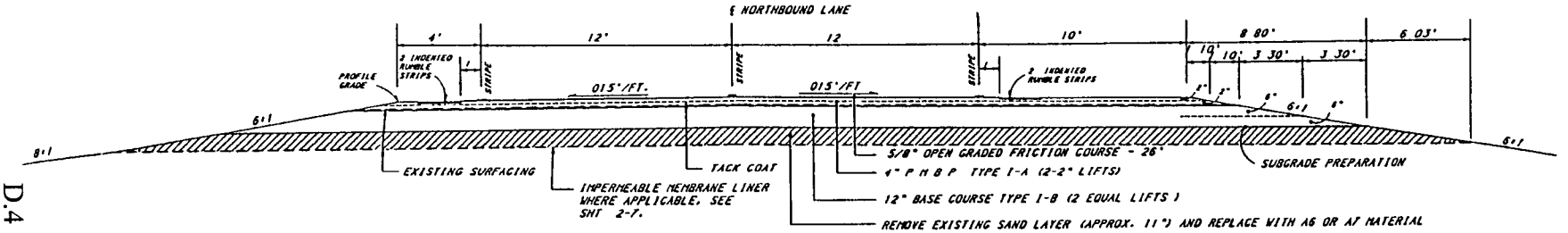
D.3

F H W A REGION NO 6	SHEET NO
NEW MEXICO PROJECT NO	
IM-025-1 (64) 37	2-3



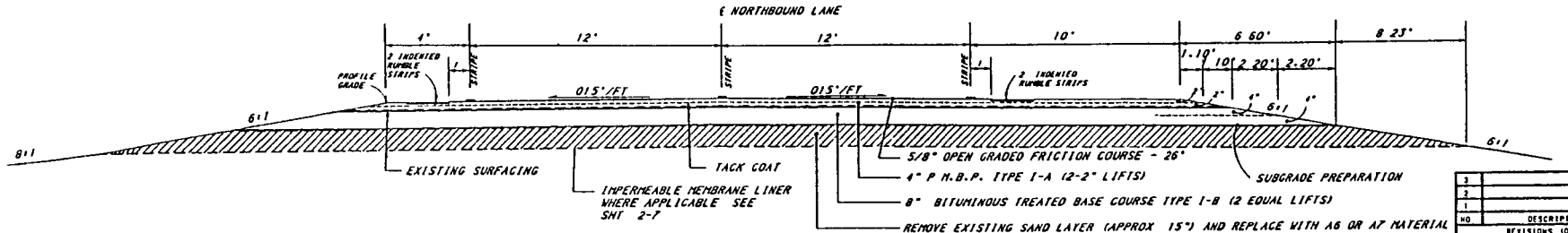
S. H. R. P. TYPICAL SECTION 350101

(NBL, STA. 240+50 TO STA. 248+00)



S. H. R. P. TYPICAL SECTION 350102

(NBL, STA. 248+00 TO STA. 254+00)



S. H. R. P. TYPICAL SECTION 350103

(NBL, STA. 254+00 TO STA. 264+00)

NO	DESCRIPTION	DATE	BY
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

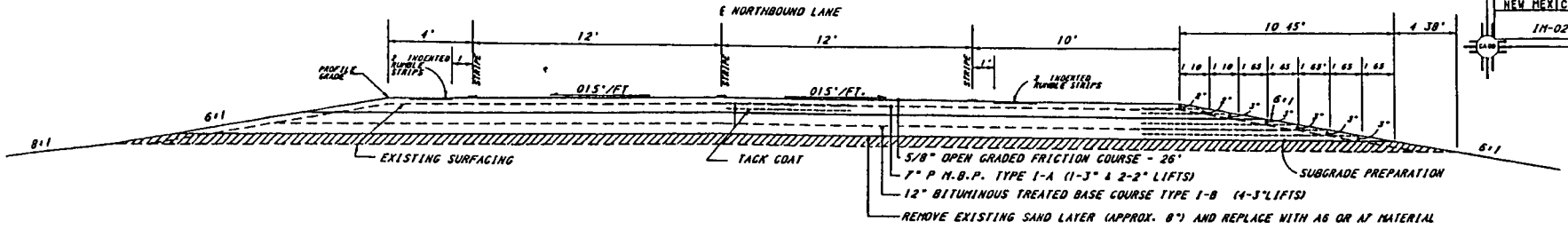
TYPICAL SECTIONS

DATE 19 SCALE 1:2 5 SHEET OF

ROAD 6/PCN/14'0/FTP-SEC62

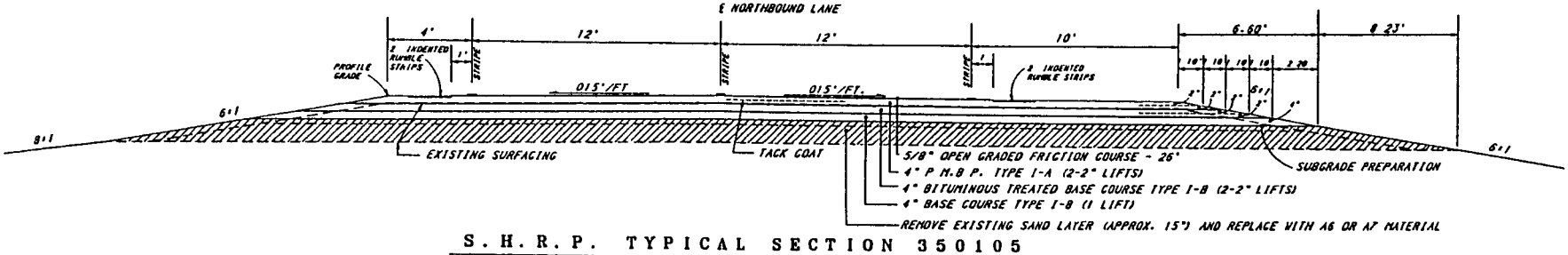
N M P IM-025-1(64)37 SHEET 2-3

F.H.W.A. REGION NO. 6	SHEET NO
NEW MEXICO PROJECT NO	
IM-025-1(64)37	2-4



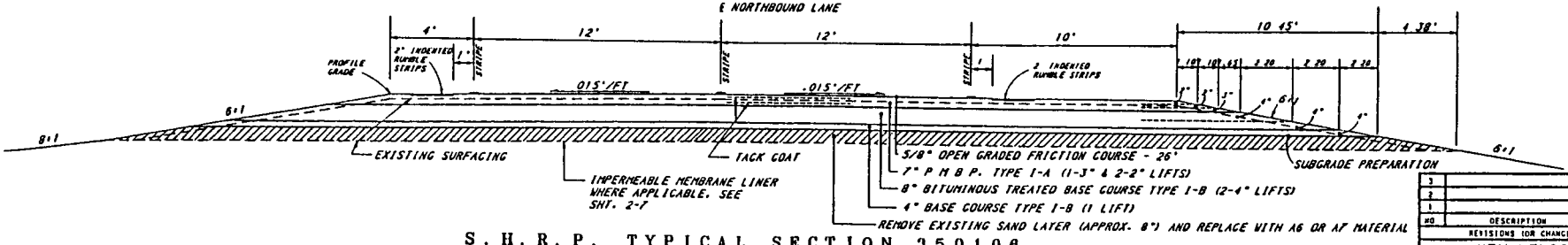
S. H. R. P. TYPICAL SECTION 350104

(NBL. STA. 264+00 TO STA. 270+00)



S. H. R. P. TYPICAL SECTION 350105

(NBL. STA. 270+00 TO STA. 277+00)



S. H. R. P. TYPICAL SECTION 350106

(NBL. STA. 277+00 TO STA. 283+00)

NO	DESCRIPTION	DATE	*
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

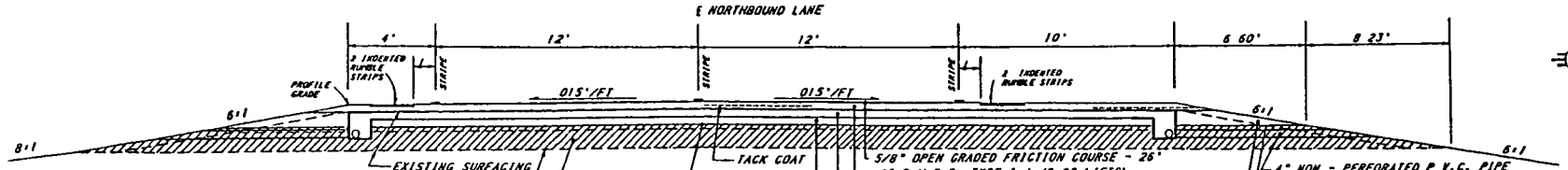
TYPICAL SECTIONS

DATE 19.. SCALE 1:2.5 SHEET OF

ROAD 6/PCM/1470/11P-SEC03

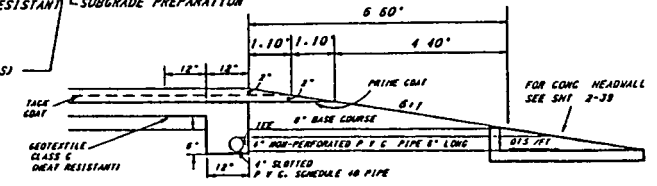
N. M. P. IM-025-1(64)37 SHEET 2-4

F H W A REGION NO 6	SHEET NO
NEW MEXICO PROJECT NO	
IM-025-1 (64) 37	2-5



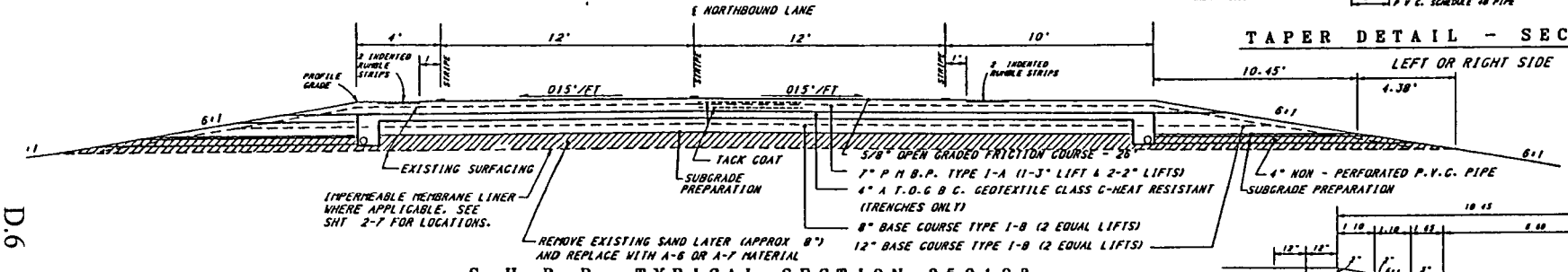
S. H. R. P. TYPICAL SECTION 350107

(NBL. STA. 283+00 TO STA. 290+00)



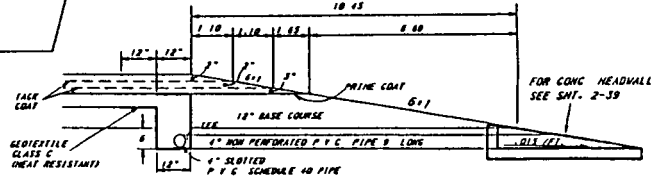
TAPER DETAIL - SECTION SEVEN

LEFT OR RIGHT SIDE



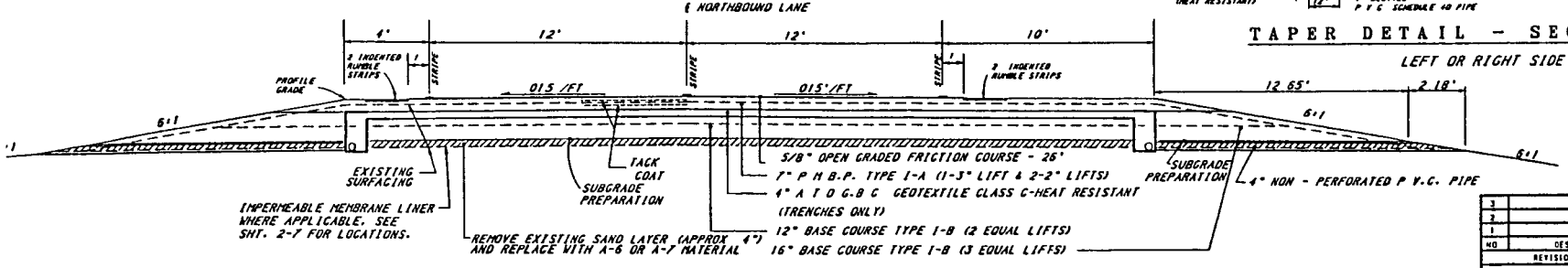
S. H. R. P. TYPICAL SECTION 350108

(NBL. STA. 290+00 TO STA. 296+00)



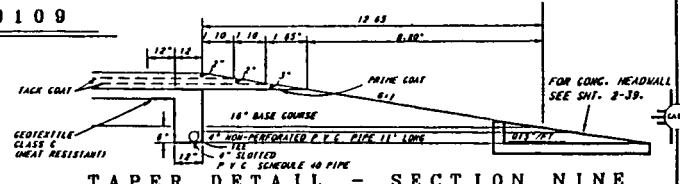
TAPER DETAIL - SECTION EIGHT

LEFT OR RIGHT SIDE



S. H. R. P. TYPICAL SECTION 350109

(NBL. STA. 296+00 TO STA. 302+00)



TAPER DETAIL - SECTION NINE

LEFT OR RIGHT SIDE

NO	DESCRIPTION	DATE	BY
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

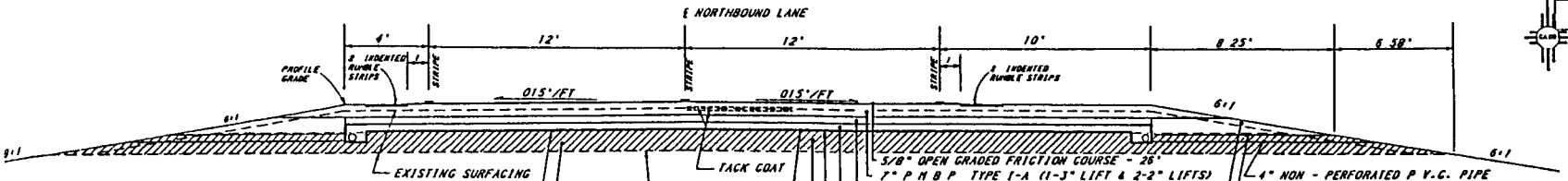
TYPICAL SECTIONS

DATE 19. SCALE 1:2 5 SHEET OF

N M P IM-025-1(64)37 SHEET 2-5

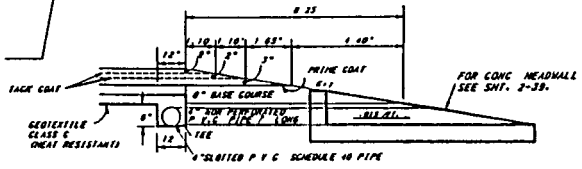
D.6

F.H.W.A. REGION NO. 6	SHEET NO
NEW MEXICO PROJECT NO. IM-025-1(64)37	2-6

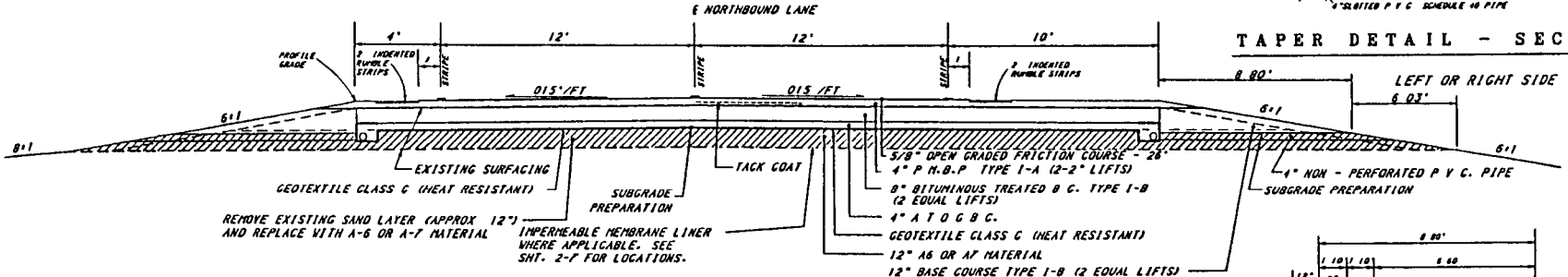


S. H. R. P. TYPICAL SECTION 350110

(NBL, STA. 312+00 TO STA. 318+50)

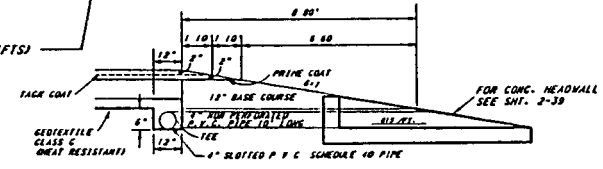


TAPER DETAIL - SECTION TEN



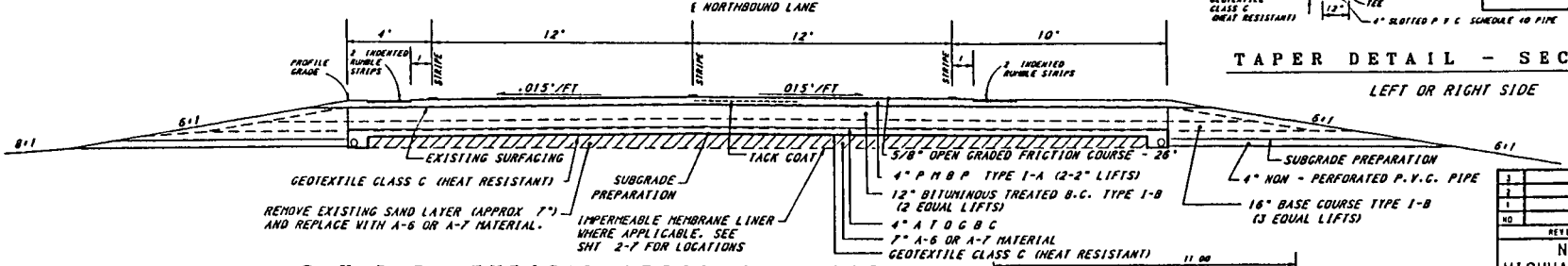
S. H. R. P. TYPICAL SECTION 350111

(NBL, STA. 318+50 TO STA. 324+50)



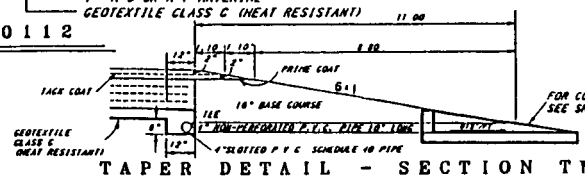
TAPER DETAIL - SECTION ELEVEN

LEFT OR RIGHT SIDE



S. H. R. P. TYPICAL SECTION 350112

(NBL, STA. 329+50 TO STA. 335+50)



TAPER DETAIL - SECTION TWELVE

LEFT OR RIGHT SIDE

NO	DESCRIPTION	DATE	BY
3			
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1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

TYPICAL SECTIONS

DATE 19.. SCALE 1:2.5 SHEET OF

ROAD-6/PCN/1470 TYP-SECSS

N.M.P. IM-025-1(64)37 SHEET 2-

APPENDIX E

PHOTOGRAPHS

Page №.

1 LTPP Preconstruction Shelby Tube Sampling of Subgrade E.2
2 Shelby Tube Samples E.2
3 LTPP Preconstruction Sampling Of Subgrade E.3
4 DGAB at Section 12 Transition with Transverse Interceptor Drain E.3
5 Tack Coat on DGAB E.4
6 Placement of Edge Drains E.4
7 PATB at Sections 8 and 9 . . . . . E.5
8 Placement of PATB on Geotextile Fabric, Sections 7-9 . . . . . E.5
9 Asphalt Treated Base E.6
10 Core Sampling of ATB for New Mexico SHTD QC/QA E.6
11 LTPP Nuclear Density Data Collection by Law Personnel E.7
12 Bulk Sampling of HMAC by New Mexico SHTD for QC/QA E.7
13 LTPP Core Sampling of HMA Layers by Law Personnel E.8
14 Core Samples for LTPP Testing E.8
15 Beginning Marker for New Mexico SPS-1 Project E.9
16 Section Marker E.9

Photo 1. LTPP Preconstruction Shelby Tube Sampling of Subgrade

Photo 2. Shelby Tube Samples

Photo 3. LTPP Preconstruction Sampling Of Subgrade

Photo 4. DGAB at Section 12 Transition with Transverse Interceptor Drain

Photo 5. Tack Coat on DGAB

Photo 6. Placement of Edge Drains

Photo 7. PATB at Sections 8 and 9

Photo 8. Placement of PATB on Geotextile Fabric, Sections 7-9

Photo 9. Asphalt Treated Base

Photo 10. Core Sampling of ATB for New Mexico SHTD QC/QA

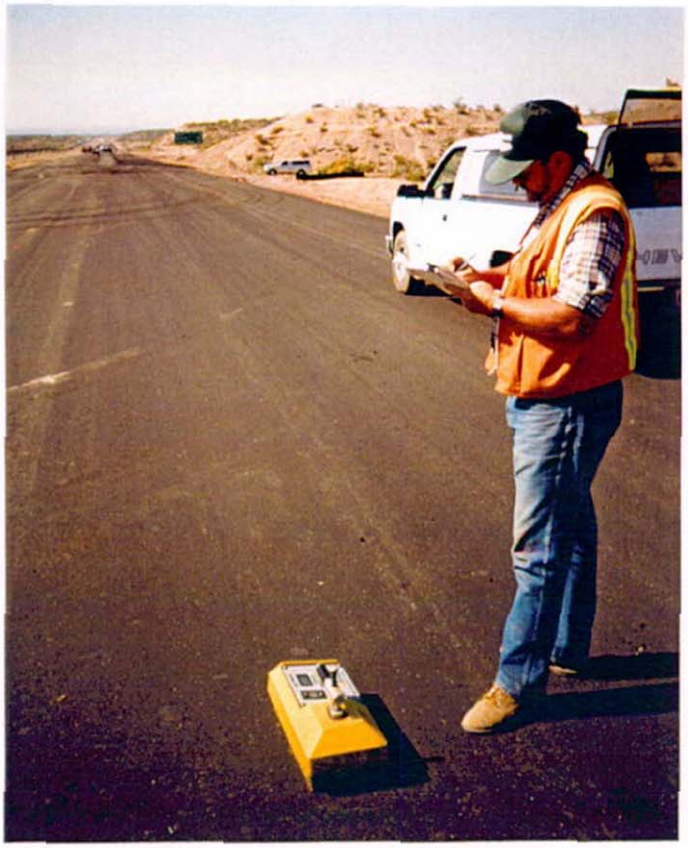

Photo 11. LTPP Nuclear Density Data Collection by Law Personnel

Photo 12. Bulk Sampling of HMAC by New Mexico SHTD for QC/QA

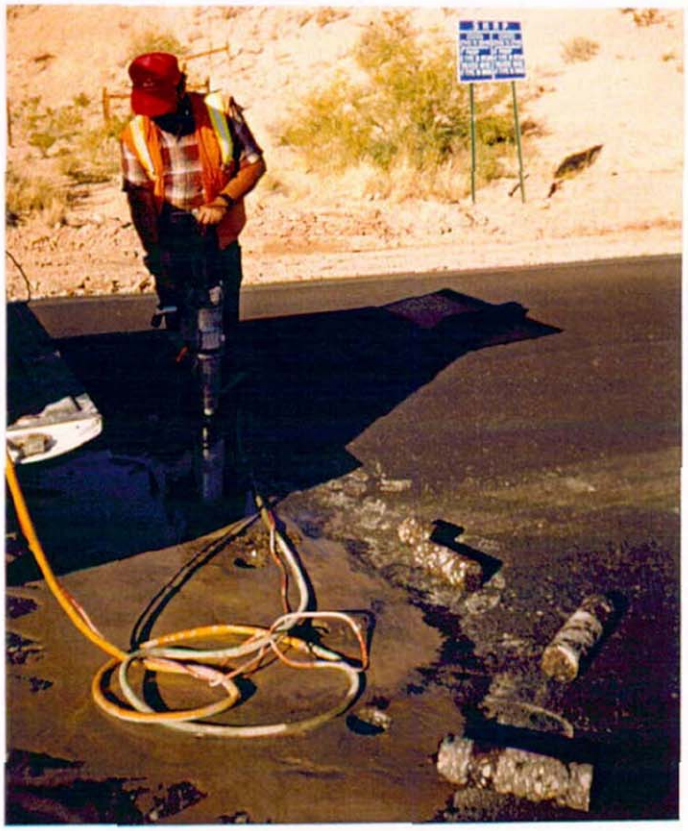

Photo 13. LTPP Core Sampling of HMA Layers by Law Personnel

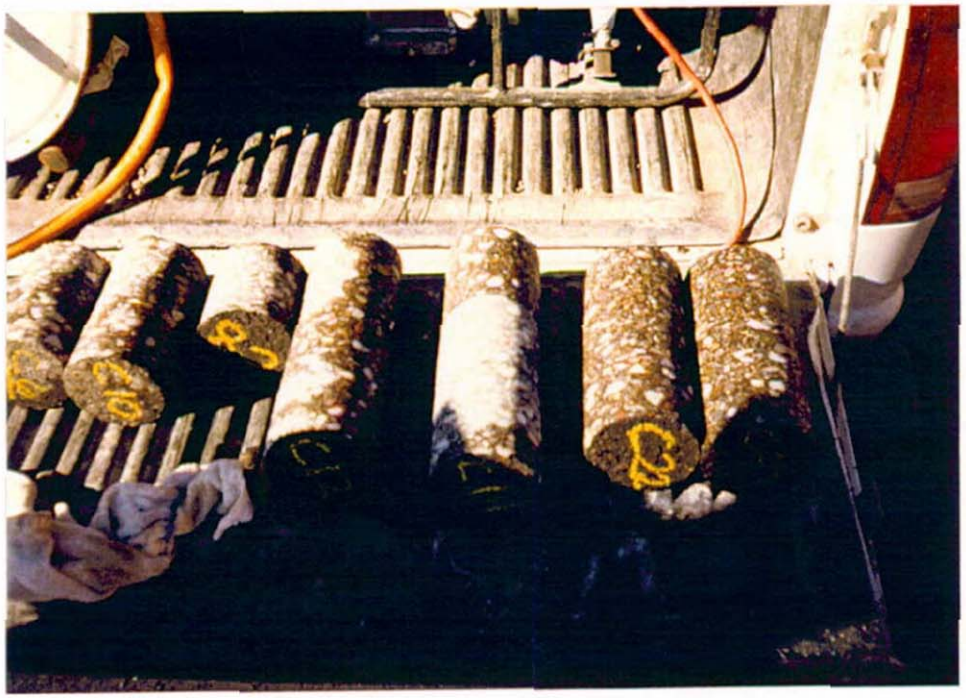

Photo 14. Core Samples for LTPP Testing

Photo 15. Beginning Marker for New Mexico SPS-1 Project

Photo 16. Section Marker