LTPP Seasonal Monitoring Program

Site Installation Report for GPS Section 460804 (46A) Pollock, South Dakota

Report No. FHWA-

February 1996

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Report No. FHWA-

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McLean, Virginia 22101-2296

January 1996

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA-		

4. Title and Subtitle	5. Report Date
LTPP Seasonal Monitoring Program Site Installation Report for SPS Section 460804 (46A) Pollock, South Dakota	January 1996
	6. Performing Organization Code

7. Author(s)	8. Performing Organization Report No.
Robert J. Van Sambeek and Ronald R. Urbach	DBNX92700-B6-46A

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Braun Intertec Corporation 6875 Washington Avenue South, P.O. Box 39108 Minneapolis, Minnesota 55439-0108	11. Contract or Grant No. DTFH61-92-C-00009

12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
Federal Highway Administration LTPP-Division, HNR-40 Turner-Fairbanks Highway Research Center 6300 Georgetown Pike McLean, Virginia 22101-2296	Final Report July 1994 - June 1995
	14. Sponsoring Agency Code

15. Supplementary Notes

Contracting Officer's Technical Representative - Aramis Lopez, HNR-40

16. Abstract

This report contains instrumentation installation details and data collection summaries for SPS test section 460804, which is a core section in the LTPP Seasonal Monitoring Program. This asphalt concrete pavement section on State Highway 1804 northwest of Pollock, South Dakota was instrumented July 14, 1994. Instrumentation included time domain reflectometry (TDR) probes to estimate moisture content in unbound pavement layers, thermistor probes to measure pavement structure thermal gradients and air temperature, electrical resistivity probe to predict frost/thaw conditions, piezometer to measure water table depth below the pavement surface, and tipping-bucket rain gauge to measure precipitation.

Monitoring data was collected the day after instrument installation and roughly on a monthly basis from July 1994 to June 1995. In addition to temperature and precipitation data that were collected continuously by a datalogger at the site, monitoring data each month usually included Falling Weight Deflectometer data, TDR probe readings, frost/thaw readings, and piezometer readings. On a less regular basis, longitudinal profile data, pavement surface elevation data, and manual distress data were collected as required by FHWA guidelines. A summary of data collected is included in the report.

17. Key Words	18. Distribution Statement
Long Term Pavement Performance, LTPP, Pavement Instrumentation, Seasonal Monitoring Program, SMP, Time Domain Reflectometry, TDR, Resistance, Frost, Thaw, Temperature, Thermistor, Water Table, Piezometer, Falling Weight Deflectometer, FWD	

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price

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LTPP Seasonal Monitoring Program
Site Installation Report for GPS Section 460804 (46A)
Pollock, South Dakota

I. Introduction

This report contains information specific to instrument installation and monitoring data collection for the Long Term Pavement Performance (LTPP) Special Pavement Study (SPS) section 460804, which is part of the core Seasonal Monitoring Program (SMP) under the Federal Highway Administration (FHWA) LTPP Division. This pavement section was instrumented on July 14, 1994, and had regular data collection through June 27, 1995. The section will be monitored every other year under the LTPP Study for a ten-year period or until it is removed from the study.

A. Test Site Location

SPS section 460804 is located 14.5 kilometers northwest of Pollock, South Dakota on the eastbound lane of State Highway 1804. This location is about 2.0 kilometers south of the state line and just east of the Missouri River.

B. General Test Section Information

This two-lane highway was reconstructed in 1992 and 1993 as part of an SPS project. Construction on the fine-grain subgrade and 305-mm thick granular base was completed in the fall of 1992, but construction of the 180-mm thick asphalt surface was delayed until 1993, because temperatures were too cold during the fall of 1992. Additional background information about the section is located in Appendix A-1. This information includes, but is not limited to, the following items:

- SMP location map;
- Detailed section location map;
- IMS L05A and L05B tables - layer thickness and material type; and
- Field notes for base and subgrade moisture data.

Relevant pre-installation monitoring data for the section located in Appendix A-2 includes the following:

- Pre-installation pavement distress data;
- Pre-installation FWD data (includes tests outside the section limits); and
- FWDCHECK program uniformity analysis results.

C. SMP Test Section Information

The geographic location and existing pavement structure place this section in Cell 11 of the SMP experiment, which is defined by the following parameters:

- Thick asphaltic concrete pavement (greater than 127-mm thick);
- Fine-grain subgrade;
- Freezing environment; and
- Dry environment.

This was the eighth SMP installation in the LTPP North Central Region, and highlights of the installation are summarized in Section IV of this report. The people involved with the installation are listed on "Data Sheet SMP-I01: List of Installed Instrumentation," which is included in Appendix C-1 along with other SMP installation forms.

Revised data forms from the LTPP Seasonal Monitoring Program: Instrumentation and Data Collection Guidelines, April 1994, were used for this 1994 installation. However, on some forms, data are not available regarding procedure modifications adopted after the April 1994 revisions. On these forms the cells are usually blank, and a comment is included on the form to explain the missing data.

II. Instrumentation Installation

A. Pre-Installation Activities

Mr. David Huft of the South Dakota Department of Transportation (SDDOT or sometimes referred to as "the agency" in this report), was initially contacted regarding potential sections identified for the seasonal monitoring pilot activities started in 1991 under the Strategic Highway Research Program (SHRP). General Pavement Study (GPS) section 469187 was included in the pilot study, and falling weight deflectometer (FWD) data was collected on the site from the fall of 1991 through the spring of 1992 on roughly a monthly basis as weather permitted. Field notes and data analysis results from the SHRP SMP pilot are included in "LTPP Seasonal Monitoring Program Site Installation Report for GPS Section 469187 (46B), Faith, South Dakota."

In 1993, Mr. Huft was contacted to confirm continued agency support for GPS section 469187 as a core section in the SMP study administered by the FHWA LTPP Division. In addition, SPS sections 460803 and 460804 and GPS section 466600 were identified as potential core sections, and the agency was willing to support these sections as well. The agency agreed to defer any pavement rehabilitation at least the five years required to get three years of monitoring data that is collected every other year. In spite of the agency willingness to support the four sections, SPS 460803 and GPS 466600 were dropped from SMP because of the following circumstances:

- SPS sections 460803 and 460804 are on the same SPS-8 project, and initially, the two sections were identified for instrumentation to provide direct comparison of seasonal pavement response between a thin and thick section. However, the thin asphalt section was rejected from the SMP when FHWA LTPP Division staff asked the North Central Region Coordination Office (RCO) to eliminate one section.

- GPS section 466600, which is the control section for an SPS-4 project, was to be instrumented in 1995. However, the section was rejected from the study because of concerns identified during a site visit June 21, 1995 as part of pre-installation activities for the section. The main reasons for rejecting the section from the SMP included retrofit pavement edge drains and pavement milling that extended into the areas where SMP instrumentation would have been placed.

Pre-installation monitoring activities for SPS section 460804 and GPS section 469187 included FWD testing and manual distress surveys completed in early June 1994. At the sites, RCO staff documented installation concerns and conditions that would influence which end of the sections to monitor. Also, information from the SHRP SMP pilot testing done in 1991/1992 was available to make the necessary installation decisions on GPS section 469187. Field notes from the site visit to SPS section 460804 are included in Appendix B-1.

On June 24, 1994, a pre-installation meeting was held in Pierre, South Dakota for agency staff involved with instrumentation installation and monitoring activities for both SPS section 460804 and GPS section 469187. A presentation was given on the SMP, arrangements were made for the agency to supply equipment and materials required for the installation, and installation dates were set for agency staff to verify availability of equipment and materials. The agenda, list of participants, and notes from the pre-installation meeting are included in Appendix B-1.

At the RCO, pre-installation activities included performing instrumentation checks/calibrations, and incorporating improvements to the installation process based on revised SMP guidelines from April 1994 and field notes from installations done in 1993. Recommended improvements to the installation process resulting from instrumentation of SPS section 460804 are listed in Section IV of this report, and results from instrumentation checks/calibration are included in Appendix B-2 using the following forms:

- Data Sheet SMP-C01: TDR Probe Check;
- Data Sheet SMP-C02: Thermistor and Air Temperature Probe Check;
- Data Sheet SMP-C03: Electrical Resistivity Probe Check;
- Data Sheet SMP-C04: Function Generator, Multi-meter, and Switch Box Checks; and
- Data Sheet SMP-C05: Tipping-Bucket Rain Gauge Calibration.

For the TDR probe 1 check in water, the calculated dielectric is 75.8, which is slightly less than the lower limit of 76 specified in the SMP guidelines. However, this was not realized until after the probe had been installed. For TDR probes 1 and 5, the traces in water do not have well-defined inflection points for the signal leaving the open end of the probe. In fact, the vertical position of the signal increases through the last part of the probe. Also, the TDR probe 8 check in water was repeated because the first check had a calculated dielectric of only 67.4. The second check had a calculated dielectric of 82.9. Both traces for TDR probe 8 are included in Appendix B-2. It is beyond the scope of this installation report to determine what caused the odd traces in water or whether data from these probes are reasonable.

For the air temperature and thermistor probes, checks were done using the datalogger to monitor the 19 temperature readings for the two probes simultaneously for tests run in an ice bath and with the probes in the sun. The two probes were left connected to the datalogger for several days to verify their continued operation and consistency among the 19 temperatures recorded.

For the resistivity probe, loose electrode wraps were tightened by twisting the lead with a needle-nose pliers, and lead wires sticking out of the potting material for the probe were covered with silicon sealant for protection during installation. Excess potting material was scrapped off the electrodes for better contact with the soil.

Pre-installation activities also required selection of the instrumentation location for the section. Pavement distress data and FWDCHECK program analysis for FWD testing done June 8, 1994 were used to select Station 3+00 to Station 5+25 for monitoring with instrumentation to be placed at Station 5+20. Pavement distress was limited to patched core holes outside the section limits, which had little influence on which end to monitor. However, the subgrade elastic modulus results from FWDCHECK were much more uniform on the Station 5+00 end of the section.

B. Installation Activities

The SMP instrumentation installation itinerary for South Dakota included travel, installation, and data collection time for two sites over a one-week period. On July 13, 1994, RCO staff traveled to South Dakota and stopped at SPS section 460804 to verify installation details for the next day. Two concerns were identified. First, there was the concern with placing the cabinet at the lowest point in the ditch. RCO staff got approval from the agency to reduce the cabinet offset to about 6.0 m from

the road to prevent flooding of the datalogger cabinet. Second, the lane was striped 4.12-m wide, and color variations on the pavement helped identify the wheel paths, which placed the midlane at 1.83 m from the centerline stripe for the road. RCO staff decided to establish test locations based on a 3.66-m lane measured from the centerline stripe.

Instrumentation installation was completed at SPS section 460804 on July 14, 1994 after an initial delay while heavy fog dissipated. Some final installation activities continued on the following day. The following installation forms are included in Appendix C-1 along with field notes and photographs of the installation:

- Data Sheet SMP-I01: List of Installed Instrumentation;
- Data Sheet SMP-I02: Instrumentation Locations;
- Data Sheet SMP-I03: Log of Piezometer Hole;
- Data Sheet SMP-I04: Log of Instrumentation Hole;
- Data Sheet SMP-I05: Field Gravimetric Moisture Contents;
- Data Sheet SMP-I05(A): Lab Gravimetric Moisture Contents;
- Data Sheet SMP-I05(B): Gravimetric Moisture Comparison;
- Data Sheet SMP-I06: TDR Moisture Content; and
- Data Sheet SMP-I07: Representative Dry Density.

Piezometer installation was done according to protocol. A 0.6-m long access tube was set in concrete just below the existing shoulder material to protect the top of the piezometer and provide easy access for measurements. A 3.0-m long grease sleeve was used on this piezometer to isolate the piezometer from frost heave. The grease sleeve extends about 0.2 m up into the access tube with the space between the two filled with sand. Additional piezometer installation notes are included in Appendix C-1.

A 460-mm square for the instrumentation hole and a 100-mm wide trench for the conduit were marked on the pavement surface at Station 5+20 using the pavement edge reference established for a 3.66-m wide lane measured from the centerline stripe. FWD testing was done on the SMP portion of the section from Station 3+00 to Station 5+25 including a test over the instrumentation hole.

The block and conduit trench were sawed after the FWD testing over the instrumentation hole was done, and the block was lifted out using anchors tapped into the pavement. The block was washed off and set in the shade to keep it as cool as possible for later replacement. The drill rig was moved into position over the hole and material was put into buckets as it was removed from the hole in 0.15-m lifts.

TDR probes were placed according to protocol with TDR probe 1 mid-depth in the base layer and TDR probe 2 at the bottom of the base layer.

For installation reports from the LTPP North Central RCO, "Data Sheet SMP-I05(A): Lab Gravimetric Moisture Contents," is used to report agency laboratory moisture results. Also, "Data Sheet SMP-I05(B): Gravimetric Moisture Comparison" was created to summarize moisture data obtained from field moisture tests, laboratory moisture tests, and interpretation of TDR probe data. These forms, along with a plot of the moisture results, are included in Appendix C-1, and the following assumptions and conclusions were made regarding the moisture data:

- LTPP Directive Number: SM-13 "TDR Trace Interpretation Method for Calibration and Function Checks" dated August 17, 1995 was used to interpret the apparent length of each TDR trace obtained during installation for estimating moisture results. This method was specified for "calibration and function checks," but no other method had been distributed by FHWA LTPP staff. The interpreted apparent lengths are reported on "Data Sheet SMP-I06: TDR Moisture Content" in Appendix C-1.

- Equations on pages II-2 and II-5 of the LTPP Seasonal Monitoring Program: Instrumentation Installation and Data Collection Guidelines, April 1994 were used to convert apparent lengths to gravimetric moisture estimates for the base and subgrade materials, and the results are included on "Data Sheet SMP-I05(B): Gravimetric Moisture Comparison," located in Appendix C-1. A plot comparing the TDR probe moisture data to the field and laboratory data is also included in Appendix C-1.

- The field moisture results averaged 2.9 percentage points greater than the laboratory moisture results, but the difference was fairly consistent.

- The moisture estimates from TDR probes 1 and 2 in the base were both 7.7 percent, which is 2.1 percentage points higher than the average obtained between the field and laboratory data.

- The moisture estimates from TDR probes 3 through 7 in the upper part of the subgrade are very consistent with results from the field and laboratory tests. For these TDR probes, moisture estimates average 4.0 percentage points higher than the field results and 7.7 percentage points higher than laboratory results.

- The moisture estimates from TDR probes 8 through 10 in the lower part of the subgrade are questionable because of flat traces caused by soil characteristics, typically dissolved salts, that electrically short circuit the probe. The second inflection points on these probe traces were placed where the trace went flat, and moistures were calculated to compare with field and laboratory results. As seen on the plot included in Appendix C-1, these TDR probe data are not consistent with others in the subgrade when compared to the field and laboratory results.

- Answers to the following questions could help explain the differences seen in the moisture data, but they are beyond the scope of this report:

  1. Are the same equations appropriate for all materials on this site?

  2. Do estimates of dry density for the subgrade, used to convert from volumetric to gravimetric moisture, seem reasonable given the consistently higher moisture values from the TDR probes compared to the field and laboratory results, especially for TDR probe 2 at the interface between the base and subgrade?

  3. How much influence does compaction have on the results?

"Data Sheet SMP-I07: Representative Dry Density," was not used in 1994, but it is included in Appendix C-1 to keep the report complete and uniform with other installation reports.

Several items were changed regarding installation of the datalogger cabinet and weather pole as follows:

- RCO staff would not have been able to get the 9.1-m offset from the lane edge specified on page II-23 and Figure II-12 of the LTPP Seasonal Monitoring Program: Instrumentation Installation and Data Collection Guidelines, April 1994 because the TDR cables provided were too short. As noted earlier, location adjustments were also necessary to keep the cabinet above normal water levels in the spring. The cabinet at this site is offset about 5.6 m and the weather pole is offset about 6.1 m, which places the obstructions inside the normal 9.15-m safety zone for highways. However, FHWA LTPP Division staff approved the two obstructions as break-away objects (page II-32 of manual) for placement inside the safety zone.

- The bottom of the front panel on the datalogger cabinet was notched about 0.1 m so the conduit buried about 0.3 m below the shoulder was easier to get into the cabinet, and it also slightly increased the distance the cabinet could be placed from the roadway.

- The conduit for the air temperature probe and tipping-bucket rain gauge signal wires was cut into the back of the cabinet above ground instead of running the conduit underground as shown in the guidelines. If the cables were run underground, the air temperature probe signal cable would have to be extended using special wire and resistors to compensate for increased lead resistance. Also, a union coupler was used on the weather pole about 0.3 m above ground to make pole installation easier.

For pavement repairs, the base material was left slightly higher than the original, and the asphalt block was placed in the hole. A loaded truck was driven across the block several times to seat the block until it was the same height as the pavement. The block was carefully removed, and a thin layer of W.R. Meadows "REZI-WELD 1000" multi-purpose construction epoxy was placed in the hole to fill voids in the bottom of the block to help prevent settlement of the block. The block was placed in the hole and seated again with the loaded truck. The trench for the conduit was patched with asphalt, and epoxy was poured into the saw cuts to bond the pavement thermistor probe and asphalt block in place. The medium-viscosity epoxy had a 45-minute pot life at room temperature, and it had been stored in a cooler to provide sufficient time to continue adding material to the saw cuts as the epoxy settled. The saw cuts were filled to within about 15 mm of the pavement surface. The epoxy was allowed to set up while other installation activities were completed.

Agency staff installed a DOT benchmark at Station 5+00 and offset -13.9 m from the driving lane. The reference rod for the benchmark extends about 6.4 m below the ditch surface, and a sketch of the installation is included in Appendix C-1. This benchmark is expected to be more stable then the piezometer as a reference for monitoring pavement surface elevation changes.

On the following day, the pavement repairs looked good, and Dow Corning 890-SL crack sealant was used to fill the saw cuts flush with the pavement surface.

Additional observations about the pavement repair at the instrumentation hole up to the completion of this installation report include the following:

- Within one month after the installation, hairline cracks started to form around the saw cut for the temperature probe, and the sealant was lifting up slightly. See photograph in Appendix D-2.

- Saw cuts were re-sealed on September 27, 1994.

- By December 20, 1994, the saw cut for the temperature probe had started to open again. Also, cracks started to form left of the block. These cracks were sealed February 21, 1995. However, the sealant did not hold well, because no reservoir exists for the sealant and traffic wears it away. Additional sealant was applied both March 9, 1995 and March 23, 1995.

- A low severity transverse crack from the left saw cut for the block was sealed on June 27, 1995.

III. SMP Data Collection

A. Initial SMP Data Collection

On July 15, 1994, final wiring of the datalogger in the cabinet was completed, test locations were marked on the pavement using the 3.66-m lane reference established the previous day, PK nails were placed at offsets -0.16 m and 3.81 m, and the first set of SMP data was collected.

Four cycles of FWD data were collected, as well as manual data including resistivity probe data, elevation data, and piezometer data. The manual data collected are included in Appendix D-1 as follows:

- One set of contact resistance data;
- One set of four-point resistivity data;
- One ground water table measurement; and
- One set of elevation data including shots on the DOT benchmark.

Data from the piezometer should not be entered into the IMS database because low permeability for the soils on this site will require several days for piezometer readings to stabilize.

Computer data files obtained from automated data collection using the dataloggers included the following:

- Two sets of TDR traces and CRREL voltages; and
- Temperature and precipitation data collected from the datalogger to verify operation overnight.

Temperature data from the thermistor probe should not be entered into the IMS database because of heat given off by epoxy used to repair the pavement and disturbance of material around the probe. In addition, temperature data up to several days after instrument installation will have to be reviewed to determine when the disturbed materials came back to thermal equilibrium. Data affected by the installation will have to be edited from the computer files.

B. Routine SMP Data Collection

Routine data collection was done on the site from July 15, 1994 through June 27, 1995, and LTPP's standard data tracking log summarizing data collected on the site is included in Appendix D-2.

Events that influenced the data collection and that will influence data interpretation for the site include the following:

- The driving lane on this site is striped an average 4.12-m wide, which required shifting test locations based on traffic patterns instead of using the standard offsets for a 3.66-m wide lane. The wider lane may distribute traffic over a wider wheel path and influence pavement performance data such as wheel-track distresses and elevation data.

- On December 20, 1994, RCO staff could not get elevation equipment to read the rod placed at the pavement edge on Station 3+00. This should not significantly influence data analysis.

- Unstable manual resistivity probe readings were noted for data collected December 20, 1994, February 21, 1995, and April 6, 1995. Some data forms include the range of values observed, but the database is restricted to entry of one value. For these data ranges, the average value will be entered into the database.

- Data for TDR probes 8 through 10 collected from December 20, 1994 to May 29, 1995 have distinguishable second inflection points and can be interpreted. However, all other data sets from July 14, 1994 to November 22, 1994 and for June 27, 1995 are probably not useable, because the traces are flat. Therefore, TDR probes 8 through 10 only provide useable data for low moisture periods in the yearly cycle at this site.

Instrumentation and equipment problems at the site include the following:

- Leica Wild NA2000 survey equipment occasionally will not read the coded staff at a specific distance.

- Cold temperature problems with the cable reader caused vertical shifts or spikes in some traces and general failure of the cable reader if temperatures were extremely cold. Screen prints of TDR data are included in Appendix D-2.

- TDR probes 8 through 10 have flat traces.

- Elevation difference between the piezometer and the DOT benchmark changed about 2.0 mm during the first frost/thaw cycle after installation as shown on the plot in Appendix D-2. The benchmark movement will complicate elevation data analysis for estimating frost heave.

Other problems experienced at the site include failures with switch boxes used to collect manual resistance/resistivity data and failures of the CRREL multiplexer for automated resistance data collection. Print screens showing the failure modes for the CRREL multiplexer are included in Appendix D-2.

IV. Summary, Conclusions, and Recommendations

A. Instrumentation Installation Highlights

The following items are identified by the authors as unique or particular items of interest regarding this section in the SMP.

- This was the eighth SMP installation in the LTPP North Central Region, and SPS section 460804 was one of the two South Dakota sites installed in 1994 to complete the data collection loop including sections in Minnesota, Manitoba, and Saskatchewan installed the fall of 1993. The two South Dakota sites would have been installed in 1993, but winter weather delayed the installations.

- In 1995, an automated weather station (AWS) will be installed at the SPS-8 project. The AWS will collect additional data not recorded by SMP instrumentation. These data include solar radiation, wind speed, wind direction, and relative humidity. In addition, the AWS uses a heated tipping-bucket rain gauge to monitor precipitation under all conditions, while SMP instrumentation can only accurately record liquid precipitation amounts and intensity.

- This was the first SMP installation on a SPS-8 project in the North Central RCO, and data collected will help correlate pavement performance to site specific environmental conditions.

B. Recommendations for Improving Installations

In addition to previous modifications from other installations, the following procedure and equipment changes from protocol were used during this installation or are recommended for future installations:

- For this installation, a 0.92-m wide by 1.37-m long wooden template was used to mark the pavement surface for the block and trench. The template was also placed on the pavement while removing materials from the instrumentation hole and placing instrumentation to keep the saw cuts clean and free of debris. This was done to get better adhesion for the epoxy and crack sealer used to repair the saw cuts. The template also reduced the amount of heat radiated from the pavement, and it was easier to kneel on than the pavement surface.

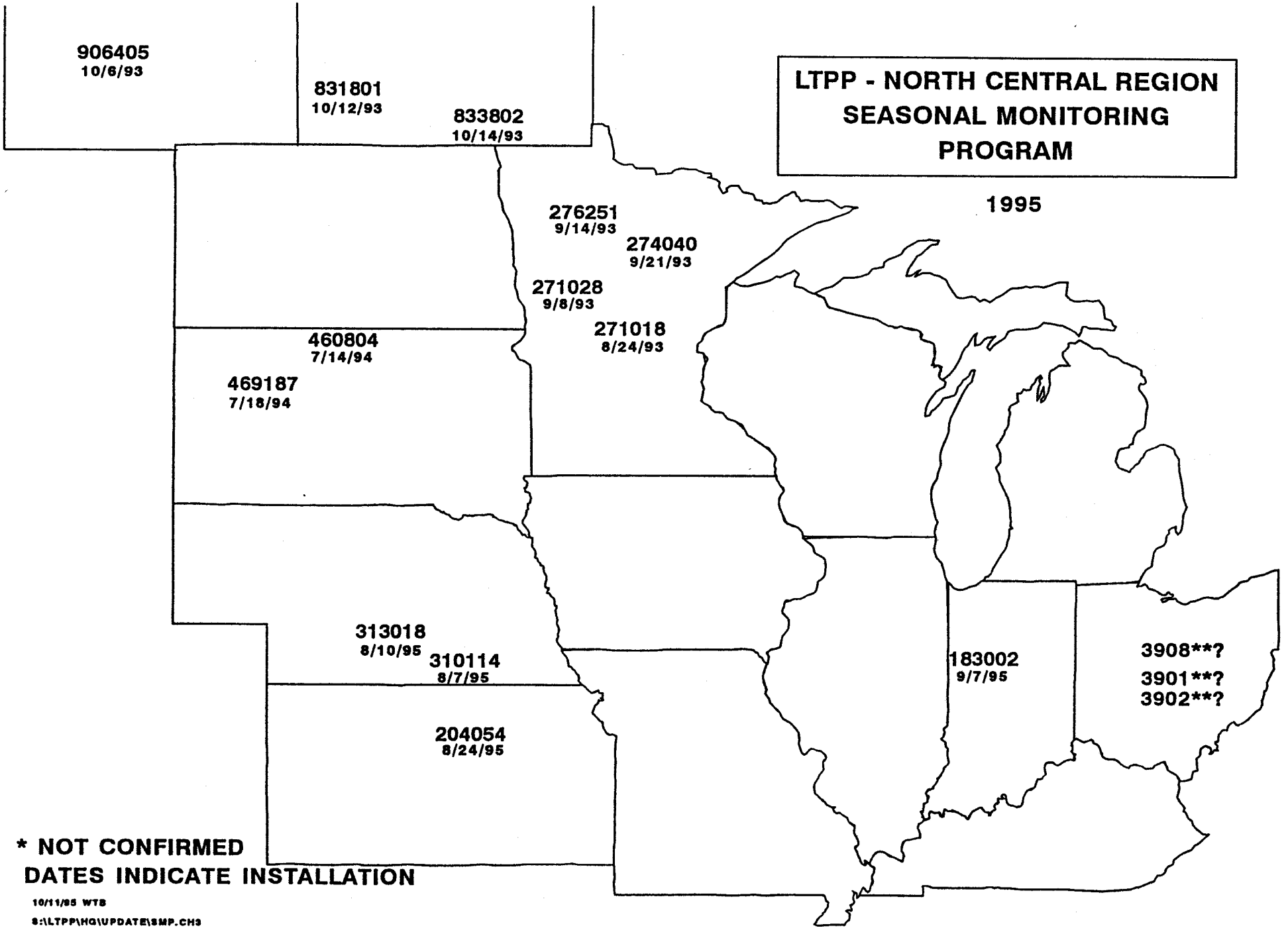
- For this installation, the epoxy was stored in a cooler to extend the pot life after it was mixed, and the asphalt block was kept in the shade to keep it as cool as possible.

- For future installations, soil samples to a depth of at least 2.0 m should be tested to determine if the standard LTPP TDR probes will function properly. If they do not, then shorter probes or specially coated probes could be tested on the soils.

Appendix A-1: Test Section Background Information

Appendix A-1 contains the following test section background information:

- SMP location map;
- Detailed section location map;
- IMS L05A and L05B tables - layer thickness and material type; and
- LTPP Form S04 - base and subgrade moisture data.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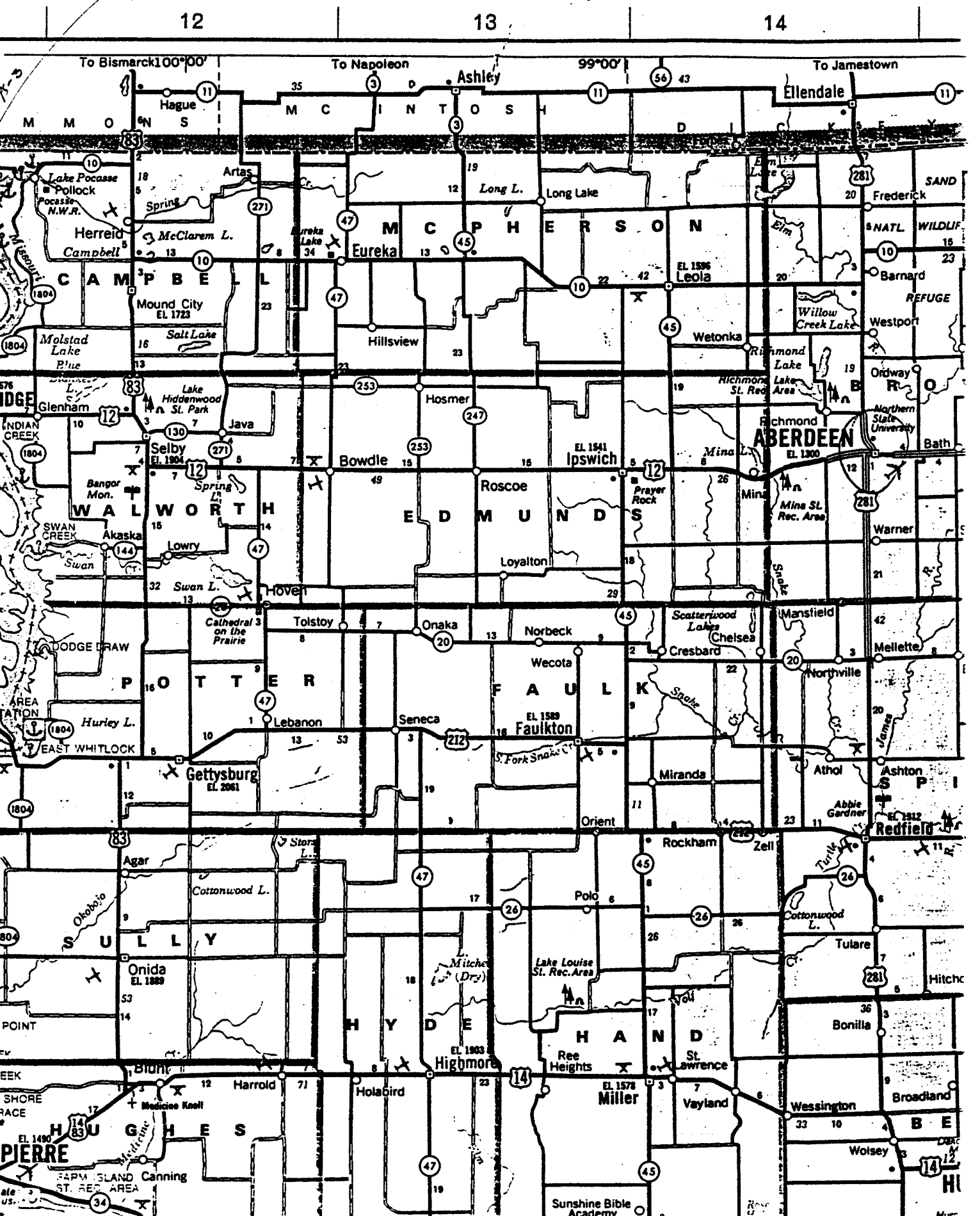
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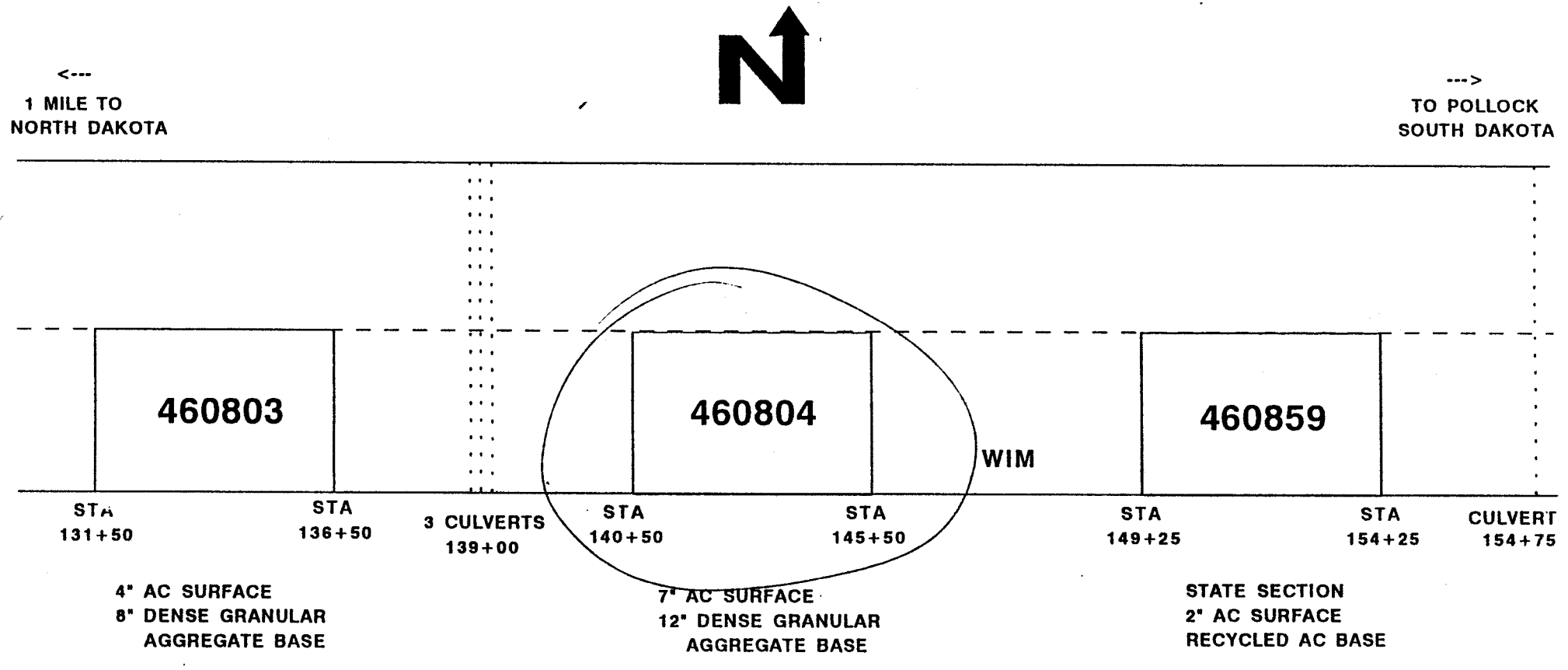


NOTE: FHWA HAS CHANGED THE SECTION NUMBERING TO THE FOLLOWING TO KEEP THE SPS-8 SECTIONS CONSISTENT WITH OTHERS IN THE STUDY.

460801 NOW 460803
460802 NOW 460804
460803 NOW 460859

SHRP/LTPP LAYER THICKNESS

L05A - L05B TABLES

23-JUN-94

E	**L05A DATA**		Gps	Sps	STA 0				WITHIN THE SECTION				STA 5				**L05B**										
-	CN	L#	TYP		MATL	1	2	3	THICK	MATL	1	2	3	THICK	MATL	1	2	3	CN	L#	DESC	TYPE	THICK	MATL	1	2	3	COMMENT NOTE	INV
6	0804	1	1	SS															1	1	7	SS		148				GUESS - WAIT FOR SD	
		1	2	GB															1	2	5	GB	12	303				GUESS - WAIT FOR SD	
		1	3	AC															1	3	3	AC	7	1				GUESS - WAIT FOR SD	

NO FORM — "LTPP FORM 504" FOR SPS-8 PROJECTS.

BRAUN™
INTERTEC

12-18-95

SD 460804

DRY DENSITY

SUB GRADE 96.0 PCF

BASE MAX DRY DENSITY WAS 143.0 PCF BASE WAS TO BE COMPACTED TO 95% OF PROCTOR

143 X .95 = 135.9 PCF, DRY DENSITY

CAN NOT FIND PROJECTS TESTS TAKEN DURING CONSTRUCTION

Appendix A-2: Pre-Installation Monitoring Data and FWDCHECK Results

Appendix A-2 contains the following pre-installation monitoring data and FWDCHECK analysis results:

- Pre-installation pavement distress data;
- Pre-installation FWD data; and
- FWDCHECK program uniformity analysis results.

Revised December 1, 1992

SHEET 1

DISTRESS SURVEY

LTPP PROGRAM

STATE ASSIGNED ID ____

STATE CODE 46

SHRP SECTION ID 0804

DISTRESS SURVEY FOR PAVEMENTS WITH ASPHALT CONCRETE SURFACES

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) 06/08/94

SURVEYORS: BJP ____ PHOTOS, VIDEO, OR BOTH WITH SURVEY (P, V, B) B
PAVEMENT SURFACE TEMP - BEFORE __12__°C; AFTER __12__°C

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
CRACKING			
1. FATIGUE CRACKING (Square Meters)	0	0	0
2. BLOCK CRACKING (Square Meters)	0	0	0
3. EDGE CRACKING (Meters)	0	0	0
4. LONGITUDINAL CRACKING (Meters)			
4a. Wheel Path	0	0	0
Length Sealed (Meters)	0	0	0
4b. Non-Wheel Path	0	0	0
Length Sealed (Meters)	0	0	0
5. REFLECTION CRACKING AT JOINTS Number of Transverse Cracks	0	0	0
Transverse Cracking (Meters)	0	0	0
Length Sealed (Meters)	0	0	0
Longitudinal Cracking (Meters)	0	0	0
Length Sealed (Meters)	0	0	0
6. TRANSVERSE CRACKING Number of Cracks	0	0	0
Length (Meters)	0	0	0
Length Sealed (Meters)	0	0	0
PATCHING AND POTHOLES			
7. PATCH/PATCH DETERIORATION (Number)	0	0	0
(Square Meters)	0	0	0
8. Potholes (Number)	0	0	0
(Square Meters)	0	0	0

2/11

Revised December 1, 1992

SHEET 2

DISTRESS SURVEY

LTPP PROGRAM

STATE ASSIGNED ID _ _ _ _

STATE CODE 4 6

SHRP SECTION ID 0 8 0 4

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) 0 6 / 0 8 / 9 4

SURVEYORS: B J P. _ _ _

DISTRESS SURVEY FOR PAVEMENTS WITH ASPHALT CONCRETE SURFACES (CONTINUED)

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
SURFACE DEFORMATION			
9. RUTTING - REFER TO SHEET 3 FOR SPS-3 OR Form S1 from Dipstick Manual			
10. SHOVING (Number) (Square Meters)			_ _ Ø _ _
SURFACE DEFECTS			
11. BLEEDING (Square Meters)	_ _ Ø _ _	_ _ Ø _ _	_ _ Ø _ _
12. POLISHED AGGREGATE (Square Meters)			_ _ Ø . _
13. RAVELING (Square Meters)	_ Ø . _	_ Ø . _	_ _ Ø _
MISCELLANEOUS DISTRESSES			
14. LANE-TO-SHOULDER DROPOFF - REFER TO SHEET 3			
15. WATER BLEEDING AND PUMPING (Number)			_ Ø _
Length of Affected Pavement (Meters)			_ _ Ø . _

16. OTHER (Describe) _____

3/11

Revised May 29, 1992

SHEET 3

DISTRESS SURVEY

LTPP PROGRAM

STATE ASSIGNED ID _ _ _ _

STATE CODE 46

SHRP SECTION ID 0804

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) 06/08/94

SURVEYORS: B J P. _ _ _

DISTRESS SURVEY FOR PAVEMENTS WITH ASPHALT CONCRETE SURFACES (CONTINUED)

9. RUTTING (FOR SPS-3 SITE SURVEYS)

INNER WHEEL PATH			OUTER WHEEL PATH		
Point No.	Point Distance[1] (Meters)	Rut Depth (mm)	Point No.	Point Distance[1] (Meters)	Rut Depth (mm)
1	0.		1	0.	
2	15.25		2	15.25	
3	30.5		3	30.5	
4	45.75		4	45.75	
5	61.		5	61.	
6	76.25		6	76.25	
7	91.5		7	91.5	
8	106.75		8	106.75	
9	122.		9	122.	
10	137.25		10	137.25	
11	152.5		11	152.5	

N/A

14. LANE-TO-SHOULDER DROPOFF

Point No.	Point Distance[1] Meters	Lane-to-Shoulder Dropoff (mm)
1	0.	
2	15.25	
3	30.5	
4	45.75	
5	61.	
6	76.25	
7	91.5	
8	106.75	
9	122.	
10	137.25	
11	152.5	

NA

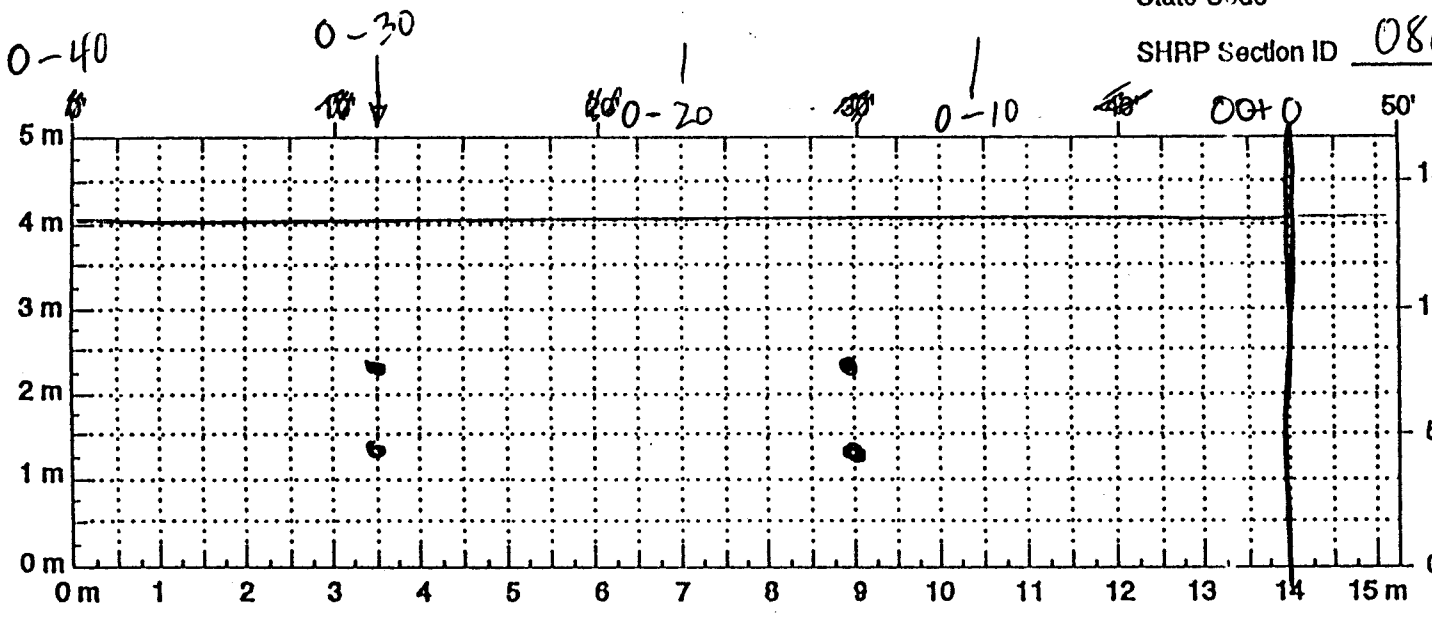
No PAVE Shoulder

Note 1: "Point Distance" is the distance in meters from the start of the test section to the point where the measurement was made. The values shown are SI equivalents of the 50 ft spacing used in previous surveys.

State Assigned ID 6-8-94 BJP

State Code 46

SHRP Section ID 0804



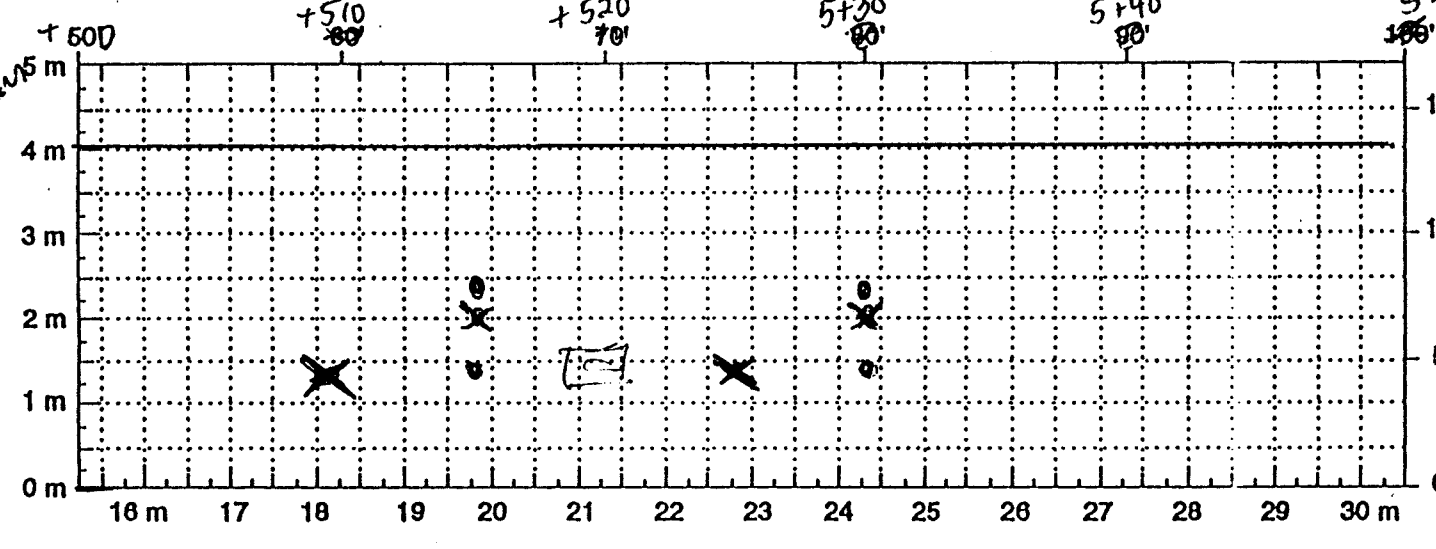
Distress Survey for PRE-SMP

STA 0+00 - 0-40

AND

Comments: NO DEFECTS

STA 5+00 - 5+40



3+00 to 5+00 More Uniform

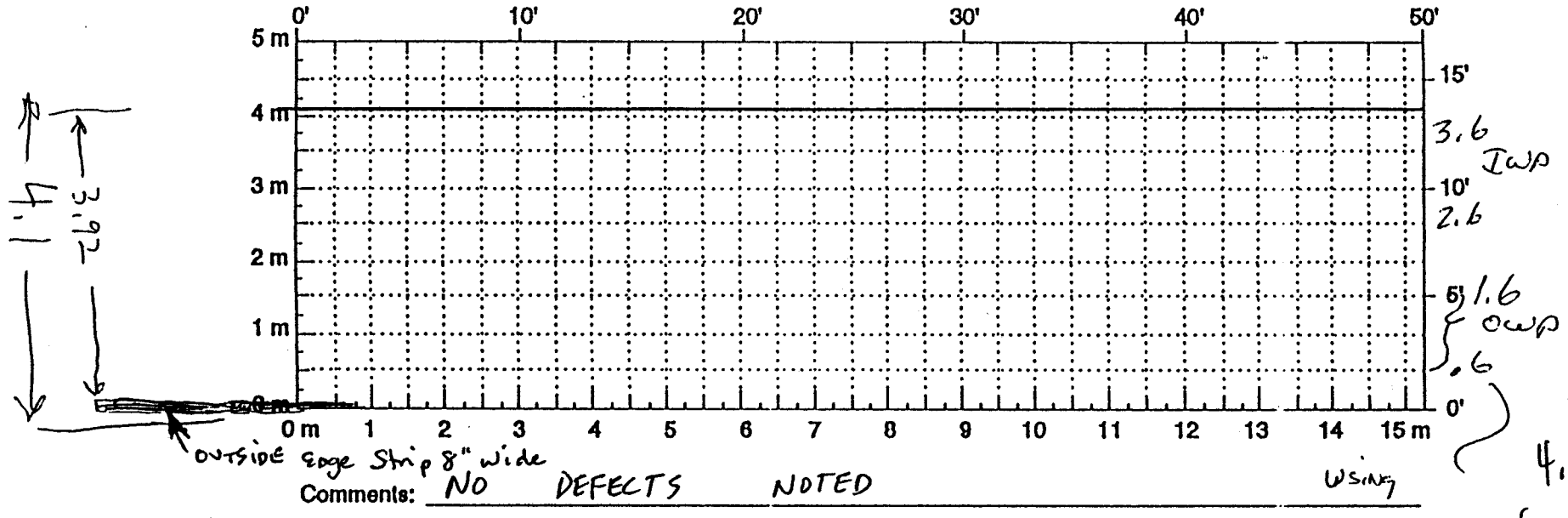
Comments: NO DEFECTS

• Core removed AND patched

State Assigned ID 06-08-1, BJP

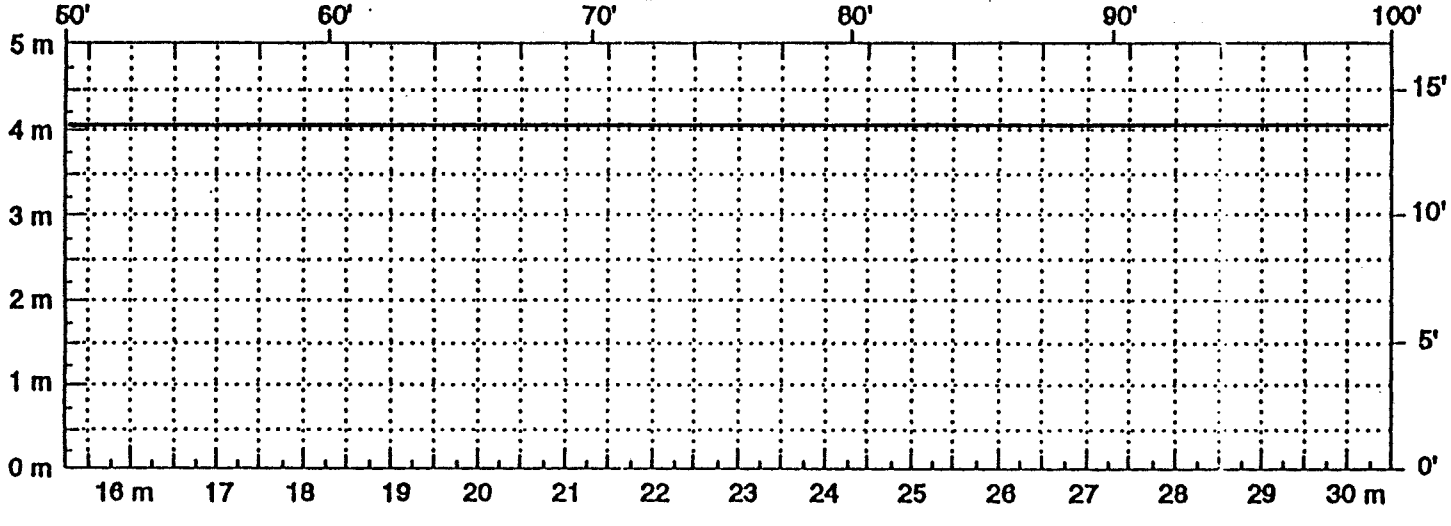
State Code 46

SHRP Section ID 0804



Comments: NO DEFECTS NOTED

Using 4.1 Meter from outside Edge of C/L Strip to outside Edge of Edge Stripe



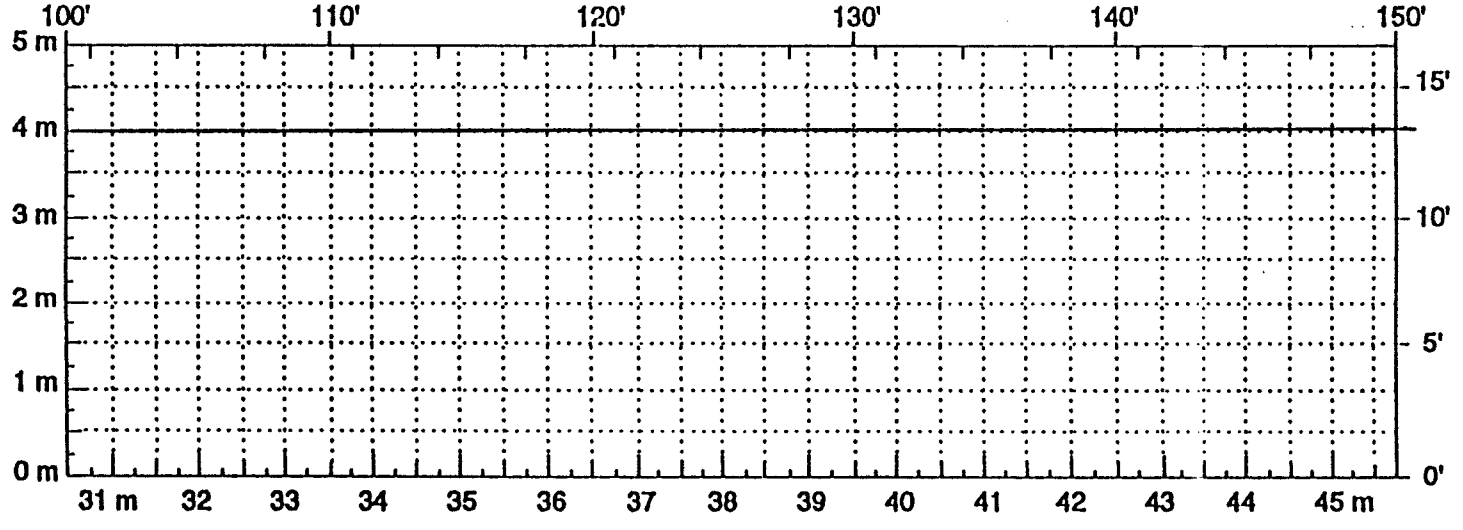
Comments: _____

5/11

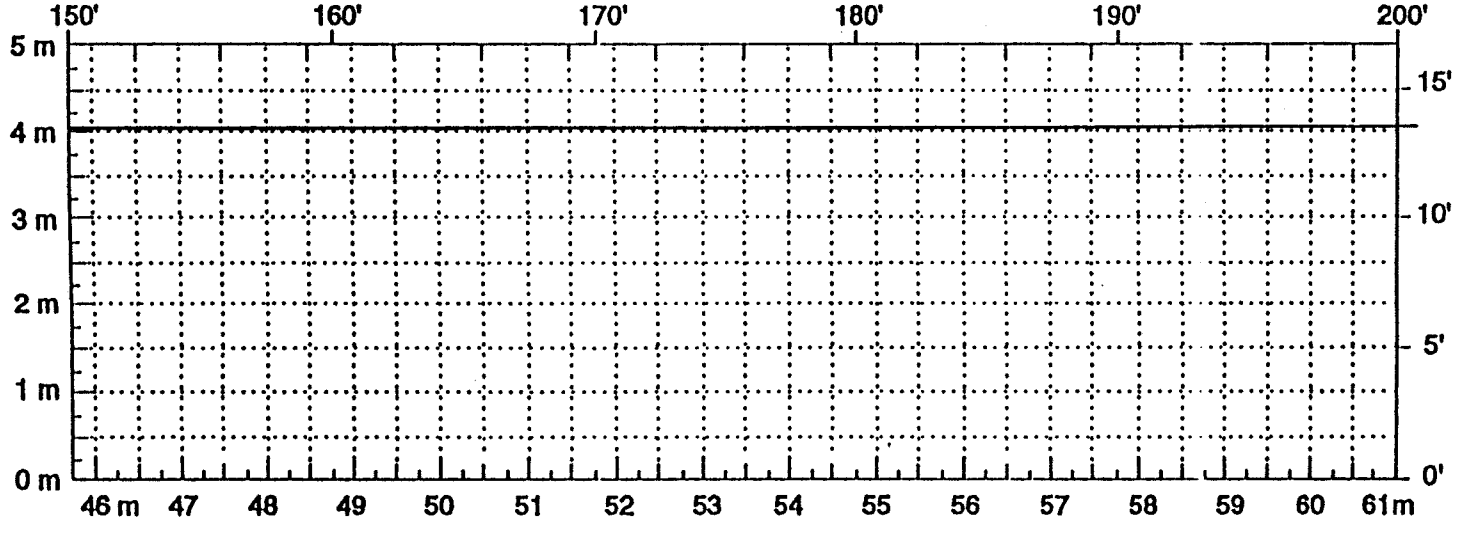
State Assigned ID 06-08-94 BJP

State Code 46

SHRP Section ID 0804



Comments: NO DEFECTS

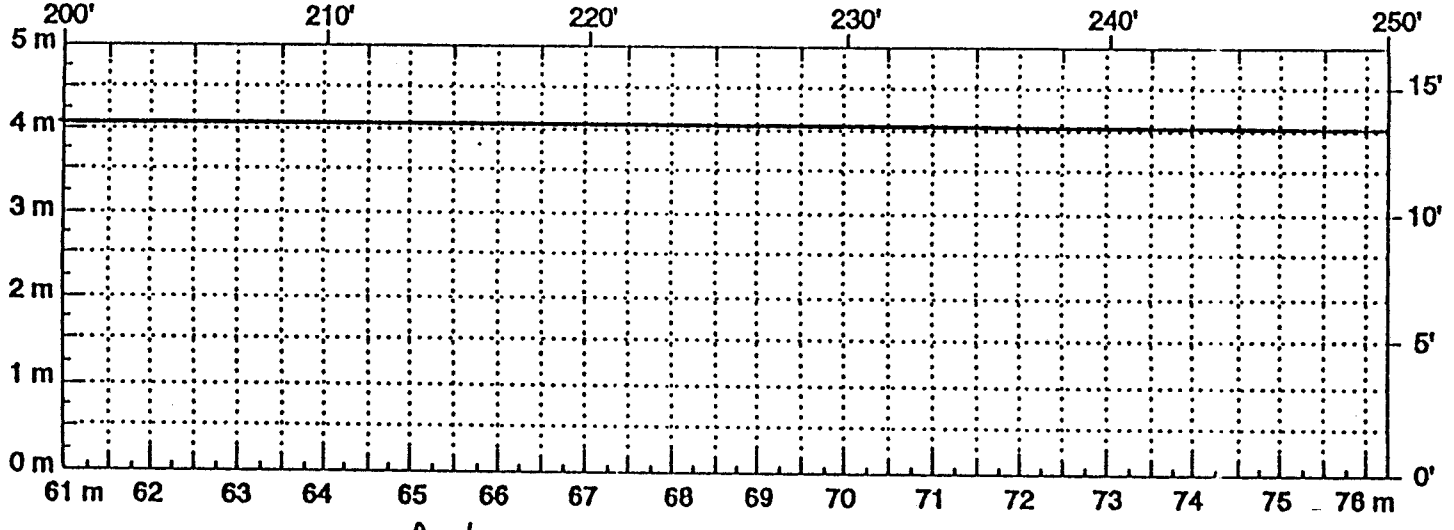


Comments: _____

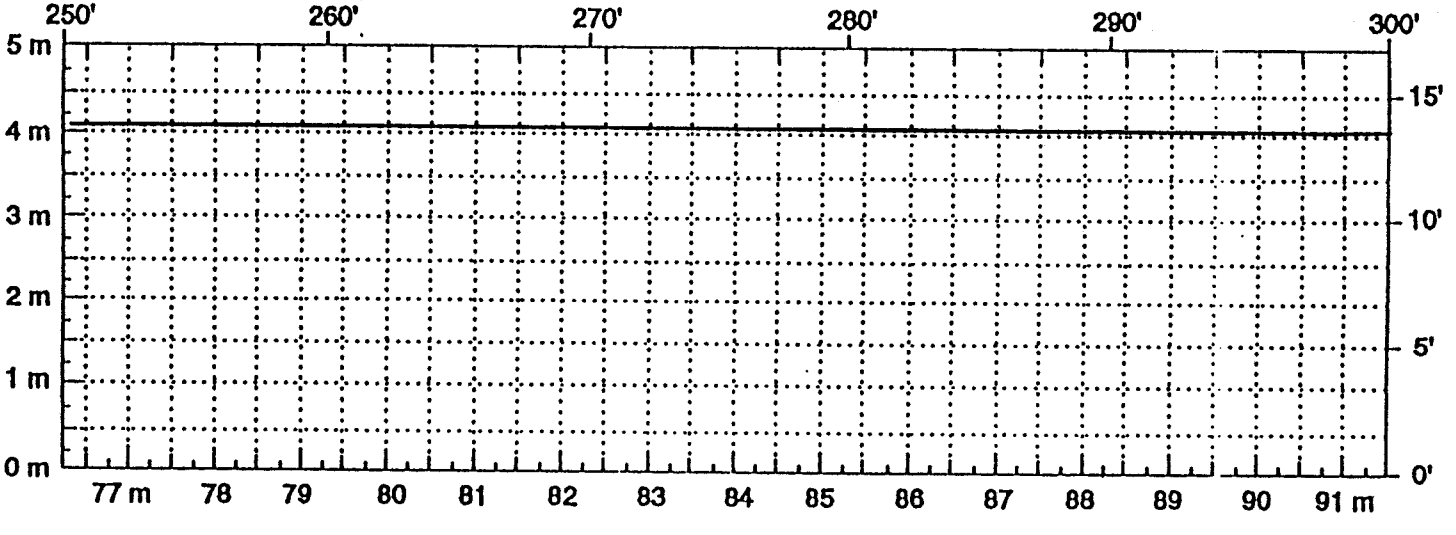
State Assigned ID 06-08-94 BJP

State Code 46

SHRP Section ID 0804



Comments: NO Defects

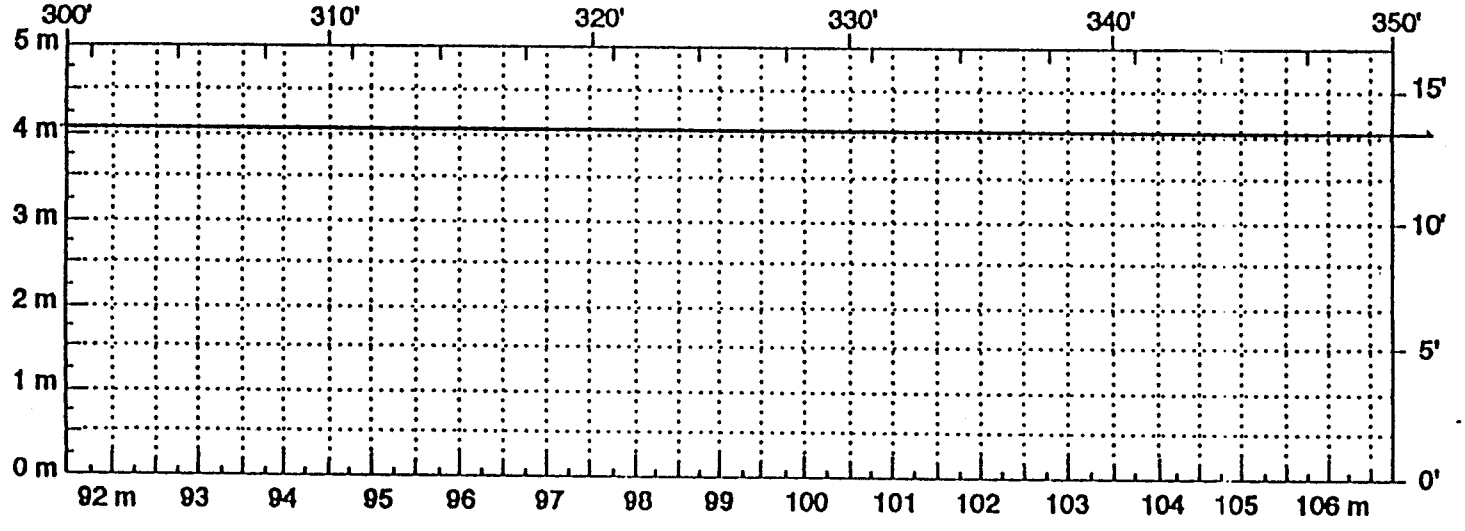


Comments: _____

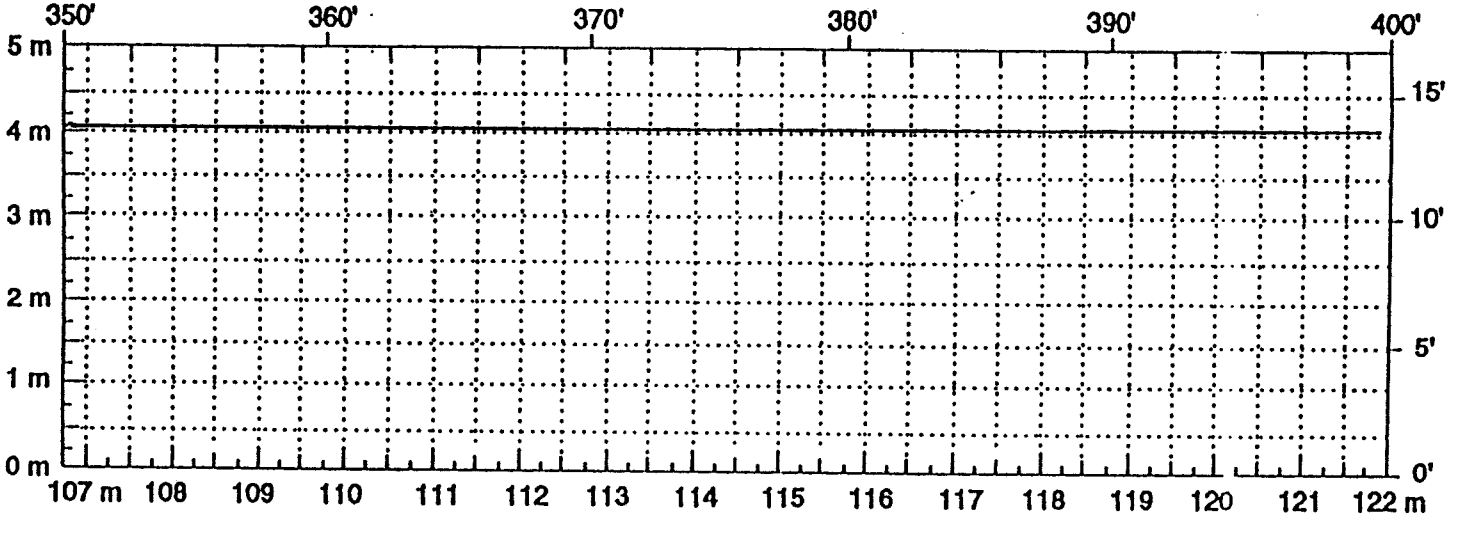
State Assigned ID 06-08-94 BJP

State Code 46

SHRP Section ID 0804



Comments: NO DEFECTS

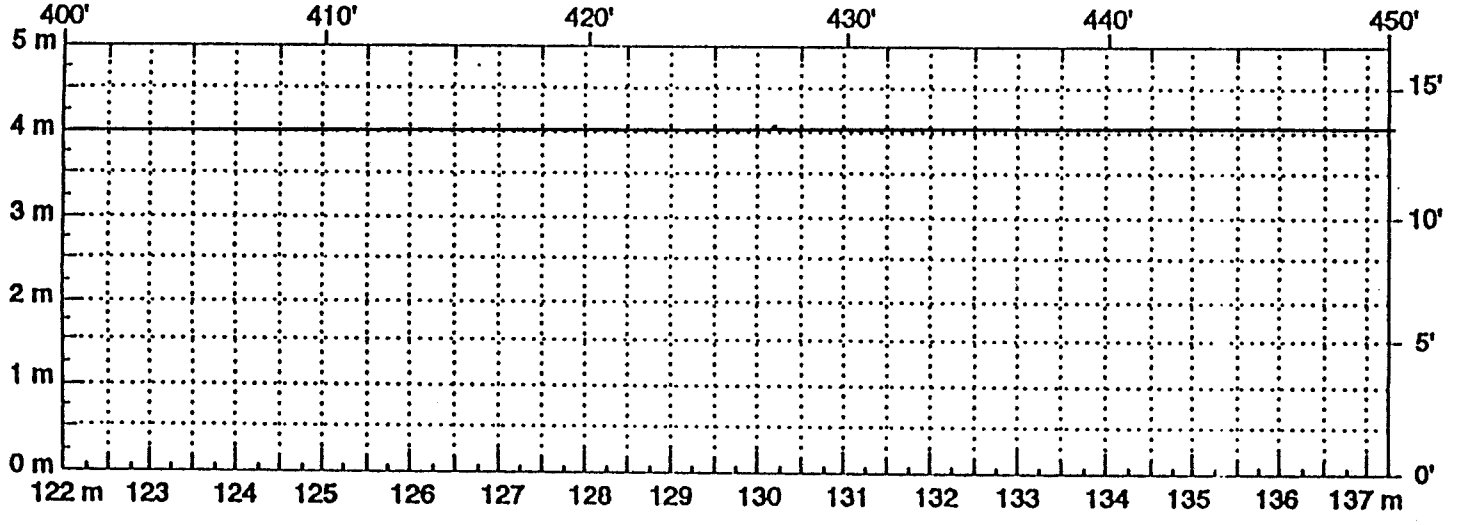


Comments: _____

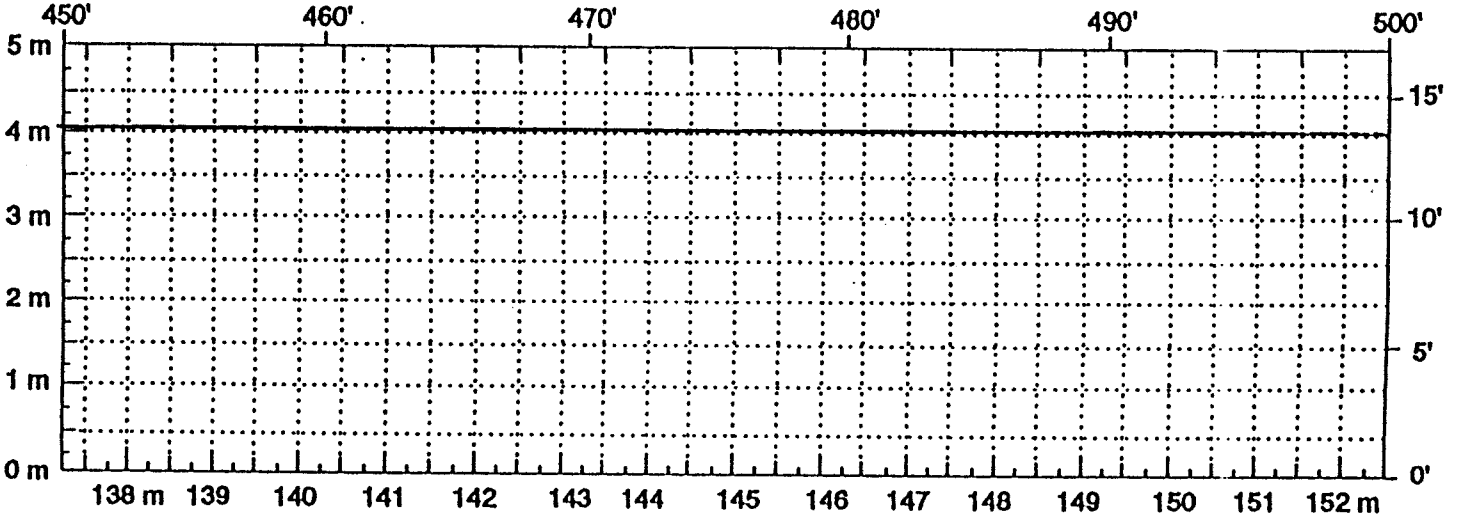
State Assigned ID 06-08-74

State Code 46

SHRP Section ID 0804



Comments: NO DEFECTS



Comments: _____

10/1

DIPSTICK FIELD ACTIVITY REPORT

SHRP REGION NCR STATE CODE 46 SHRP ASSIGNED ID 460804
STATE SD TESTING DISTRICT
LTPP EXPERIMENT CODE SPS-8 ROUTE/HIGHWAY NUMBER 1904
EQUIPMENT SERIAL NUMBER
TESTING DATE 06-08-94 SHEET NUMBER
WEATHER

==========

DIPSTICK PRE-OPERATION CHECKS ~~1200~~ BJP (initials)

	TIME
READY TO TEST	1210
BEGIN TESTING	1210
END TESTING	1230
START TRAVEL	1345
END TRAVEL	1800

DOWN TIME _____ HOURS

REASONS

ADDITIONAL REMARKS

Wet light drizzle

DIPSTICK PROFILE CREW NAMES: BRUCE PELKEY

TRAFFIC CONTROL CREW NAMES:

COPIES: RCOC

FORM F01/SEPT 1990

ZERO CHECK

First Reading .000

Rotate 180 degrees

Second Reading .000

Total, if within ±0.001 proceed or else adjust the start end pin as suggested in the manual and repeat the zero check.

CALIBRATION CHECK

First Reading .250

Place calibration block

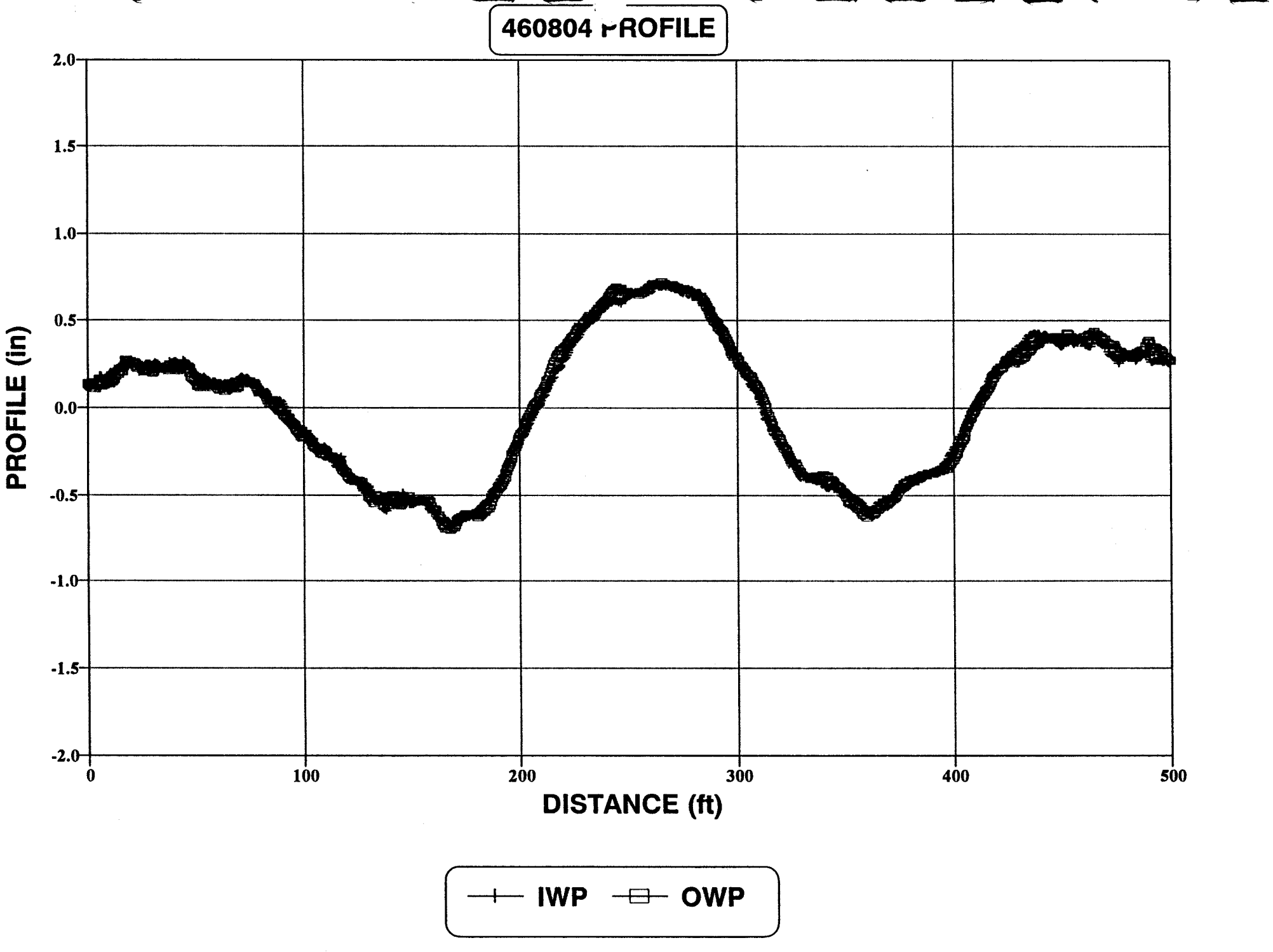
Second Reading .250 - 0.125 = First Reading ±0.003 proceed or else

DATE: 6-8-94
OPERATOR: BJP
RECORDER: BJP
DIPSTICK SERIAL NUMBER: 30022

STATE CODE: 46
SHRP SECTION I.D.: 0804

LOCATION	DIPSTICK READING															TOTAL	SUM
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
~~0+00~~ +	318	334	319	268	284	306	246	271	183	226	189	232	149				
0+01 -	-306	-334	-313	-270	-284	-298	-247	-261	-186	-221	-181	-224	-149				
0+50 (15 m)	312	354	274	318	291	289	246	206	181	167	152	124	044				
	-315	-349	-278	-314	-291	-277	-244	-209	-174	-163	-148	-123	-044				
1+00 + (30 m)	335	369	312	352	288	278	225	193	174	201	187	173	-054				
-	334	361	-311	-344	-288	-273	-223	-187	-168	-193	-181	-161	+054				
1+50 (45 m)	348	398	307	332	284	279	265	236	186	231	167	184	007				
	-346	-395	-308	-320	-283	-268	-258	-222	-186	-224	-161	-172	-007				
2+00 (60 m)	366	406	362	342	310	294	282	250	226	227	177	191	059				
	-364	-398	-363	-334	-305	-282	-281	-245	-222	-218	-175	-183	-059				
2+50 (75 m)	363	416	314	335	315	326	270	265	212	167	179	153	111				
	-363	-410	-310	-332	-312	-322	-269	-260	-205	-169	-175	-145	-111				
3+00 (90 m)	380	410	325	335	328	316	286	253	193	231	191	162	022				
	-383	-414	-335	-338	-324	-315	-279	-264	-189	-229	-192	-158	-022				
3+50 (105 m)	374	409	329	344	320	310	277	246	188	210	190	166	073				
	-371	-409	-322	-336	-322	-308	-278	-234	-200	-204	-191	-157	-073				
4+00 (120 m)	366	403	326	319	320	324	260	245	219	229	210	166	048				
	-370	-396	-334	-310	-317	-321	-254	-244	-216	-224	-206	-160	-048				
4+50 (135 m)	326	361	308	299	301	296	287	225	212	188	181	143	091				
	-333	-356	-310	-293	-304	-289	-286	-225	-205	-181	-183	-141	-091				
~~5+00~~ (150 m) 4+99	325	375	292	282	297	287	257	244	216	213	200	154	081				
	-322	-371	-289	-279	-288	-288	-252	-242	-212	-211	-203	-150	-081				

FORM S1/December 1992


460804 PROFILE
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
PROFILE (in)
0
100
200
300
400
500
DISTANCE (ft)
IWP
OWP

07:56 940608

File: C:\FWD\DATA\460804C1.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

FWD S/N : 8002-060
Operator ID : PELKEY, BRUCE J.

EXTRA TESTS FOR SMP

Stationing...: Feet

Diameter of Plate: 11.8
Deflector distances : 8 12 18 24 36 60

SHRP TESTING - FLEXIBLE - BASIN TEST (F0,F1,F3)
Sequence: CCC1111222233334444

Stn:		-40	Lane:F1	Temp:		J/C:		Air: 57	PvT: 48		08:05
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	110.8	12140	15.55	12.94	11.65	9.31	7.69	5.30	2.95	
	C	110.8	12144	15.11	12.57	11.33	9.11	7.56	5.26	2.99	
	C	111.4	12208	15.10	12.59	11.35	9.13	7.58	5.28	2.98	
*	1	56.6	6197	7.61	6.26	5.74	4.56	3.81	2.66	1.53	
*	1	56.8	6221	7.61	6.28	5.73	4.57	3.81	2.66	1.52	
*	1	57.0	6241	7.61	6.30	5.72	4.58	3.83	2.67	1.53	
*	1	57.0	6245	7.60	6.29	5.70	4.58	3.81	2.67	1.55	
*	2	83.5	9149	11.13	9.26	8.39	6.75	5.61	3.93	2.23	
*	2	83.9	9188	11.19	9.30	8.44	6.78	5.64	3.94	2.26	
*	2	84.0	9208	11.16	9.37	8.41	6.82	5.65	3.96	2.29	
*	2	83.8	9177	11.17	9.30	8.43	6.79	5.64	3.94	2.27	
*	3	110.5	12108	14.87	12.44	11.20	9.06	7.50	5.24	2.98	
*	3	111.2	12188	14.95	12.50	11.28	9.11	7.56	5.28	3.01	
*	3	110.5	12104	14.88	12.45	11.24	9.07	7.52	5.26	2.99	
*	3	111.0	12160	14.91	12.47	11.28	9.09	7.55	5.27	3.00	
*	4	145.9	15982	19.57	16.37	14.76	11.90	9.85	6.85	3.87	
*	4	146.4	16041	19.62	16.43	14.79	11.96	9.89	6.90	3.89	
*	4	145.8	15978	19.54	16.39	14.74	11.92	9.86	6.88	3.90	
*	4	146.3	16025	19.59	16.44	14.79	11.97	9.90	6.90	3.89	

Stn:		-35	Lane:F1	Temp:		J/C:		Air: 57	PvT: 48		08:07
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	110.4	12096	15.58	13.06	11.61	9.42	7.72	5.35	3.00	
	C	110.4	12100	15.15	12.69	11.32	9.19	7.57	5.28	3.00	
	C	110.5	12108	15.09	12.68	11.27	9.19	7.57	5.29	3.04	
*	1	55.8	6110	7.56	6.30	5.63	4.59	3.80	2.67	1.55	
*	1	56.3	6165	7.56	6.29	5.66	4.59	3.80	2.67	1.50	
*	1	56.0	6134	7.52	6.29	5.65	4.59	3.80	2.66	1.54	
*	1	56.5	6189	7.56	6.32	5.66	4.60	3.80	2.67	1.51	
*	2	82.9	9081	11.16	9.39	8.35	6.82	5.63	3.94	2.26	
*	2	83.2	9117	11.17	9.43	8.37	6.84	5.65	3.95	2.28	
*	2	83.2	9121	11.17	9.41	8.37	6.84	5.65	3.95	2.28	
*	2	83.4	9141	11.18	9.41	8.40	6.86	5.67	3.96	2.28	
*	3	110.0	12057	14.91	12.57	11.17	9.12	7.52	5.25	3.03	
*	3	110.6	12116	14.98	12.64	11.24	9.17	7.57	5.29	3.05	
*	3	110.5	12104	14.98	12.64	11.23	9.18	7.58	5.29	3.06	
*	3	110.5	12108	14.96	12.63	11.23	9.17	7.57	5.29	3.05	
*	4	145.4	15930	19.67	16.62	14.75	12.04	9.93	6.89	3.94	
*	4	145.7	15962	19.67	16.63	14.71	12.03	9.93	6.91	3.98	
*	4	145.6	15954	19.68	16.66	14.72	12.06	9.95	6.93	4.01	
*	4	145.6	15950	19.67	16.66	14.73	12.06	9.96	6.93	4.01	

Stn:		-30	Lane:F1	Temp:		J/C:		Air: 57	PvT: 48		08:10
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	109.9	12045	15.52	12.84	11.61	9.29	7.68	5.34	3.03	
	C	109.9	12041	15.09	12.48	11.31	9.08	7.56	5.30	3.06	
	C	109.8	12025	14.98	12.41	11.23	9.04	7.53	5.30	3.05	
*	1	55.4	6074	7.47	6.12	5.69	4.51	3.78	2.66	1.49	
*	1	55.6	6090	7.50	6.12	5.70	4.52	3.80	2.67	1.47	
*	1	55.9	6126	7.51	6.15	5.71	4.53	3.80	2.68	1.52	
*	1	55.9	6130	7.52	6.13	5.73	4.54	3.82	2.69	1.49	
*	2	82.4	9026	11.06	9.17	8.33	6.72	5.61	3.94	2.29	
*	2	83.0	9093	11.13	9.24	8.39	6.77	5.65	3.97	2.33	
*	2	82.9	9081	11.12	9.22	8.39	6.76	5.64	3.97	2.30	

File: C:\FWD\DATA\460804C1.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

*	2	83.2	9117	11.15	9.25	8.42	6.79	5.66	3.98	2.32
*	3	109.8	12029	14.85	12.39	11.15	9.03	7.52	5.30	3.07
*	3	110.2	12077	14.91	12.43	11.22	9.08	7.57	5.32	3.08
*	3	110.1	12061	14.87	12.42	11.19	9.07	7.56	5.31	3.07
*	3	109.7	12021	14.85	12.36	11.16	9.03	7.53	5.30	3.07
*	4	145.0	15890	19.61	16.34	14.74	11.92	9.91	6.93	3.96
*	4	145.1	15902	19.58	16.35	14.70	11.91	9.89	6.95	4.00
*	4	145.4	15926	19.62	16.37	14.75	11.94	9.94	6.97	4.03
*	4	145.1	15898	19.58	16.36	14.72	11.94	9.93	6.97	4.03

Stn: -25 Lane:F1 Temp: J/C: Air: 57 PvT: 49 08:13

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	108.8	11926	16.11	13.41	11.85	9.60	7.91	5.50	3.16
	C	109.3	11973	15.71	13.09	11.58	9.43	7.81	5.48	3.19
	C	109.3	11973	15.62	13.04	11.54	9.41	7.80	5.48	3.17
*	1	55.2	6046	7.86	6.52	5.80	4.73	3.92	2.76	1.61
*	1	55.2	6046	7.78	6.48	5.76	4.69	3.90	2.76	1.59
*	1	55.2	6050	7.80	6.49	5.79	4.69	3.91	2.76	1.59
*	1	55.7	6098	7.83	6.51	5.80	4.72	3.93	2.78	1.62
*	2	81.8	8962	11.48	9.63	8.54	6.96	5.78	4.08	2.39
*	2	82.3	9014	11.56	9.68	8.59	7.02	5.83	4.11	2.40
*	2	82.2	9006	11.54	9.67	8.58	7.00	5.81	4.09	2.38
*	2	82.3	9014	11.56	9.70	8.61	7.03	5.83	4.11	2.41
*	3	109.0	11937	15.43	12.94	11.47	9.36	7.77	5.46	3.17
*	3	108.9	11930	15.43	12.94	11.47	9.36	7.76	5.46	3.17
*	3	109.1	11957	15.44	12.96	11.49	9.39	7.80	5.47	3.17
*	3	108.9	11933	15.41	12.94	11.48	9.38	7.78	5.46	3.17
*	4	144.0	15775	20.41	17.14	15.19	12.40	10.27	7.17	4.10
*	4	144.3	15811	20.42	17.15	15.22	12.41	10.28	7.19	4.11
*	4	144.3	15815	20.41	17.14	15.22	12.43	10.31	7.20	4.13
*	4	144.2	15799	20.40	17.15	15.21	12.42	10.30	7.20	4.13

Stn: -20 Lane:F1 Temp: J/C: Air: 57 PvT: 49 08:15

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	108.3	11866	16.80	14.07	12.35	9.99	8.19	5.59	3.15
	C	108.8	11922	16.34	13.69	12.04	9.79	8.06	5.55	3.15
	C	109.1	11949	16.27	13.67	12.04	9.79	8.06	5.56	3.16
*	1	55.0	6026	8.13	6.81	6.07	4.89	4.04	2.80	1.59
*	1	55.0	6022	8.13	6.80	6.03	4.86	4.00	2.78	1.57
*	1	55.4	6070	8.16	6.85	6.06	4.91	4.05	2.82	1.62
*	1	55.3	6058	8.15	6.81	6.04	4.89	4.04	2.81	1.62
*	2	81.4	8914	11.96	10.07	8.87	7.22	5.95	4.14	2.37
*	2	82.1	8990	12.05	10.17	8.95	7.30	6.02	4.19	2.42
*	2	81.8	8966	12.04	10.16	8.97	7.30	6.02	4.17	2.38
*	2	82.2	9010	12.05	10.17	9.00	7.31	6.03	4.18	2.39
*	3	108.7	11906	16.06	13.53	11.93	9.72	8.00	5.53	3.15
*	3	109.1	11953	16.13	13.57	12.00	9.76	8.03	5.55	3.14
*	3	108.7	11906	16.07	13.57	11.98	9.75	8.01	5.53	3.11
*	3	109.0	11937	16.13	13.58	11.96	9.74	8.03	5.57	3.19
*	4	143.4	15711	21.23	17.91	15.79	12.85	10.56	7.26	4.06
*	4	144.0	15775	21.27	17.94	15.81	12.88	10.56	7.28	4.09
*	4	144.2	15803	21.28	17.93	15.79	12.88	10.61	7.32	4.14
*	4	144.1	15783	21.26	17.96	15.83	12.93	10.63	7.33	4.14

Stn: -15 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:18

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	108.4	11882	16.65	13.89	12.20	9.81	7.98	5.46	3.13
	C	108.3	11870	16.07	13.43	11.83	9.57	7.83	5.40	3.13
	C	108.7	11906	16.11	13.47	11.84	9.56	7.80	5.39	3.09
*	1	54.9	6014	8.04	6.79	6.06	4.90	4.00	2.74	1.50
*	1	54.9	6014	8.04	6.72	5.98	4.80	3.95	2.74	1.56
*	1	54.7	5999	8.04	6.68	5.94	4.76	3.91	2.73	1.57
*	1	54.8	6006	8.01	6.63	5.91	4.74	3.94	2.75	1.63
*	2	81.1	8883	11.84	9.94	8.75	7.09	5.80	4.02	2.34
*	2	81.5	8930	11.95	9.96	8.76	7.06	5.80	4.05	2.40
*	2	81.5	8930	11.87	9.94	8.78	7.11	5.85	4.07	2.41
*	2	81.5	8926	11.88	9.97	8.82	7.13	5.85	4.06	2.34
*	3	108.1	11846	15.82	13.28	11.74	9.52	7.81	5.39	3.10
*	3	108.6	11894	15.90	13.36	11.80	9.57	7.84	5.41	3.10
*	3	108.4	11882	15.87	13.33	11.78	9.55	7.83	5.41	3.13
*	3	108.4	11882	15.87	13.36	11.81	9.59	7.87	5.43	3.13

File: C:\FWD\DATA\460804C1.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
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*	4	143.3	15695	20.94	17.59	15.50	12.57	10.31	7.06	4.02
*	4	143.9	15763	20.97	17.63	15.56	12.62	10.34	7.10	4.04
*	4	143.3	15699	20.89	17.57	15.51	12.59	10.33	7.10	4.06
*	4	143.1	15680	20.86	17.55	15.50	12.58	10.31	7.08	4.04

Stn: -10 Lane:F1 Temp: J/C: Air: 57 PvT: 49 08:21

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	108.3	11870	15.76	13.37	11.76	9.46	7.73	5.31	3.06
	C	108.6	11894	15.33	13.01	11.46	9.26	7.60	5.27	3.06
	C	108.7	11910	15.24	12.94	11.43	9.24	7.60	5.27	3.06
*	1	54.6	5983	7.60	6.44	5.68	4.59	3.79	2.66	1.57
*	1	55.0	6022	7.60	6.44	5.71	4.61	3.81	2.67	1.56
*	1	54.8	6002	7.59	6.44	5.70	4.59	3.79	2.66	1.57
*	1	55.0	6026	7.59	6.43	5.74	4.60	3.82	2.67	1.57
*	2	81.1	8887	11.20	9.52	8.40	6.82	5.63	3.93	2.30
*	2	81.4	8914	11.24	9.58	8.46	6.86	5.66	3.95	2.34
*	2	81.4	8922	11.23	9.58	8.45	6.87	5.67	3.95	2.35
*	2	81.5	8930	11.25	9.59	8.46	6.87	5.66	3.95	2.31
*	3	108.3	11870	15.09	12.85	11.33	9.18	7.57	5.25	3.05
*	3	108.4	11878	15.13	12.89	11.38	9.22	7.60	5.27	3.06
*	3	108.3	11870	15.14	12.89	11.37	9.22	7.60	5.26	3.06
*	3	108.7	11914	15.14	12.90	11.38	9.24	7.59	5.28	3.08
*	4	142.8	15648	20.00	17.03	15.01	12.20	10.01	6.89	3.97
*	4	143.7	15747	20.04	17.09	15.07	12.22	10.04	6.93	4.00
*	4	143.5	15723	20.04	17.08	15.06	12.23	10.05	6.94	4.00
*	4	143.2	15692	20.00	17.04	15.03	12.20	10.06	6.93	4.00

Stn: -5 Lane:F1 Temp: J/C: Air: 57 PvT: 49 08:23

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.7	11798	16.01	13.18	11.65	9.34	7.62	5.26	3.03
	C	107.7	11802	15.50	12.80	11.30	9.12	7.50	5.24	3.07
	C	108.0	11838	15.39	12.74	11.25	9.10	7.48	5.23	3.07
*	1	54.3	5947	7.70	6.25	5.65	4.52	3.76	2.64	1.56
*	1	54.2	5943	7.67	6.26	5.61	4.50	3.74	2.64	1.58
*	1	54.1	5927	7.65	6.24	5.61	4.50	3.72	2.63	1.55
*	1	54.3	5947	7.65	6.25	5.62	4.52	3.73	2.63	1.56
*	2	80.5	8819	11.28	9.33	8.27	6.71	5.54	3.89	2.28
*	2	81.3	8906	11.37	9.43	8.36	6.78	5.59	3.92	2.30
*	2	81.0	8871	11.35	9.41	8.33	6.77	5.58	3.93	2.34
*	2	80.8	8855	11.31	9.38	8.32	6.75	5.57	3.91	2.32
*	3	107.8	11810	15.22	12.62	11.19	9.06	7.45	5.22	3.07
*	3	108.0	11838	15.25	12.67	11.23	9.09	7.48	5.23	3.07
*	3	108.0	11830	15.21	12.64	11.21	9.07	7.47	5.23	3.09
*	3	108.0	11834	15.22	12.67	11.20	9.08	7.48	5.24	3.09
*	4	142.6	15628	20.18	16.80	14.85	12.03	9.85	6.85	3.97
*	4	143.2	15692	20.19	16.84	14.87	12.07	9.90	6.89	4.00
*	4	143.1	15680	20.16	16.84	14.86	12.05	9.90	6.89	4.02
*	4	143.1	15684	20.18	16.85	14.87	12.09	9.92	6.89	4.01

Stn: 0 Lane:F1 Temp: J/C: Air: 57 PvT: 49 08:26

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.9	11707	16.69	13.65	11.96	9.60	7.88	5.37	3.11
	C	107.2	11743	16.16	13.23	11.62	9.39	7.74	5.34	3.15
	C	107.2	11747	16.05	13.17	11.59	9.37	7.74	5.36	3.13
*	1	53.7	5887	8.00	6.49	5.78	4.64	3.85	2.71	1.56
*	1	53.9	5907	8.00	6.50	5.79	4.66	3.86	2.70	1.58
*	1	54.0	5915	7.96	6.50	5.79	4.67	3.87	2.70	1.57
*	1	54.1	5927	7.99	6.52	5.80	4.68	3.89	2.72	1.56
*	2	79.9	8751	11.69	9.63	8.49	6.89	5.70	3.96	2.31
*	2	80.3	8803	11.76	9.70	8.55	6.94	5.74	3.99	2.37
*	2	80.6	8827	11.76	9.71	8.55	6.93	5.75	4.00	2.37
*	2	80.5	8819	11.77	9.72	8.57	6.95	5.76	4.01	2.37
*	3	107.0	11719	15.79	13.05	11.50	9.31	7.70	5.33	3.13
*	3	107.4	11771	15.86	13.12	11.56	9.36	7.74	5.37	3.14
*	3	107.5	11783	15.84	13.12	11.57	9.37	7.76	5.37	3.12
*	3	107.4	11763	15.83	13.11	11.55	9.37	7.74	5.37	3.14
*	4	141.9	15545	20.97	17.41	15.31	12.39	10.24	7.02	4.06
*	4	142.0	15556	20.91	17.36	15.28	12.37	10.22	7.04	4.08
*	4	142.1	15568	20.92	17.39	15.30	12.40	10.26	7.07	4.11
*	4	142.3	15592	20.93	17.40	15.31	12.41	10.25	7.06	4.11

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Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

Stn: 25 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:28

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.6	11787	15.62	13.06	11.44	9.24	7.59	5.29	3.12
	C	107.6	11790	15.17	12.72	11.13	9.06	7.49	5.27	3.11
	C	107.5	11779	15.09	12.61	11.11	9.02	7.50	5.26	3.15
*	1	53.8	5899	7.48	6.23	5.52	4.45	3.73	2.62	1.57
*	1	53.7	5887	7.48	6.24	5.56	4.47	3.76	2.65	1.56
*	1	54.2	5943	7.47	6.24	5.56	4.47	3.76	2.65	1.57
*	1	54.4	5959	7.50	6.25	5.54	4.48	3.76	2.65	1.59
*	2	79.8	8748	11.04	9.26	8.15	6.65	5.53	3.91	2.36
*	2	80.5	8823	11.13	9.35	8.24	6.71	5.59	3.95	2.36
*	2	80.3	8795	11.09	9.31	8.21	6.68	5.57	3.93	2.35
*	2	80.9	8859	11.13	9.35	8.22	6.70	5.57	3.94	2.35
*	3	107.4	11763	14.93	12.55	11.05	8.98	7.48	5.25	3.13
*	3	108.0	11830	15.02	12.61	11.11	9.04	7.52	5.28	3.12
*	3	107.9	11826	15.00	12.59	11.13	9.04	7.54	5.29	3.14
*	3	107.8	11814	15.00	12.60	11.11	9.03	7.52	5.28	3.13
*	4	142.4	15600	19.87	16.71	14.70	11.96	9.88	6.90	4.04
*	4	142.9	15656	19.91	16.75	14.73	12.01	9.95	6.95	4.08
*	4	143.0	15668	19.90	16.77	14.74	12.02	9.93	6.95	4.08
*	4	143.1	15676	19.91	16.75	14.73	12.01	9.93	6.95	4.09

Stn: 50 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:31

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.5	11775	15.11	12.52	11.14	9.03	7.55	5.33	3.11
	C	107.5	11775	14.68	12.18	10.87	8.83	7.43	5.30	3.07
	C	107.3	11755	14.58	12.09	10.89	8.80	7.46	5.33	3.11
*	1	54.0	5915	7.32	5.95	5.54	4.35	3.81	2.74	1.50
*	1	54.1	5923	7.30	5.98	5.49	4.37	3.78	2.72	1.58
*	1	53.7	5879	7.24	5.94	5.48	4.34	3.76	2.71	1.54
*	1	53.6	5867	7.26	5.95	5.46	4.35	3.75	2.71	1.57
*	2	79.9	8759	10.72	8.93	7.99	6.52	5.50	3.95	2.37
*	2	80.0	8763	10.77	8.92	8.07	6.52	5.54	4.00	2.32
*	2	80.3	8795	10.77	9.00	8.02	6.57	5.53	3.97	2.39
*	2	80.2	8783	10.75	8.94	8.06	6.53	5.53	3.98	2.35
*	3	107.2	11743	14.45	12.06	10.82	8.79	7.42	5.31	3.12
*	3	107.3	11759	14.46	12.06	10.83	8.80	7.42	5.32	3.13
*	3	107.4	11763	14.48	12.08	10.85	8.81	7.43	5.33	3.13
*	3	107.5	11775	14.49	12.12	10.84	8.84	7.43	5.33	3.17
*	4	141.6	15513	19.11	16.00	14.28	11.65	9.76	6.93	4.07
*	4	142.3	15596	19.15	16.05	14.30	11.70	9.78	6.95	4.11
*	4	142.5	15608	19.16	16.06	14.35	11.71	9.82	6.99	4.11
*	4	142.3	15592	19.12	16.04	14.30	11.70	9.80	6.98	4.11

Stn: 75 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:34

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.8	11806	14.41	12.09	10.71	8.83	7.32	5.22	3.07
	C	107.9	11818	14.09	11.84	10.50	8.70	7.24	5.20	3.09
	C	107.7	11798	13.99	11.77	10.46	8.66	7.22	5.19	3.08
*	1	53.8	5895	6.99	5.81	5.24	4.31	3.62	2.65	1.49
*	1	54.1	5923	6.98	5.81	5.26	4.30	3.62	2.64	1.53
*	1	54.2	5943	6.99	5.83	5.24	4.32	3.63	2.64	1.59
*	1	54.3	5947	7.00	5.85	5.25	4.33	3.64	2.65	1.56
*	2	79.9	8759	10.24	8.63	7.69	6.39	5.35	3.87	2.33
*	2	80.3	8795	10.32	8.70	7.76	6.43	5.39	3.89	2.34
*	2	80.1	8779	10.28	8.69	7.72	6.43	5.38	3.88	2.34
*	2	80.3	8799	10.30	8.70	7.74	6.43	5.38	3.89	2.35
*	3	107.2	11747	13.80	11.66	10.37	8.60	7.19	5.16	3.08
*	3	107.5	11783	13.88	11.74	10.42	8.66	7.23	5.19	3.11
*	3	107.6	11790	13.88	11.74	10.43	8.67	7.24	5.20	3.10
*	3	107.1	11739	13.85	11.71	10.41	8.65	7.22	5.20	3.11
*	4	142.6	15628	18.34	15.54	13.78	11.43	9.52	6.78	4.00
*	4	142.5	15612	18.33	15.52	13.77	11.43	9.53	6.80	4.03
*	4	143.2	15688	18.36	15.55	13.79	11.46	9.57	6.82	4.03
*	4	142.6	15628	18.34	15.54	13.78	11.46	9.54	6.81	4.03

Stn: 100 Lane:F1 Temp: J/C: Air: 57 PvT: 49 08:37

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.4	11767	13.87	11.74	10.45	8.59	7.20	5.15	3.03
	C	107.5	11775	13.58	11.50	10.26	8.45	7.12	5.13	3.03
	C	107.7	11802	13.54	11.47	10.26	8.45	7.13	5.16	3.05

File: C:\FWD\DATA\460804C1.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
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*	1	53.7	5887	6.78	5.71	5.16	4.22	3.59	2.66	1.55
*	1	53.3	5844	6.73	5.67	5.12	4.19	3.56	2.63	1.56
*	1	53.7	5887	6.75	5.66	5.15	4.19	3.56	2.62	1.52
*	1	53.9	5903	6.78	5.73	5.17	4.24	3.59	2.63	1.58
*	2	79.6	8724	9.92	8.41	7.54	6.22	5.27	3.83	2.28
*	2	80.1	8779	10.00	8.48	7.63	6.27	5.32	3.90	2.28
*	2	80.3	8799	10.04	8.50	7.67	6.29	5.33	3.90	2.28
*	2	80.5	8823	10.06	8.54	7.66	6.31	5.34	3.90	2.28
*	3	107.2	11747	13.39	11.39	10.19	8.42	7.09	5.13	3.04
*	3	107.8	11806	13.45	11.46	10.22	8.47	7.13	5.13	3.07
*	3	107.7	11798	13.43	11.44	10.22	8.45	7.12	5.15	3.04
*	3	107.6	11787	13.43	11.44	10.22	8.46	7.13	5.16	3.05
*	4	143.1	15676	17.79	15.14	13.52	11.18	9.39	6.71	3.98
*	4	143.1	15680	17.80	15.16	13.53	11.21	9.41	6.75	3.99
*	4	143.0	15668	17.76	15.12	13.51	11.18	9.39	6.74	3.98
*	4	143.5	15727	17.81	15.16	13.55	11.21	9.44	6.76	3.99

Stn: 125 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:39

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.2	11743	14.86	12.48	11.15	9.12	7.61	5.35	3.11
	C	107.1	11735	14.43	12.16	10.85	8.93	7.48	5.30	3.10
	C	106.7	11687	14.32	12.04	10.78	8.85	7.44	5.28	3.10
*	1	53.1	5820	7.14	5.94	5.39	4.37	3.70	2.65	1.56
*	1	53.7	5887	7.20	6.02	5.44	4.43	3.74	2.68	1.58
*	1	53.6	5871	7.20	6.02	5.44	4.45	3.75	2.69	1.60
*	1	54.0	5911	7.20	6.03	5.47	4.45	3.76	2.70	1.60
*	2	79.3	8688	10.52	8.89	7.94	6.56	5.50	3.93	2.34
*	2	80.0	8767	10.65	8.95	8.05	6.62	5.57	3.97	2.34
*	2	80.1	8779	10.65	9.00	8.04	6.64	5.58	3.98	2.36
*	2	80.0	8763	10.66	9.00	8.06	6.64	5.59	3.98	2.35
*	3	106.5	11671	14.19	11.99	10.70	8.84	7.41	5.26	3.09
*	3	107.1	11739	14.26	12.06	10.78	8.90	7.46	5.30	3.11
*	3	107.1	11735	14.26	12.07	10.78	8.91	7.46	5.30	3.10
*	3	107.3	11759	14.29	12.08	10.81	8.93	7.49	5.31	3.11
*	4	141.8	15537	18.87	15.98	14.27	11.79	9.85	6.95	4.01
*	4	142.1	15564	18.85	15.98	14.25	11.79	9.85	6.96	4.04
*	4	142.0	15560	18.82	15.94	14.22	11.77	9.84	6.96	4.04
*	4	142.4	15600	18.83	15.96	14.25	11.79	9.86	6.98	4.04

Stn: 150 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:42

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.9	11707	15.84	13.37	11.83	9.65	8.00	5.62	3.28
	C	107.2	11743	15.43	13.05	11.55	9.47	7.89	5.58	3.28
	C	107.0	11719	15.31	12.95	11.50	9.41	7.86	5.59	3.25
*	1	53.6	5875	7.67	6.47	5.79	4.70	3.94	2.83	1.65
*	1	54.1	5931	7.74	6.52	5.81	4.73	3.96	2.85	1.65
*	1	54.0	5915	7.70	6.48	5.81	4.72	3.96	2.85	1.65
*	1	54.3	5951	7.68	6.50	5.78	4.72	3.94	2.83	1.65
*	2	79.1	8668	11.17	9.49	8.43	6.92	5.78	4.13	2.41
*	2	80.2	8783	11.37	9.68	8.57	7.07	5.91	4.20	2.50
*	2	80.4	8807	11.36	9.66	8.57	7.06	5.90	4.20	2.48
*	2	80.1	8779	11.35	9.64	8.57	7.05	5.89	4.20	2.48
*	3	106.9	11707	15.18	12.89	11.44	9.39	7.84	5.57	3.24
*	3	107.2	11743	15.22	12.95	11.49	9.44	7.88	5.59	3.28
*	3	107.0	11727	15.21	12.93	11.49	9.41	7.87	5.59	3.25
*	3	107.0	11727	15.21	12.94	11.50	9.43	7.87	5.59	3.25
*	4	141.9	15545	20.19	17.19	15.25	12.52	10.43	7.35	4.23
*	4	142.3	15596	20.18	17.17	15.27	12.51	10.43	7.37	4.21
*	4	142.6	15620	20.25	17.23	15.31	12.56	10.48	7.40	4.23
*	4	142.9	15656	20.23	17.22	15.30	12.57	10.48	7.40	4.26

Stn: 175 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:44

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	107.0	11727	17.13	14.45	12.73	10.21	8.30	5.69	3.26
	C	107.3	11751	16.71	14.13	12.43	10.06	8.21	5.69	3.31
	C	107.2	11743	16.59	14.06	12.39	10.04	8.20	5.69	3.28
*	1	54.1	5927	8.30	7.01	6.23	5.02	4.12	2.86	1.69
*	1	54.2	5943	8.31	7.01	6.25	5.00	4.12	2.84	1.67
*	1	54.1	5923	8.29	6.99	6.22	5.00	4.11	2.85	1.67
*	1	54.0	5915	8.27	6.97	6.22	4.98	4.09	2.82	1.65
*	2	79.2	8680	12.05	10.24	9.04	7.34	6.01	4.20	2.46

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*	2	80.1	8775	12.20	10.36	9.19	7.42	6.09	4.20	2.46
*	2	80.0	8763	12.20	10.35	9.21	7.42	6.09	4.20	2.46
*	2	80.0	8767	12.20	10.36	9.22	7.43	6.10	4.21	2.47
*	3	106.6	11683	16.39	13.93	12.30	9.96	8.15	5.63	3.28
*	3	107.3	11751	16.50	14.01	12.39	10.04	8.21	5.67	3.29
*	3	106.7	11687	16.44	13.95	12.35	9.99	8.17	5.64	3.28
*	3	106.7	11695	16.43	13.94	12.34	9.99	8.19	5.64	3.27
*	4	141.6	15517	21.93	18.63	16.44	13.32	10.86	7.47	4.27
*	4	142.4	15604	22.02	18.70	16.53	13.39	10.92	7.50	4.30
*	4	141.6	15517	21.94	18.64	16.48	13.35	10.92	7.50	4.30
*	4	141.8	15541	21.96	18.67	16.51	13.38	10.92	7.52	4.31

Stn: 200 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:47

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.4	11655	17.34	14.63	12.78	10.26	8.33	5.74	3.37
	C	107.0	11723	16.91	14.28	12.55	10.13	8.27	5.78	3.38
	C	107.0	11719	16.79	14.21	12.48	10.09	8.26	5.77	3.34
*	1	53.7	5887	8.32	7.01	6.22	5.00	4.10	2.90	1.70
*	1	54.0	5911	8.33	7.05	6.21	5.01	4.12	2.91	1.72
*	1	54.0	5911	8.33	7.02	6.26	5.03	4.12	2.91	1.69
*	1	54.0	5919	8.34	7.06	6.25	5.03	4.14	2.92	1.72
*	2	79.2	8672	12.17	10.31	9.09	7.37	6.05	4.25	2.52
*	2	80.1	8779	12.35	10.46	9.24	7.48	6.13	4.31	2.53
*	2	80.1	8771	12.35	10.47	9.24	7.49	6.14	4.32	2.56
*	2	80.0	8767	12.33	10.45	9.25	7.48	6.13	4.33	2.56
*	3	106.5	11663	16.58	14.07	12.38	10.03	8.22	5.74	3.39
*	3	107.2	11743	16.71	14.18	12.48	10.12	8.29	5.80	3.41
*	3	107.1	11731	16.68	14.14	12.50	10.11	8.27	5.80	3.37
*	3	107.0	11719	16.67	14.16	12.49	10.11	8.28	5.80	3.39
*	4	141.9	15552	22.26	18.91	16.64	13.46	11.00	7.63	4.43
*	4	142.1	15564	22.24	18.89	16.64	13.47	11.02	7.66	4.44
*	4	141.8	15541	22.18	18.84	16.60	13.44	11.03	7.65	4.45
*	4	141.8	15541	22.19	18.84	16.64	13.46	11.01	7.66	4.43

Stn: 225 Lane:F1 Temp: J/C: Air: 59 PvT: 49 08:50

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.6	11679	17.86	15.00	13.06	10.43	8.44	5.74	3.32
	C	106.8	11699	17.35	14.63	12.76	10.27	8.36	5.75	3.38
	C	107.2	11747	17.32	14.62	12.76	10.29	8.39	5.78	3.41
*	1	53.0	5812	8.52	7.16	6.29	5.03	4.11	2.88	1.73
*	1	53.8	5895	8.60	7.26	6.34	5.11	4.17	2.90	1.75
*	1	53.6	5867	8.54	7.15	6.30	5.02	4.11	2.86	1.70
*	1	53.5	5859	8.57	7.20	6.32	5.06	4.15	2.89	1.72
*	2	79.2	8680	12.58	10.65	9.30	7.51	6.14	4.26	2.52
*	2	79.9	8759	12.69	10.74	9.41	7.57	6.20	4.30	2.57
*	2	80.1	8779	12.75	10.78	9.43	7.62	6.22	4.31	2.59
*	2	79.8	8740	12.69	10.74	9.41	7.58	6.20	4.30	2.57
*	3	106.4	11659	17.06	14.44	12.63	10.19	8.31	5.74	3.39
*	3	106.7	11695	17.10	14.48	12.65	10.22	8.32	5.75	3.37
*	3	106.5	11663	17.05	14.43	12.63	10.18	8.31	5.74	3.36
*	3	106.6	11679	17.11	14.48	12.66	10.22	8.34	5.76	3.37
*	4	141.8	15537	22.86	19.33	16.92	13.66	11.08	7.59	4.42
*	4	142.3	15592	22.85	19.34	16.95	13.65	11.13	7.63	4.44
*	4	141.6	15517	22.80	19.29	16.91	13.61	11.09	7.62	4.43
*	4	142.4	15604	22.90	19.39	17.00	13.69	11.16	7.66	4.44

Stn: 250 Lane:F1 Temp: J/C: Air: 59 PvT: 49 08:52

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.4	11655	16.85	14.06	12.20	9.84	8.05	5.57	3.33
	C	106.3	11647	16.35	13.63	11.88	9.63	7.93	5.56	3.30
	C	106.6	11675	16.32	13.58	11.87	9.63	7.94	5.59	3.31
*	1	53.2	5828	8.14	6.74	5.94	4.78	3.95	2.81	1.70
*	1	53.2	5824	8.02	6.64	5.84	4.71	3.90	2.79	1.72
*	1	52.7	5772	8.02	6.61	5.87	4.71	3.91	2.81	1.65
*	1	53.0	5804	8.03	6.63	5.85	4.70	3.90	2.80	1.71
*	2	78.5	8605	11.80	9.90	8.66	7.05	5.82	4.11	2.49
*	2	79.6	8720	11.98	9.97	8.81	7.11	5.88	4.22	2.47
*	2	79.4	8700	11.93	9.99	8.77	7.11	5.88	4.19	2.48
*	2	79.3	8692	11.92	10.00	8.76	7.12	5.89	4.18	2.49
*	3	106.2	11640	16.09	13.48	11.81	9.59	7.91	5.59	3.29
*	3	106.2	11632	16.07	13.49	11.80	9.59	7.92	5.57	3.31

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*	3	106.5	11663	16.11	13.50	11.83	9.61	7.94	5.59	3.30
*	3	106.2	11640	16.10	13.48	11.82	9.59	7.92	5.58	3.31
*	4	141.6	15509	21.47	18.03	15.75	12.80	10.53	7.33	4.33
*	4	141.9	15552	21.45	18.01	15.77	12.81	10.54	7.37	4.33
*	4	141.9	15545	21.49	18.02	15.80	12.83	10.57	7.40	4.35
*	4	141.3	15485	21.44	17.99	15.78	12.81	10.56	7.39	4.35

Stn: 275 Lane:F1 Temp: J/C: Air: 59 PvT: 49 08:55

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.3	11643	16.11	13.38	11.76	9.54	7.87	5.51	3.29
	C	106.5	11663	15.70	13.06	11.51	9.38	7.78	5.51	3.29
	C	106.6	11683	15.63	13.01	11.51	9.37	7.79	5.52	3.29
*	1	53.1	5820	7.71	6.37	5.72	4.58	3.87	2.77	1.67
*	1	53.2	5828	7.78	6.43	5.79	4.61	3.90	2.78	1.65
*	1	53.0	5804	7.75	6.40	5.75	4.60	3.87	2.76	1.66
*	1	53.1	5820	7.74	6.41	5.75	4.61	3.87	2.76	1.66
*	2	78.9	8640	11.41	9.52	8.45	6.87	5.74	4.09	2.46
*	2	79.3	8692	11.52	9.61	8.52	6.95	5.80	4.13	2.48
*	2	79.0	8660	11.48	9.59	8.50	6.92	5.78	4.12	2.48
*	2	79.5	8708	11.48	9.59	8.52	6.94	5.79	4.12	2.49
*	3	106.1	11624	15.43	12.90	11.41	9.32	7.75	5.49	3.29
*	3	106.7	11691	15.49	12.95	11.45	9.36	7.78	5.51	3.29
*	3	106.6	11683	15.50	12.95	11.48	9.36	7.80	5.52	3.29
*	3	106.5	11663	15.48	12.96	11.47	9.36	7.79	5.53	3.29
*	4	142.0	15560	20.62	17.26	15.26	12.46	10.32	7.26	4.26
*	4	143.0	15672	20.65	17.30	15.28	12.50	10.35	7.30	4.29
*	4	142.9	15656	20.67	17.36	15.30	12.57	10.39	7.32	4.31
*	4	142.3	15592	20.63	17.27	15.30	12.48	10.37	7.31	4.28

Stn: 300 Lane:F1 Temp: J/C: Air: 58 PvT: 49 08:58

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.5	11667	14.80	12.62	11.19	9.17	7.61	5.43	3.22
	C	106.6	11679	14.45	12.31	10.96	8.99	7.52	5.38	3.22
	C	106.6	11679	14.37	12.25	10.92	8.96	7.51	5.37	3.20
*	1	53.0	5808	7.13	6.05	5.47	4.43	3.75	2.66	1.63
*	1	52.9	5792	7.07	6.01	5.44	4.41	3.74	2.65	1.59
*	1	53.2	5828	7.09	6.02	5.45	4.40	3.72	2.65	1.61
*	1	53.3	5836	7.11	6.07	5.45	4.44	3.76	2.70	1.64
*	2	78.6	8612	10.48	8.97	7.99	6.61	5.54	4.01	2.41
*	2	79.8	8740	10.61	9.08	8.10	6.68	5.61	4.05	2.47
*	2	79.7	8732	10.63	9.09	8.13	6.68	5.61	4.05	2.47
*	2	79.7	8728	10.59	9.05	8.11	6.66	5.60	4.05	2.44
*	3	106.6	11679	14.30	12.24	10.88	8.99	7.52	5.41	3.26
*	3	106.7	11695	14.31	12.25	10.92	8.98	7.53	5.41	3.23
*	3	106.6	11679	14.29	12.22	10.89	8.96	7.51	5.40	3.21
*	3	106.3	11651	14.30	12.24	10.87	8.99	7.52	5.41	3.25
*	4	142.0	15560	19.03	16.27	14.44	11.96	9.94	7.10	4.22
*	4	142.9	15652	19.06	16.31	14.50	11.98	9.99	7.15	4.28
*	4	142.5	15608	19.06	16.31	14.50	12.00	10.00	7.16	4.26
*	4	142.8	15644	19.06	16.30	14.50	11.98	10.01	7.16	4.25

Stn: 325 Lane:F1 Temp: J/C: Air: 58 PvT: 49 09:01

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.3	11647	15.26	12.75	11.42	9.29	7.85	5.54	3.25
	C	105.8	11596	14.78	12.38	11.10	9.08	7.68	5.46	3.24
	C	106.3	11643	14.78	12.41	11.12	9.11	7.71	5.50	3.28
*	1	52.5	5748	7.34	6.08	5.52	4.46	3.83	2.73	1.60
*	1	52.7	5776	7.32	6.08	5.52	4.47	3.85	2.74	1.63
*	1	52.9	5796	7.37	6.11	5.57	4.50	3.87	2.76	1.62
*	1	53.0	5804	7.34	6.13	5.53	4.50	3.86	2.76	1.63
*	2	78.5	8597	10.82	9.11	8.14	6.73	5.72	4.10	2.48
*	2	79.2	8672	10.92	9.20	8.25	6.79	5.77	4.13	2.50
*	2	78.9	8648	10.89	9.17	8.22	6.76	5.76	4.11	2.48
*	2	79.4	8696	10.93	9.21	8.26	6.81	5.77	4.15	2.49
*	3	106.3	11643	14.67	12.37	11.07	9.13	7.71	5.50	3.29
*	3	106.2	11640	14.65	12.36	11.05	9.12	7.70	5.50	3.30
*	3	106.2	11632	14.62	12.33	11.07	9.09	7.69	5.49	3.26
*	3	106.2	11636	14.63	12.37	11.06	9.12	7.70	5.50	3.30
*	4	141.9	15545	19.50	16.48	14.72	12.13	10.23	7.24	4.29
*	4	142.2	15576	19.50	16.49	14.72	12.15	10.22	7.26	4.32
*	4	142.1	15564	19.50	16.51	14.72	12.18	10.24	7.28	4.35

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*	4	142.2	15584	19.52	16.53	14.74	12.19	10.26	7.29	4.34

Stn:		350	Lane:F1	Temp:		J/C:		Air: 58	PvT: 50		09:04
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	106.4	11659	15.65	13.07	11.56	9.41	7.79	5.49	3.26	
	C	106.5	11667	15.22	12.72	11.28	9.23	7.69	5.46	3.26	
	C	106.3	11647	15.14	12.68	11.25	9.22	7.69	5.48	3.27	
*	1	52.8	5788	7.49	6.22	5.58	4.56	3.81	2.76	1.67	
*	1	52.9	5792	7.50	6.20	5.61	4.57	3.83	2.76	1.67	
*	1	53.0	5804	7.53	6.26	5.63	4.59	3.83	2.77	1.67	
*	1	53.0	5808	7.51	6.23	5.62	4.57	3.82	2.77	1.67	
*	2	78.5	8597	11.06	9.25	8.26	6.78	5.67	4.06	2.48	
*	2	79.1	8668	11.16	9.36	8.34	6.85	5.72	4.10	2.48	
*	2	78.9	8648	11.11	9.32	8.32	6.83	5.70	4.09	2.49	
*	2	79.1	8664	11.13	9.32	8.34	6.84	5.71	4.10	2.48	
*	3	106.2	11636	15.00	12.61	11.19	9.19	7.66	5.46	3.29	
*	3	106.4	11655	14.99	12.61	11.19	9.19	7.66	5.46	3.29	
*	3	106.5	11663	15.01	12.63	11.21	9.21	7.67	5.46	3.29	
*	3	106.4	11659	15.02	12.65	11.23	9.22	7.69	5.48	3.30	
*	4	142.2	15584	20.02	16.84	14.96	12.24	10.17	7.18	4.23	
*	4	141.9	15548	19.99	16.81	14.93	12.24	10.17	7.19	4.26	
*	4	142.1	15568	19.95	16.78	14.91	12.23	10.17	7.20	4.26	
*	4	142.0	15556	19.96	16.80	14.91	12.24	10.18	7.20	4.28	

Stn:		375	Lane:F1	Temp:		J/C:		Air: 59	PvT: 50		09:07
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	106.4	11655	14.67	12.46	11.06	9.03	7.53	5.35	3.17	
	C	106.7	11695	14.34	12.19	10.84	8.89	7.45	5.35	3.22	
	C	106.8	11703	14.30	12.15	10.83	8.89	7.45	5.35	3.21	
*	1	52.8	5788	7.07	5.93	5.39	4.37	3.68	2.64	1.61	
*	1	53.1	5816	7.07	5.98	5.39	4.39	3.70	2.66	1.63	
*	1	53.0	5804	7.04	5.95	5.36	4.36	3.68	2.63	1.61	
*	1	53.0	5804	7.05	5.96	5.38	4.37	3.69	2.65	1.62	
*	2	79.1	8668	10.44	8.89	7.94	6.54	5.49	3.98	2.44	
*	2	79.6	8724	10.51	8.98	8.00	6.61	5.56	4.02	2.44	
*	2	79.4	8704	10.53	8.98	8.03	6.61	5.56	4.02	2.41	
*	2	79.3	8692	10.51	8.96	8.02	6.60	5.55	4.02	2.43	
*	3	106.7	11687	14.18	12.09	10.78	8.86	7.44	5.34	3.20	
*	3	106.8	11703	14.22	12.12	10.81	8.89	7.45	5.36	3.21	
*	3	106.8	11699	14.20	12.11	10.79	8.88	7.44	5.35	3.21	
*	3	106.5	11671	14.17	12.09	10.77	8.87	7.43	5.34	3.22	
*	4	142.3	15596	18.96	16.16	14.41	11.85	9.89	7.05	4.18	
*	4	142.5	15608	18.92	16.14	14.37	11.82	9.89	7.07	4.19	
*	4	142.4	15604	18.94	16.15	14.38	11.84	9.92	7.09	4.21	
*	4	142.7	15636	18.94	16.16	14.39	11.85	9.92	7.10	4.22	

Stn:		400	Lane:F1	Temp:		J/C:		Air: 58	PvT: 52		09:09
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	106.2	11640	15.52	13.00	11.48	9.40	7.79	5.50	3.20	
	C	106.5	11667	15.18	12.73	11.26	9.26	7.72	5.51	3.24	
	C	106.6	11683	15.11	12.70	11.24	9.27	7.73	5.52	3.26	
*	1	52.7	5772	7.47	6.22	5.58	4.57	3.83	2.78	1.65	
*	1	52.4	5740	7.43	6.19	5.53	4.54	3.83	2.75	1.63	
*	1	52.3	5732	7.42	6.20	5.54	4.56	3.82	2.75	1.64	
*	1	52.7	5776	7.43	6.21	5.55	4.57	3.84	2.76	1.65	
*	2	78.4	8593	11.03	9.29	8.23	6.81	5.70	4.09	2.43	
*	2	79.0	8660	11.11	9.35	8.31	6.85	5.74	4.10	2.42	
*	2	79.2	8676	11.12	9.34	8.33	6.85	5.75	4.07	2.41	
*	2	79.2	8680	11.11	9.37	8.31	6.87	5.75	4.12	2.45	
*	3	106.1	11624	14.93	12.59	11.17	9.21	7.69	5.46	3.22	
*	3	106.6	11683	15.01	12.68	11.23	9.28	7.74	5.52	3.25	
*	3	106.6	11679	15.02	12.68	11.24	9.28	7.74	5.49	3.24	
*	3	106.7	11687	15.01	12.68	11.23	9.27	7.74	5.53	3.25	
*	4	141.6	15513	19.96	16.89	14.95	12.31	10.24	7.25	4.20	
*	4	142.1	15572	19.99	16.91	14.97	12.34	10.28	7.30	4.23	
*	4	142.5	15608	20.01	16.93	15.00	12.36	10.30	7.32	4.24	
*	4	142.2	15584	20.00	16.93	15.00	12.37	10.31	7.31	4.24	

Stn:		425	Lane:F1	Temp:		J/C:		Air: 59	PvT: 52		09:12
Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7	
	C	106.2	11636	14.87	12.53	11.09	9.13	7.60	5.42	3.16	

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	C	106.7	11695	14.59	12.31	10.92	9.02	7.56	5.41	3.17
	C	106.5	11667	14.49	12.25	10.87	9.00	7.54	5.41	3.15
*	1	52.8	5780	7.17	6.00	5.40	4.44	3.76	2.69	1.59
*	1	52.6	5760	7.09	5.94	5.36	4.39	3.73	2.66	1.59
*	1	52.6	5764	7.09	5.93	5.33	4.37	3.72	2.63	1.58
*	1	52.8	5780	7.15	5.96	5.38	4.42	3.75	2.67	1.56
*	2	78.7	8620	10.54	8.88	7.96	6.56	5.54	3.94	2.30
*	2	79.3	8692	10.68	9.01	8.07	6.65	5.61	3.99	2.34
*	2	79.2	8676	10.67	9.00	8.07	6.65	5.61	4.00	2.34
*	2	79.4	8696	10.67	9.01	8.07	6.65	5.61	4.00	2.31
*	3	106.2	11636	14.35	12.16	10.81	8.96	7.50	5.38	3.13
*	3	106.9	11715	14.45	12.26	10.89	9.03	7.56	5.43	3.18
*	3	106.6	11683	14.43	12.24	10.87	9.02	7.54	5.43	3.18
*	3	106.7	11687	14.42	12.24	10.89	9.02	7.56	5.43	3.17
*	4	142.2	15584	19.23	16.32	14.49	11.99	10.00	7.13	4.12
*	4	142.1	15568	19.21	16.30	14.49	12.02	10.03	7.14	4.14
*	4	142.5	15608	19.24	16.33	14.52	12.02	10.04	7.16	4.15
*	4	142.3	15592	19.23	16.33	14.52	12.05	10.05	7.17	4.18

Stn: 450 Lane:F1 Temp: J/C: Air: 59 PvT: 52 09:14

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.4	11655	15.30	12.91	11.40	9.29	7.70	5.35	3.09
	C	106.8	11699	14.99	12.67	11.20	9.17	7.64	5.37	3.11
	C	106.7	11691	14.88	12.61	11.14	9.15	7.62	5.35	3.12
*	1	52.7	5772	7.33	6.16	5.50	4.47	3.76	2.65	1.56
*	1	52.8	5780	7.35	6.19	5.53	4.49	3.77	2.67	1.55
*	1	52.8	5784	7.33	6.18	5.54	4.49	3.78	2.68	1.57
*	1	52.9	5800	7.32	6.16	5.51	4.48	3.78	2.67	1.55
*	2	78.8	8632	10.87	9.22	8.15	6.72	5.61	3.96	2.34
*	2	79.3	8692	10.95	9.29	8.22	6.76	5.65	3.99	2.34
*	2	79.2	8680	10.94	9.30	8.22	6.77	5.66	4.00	2.36
*	2	79.4	8700	10.94	9.30	8.24	6.76	5.65	4.00	2.32
*	3	106.2	11640	14.72	12.50	11.07	9.09	7.59	5.33	3.08
*	3	106.6	11675	14.78	12.57	11.12	9.14	7.62	5.36	3.11
*	3	106.4	11659	14.79	12.57	11.13	9.14	7.63	5.36	3.12
*	3	106.6	11683	14.79	12.59	11.13	9.16	7.64	5.37	3.13
*	4	141.7	15525	19.70	16.75	14.83	12.15	10.11	7.06	4.04
*	4	142.3	15596	19.70	16.75	14.84	12.17	10.14	7.09	4.07
*	4	141.7	15529	19.68	16.74	14.84	12.17	10.14	7.10	4.09
*	4	141.8	15533	19.66	16.75	14.83	12.18	10.14	7.10	4.09

Stn: 475 Lane:F1 Temp: J/C: Air: 59 PvT: 53 09:17

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.2	11632	15.66	13.14	11.61	9.43	7.81	5.41	3.10
	C	106.4	11655	15.26	12.87	11.36	9.29	7.72	5.41	3.15
	C	106.4	11659	15.19	12.81	11.34	9.27	7.72	5.40	3.13
*	1	52.3	5732	7.52	6.28	5.66	4.54	3.84	2.70	1.54
*	1	52.7	5772	7.52	6.28	5.65	4.56	3.84	2.71	1.59
*	1	52.9	5796	7.54	6.32	5.67	4.58	3.85	2.72	1.61
*	1	52.9	5792	7.50	6.29	5.60	4.56	3.82	2.69	1.58
*	2	78.7	8624	11.10	9.39	8.33	6.81	5.70	4.01	2.37
*	2	79.0	8660	11.15	9.41	8.37	6.83	5.71	4.00	2.31
*	2	79.2	8676	11.17	9.45	8.36	6.86	5.72	4.03	2.38
*	2	79.1	8664	11.15	9.43	8.38	6.85	5.72	4.02	2.34
*	3	106.2	11636	15.04	12.72	11.28	9.23	7.69	5.38	3.14
*	3	106.6	11683	15.10	12.79	11.31	9.29	7.72	5.43	3.17
*	3	106.6	11679	15.09	12.79	11.32	9.29	7.72	5.42	3.15
*	3	106.7	11695	15.07	12.80	11.31	9.29	7.72	5.43	3.16
*	4	142.0	15556	20.05	17.00	15.02	12.32	10.22	7.13	4.09
*	4	141.9	15548	20.04	16.98	15.05	12.31	10.24	7.15	4.10
*	4	142.0	15556	20.03	16.98	15.07	12.34	10.26	7.15	4.14
*	4	141.9	15552	20.04	17.00	15.06	12.34	10.26	7.18	4.15

Stn: 500 Lane:F1 Temp: J/C: Air: 59 PvT: 53 09:19

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.4	11552	16.04	13.19	11.63	9.43	7.77	5.38	3.06
	C	105.8	11596	15.66	12.91	11.41	9.30	7.70	5.39	3.10
	C	105.8	11588	15.53	12.83	11.35	9.28	7.69	5.39	3.12
*	1	52.1	5709	7.70	6.31	5.64	4.57	3.83	2.71	1.60
*	1	52.4	5740	7.70	6.32	5.62	4.58	3.83	2.70	1.60
*	1	52.3	5728	7.70	6.32	5.65	4.59	3.85	2.72	1.59

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*	1	52.6	5768	7.69	6.31	5.64	4.57	3.83	2.70	1.58
*	2	78.4	8593	11.35	9.40	8.32	6.83	5.66	3.99	2.34
*	2	79.0	8660	11.45	9.46	8.43	6.87	5.72	4.03	2.35
*	2	79.0	8656	11.44	9.46	8.41	6.88	5.71	4.02	2.34
*	2	78.7	8624	11.40	9.43	8.39	6.85	5.69	4.01	2.33
*	3	105.7	11584	15.33	12.72	11.28	9.23	7.64	5.36	3.13
*	3	106.2	11632	15.39	12.80	11.34	9.29	7.68	5.40	3.12
*	3	106.1	11620	15.39	12.81	11.35	9.30	7.70	5.41	3.12
*	3	106.1	11628	15.39	12.82	11.35	9.31	7.70	5.41	3.12
*	4	141.1	15457	20.43	17.03	15.06	12.36	10.17	7.09	4.06
*	4	141.2	15465	20.40	16.99	15.07	12.32	10.20	7.11	4.06
*	4	141.8	15537	20.44	17.03	15.10	12.36	10.22	7.14	4.09
*	4	141.7	15529	20.43	17.02	15.14	12.36	10.24	7.15	4.06

Stn: 505 Lane:F1 Temp: J/C: Air: 59 PvT: 52 09:22

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.1	11620	15.70	13.12	11.61	9.44	7.78	5.40	3.06
	C	106.5	11667	15.30	12.82	11.37	9.28	7.70	5.39	3.09
	C	106.2	11636	15.19	12.72	11.32	9.24	7.69	5.38	3.08
*	1	52.6	5768	7.54	6.22	5.67	4.54	3.84	2.70	1.58
*	1	52.7	5776	7.54	6.24	5.68	4.56	3.85	2.71	1.57
*	1	52.5	5752	7.48	6.19	5.67	4.51	3.83	2.70	1.54
*	1	52.7	5776	7.51	6.23	5.67	4.54	3.84	2.71	1.56
*	2	78.4	8593	11.15	9.31	8.37	6.79	5.69	4.00	2.32
*	2	78.8	8628	11.17	9.36	8.38	6.81	5.69	4.00	2.31
*	2	79.0	8660	11.18	9.37	8.40	6.81	5.71	4.01	2.32
*	2	78.9	8648	11.18	9.38	8.40	6.82	5.71	4.02	2.32
*	3	105.9	11600	15.01	12.62	11.27	9.18	7.66	5.37	3.07
*	3	106.4	11659	15.10	12.72	11.33	9.24	7.70	5.40	3.10
*	3	106.5	11663	15.10	12.72	11.32	9.25	7.70	5.40	3.11
*	3	106.4	11659	15.10	12.72	11.33	9.25	7.70	5.41	3.09
*	4	141.9	15552	20.07	16.93	15.04	12.29	10.19	7.09	4.02
*	4	141.9	15548	20.06	16.91	15.04	12.31	10.22	7.12	4.03
*	4	142.1	15564	20.08	16.94	15.06	12.32	10.23	7.14	4.04
*	4	141.5	15501	19.97	16.86	14.99	12.26	10.18	7.10	4.02

Stn: 510 Lane:F1 Temp: J/C: Air: 59 PvT: 52 09:25

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.9	11600	15.70	13.13	11.44	9.35	7.65	5.30	3.06
	C	106.2	11636	15.32	12.80	11.24	9.18	7.57	5.29	3.05
	C	106.5	11667	15.25	12.78	11.20	9.19	7.58	5.30	3.08
*	1	52.8	5780	7.59	6.27	5.63	4.54	3.80	2.68	1.57
*	1	52.8	5780	7.57	6.23	5.61	4.53	3.80	2.68	1.54
*	1	52.6	5760	7.53	6.22	5.57	4.52	3.77	2.67	1.54
*	1	52.7	5776	7.54	6.22	5.58	4.52	3.77	2.67	1.56
*	2	78.7	8620	11.15	9.33	8.23	6.74	5.57	3.92	2.28
*	2	79.0	8656	11.23	9.40	8.30	6.78	5.63	3.94	2.32
*	2	78.8	8636	11.20	9.37	8.28	6.78	5.61	3.94	2.31
*	2	79.1	8668	11.21	9.39	8.29	6.78	5.62	3.94	2.31
*	3	105.8	11596	15.04	12.59	11.14	9.11	7.55	5.28	3.05
*	3	106.3	11643	15.08	12.67	11.17	9.14	7.56	5.29	3.07
*	3	106.4	11655	15.10	12.68	11.19	9.16	7.58	5.30	3.08
*	3	106.5	11667	15.13	12.70	11.21	9.18	7.61	5.31	3.09
*	4	141.4	15493	20.04	16.83	14.84	12.14	10.03	6.96	3.98
*	4	141.7	15521	20.04	16.80	14.86	12.16	10.06	6.99	3.99
*	4	141.4	15497	20.01	16.79	14.85	12.13	10.04	6.99	3.99
*	4	141.7	15521	19.97	16.77	14.84	12.13	10.04	6.98	3.98

Stn: 515 Lane:F1 Temp: J/C: Air: 59 PvT: 53 09:27

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.9	11600	15.32	12.74	11.24	9.14	7.54	5.27	3.04
	C	106.2	11636	14.93	12.45	11.00	8.99	7.44	5.25	3.04
	C	106.1	11620	14.82	12.37	10.94	8.95	7.43	5.24	3.04
*	1	52.8	5780	7.39	6.12	5.51	4.41	3.71	2.69	1.52
*	1	52.7	5776	7.35	6.09	5.48	4.39	3.69	2.66	1.52
*	1	52.7	5776	7.37	6.10	5.51	4.39	3.70	2.68	1.52
*	1	52.8	5784	7.37	6.11	5.50	4.42	3.71	2.67	1.54
*	2	78.9	8648	10.87	9.08	8.07	6.59	5.48	3.89	2.29
*	2	78.9	8640	10.91	9.12	8.11	6.61	5.51	3.93	2.28
*	2	79.1	8668	10.92	9.14	8.15	6.63	5.52	3.93	2.26
*	2	79.0	8656	10.92	9.12	8.13	6.62	5.51	3.94	2.28

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*	3	106.0	11616	14.69	12.31	10.92	8.93	7.41	5.24	3.03
*	3	106.3	11651	14.74	12.37	10.94	8.99	7.45	5.26	3.06
*	3	106.4	11659	14.73	12.37	10.94	9.00	7.45	5.26	3.07
*	3	106.3	11647	14.73	12.37	10.94	8.98	7.46	5.25	3.05
*	4	141.6	15517	19.59	16.46	14.57	11.93	9.87	6.91	3.95
*	4	142.0	15560	19.58	16.43	14.59	11.91	9.89	6.96	3.96
*	4	141.6	15513	19.53	16.41	14.56	11.94	9.88	6.95	3.97
*	4	141.6	15517	19.52	16.43	14.56	11.95	9.89	6.94	3.97

Stn: 520 Lane:F1 Temp: J/C: Air: 59 PvT: 53 09:30

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.2	11636	15.07	12.71	11.13	9.04	7.43	5.19	2.98
	C	106.3	11647	14.66	12.37	10.85	8.87	7.32	5.16	3.00
	C	106.3	11647	14.58	12.35	10.83	8.87	7.33	5.18	3.01
*	1	52.6	5760	7.19	6.01	5.36	4.33	3.63	2.54	1.51
*	1	52.6	5764	7.23	6.05	5.40	4.35	3.67	2.56	1.53
*	1	53.0	5808	7.26	6.08	5.43	4.37	3.68	2.56	1.51
*	1	52.9	5800	7.25	6.08	5.42	4.39	3.68	2.58	1.52
*	2	78.4	8585	10.63	9.01	7.95	6.50	5.40	3.81	2.24
*	2	79.1	8668	10.72	9.08	8.01	6.55	5.45	3.83	2.26
*	2	79.2	8672	10.72	9.08	8.04	6.55	5.46	3.83	2.26
*	2	78.8	8628	10.68	9.06	8.00	6.54	5.44	3.83	2.26
*	3	106.2	11640	14.43	12.22	10.79	8.81	7.33	5.14	3.01
*	3	106.7	11695	14.50	12.31	10.82	8.88	7.34	5.18	3.02
*	3	106.7	11687	14.50	12.32	10.83	8.88	7.33	5.18	3.01
*	3	106.6	11675	14.48	12.31	10.81	8.87	7.33	5.19	3.02
*	4	141.8	15541	19.31	16.38	14.44	11.81	9.75	6.81	3.91
*	4	141.8	15537	19.23	16.31	14.39	11.76	9.75	6.81	3.91
*	4	141.9	15552	19.30	16.37	14.44	11.80	9.77	6.85	3.93
*	4	142.2	15584	19.30	16.37	14.45	11.81	9.79	6.85	3.93

Stn: 525 Lane:F1 Temp: J/C: Air: 58 PvT: 53 09:32

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.2	11632	15.18	12.73	11.11	9.00	7.36	5.12	2.96
	C	106.4	11655	14.72	12.38	10.84	8.81	7.26	5.09	2.97
	C	106.4	11659	14.66	12.34	10.80	8.80	7.26	5.10	2.98
*	1	52.5	5756	7.23	6.04	5.35	4.27	3.59	2.53	1.49
*	1	52.7	5772	7.28	6.06	5.39	4.31	3.63	2.56	1.46
*	1	53.0	5808	7.27	6.07	5.39	4.31	3.62	2.55	1.46
*	1	53.1	5816	7.28	6.07	5.42	4.32	3.65	2.57	1.48
*	2	78.3	8581	10.66	9.02	7.88	6.45	5.31	3.76	2.25
*	2	79.3	8684	10.78	9.08	7.97	6.50	5.39	3.80	2.22
*	2	78.8	8628	10.74	9.05	7.94	6.46	5.37	3.78	2.22
*	2	79.0	8652	10.75	9.06	7.96	6.49	5.37	3.78	2.25
*	3	105.9	11600	14.48	12.21	10.74	8.73	7.22	5.07	2.93
*	3	106.3	11643	14.52	12.26	10.76	8.77	7.24	5.09	2.99
*	3	106.4	11655	14.53	12.28	10.78	8.78	7.26	5.10	2.99
*	3	106.5	11671	14.54	12.30	10.79	8.80	7.26	5.11	2.99
*	4	141.8	15541	19.38	16.37	14.37	11.72	9.64	6.72	3.89
*	4	141.8	15541	19.33	16.31	14.36	11.67	9.65	6.74	3.89
*	4	141.9	15548	19.36	16.34	14.37	11.70	9.66	6.76	3.91
*	4	141.7	15529	19.33	16.31	14.35	11.68	9.65	6.74	3.89

Stn: 530 Lane:F1 Temp: J/C: Air: 58 PvT: 52 09:35

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.0	11612	15.12	12.66	11.13	8.99	7.39	5.06	2.90
	C	106.2	11640	14.69	12.33	10.83	8.82	7.28	5.06	2.94
	C	106.1	11620	14.61	12.27	10.81	8.80	7.26	5.04	2.92
*	1	52.5	5756	7.20	6.01	5.38	4.31	3.59	2.50	1.48
*	1	52.6	5768	7.21	6.04	5.39	4.34	3.60	2.50	1.46
*	1	52.8	5788	7.21	6.03	5.40	4.33	3.60	2.50	1.49
*	1	52.7	5772	7.18	5.99	5.36	4.30	3.57	2.48	1.49
*	2	78.2	8565	10.65	8.96	7.92	6.46	5.34	3.75	2.20
*	2	78.7	8620	10.71	8.99	7.97	6.47	5.36	3.72	2.15
*	2	78.8	8628	10.73	9.04	7.98	6.50	5.38	3.75	2.19
*	2	78.8	8632	10.73	9.02	8.00	6.50	5.39	3.74	2.17
*	3	106.1	11624	14.46	12.19	10.76	8.76	7.24	5.02	2.92
*	3	106.2	11640	14.50	12.24	10.77	8.81	7.28	5.07	2.95
*	3	106.4	11659	14.53	12.26	10.81	8.82	7.29	5.07	2.94
*	3	106.2	11636	14.48	12.22	10.78	8.80	7.28	5.07	2.94
*	4	141.5	15501	19.30	16.29	14.36	11.71	9.65	6.66	3.81

File: C:\FWD\DATA\460804C1.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

*	4	141.6	15517	19.26	16.26	14.38	11.69	9.66	6.64	3.80
*	4	142.0	15560	19.30	16.28	14.40	11.72	9.68	6.68	3.81
*	4	141.8	15533	19.28	16.28	14.39	11.72	9.68	6.69	3.82

Stn: 535 Lane:F1 Temp: J/C: Air: 57 PvT: 52 09:37

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.1	11624	15.20	12.63	11.06	8.90	7.24	4.99	2.84
	C	106.2	11640	14.78	12.31	10.79	8.73	7.15	4.98	2.84
	C	106.0	11616	14.67	12.23	10.72	8.70	7.13	4.96	2.84
*	1	52.3	5728	7.19	5.97	5.29	4.24	3.51	2.46	1.42
*	1	52.6	5764	7.24	6.01	5.33	4.27	3.53	2.48	1.45
*	1	52.7	5772	7.21	6.00	5.29	4.27	3.52	2.48	1.43
*	1	53.0	5804	7.26	6.04	5.35	4.30	3.55	2.49	1.48
*	2	78.4	8589	10.70	8.95	7.88	6.40	5.25	3.67	2.14
*	2	78.7	8624	10.77	9.02	7.93	6.43	5.30	3.70	2.16
*	2	78.8	8628	10.75	9.00	7.92	6.42	5.28	3.69	2.15
*	2	78.9	8640	10.74	9.01	7.92	6.42	5.28	3.70	2.15
*	3	106.1	11628	14.55	12.17	10.69	8.67	7.13	4.97	2.88
*	3	105.9	11608	14.54	12.17	10.68	8.68	7.12	4.97	2.88
*	3	106.0	11612	14.55	12.17	10.68	8.67	7.12	4.96	2.88
*	3	105.8	11596	14.53	12.16	10.67	8.67	7.12	4.96	2.88
*	4	141.2	15469	19.37	16.22	14.24	11.55	9.48	6.54	3.74
*	4	141.9	15545	19.44	16.29	14.30	11.61	9.52	6.59	3.77
*	4	141.5	15501	19.40	16.26	14.28	11.59	9.51	6.59	3.78
*	4	141.8	15533	19.39	16.27	14.29	11.60	9.52	6.60	3.78

Stn: 540 Lane:F1 Temp: J/C: Air: 57 PvT: 52 09:40

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.9	11600	14.77	12.39	10.80	8.74	7.17	4.92	2.81
	C	106.1	11628	14.38	12.07	10.55	8.58	7.07	4.90	2.81
	C	106.3	11643	14.32	12.04	10.53	8.58	7.08	4.91	2.82
*	1	52.6	5760	7.09	5.90	5.25	4.21	3.48	2.42	1.41
*	1	52.9	5800	7.11	5.93	5.27	4.24	3.50	2.43	1.41
*	1	53.0	5808	7.11	5.95	5.28	4.24	3.50	2.44	1.41
*	1	52.8	5788	7.08	5.91	5.24	4.22	3.48	2.43	1.41
*	2	78.5	8597	10.45	8.81	7.76	6.30	5.21	3.64	2.14
*	2	79.0	8652	10.54	8.84	7.83	6.33	5.23	3.63	2.11
*	2	79.0	8652	10.54	8.85	7.82	6.33	5.24	3.64	2.12
*	2	78.9	8640	10.52	8.84	7.78	6.32	5.23	3.63	2.11
*	3	106.0	11612	14.18	11.94	10.48	8.53	7.04	4.87	2.80
*	3	106.3	11643	14.22	11.99	10.50	8.57	7.07	4.91	2.84
*	3	106.1	11620	14.21	11.99	10.50	8.57	7.06	4.91	2.84
*	3	106.1	11620	14.22	12.00	10.51	8.58	7.08	4.92	2.84
*	4	141.4	15493	18.97	16.00	14.03	11.41	9.40	6.46	3.66
*	4	142.1	15564	18.99	16.00	14.07	11.44	9.42	6.48	3.68
*	4	141.5	15501	18.93	15.96	14.04	11.41	9.40	6.48	3.67
*	4	141.9	15548	18.97	16.00	14.09	11.44	9.43	6.50	3.67

Mileage:-.008 -> .102

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

FWD S/N : 8002-060
Operator ID : PELKEY, BRUCE J.

Stationing...: Feet

EXTRA TEST FOR SHRP

Diameter of Plate: 11.8
Deflector distances : 8 12 18 24 36 60

SHRP TESTING - FLEXIBLE - BASIN TEST (F0,F1,F3)
Sequence: CCC1111222233334444

Stn: -40	Lane:F3	Temp:		J/C:		Air: 57	PvT: 52		09:44
Sto Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
C	105.9	11604	16.79	14.28	12.72	10.51	8.77	6.17	3.44
C	106.3	11643	16.40	13.94	12.48	10.30	8.65	6.15	3.44
C	106.1	11620	16.33	13.92	12.43	10.33	8.66	6.15	3.48
* 1	52.9	5792	8.16	6.91	6.26	5.11	4.32	3.11	1.74
* 1	52.9	5800	8.15	6.92	6.27	5.11	4.32	3.11	1.73
* 1	53.0	5804	8.19	6.94	6.27	5.15	4.33	3.12	1.77
* 1	53.3	5836	8.20	6.95	6.30	5.15	4.35	3.12	1.75
* 2	78.5	8601	11.99	10.22	9.21	7.57	6.39	4.59	2.59
* 2	79.0	8652	12.07	10.29	9.26	7.63	6.44	4.62	2.61
* 2	79.0	8656	12.08	10.32	9.26	7.67	6.45	4.63	2.63
* 2	79.2	8676	12.08	10.33	9.28	7.67	6.46	4.64	2.61
* 3	106.0	11616	16.18	13.81	12.43	10.25	8.65	6.16	3.45
* 3	106.4	11655	16.25	13.91	12.44	10.35	8.68	6.19	3.50
* 3	106.1	11628	16.23	13.89	12.43	10.33	8.67	6.18	3.49
* 3	106.0	11616	16.20	13.87	12.42	10.32	8.67	6.17	3.48
* 4	141.5	15505	21.50	18.42	16.48	13.69	11.47	8.12	4.51
* 4	141.9	15548	21.53	18.45	16.52	13.72	11.51	8.15	4.54
* 4	141.7	15525	21.51	18.44	16.49	13.72	11.50	8.14	4.56
* 4	141.4	15493	21.48	18.41	16.49	13.69	11.51	8.15	4.54

Stn: -35	Lane:F3	Temp:		J/C:		Air: 57	PvT: 51		09:47
Sto Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
C	105.9	11604	16.87	14.49	12.89	10.69	8.84	6.25	3.50
C	105.8	11596	16.46	14.14	12.57	10.48	8.70	6.20	3.52
C	106.1	11620	16.40	14.11	12.58	10.48	8.72	6.22	3.52
* 1	52.8	5780	8.15	6.98	6.26	5.18	4.33	3.11	1.80
* 1	52.8	5788	8.15	6.98	6.28	5.18	4.33	3.11	1.79
* 1	53.0	5804	8.16	7.01	6.28	5.20	4.34	3.12	1.81
* 1	53.1	5816	8.17	7.02	6.29	5.20	4.35	3.13	1.80
* 2	78.6	8612	12.09	10.41	9.31	7.75	6.46	4.62	2.63
* 2	78.8	8636	12.10	10.41	9.33	7.74	6.47	4.63	2.60
* 2	78.9	8644	12.09	10.41	9.35	7.74	6.48	4.63	2.60
* 2	79.1	8668	12.11	10.43	9.33	7.76	6.48	4.64	2.57
* 3	106.1	11624	16.26	14.02	12.52	10.43	8.69	6.20	3.49
* 3	106.0	11612	16.26	14.02	12.52	10.43	8.70	6.20	3.47
* 3	105.8	11592	16.24	14.01	12.51	10.44	8.70	6.20	3.50
* 3	105.9	11604	16.26	14.03	12.54	10.45	8.70	6.20	3.48
* 4	141.7	15529	21.66	18.69	16.67	13.89	11.57	8.19	4.57
* 4	141.9	15545	21.67	18.68	16.72	13.90	11.58	8.22	4.56
* 4	141.6	15509	21.67	18.68	16.72	13.91	11.59	8.22	4.55
* 4	141.6	15517	21.69	18.69	16.73	13.91	11.60	8.23	4.55

Stn: -30	Lane:F3	Temp:		J/C:		Air: 58	PvT: 51		09:49
Sto Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
C	105.7	11580	17.21	14.64	12.97	10.68	8.89	6.22	3.57
C	105.8	11592	16.77	14.28	12.70	10.48	8.77	6.19	3.56
C	105.7	11580	16.72	14.26	12.69	10.48	8.76	6.19	3.55
* 1	52.6	5760	8.40	7.06	6.35	5.19	4.36	3.11	1.77
* 1	52.6	5768	8.37	7.05	6.35	5.19	4.37	3.10	1.78
* 1	52.3	5728	8.34	7.02	6.31	5.17	4.35	3.09	1.78
* 1	52.7	5776	8.35	7.04	6.33	5.18	4.36	3.10	1.79
* 2	78.4	8589	12.27	10.48	9.39	7.73	6.49	4.60	2.66
* 2	78.5	8605	12.30	10.50	9.42	7.75	6.52	4.61	2.66
* 2	78.4	8585	12.28	10.49	9.41	7.74	6.50	4.61	2.65
* 2	78.6	8612	12.32	10.52	9.44	7.76	6.52	4.62	2.67
* 3	105.6	11572	16.58	14.16	12.65	10.44	8.76	6.19	3.56
* 3	105.8	11596	16.63	14.19	12.67	10.48	8.78	6.20	3.56

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

*	3	105.9	11604	16.63	14.22	12.70	10.50	8.80	6.21	3.56
*	3	105.6	11572	16.60	14.20	12.68	10.48	8.78	6.20	3.56
*	4	140.9	15441	22.06	18.86	16.83	13.90	11.63	8.15	4.62
*	4	141.0	15453	22.06	18.86	16.85	13.91	11.65	8.19	4.64
*	4	141.4	15497	22.11	18.93	16.91	13.99	11.70	8.21	4.65
*	4	141.1	15461	22.10	18.92	16.90	13.98	11.69	8.22	4.65

Stn: -25 Lane:F3 Temp: J/C: Air: 59 PvT: 52 09:52

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.4	11552	17.50	14.97	13.24	10.95	8.95	6.27	3.59
	C	105.7	11580	17.07	14.62	12.98	10.76	8.84	6.24	3.60
	C	105.5	11560	17.00	14.57	12.94	10.74	8.85	6.26	3.58
*	1	52.5	5752	8.43	7.18	6.43	5.28	4.39	3.14	1.82
*	1	52.5	5756	8.46	7.23	6.44	5.33	4.40	3.14	1.83
*	1	52.6	5760	8.42	7.18	6.43	5.30	4.39	3.13	1.81
*	1	52.8	5788	8.44	7.20	6.45	5.30	4.39	3.14	1.83
*	2	78.5	8601	12.49	10.71	9.58	7.91	6.57	4.68	2.66
*	2	78.8	8628	12.54	10.77	9.59	7.96	6.57	4.67	2.68
*	2	78.4	8593	12.52	10.76	9.58	7.95	6.57	4.67	2.67
*	2	78.4	8593	12.50	10.75	9.59	7.95	6.57	4.67	2.68
*	3	105.5	11560	16.84	14.47	12.90	10.69	8.82	6.24	3.55
*	3	105.7	11580	16.89	14.50	12.93	10.72	8.85	6.27	3.56
*	3	105.9	11604	16.91	14.54	12.96	10.74	8.87	6.28	3.57
*	3	105.8	11592	16.91	14.54	12.96	10.76	8.87	6.28	3.58
*	4	141.1	15457	22.48	19.33	17.23	14.27	11.76	8.26	4.65
*	4	141.1	15457	22.51	19.35	17.26	14.30	11.80	8.31	4.67
*	4	140.8	15429	22.47	19.32	17.24	14.28	11.79	8.30	4.67
*	4	141.0	15445	22.50	19.35	17.28	14.31	11.81	8.32	4.67

Stn: -20 Lane:F3 Temp: J/C: Air: 58 PvT: 52 09:54

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.6	11572	18.07	15.54	13.80	11.24	9.22	6.34	3.52
	C	105.9	11608	17.60	15.14	13.45	11.01	9.07	6.29	3.50
	C	105.8	11592	17.57	15.11	13.44	11.02	9.09	6.30	3.52
*	1	52.5	5748	8.73	7.45	6.70	5.44	4.48	3.15	1.75
*	1	52.5	5756	8.70	7.44	6.70	5.45	4.48	3.15	1.77
*	1	52.7	5772	8.72	7.46	6.71	5.45	4.49	3.16	1.79
*	1	52.7	5772	8.68	7.43	6.69	5.44	4.48	3.15	1.78
*	2	78.5	8605	12.90	11.13	9.93	8.14	6.72	4.68	2.65
*	2	78.7	8624	12.94	11.16	9.96	8.16	6.74	4.70	2.63
*	2	78.9	8640	12.97	11.18	9.98	8.19	6.75	4.71	2.66
*	2	78.7	8624	12.94	11.15	9.97	8.16	6.74	4.70	2.64
*	3	106.0	11616	17.47	15.05	13.42	11.00	9.08	6.30	3.55
*	3	105.9	11604	17.47	15.05	13.40	11.00	9.07	6.30	3.51
*	3	105.7	11584	17.44	15.02	13.40	10.99	9.07	6.30	3.50
*	3	105.8	11588	17.46	15.05	13.41	11.01	9.08	6.30	3.50
*	4	140.6	15409	23.24	20.04	17.83	14.63	12.07	8.31	4.61
*	4	140.8	15421	23.23	20.04	17.83	14.65	12.07	8.33	4.63
*	4	141.2	15465	23.29	20.08	17.88	14.69	12.13	8.36	4.65
*	4	140.7	15417	23.26	20.05	17.85	14.67	12.12	8.35	4.63

Stn: -15 Lane:F3 Temp: J/C: Air: 59 PvT: 53 09:57

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.5	11556	18.02	15.29	13.49	11.08	9.06	6.26	3.54
	C	105.6	11572	17.54	14.90	13.18	10.85	8.90	6.20	3.50
	C	105.5	11556	17.45	14.84	13.15	10.82	8.89	6.19	3.49
*	1	52.2	5720	8.68	7.34	6.53	5.36	4.40	3.09	1.76
*	1	52.4	5744	8.67	7.35	6.56	5.35	4.39	3.08	1.76
*	1	52.3	5732	8.63	7.30	6.51	5.33	4.37	3.07	1.74
*	1	52.6	5760	8.64	7.31	6.52	5.33	4.38	3.07	1.76
*	2	78.4	8585	12.83	10.94	9.72	8.00	6.58	4.60	2.64
*	2	78.6	8612	12.89	10.99	9.76	8.03	6.61	4.63	2.65
*	2	78.5	8597	12.85	10.97	9.73	8.02	6.59	4.62	2.64
*	2	78.7	8620	12.88	10.99	9.76	8.03	6.61	4.63	2.66
*	3	105.3	11536	17.27	14.73	13.07	10.77	8.85	6.17	3.51
*	3	105.8	11592	17.37	14.81	13.15	10.82	8.90	6.21	3.51
*	3	105.8	11588	17.37	14.83	13.17	10.84	8.91	6.22	3.52
*	3	105.9	11608	17.39	14.85	13.17	10.86	8.93	6.23	3.52
*	4	140.7	15417	23.10	19.73	17.51	14.41	11.84	8.20	4.57
*	4	141.0	15449	23.09	19.73	17.53	14.42	11.83	8.22	4.59
*	4	141.0	15445	23.10	19.75	17.53	14.43	11.85	8.23	4.59

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*	4	141.1	15457	23.12	19.77	17.54	14.45	11.87	8.24	4.60

Stn: -10 Lane:F3 Temp: J/C: Air: 59 PvT: 54 09:59

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.8	11588	17.81	15.16	13.32	10.85	8.88	6.08	3.42
	C	105.8	11588	17.29	14.73	12.97	10.61	8.73	6.03	3.44
	C	106.2	11632	17.25	14.70	12.98	10.62	8.74	6.04	3.43
*	1	52.4	5736	8.55	7.22	6.41	5.22	4.31	3.02	1.74
*	1	52.6	5760	8.54	7.25	6.43	5.23	4.31	3.02	1.74
*	1	52.9	5800	8.57	7.24	6.44	5.23	4.31	3.02	1.74
*	1	52.6	5760	8.50	7.19	6.39	5.20	4.29	3.00	1.73
*	2	78.5	8601	12.60	10.78	9.54	7.80	6.43	4.47	2.59
*	2	78.6	8616	12.65	10.81	9.59	7.83	6.46	4.50	2.60
*	2	78.6	8612	12.64	10.81	9.59	7.83	6.46	4.50	2.60
*	2	78.8	8632	12.65	10.81	9.60	7.83	6.46	4.50	2.59
*	3	105.8	11588	17.08	14.59	12.91	10.56	8.70	6.03	3.43
*	3	106.0	11616	17.16	14.65	12.95	10.61	8.74	6.05	3.45
*	3	106.0	11612	17.16	14.66	12.96	10.62	8.76	6.06	3.46
*	3	106.0	11612	17.14	14.66	12.95	10.63	8.76	6.05	3.45
*	4	140.8	15421	22.88	19.56	17.31	14.18	11.65	7.99	4.46
*	4	141.4	15493	22.94	19.57	17.36	14.19	11.67	8.02	4.48
*	4	141.4	15493	22.97	19.63	17.38	14.24	11.71	8.04	4.49
*	4	141.5	15501	22.95	19.61	17.36	14.22	11.70	8.04	4.50

Stn: -5 Lane:F3 Temp: J/C: Air: 60 PvT: 54 10:10

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.0	11612	17.93	15.14	13.26	10.75	8.80	6.05	3.45
	C	106.6	11679	17.44	14.75	12.96	10.55	8.67	6.02	3.48
	C	106.2	11640	17.33	14.67	12.89	10.51	8.65	6.02	3.48
*	1	53.0	5804	8.59	7.24	6.39	5.21	4.29	3.02	1.77
*	1	53.2	5828	8.58	7.24	6.40	5.20	4.29	3.02	1.77
*	1	53.3	5844	8.57	7.23	6.40	5.21	4.29	3.02	1.76
*	1	53.4	5848	8.57	7.23	6.41	5.21	4.30	3.03	1.77
*	2	79.0	8656	12.67	10.75	9.49	7.75	6.39	4.47	2.60
*	2	79.5	8716	12.77	10.83	9.56	7.80	6.43	4.50	2.61
*	2	79.4	8700	12.76	10.80	9.54	7.79	6.42	4.48	2.60
*	2	79.2	8680	12.73	10.79	9.54	7.79	6.41	4.50	2.60
*	3	106.1	11628	17.17	14.56	12.84	10.47	8.62	6.00	3.46
*	3	106.4	11655	17.23	14.62	12.89	10.52	8.66	6.04	3.46
*	3	106.2	11640	17.22	14.60	12.89	10.51	8.65	6.02	3.45
*	3	106.5	11667	17.24	14.62	12.92	10.54	8.67	6.04	3.47
*	4	141.7	15529	23.01	19.55	17.23	14.04	11.54	7.96	4.53
*	4	141.7	15521	23.01	19.53	17.25	14.06	11.57	7.99	4.54
*	4	141.7	15529	23.05	19.57	17.30	14.10	11.59	8.02	4.54
*	4	141.6	15509	23.02	19.54	17.28	14.08	11.61	8.01	4.54

Stn: 0 Lane:F3 Temp: J/C: Air: 60 PvT: 54 10:12

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.0	11508	18.89	15.14	13.31	10.79	8.78	6.03	3.47
	C	105.1	11512	18.21	14.63	12.96	10.54	8.65	6.01	3.46
	C	105.2	11528	18.06	14.55	12.92	10.53	8.65	6.02	3.46
*	1	52.0	5701	8.86	7.09	6.35	5.15	4.24	2.99	1.72
*	1	52.4	5740	8.91	7.13	6.39	5.18	4.27	3.01	1.74
*	1	52.5	5748	8.88	7.13	6.39	5.19	4.27	3.01	1.74
*	1	52.5	5752	8.86	7.10	6.39	5.17	4.26	3.00	1.74
*	2	78.2	8569	13.13	10.64	9.45	7.72	6.35	4.45	2.59
*	2	78.9	8648	13.23	10.72	9.56	7.80	6.42	4.49	2.59
*	2	78.7	8624	13.19	10.69	9.54	7.78	6.41	4.48	2.60
*	2	78.6	8616	13.17	10.69	9.56	7.78	6.41	4.50	2.61
*	3	104.9	11497	17.70	14.44	12.83	10.46	8.61	6.00	3.46
*	3	105.1	11520	17.72	14.48	12.85	10.49	8.62	6.00	3.45
*	3	105.4	11548	17.76	14.53	12.91	10.54	8.67	6.04	3.47
*	3	105.3	11532	17.72	14.51	12.87	10.52	8.65	6.02	3.46
*	4	139.6	15298	23.68	19.44	17.20	14.04	11.50	7.94	4.51
*	4	139.8	15318	23.66	19.41	17.20	14.04	11.52	7.97	4.52
*	4	140.2	15366	23.72	19.46	17.28	14.11	11.57	8.02	4.55
*	4	140.2	15366	23.69	19.45	17.28	14.09	11.58	8.02	4.54

Stn: 25 Lane:F3 Temp: J/C: Air: 60 PvT: 56 10:15

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.0	11616	17.21	14.26	12.53	10.17	8.34	5.76	3.32

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	C	106.1	11620	16.66	13.82	12.20	9.92	8.19	5.74	3.28
	C	106.0	11616	16.57	13.78	12.15	9.93	8.19	5.72	3.30
*	1	52.4	5736	8.16	6.75	6.03	4.87	4.04	2.85	1.64
*	1	52.6	5760	8.15	6.73	6.03	4.85	4.05	2.86	1.64
*	1	52.6	5764	8.15	6.76	6.03	4.89	4.06	2.87	1.65
*	1	53.0	5812	8.17	6.77	6.05	4.89	4.07	2.89	1.67
*	2	78.8	8632	12.13	10.10	8.95	7.30	6.05	4.25	2.47
*	2	78.9	8648	12.20	10.16	9.01	7.31	6.08	4.31	2.47
*	2	79.0	8660	12.20	10.17	9.03	7.34	6.09	4.31	2.49
*	2	78.9	8644	12.18	10.16	9.02	7.33	6.08	4.31	2.48
*	3	106.2	11632	16.41	13.73	12.12	9.91	8.19	5.75	3.32
*	3	106.0	11612	16.39	13.73	12.11	9.91	8.19	5.73	3.31
*	3	106.2	11636	16.42	13.76	12.14	9.94	8.21	5.75	3.33
*	3	106.0	11616	16.39	13.74	12.13	9.93	8.20	5.74	3.33
*	4	141.5	15501	21.92	18.36	16.22	13.24	10.92	7.61	4.32
*	4	141.7	15525	21.90	18.33	16.22	13.23	10.93	7.62	4.34
*	4	141.7	15525	21.90	18.35	16.25	13.25	10.95	7.64	4.33
*	4	141.8	15533	21.89	18.35	16.25	13.26	10.96	7.65	4.34

Stn: 50 Lane:F3 Temp: J/C: Air: 59 PvT: 56 10:18

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.0	11616	16.06	13.53	11.95	9.81	8.07	5.69	3.26
	C	106.1	11628	15.60	13.17	11.65	9.60	7.96	5.65	3.27
	C	106.2	11636	15.55	13.15	11.63	9.62	7.97	5.68	3.30
*	1	52.8	5780	7.72	6.46	5.81	4.74	3.96	2.84	1.65
*	1	53.1	5816	7.72	6.47	5.81	4.76	3.96	2.84	1.66
*	1	52.4	5744	7.67	6.44	5.78	4.73	3.94	2.83	1.66
*	1	53.0	5804	7.68	6.44	5.79	4.74	3.94	2.83	1.68
*	2	78.5	8601	11.37	9.64	8.56	7.07	5.88	4.21	2.48
*	2	79.3	8688	11.48	9.70	8.68	7.12	5.93	4.24	2.48
*	2	78.7	8624	11.40	9.63	8.65	7.08	5.90	4.21	2.47
*	2	78.9	8648	11.41	9.65	8.65	7.09	5.91	4.22	2.49
*	3	106.1	11628	15.39	13.07	11.59	9.58	7.95	5.67	3.36
*	3	106.2	11636	15.39	13.09	11.58	9.60	7.95	5.67	3.33
*	3	106.4	11659	15.44	13.12	11.65	9.62	7.99	5.69	3.34
*	3	106.1	11620	15.39	13.08	11.61	9.61	7.97	5.68	3.33
*	4	141.9	15545	20.53	17.46	15.50	12.80	10.62	7.49	4.33
*	4	141.9	15545	20.51	17.44	15.48	12.79	10.59	7.50	4.35
*	4	141.9	15548	20.50	17.44	15.50	12.80	10.61	7.52	4.35
*	4	142.0	15556	20.51	17.45	15.51	12.81	10.62	7.53	4.36

Stn: 75 Lane:F3 Temp: J/C: Air: 60 PvT: 55 10:20

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.6	11572	15.69	13.15	11.69	9.67	7.99	5.66	3.22
	C	105.9	11608	15.31	12.83	11.47	9.49	7.89	5.61	3.26
	C	105.7	11576	15.20	12.73	11.46	9.45	7.89	5.59	3.20
*	1	52.4	5740	7.57	6.28	5.73	4.68	3.94	2.79	1.62
*	1	52.7	5776	7.62	6.34	5.76	4.71	3.96	2.82	1.64
*	1	52.6	5760	7.60	6.35	5.71	4.72	3.94	2.83	1.65
*	1	52.8	5788	7.58	6.28	5.76	4.69	3.97	2.80	1.61
*	2	78.4	8589	11.15	9.41	8.43	6.99	5.82	4.18	2.47
*	2	78.5	8597	11.17	9.41	8.46	7.01	5.85	4.18	2.43
*	2	78.4	8593	11.17	9.41	8.44	7.00	5.83	4.18	2.46
*	2	78.6	8608	11.17	9.42	8.46	7.01	5.85	4.19	2.45
*	3	105.5	11564	15.05	12.68	11.38	9.43	7.86	5.60	3.22
*	3	106.0	11612	15.11	12.72	11.44	9.46	7.90	5.61	3.24
*	3	105.9	11600	15.10	12.74	11.41	9.47	7.89	5.63	3.26
*	3	105.8	11596	15.09	12.73	11.44	9.47	7.90	5.61	3.24
*	4	141.6	15517	20.05	16.94	15.18	12.58	10.49	7.41	4.22
*	4	141.7	15525	20.04	16.95	15.20	12.61	10.50	7.43	4.24
*	4	141.9	15548	20.05	16.97	15.22	12.61	10.50	7.44	4.24
*	4	141.6	15517	20.00	16.94	15.19	12.59	10.51	7.43	4.23

Stn: 100 Lane:F3 Temp: J/C: Air: 60 PvT: 56 10:23

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.3	11647	14.77	12.69	11.28	9.42	7.82	5.59	3.23
	C	106.5	11663	14.39	12.35	11.06	9.24	7.72	5.56	3.23
	C	106.2	11636	14.31	12.30	11.01	9.21	7.70	5.54	3.24
*	1	52.4	5736	7.06	6.05	5.46	4.55	3.82	2.78	1.66
*	1	52.9	5800	7.09	6.07	5.48	4.58	3.84	2.80	1.66
*	1	53.2	5828	7.12	6.09	5.50	4.59	3.85	2.80	1.66

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*	1	53.3	5836	7.13	6.10	5.51	4.59	3.85	2.80	1.67
*	2	79.1	8664	10.50	9.06	8.13	6.81	5.70	4.12	2.44
*	2	79.1	8664	10.54	9.06	8.13	6.82	5.71	4.13	2.46
*	2	79.1	8668	10.55	9.09	8.15	6.85	5.73	4.15	2.47
*	2	79.0	8660	10.54	9.09	8.14	6.84	5.72	4.14	2.45
*	3	106.4	11659	14.23	12.27	10.99	9.21	7.70	5.55	3.25
*	3	106.4	11659	14.25	12.29	11.00	9.23	7.72	5.56	3.26
*	3	106.2	11632	14.23	12.27	10.98	9.21	7.70	5.55	3.25
*	3	106.2	11632	14.23	12.28	10.99	9.22	7.71	5.56	3.25
*	4	141.6	15509	19.00	16.35	14.65	12.26	10.24	7.33	4.22
*	4	142.2	15580	18.99	16.35	14.66	12.28	10.25	7.35	4.24
*	4	142.1	15568	19.00	16.37	14.67	12.29	10.27	7.36	4.24
*	4	141.8	15541	18.98	16.35	14.65	12.29	10.26	7.35	4.24

Stn: 125 Lane:F3 Temp: J/C: Air: 60 PvT: 56 10:26

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.7	11580	15.53	13.13	11.65	9.72	8.02	5.70	3.30
	C	106.1	11620	15.18	12.84	11.42	9.56	7.94	5.68	3.28
	C	105.8	11596	15.07	12.79	11.39	9.53	7.93	5.68	3.28
*	1	52.5	5756	7.53	6.32	5.72	4.73	3.99	2.85	1.69
*	1	52.9	5800	7.56	6.35	5.72	4.74	3.98	2.86	1.69
*	1	52.5	5748	7.48	6.30	5.68	4.71	3.97	2.85	1.70
*	1	52.7	5772	7.49	6.32	5.69	4.73	3.96	2.85	1.70
*	2	78.4	8585	11.03	9.37	8.39	7.01	5.87	4.20	2.47
*	2	78.8	8628	11.11	9.41	8.45	7.05	5.93	4.22	2.46
*	2	78.6	8608	11.09	9.41	8.45	7.04	5.92	4.22	2.46
*	2	78.7	8624	11.10	9.41	8.46	7.05	5.93	4.22	2.45
*	3	106.0	11616	14.96	12.73	11.37	9.52	7.94	5.67	3.29
*	3	105.9	11604	14.96	12.74	11.37	9.53	7.93	5.68	3.28
*	3	106.0	11612	14.97	12.76	11.37	9.54	7.93	5.69	3.30
*	3	105.9	11604	14.97	12.76	11.38	9.54	7.94	5.69	3.31
*	4	141.6	15513	19.92	17.01	15.17	12.70	10.56	7.50	4.29
*	4	141.6	15517	19.91	16.98	15.16	12.69	10.56	7.51	4.30
*	4	141.9	15548	19.94	17.02	15.20	12.74	10.59	7.53	4.30
*	4	141.7	15525	19.91	16.99	15.18	12.70	10.58	7.53	4.31

Stn: 150 Lane:F3 Temp: J/C: Air: 60 PvT: 56 10:29

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.8	11596	16.68	14.21	12.58	10.48	8.63	6.06	3.50
	C	105.8	11596	16.26	13.86	12.30	10.29	8.52	6.04	3.51
	C	105.9	11604	16.21	13.81	12.28	10.28	8.52	6.02	3.52
*	1	52.5	5752	8.10	6.80	6.16	5.10	4.24	3.03	1.78
*	1	52.8	5788	8.09	6.85	6.15	5.11	4.25	3.04	1.78
*	1	53.2	5824	8.09	6.82	6.17	5.11	4.26	3.04	1.79
*	1	52.6	5764	8.01	6.76	6.11	5.08	4.23	3.02	1.76
*	2	78.5	8605	11.88	10.15	9.07	7.58	6.30	4.50	2.65
*	2	79.0	8656	11.96	10.19	9.15	7.64	6.35	4.53	2.66
*	2	78.8	8632	11.94	10.19	9.13	7.63	6.34	4.52	2.65
*	2	78.9	8640	11.93	10.19	9.13	7.63	6.35	4.53	2.65
*	3	105.8	11596	16.06	13.71	12.27	10.25	8.50	6.04	3.50
*	3	105.9	11600	16.11	13.78	12.27	10.28	8.54	6.07	3.52
*	3	105.8	11592	16.11	13.78	12.27	10.28	8.53	6.06	3.52
*	3	105.7	11580	16.08	13.75	12.25	10.26	8.52	6.06	3.50
*	4	141.0	15453	21.48	18.36	16.38	13.70	11.35	7.99	4.57
*	4	141.2	15473	21.49	18.37	16.39	13.70	11.37	8.02	4.59
*	4	141.4	15493	21.52	18.41	16.43	13.74	11.39	8.04	4.61
*	4	141.3	15477	21.50	18.39	16.42	13.74	11.39	8.04	4.60

Stn: 175 Lane:F3 Temp: J/C: Air: 60 PvT: 56 10:31

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.3	11532	19.25	16.22	14.20	11.46	9.36	6.39	3.58
	C	105.4	11544	18.68	15.76	13.83	11.24	9.22	6.36	3.58
	C	105.3	11536	18.58	15.70	13.78	11.21	9.22	6.35	3.57
*	1	52.6	5760	9.21	7.70	6.83	5.51	4.57	3.16	1.80
*	1	52.6	5760	9.21	7.70	6.85	5.53	4.59	3.16	1.80
*	1	52.4	5740	9.13	7.66	6.80	5.49	4.54	3.15	1.78
*	1	52.4	5744	9.16	7.67	6.83	5.50	4.56	3.15	1.78
*	2	78.4	8593	13.60	11.52	10.17	8.26	6.82	4.72	2.68
*	2	78.6	8612	13.64	11.54	10.20	8.28	6.85	4.72	2.69
*	2	78.4	8589	13.61	11.53	10.18	8.27	6.84	4.72	2.69
*	2	78.5	8605	13.65	11.54	10.22	8.29	6.87	4.72	2.68

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
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*	3	105.4	11552	18.45	15.65	13.76	11.21	9.24	6.35	3.57
*	3	105.3	11536	18.44	15.65	13.76	11.21	9.24	6.36	3.59
*	3	105.3	11532	18.44	15.65	13.75	11.22	9.22	6.36	3.59
*	3	105.4	11548	18.46	15.66	13.78	11.23	9.24	6.36	3.58
*	4	140.3	15370	24.69	20.97	18.44	15.00	12.32	8.41	4.67
*	4	140.6	15409	24.74	21.00	18.48	15.04	12.37	8.46	4.69
*	4	140.7	15413	24.77	21.04	18.52	15.08	12.40	8.48	4.69
*	4	140.9	15441	24.79	21.06	18.54	15.10	12.41	8.50	4.70

Stn: 200 Lane:F3 Temp: J/C: Air: 61 PvT: 60 10:39

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.2	11640	20.05	16.93	14.69	11.77	9.52	6.49	3.76
	C	106.2	11632	19.24	16.30	14.19	11.46	9.32	6.44	3.73
	C	106.1	11620	19.15	16.26	14.14	11.47	9.33	6.46	3.76
*	1	53.1	5816	9.47	8.00	7.02	5.65	4.62	3.24	1.90
*	1	53.7	5887	9.53	8.06	7.05	5.72	4.66	3.28	1.97
*	1	53.4	5848	9.49	8.02	6.99	5.67	4.62	3.24	1.92
*	1	53.3	5844	9.46	8.02	7.00	5.67	4.61	3.24	1.91
*	2	79.2	8680	14.03	11.94	10.44	8.44	6.90	4.80	2.80
*	2	79.3	8688	14.07	11.96	10.47	8.47	6.93	4.83	2.83
*	2	79.2	8672	14.04	11.94	10.45	8.44	6.91	4.81	2.82
*	2	79.2	8676	14.04	11.95	10.44	8.45	6.91	4.81	2.81
*	3	106.1	11620	18.97	16.17	14.09	11.43	9.31	6.45	3.74
*	3	106.2	11632	19.02	16.21	14.11	11.47	9.34	6.47	3.76
*	3	106.2	11632	19.02	16.21	14.11	11.48	9.35	6.48	3.77
*	3	106.1	11624	19.01	16.22	14.11	11.49	9.35	6.48	3.77
*	4	141.2	15465	25.47	21.68	18.91	15.30	12.46	8.54	4.89
*	4	141.2	15469	25.49	21.65	18.94	15.32	12.48	8.58	4.91
*	4	141.3	15481	25.49	21.67	18.95	15.35	12.50	8.59	4.91
*	4	141.0	15445	25.48	21.65	18.94	15.33	12.49	8.59	4.91

Stn: 225 Lane:F3 Temp: J/C: Air: 61 PvT: 57 10:43

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.3	11536	19.10	15.97	13.96	11.29	9.17	6.34	3.69
	C	105.8	11596	19.18	16.04	14.03	11.34	9.21	6.38	3.71
	C	105.6	11572	19.16	16.02	14.03	11.33	9.20	6.38	3.71
*	1	52.9	5792	9.61	8.02	7.03	5.66	4.61	3.22	1.91
*	1	53.0	5804	9.63	8.02	7.06	5.67	4.61	3.22	1.87
*	1	53.6	5867	9.65	8.06	7.07	5.69	4.62	3.22	1.88
*	1	52.8	5788	9.57	8.00	7.00	5.64	4.59	3.20	1.89
*	2	78.2	8573	14.09	11.81	10.35	8.36	6.80	4.72	2.76
*	2	79.0	8652	14.27	11.95	10.48	8.46	6.89	4.78	2.79
*	2	79.0	8660	14.24	11.93	10.46	8.44	6.86	4.77	2.78
*	2	78.9	8640	14.26	11.94	10.47	8.45	6.87	4.78	2.79
*	3	105.9	11600	19.12	16.02	14.04	11.34	9.21	6.39	3.72
*	3	105.7	11576	19.13	16.01	14.02	11.33	9.20	6.37	3.70
*	3	105.6	11572	19.14	16.02	14.03	11.33	9.21	6.38	3.70
*	3	105.6	11572	19.13	16.02	14.03	11.33	9.21	6.38	3.70
*	4	140.9	15433	25.57	21.43	18.73	15.11	12.25	8.42	4.86
*	4	141.3	15477	25.60	21.44	18.79	15.16	12.31	8.47	4.86
*	4	141.2	15469	25.59	21.44	18.78	15.16	12.30	8.47	4.86
*	4	141.0	15449	25.61	21.47	18.79	15.18	12.33	8.48	4.88

Stn: 250 Lane:F3 Temp: J/C: Air: 61 PvT: 58 10:46

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.5	11564	18.50	15.40	13.48	10.85	8.81	6.09	3.57
	C	105.9	11608	17.87	14.89	13.08	10.59	8.67	6.09	3.56
	C	105.9	11600	17.77	14.83	13.04	10.58	8.67	6.06	3.56
*	1	52.5	5756	8.78	7.25	6.48	5.18	4.28	3.04	1.80
*	1	52.6	5764	8.81	7.29	6.50	5.20	4.29	3.01	1.80
*	1	52.8	5780	8.80	7.31	6.50	5.22	4.30	3.02	1.81
*	1	52.7	5776	8.80	7.31	6.50	5.23	4.31	3.02	1.81
*	2	78.2	8573	12.95	10.85	9.57	7.76	6.38	4.51	2.67
*	2	78.8	8628	13.06	10.94	9.65	7.84	6.44	4.54	2.69
*	2	78.9	8640	13.09	10.96	9.69	7.85	6.46	4.57	2.70
*	2	78.6	8612	13.03	10.90	9.65	7.81	6.43	4.54	2.69
*	3	105.6	11572	17.55	14.69	12.99	10.52	8.63	6.06	3.56
*	3	105.9	11604	17.60	14.75	13.02	10.56	8.67	6.07	3.56
*	3	105.8	11588	17.59	14.74	13.02	10.56	8.67	6.07	3.57

File: C:\FWD\DATA\460804C3.FWD
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*	3	106.0	11616	17.62	14.78	13.06	10.59	8.69	6.07	3.56
*	4	141.0	15453	23.47	19.71	17.38	14.09	11.54	8.01	4.64
*	4	141.3	15477	23.44	19.69	17.38	14.09	11.55	8.04	4.65
*	4	141.6	15517	23.46	19.72	17.40	14.12	11.57	8.06	4.68
*	4	141.4	15497	23.46	19.74	17.41	14.14	11.59	8.09	4.68

Stn: 275 Lane:F3 Temp: J/C: Air: 61 PvT: 58 10:48

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.9	11604	17.35	14.55	12.85	10.50	8.65	6.05	3.54
	C	106.0	11616	16.85	14.14	12.51	10.28	8.50	6.01	3.55
	C	105.9	11604	16.76	14.08	12.48	10.26	8.51	6.02	3.56
*	1	52.5	5752	8.37	6.97	6.26	5.09	4.25	3.05	1.83
*	1	52.8	5784	8.36	6.96	6.28	5.08	4.25	3.06	1.82
*	1	53.0	5804	8.36	6.98	6.29	5.09	4.26	3.07	1.84
*	1	52.5	5752	8.32	6.94	6.26	5.06	4.25	3.05	1.82
*	2	78.4	8593	12.27	10.33	9.20	7.55	6.29	4.48	2.66
*	2	78.9	8644	12.35	10.39	9.28	7.61	6.33	4.52	2.66
*	2	79.0	8656	12.34	10.40	9.27	7.60	6.33	4.51	2.66
*	2	78.9	8648	12.34	10.40	9.28	7.61	6.34	4.52	2.68
*	3	105.8	11596	16.57	13.96	12.44	10.20	8.48	6.02	3.55
*	3	106.4	11655	16.63	14.04	12.46	10.26	8.52	6.04	3.56
*	3	106.0	11616	16.61	14.00	12.46	10.24	8.51	6.04	3.55
*	3	106.0	11616	16.59	14.01	12.46	10.24	8.52	6.04	3.55
*	4	141.2	15465	22.04	18.63	16.51	13.59	11.25	7.90	4.59
*	4	141.3	15481	22.04	18.64	16.52	13.62	11.28	7.93	4.64
*	4	141.6	15513	22.04	18.66	16.56	13.66	11.32	7.96	4.63
*	4	141.8	15541	22.06	18.68	16.55	13.66	11.33	7.97	4.65

Stn: 300 Lane:F3 Temp: J/C: Air: 61 PvT: 57 10:53

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.4	11552	16.07	13.66	12.17	10.05	8.26	5.82	3.43
	C	106.2	11640	16.19	13.78	12.25	10.13	8.33	5.86	3.46
	C	105.9	11604	16.15	13.75	12.22	10.12	8.32	5.86	3.46
*	1	52.8	5780	8.08	6.83	6.19	5.03	4.15	2.96	1.75
*	1	53.2	5824	8.14	6.91	6.19	5.07	4.19	2.97	1.78
*	1	53.0	5808	8.13	6.90	6.20	5.07	4.19	2.98	1.78
*	1	53.2	5828	8.12	6.89	6.21	5.07	4.20	2.98	1.77
*	2	78.4	8585	11.91	10.16	9.06	7.48	6.17	4.37	2.61
*	2	78.8	8636	12.00	10.22	9.16	7.54	6.22	4.41	2.62
*	2	78.8	8636	12.02	10.22	9.17	7.54	6.22	4.42	2.63
*	2	78.9	8648	12.02	10.23	9.18	7.55	6.23	4.41	2.61
*	3	105.8	11596	16.10	13.72	12.22	10.09	8.31	5.86	3.46
*	3	106.1	11628	16.15	13.78	12.24	10.15	8.34	5.87	3.45
*	3	105.9	11604	16.14	13.76	12.24	10.13	8.33	5.87	3.44
*	3	105.9	11604	16.15	13.76	12.23	10.14	8.33	5.87	3.45
*	4	141.3	15477	21.43	18.29	16.22	13.44	11.03	7.71	4.47
*	4	141.7	15529	21.45	18.31	16.27	13.46	11.06	7.75	4.48
*	4	141.6	15517	21.47	18.33	16.29	13.50	11.08	7.76	4.51
*	4	141.9	15548	21.52	18.35	16.31	13.50	11.08	7.77	4.50

Stn: 325 Lane:F3 Temp: J/C: Air: 61 PvT: 58 10:56

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.0	11616	17.27	14.69	12.97	10.63	8.70	6.02	3.60
	C	106.1	11620	16.77	14.26	12.66	10.41	8.57	6.00	3.53
	C	105.9	11600	16.67	14.17	12.62	10.37	8.56	6.02	3.54
*	1	52.4	5740	8.30	6.96	6.35	5.15	4.28	3.06	1.75
*	1	52.7	5776	8.28	6.99	6.33	5.16	4.28	3.05	1.77
*	1	52.9	5796	8.30	7.02	6.34	5.17	4.29	3.05	1.79
*	1	52.7	5772	8.24	6.98	6.28	5.14	4.25	3.02	1.80
*	2	78.3	8577	12.18	10.43	9.28	7.66	6.33	4.48	2.69
*	2	78.9	8648	12.30	10.49	9.39	7.73	6.40	4.52	2.69
*	2	78.6	8612	12.28	10.47	9.35	7.71	6.38	4.51	2.68
*	2	78.6	8616	12.24	10.46	9.34	7.70	6.37	4.50	2.67
*	3	105.5	11564	16.50	14.09	12.54	10.33	8.53	6.00	3.53
*	3	106.1	11620	16.55	14.11	12.59	10.36	8.56	6.02	3.54
*	3	105.7	11580	16.48	14.09	12.54	10.34	8.54	6.00	3.54
*	3	105.6	11572	16.50	14.09	12.54	10.35	8.54	6.01	3.56
*	4	141.2	15473	21.98	18.80	16.72	13.77	11.33	7.90	4.61
*	4	141.2	15469	21.95	18.76	16.70	13.76	11.35	7.92	4.63
*	4	141.6	15513	21.98	18.79	16.74	13.79	11.36	7.93	4.63

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
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*	4	141.3	15485	21.96	18.78	16.73	13.78	11.36	7.93	4.63

Stn: 350 Lane:F3 Temp: J/C: Air: 61 PvT: 58 10:58

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.7	11584	17.07	14.39	12.76	10.45	8.63	6.06	3.55
	C	105.9	11600	16.56	14.00	12.42	10.25	8.50	6.04	3.56
	C	105.8	11592	16.49	13.94	12.40	10.22	8.49	6.01	3.55
*	1	52.4	5740	8.20	6.91	6.19	5.08	4.24	3.03	1.83
*	1	52.2	5724	8.17	6.87	6.18	5.05	4.22	3.01	1.81
*	1	52.5	5748	8.15	6.87	6.19	5.05	4.22	3.00	1.80
*	1	52.5	5756	8.17	6.87	6.23	5.05	4.24	3.03	1.81
*	2	78.3	8581	12.07	10.20	9.17	7.52	6.28	4.47	2.68
*	2	78.5	8597	12.11	10.28	9.19	7.57	6.31	4.51	2.70
*	2	78.4	8589	12.12	10.28	9.19	7.57	6.31	4.50	2.69
*	2	78.7	8624	12.13	10.31	9.21	7.60	6.33	4.52	2.71
*	3	105.6	11572	16.30	13.84	12.33	10.17	8.47	6.00	3.55
*	3	105.6	11572	16.29	13.83	12.32	10.17	8.45	5.99	3.53
*	3	105.8	11596	16.31	13.87	12.34	10.20	8.48	6.01	3.54
*	3	106.0	11616	16.35	13.91	12.36	10.23	8.50	6.03	3.56
*	4	141.1	15457	21.71	18.48	16.41	13.57	11.24	7.92	4.60
*	4	141.3	15477	21.70	18.46	16.41	13.56	11.26	7.93	4.61
*	4	141.5	15501	21.70	18.48	16.44	13.57	11.27	7.93	4.61
*	4	141.6	15509	21.71	18.50	16.44	13.59	11.27	7.94	4.62

Stn: 375 Lane:F3 Temp: J/C: Air: 60 PvT: 57 11:01

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.6	11572	16.43	13.76	12.26	10.09	8.44	5.97	3.46
	C	105.8	11596	16.00	13.37	12.04	9.88	8.33	5.99	3.46
	C	105.7	11580	15.88	13.30	11.97	9.85	8.30	5.98	3.45
*	1	52.1	5709	7.85	6.57	5.93	4.88	4.12	3.00	1.77
*	1	52.6	5764	7.88	6.58	5.99	4.89	4.13	3.03	1.76
*	1	52.8	5780	7.87	6.58	6.00	4.89	4.13	3.03	1.75
*	1	53.0	5804	7.88	6.59	5.99	4.89	4.15	3.04	1.78
*	2	78.0	8549	11.59	9.74	8.83	7.26	6.13	4.46	2.60
*	2	78.4	8593	11.67	9.81	8.85	7.30	6.17	4.47	2.61
*	2	78.6	8612	11.68	9.83	8.86	7.31	6.17	4.48	2.62
*	2	78.8	8628	11.69	9.86	8.90	7.33	6.19	4.50	2.63
*	3	105.4	11552	15.71	13.22	11.90	9.83	8.28	5.97	3.46
*	3	105.8	11588	15.76	13.30	11.93	9.88	8.31	5.98	3.46
*	3	105.8	11596	15.74	13.27	11.92	9.87	8.31	5.98	3.47
*	3	105.9	11600	15.74	13.31	11.93	9.89	8.33	5.98	3.48
*	4	140.6	15409	20.88	17.67	15.80	13.11	10.98	7.83	4.50
*	4	141.4	15493	20.92	17.71	15.83	13.15	11.07	7.87	4.53
*	4	141.3	15481	20.87	17.69	15.80	13.14	11.03	7.86	4.54
*	4	141.6	15509	20.91	17.74	15.83	13.18	11.06	7.88	4.55

Stn: 400 Lane:F3 Temp: J/C: Air: 61 PvT: 57 11:04

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.7	11584	17.30	14.64	12.97	10.66	8.81	6.17	3.50
	C	106.1	11624	16.83	14.27	12.67	10.46	8.70	6.14	3.53
	C	105.9	11600	16.74	14.20	12.64	10.44	8.69	6.14	3.54
*	1	52.0	5697	8.24	6.97	6.22	5.15	4.29	3.07	1.80
*	1	52.4	5740	8.23	6.97	6.27	5.16	4.31	3.08	1.78
*	1	52.7	5776	8.24	6.97	6.29	5.17	4.31	3.08	1.78
*	1	52.3	5732	8.16	6.89	6.27	5.13	4.30	3.06	1.76
*	2	78.1	8557	12.19	10.35	9.28	7.65	6.39	4.54	2.63
*	2	78.5	8601	12.27	10.43	9.33	7.70	6.43	4.57	2.65
*	2	78.6	8612	12.29	10.45	9.34	7.72	6.45	4.57	2.66
*	2	78.6	8612	12.28	10.46	9.35	7.74	6.45	4.59	2.67
*	3	105.5	11560	16.54	14.08	12.55	10.38	8.65	6.12	3.52
*	3	105.9	11600	16.60	14.14	12.61	10.43	8.69	6.15	3.52
*	3	105.9	11600	16.59	14.12	12.62	10.43	8.69	6.15	3.52
*	3	106.0	11616	16.61	14.17	12.63	10.46	8.71	6.16	3.54
*	4	140.8	15429	22.09	18.84	16.74	13.86	11.51	8.09	4.60
*	4	141.5	15501	22.13	18.86	16.82	13.90	11.56	8.13	4.60
*	4	141.1	15457	22.08	18.82	16.79	13.89	11.56	8.12	4.61
*	4	141.4	15493	22.11	18.87	16.82	13.92	11.59	8.14	4.62

Stn: 425 Lane:F3 Temp: J/C: Air: 61 PvT: 58 11:06

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.9	11608	16.74	14.24	12.57	10.31	8.54	6.02	3.42

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

	C	106.2	11632	16.28	13.87	12.28	10.11	8.40	5.96	3.41
	C	106.1	11620	16.20	13.80	12.26	10.10	8.41	5.95	3.41
*	1	52.1	5709	8.00	6.80	6.06	4.98	4.14	2.96	1.73
*	1	52.3	5728	8.02	6.81	6.09	5.00	4.18	2.99	1.76
*	1	52.7	5772	8.04	6.81	6.08	5.00	4.17	2.98	1.74
*	1	52.3	5728	7.97	6.78	6.05	4.97	4.16	2.97	1.74
*	2	78.4	8585	11.87	10.12	9.01	7.43	6.20	4.40	2.55
*	2	78.6	8608	11.92	10.17	9.06	7.47	6.23	4.43	2.56
*	2	78.6	8608	11.92	10.17	9.07	7.47	6.23	4.43	2.56
*	2	78.7	8620	11.93	10.18	9.07	7.48	6.24	4.43	2.57
*	3	105.8	11596	16.06	13.71	12.21	10.06	8.39	5.93	3.42
*	3	106.0	11616	16.11	13.74	12.24	10.09	8.41	5.95	3.43
*	3	106.0	11616	16.11	13.74	12.25	10.09	8.42	5.96	3.42
*	3	106.0	11612	16.10	13.73	12.25	10.09	8.41	5.94	3.41
*	4	141.2	15469	21.44	18.29	16.30	13.41	11.17	7.85	4.44
*	4	142.1	15568	21.51	18.35	16.35	13.49	11.23	7.90	4.48
*	4	141.8	15537	21.47	18.32	16.34	13.46	11.22	7.89	4.49
*	4	141.8	15537	21.46	18.33	16.35	13.47	11.24	7.90	4.47

Stn: 450 Lane:F3 Temp: J/C: Air: 61 PvT: 59 11:11

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.6	11572	17.44	14.53	12.91	10.50	8.65	6.02	3.42
	C	106.0	11616	17.00	14.20	12.63	10.32	8.55	5.99	3.43
	C	105.8	11596	16.88	14.13	12.56	10.28	8.52	5.98	3.43
*	1	52.6	5760	8.41	7.00	6.25	5.11	4.24	3.02	1.78
*	1	52.8	5780	8.42	7.02	6.29	5.11	4.26	3.02	1.77
*	1	52.4	5740	8.37	6.96	6.27	5.09	4.24	3.02	1.76
*	1	52.4	5740	8.36	6.95	6.28	5.09	4.24	3.01	1.75
*	2	78.3	8581	12.33	10.35	9.24	7.56	6.27	4.42	2.57
*	2	78.4	8593	12.41	10.38	9.31	7.58	6.31	4.44	2.56
*	2	78.5	8605	12.42	10.41	9.33	7.61	6.33	4.45	2.56
*	2	78.6	8612	12.41	10.42	9.31	7.61	6.32	4.46	2.58
*	3	105.5	11564	16.67	14.03	12.48	10.24	8.48	5.96	3.42
*	3	106.0	11616	16.75	14.10	12.51	10.30	8.52	5.98	3.44
*	3	105.9	11608	16.74	14.08	12.55	10.28	8.52	5.99	3.43
*	3	105.9	11608	16.73	14.10	12.54	10.30	8.52	5.99	3.44
*	4	140.8	15429	22.17	18.72	16.62	13.65	11.28	7.87	4.46
*	4	141.6	15509	22.24	18.76	16.69	13.70	11.32	7.92	4.48
*	4	141.4	15493	22.22	18.74	16.68	13.69	11.33	7.92	4.50
*	4	141.5	15501	22.21	18.76	16.67	13.70	11.32	7.91	4.49

Error: 558

Stn: 475 Lane:F3 Temp: J/C: Air: 61 PvT: 57 11:18

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.6	11568	16.13	13.64	12.23	10.06	8.43	5.99	3.43
	C	106.2	11640	16.22	13.74	12.29	10.13	8.47	6.03	3.44
	C	106.2	11636	16.21	13.73	12.28	10.14	8.48	6.03	3.46
*	1	52.2	5720	8.03	6.78	6.09	5.00	4.20	3.02	1.75
*	1	52.7	5772	8.07	6.82	6.15	5.03	4.24	3.04	1.77
*	1	52.9	5796	8.09	6.84	6.16	5.04	4.24	3.04	1.77
*	1	52.6	5764	8.04	6.80	6.09	5.01	4.20	3.02	1.75
*	2	78.4	8593	11.91	10.10	9.02	7.45	6.24	4.45	2.58
*	2	78.8	8632	11.97	10.16	9.09	7.50	6.27	4.48	2.58
*	2	78.6	8616	11.98	10.15	9.09	7.50	6.28	4.48	2.60
*	2	78.8	8628	11.97	10.17	9.09	7.50	6.28	4.48	2.59
*	3	105.5	11564	16.06	13.63	12.19	10.05	8.42	5.98	3.44
*	3	105.9	11608	16.15	13.69	12.25	10.11	8.45	6.01	3.45
*	3	105.8	11596	16.14	13.69	12.24	10.10	8.45	6.02	3.44
*	3	105.9	11604	16.14	13.69	12.24	10.10	8.45	6.01	3.45
*	4	141.2	15465	21.28	18.06	16.11	13.33	11.13	7.89	4.50
*	4	141.8	15541	21.38	18.13	16.20	13.37	11.18	7.91	4.50
*	4	141.6	15517	21.36	18.14	16.18	13.39	11.16	7.91	4.50
*	4	141.6	15513	21.38	18.14	16.21	13.39	11.22	7.93	4.51

Stn: 500 Lane:F3 Temp: J/C: Air: 61 PvT: 59 11:21

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.6	11568	16.87	14.12	12.47	10.32	8.54	6.05	3.49
	C	105.8	11596	16.46	13.80	12.22	10.15	8.45	6.03	3.48
	C	105.7	11576	16.35	13.72	12.19	10.13	8.43	6.02	3.48
*	1	52.3	5732	8.14	6.76	6.07	5.02	4.18	3.02	1.80

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
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*	1	52.6	5760	8.15	6.80	6.09	5.04	4.19	3.04	1.78
*	1	52.4	5744	8.09	6.75	6.06	5.01	4.17	3.02	1.77
*	1	52.7	5772	8.13	6.80	6.09	5.04	4.19	3.04	1.78
*	2	78.2	8565	11.94	10.07	8.93	7.45	6.20	4.46	2.57
*	2	78.4	8593	11.99	10.07	9.03	7.47	6.22	4.46	2.57
*	2	78.6	8608	12.01	10.09	9.02	7.48	6.22	4.47	2.57
*	2	78.6	8616	12.02	10.11	9.05	7.50	6.24	4.48	2.57
*	3	105.4	11552	16.16	13.62	12.13	10.08	8.39	6.00	3.44
*	3	105.8	11596	16.20	13.68	12.18	10.13	8.43	6.03	3.46
*	3	105.8	11592	16.22	13.69	12.19	10.14	8.44	6.03	3.47
*	3	105.9	11604	16.20	13.68	12.19	10.13	8.43	6.03	3.48
*	4	140.8	15429	21.56	18.22	16.23	13.48	11.19	7.95	4.52
*	4	141.4	15497	21.55	18.20	16.25	13.51	11.21	7.96	4.54
*	4	141.2	15469	21.56	18.24	16.25	13.50	11.23	7.99	4.56
*	4	141.0	15449	21.52	18.20	16.24	13.48	11.21	7.97	4.54

Stn: 505 Lane:F3 Temp: J/C: Air: 61 PvT: 55 11:23

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.9	11600	16.63	14.06	12.53	10.35	8.65	6.09	3.40
	C	106.0	11612	16.19	13.70	12.26	10.14	8.50	6.04	3.41
	C	105.9	11604	16.11	13.67	12.21	10.14	8.48	6.04	3.43
*	1	52.3	5732	7.98	6.74	6.09	5.02	4.22	3.03	1.75
*	1	52.5	5748	7.97	6.73	6.09	5.00	4.21	3.02	1.75
*	1	52.4	5740	7.98	6.76	6.10	5.02	4.23	3.04	1.76
*	1	52.5	5748	7.97	6.72	6.13	5.00	4.23	3.03	1.76
*	2	78.4	8585	11.78	9.96	9.03	7.40	6.26	4.45	2.53
*	2	78.7	8620	11.85	10.05	9.06	7.47	6.29	4.48	2.56
*	2	78.7	8624	11.88	10.07	9.07	7.48	6.31	4.49	2.56
*	2	78.8	8636	11.87	10.07	9.08	7.49	6.31	4.49	2.56
*	3	105.5	11564	15.94	13.54	12.14	10.06	8.45	6.01	3.41
*	3	106.0	11616	16.01	13.61	12.21	10.12	8.50	6.04	3.44
*	3	106.0	11616	16.01	13.63	12.20	10.13	8.49	6.04	3.44
*	3	106.1	11620	16.02	13.64	12.21	10.15	8.50	6.05	3.44
*	4	141.2	15473	21.32	18.15	16.25	13.47	11.28	7.96	4.45
*	4	141.4	15493	21.28	18.13	16.22	13.48	11.28	7.98	4.46
*	4	141.3	15485	21.28	18.13	16.25	13.48	11.30	7.99	4.48
*	4	141.4	15493	21.26	18.13	16.24	13.48	11.30	8.00	4.47

Stn: 510 Lane:F3 Temp: J/C: Air: 61 PvT: 54 11:26

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.5	11560	16.78	14.17	12.54	10.36	8.59	6.06	3.43
	C	105.7	11580	16.35	13.81	12.29	10.17	8.48	6.02	3.42
	C	105.6	11572	16.26	13.76	12.25	10.16	8.48	6.01	3.42
*	1	52.4	5744	8.12	6.83	6.15	5.05	4.24	3.03	1.76
*	1	52.5	5752	8.06	6.79	6.09	5.02	4.19	3.01	1.73
*	1	52.8	5780	8.10	6.83	6.15	5.04	4.22	3.03	1.75
*	1	52.5	5748	8.05	6.77	6.12	5.02	4.21	3.02	1.74
*	2	77.9	8537	11.88	10.08	9.00	7.45	6.24	4.44	2.56
*	2	78.6	8608	11.99	10.14	9.11	7.50	6.29	4.47	2.56
*	2	78.5	8601	11.99	10.15	9.11	7.50	6.30	4.48	2.56
*	2	78.6	8608	11.98	10.17	9.09	7.52	6.30	4.48	2.57
*	3	105.2	11524	16.07	13.62	12.18	10.07	8.42	5.98	3.40
*	3	105.9	11604	16.18	13.72	12.28	10.14	8.49	6.02	3.41
*	3	105.5	11560	16.15	13.72	12.22	10.15	8.46	6.01	3.41
*	3	105.8	11592	16.17	13.74	12.25	10.17	8.48	6.03	3.42
*	4	140.8	15421	21.47	18.26	16.26	13.49	11.22	7.92	4.43
*	4	141.3	15485	21.50	18.28	16.29	13.51	11.26	7.95	4.46
*	4	141.5	15501	21.51	18.30	16.32	13.56	11.29	7.96	4.46
*	4	141.3	15477	21.46	18.27	16.28	13.52	11.27	7.95	4.47

Stn: 515 Lane:F3 Temp: J/C: Air: 61 PvT: 54 11:28

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.7	11580	17.05	14.10	12.51	10.27	8.53	5.98	3.35
	C	105.9	11600	16.64	13.80	12.25	10.11	8.42	5.94	3.36
	C	106.4	11655	16.57	13.81	12.26	10.15	8.45	5.97	3.37
*	1	52.1	5709	8.15	6.76	6.04	4.98	4.15	2.97	1.71
*	1	52.4	5740	8.18	6.80	6.06	5.01	4.19	2.98	1.73
*	1	52.5	5752	8.20	6.80	6.08	5.01	4.17	2.98	1.72
*	1	52.5	5748	8.20	6.81	6.06	5.00	4.18	2.98	1.72
*	2	78.3	8577	12.05	10.07	8.95	7.42	6.20	4.39	2.50
*	2	78.6	8616	12.14	10.14	9.03	7.47	6.23	4.41	2.50

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
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*	2	78.7	8620	12.09	10.11	9.01	7.45	6.21	4.41	2.49
*	2	78.8	8632	12.08	10.13	9.00	7.46	6.22	4.41	2.50
*	3	105.5	11560	16.29	13.66	12.17	10.06	8.39	5.93	3.36
*	3	106.1	11624	16.37	13.74	12.23	10.11	8.43	5.96	3.35
*	3	106.0	11612	16.37	13.75	12.23	10.14	8.44	5.97	3.37
*	3	105.8	11592	16.31	13.74	12.20	10.12	8.43	5.96	3.36
*	4	141.2	15469	21.68	18.22	16.20	13.44	11.17	7.83	4.37
*	4	141.8	15533	21.74	18.30	16.28	13.48	11.24	7.88	4.39
*	4	141.8	15537	21.71	18.27	16.26	13.47	11.22	7.89	4.39
*	4	142.1	15568	21.69	18.27	16.28	13.47	11.22	7.89	4.39

Stn: 520 Lane:F3 Temp: J/C: Air: 61 PvT: 54 11:31

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.2	11524	16.81	14.06	12.47	10.17	8.44	5.88	3.30
	C	105.0	11508	16.37	13.71	12.18	9.98	8.30	5.83	3.28
	C	105.3	11536	16.25	13.62	12.10	9.91	8.23	5.75	3.18
*	1	51.8	5673	8.06	6.72	6.04	4.91	4.11	2.91	1.63
*	1	52.7	5776	8.15	6.84	6.09	4.99	4.16	2.94	1.70
*	1	52.8	5788	8.13	6.83	6.09	4.99	4.15	2.95	1.70
*	1	51.7	5669	8.04	6.73	6.02	4.93	4.12	2.93	1.65
*	2	77.6	8505	11.90	9.98	8.93	7.29	6.09	4.29	2.41
*	2	78.4	8585	12.02	10.10	9.05	7.40	6.18	4.35	2.44
*	2	78.2	8573	12.00	10.08	9.02	7.37	6.16	4.34	2.44
*	2	78.1	8557	11.96	10.06	9.00	7.36	6.15	4.33	2.45
*	3	104.9	11497	16.17	13.60	12.14	9.96	8.30	5.83	3.27
*	3	105.5	11564	16.22	13.67	12.19	10.00	8.33	5.85	3.30
*	3	105.2	11528	16.18	13.65	12.16	9.98	8.32	5.85	3.30
*	3	105.3	11532	16.19	13.67	12.18	10.00	8.33	5.85	3.28
*	4	140.5	15390	21.56	18.22	16.21	13.30	11.06	7.72	4.29
*	4	141.2	15465	21.59	18.28	16.23	13.36	11.11	7.77	4.34
*	4	141.3	15477	21.61	18.30	16.27	13.38	11.13	7.79	4.33
*	4	141.4	15493	21.62	18.31	16.28	13.39	11.16	7.80	4.35

Stn: 525 Lane:F3 Temp: J/C: Air: 61 PvT: 54 11:33

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.3	11532	16.86	13.97	12.37	10.07	8.28	5.79	3.23
	C	105.4	11544	16.47	13.65	12.12	9.91	8.18	5.76	3.24
	C	105.4	11544	16.40	13.62	12.10	9.90	8.19	5.77	3.24
*	1	52.4	5740	8.13	6.71	6.04	4.89	4.05	2.92	1.66
*	1	52.0	5697	8.09	6.67	6.00	4.86	4.02	2.91	1.64
*	1	52.6	5768	8.17	6.74	6.08	4.89	4.06	2.94	1.66
*	1	52.7	5772	8.15	6.73	6.05	4.90	4.05	2.94	1.66
*	2	77.9	8533	11.97	9.93	8.89	7.23	5.99	4.27	2.40
*	2	78.2	8573	12.00	9.98	8.92	7.26	6.02	4.29	2.41
*	2	78.4	8585	12.02	10.01	8.95	7.30	6.04	4.30	2.41
*	2	78.6	8616	12.09	10.07	8.96	7.35	6.09	4.29	2.44
*	3	105.0	11508	16.16	13.48	12.02	9.82	8.13	5.74	3.22
*	3	105.5	11564	16.27	13.58	12.08	9.90	8.19	5.77	3.25
*	3	105.8	11592	16.28	13.59	12.09	9.91	8.20	5.78	3.26
*	3	105.3	11540	16.21	13.54	12.04	9.88	8.18	5.75	3.24
*	4	140.8	15425	21.67	18.12	16.08	13.19	10.90	7.60	4.24
*	4	141.2	15473	21.68	18.13	16.09	13.22	10.93	7.62	4.27
*	4	140.7	15417	21.58	18.06	16.04	13.17	10.92	7.61	4.25
*	4	140.9	15433	21.63	18.11	16.08	13.21	10.94	7.62	4.26

Stn: 530 Lane:F3 Temp: J/C: Air: 61 PvT: 54 11:36

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.4	11552	16.54	13.96	12.30	10.07	8.24	5.70	3.24
	C	105.4	11548	16.13	13.62	12.05	9.89	8.12	5.66	3.20
	C	105.6	11572	16.09	13.60	12.05	9.89	8.14	5.68	3.23
*	1	52.0	5697	7.91	6.65	5.91	4.85	4.00	2.81	1.65
*	1	52.2	5716	7.92	6.67	5.93	4.87	4.02	2.83	1.63
*	1	52.1	5709	7.93	6.68	5.93	4.87	4.01	2.83	1.64
*	1	52.3	5728	7.96	6.72	5.96	4.89	4.04	2.85	1.67
*	2	77.7	8513	11.72	9.92	8.80	7.24	5.97	4.18	2.39
*	2	78.4	8593	11.86	10.06	8.91	7.33	6.03	4.23	2.39
*	2	78.4	8585	11.83	10.00	8.90	7.30	6.02	4.21	2.39
*	2	78.4	8585	11.83	10.02	8.88	7.31	6.02	4.22	2.41
*	3	105.2	11528	15.91	13.50	11.97	9.83	8.10	5.65	3.19
*	3	105.8	11588	16.00	13.57	12.04	9.89	8.15	5.69	3.22
*	3	105.6	11568	15.96	13.54	12.00	9.85	8.11	5.64	3.19

File: C:\FWD\DATA\460804C3.FWD
Road: SD-1804, EB LANES, MP 400, 5.5 MILES NW OF POLLACK,SD
Subsection: 460804

*	3	106.0	11616	16.02	13.62	12.07	9.93	8.17	5.70	3.22
*	4	140.4	15386	21.25	18.06	16.00	13.13	10.80	7.48	4.19
*	4	141.4	15489	21.37	18.16	16.11	13.25	10.89	7.56	4.23
*	4	140.9	15437	21.32	18.13	16.07	13.21	10.89	7.55	4.23
*	4	140.9	15433	21.28	18.09	16.05	13.17	10.84	7.53	4.21

Stn: 535 Lane:F3 Temp: J/C: Air: 61 PvT: 55 11:38

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	105.4	11544	16.46	13.81	12.13	9.91	8.07	5.59	3.16
	C	105.6	11572	16.05	13.47	11.88	9.71	7.97	5.57	3.17
	C	105.3	11540	15.93	13.40	11.81	9.69	7.96	5.56	3.16
*	1	51.8	5677	7.83	6.54	5.81	4.73	3.91	2.78	1.59
*	1	53.8	5899	8.09	6.78	6.04	4.90	4.07	2.91	1.65
*	1	52.4	5740	7.84	6.57	5.86	4.75	3.95	2.83	1.59
*	1	53.7	5883	8.07	6.78	6.03	4.91	4.07	2.89	1.65
*	2	77.8	8525	11.61	9.78	8.65	7.08	5.82	4.09	2.34
*	2	79.5	8716	11.91	10.07	8.87	7.29	5.98	4.20	2.41
*	2	78.2	8569	11.69	9.85	8.72	7.13	5.89	4.15	2.37
*	2	79.4	8700	11.87	10.04	8.85	7.28	5.97	4.19	2.42
*	3	106.0	11616	15.90	13.44	11.87	9.73	8.00	5.60	3.17
*	3	106.5	11667	15.98	13.49	11.95	9.76	8.05	5.64	3.19
*	3	106.5	11667	15.97	13.50	11.92	9.78	8.03	5.62	3.19
*	3	106.1	11628	15.93	13.46	11.93	9.75	8.04	5.63	3.17
*	4	142.0	15556	21.31	18.00	15.93	13.00	10.69	7.43	4.13
*	4	142.1	15568	21.28	17.98	15.94	13.00	10.71	7.45	4.15
*	4	142.2	15584	21.29	18.01	15.94	13.06	10.72	7.46	4.17
*	4	142.1	15568	21.28	18.02	15.91	13.04	10.70	7.45	4.17

Stn: 540 Lane:F3 Temp: J/C: Air: 61 PvT: 54 11:41

Sto	Hgt	psi	lbf	Df1	Df2	Df3	Df4	Df5	Df6	Df7
	C	106.2	11640	16.39	13.63	12.03	9.72	7.97	5.53	3.06
	C	106.2	11636	15.94	13.29	11.74	9.54	7.87	5.51	3.11
	C	106.6	11675	15.92	13.33	11.74	9.59	7.92	5.54	3.13
*	1	53.0	5804	7.89	6.56	5.87	4.71	3.91	2.77	1.55
*	1	53.6	5871	7.94	6.62	5.91	4.75	3.94	2.80	1.57
*	1	53.2	5824	7.85	6.57	5.81	4.73	3.91	2.77	1.57
*	1	54.1	5927	7.95	6.68	5.89	4.82	3.99	2.85	1.65
*	2	78.0	8549	11.44	9.58	8.48	6.91	5.73	4.03	2.32
*	2	79.5	8716	11.74	9.84	8.69	7.09	5.87	4.12	2.35
*	2	79.3	8692	11.72	9.83	8.68	7.09	5.87	4.12	2.35
*	2	79.4	8696	11.72	9.84	8.69	7.11	5.87	4.13	2.37
*	3	105.9	11600	15.67	13.14	11.62	9.47	7.83	5.48	3.11
*	3	106.2	11632	15.72	13.18	11.69	9.49	7.85	5.50	3.11
*	3	106.0	11616	15.69	13.17	11.68	9.49	7.85	5.50	3.11
*	3	105.9	11608	15.66	13.17	11.64	9.49	7.84	5.49	3.12
*	4	140.4	15386	20.87	17.54	15.48	12.63	10.40	7.21	4.06
*	4	141.7	15529	20.95	17.62	15.55	12.69	10.46	7.28	4.09
*	4	141.6	15509	20.94	17.61	15.56	12.72	10.47	7.28	4.10
*	4	141.7	15525	20.96	17.62	15.59	12.70	10.48	7.28	4.09

Mileage:-.008 -> .102

Summary of Data for section 460804C
Analyzed by: ROBERT VAN SAMBEEK on 06-23-1994

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	1.4313	1.2022	1.0771	0.8798	0.7316	0.5208	0.3025
	2	1.4191	1.2009	1.0705	0.8797	0.7307	0.5172	0.2991
	3	1.4234	1.2069	1.0726	0.8835	0.7322	0.5161	0.2963
	4	1.4208	1.2063	1.0717	0.8827	0.7306	0.5115	0.2900

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	0.0855	0.0703	0.0571	0.0428	0.0320	0.0200	0.0125
	2	0.0859	0.0715	0.0588	0.0438	0.0334	0.0210	0.0127
	3	0.0878	0.0728	0.0597	0.0446	0.0338	0.0210	0.0123
	4	0.0915	0.0754	0.0624	0.0462	0.0350	0.0214	0.0122

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	5.97%	5.85%	5.30%	4.87%	4.37%	3.84%	4.13%
	2	6.05%	5.95%	5.50%	4.98%	4.57%	4.05%	4.23%
	3	6.17%	6.03%	5.56%	5.05%	4.62%	4.07%	4.15%
	4	6.44%	6.25%	5.82%	5.23%	4.79%	4.18%	4.21%

Flexible Pavement Deflection Statistics - 460804C
Subsection 1
Subsection begins at station 0
Subsection ends at station 260

Mean Values (mils/kip)

Test Loc.	Drop Ht	CORRECTED Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	1.4931	1.2237	1.0957	0.8945	0.7424	0.5266	0.3028
	2	1.4809	1.2238	1.0911	0.8959	0.7434	0.5249	0.3012
	3	1.4857	1.2303	1.0934	0.9005	0.7457	0.5239	0.2989
	4	1.4850	1.2309	1.0945	0.9008	0.7452	0.5202	0.2928

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	0.0629	0.0503	0.0435	0.0359	0.0275	0.0187	0.0091
	2	0.0610	0.0500	0.0430	0.0362	0.0282	0.0185	0.0080
	3	0.0632	0.0499	0.0446	0.0353	0.0280	0.0183	0.0071
	4	0.0668	0.0527	0.0460	0.0366	0.0286	0.0181	0.0077

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	4.21%	4.11%	3.97%	4.01%	3.70%	3.55%	3.02%
	2	4.12%	4.09%	3.94%	4.04%	3.79%	3.53%	2.67%
	3	4.25%	4.05%	4.08%	3.92%	3.75%	3.49%	2.39%
	4	4.50%	4.28%	4.20%	4.06%	3.83%	3.48%	2.62%

Flexible Pavement Deflection Statistics - 460804C
Subsection 2
Subsection begins at station 260
Subsection ends at station 500

Mean Values (mils/kip)

Test Loc.	Drop Ht	CORRECTED Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	1.4445	1.1931	1.0692	0.8736	0.7271	0.5184	0.3024
	2	1.4320	1.1912	1.0618	0.8728	0.7252	0.5140	0.2983
	3	1.4362	1.1970	1.0639	0.8763	0.7265	0.5128	0.2952
	4	1.4327	1.1958	1.0621	0.8751	0.7245	0.5078	0.2889

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	0.0962	0.0762	0.0610	0.0446	0.0331	0.0204	0.0138
	2	0.0972	0.0777	0.0631	0.0456	0.0345	0.0214	0.0142
	3	0.0993	0.0793	0.0637	0.0468	0.0350	0.0215	0.0139
	4	0.1031	0.0819	0.0665	0.0483	0.0361	0.0219	0.0136

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
3	1	6.66%	6.39%	5.70%	5.10%	4.56%	3.93%	4.58%
	2	6.79%	6.52%	5.94%	5.22%	4.75%	4.17%	4.77%
	3	6.91%	6.62%	5.99%	5.34%	4.81%	4.19%	4.71%
	4	7.19%	6.85%	6.26%	5.52%	4.99%	4.31%	4.72%

Outlier Statistics - 460804C

Subsection 1

Station	Height	Sensor	Number of Std. Dev.
50	1	1	-2.06
50	1	2	-2.16
50	1	3	-2.15
50	1	4	-2.09
50	1	5	-2.17
50	2	1	-2.08
50	2	2	-2.13
50	2	3	-2.13
50	2	4	-2.08
50	2	5	-2.13
50	3	1	-2.04
50	3	2	-2.11
50	3	3	-2.15
50	3	4	-2.13
50	3	5	-2.19
50	4	2	-2.07
50	4	3	-2.12
50	4	4	-2.12
50	4	5	-2.20
50	4	6	-2.06

Subsection 2

Station	Height	Sensor	Number of Std. Dev.
100	1	3	-2.02
175	1	5	2.01
175	2	5	2.05
175	3	1	2.00
175	3	2	2.01
175	3	3	2.02
175	3	4	2.04
175	3	5	2.11
175	4	1	2.04
175	4	2	2.05
175	4	3	2.08
175	4	4	2.11
175	4	5	2.18
200	1	1	2.22
200	1	2	2.35
200	1	3	2.14
200	1	4	2.18
200	2	1	2.28
200	2	2	2.39
200	2	3	2.26
200	2	4	2.21
200	2	5	2.07

Outlier Statistics - 460804C

Station	Height	Sensor	Number of Std. Dev.
200	3	1	2.36
200	3	2	2.48
200	3	3	2.34
200	3	4	2.35
200	3	5	2.19
200	3	6	2.03
200	3	7	2.03
200	4	1	2.44
200	4	2	2.50
200	4	3	2.44
200	4	4	2.40
200	4	5	2.29
200	4	6	2.13
200	4	7	2.08
225	1	1	2.55
225	1	2	2.46
225	1	3	2.33
225	1	4	2.27
225	2	1	2.58
225	2	2	2.43
225	2	3	2.34
225	2	4	2.27
225	2	5	2.00
225	3	1	2.53
225	3	2	2.35
225	3	3	2.32
225	3	4	2.19
225	4	1	2.51
225	4	2	2.34
225	4	3	2.29
225	4	4	2.18
540	1	7	-2.30

Pavement Construction Information - 460804C

Material Code	Material Name	Layer Thickness
700	Asphaltic Concrete	7.0
303	Crushed Stone	12.0

Depth to rigid foundation: 100.0 ft.

FLEXIBLE Pavement Thickness Data - 460804C
(comparison of each calculation to the expected value)

Minimum expected SN value: 3.77
Maximum expected SN value: 5.67

Height	Station	Effective SN

No predicted SN values fall outside the expected range...

FLEXIBLE Pavement Thickness Statistics - 460804C

Drop height 1

Subsection	Station	Subgrade Modulus	Effective SN
No test pit data found, therefore no results exist...			
1	-40	13731	4.75
	-35	13930	4.75
	-30	13642	4.70
	-25	13639	4.65
	-20	12958	4.65
	-15	13398	4.60
	-10	13906	4.60
	-5	14243	4.60
	0	14044	4.50
	25	15068	4.65
	50	15091	4.80
2	75	15325	4.85
	100	15126	5.05
	125	14770	4.90
	150	14134	4.75
	175	12669	4.55
	200	13036	4.45
	225	13000	4.40
	250	13894	4.55
	275	13737	4.70
	300	14259	4.75
	325	14108	4.70
	350	13775	4.75
	375	14189	4.85
	400	13906	4.75
	425	14294	4.80
	450	14167	4.65
	475	14225	4.80
	500	14024	4.75
	505	14214	4.80
	510	14318	4.75
	515	14457	4.70
	520	14452	4.75
	525	14794	4.70
	530	15039	4.75
	535	15315	4.75
	540	15773	4.75
Subsection 1 Overall Mean:		13968	4.66
Standard Deviation:		646	0.09
Coeff Of Variation:		4.62%	1.85%
Subsection 2 Overall Mean:		14269	4.73
Standard Deviation:		722	0.13
Coeff Of Variation:		5.06%	2.81%

FLEXIBLE Pavement Thickness Statistics - 460804C

Drop height 2

Subsection	Station	Subgrade Modulus	Effective SN
No test pit data found, therefore no results exist...			
1	-40	13824	4.80
	-35	13643	4.80
	-30	13689	4.75
	-25	13454	4.70
	-20	12885	4.65
	-15	13374	4.65
	-10	13868	4.65
	-5	14187	4.60
	0	14069	4.50
	25	15077	4.65
	50	15106	4.85
2	75	15194	4.90
	100	15291	5.05
	125	15174	4.90
	150	14142	4.80
	175	12642	4.55
	200	12882	4.50
	225	12911	4.45
	250	13931	4.60
	275	14081	4.75
	300	14315	4.80
	325	13957	4.75
	350	13869	4.80
	375	14278	4.85
	400	13965	4.75
	425	14552	4.80
	450	14279	4.70
	475	14456	4.80
	500	14480	4.75
	505	14250	4.85
	510	14277	4.80
	515	14418	4.75
	520	14431	4.75
	525	14854	4.70
	530	14982	4.75
	535	15499	4.75
	540	15822	4.75
Subsection 1 Overall Mean:		13925	4.69
Standard Deviation:		676	0.10
Coeff Of Variation:		4.85%	2.17%
Subsection 2 Overall Mean:		14344	4.75
Standard Deviation:		761	0.12
Coeff Of Variation:		5.31%	2.63%

FLEXIBLE Pavement Thickness Statistics - 460804C

Drop height 3

Subsection	Station	Subgrade Modulus	Effective SN
No test pit data found, therefore no results exist...			
1	-40	13762	4.80
	-35	13643	4.80
	-30	13617	4.75
	-25	13384	4.70
	-20	12775	4.65
	-15	13229	4.65
	-10	13639	4.65
	-5	13972	4.60
	0	13816	4.50
	25	15013	4.65
	50	15106	4.85
2	75	15492	4.85
	100	15501	5.05
	125	15267	4.90
	150	14266	4.75
	175	12473	4.55
	200	12679	4.45
	225	12843	4.45
	250	13983	4.55
	275	14211	4.70
	300	14606	4.75
	325	14206	4.70
	350	14203	4.75
	375	14505	4.85
	400	13824	4.75
	425	14490	4.80
	450	14209	4.70
	475	14364	4.80
	500	14428	4.75
	505	14204	4.85
	510	14173	4.80
	515	14247	4.75
	520	14335	4.75
	525	14723	4.75
	530	14879	4.75
	535	15240	4.75
	540	15660	4.75
Subsection 1 Overall Mean:		13814	4.69
Standard Deviation:		696	0.10
Coeff Of Variation:		5.04%	2.17%
Subsection 2 Overall Mean:		14347	4.74
Standard Deviation:		792	0.13
Coeff Of Variation:		5.52%	2.72%

FLEXIBLE Pavement Thickness Statistics - 460804C

Drop height 4

Subsection	Station	Subgrade Modulus	Effective SN
No test pit data found, therefore no results exist...			
1	-40	13762	4.80
	-35	13590	4.80
	-30	13563	4.75
	-25	13293	4.70
	-20	12690	4.65
	-15	13115	4.65
	-10	13404	4.65
	-5	13770	4.60
	0	13602	4.55
	25	14865	4.65
	50	15485	4.80
2	75	15709	4.85
	100	15874	5.00
	125	15598	4.90
	150	14152	4.80
	175	12260	4.55
	200	12450	4.45
	225	12740	4.45
	250	13951	4.55
	275	14422	4.70
	300	14816	4.75
	325	14319	4.75
	350	14461	4.75
	375	14809	4.85
	400	13766	4.75
	425	14391	4.80
	450	14163	4.70
	475	14490	4.80
	500	14382	4.80
	505	14093	4.85
	510	14146	4.80
	515	14229	4.80
	520	14303	4.80
	525	14640	4.75
	530	14760	4.75
	535	15148	4.75
	540	15579	4.75
Subsection 1 Overall Mean:		13740	4.69
Standard Deviation:		787	0.09
Coeff Of Variation:		5.73%	1.84%
Subsection 2 Overall Mean:		14371	4.75
Standard Deviation:		891	0.13
Coeff Of Variation:		6.20%	2.65%

POST CONSTRUCTION DEFLECTION TESTING
NO DISTRESS
SUBSECTION BASED ON AMOUNT OF VARIABILITY

Summary of Results

Section uniformity:
  Subsections were identified within the section.
    Subsection 1 boundaries occur at 0 ft. and 260 ft.
    Subsection 2 boundaries occur at 260 ft. and 500 ft.

  Comparing subsections:
    Subsections 1 and 2: UNEQUAL means and EQUAL variances.

Outliers - Test pits: 28 combinations at each test pit
  NO Test pit data was present.

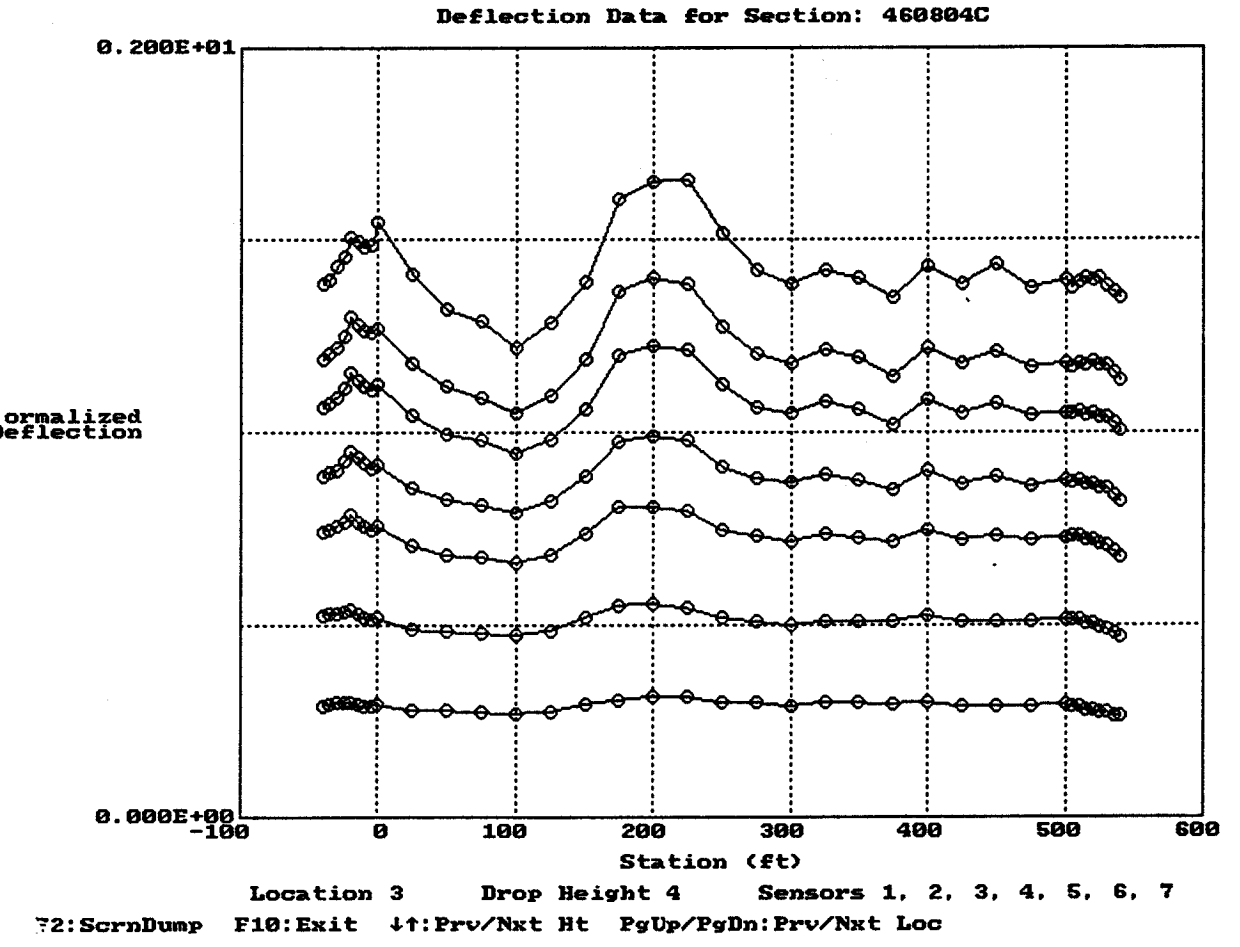
Outliers - Section data: %1036 total combinations within the section
   20 height/sensor/station combinations are data outliers in subsection 1.
   54 height/sensor/station combinations are data outliers in subsection 2.

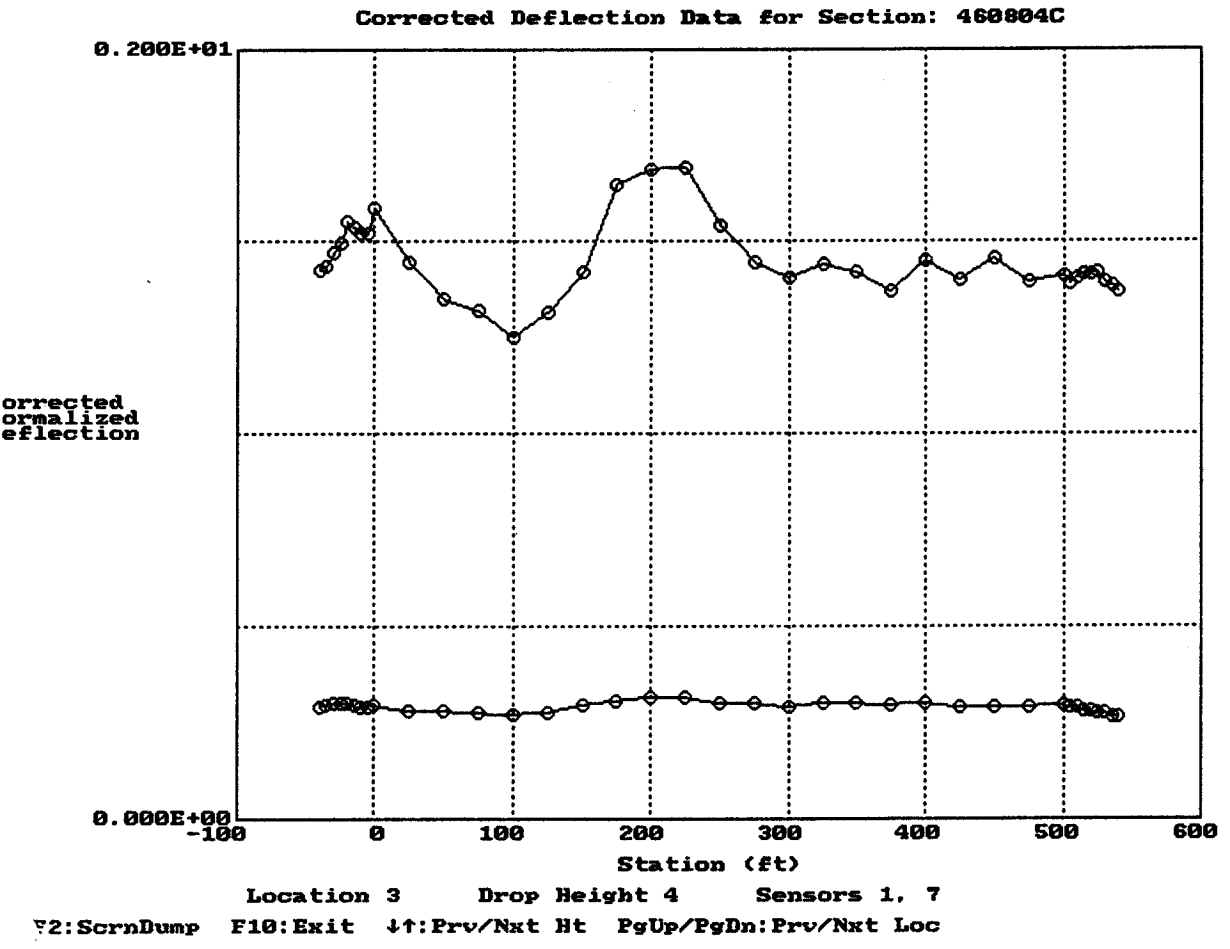
Structural capacity - Test pits: 4 combinations at each test pit
  All results for TP 1 are within the range of expected values.
  All results for TP 2 are within the range of expected values.

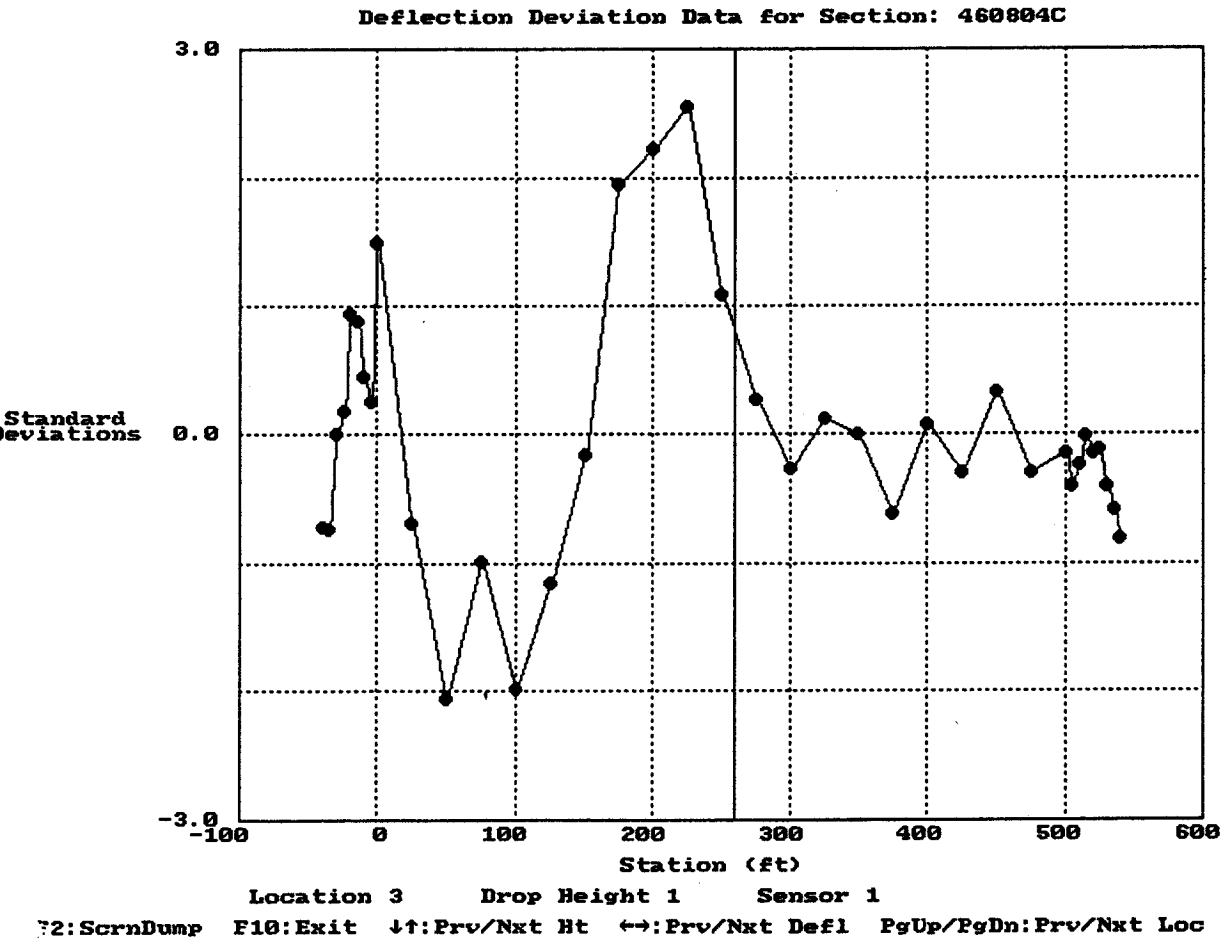
Structural capacity - Section data: 148 total combinations within the section
  All results are within the range of expected values.

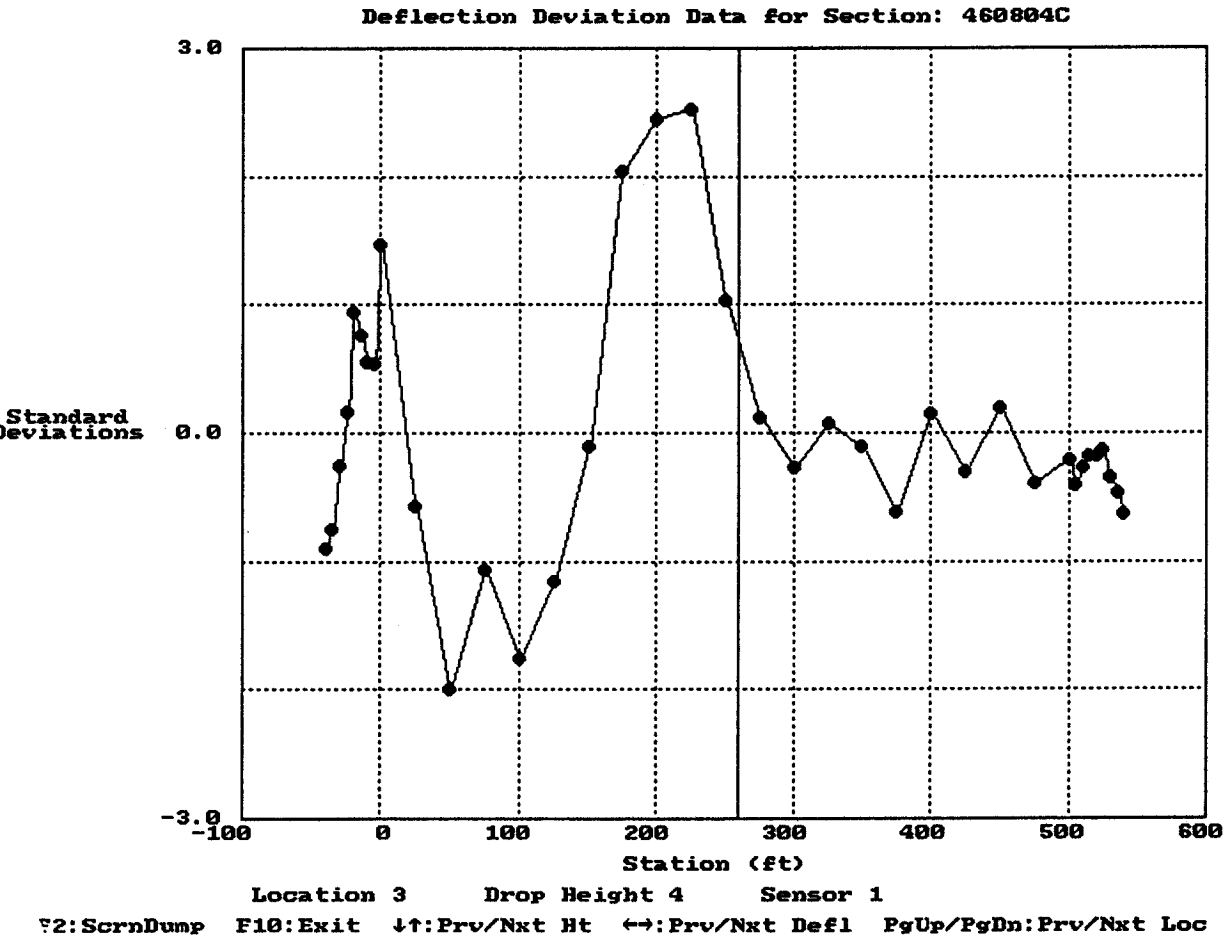
ubgrade response:
  148 height/station combinations exhibit linear response.

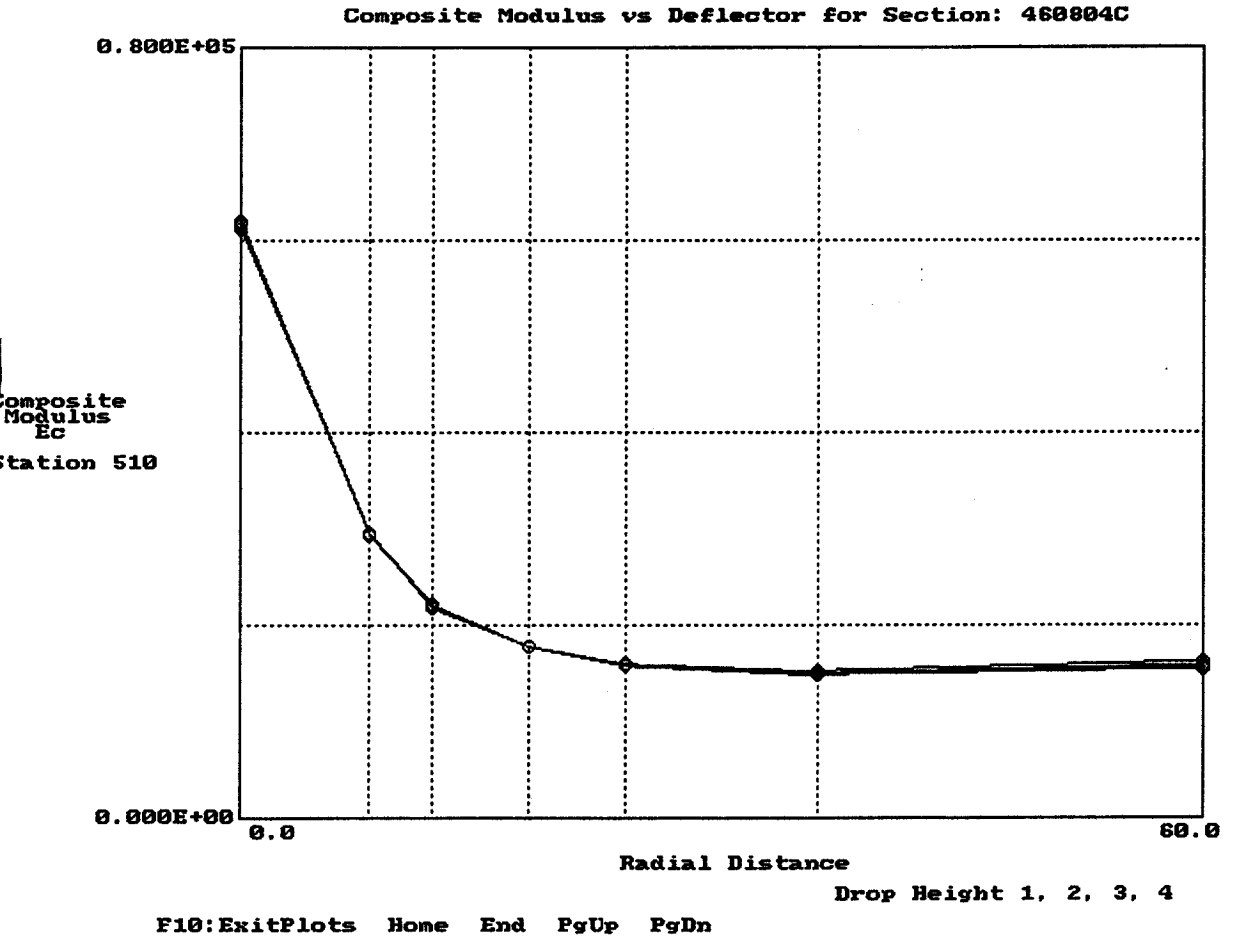
USE LAST 200

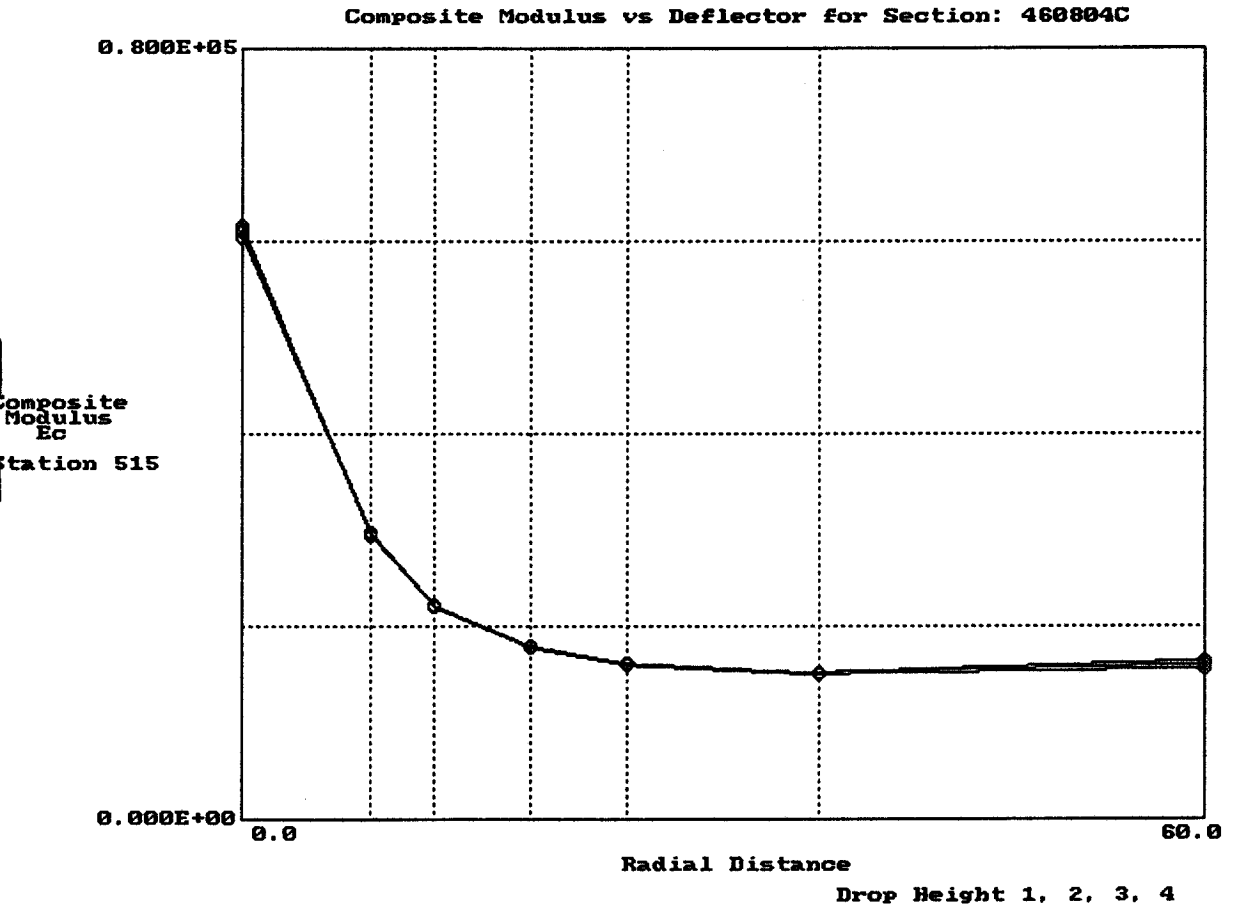

Deflection Data for Section: 460804C
0.200E+01
ormalized
eflection
0.000E+00
-100
0
100
200
300
400
500
600
Station (ft)
Location 3 Drop Height 4 Sensors 1, 2, 3, 4, 5, 6, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc

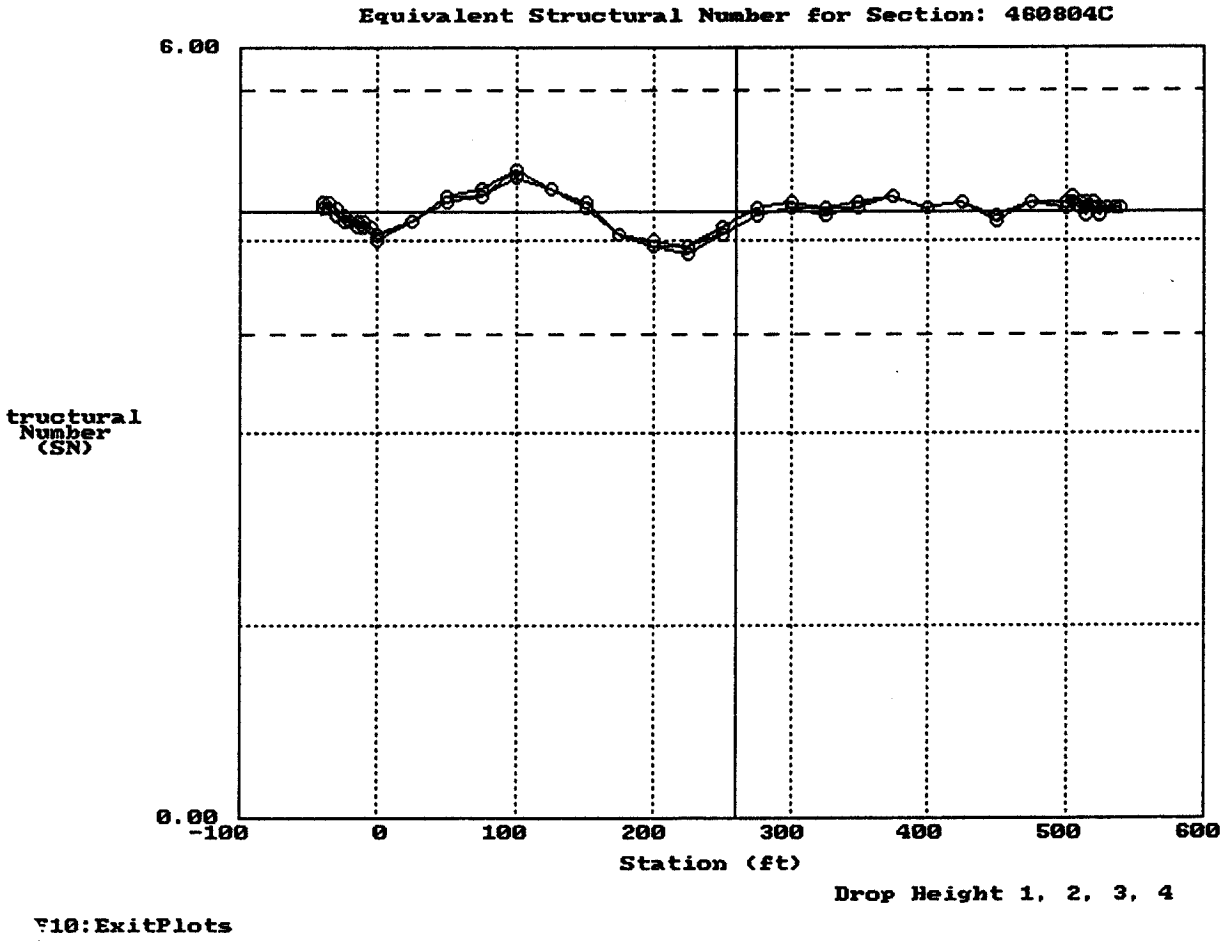

Corrected Deflection Data for Section: 460804C
0.200E+01
orrected
ormalized
eflection
0.000E+00
-100
0
100
200
300
400
500
600
Station (ft)
Location 3 Drop Height 4 Sensors 1, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc


Deflection Deviation Data for Section: 460804C
3.0
0.0
-3.0
Standard Deviations
-100
0
100
200
300
400
500
600
Station (ft)
Location 3 Drop Height 1 Sensor 1
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht ↔:Prv/Nxt Defl PgUp/PgDn:Prv/Nxt Loc

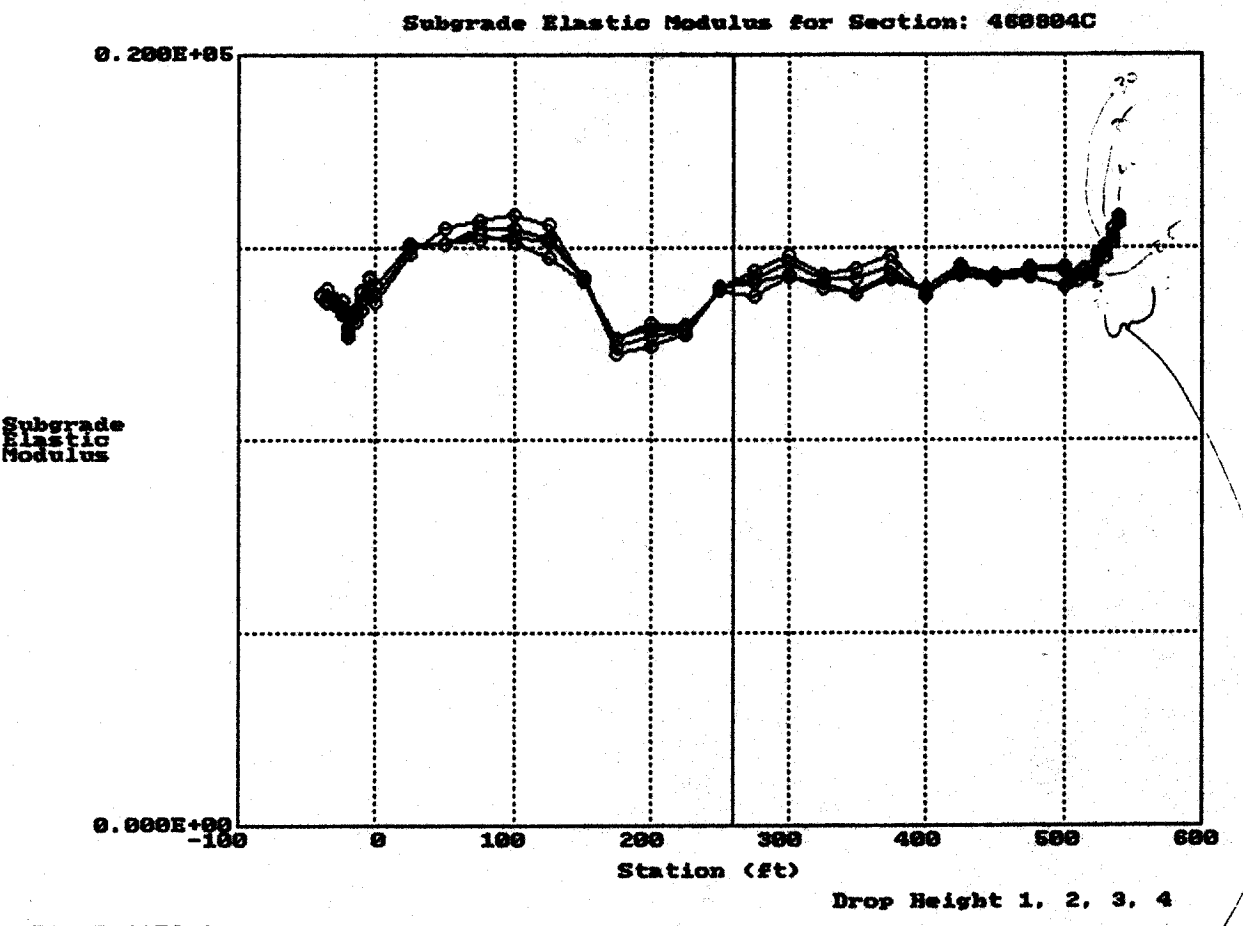

Deflection Deviation Data for Section: 460804C
3.0
0.0
-3.0
Standard Deviations
-100
0
100
200
300
400
500
600
Station (ft)
Location 3 Drop Height 4 Sensor 1
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht ↔:Prv/Nxt Defl PgUp/PgDn:Prv/Nxt Loc


Composite Modulus vs Deflector for Section: 460804C
0.800E+05
Composite Modulus Ec
Station 510
0.000E+00
0.0
60.0
Radial Distance
Drop Height 1, 2, 3, 4
F10:ExitPlots Home End PgUp PgDn

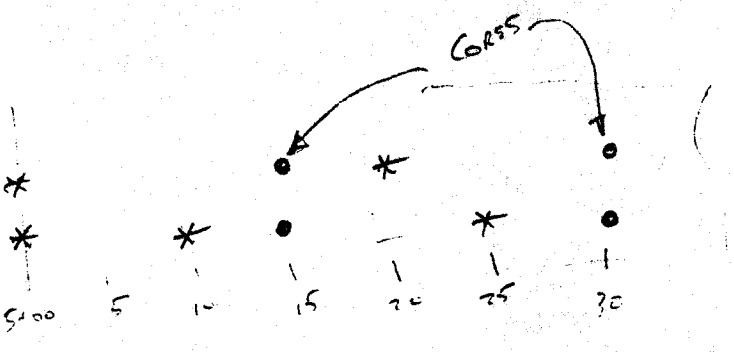

Composite Modulus vs Deflector for Section: 460804C
0.800E+05
0.000E+00
0.0
60.0
Radial Distance
Drop Height 1, 2, 3, 4
F10:ExitPlots Home End PgUp PgDn



- LAST 200 FEET MORE UNIFORM



INTO TRANSITION?



* FWD

Appendix B-1: Pre-Installation Site Recruitment and Coordination Information

Appendix B-1 contains the following pre-installation site recruitment and coordination information:

- SMP site recruitment notes;
- Site visit field notes; and
- Pre-installation meeting agenda, list of participants, and notes.

460804

BRAUN INTERTEC

Description: SD – SM (1/2)

Project No: FHWA – LTPP SM

Date: 3/17/93 By: RV

DAVE HUFT @ 605 – 773 – 3358

possible sections will check w/ district

- GPS – 469187 by Faith (was in Pilot)
- GPS – 466000 by Yankton (SPS-4 project)

Most likely will not be needed (use sections in ND + MANITOBA)

Not looking for sections in this area at this time

- GPS – 463009 by Watertown – older w/ faulting
- GPS – 463010 by Sisseton –
- GPS – 463052 by Dosmet – one lane

will check w/ district

- SPS – 8 { 460801, 460802 } – look @ using both sections!

Will use 469187? for Traffic Control?

– Some concern w/ retrieval @ depth < 20'

State willing to include 466000 by YANKTON

– would allow increased monitoring of SPS-4?

At this time FHWA not wanting to use SPS; however, AC < 5" is a problem. May want to use SPS-8 by Pilot! Could end up using both these sections on SPS-8!

? State willing to provide traffic control?

BRAUN SM
INTERTEC

Description: SD - 5M (2/2)

Project No: Hurst - LTPP SM

Date: 3/93 By: RV

3/24/93 - Call Dave - out; not called back - Dave will call on 3/25

3/26/93 - Called Dave Hurst

- Working on first step process
  - I. Start with all {GPS 1, 2, 3 & 4} {SPS, 1, 2 & 8}
  - II. Eliminate sections that have potential problems based on - condition, age, - retrofit, traffic, etc.
  - III. Of sections remaining Agency eliminate -
    - Agency consider any problems
      - construction
      - rehab. plans
      - traffic control
      - etc.
    - Agency not participate
  - IV. Make selections from remaining sections
    - Submit sections to RSC/CRW for selection of two groups of 8 sections.

- Dave indicated Friday mtg. w/ techs group
  - will discuss using SPS-8 and SPS-4 inoculation to current section by Faith

3/29/93 - Call from Dave (Hurst) (Hwy 50)
- Agency willing to use SPS-8 and GPS w/ SPS-4 (still including Faith site)

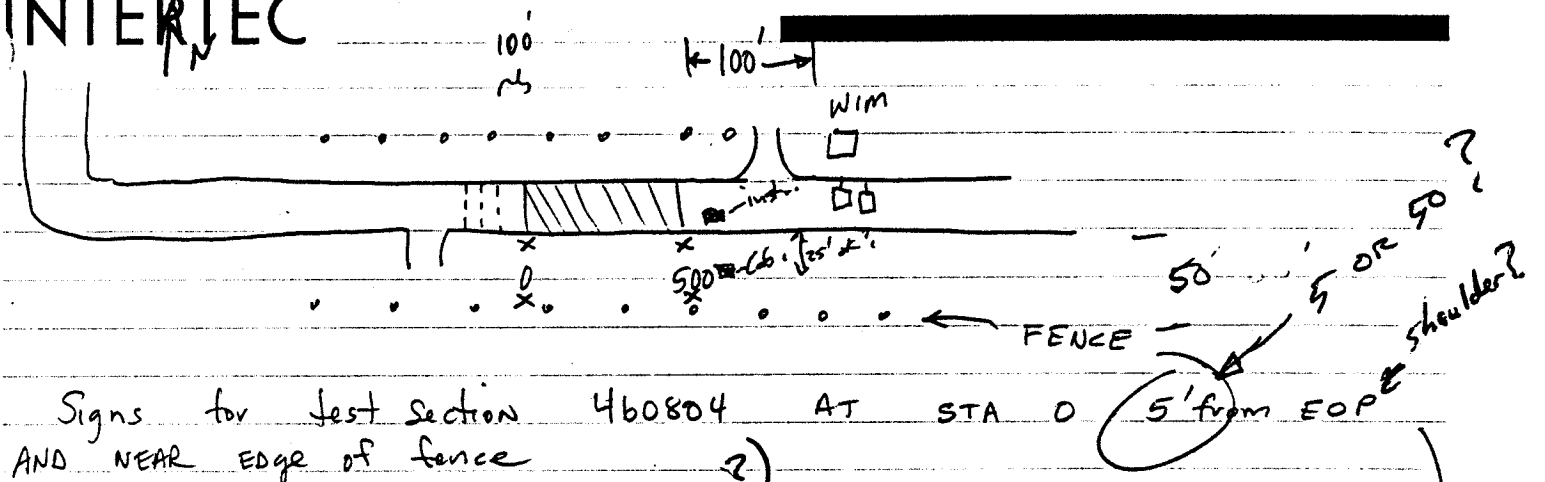
460804 6/9/94

BRAUN INTERTEC

SM SITE VISIT

Between STA 0+00 to Culvert

X Signs Shop
• fence
--- Culverts



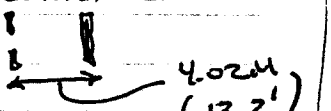
Signs for test section 460804 AT STA 0 5' from EOP AND NEAR EDGE of fence

CORES Removed and patched (when?) — Mt. Town? @ 0-15, 0-30, 5+15, 5+30

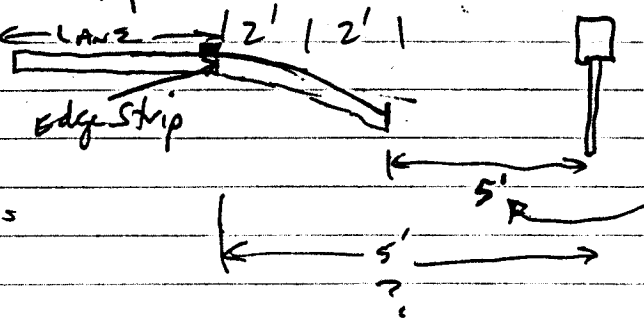
NO GAS, POWER, WATER OR OTHER UTILITYS OVERHEAD OR MARKED AS-BURIED

ONLY WIM BOX STRUCTURE WITHIN 300' OF SECTION
WIM LOCATED AT 6+00 in reference to T.S. 460804

LANE WIDTH 4.02 m FROM OUTSIDE EDGE OF CENTER LINE STRIP TO OUTSIDE Edge of Edge Strip



≅ 2' PAVED Shoulder before it tapers which extents 2' more feet (4' TOTAL)



Good Visability from both directions

Drill rig should be able to get in and out, if it drys up Some

I guess(?) that 0+00 – 2+00 then there would be a pull-off i.e., Farm access Rd to download if no testing is going to be done – would they plow that?

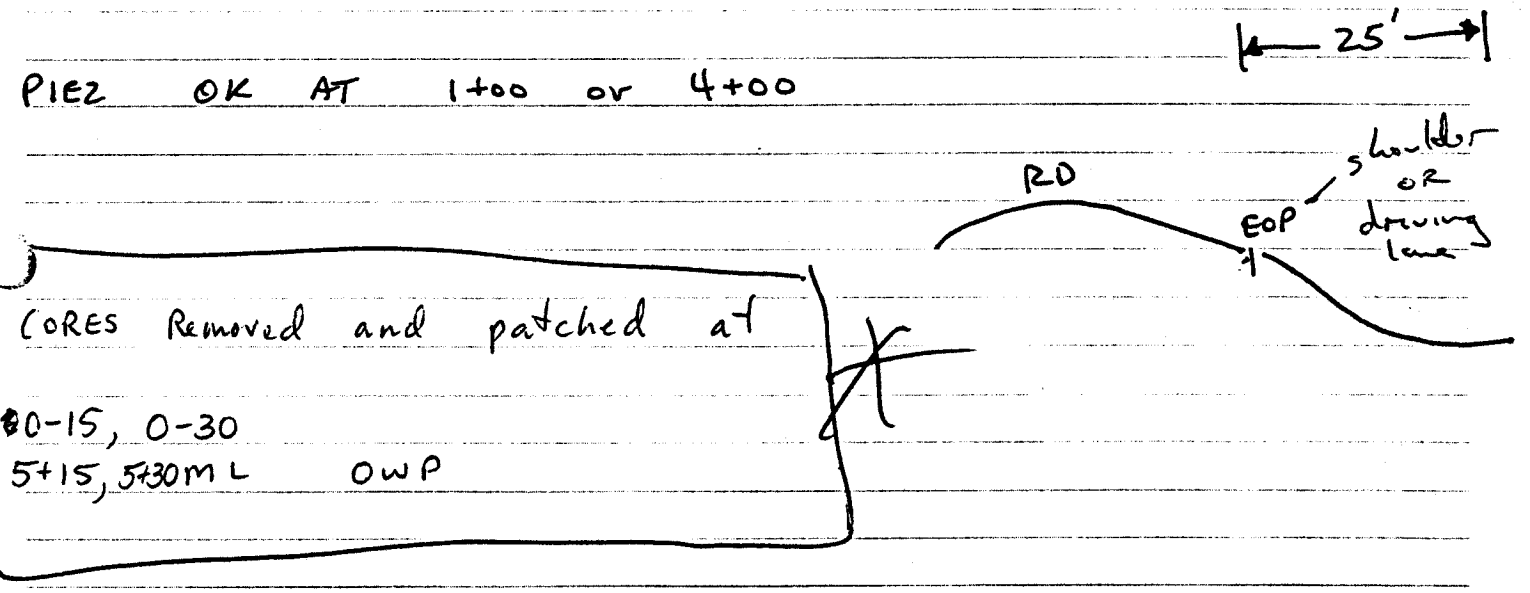
BRAUN SM
INTERTEC

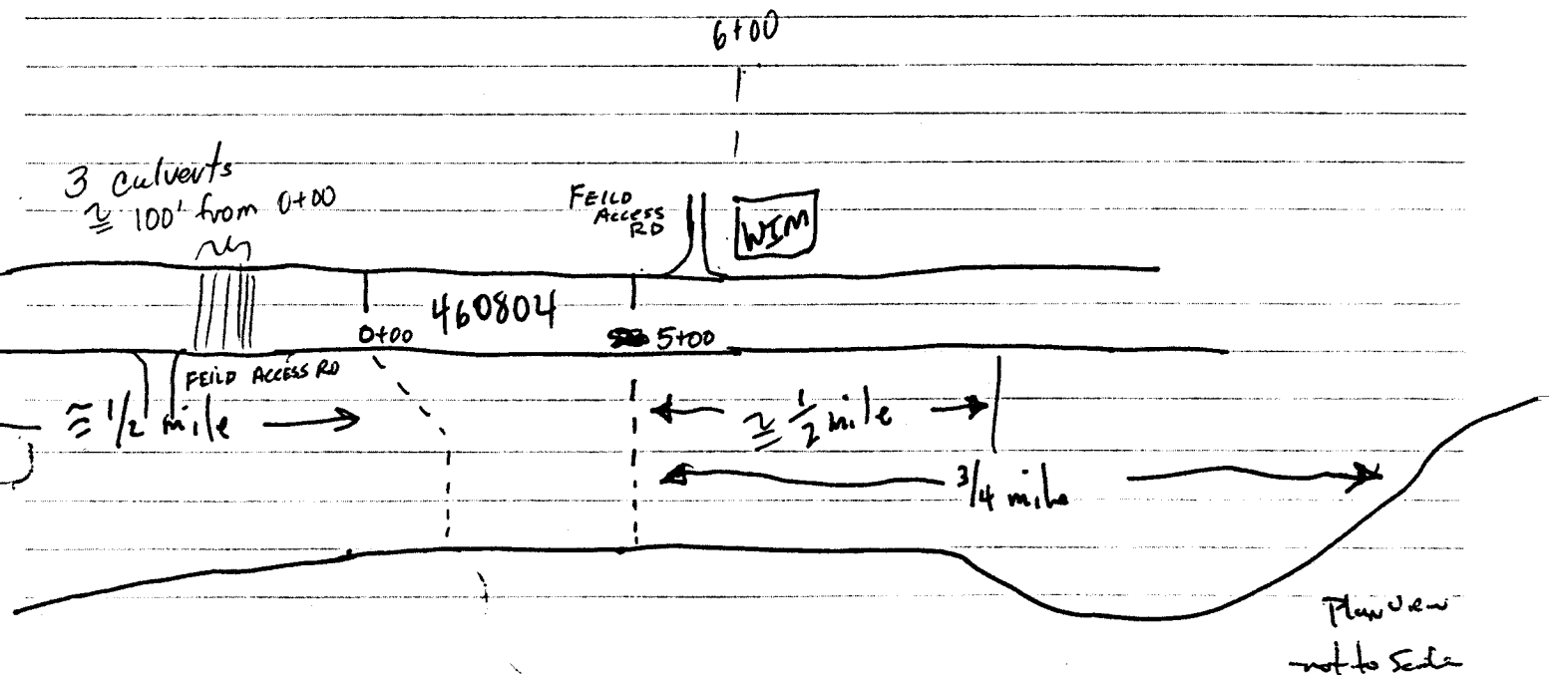
DBNX92-700 6-8-94
460804 BJP
Pre SMP 2/3

NO POWER LINE GAS
FENCE ≅ 50' from EOP

So if the piezo is even with the ground at 100 or 4+00 on the E.O.P will be a little steep

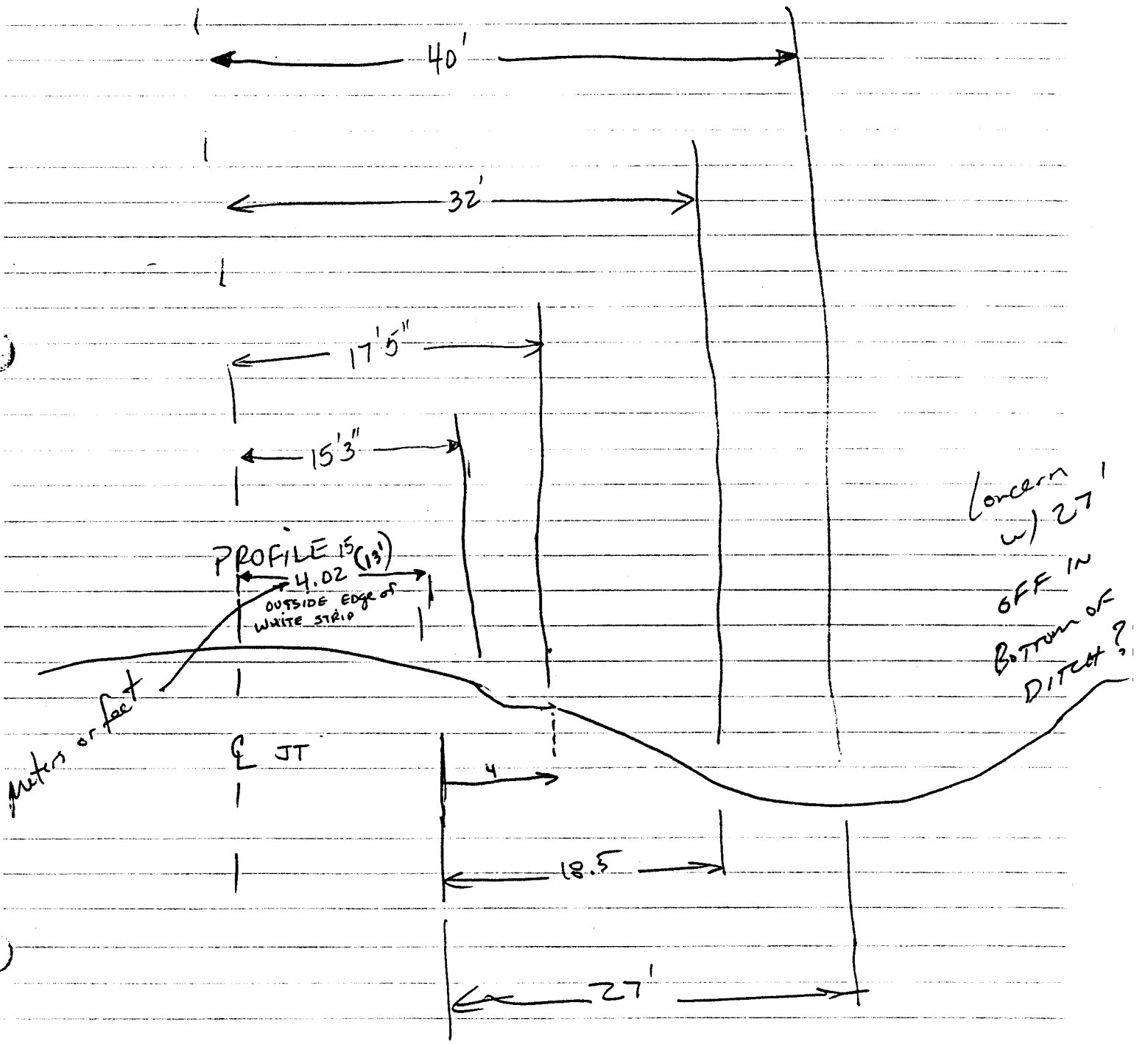
PIEZ OK AT 1+00 or 4+00





BRAUN SM
INTERTEC

DBNK92-700 B5 6/8/94 BJP
460804
Pre-SMP
3/3



Copy - Ben
- Bruce

FACSIMILE MEMORANDUM

Braun Intertec Corporation
1983 Sloan Place, St. Paul, MN 55117-2004
(612) 776-7522 FAX: (612) 776-7201 1-800-344-7477

TO: David L. Huft
South Dakota Department of Transportation
FAX (605) 773-3921

Pages 1

FROM: Robert J. Van Sambeek

DATE: June 1, 1994

SUBJECT: Traffic Control for FWD Testing and Seasonal Monitoring Program Activities

Dave, please set up traffic control (lane closure) for the sections listed below for FWD testing. Set up start times as early in the morning as the Districts are comfortable with. The order can be reversed if the Districts have conflicts with the dates below. Call if you have any questions.

Section and Location	Date	Time	Traffic Control Contact	Phone Number
460601 SPS-6 Groton	6/7			
460804 SPS-8 Pollock	6/8			
469187 GPS Faith	6/9			

Please let me know what you have found regarding installation activities for the seasonal monitoring sections as listed below. (At this point, we are not able to have everything ready for installation the week of June 13th when you indicated a drill rig was scheduled in the area.)

- Availability of a drill rig and pavement saw. Possible installation dates of July 14th for 460804 and July 18th for 469187 for this equipment? Other dates?

- Possible dates and location for a pre-installation meeting to introduce the seasonal monitoring program, and coordinate responsibilities and material requirements for the installation. The meeting typically takes three to four hours with the LTPP contact, drill rig operator, saw operator, traffic control coordinator, and others interested in the program attending.

  Possible dates: Best dates are June 28th, 29th, or 30th. Other possible dates are June 10th or July 1st. If none of these work let me know.

  Location: Pierre, Mobridge, or other?

BRAUNSM
INTERTEC

Description: SMP – SD PRE-INSTALL. MTG.

Project No: DBNX92700 B5

Date: JUNE 28, 94 By: ROBERT VANSAMBEEK

NAME		TITLE	TELEPHONE #
Daniel Strand	(Coord.)	Eng. - Research	(605) - 773-3871
Ken Marks	(FHWD)	Planning - NPT	773-2270 (3370)
Dennis Schneider	(MAINT SDS-8)	Maint. Coordinator	845-3844
Louis Palmer	(MAINT. 469187)	Lieutenant Field (469187) GPS-1 SBAS T-73	967-2182
CHRIS ORMESHER	(Coord. SMP)	RESEARCH	773-6234
Jon Ingle	{SAW}	Pierre Region - D.O.T.	773-5290
Dale Calkins	{SAW}	Pierre Bridge Foreman	773-5290
Steve Hulm	(LTAP Contact)	Research Engr.	773-3350
KEVIN GRIESE	{DRILLRig}	GEOTECHNICAL ENGINEERING	773-3870

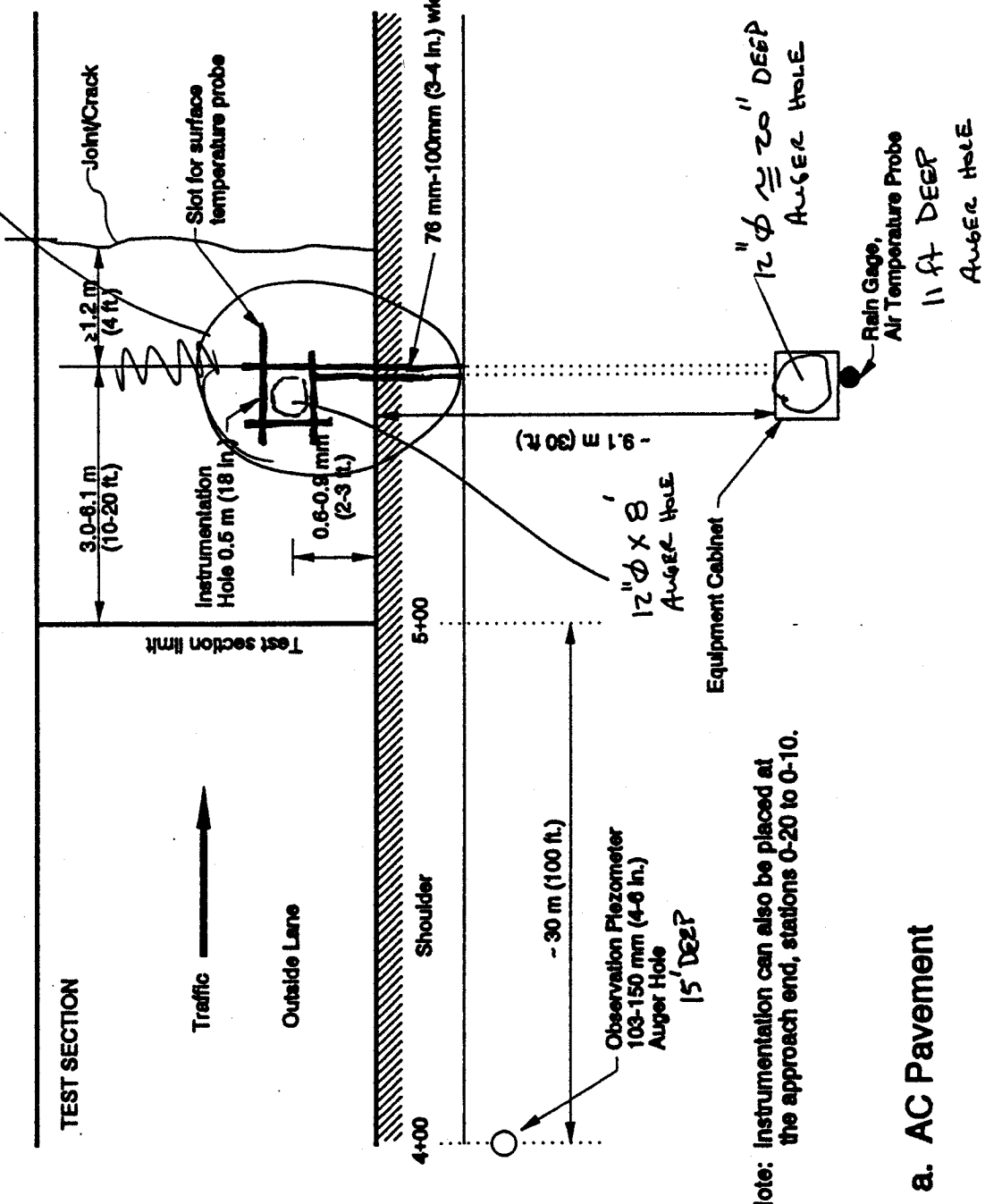


Figure II-12 - Typical Instrumentation Layout

SD Proj. # HP5842 → CHANGED →

FACSIMILE MEMORANDUM

Braun Intertec Corporation
1983 Sloan Place, St. Paul, MN 55117-2004
(612) 776-7522 (800) 344-7477 FAX: (612) 776-7201

TO: Dave Huft
Dan Strand
South Dakota Department of Transportation
FAX (605) 773-3921

Pages 13

FROM: Robert J. Van Sambeek RV

DATE: June 16, 1994

SUBJECT: Seasonal Monitoring Pre-Installation Meeting Agenda

Braun Intertec, under contract with the Federal Highway Administration (FHWA), is responsible for the Seasonal Monitoring Program initiated by the Strategic Highway Research Program (SHRP). Under SHRP, section 469187 on ST-73 18 south of Faith was selected for monitoring. Under FHWA the section will remain in the study, and it will be instrumented this summer along with SPS section 460804 on ST-1804 northwest of Pollock. GPS section 466600 on ST-50 east of Gayville is also in the study, but will not be instrumented until 1995.

A meeting with appropriate agency people involved with instrument installation is required to coordinate activities. Attached is the meeting announcement and agenda. Please make arrangements for people identified in the meeting announcement to attend the meeting. It is very important that people in charge of traffic control, drill rig, pavement saw, and maintenance attend at least the planning part of the meeting.

If you have any questions, need additional information, or would like any changes to the agenda, please call me at 1-800-344-7477 or 612-776-7522.

RAMKOTA INN – GOV. RATE $39 – JUNE 27TH.
– CON. # 86WL703642040
– LOC. 1mi. W. on Hwy. 14+83 – 605-224-6877
920 W. Sioux

CAR – Budget – one day.

AIRLINE – 6/27 – NW 1:15 PM late 15 – AR. 3:15 (Pierre)

MEETING ANNOUNCEMENT

Topic: Coordinate Instrumentation Installation for GPS section 469187 and SPS section 460804 for the Seasonal Monitoring Program

When: June 28, 1994 from 9:00 AM to 12:00 Noon

Where: South Dakota Department of Transportation - Secretary Office Small Meeting Room
700 East Broadway
Pierre, South Dakota 57501

Who: Agency Level

SHRP Representative
LTPP Contact

District Level

Materials Engineer and/or Soils Engineer

Maintenance Superintendent or Maintenance Area Supervisor

Other Interested Parties

Department of Transportation staff involved with instrumentation, deflection testing, or spring recovery studies

University professors and students

Agenda: See next page

FHWA-LTPP SEASONAL MONITORING PROGRAM IN SOUTH DAKOTA

MEETING AGENDA

June 28, 1994 from 9:00 AM to 12:00 Noon

South Dakota Department of Transportation - Secretary Office Small Meeting Room

700 East Broadway, Pierre, South Dakota 57501

Introductions

FHWA-LTPP Seasonal Monitoring Program in South Dakota

- Introduction
- Test Sections
- Sensor Description and Installation Procedures

(Break)

Planning Session for Agency Staff Involved with Instrumentation and Monitoring

- Installation and Monitoring Schedule
- Special Concerns
- South Dakota Department of Transportation Responsibilities
- NCRCO and FHWA Staff Responsibilities
- Closing Comments

FHWA-LTPP Seasonal Monitoring Program in South Dakota

Introduction

Objectives of the Seasonal Monitoring Program

- Collect and analyze data to better understand the short and long term impacts of environmental factors including temperature, moisture, and frost/thaw depth on a pavement structure for improving pavement design.

- Factors defined in the core experiment monitored by FHWA-LTPP include
  - wet or dry climate
  - freeze or no freeze climate
  - pavement surface type (AC or PCC)
  - pavement surface thickness
  - original construction

- Factors not defined in the core experiment include
  - pavement edge drains
  - recycled materials
  - CRCP
  - shallow water table
  - shallow bedrock
  - etc

- Agencies are encouraged to monitor supplemental sections to study factors not included in the core experiment
  - reduced monitoring requirements
  - use existing GPS or SPS sections

Overview of Sensor Installation and Monitoring Activities

- Two days for initial instrumentation installation and monitoring

- About $10,000 of equipment installed at each site

- Monitor sections every other year (70 days over a 10 year period)

- Relate environmental variations to changes in pavement performance
  - pavement, base and subgrade strength calculated from deflection data
    - collected monthly most of year and bi-weekly in the spring
  - ride quality determined from profile data
    - collected five times per year
  - pavement distress documented using detailed distress surveys
    - collected two times per year in addition to PASCO photo logging
  - frost heave/swelling soil monitored using elevation data
    - collected five times in the first year and two times per year after that

Test Sections

Section Location

- 64 sections in the Core Experiment for the United States and Canada monitored under FHWA-LTPP contract

- 16 sections in the North Central Region
  - three core section in South Dakota
    - 460804 (SPS-8), EB ST-1804, nine miles northwest of Pollock (Sta. 140+50 to 145+50)
    - 469187 (GPS-1), SB ST-73, 18 miles south of Faith (MP 156.11 – 156.02)
    - 466600 (SPS-4), EB ST-50, three miles east of Gayville (≅MP 398)

- install 460804 and 469187 in 1994

- install 466600 in 1995

- no supplemental sections identified in the North Central Region at this time

- see map of core sections in the North Central Region (next page)

Allowable Maintenance

- routine maintenance
  - any scheduled? — Crack Sealing on 469187 THIS Summer
  - shoulder work? — No

- no structural rehabilitation preferred for ten years

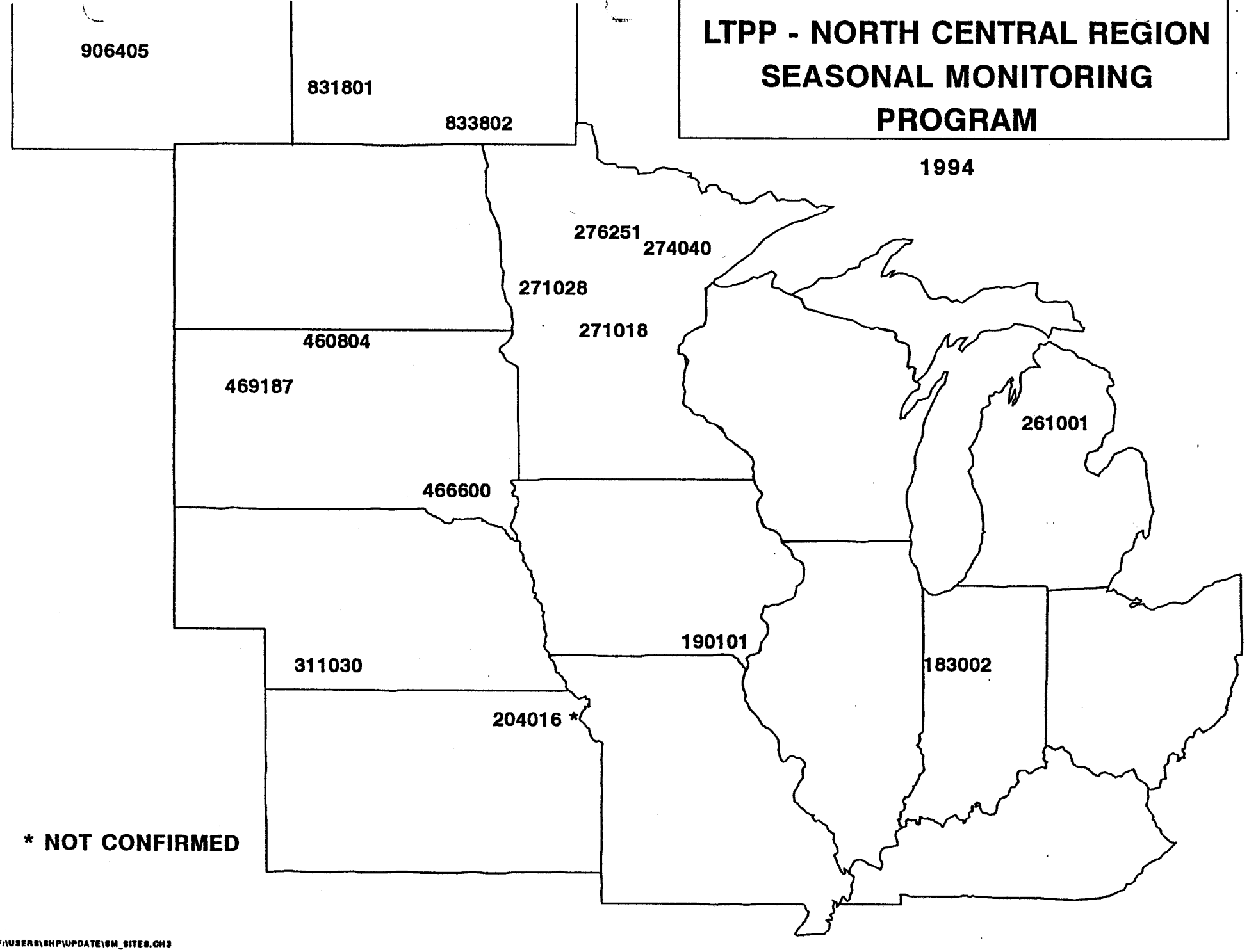
- safety is primary concern

- careful around buried cables and equipment
  - temperature probe one inch below pavement surface
  - piezometer cover four inches below the shoulder material
  - conduit one foot below surface from pavement edge to the cabinet — Buried Utility Signs

- careful plowing heavy snow and slush into the equipment cabinet

LTPP - NORTH CENTRAL REGION SEASONAL MONITORING PROGRAM

1994



* NOT CONFIRMED

F:\USERS\SHP\UPDATE\SM_SITES.CH3

Sensor Description and Installation Procedure

TDR (Time Domain Reflectometry) Probes

- FHWA design and manufacture for Seasonal (Available through Campbell Scientific)
  - three prong
  - $60.00 each

- measure dielectric of material between probes and relate to moisture content
  - air = 1.0
  - dry soil = 3 to 4
  - water = 80

- calibration
  - laboratory in air, water, and shorted
  - field moisture test on material placed on probes
  - retain soil samples for additional laboratory calibration

- 10 probes per installation
  - one mid-depth in the base
  - seven at six inch intervals in the top of the subgrade
  - two at 12 inch intervals approximately seven feet below the surface

Thermistor Probe

- Measurement Research Corporation (MRC)
  - $1000.00

- thermistors change resistance with change in temperature

- built in multiplexer for automated readings

- two part
  - stainless steel section (13 inches long)
    - monitor temperature gradient through the pavement surface
      - one inch deep
      - mid depth in the surface
      - one inch above bottom of pavement

  - plexiglass section (72 inches long)
    - monitor temperatures at 15 points along probe
      - three inch intervals to 12 inch depth
      - six inch intervals from 18 inch to 72 inch depth

- laboratory calibration (check) at three temperatures
  - ice bath
  - room temperature
  - warm water bath

Resistivity Instrumentation

- CRREL design
  - PVC probe with 36 electrodes at two inch intervals
  - $800.00
- large increase in resistance when moisture in the soil freezes
  - determine both frost and thaw depth
- require signal generator and multimeters for manual readings
  - compute AC resistance between electrodes
- require CRREL multiplexer for automated readings

(8) Resistivity (unpacked)

(9) Closeup

(10) Sig. Gen + Multimeters

- Also look @ moisture levels

Air Temperature

- Campbell Scientific
  - $150.00
- air probe and radiation shield
- mount on instrument pole nine feet above the ground

(11) Air + Rain @ Little Falls.

(12) Closeup of Air

Rain Gauge/Tipping Bucket

- Texas Electronics
  - $255.00
- 0.1 mm (0.004 inches) liquid precipitation per tip
- mount on instrument pole nine feet above the ground

(13) Parts of Rain

(14) Inside Rain

Equipment Cabinet and Instrument Pole

- telephone pedestal
  - break away classification
  - contain power supply, data logger, sensor connections for mobile reader
  - conduit runs into cabinet from instrumentation hole
  - pea rock inside base to prevent condensation
  - located about 26 feet off edge of driving lane (limited by cable length)
- instrument pole
  - two inch diameter galvanized pipe
  - break away classification
  - extend below frost line
  - holds rain gauge and air temperature probe
  - located about 27 feet off edge of driving lane behind equipment cabinet

(15) Cabinet w/ panel

Interface/Communications Equipment

- mobile unit
  - used each site visit to read TDR probes and resistivity probe
  - multiplexers for automated readings

- cable reader
  - Tektronics model 1502
    - $8000.00
  - generates signal and monitors reflected energy from TDR probes
  - relate time for pulse to travel through probe to dielectric constant
    - relate dielectric constant to moisture content

- computer and software
  - "onsite" used to monitor temperatures and rainfall continuously
  - "mobile" used to monitor resistivity probe and TDR probes during site visits

Observation Piezometer

- monitor depth to ground water table

- designed to act as frost free bench mark
  - Dave Esch design
  - anchor at 14 foot depth
  - sliding section extends eight feet below the surface
    - filled with water proof grease

(16) Parts
(17) Greasing
(18) MnDOT Cover
(19) Utah Cover
(20) Colorado Cover

Measuring Points for Joint Movement on PCC Pavements (Section 466600 near Gayville)

- install three sets of snap rings on each joint monitored
  - located at one, six and eleven feet from edge of slab
  - bonded 0.3 inches deep in the pavement

- measure distance between rings
  - nearest 0.001 inch with digital caliper
  - use "hot" measurement as zero opening on the joint

Order of Installation
- Piezometer
- (21) FWD
- (22) Saw Block, (23) Core, (24) Trench
- (25) Auger inst. hole, (26) Solid stem,
  (27) Hand sample base, (28) many 5 gal. pails.
- (29) Equip Cab. + base of inst. pole
- (30) MnDot drill rig (31) Colorado Rig.
- (32) start installing probes. (Top side) (B L)

Planning Session for Staff Involved with Instrumentation and Monitoring

Installation and Monitoring Schedule

Instrumentation Installation and Initial Monitoring

- two days required with third day as contingency
  - first day complete instrument installation
  - second day collect data

- tentative schedule
  - July 14 & 15 - 460804, EB ST-1804, nine miles northwest of Pollock
  - July 18 & 19 - 469187, SB ST-73, 18 miles south of Faith

Long Term Monitoring

- one day every month with the exception of two times per month in the spring

- every other year for 10 years

- obtain about 70 days of FWD monitoring data

Special Concerns

Safety

- Agency Requirements
  - clothing and safety shoes
  - bring up any safety concerns during installation

ORMAL ITEMS

Other

- Hazard markers for cabinet and instrument pole?
  - Snowmobiles?

- buried utility signs? - DOT will bring to site

South Dakota Department of Transportation Responsibilities

Project Contacts for Maintenance Activities and Traffic Control
- will set up traffic control directly with district if desired — Yes. - See attend. List for two Contacts.

Public Relations
- coordinate with FHWA representative on-site regarding any news coverage — None

Utility Clearance
- 700 foot section (extend 100 foot outside both ends of 500 foot test section)
- sections marked on right edge of driving lane with white paint
- clear driving lane and 40 feet into the ditch on the right side

Traffic Control for Full Lane Closure
- two days for initial installation and monitoring in July
- lane closure for 700 foot section
  - signs, cones, etc
- set up ~~as early as~~ possible
  - 7:30 AM? — ALL 4 DAYS.
- may want to mark locations for placing construction signs in the future

Establish Elevation Reference for Piezometer or Install Local Bench Mark
- not affected by frost
- actual elevation not required (local reference)
- check piezometer elevation every other year?

NOT

Equipment
- pavement saw and operator
  - only required for first day during instrument installation at each site
  - saw 18 inch square block out of the pavement surface
    - located in the outer wheel path
    - will epoxy block back in-place
  - equipment capable of cutting one inch deeper than estimated pavement thicknesses
    - 460804 7.0 inches asphalt (cut 8.0 inches deep)
    - 469187 4.5 inches asphalt (cut 5.5 inches deep) — will rent saw
  - saw four inch wide trench for conduit
    - extend from outer wheel path to edge of paved shoulder
  - saw 13 inch slot for temperature probe
    - extend longitudinal cut for the block in the outer wheel path

- drill rig and operator
  - only required for first day during instrument installation at each site

  - able to reach location for instrument pole 27 feet off edge of driving lane — able to drive in ditch!
  - bore one ~~six~~ 7¼ inch diameter hole for piezometer
    - 14 foot depth
    - located on shoulder
      - location may depend on cap used for piezometer

  - bore one 12 inch diameter hole for instrumentation
    - solid stem auger preferred
      - continuous flighting not required
    - eight foot depth
    - ~~located in outer wheel path~~
    - ~~NCRCO~~ has 12 inch diameter auger with 1-5/8 inch male hex drive — BRING

  - bore one 12 inch diameter hole for equipment cabinet (or will dig by hand)
    - two feet deep
    - located about 26 feet outside the driving lane in the ditch

  - bore one ~~six~~ 7¼ inch diameter hole for the instrumentation pole
    - 10 feet deep
    - located one foot behind the equipment cabinet in the ditch

- small portable generator (only if readily available) — Saw Crew bring.
  - may not be needed

Materials for Each Site

- cover assembly for piezometer — (— NCR ~~Geo~~ provide ~~it~~)
  - must function for ten years
  - able to open in the winter
  - minimum four inch inside diameter
  - 18 inches to 24 inches long

NCR

- sackcrete for piezometer cover and instrumentation pole
  - estimate six bags (60# bags)

- bentonite pellets for sealing piezometer (will order and bring to site
  - five gallon bucket

- filter sand for piezometer
  - 400 pounds (four bags)
  - particle size not critical (silica sand will work) — DIST.

- pea gravel or trap rock for equipment cabinet
  - 500 pounds
  - 3/8 inch or 1/2 inch size preferred

— will be smaller size than 3/8" (Mobridge)

NCR PAILS FOR MATLS. FOR 465B.

- asphalt patch for conduit trench
  - estimate 300 pounds 4"x 6' x ? (COLD MIX)

- water for mixing sackcrete and equipment clean-up
  - estimate 30 gallons (available on drill rig?) — SAW TRUCK HAVE

- hazard markers for cabinet and instrument pole (if required by the agency) — DOT

Pavement Repairs
- patch conduit trench with asphalt material

- assist with block replacement

Miscellaneous Activities
- mow grass in area identified for utility clearance or bring weed whip to the site — will mow

NCRCO (Braun Intertec) and FHWA Staff Responsibilities

Instrumentation
- provide all instrumentation + piez. cap.

- install all instrumentation
  - may ask anyone on-site for assistance +

- monitoring activities
  - will collect all required monitoring data

- NCRCO phone 1-800-344-7477 or 612-776-7522
  - main contacts for Seasonal Monitoring
    - Bob Van Sambeek (Coordination and instrumentation)
    - Ron Urbach (Geotechnical and materials)

Closing Comments

Questions or Concerns?

Jimmy Carter "Habitat for Humanity" Lives

7/16 → 3 RMS (NS) Sturgis EXIT. 30 Super 8 (605-347-4447)

MOTEL — Mobridge —

WRANGLER MOTOR INN
605-845-3641
½ MI. W. on TH12

Weds 7/13
Thurs. 14
Fri. 15
Sat. 16 (Depart 17)

3 ROOMS
(NS)

Faith Vista (2343) — Sun. 7/17 (3 RMS) VISTA { DEE DEE
Mon. 7/18 BRANDRUD'S LOG

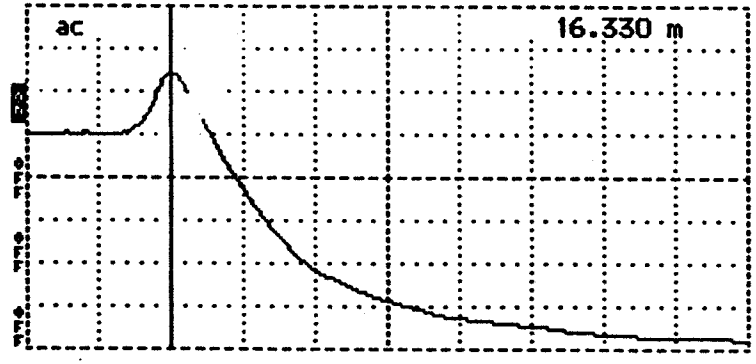
Appendix B-2: Pre-Installation Equipment Checks/Calibration Information

Appendix B-2 contains the following data sheets for the pre-installation equipment checks/calibration:

- Data Sheet SMP-C01: TDR Probe Check;
- Data Sheet SMP-C02: Thermistor and Air Temperature Probe Check;
- Data Sheet SMP-C03: Electrical Resistivity Probe Check;
- Data Sheet SMP-C04: Function Generator, Multi-meter, and Switch Box Checks; and
- Data Sheet SMP-C05: Tipping-Bucket Rain Gauge Calibration.

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

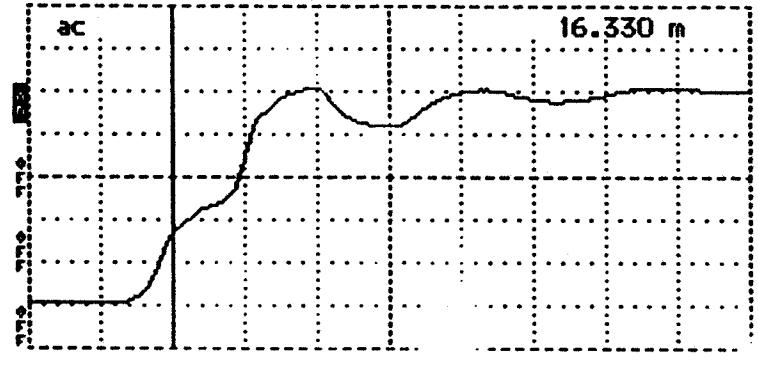
Cursor ..... 16.330 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 01
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"	___.___	___.___

Cursor ..... 16.330 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

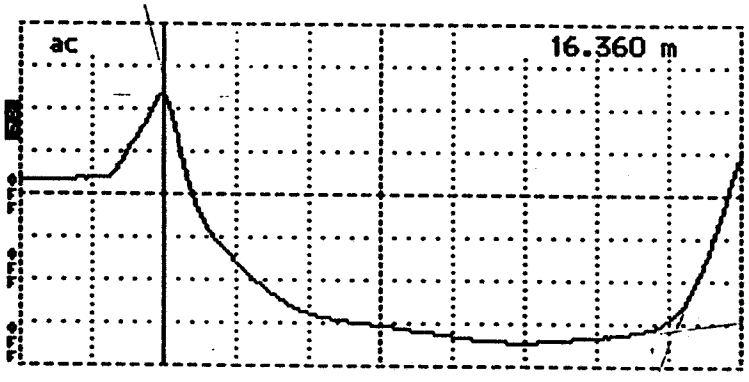


Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 01
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.20	0.99

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.360 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 01
Notes
IN H2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.75	75.83

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A01 Measured Length of Coax Cable: 12.20 m

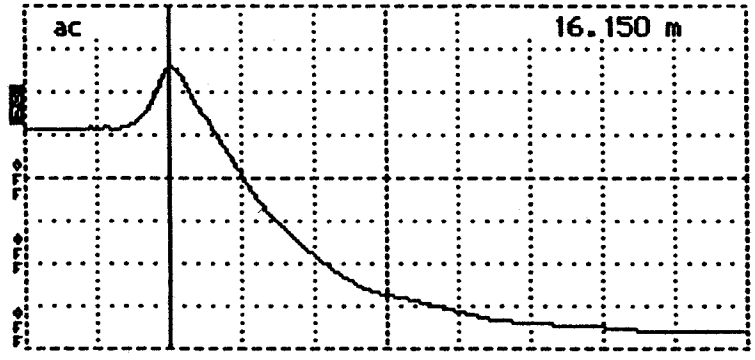
Comments: _____

Prepared by: D. L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 01/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

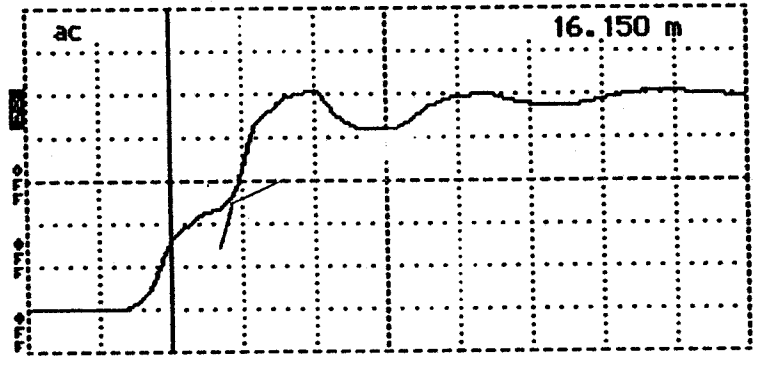
Cursor ..... 16.150 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 02
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"	_ . _ _	_ _ . _ _

Cursor ..... 16.150 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

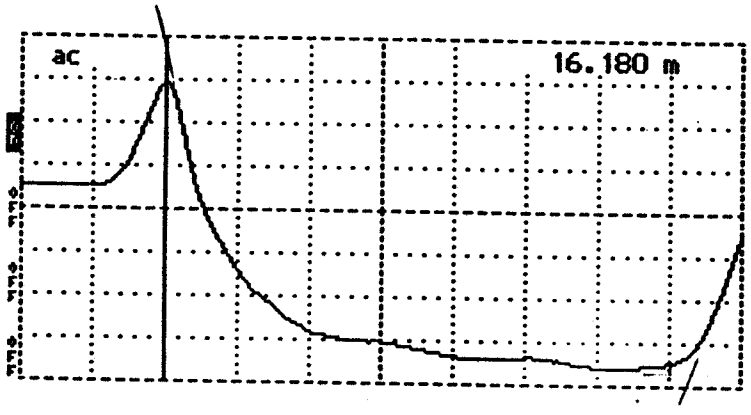


Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 02
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.20	0.99

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.180 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 465A 02
Notes
1N H_2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.80	80.22

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A02 Measured Length of Coax Cable: 12.20m

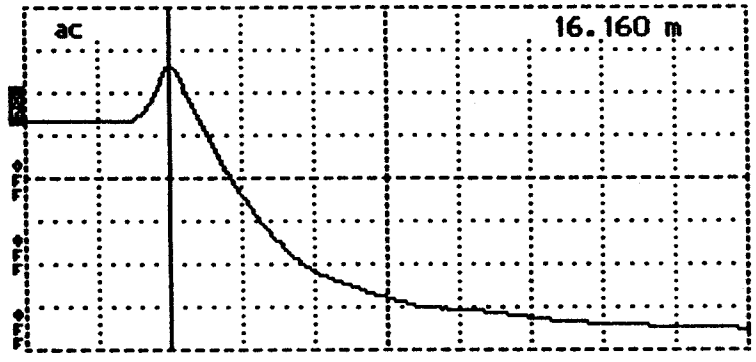
Comments: _____

Prepared by: D.LM Employer: Braun Intertec

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

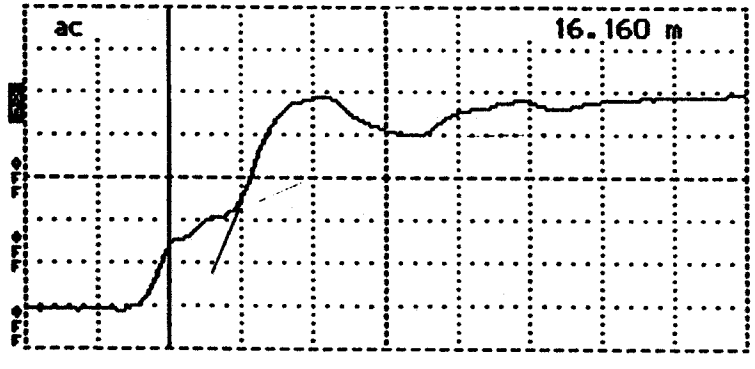
Cursor ..... 16.160 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 03
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.160 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 03
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.24	1.43

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.200 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

Tektronix 1502B TDR
Date 6-28-94
Cable 465A @3
Notes 1N H_2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.80	80.22

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A03 Measured Length of Coax Cable: 12.20 m

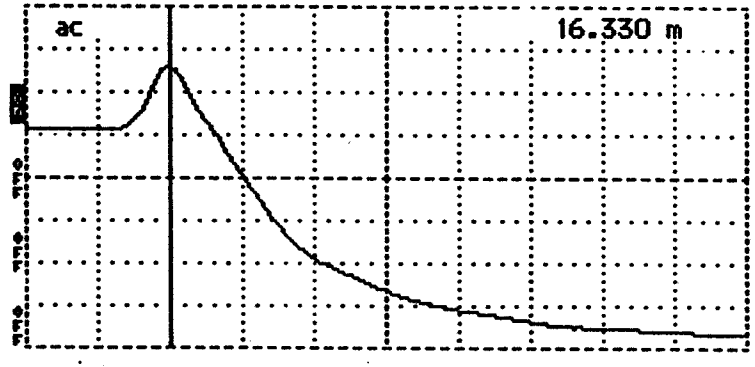
Comments: _____

Prepared by: D.L.M Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

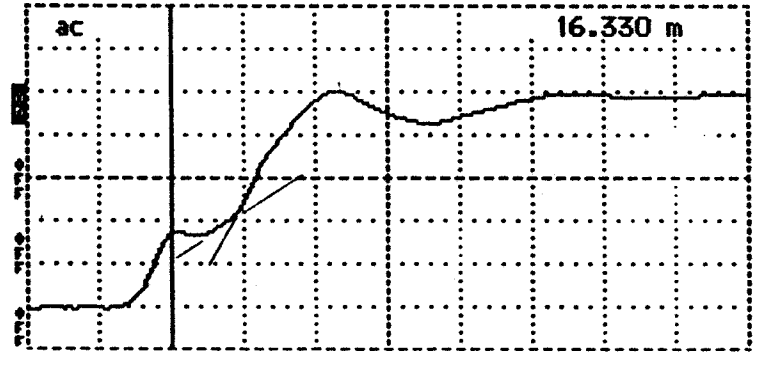
Cursor ..... 16.330 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power ..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #4
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.330 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power ..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #4
Note IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.23	1.31

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.330 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #4
Notes IN H_2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.83	82.92

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A04 Measured Length of Coax Cable: 12.20 m

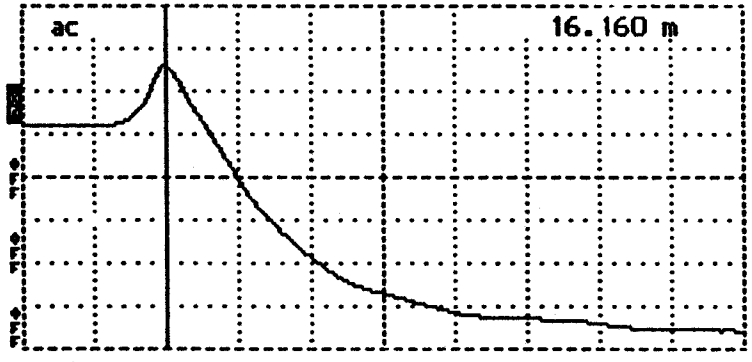
Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

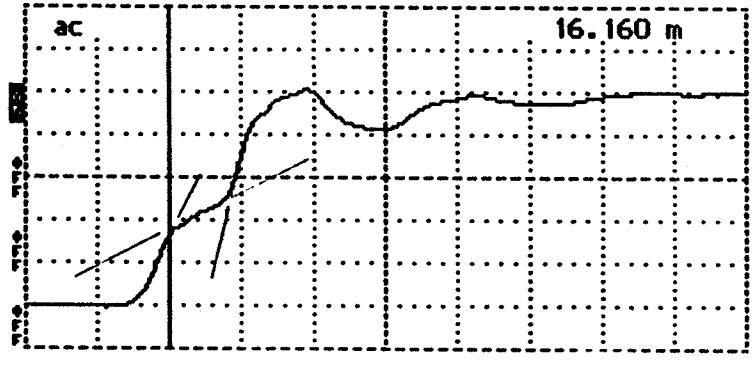
Cursor ..... 16.160 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 05
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.160 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 05
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.20	0.99

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.190 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 05
Notes
1M H_2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.77	77.46

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A05 Measured Length of Coax Cable: 12.20 m

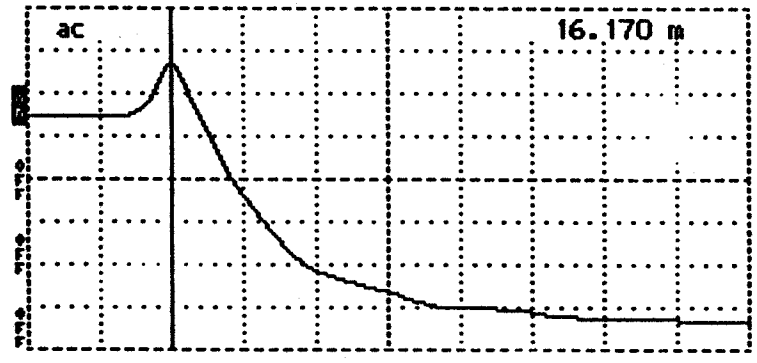
Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 27/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

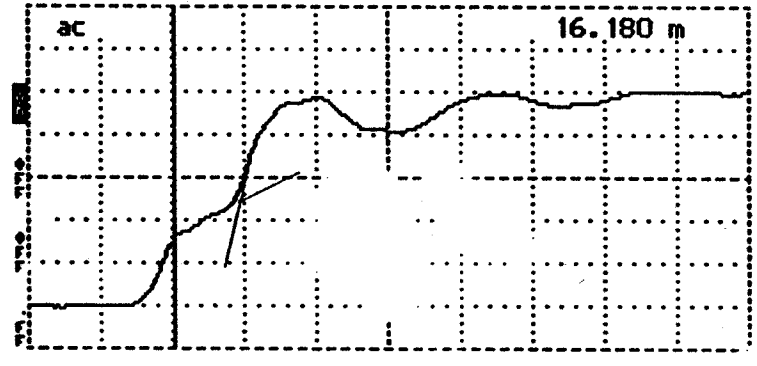
Cursor ..... 16.170 m
Distance/Div.. .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise ilter ..... 1 avg
Power..... ac



Tek ix 150 DR
Date 6-28-94
Cable 46SA 06.
Notes SHORTED
Input race
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"	———	———

Cursor ..... 16.180 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
ower..... ac

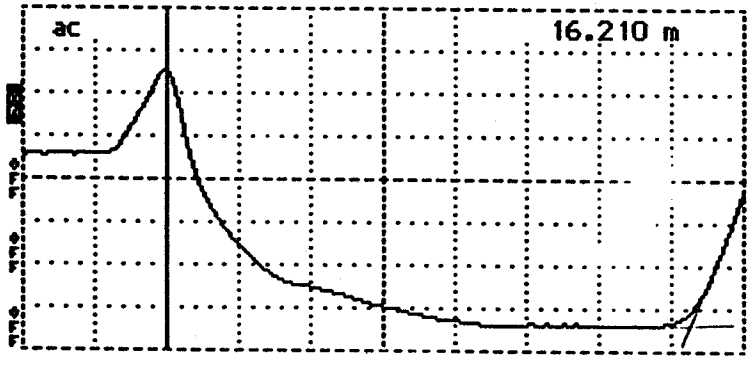


Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 06
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.24	1.42

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.210 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 465A 06.
Notes 1N H_2O Temp 24.8 C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.82	82.01

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A06 Measured Length of Coax Cable: 12.20 m

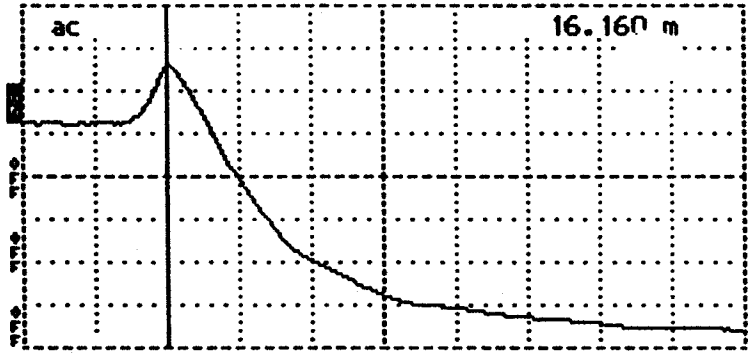
Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 27/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

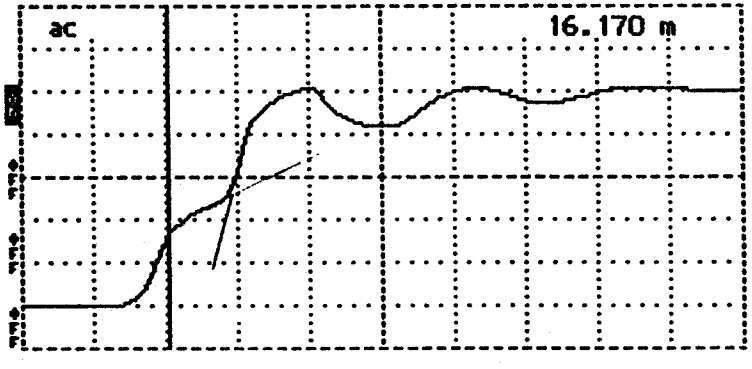
Cursor ..... 16.160 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #7
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.170 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

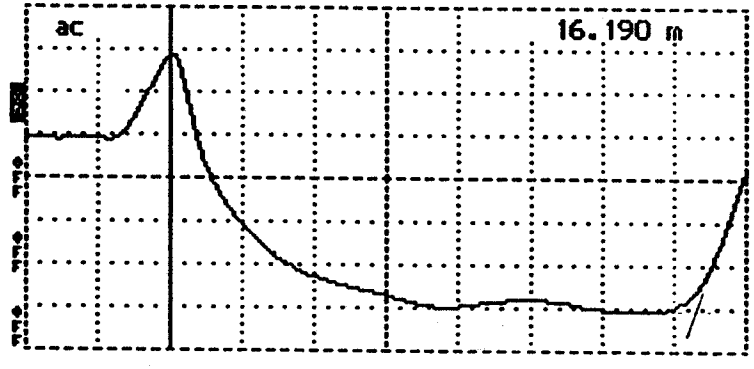


Tektronix 1502B TDR
Date 6-28-97
Cable 46SA #7
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.24	1.43

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.190 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 07
Notes IN H_2O Temp 24.8°
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.83	82.92

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A07 Measured Length of Coax Cable: 12.20 m

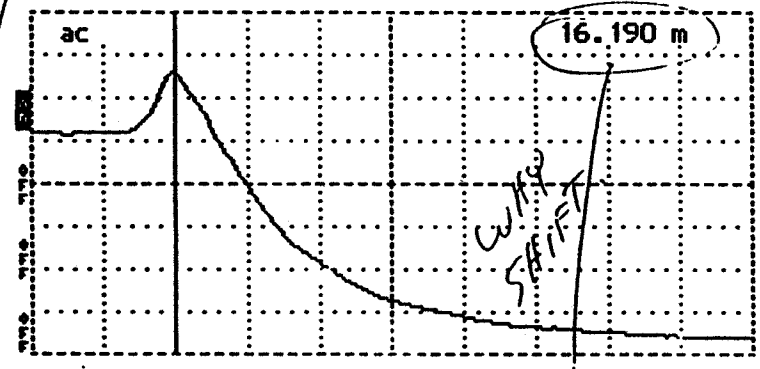
Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

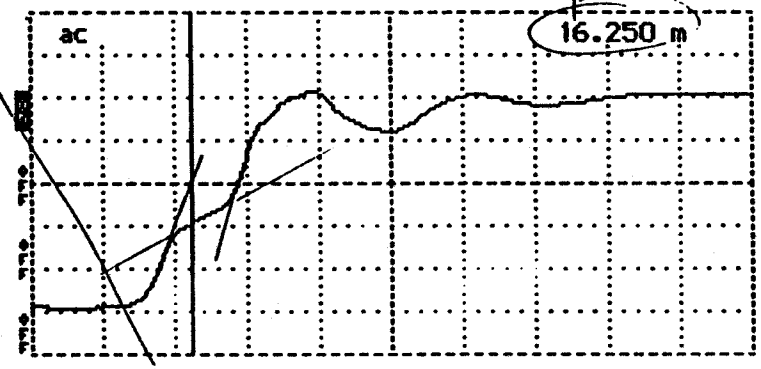
Cursor ..... 16.190 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mP/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #08
Notes SHORTED
Input Trace ____
Stored Trace .....
Difference Trace .....

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"	___.__	___.__

Cursor ..... 16.250 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mP/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac

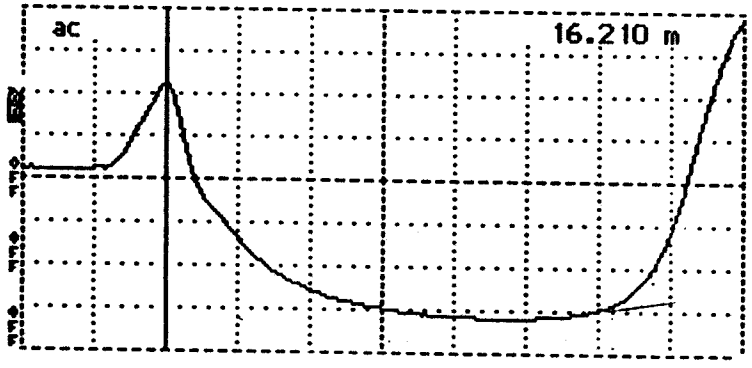


Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #08
Notes IN AIR
Input Trace ____
Stored Trace .....
Difference Trace .....

TDR Trace	Apparent Length, (m)	Dielectric Constant
"In Air"	0.21	1.09

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.210 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mΩ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 08
Notes IN H_2O Temp 24.8°C
Input Trace
Store Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.65	67.41

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

RUN OVER?

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

RUN OVER

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A08 Measured Length of Coax Cable: 12.20 m SEE RESULTS FOR SECOND RUN.

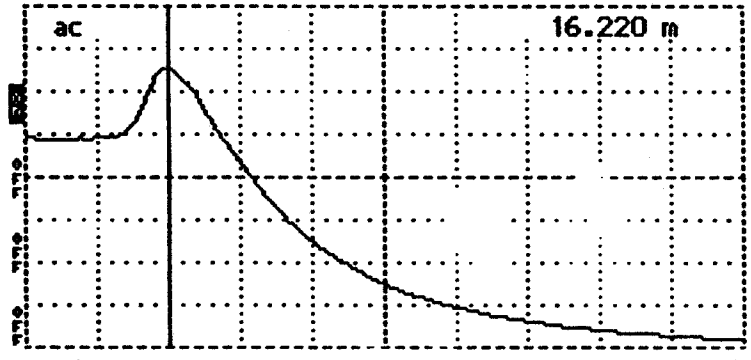
Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): __/__/__

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

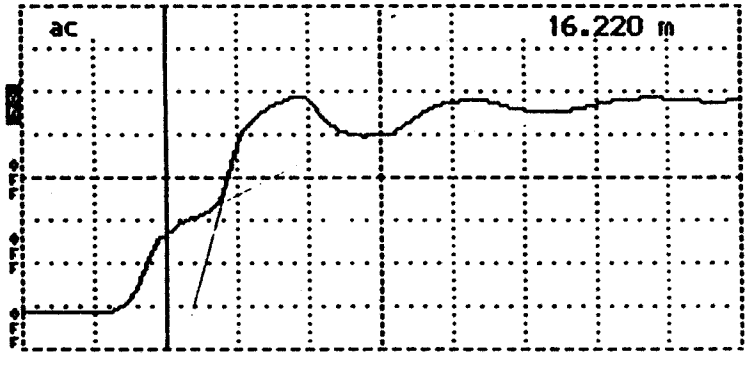
Cursor ..... 16.220 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 7-7-94
Cable 46A08
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.220 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

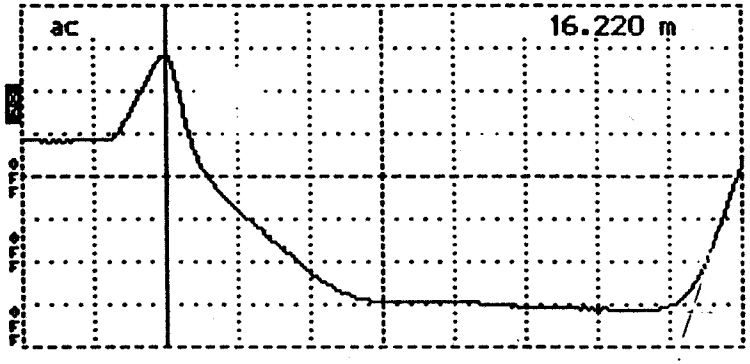


Tektronix 1502B TDR
Date 7-7-94
Cable 46A08
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.19	0.89

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.220 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 7-7-94
Cable 46A08
Note: IN WATER
Temp 27.4°C
Input Trace .....
Stored Trace .....
Differ Trace .....

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.83	82.92

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A08 Measured Length of Coax Cable: 12.20 m

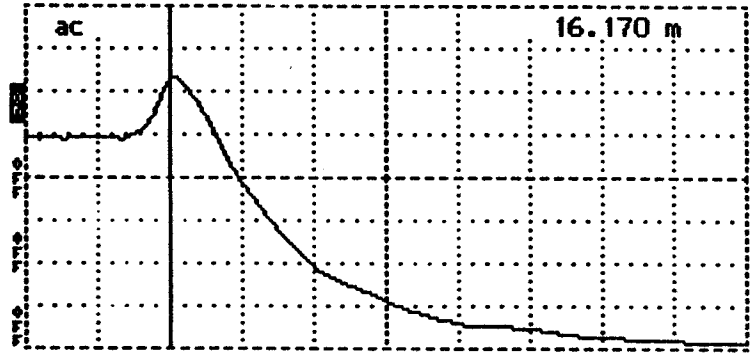
Comments: RAN H_2O OVER - FIRST RUN HAD L_A = 1.65 VERSUS 1.83 FOR SECOND RUN.

Prepared by: D. C. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

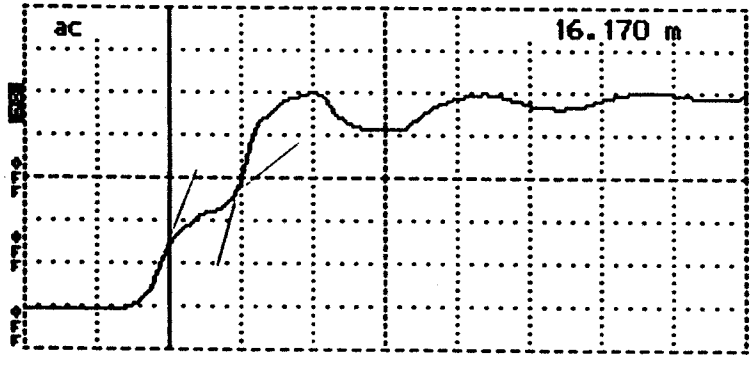
Cursor ..... 16.170 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power ..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 09.
Notes SHORTED
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.170 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac

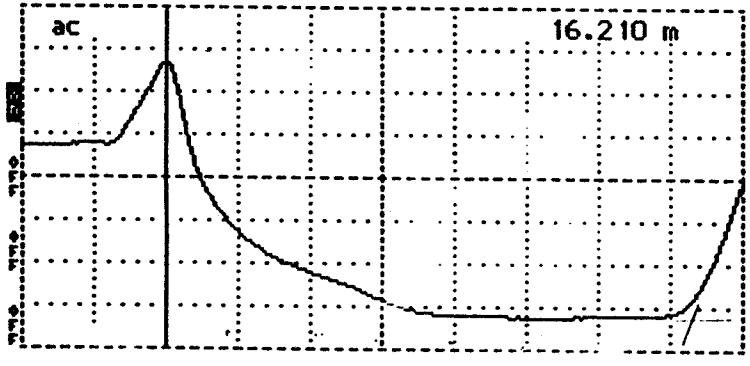


Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 09.
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.24	1.43

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.210 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
Vp 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA 09
Notes 1N H_2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.82	81.90

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A09 Measured Length of Coax Cable: 12.20 m

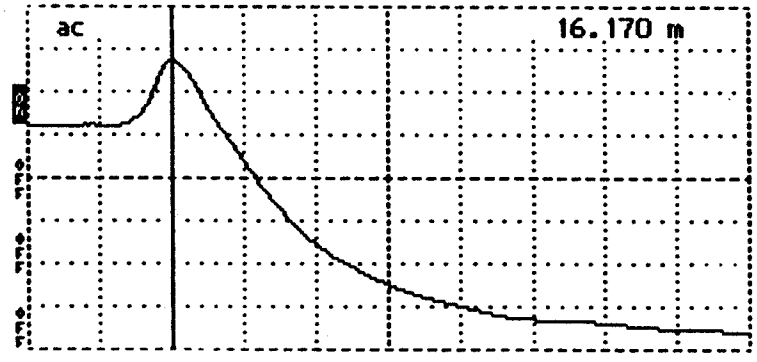
Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 1) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

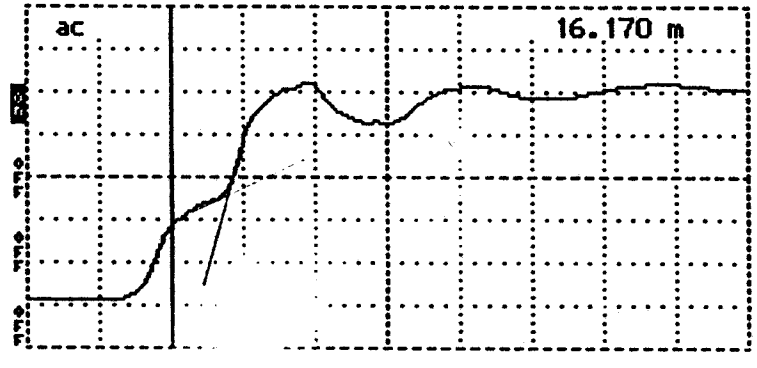
Cursor ..... 16.170 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #10
Notes SHORTED
Input Trace
Stored Trace
Difference

TDR Trace	Apparent Length, (m)	Dielectric Constant
"Shorted at Start"		

Cursor ..... 16.170 m
Distance/Div..... .25 m/div
Vertical Scale.... 177 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac

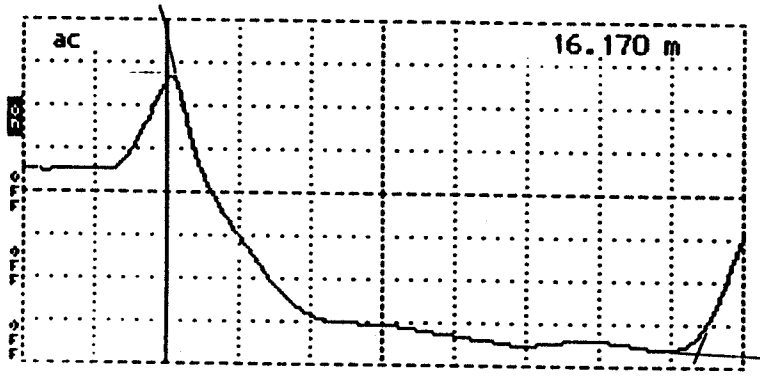


Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #10
Notes IN AIR
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[1]
"In Air"	0.20	0.99

LTPP Seasonal Monitoring Program Data Sheet SMP-C01 (Page 2) TDR Probe Check	Agency Code [46] LTPP Section ID [0804]

Cursor ..... 16.170 m
Distance/Div..... .25 m/div
Vertical Scale.... 74.8 mρ/div
VP 0.99
Noise Filter..... 1 avg
Power..... ac



Tektronix 1502B TDR
Date 6-28-94
Cable 46SA #10
Notes IN H_2O Temp 24.8°C
Input Trace
Stored Trace
Difference Trace

TDR Trace	Apparent Length, (m)	Dielectric Constant[2]
"In Water"	1.81	81.11

[1] If dielectric constant not between 0.75 and 2.0, contact FHWA LTPP Division
[2] If dielectric constant not between 76 and 84, contact FHWA LTPP Division

Note: Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2$$

where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

TDR Probe Assigned Serial Number: 46A10 Measured Length of Coax Cable: 12.20 m

Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/07/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C02 Thermistor Probe Check	Agency Code [46] LTPP Section ID [0804]

Thermistor Probe Assigned Serial Number : [46A T]

Air Temperature Probe Assigned Serial Number: [46A A T]

Thermistor Number	Distance from Top (m)	Temperature (°C) – Calibration in: Ice-Bath; T = 1.2°C	Other SUN; T = 24.9°C	Comments
1	0.000	0.9	24.9	
2	0.152	0.5	24.6	
3	0.305	0.8	24.7	
4	0.021	0.5	24.5	
5	0.094	1.7	24.4	
6	0.170	0.2	24.5	
7	0.246	0.3	24.5	
8	0.321	0.4	24.6	
9	0.475	0.5	24.9	
10	0.625	0.8	25.0	
11	0.778	1.9	24.9	
12	0.932	0.2	24.9	
13	1.085	1.0	25.0	
14	1.235	0.6	24.9	
15	1.389	0.4	24.9	
16	1.543	0.2	25.1	
17	1.695	0.2	25.1	
18	1.843	0.6	24.8	
End	1.850	n/a	n/a	
Air Probe	n/a	000.8	25.5	

Comments: _____

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 06/30/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C03 Resistivity Probe Check	Agency Code [46] LTPP Section ID [0804]

Electrical Resistivity Serial Number: 46AR

DB37 Connector Pin Number	Electrode Number	Distance from Top (m)			Continuity ✓	Spacing (m)	Comments
		Line 1	Line 2	Avg			
36	1	0.030	0.026	0.028	✓	N/A	
35	2	0.071	0.076	0.0735	✓	0.0555	
34	3	0.129	0.126	0.1275	✓	0.054	
33	4	0.179	0.177	0.178	✓	0.0505	
32	5	0.231	0.229	0.230	✓	0.052	
31	6	0.279	0.278	0.2785	✓	0.0485	
30	7	0.331	0.329	0.330	✓	0.0515	
29	8	0.382	0.380	0.381	✓	0.051	
28	9	0.433	0.431	0.432	✓	0.051	
27	10	0.483	0.481	0.482	✓	0.050	
26	11	0.533	0.531	0.532	✓	0.050	
25	12	0.586	0.584	0.585	✓	0.053	
24	13	0.636	0.634	0.635	✓	0.050	
23	14	0.688	0.686	0.687	✓	0.052	
22	15	0.738	0.736	0.737	✓	0.050	
21	16	0.790	0.788	0.789	✓	0.052	
20	17	0.838	0.838	0.838	✓	0.051	
19	18	0.889	0.889	0.889	✓	0.051	
18	19	0.941	0.939	0.940	✓	0.049	
17	20	0.991	0.989	0.990	✓	0.050	
16	21	1.043	1.041	1.042	✓	0.052	
15	22	1.094	1.092	1.093	✓	0.051	
14	23	1.145	1.143	1.144	✓	0.051	
13	24	1.197	1.196	1.1965	✓	0.0525	
12	25	1.245	1.244	1.2445	✓	0.052	
11	26	1.295	1.295	1.295	✓	0.0505	
10	27	1.347	1.345	1.346	✓	0.051	
9	28	1.399	1.397	1.398	✓	0.052	
8	29	1.447	1.447	1.447	✓	0.051	
7	30	1.499	1.499	1.499	✓	0.052	
6	31	1.551	1.549	1.550	✓	0.049	
5	32	1.601	1.600	1.6005	✓	0.0505	
4	33	1.653	1.651	1.652	✓	0.0515	
3	34	1.702	1.702	1.702	✓	0.050	
2	35	1.754	1.754	1.754	✓	0.052	
1	36	1.804	1.803	1.8035	✓	0.0515	
	Bottom	1.830	1.830	1.830	n/a	n/a	

Comments:

Prepared by: D.L. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 06/28/94

LTPP Seasonal Monitoring Program Data Sheet SMP-C04 Function Generator, Multimeter, and Switch Box Checks	Agency Code: [46] AND [46] LTPP Section ID: [9187] [0804]

Start Time (military): 1100 +1400 +1500

	Test Position	Switch Settings I, V_1	Switch Settings I, V_2	Voltage (ACV) Range Setting	Voltage (ACV) Reading (Volts)	Current (ACA) Range Setting	Current (ACA) Reading (Amps)	Measured Resistance R = V/I (ohms)	Known Resistance (ohms)
100	36	36	37	MILLI	0.022 E-1	MICRO	0.384 E-2	R1 = 0.573 E—	R1 = 0.97 E—
	37	37	38	MILLI	3.359 E-1	MICRO	0.335 E-2	R2 = 1.003 E2	R2 = 1.007 E2
	38	38	39	VOLTS	1.976 E—	MICRO	0.197 E-2	R3 = 1.003 E3	R3 = 1.004 E3
	39	39	00	VOLTS	0.048 E2		0.049 E-4	R4 = 9.796 E5	R4 = 9.94 E5
400	36	36	37	MILLI	-0.216 E-1	MICRO	2.395 E-3	R1 = .668 E—	R1 = .97 E1
	37	37	38	MILLI	-2.272 E-1	MICRO	2.265 E-2	R2 = 1.003 E2	R2 = 1.007 E2
	38	38	39	VOLTS	-1.533 E—	MICRO	1.527 E-3	R3 = 1.003 E3	R3 = 1.004 E3
	39	39	00	VOLTS	-0.567 E1	MICRO	0.006 E-4	R4 = 0.945 E6	R4 = 9.94 E5
500	36	36	37	MILLI	0.020 E-1	MICRO	3.063 E-3	R1 = .653 E—	R1 = .97 E—
	37	37	38	MILLI	2.796 E-1	MICRO	2.788 E-2	R2 = 1.003 E2	R1 = 1.007 E2
	38	38	39	VOLTS	1.846 E—	MICRO	1.835 E-3	R3 = 1.006 E3	R1 = 1.004 E3
	39	39	00		0.521 E1		0.058 E-4	R4 = 8.983 E5	R2 = 9.94 E5

Note: Voltage and current readings are recorded using scientific notation; E refers to base 10 exponent

Comments: _____

Prepared by: D. C. MILLER Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/08/94 JUL

LTPP Seasonal Monitoring Program Data Sheet SMP-C05 Rain Gage Calibration	Agency Code [46] LTPP Section ID [0804]

General Information:

Manufacturer: TEXAS INST

Model Number: TPR-525M

Serial Number: 12037

Note: The screen should be tacked inside the funnel using silicon at three to four points to prevent loss from wind.

Rain Gage Calibration Data					
Trial	Start Time (Military)	End Time (Military)	Volume (ml)	Number of Tips	Adjustment[1] No. of Turns
1	0800	0900	473.	103.	0.3
2	0900	1000	473.	100.	—
3	—	—	—	—	—

[1] Adjust gage to obtain 100 tips ± 3 for 473 ml of water.

Comments: _____

Prepared by: D. L. MILLER Employer: BRAUN INTERTER

Date (dd/mm/yy): 07/05/94

Appendix C-1: Instrumentation Installation Information

Appendix C-1 contains the following installation data sheets and associated field notes, as well as, certificate of registration for instrumentation, and photographs documenting the installation:

- Data Sheet SMP-I01: List of Installed Instrumentation;
- Data Sheet SMP-I02: Instrumentation Locations;
- Data Sheet SMP-I03: Log of Piezometer Hole;
- Data Sheet SMP-I04: Log of Instrumentation Hole;
- Data Sheet SMP-I05: Field Gravimetric Moisture Contents;
- Data Sheet SMP-I05(A): Lab Gravimetric Moisture Contents;
- Data Sheet SMP-I05(B): Gravimetric Moisture Comparison;
- Data Sheet SMP-I06: TDR Moisture Content;
- Data Sheet SMP-I07: Representative Dry Density;
- Plot of Gravimetric Moisture Results; and
- Installation Photographs.

46SA94A

LTPP Seasonal Monitoring Program Data Sheet SMP-D10 SMP Field Activity Report	Agency Code [46] LTPP Section ID [0804]

Onsite Datalogger and Instrumentation		
File Name - *.ONS		Comments: DOWN LOAD ONLY
Battery Replace	(Yes) No	Voltages
Repairs/Calib.	INSTALL SITE	
Other: _____		
Mobile Datalogger		
File Name - *.MOB	NO	Comments:
TDR/Resistance Voltages	Sets (0)	MANUAL DURING
Other: _____		INSTALLATION
Manual Data Collection		
Piezometer	Yes (No)	Comments: INSTALL
Resistance 2 pt.	Sets (0)	
Resistivity 4 pt.	Sets (0)	
Elevations	Sets (0)	SD DOT INSTALL BM (40')
Distress Survey	Yes (No)	
Long. Dipstick Profile	Yes (No)	
Photos or Video	(Yes) - No	INSTALCATION
Other: _____		
FWD and Associated Data		
FWD Testing	Sets (1)	Operator: D.L.M
JCP - Snap Rings	Sets (N/A)	
JCP - Faulting	Sets (N/A)	
Other: _____		

IF REQUIRED, ATTACH SKETCHES TO THIS DATA SHEET

Comments: _____

Prepared by: Robert Van Sambeek Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/14/94
Jul

LTPP Seasonal Monitoring Program Data Sheet SMP-I01 Instrumentation Installed and Participants	Agency Code [46] LTPP Section ID [0804]

List of Equipment:

Equipment	Quantity	Serial Number(s)
Instrument Hole:		
Thermistor Probe	01	46AT
Resistivity Probe	01	46AR
TDR Sensors	10	46A01 to 46A10
Equipment Cabinet:		
Campbell Scientific CR10 Datalogger	01	16540
Battery Package	01	5621
Weather Station:		
Rain Gage	01	12033~~7~~48
Air Temperature Probe	01	46AAT
Radiation Shield	01	N/A
Observation Piezometer/Bench Mark:	01	n/a
OPTIONAL BM (SD DOT)	01	—

List of Participants:

Name of Participant	Agency/Employer
BOB VAN SAMBEEK	BRAUN INTERTEC
RON URBACH	BRAUN INTERTEC
DANA MILLER	BRAUN INTERTEC
DAN STRAND	SD DOT
DARIS ORMESHER	SD DOT
RON INGLE (BRIDGE)	SD DOT
RON CALKINS (BRIDGE)	SD DOT

Prepared by: Robert Van Sambeek Employer: BRAUN INTERTEC

Date (dd/mm/yy): 07/14/94
Jul

46 SA94A

Seasonal Monitoring Program Guidelines: Version 2.1a/March 1995

LTPP Seasonal Monitoring Program Data Sheet SMP-I02 Installed Instrument Location	Agency Code [46]
	LTPP Section ID [0804]

Longitudinal and Transverse Location of Instrumentation:

Instrument	Station (Customary Units)		Offset (m)[1]	
	Planned	Actual	Planned	Actual
Instrumentation Hole	5+20	5+20	±0.76	*+1.22
Observation Piezometer	4+00	4+00	-1.52	*-1.14
Equipment Cabinet	5+20	5+20	-7.60	*-5.58
Weather Station	5+20	5+20	-7.90	*-6.08
DOT BM	5+00	5+00	—	*-13.90

[1] Transverse distance in meters from pavement edge (see LTTP Manual for FWD Testing) with (+) values toward mid-lane and (-) towards shoulder

* BASED ON 4.12M WIDE LANE (13.5')

Depth Location of Instrumentation:

Instrument		Depth from Pavement Surface to Top of Probe (m)		Comments
		Planned	Actual	
Thermistor Probe	Metal Top	0.025	0.025	
	Metal Bottom	0.152	0.149	
	PVC Top	0.230	0.235	
Resistivity Probe		0.230	0.250	

PIEZ IS 0.3351 Meters below the PE @ 4+00 (15-JUL-94)

TDR Number	Depth from Pavement Surface to Probe (m)		Comments
	Planned Location	Actual Location	
1	0.330	0.328	Base Matl. wet from Coring
2	0.483	0.480	
3	0.635	0.637	
4	0.788	0.786	
5	0.940	0.930	
6	1.092	1.095	
7	1.245	1.250	
8	1.397	1.390	
9	1.702	1.702	
10	2.007	1.985	

ATTACH TOP-VIEW SKETCH OF INSTRUMENTATION HOLE SHOWING DIRECTION OF TRAFFIC AND LOCATION OF THERMISTOR AND RESISTIVITY PROBES. LABEL PROBES "T" AND "R", RESPECTIVELY

Prepared by: Robert Van Sambeek Employer: Braun Intertec Corporation

Date (dd/mmm/yy): 05/JUL/94

BRAUN SM INTERTEC

Description: SMP 465A - 460804

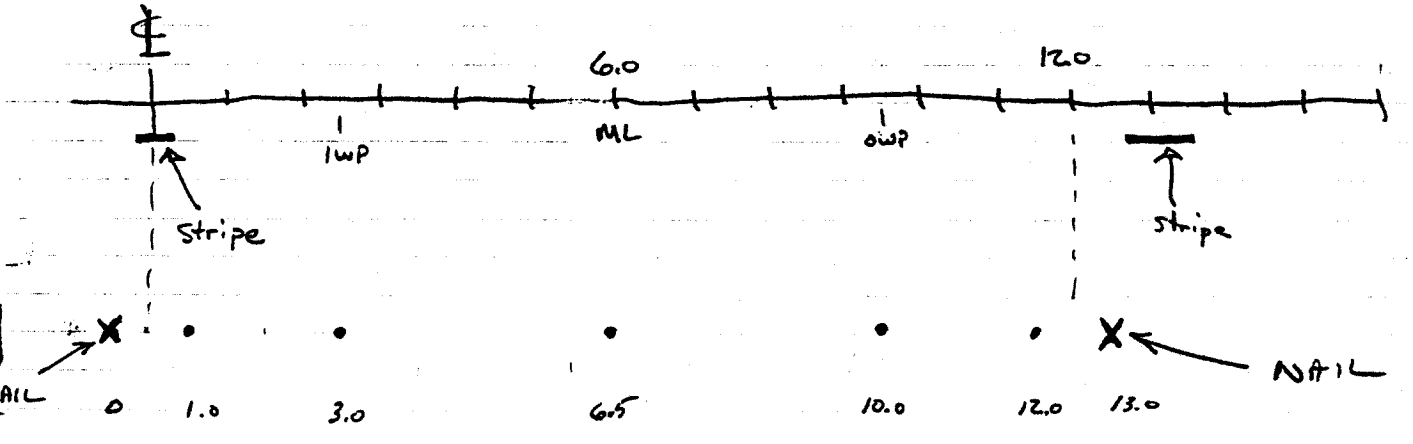
Project No: DBNX92700 BG

Date: 7/13/94 By: RV

OP @ SITE

* LOOK @ CABINET ONLY 20' FROM LANE STRIPE.
  - KEEP OUT OF DITCH BOTTOM

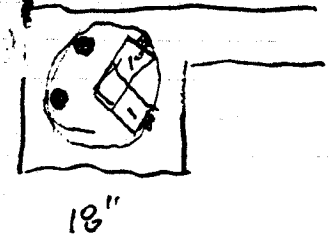
* WIDE LANE (13' to +13')
  - LOOKING AT COLOR CHANGE TO IDENTIFY ML AND WP's.
  - 6.0' FROM ℄ IS @ ML.



* FROST FREE BENCH MARK @ STA - 4400 @ EDGE OF R.O.W.
  - ASK DRILL RIG OP. IF ABLE TO INSTALL THERE

- FOG DELAY ~ 1 HR.

Marked all elevation pts. prior to FWD Testing - offsets as noted above



- Epoxy in bottom of hole for block because of coarse texture on bottom of block.
- Block 7.1" to 7.2" Deep
- Base 12.0" Granular w/ little fines

46 S A 9 4 A

Seasonal Monitoring Program Guidelines: Version 2.1a/March 1995

LTPP Seasonal Monitoring Program Data Sheet SMP-I03 Log of Piezometer Hole	Agency Code [46] LTPP Section ID [0804]

Operator: INGLE/CALKINS Equipment Used: CME 55

Location: Station: 4+00 Offset: ~~1.51~~ -1.14 based on 4.12 M Lane m (from lane edge)

Bore Hole Diameter: 140 mm Auger Type: 5½" SOLID STEM

Scale (m)	Depth from Surface[1] (m)	Material Description	Material Code[2]
	0.2	GRAVEL	302
0.5		SILTY CLAY BLACK TO DARK GRAY MOIST TO WET	131
1.0			
1.5	1.4±		
		SILTY CLAY GRAY MOIST TO WET	131
2.0			
2.5			
3.0			
3.5			
4.0	4.45		
4.5		FILTER SAND 4.45M TO 3.2M BENTONITE 3.2M TO 2.62 SILTY CLAY 2.62M TO .62M CONCRETE PLACED AROUND PROTECTIVE PIPE .62M TO ABOUT .1M FROM TOP OF PIPE	
5.0		ONE 5 GAL PAIL OF SOIL TAKEN	

[1] Format: __.____ m; [2] Format: ___

Prepared by: RON URBACH Employer: Braun Intertec Corporation

Date (dd/mmm/yy): 14/JUL/94

46S804 A

Seasonal Monitoring Program Guidelines: Version 2.1a/March 1995

LTPP Seasonal Monitoring Program Data Sheet SMP-I04 Log of Instrumentation Hole	Agency Code [46] LTPP Section ID [0804]

Operator: INGLE/CALKINS Equipment Used: CME 55

Location: Station: 5+20 Offset: * 1.22 m (from lane edge)

Bore Hole Diameter: 305. mm 12" * Based on 4.12 Meter lane

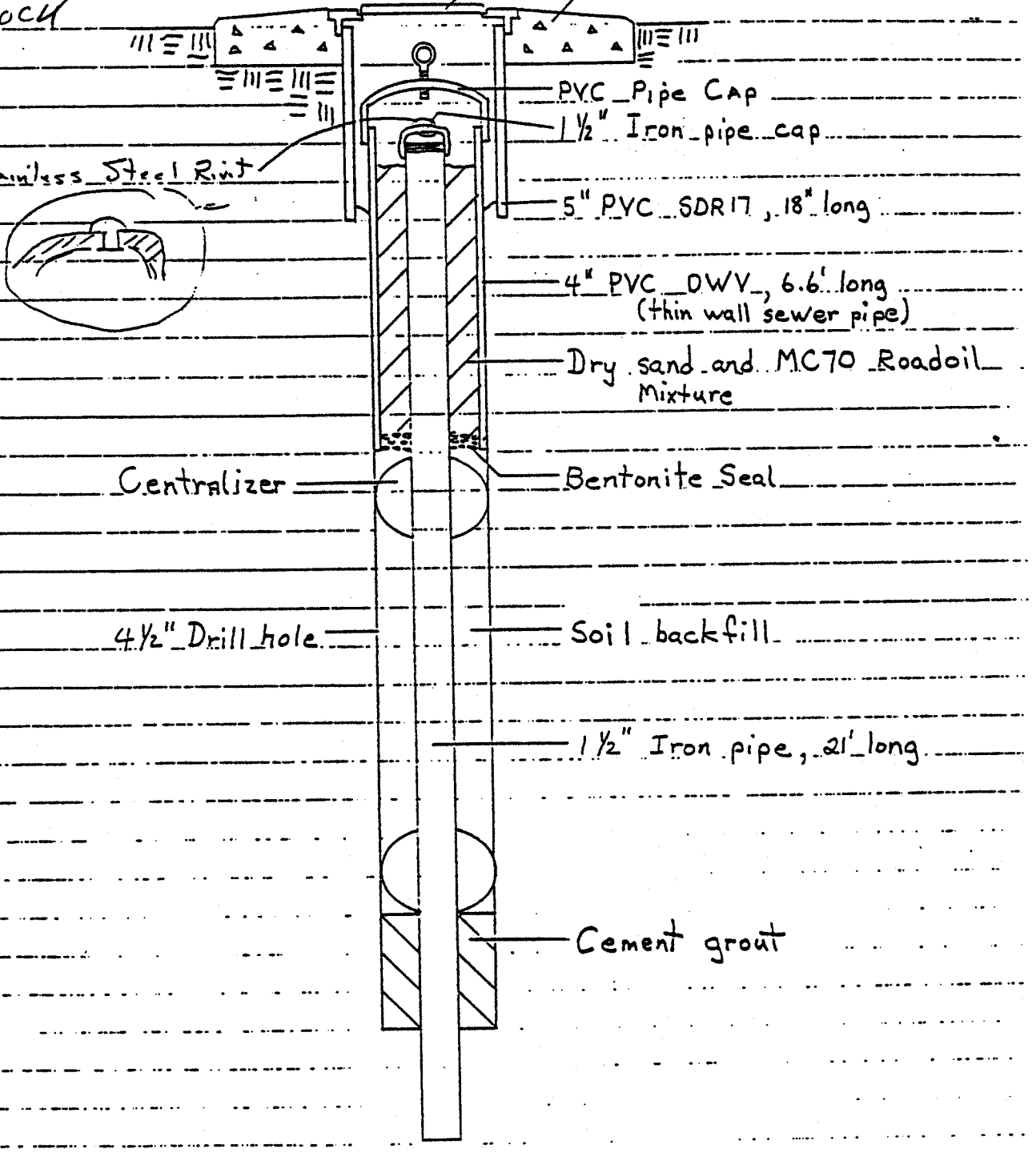
Scale (m)	Strata Change[1] (m)	Material Description	PAIL #	Material Code[2]
0.10	0.19	AC		700
0.20				
0.30	0.39	CRUSHED GRAVEL BROWN	1/2	304
0.40	0.49	GRAVEL BROWN	3	302
0.50	0.60	SILTY CLAY BLACK MOIST TO WET	4	131
0.60	0.70	SILTY CLAY BLACK MOIST TO WET	5	131
0.70	0.81	SILTY CLAY DK GRAY MOIST TO WET	6	131
0.80	0.91	SILTY CLAY DK GRAY MOIST TO WET	7	131
0.90	1.10	SILTY CLAY DK GRAY MOIST WET	8	131
1.00	1.12	SILTY CLAY BLACK MOIST TO WET	9	131
1.10	1.23	SILTY CLAY MOIST DK BROWN TO WET	10	131
1.20	1.39	SILTY CLAY DK BROWN MOIST TO WET	11	131
1.30	1.52	SILTY CLAY GRAY MOIST TO WET	12	131
1.40	1.64	SILTY CLAY GRAY MOIST TO WET	13	131
1.50	1.79	SILTY CLAY GRAY MOIST TO WET	14	131
1.60	1.90	SILTY CLAY GRAY MOIST TO WET	15	131
1.70	2.07	SILTY CLAY GRAY MOIST TO WET	16	131
1.80				
1.90				
2.00				
2.10				
2.20				
2.30				
2.40				
2.50				

[1] Format: __.____ m; [2] Format: ____

Prepared by: RON URBACH Employer: Braun Intertec Corporation

Date (dd/mmm/yy): 14JUL94

BM PUT IN
BY DOT
460804
POLLOCK



I-29 Benchmarks
Installed Sept. & Oct. 1989
Geotechnical Activity
SD DOT

SD DOT BM
(465A)

- SET & LEVEL R.C
- DRILL 20½ RT. OF 4" HOLE
- REMOVE 1-5' AUGER, ADD SMART 8" AUGER
- DRILL 1½' OF BIG HOLE
- SET PIPE W/ CENTRALIZER (USE PUSH PIPE TO SET TO EXACT DEPTH)
- ~~BACK~~ POUR BOTTOM CEMENT
- BACKFILL TO 6' BELOW TOP
- SET 4" PIPE
- ADD BENTONITE
- SET TOP CENTRALIZER
- SET 5" PIPE & PACK
- SET & LEVEL FORM
- PUT ON CAPS (4" & FLIP-LID)
- POUR & FINISH CONCRETE TOP
- DRIVE CARSONITE (DO NEXT DAY)
- DRIVE STEEL POST (DO NEXT DAY)

— NEXT DAY —

- REMOVE FORM
- POUR OIL & SAND
- CLEAN-UP SITE
- REMOVE LATH & MARKER

Next Day

LTPP Seasonal Monitoring Program Data Sheet SMP-I05 Field Gravimetric Moisture Content	Agency Code [46] LTPP Section ID [0804]

TDR Probe	Probe Depth[1] (m)	Moisture Sample No.	Pan No.	Wt. of Pan (gms) = A	Wt. of Pan + Wet Soil (gms) = B	Wt. of Pan + Dry Soil (gms) = C	Wt. of Dry Soil (gms) = D = C - A	Wt. of Water (gms) = E = B - C	Moisture Content (%) = w = E/D * 100
1	0.328	1	3	~~223.5~~ ~~222.5~~	~~817.3~~ ~~543.9~~	790.5	567.0	26.8	4.7
2	0.480	2	1	223.5	835.5	802.5	579.0	33.0	5.7
3	0.637	3	2	223.1	663.5	599.9	376.8	63.6	16.9
4	0.786	4	4	221.6	636.8	545.9	324.3	90.9	28.0
5	0.930	5	3	~~622.4.1~~	621.1	545.7	322.2	78.4	24.3
6	1.095	6	1	223.5	634.3	541.8	318.3	92.5	29.1
7	1.250	7	4	221.6	430.0	383.7	162.1	46.3	28.6
8	1.390	8	2	~~224.3~~ ~~224.1~~	473.7	419.6	196.5	54.1	27.5
9	1.702	9	2	223.4	441.1	396.9	173.5	44.2	25.5
10	1.985	10	1	223.5	543.9	478.7	255.2	65.2	25.6

[1] Distance in meters from pavement surface to TDR probe

Comments: _____

Prepared by: Doris O. Employer: SD DOT

Date (dd/mm/yy): 14/JUL/94

LTPP Seasonal Monitoring Program Data Sheet SMP-10S(A) LAB ~~Field~~ Gravimetric Moisture Content	Agency Code [46] LTPP Section ID [0804]

TDR Probe	Probe Depth[1] (m)	Moisture Sample No.	Pan No.	Wt. of Pan (gms) = A	Wt. of Pan + Wet Soil (gms) = B	Wt. of Pan + Dry Soil (gms) = C	Wt. of Dry Soil (gms) = D = C - A	Wt. of Water (gms) = E = B - C	Moisture Content (%) = w = E/D * 100
1	_._____	1	21	221.9	879.8	851.8	632.9	25.0	4.0
2	_._____	2	22	226.0	928.8	896.0	670.0	32.8	4.9
3	_._____	3	23	239.3	680.0	622.8	383.5	57.2	14.9
4	_._____	4	24	223.5	730.4	632.3	408.8	98.1	24.0
5	_._____	5	25	227.3	636.1	567.1	339.8	69.0	20.3
6	_._____	6	26	226.4	703.8	608.9	382.5	91.9	24.8
7	_._____	7	27	227.7	485.8	435.0	207.3	50.8	24.5
8	_._____	8	28	233.2	712.9	620.5	387.3	92.4	23.9
9	_._____	9	29	228.3	481.0	433.8	205.5	47.2	23.0
10	_._____	10	30	232.9	607.0	537.3	301.4	69.7	22.9

[1] Distance in meters from pavement surface to TDR probe

Comments: SD DOT LAB

Prepared by: _____ Employer: _____

Date (dd/mm/yy): 07/16/94

Gravimetric Moisture Contents

LTPP Seasonal Monitoring Program Data Sheet SMP-I05 (B) Gravimetric Moisture Comparison	Agency Code [46] LTPP Section ID [0804]

TDR	SMP-I02 TDR Depth (m)	SMP-I04 Material Code	Lab Data Dry Density (pcf)	TDR Installation Data		Gravimetric Moistures		Comments
				SMP-I06 La (m)	Calculated Gravimetric (percent)	SMP-I05 Field (percent)	SMP-I05A Lab (percent)	
1	0.328	304	135.9	0.60	7.7	4.7	4.0	
2	0.480	302	135.9	0.60	7.7	5.2	4.9	
3	0.637	131	96.0	0.96	24.7	16.9	14.9	
4	0.786	131	96.0	1.18	31.0	28.0	24.0	FLAT TRACE (TDR)
5	0.930	131	96.0	1.07	28.1	24.3	20.3	
6	1.095	131	96.0	1.27	33.2	29.1	24.8	
7	1.250	131	96.0	1.13	29.8	28.6	24.5	
8	1.390	131	96.0	1.42	36.9	27.5	23.9	FLAT TRACES (TDR)
9	1.702	131	96.0	1.46	38.1	25.5	23.0	
10	1.985	131	96.0	1.43	37.2	25.6	22.9	

TDR Gravimetric moistures calculated using equations on pages II-2 and II-5 of FHWA-RD-94-110 with La = 0.203 m, and Vp = 0.99.

Comments: DoT info has subgrade @ 96 pcf dry density. DoT had base @ 143 pcf max dry density - Expect 95% proctor to be better estimate (@ 135.9 pcf) of conditions in the field.

Prepared by: RSV/JSD Employer: Braun Intertec Corporation Date (dd/mmm/yy): 27/DEC/95

$$\omega = \left(-330.72 + 4526.78\,La^2 - 2103.88\,La^4 + 402.25\,La^6\right)/\gamma_d \quad ; \quad La \text{ (meters)}, \ \gamma_d \text{ (pcf)}, \ \omega \text{ (\%)}$$

LTPP Seasonal Monitoring Program Data Sheet SMP-I06 TDR Moisture Content	Agency Code [46] LTPP Section ID [0804]

Required Settings:

Dist./Division: 0.25 m
Phase Velocity: 0.99
Noise Filter: 1 average — Est. Times

Probe Number	Probe Depth[1] (m)	Time (military)	Apparent Length (m)	Dielectric Constant[2]	Comments
1	0.328	1430	0.60	8.91	wet from sawing block and trench
2	0.480	1420	0.60	8.91	
3	0.637	1410	0.96	22.82	
4	0.786	1400	1.18	34.47	FLAT TRACE
5	0.930	1345	1.07	28.35	
6	1.095	1330	1.27	39.93	FLAT TRACE
7	1.250	1310	1.13	31.61	FLAT TRACE
8	1.390	1250	1.42	49.92	FLAT TRACE
9	1.702	1225	1.46	52.78	FLAT TRACE
10	1.985	1200	1.43	50.63	FLAT TRACE

[1] Distance in meters from pavement surface to TDR probe
[2] Dielectric constant is determined as follows:

$$\varepsilon = \left[\frac{(L_a)}{(L)(V_p)}\right]^2 = \left[\frac{(D_2 - D_1)}{(L)(V_p)}\right]^2 = 24.759\, L_a^2$$

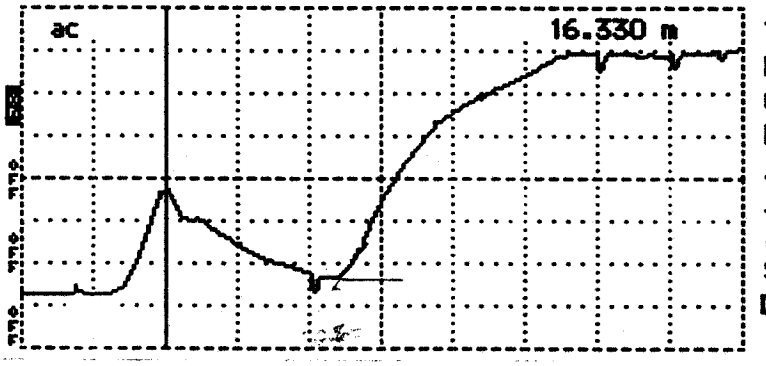
where ε = dielectric constant; L_a = apparent length of probe, m; L = actual length of probe units (= 0.203 m (8 in) for FHWA probes); V_p = phase velocity setting (= 0.99).

ATTACH TDR TRACES TO THIS DATA SHEET.

Comments: FLAT TRACES MAKE SECOND INFLECTION POINT DIFFICULT TO DEFINE (LARGE RANGE FOR L_A POSSIBLE)

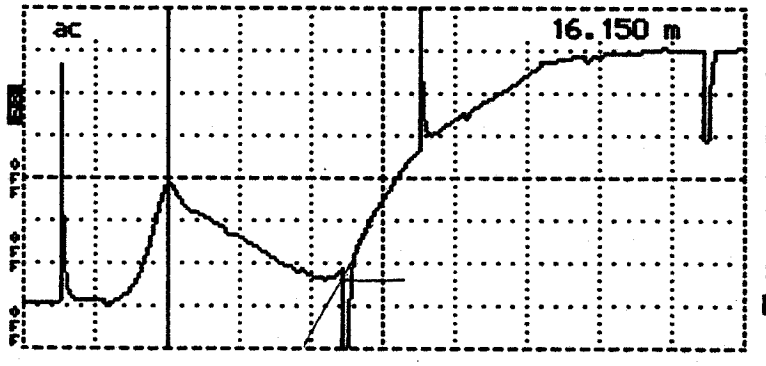
Prepared by: _____ Employer: BRAUN INTERTEC

Date (dd/mm/yy): 15-JUL/94



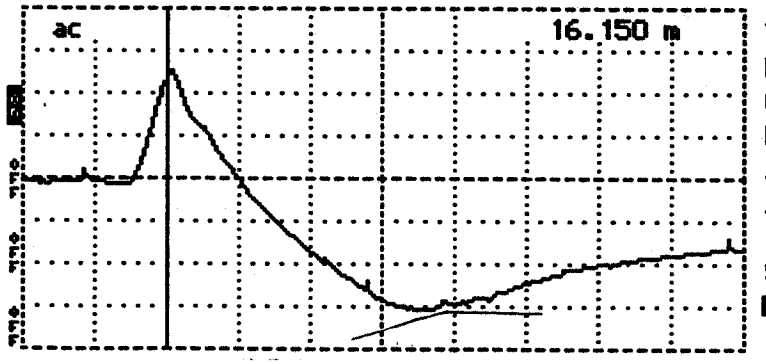
..... 16.330 m
/Div ..... .25 m/div
Scale..... 81.6 mρ/div
..... 0.99
.er ..... 1 avg
..... ac

Tektronix 1502B TDR
Date 7-14-94
Cable 46A01
Notes BARE MATL; WET FROM SAWING BLOCK
Input Trace
Stored Trace
Difference Trace



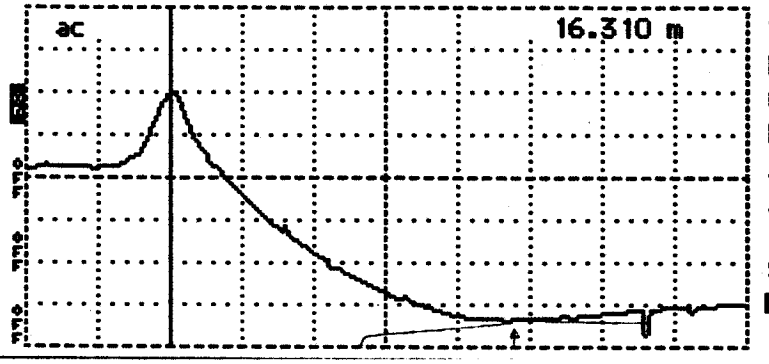
..... 16.150 m
/Div ..... .25 m/div
Scale..... 77.0 mρ/div
..... 0.99
..... 1 avg
..... ac

Tektronix 1502B TDR
Date 7-14-94
Cable 46A02
Notes
Input Trace
Stored Trace
Difference Trace



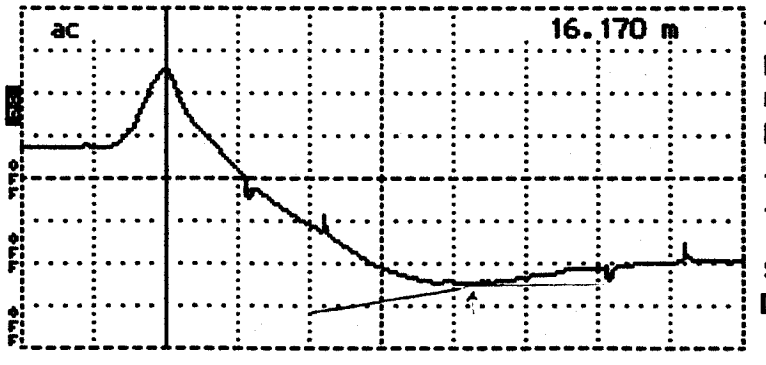
..... 16.150 m
/Div ..... .25 m/div
Scale..... 77.0 mρ/div
..... 0.99
..... 1 avg
..... ac

Tektronix 1502B TDR
Date 7-14-94
Cable 46A03
Notes
Input Trace
Stored Trace
Difference Trace



..... 16.310 m
e/Div ..... .25 m/div
Scale..... 100 mρ/div
..... 0.99
ter ..... 1 avg
..... ac

Tektronix 1502B TDR
Date 7-14-94
Cable 46A04
Notes
Input Trace
Stored Trace
Difference Trace

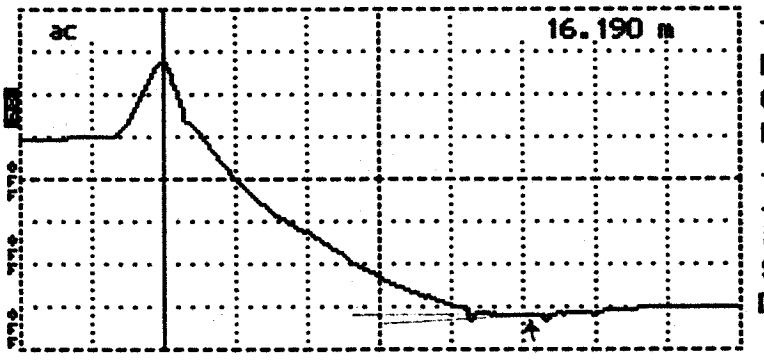


..... 16.170 m
e/Div ..... .25 m/div
Scale..... 100 mρ/div
..... 0.99
ter ..... 1 avg
..... ac

Tektronix 1502B TDR
Date 7-14-94
Cable 46A05
Notes
Input Trace
Stored Trace
Difference Trace

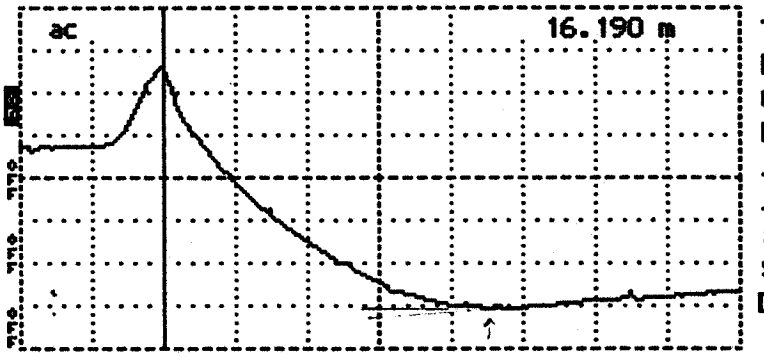
50 SHEETS
100 SHEETS
200 SHEETS
22-141
22-142
22-144
AMPAD

..... 16.190 m
e/Div..... .25 m/div
Scale.... 100 mΩ/div
..... 0.99
..... 1 avg
..... ac



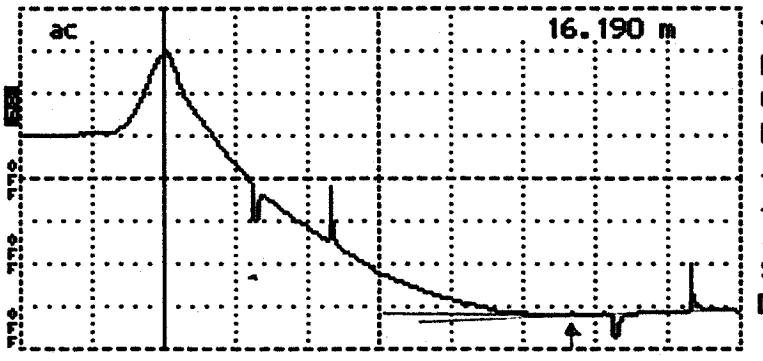
Tektronix 1502B TDR
Date 7-14-94
Cable 46A06
Notes
Input Trace
Stored Trace
Difference Trace

..... 16.190 m
e/Div..... .25 m/div
Scale.... 100 mΩ/div
..... 0.99
..... 1 avg
..... ac



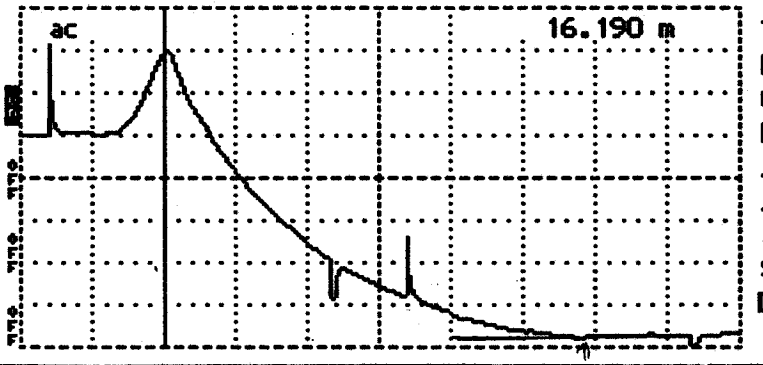
Tektronix 1502B TDR
Date 7-14-94
Cable 46A07
Notes
Input Trace
Stored Trace
Difference Trace

..... 16.190 m
e/Div..... .25 m/div
Scale.... 100 mΩ/div
..... 0.99
..... 1 avg
..... ac



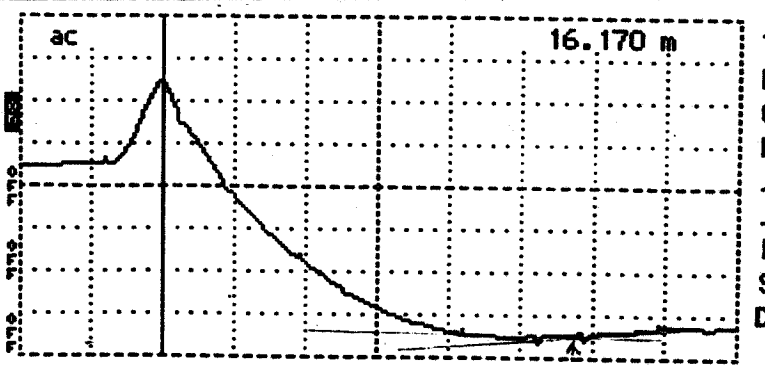
Tektronix 1502B TDR
Date 7-14-94
Cable 46A08
Notes
Input Trace
Stored Trace
Difference Trace

..... 16.190 m
e/Div..... .25 m/div
Scale.... 100 mΩ/div
..... 0.99
..... 1 avg
..... ac



Tektronix 1502B TDR
Date 7-14-94
Cable 46A09
Notes
Input Trace
Stored Trace
Difference Trace

..... 16.170 m
..... .25 m/div
Scale.... 100 mΩ/div
..... 0.99
..... 1 avg
..... ac



Tektronix 1502B TDR
Date 7-14-94
Cable 46A10
Notes
Input Trace
Stored Trace
Difference Trace

46 S A 9 4 A

LTPP Seasonal Monitoring Program Data Sheet SMP-I07 Representative Dry Density	Agency Code [46] LTPP Section ID [0804]

Depth of Representative Sample (from pavement surface): __.___ m

Dry Density Determination:

a. Tare Weight of Empty Mold: _____ g (__.___ lb)

b. Weight of Mold and Compacted Soil: _____ g (__.___ lb)

c. Weight of Compacted Sample (b - a): _____ g (__.___ lb)

d. Unit Weight of Compacted Soil = [(b - a) / 943.0] = __.___ g/cm³

([(b - a) * 30] = ____.__ lb/ft³)

e. Dry Density of Compacted Soil = [d / (100 - r)] = __.___ g/cm³

(____.__ lb/ft³)

Moisture Content Determination:

m. Tare Weight of Pan: ____.__ g

n. Weight of Pan and Moisture Sample: ____.__ g

o. Weight of Pan and Dry Sample: ____.__ g

p. Weight of Moisture (n - o): ____.__ g

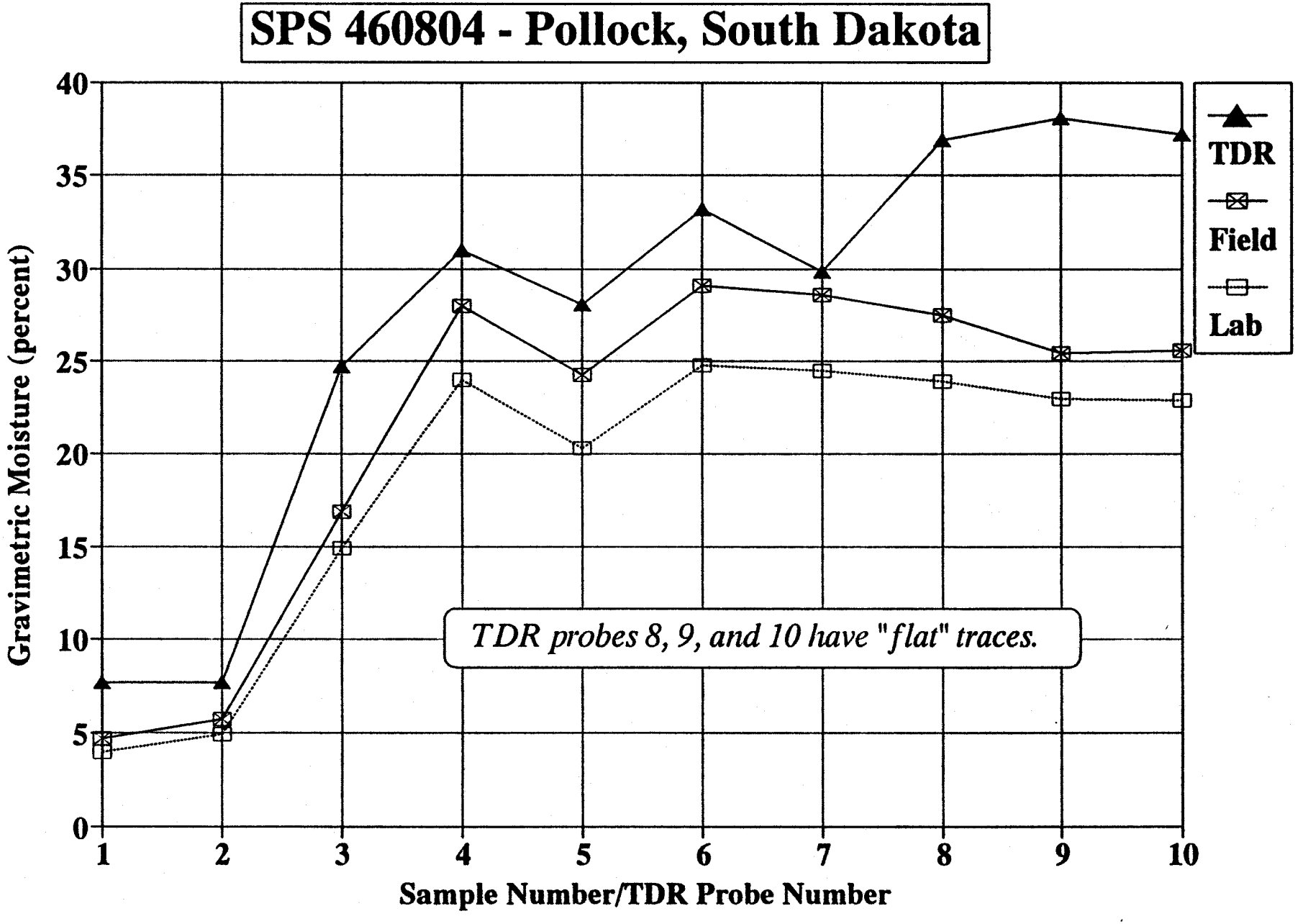
q. Weight of Dry Sample (o - m): ____.__ g

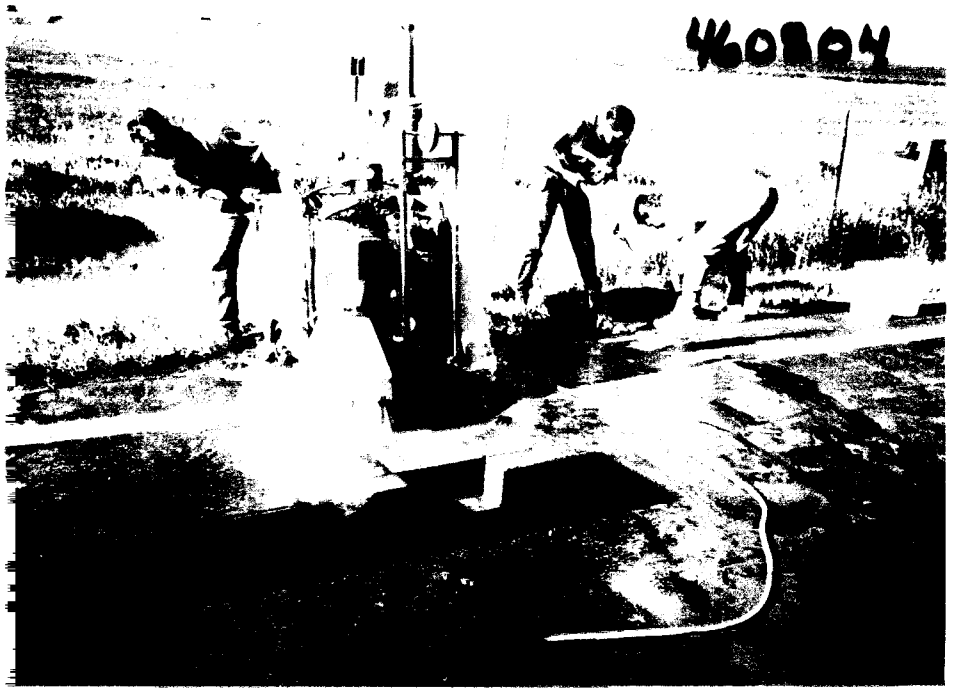
r. Moisture Content by Weight = [(p / (p + q) * 100] = __.__ %

Comments: NOT PART OF PROCEDURE IN 1994

Prepared by: Robert Van Sambeek Employer: Braun Intertec Corporation

Date (dd/mmm/yy): 27 / DEC / 95 (For 1994 install)


SPS 460804 - Pollock, South Dakota
Gravimetric Moisture (percent)
0
5
10
15
20
25
30
35
40
1
2
3
4
5
6
7
8
9
10
Sample Number/TDR Probe Number
TDR
Field
Lab
TDR probes 8, 9, and 10 have "flat" traces.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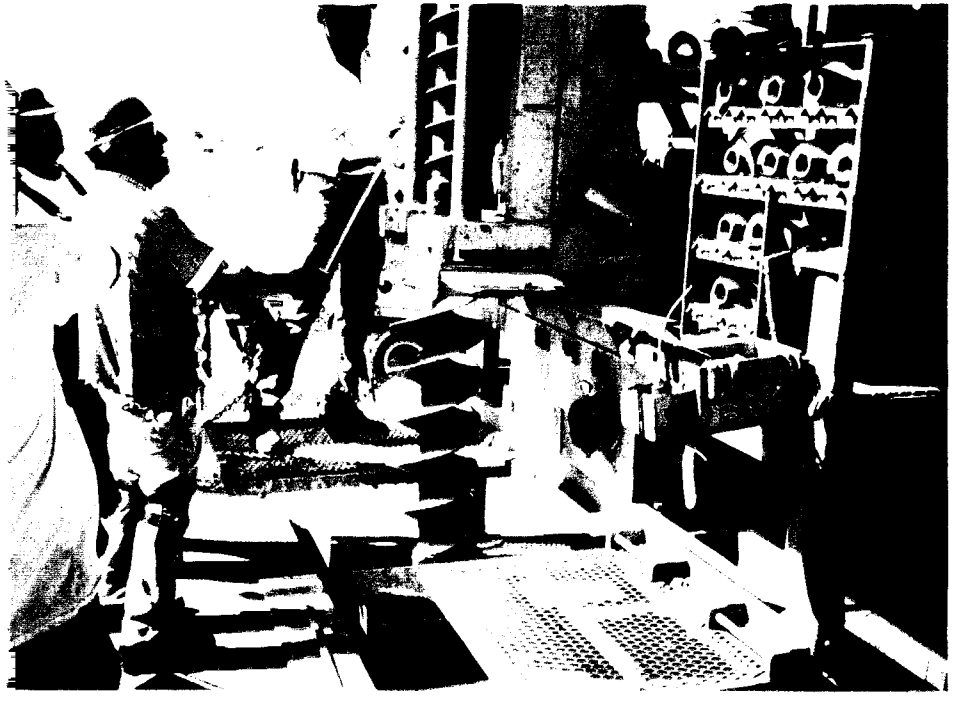


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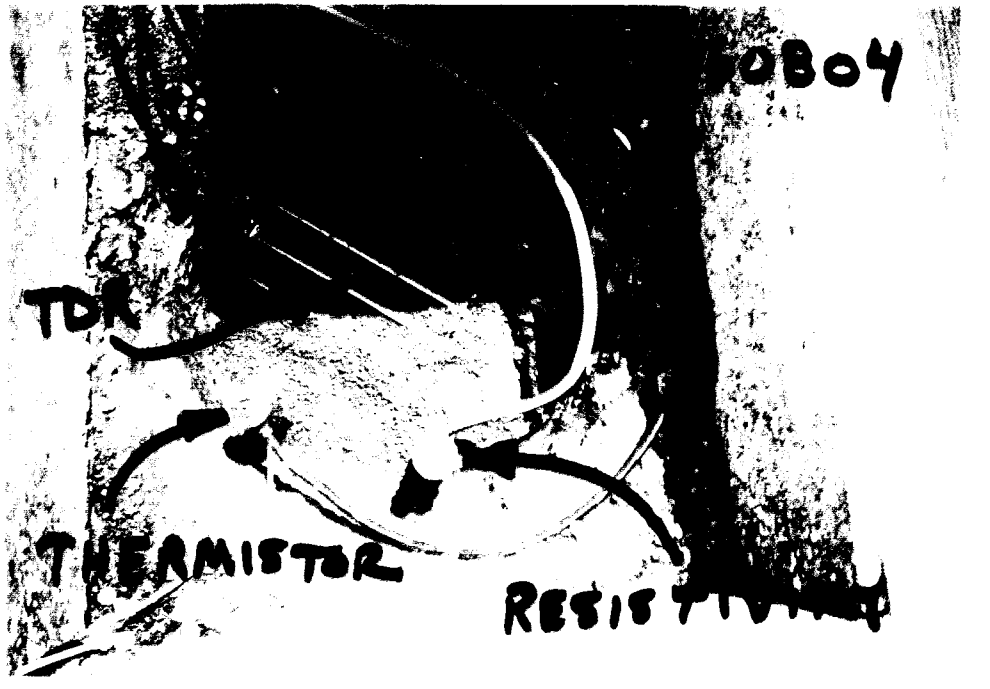
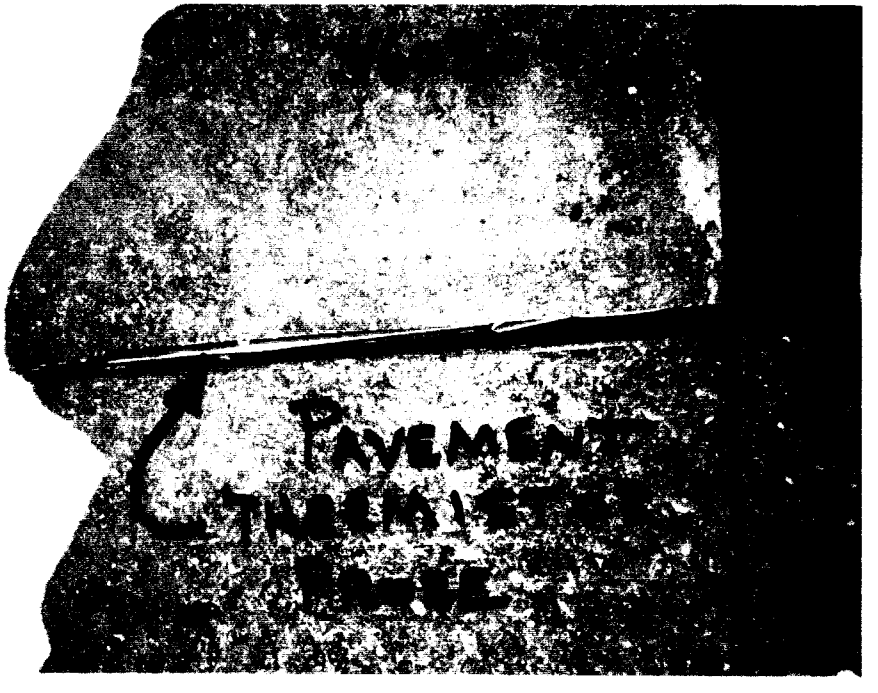
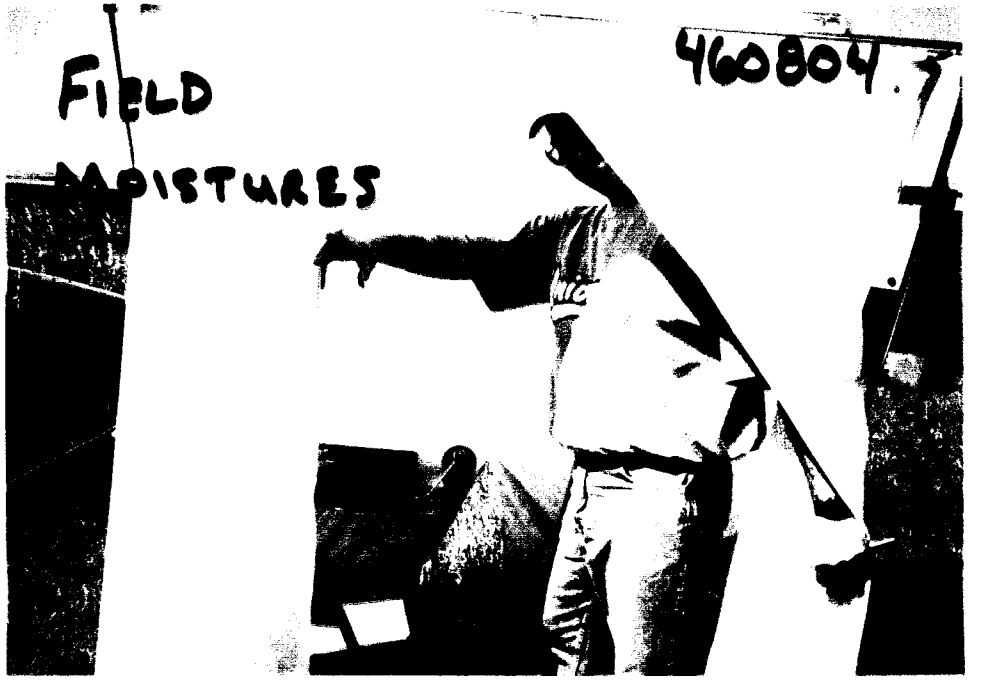
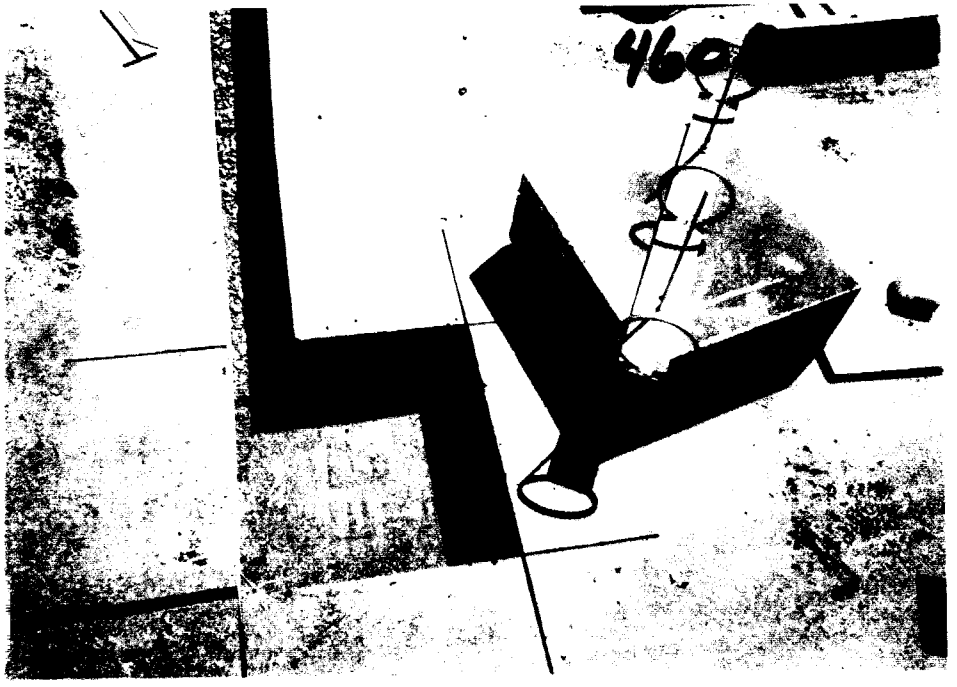
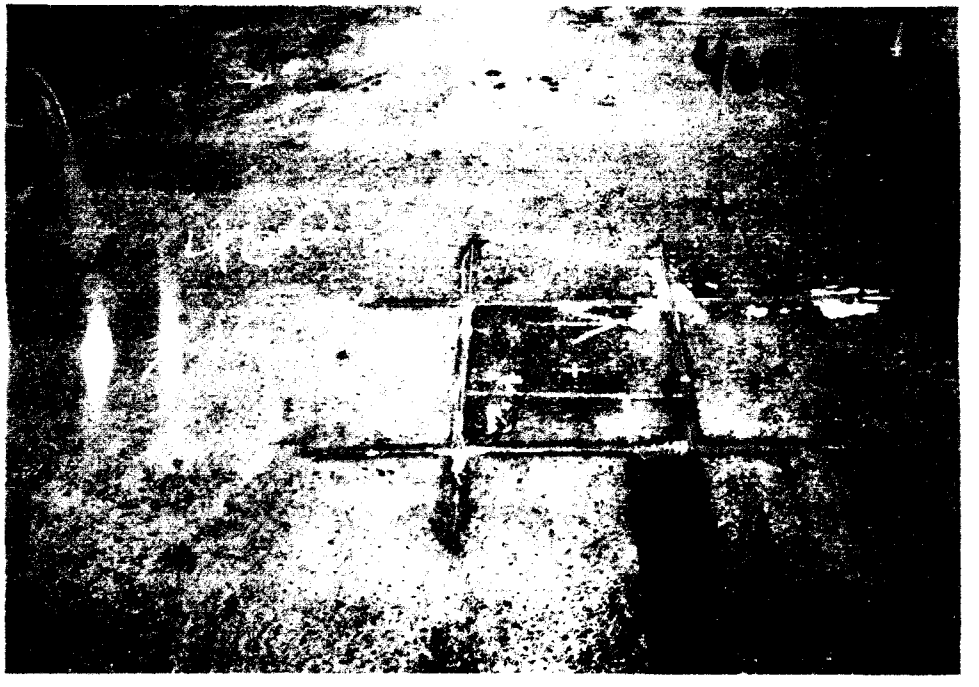

0804
TDR
THERMISTOR

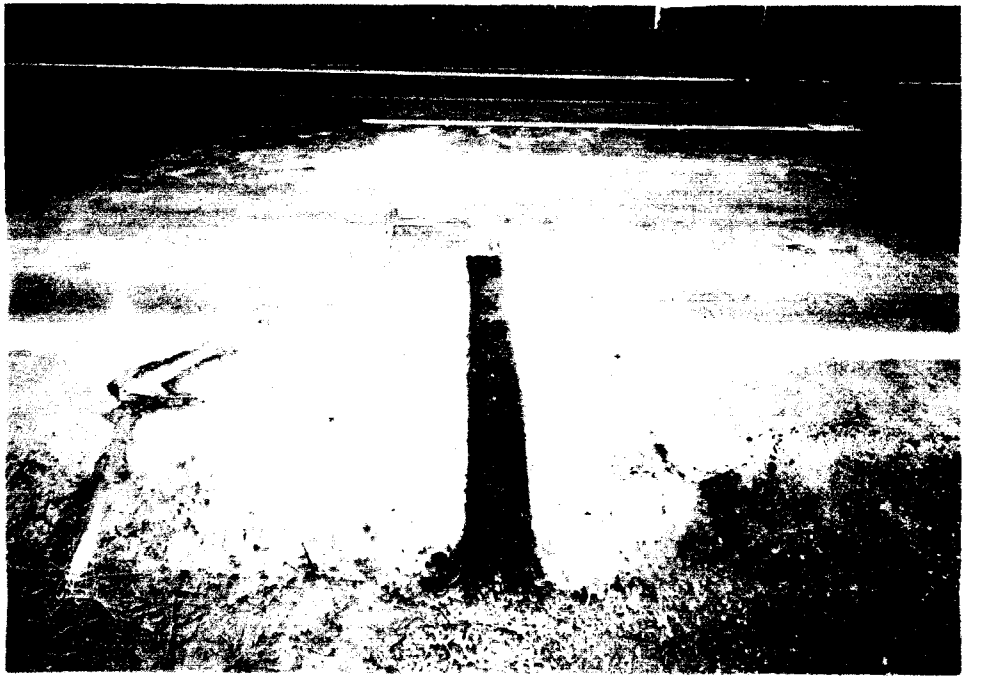

PAVEMENT


FIELD
460804.5






!!
PIEZOMETER



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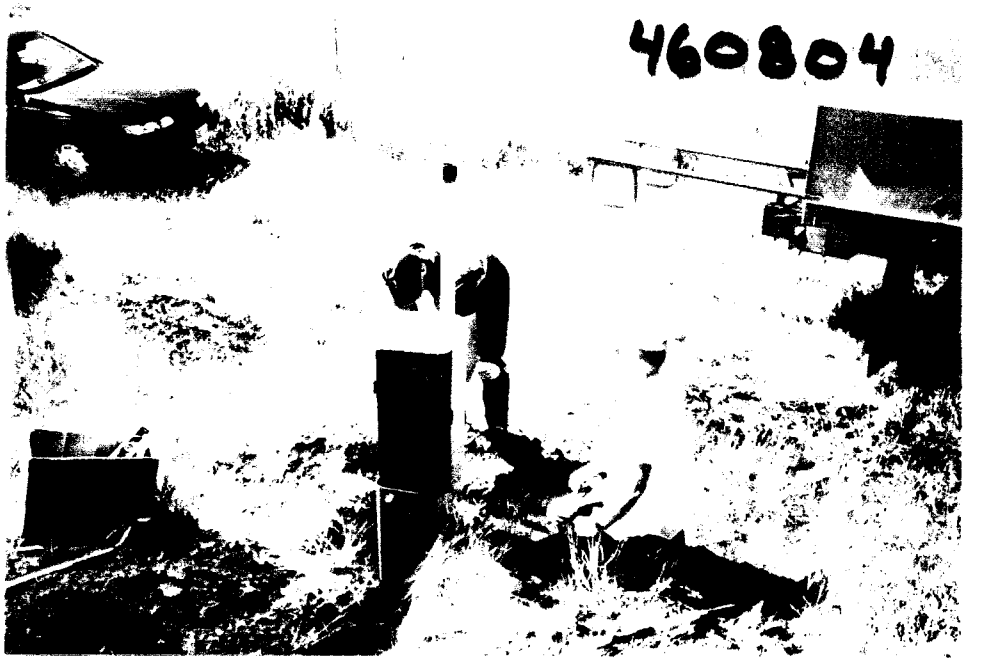

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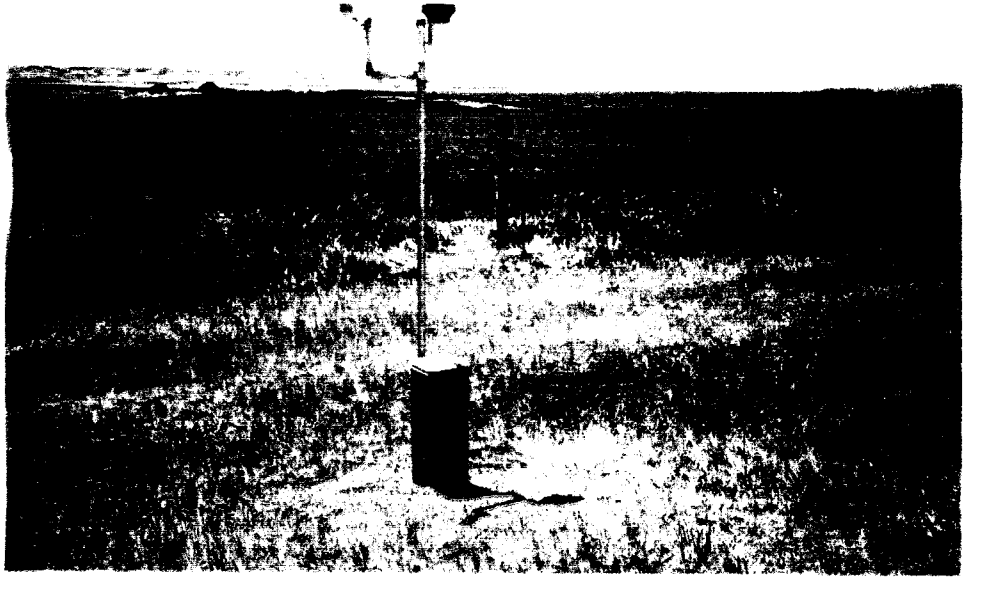

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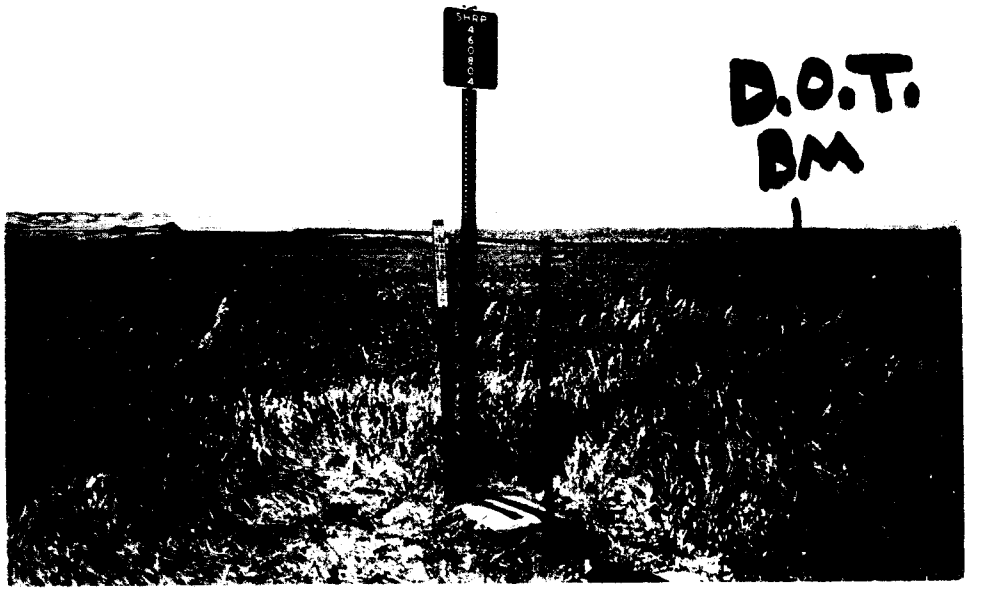


Appendix D-1: Initial SMP Monitoring Data Collection

Appendix D-1 contains the following data sheets with information collected the day after instrumentation installation:

- Data Sheet SMP-D03: Contact Resistance Measurements;
- Data Sheet SMP-D04: Four-Point Resistivity Measurements;
- Data Sheet SMP-D05: Ground Water Table Measurements; and
- Data Sheet SMP-D08: Surface Elevation Measurements - AC Pavements.

10UI1 170

LTPP Seasonal Monitoring Program Data Sheet SMP-D10 SMP Field Activity Report	Agency Code [46] LTPP Section ID [0804]

Onsite Datalogger and Instrumentation		
File Name - *.ONS	46SA94BG	Comments:
Battery Replace	Yes - (No)	Voltages 13.5
Repairs/Calib.		
Other:		
Mobile Datalogger		
File Name - *.MOB	46SA94BG	Comments:
TDR/Resistance Voltages	Sets (2)	
Other:		
Manual Data Collection		
Piezometer	(Yes) No	Comments: DRY 9/99
Resistance 2 pt.	Sets (1)	
Resistivity 4 pt.	Sets (1)	
Elevations	Sets (1)	
Distress Survey	Yes - (No)	
Long. Dipstick Profile	Yes - (No)	
Photos or Video	(Yes) - No	ON BLOCK
Other:		
FWD and Associated Data		
FWD Testing	Sets (4)	Operator: D.L.M
JCP - Snap Rings	Sets (—)	
JCP - Faulting	Sets (—)	
Other:		

IF REQUIRED, ATTACH SKETCHES TO THIS DATA SHEET

Comments:

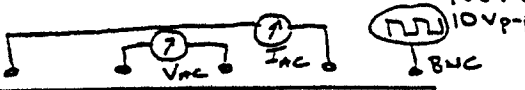
Prepared by: D.L.M Employer: BRAUN INTERTEC

Date (dd/mm/yy): 11/15/94

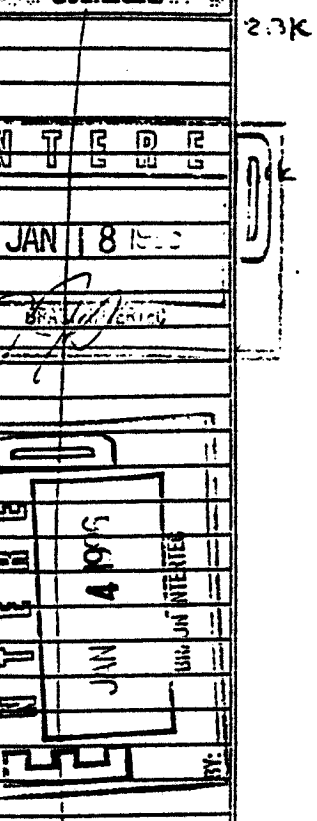
JW

LTPP Seasonal Monitoring Program Data Sheet SMP-D03 Contact Resistance Measurements	Agency Code [46] Test Section Number [0804]

Start Time (military): 10:41



Test Position	Connections I, V	Connections J, V	Voltage (ACV) Range Setting	Voltage (ACV) Reading	Current (ACA) Range Setting	Current (ACA) Reading	Comments
1	1	2	volts	2.132	micro	928	
2	2	3		1.940		962	
3	3	4		1.987		980	
4	4	5		1.924	micro	993	
5	5	6		1.293	milli	1.222	
6	6	7		0.740		1.433	
7	7	8		0.896		1.357	
8	8	9		1.042		1.300	
9	9	10		1.450		1.183	
10	10	16		1.315		1.254	
11	11	12		0.860		1.469	
12	12	13		0.890		1.469	
13	13	14		0.837		1.453	
14	14	15		0.730		1.482	
15	15	16		0.912		1.383	
16	16	18		0.900		1.396	
17	17	18		0.630		1.504	
18	18	19		0.482		1.576	
19	19	20		0.503		1.587	
20	20	28		0.593		1.555	
21	21	22		0.600		1.532	
22	22	23	↓	0.414		1.605	
23	23	24	millivolts	304.7		1.651	
24	24	25		277.3		1.666	
25	25	26		279.0		1.664	
26	26	28		307.9		1.647	
27	27	28		302.6		1.573	
28	28	29		306.0		1.576	
29	29	30	↓	387.1		1.545	
30	30	36	VOLTS	0.687		1.419	
31	31	32		0.872		1.306	
32	32	33		2.196		.835	
33	33	34		2.070		.860	
34	34	35		1.487	↓	1.023	
35	35	36	↓	0.945	milli	1.260	
36	36	37	millivolts	1.0	micro	1486	R1 = E/I = 0.97
37	37	38	↓	144.5		1490	R2 = E/I = 100.7
38	38	39	VOLTS	1.110		1103	R3 = E/I = 1004
39	39	00	↓	4.71	↓	5.6	R4 = E/I = 0.994



Comments (FHWA SWITCH BOX FROM 4/1/94 WITH BNC).

DAY AFTER INSTALLATION

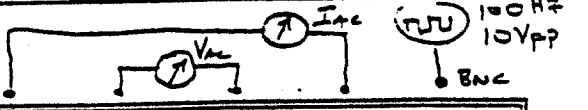
Prepared by: R.J.V. / D.O. (w/DOT) Employer: BRAUN INTERTEC CORP.

Date: July 15/1994

DATA SET : 4 6 0 8 0 4

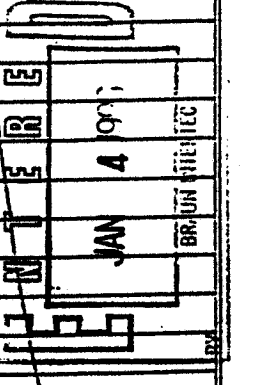
LTPP Seasonal Monitoring Program Data Sheet SMP-D04 Four-Point Resistivity Measurements	Agency Code [46] Test Section Number: [0804]

Start Time (military): 10:58



Test Position	Connections I+	V+	V-	I-	Voltage (ACV) Range Setting	Reading	Current (ACA) Range Setting	Reading	Comments
1	1	2	3	4	milli V	112.8	micro	859	
2	2	3	4	5		92.0		966	
3	3	4	5	6		86.6	milli	1.069	
4	4	5	6	7		46.7		1.072	
5	5	6	7	8		19.3		1.130	
6	6	7	8	9		20.9		1.294	
7	7	8	9	10		13.2		1.164	
8	8	9	10	11		20.1		1320	
9	9	10	11	12		15.2		1.330	
10	10	11	12	13		18.4		1.202	
11	11	12	13	14		13.4		1.399	
12	12	13	14	15		24.7		1339	
13	13	14	15	16		13.2		1302	
14	14	15	16	17		20.0		1.300	
15	15	16	17	18		17.4		1.345	
16	16	17	18	19		17.7		1.382	
17	17	18	19	20		16.1		1.458	
18	18	19	20	21		15.3		1.516	
19	19	20	21	22		13.4		1.539	
20	20	21	22	23		14.5		1.645	
21	21	22	23	24		12.9		1.602	
22	22	23	24	25		12.7		1.604	
23	23	24	25	26		12.2		1.607	
24	24	25	26	27		12.6		1.745	
25	25	26	27	28		13.4		1.739	
26	26	27	28	29		13.0		1.761	
27	27	28	29	30		12.7		1.702	
28	28	29	30	31		12.2		1.615	
29	29	30	31	32		13.1	milli	1.616	
30	30	31	32	33		6.9	micro	969	
31	31	32	33	34		12.4	milli	1.329	
32	32	33	34	35		8.8		1.343	
33	33	34	35	36		10.5		1.103	
36	36	36	37	37		1.2		1.693	$R_1 = E/I = ?$ 0.97
37	37	37	38	38		161.2		1.609	$R = E/I = ?$ 100.7
38	38	38	39	39	Volts	1.173	milli	1.172	$R_2 = E/I = ?$ 1004
39	39	39	00	00		4.85	micro	5.7	$R_3 = E/I = ?$ 0.994M

Comments



(EHWA BOX FROM 11/1/94 WITH BNC)

Prepared by: R.J.V / DARIS O. Employer: BRAUN INTERTEC CORP.

Date: Jul 09/15/1994 Comments: DAY AFTER INSTALL.

46SA9115

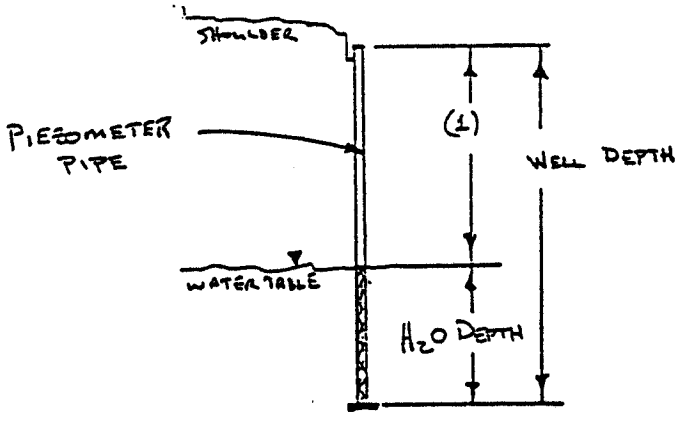
LTPP Seasonal Monitoring Program Data Sheet SMP-D05 Ground Water Table Measurement	Agency Code [46] Test Section Number [0804]

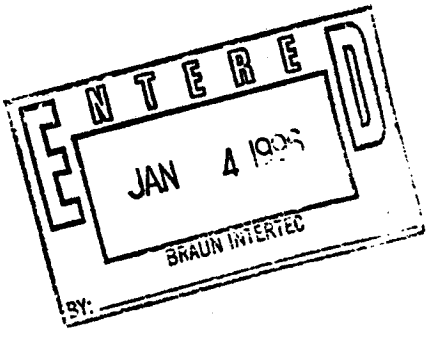
PIEZOMETER
~~Well~~ Depth (m): 4.288

Measurement Number	Time (military)	CALCULATED Depth to Water[1] (m)	MEASURE DEPTH OF WATER	Comments
1	1100	~~9.~~ DRY	0	DRY HOLE
2	1200	~~9.~~ DRY	0	" "
3				
4				
5				

[1] Distance from top of piezometer pipe to top of ground water table; to an accuracy of ±10 mm (0.4 in)

Code for dry





Prepared by: D. L M Employer: BRAUN INTERTEC

Date: Jul 7-15-94

LTPP Seasonal Monitoring Program Data Sheet SMP-D08 Elevation Measurements - AC	Agency Code [46] Test Section Number [0804]

Type of Instrument: WILD NA2000

Start Time (military): 0930

	Station	BS	HI	IFS	FS	ELEV	CLOSE	Comments
BM								
PIEZOMETER	4+00	1.2508					1.2508	
OTHER	5+02	1.8432					1.8436	

Station	Offset (PE): -.15 (m)	Offset (OWP): +.761 (m)	Offset (ML): -1.83 (m)	Offset (IWP): +2.89 (m)	Offset (LE): -3.55 (m)	Comments
3+00	1.0890	1.0709	1.0418	1.0200	1.0109	
3+25	1.0450	1.0262	0.9978	0.9772	0.9675	
3+50	1.0012	0.9823	0.9538	0.9334	0.9242	
3+75	0.9598	0.9403	0.9127	0.8943	0.8863	
4+00	0.9157	0.8976	0.8692	0.8483	0.8388	
4+25	0.8564	0.8386	0.8113	0.7911	0.7829	
4+50	0.7961	0.7798	0.7523	0.7332	0.7248	
4+75	0.7361	0.7190	0.6927	0.6724	0.6623	
5+00	0.6703	0.6535	0.6281	0.6072	0.5985	
5+10	0.6445	0.6280	0.6024	0.5823	0.5733	
5+20	0.6202	*0.6053	0.5785	0.5577	0.5485	BLOCK *
5+25	0.6058	0.5924	0.5674	0.5475	0.5373	
+						
+						
+						
+						
+						
+						
+						
+						

Prepared by: D.L.M + R.L. Employer: BRAUN INTERTEC

Date: Jul 7-15-94

* Ref 12 Feet from center line

Appendix D-2: Routine SMP Monitoring Data Collection Summary

Appendix D-2 contains the following information:

- Standard LTPP SMP data tracking log;
- Field testing information sheet; and
- Screen prints documenting equipment problems.

46SA - 460804, ST-1804 EB LANE, 9 MILES NORTHWEST OF POLLOCK, SD.

Date dd/mmm/yy (ctrl+shft+d)	Visit ID	ONSITE Data			MOBILE Data		Manual Data								FWD Data				Distress		Profile		Comments
		Pvmt. Temp.	Air Temp.	Rain	TDR	Frost Volts	Backup Temp	Backup TDR	Frost 2-Pt.	Frost 4-Pt.	Water Table	Pvmt. Elev.	Joint Open.	Joint Fault	Man. Temp.	No. of Cycles/Visit OWP	ML	PE	M	P	P	D	
22-Oct-93																					X		
08-Jun-94																			X				
14-Jul-94	94A														X	1	1						INSTALLATION, MANUAL TDR DATA.
15-Jul-94	94B	X	X	X	X	X			X	X	X	X			X	4	4						
12-Aug-94	94C	X	X	X	X	X			X	X	X				X	3	3		X				
18-Aug-94																					X		
27-Sep-94	94D	X	X	X	X	X			X	X	X				X	3	3						
30-Sep-94																					X		PROFILE DATA NOT RECIEVED BY RCO.
25-Oct-94	94E	X	X	X	X	X			X	X	X	X			X	2	2						
22-Nov-94	94F	X	X	X	X	X			X	X	X				X	2	2						
20-Dec-94	94G	X	X	X	X	X			X	X	X	X			X	3	3						MULTIPLE RESISTIVITY SETS COLLECTED TO CHECK STABILITY OF DATA
19-Jan-95	95A	X	X	X					X	X	X					0	0						FWD TRAYS FROZEN, NO TESTING.
25-Jan-95																					X		PROFILE DATA NOT RECIEVED BY RCO.
21-Feb-95	95B	X	X	X	X	X			X	X	X				X	3	3						
09-Mar-95	95C	X	X	X	X	X			X	X	X				X	1	1						
23-Mar-95	95D	X	X	X	X	X			X	X	X	X			X	3	3		X				
06-Apr-95	95E	X	X	X	X	X			X	X	X				X	3	3						
20-Apr-95	95F	X	X	X	X	X			X	X	X	X			X	3	3						
23-May-95	95G	X	X	X	X	X			X	X	X				X	4	4						REPACKED TEMP HOLES TO PROPER DEPTH.
27-Jun-95	95H	X	X	X	X	X			X	X	X	X			X	3	3		X				MULTIPLE RESISTIVITY SETS COLLECTED TO CHECK STABILITY OF DATA

460804 - 46SA

Updated 31-Oct-95

LOCATION - ST-1804 EB Lane, 9 Miles Northwest of Pollock, SD
CONTACTS - Dennis Schneider (605) 845-3844
TEMP HOLES - Sta 5+03, Depths are about 0.9", 3.5", and 6.1" (AC thickness = 7.1").

DISTRESS COMMENTS:

Sta F1 - Tests at 25 foot intervals from Sta 3+00 to Sta 5+00, and at Sta 5+20.

520 LP ADJACENT TO INSTRUMENTATION HOLE

Sta F3 - Tests at 25 foot intervals from Sta 3+00 to Sta 5+00, and at Sta 5+10, and 5+25.

(none)

PIEZOMETER - Sta 4+00, 1.0 feet from edge of paved shoulder, Depth = 4.288M.

ELEVATIONS - SD/DOT BM at Sta 5+00, at edge of ROW next to SHRP sign.

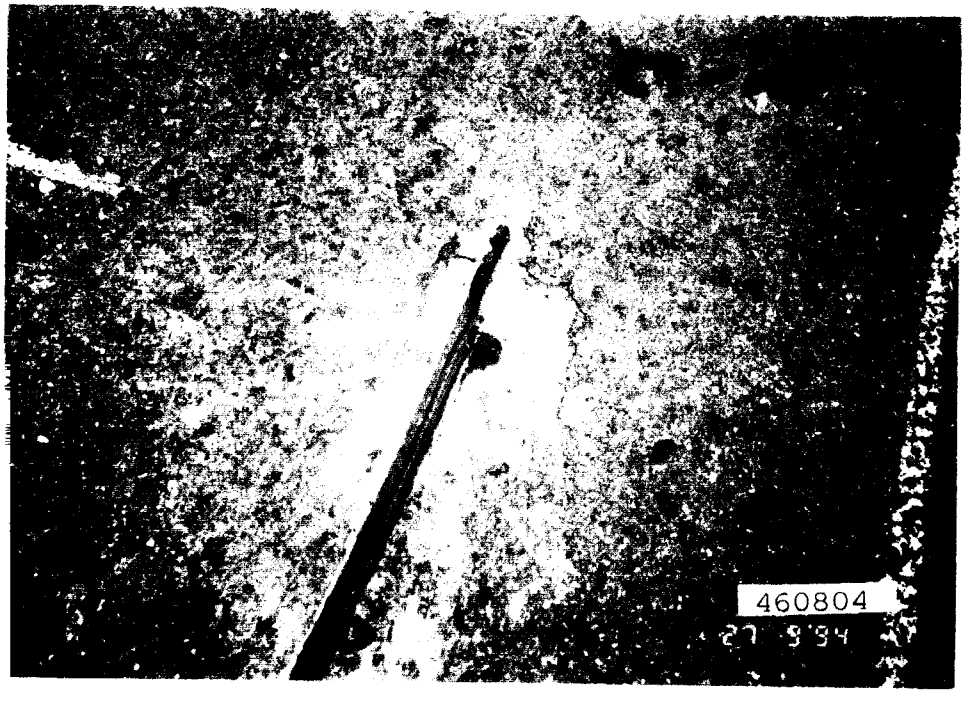
Offsets:		PE	OWP	ML	IWP	ILE	
(M)	-0.16	0.16	0.76	1.83	2.90	3.51	3.81
(ft)	-0.5	0.5	2.5	6.0	9.5	11.5	12.5
	(nail)						(nail)

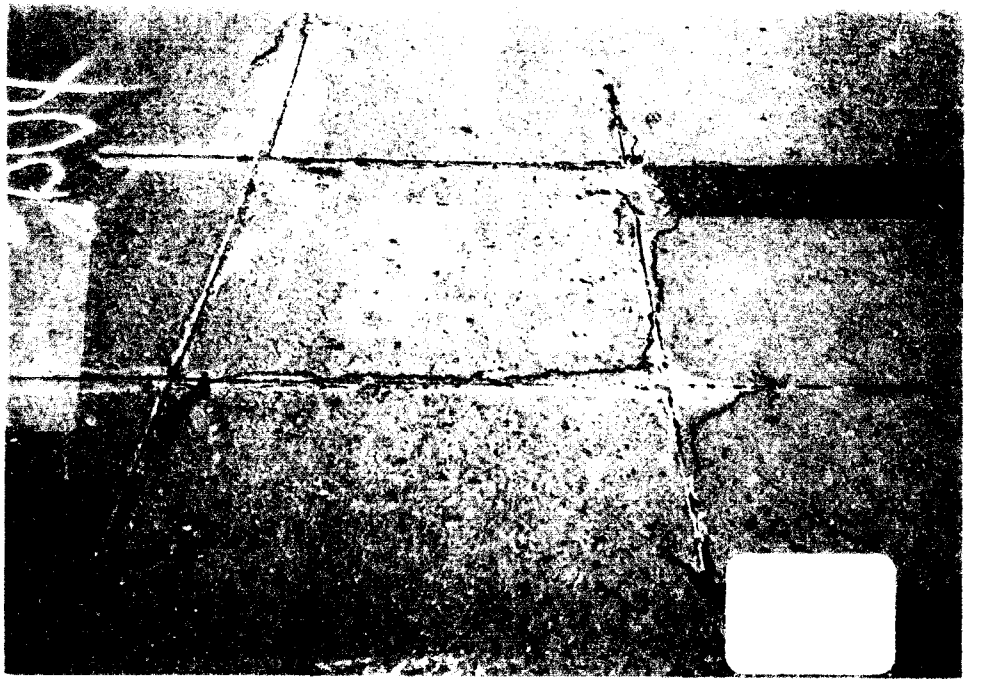
Note: Offsets are based on 12 foot lane measured from the centerline for the road. Lane edge stripe is not at 12 foot.

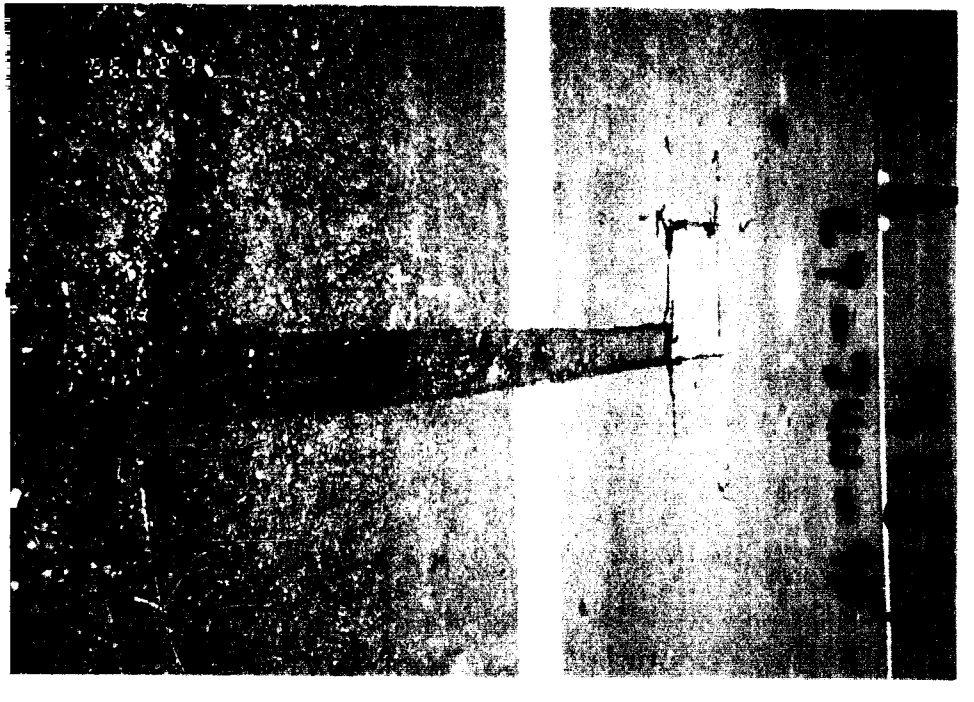
Note: PK nails are 13 feet apart and elevations between nails are at 1.0'(LE), 3.0'(WP), 6.5'(ML), 10.0'(WP), and 12.0'(LE). Latest guidelines require nails be 0.5 feet outside the section.

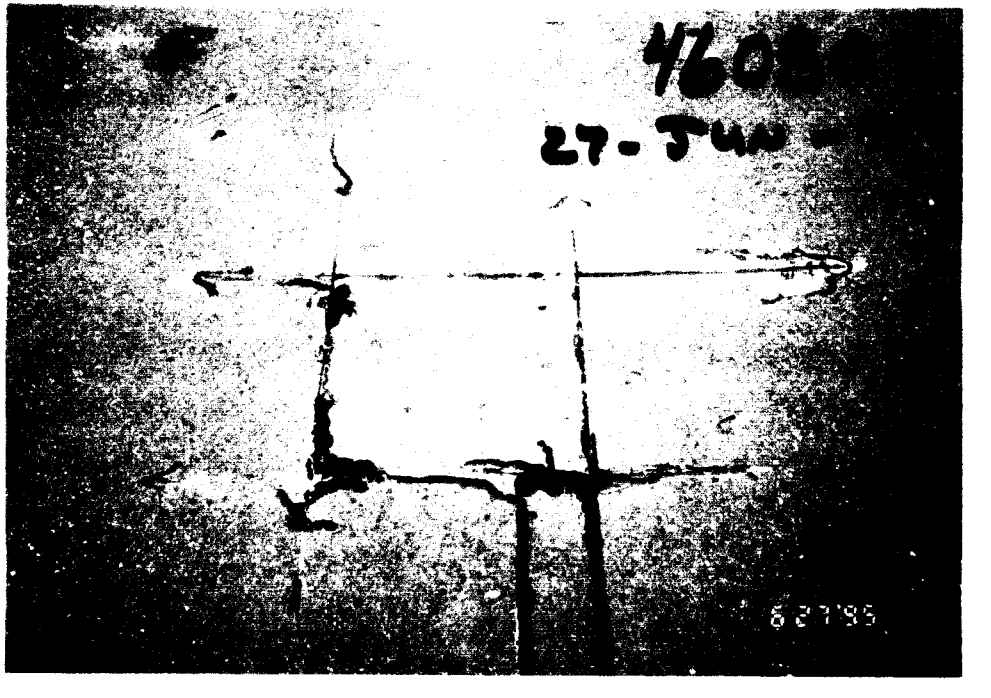
Sta: Transverse profiles every 25 feet from Sta 3+00 to Sta 5+00, and at Sta 5+10, 5+20, and 5+25.

COMMENTS - Check temperature hole depths - refilled on 95G loop.
-

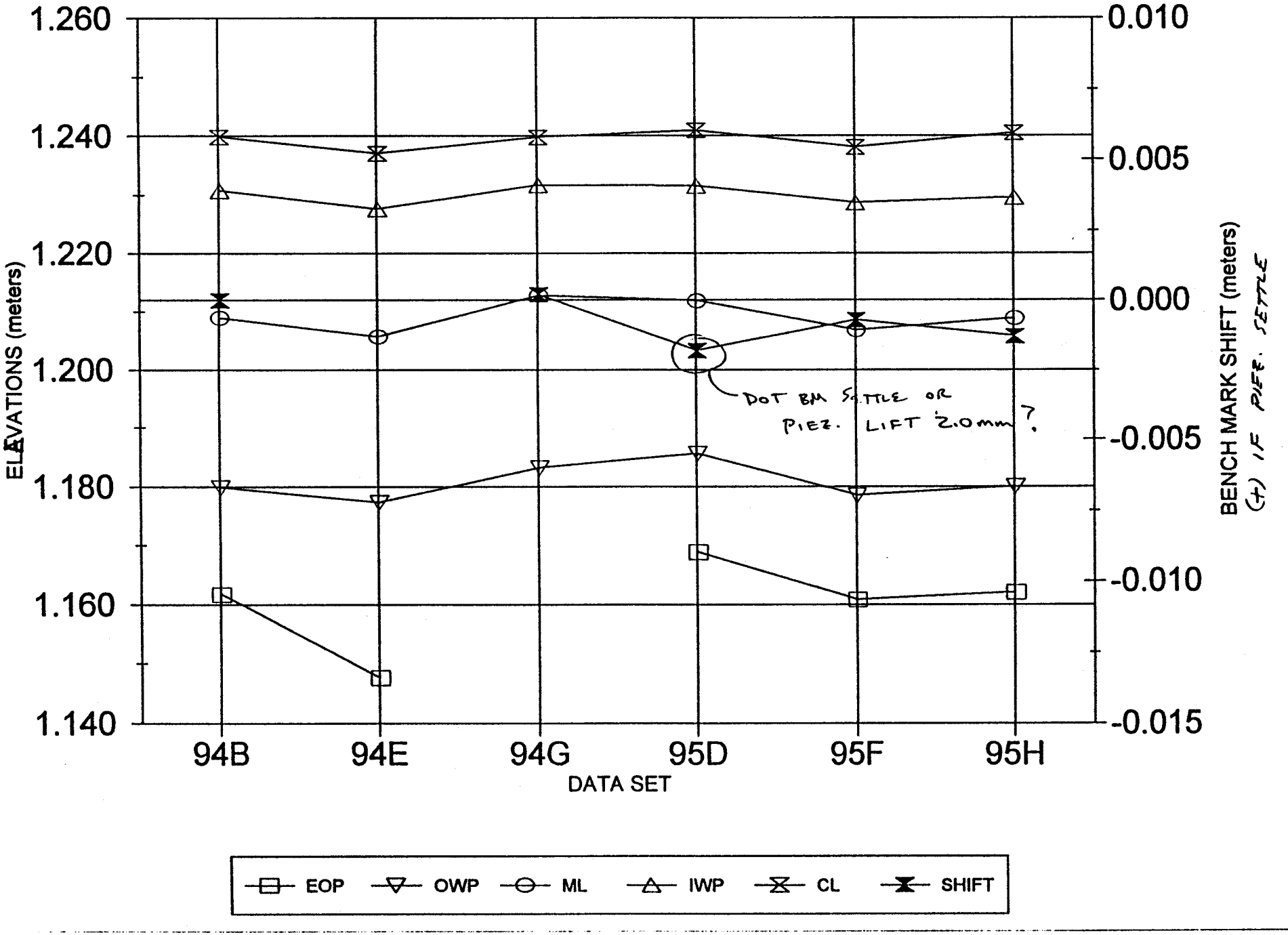

460804







460804 (station 3+00)



LTPP Seasonal Monitoring Program Data Sheet SMP-M1 (Page 2) Distress Survey of Instrumentation Area	Agency Code [46] SHRP Section ID [0804] Survey Date [08/12/94]

Rate the condition of the instrumentation area (check one):

? ____ Good (little or no distress; repairs are not required in the immediate future)

____ Poor (significant distress, repairs required now or in the immediate future)

List any repairs (type and extent) done since instrumentation installation and/or last survey of instrumentation area: NONE

Additional Comments CRS. ARE STARTING TO FORM AROUND TEMP PROBE AND SAW CUTS WATCH FOR FURTHER ADVANCEMENT OF CRS. Temp Probe cut Seems to be Lifting up See photo's

PLEASE REMEMBER TO ATTACH COLOR PHOTOGRAPH(S) OF INSTRUMENTATION AREA TO THIS DATA SHEET.

Prepared by: BRUCE PELKEY Employer: BRAUN INTERTEC CORP.

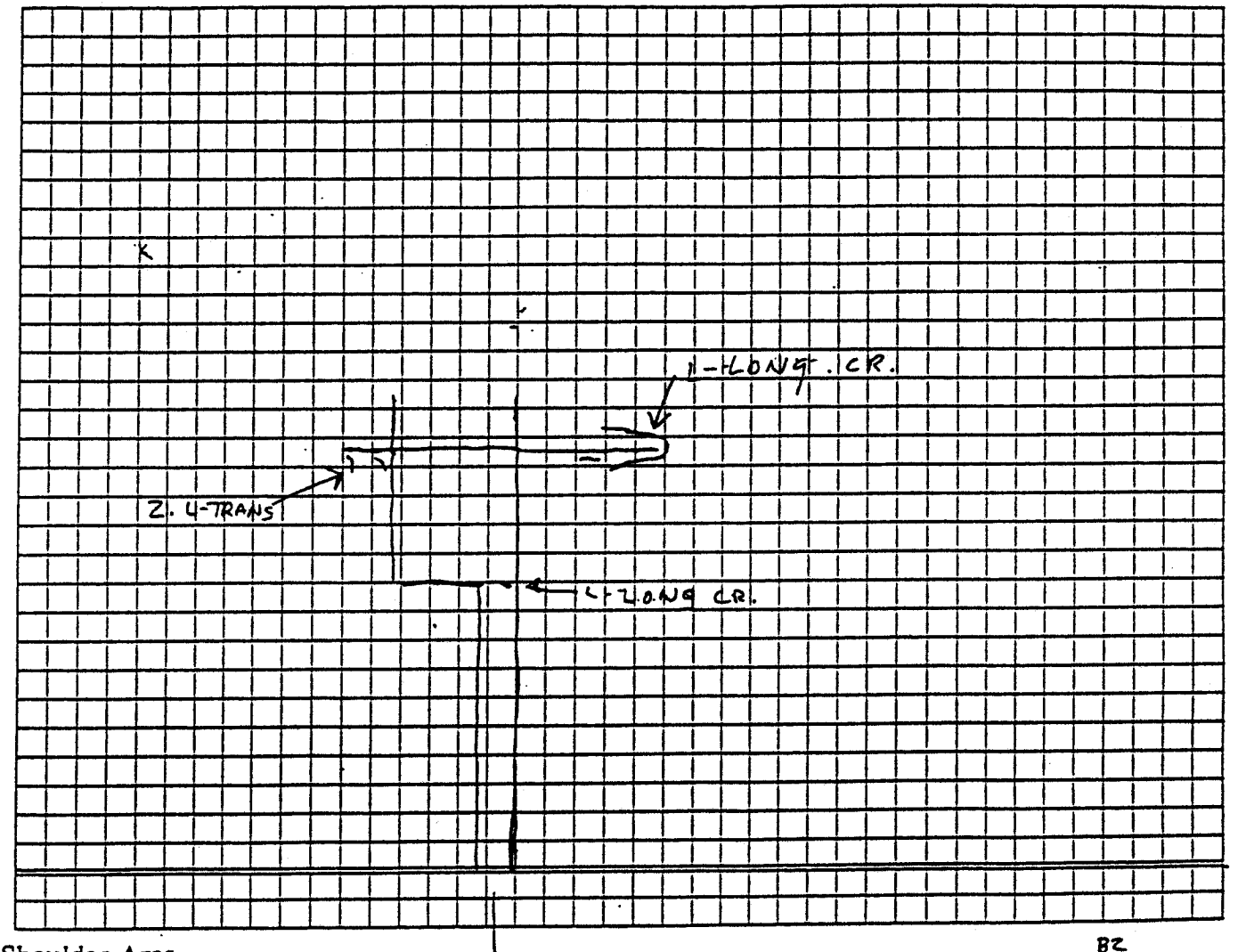
Date: 08/12/1994

Aug.

LTPP Seasonal Monitoring Program Data Sheet SMP-M1 (Page 1) Distress Survey of Instrumentation Area	Agency Code [46] SHRP Section ID Aug [0804] Survey Date [09/12/94]

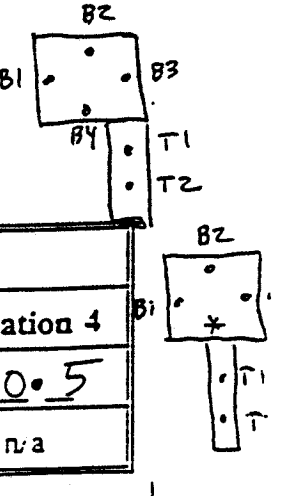
Use grid below to sketch distresses within 1.5 m (5 ft) of instrumentation block/hole and trench. Use LTPP Distress Identification Manual to extent possible. (Note: each square in grid equals 0.1 m by 0.1 m area)

Traffic ⟹



Shoulder Area

700 ← 6,28M →

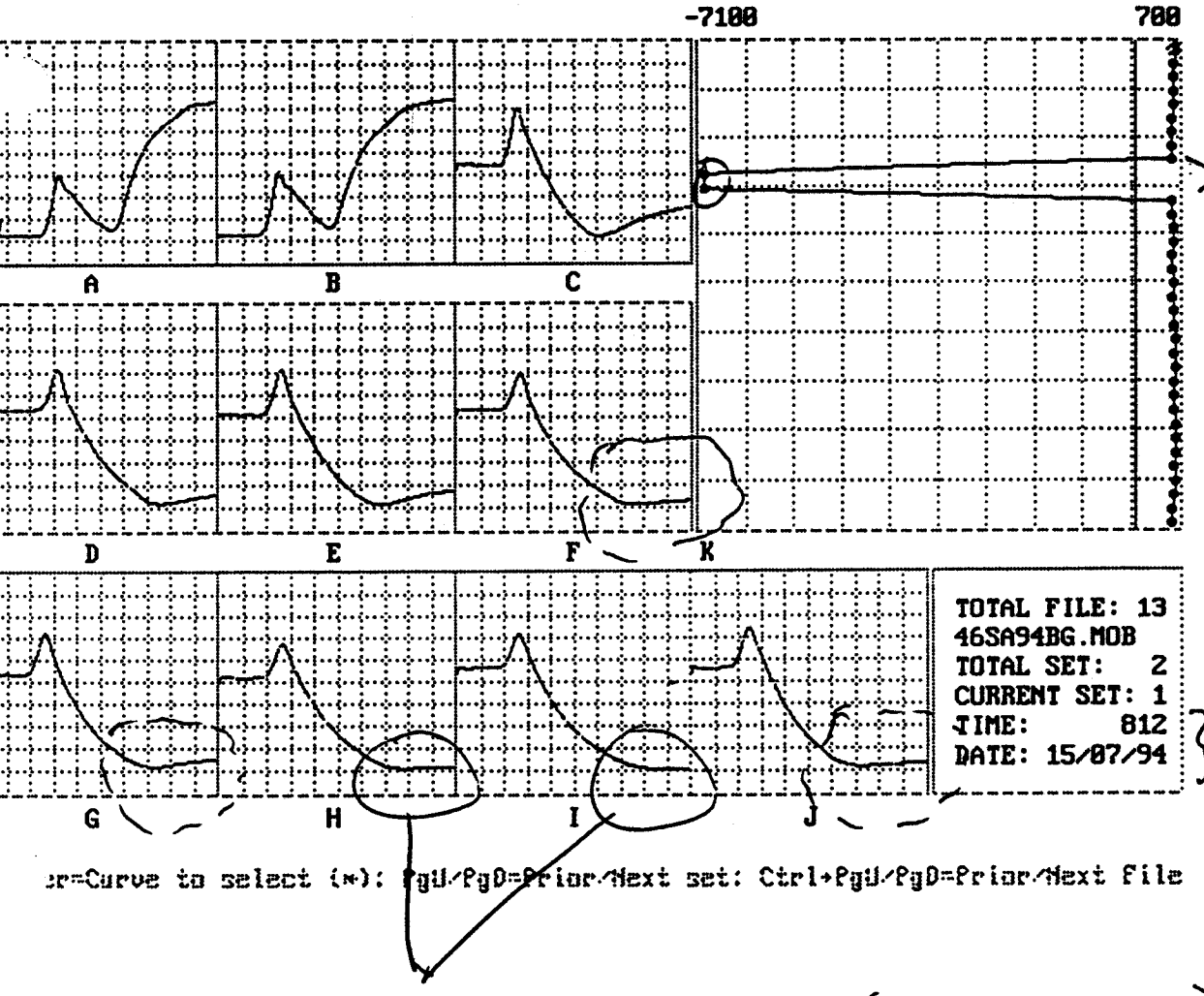


Use table below to record settlement of pavement in instrumentation area.

Measurement Device: FAULTMETER

Location	Settlement, mm			
	Location 1	Location 2	Location 3	Location 4
Instrumentation block/hole	-0.3	-1.9	-2.4	-0.5
Trench	-2.3	-3.4	n/a	n/a

* with trench centered on block, take reading on each



ASSIGN -6999 to -1

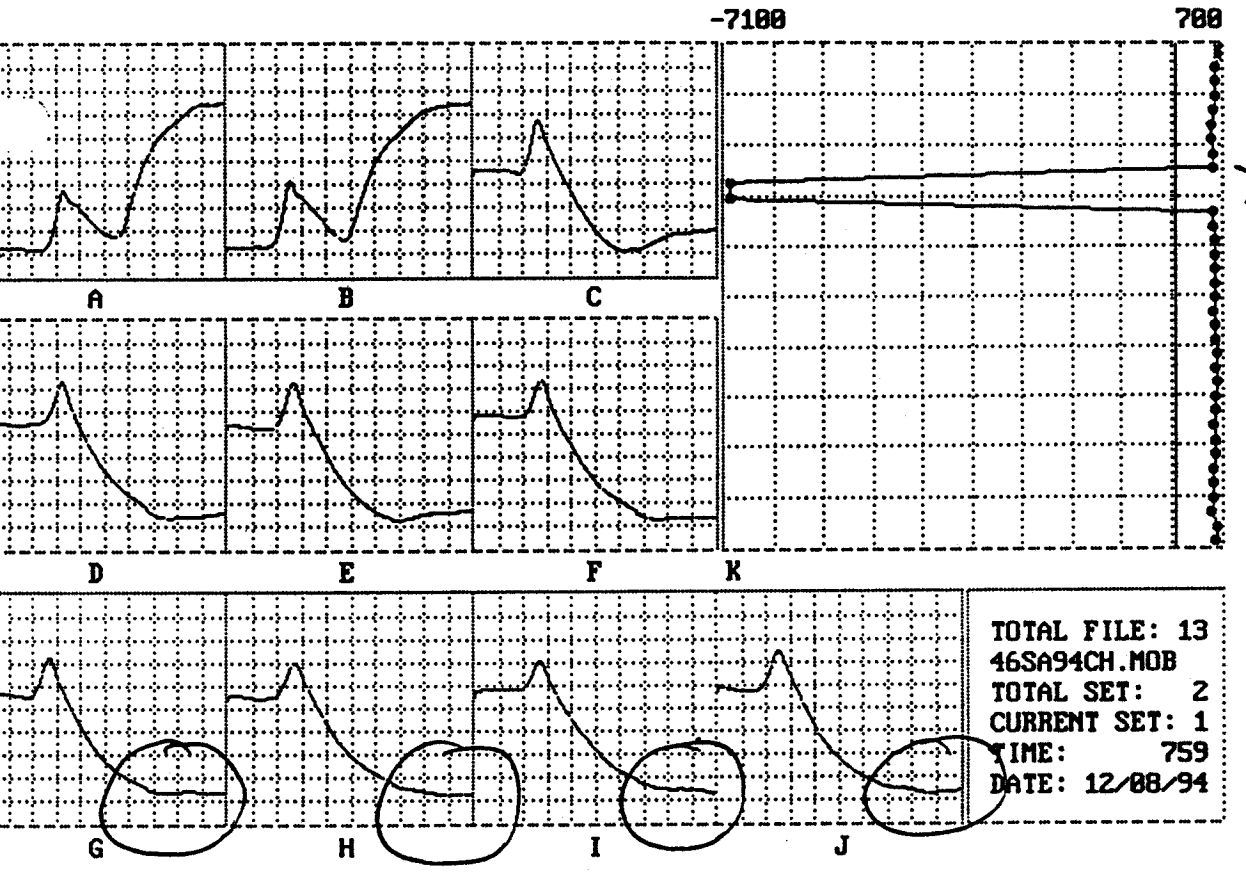
(CRREL PROBLEM ON POSITION 10/11.

Day after install!

- FLAT TRACES (TDR 8 + 9)

— FHWA/FAC ADVISE GOOD/BAD FOR IMS?

— TDR 6, 7, AND 10 WITH MINIMAL INCREASE IN Z OUT THE END OF THE PROBE.

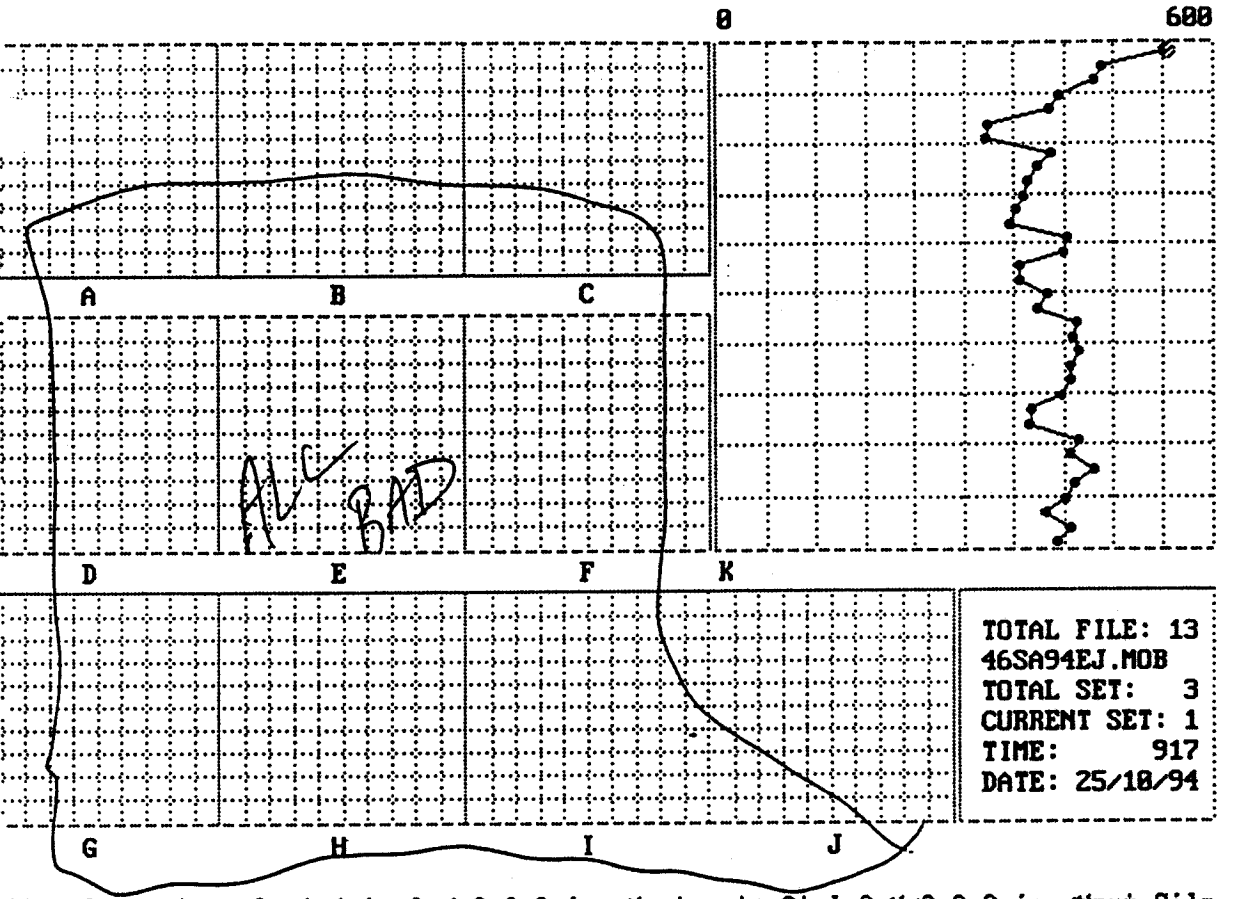


> ASSIGN -6999 to -1

etter=Curve to select (*): PgU/PgD=Prior/Next set: Ctrl+PgU/PgD=Prior/Next File

TDR 7, 8, 9, +10 FLAT

-FHWA/TAC ADVISE



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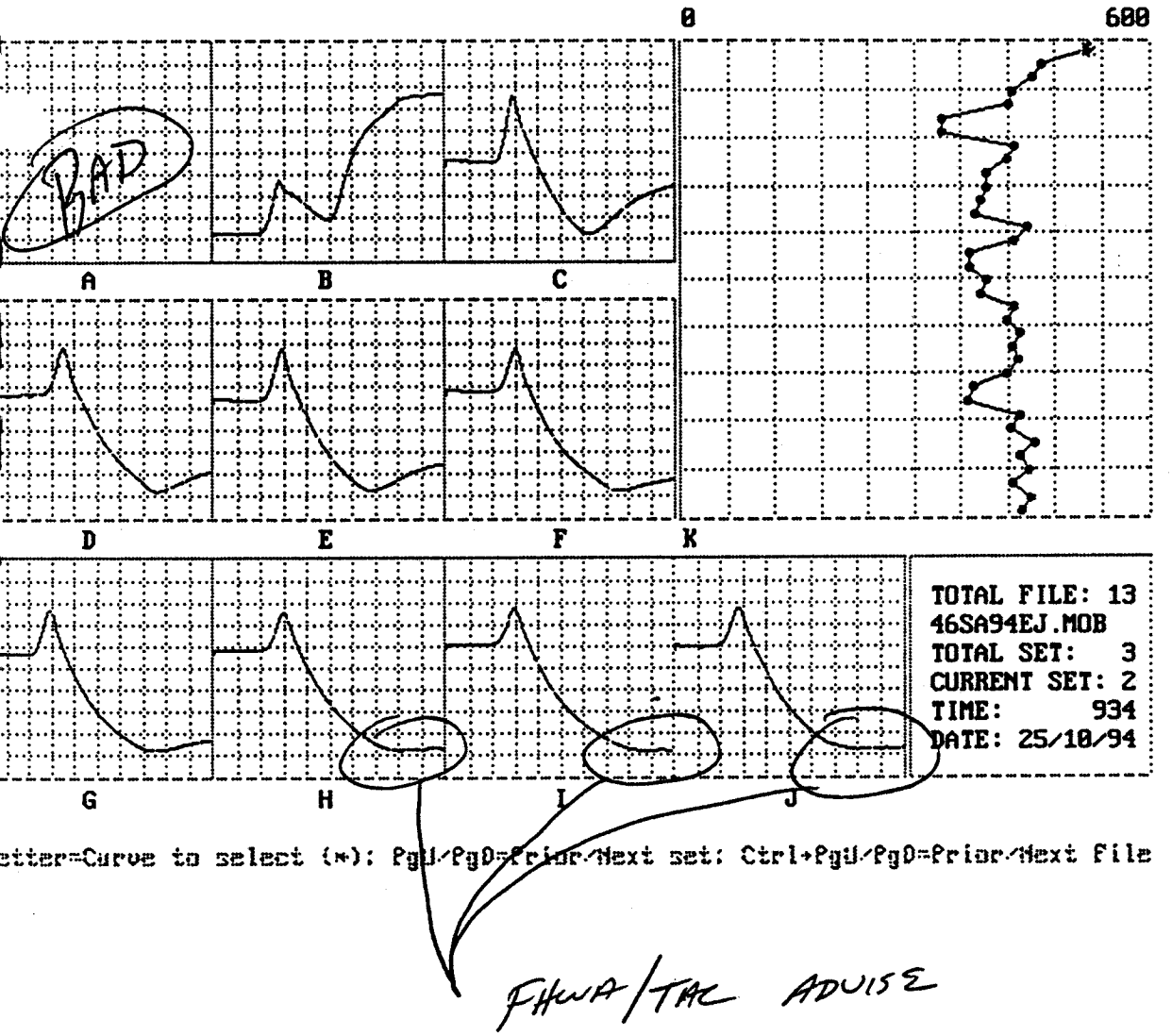
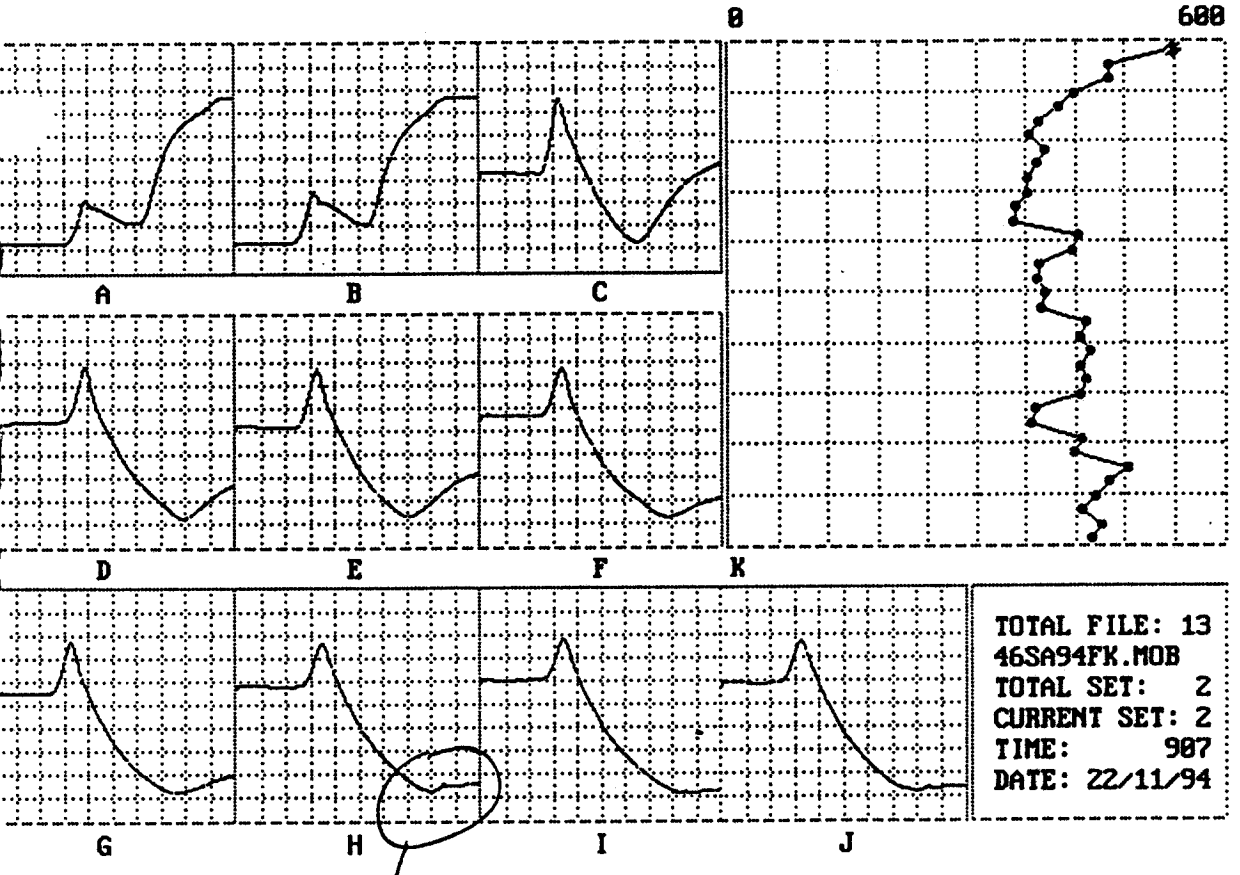
'COLD' RELATED PROBLEM WITH CABLE READER



FHWA/TAC ADVISE

TDR #1 MISSING FROM '50nSec Ramp not found" error from 'Cold' Cable reader

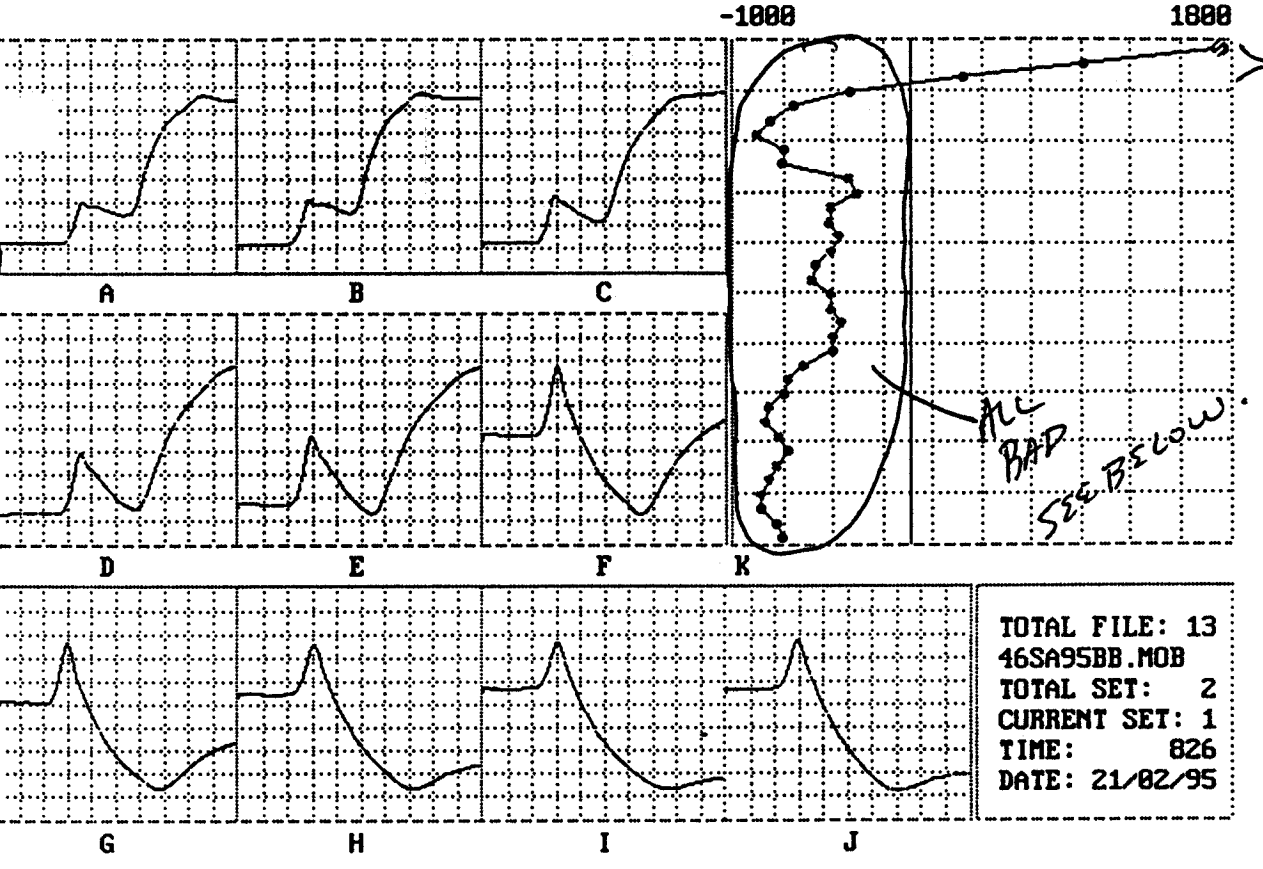


Letter=Curve to select (*): PgU/PgD=Prior/Next set: Ctrl+PgU/PgD=Prior/Next File

CHECK POSITION OF SPIKE IN TRACE SEEN ON OTHER DATA SETS.

— FHWA/TAC ADVISE GOOD/BAD

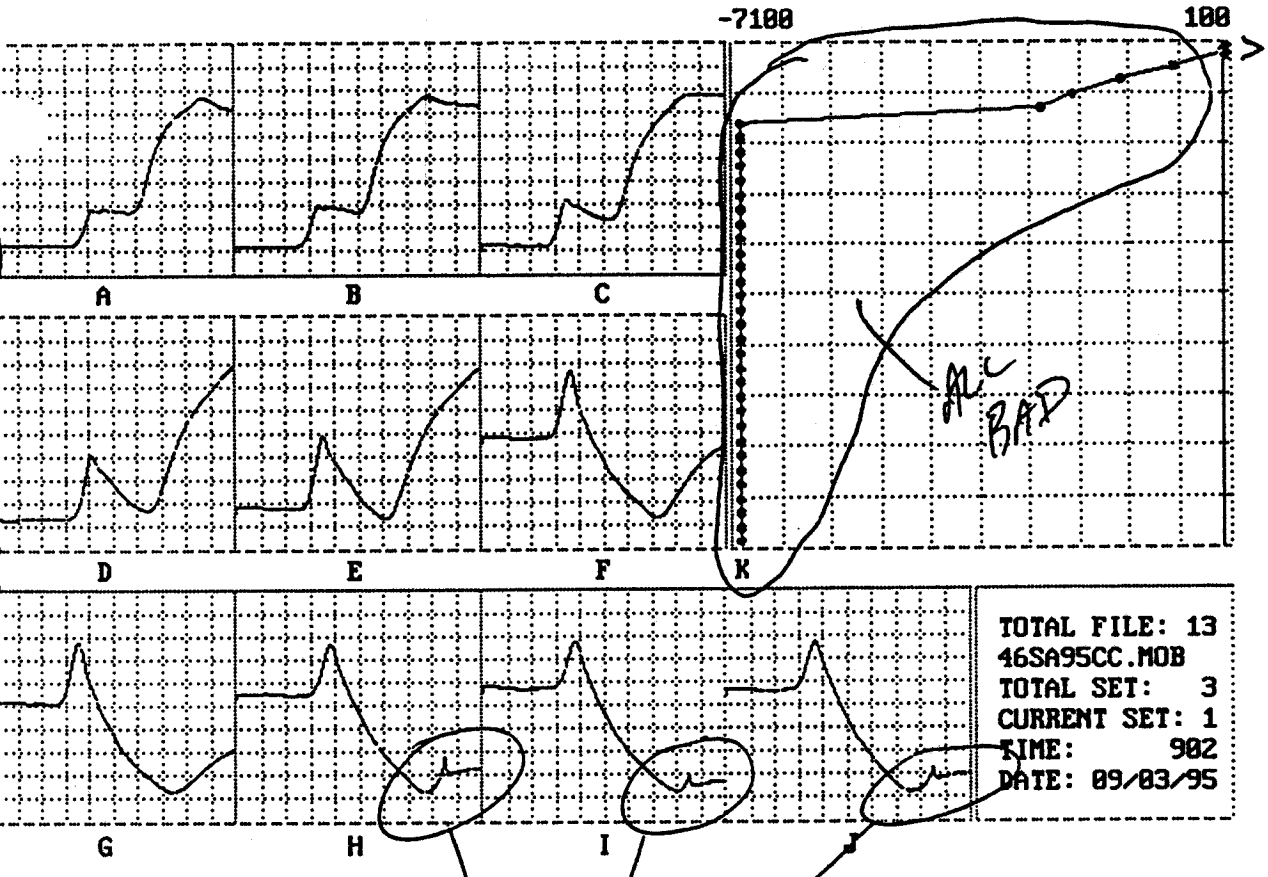
— SEE DATA SET 46SA95CC (3/1)



Letter=Curve to select (*): PgU/PgD=Prior/Next set: Ctrl+PgU/PgD=Prior/Next File

CRREL VOLTAGES SHOULD ALWAYS BE (+)

— CRREL FAILURE MODE

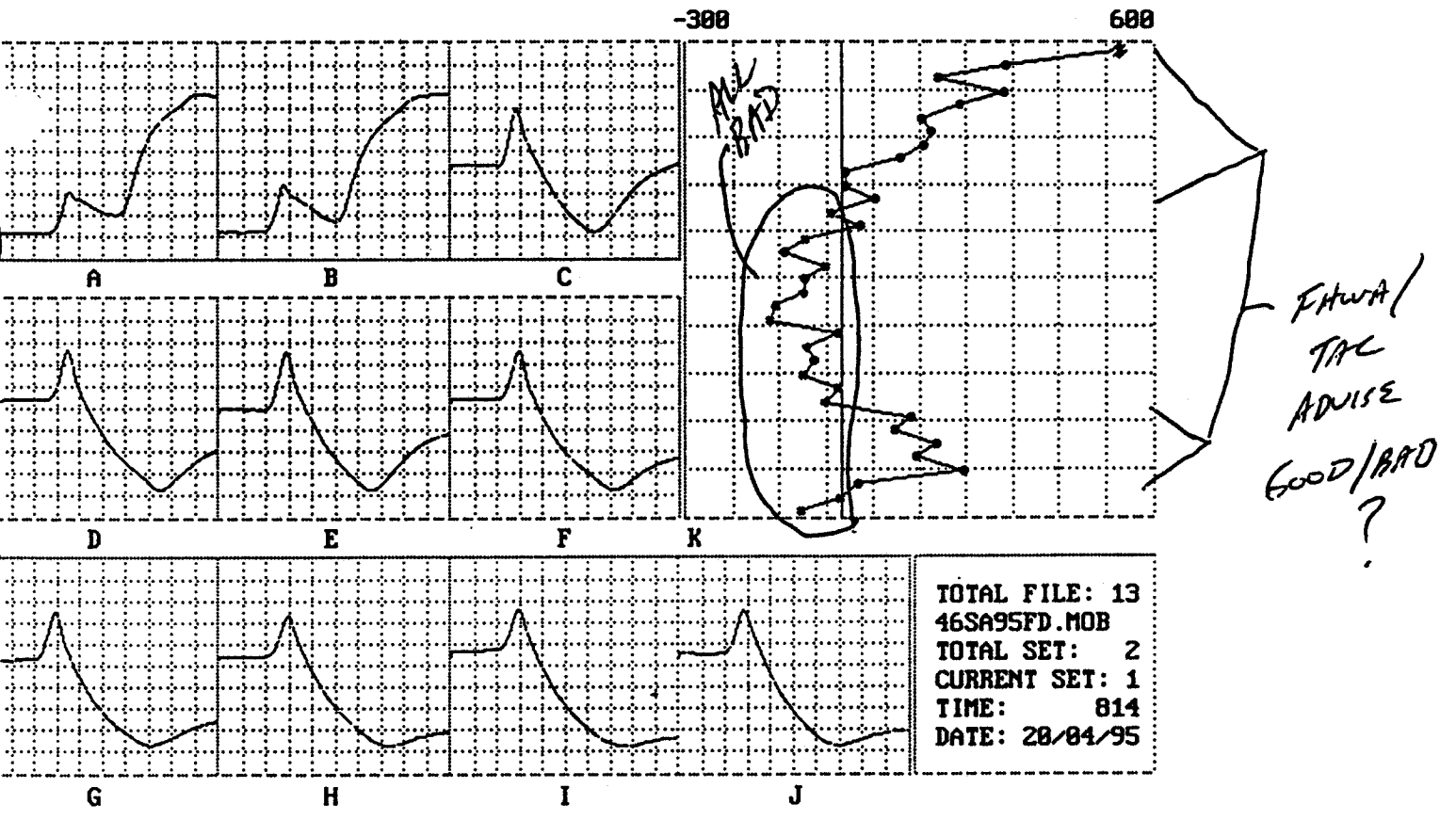


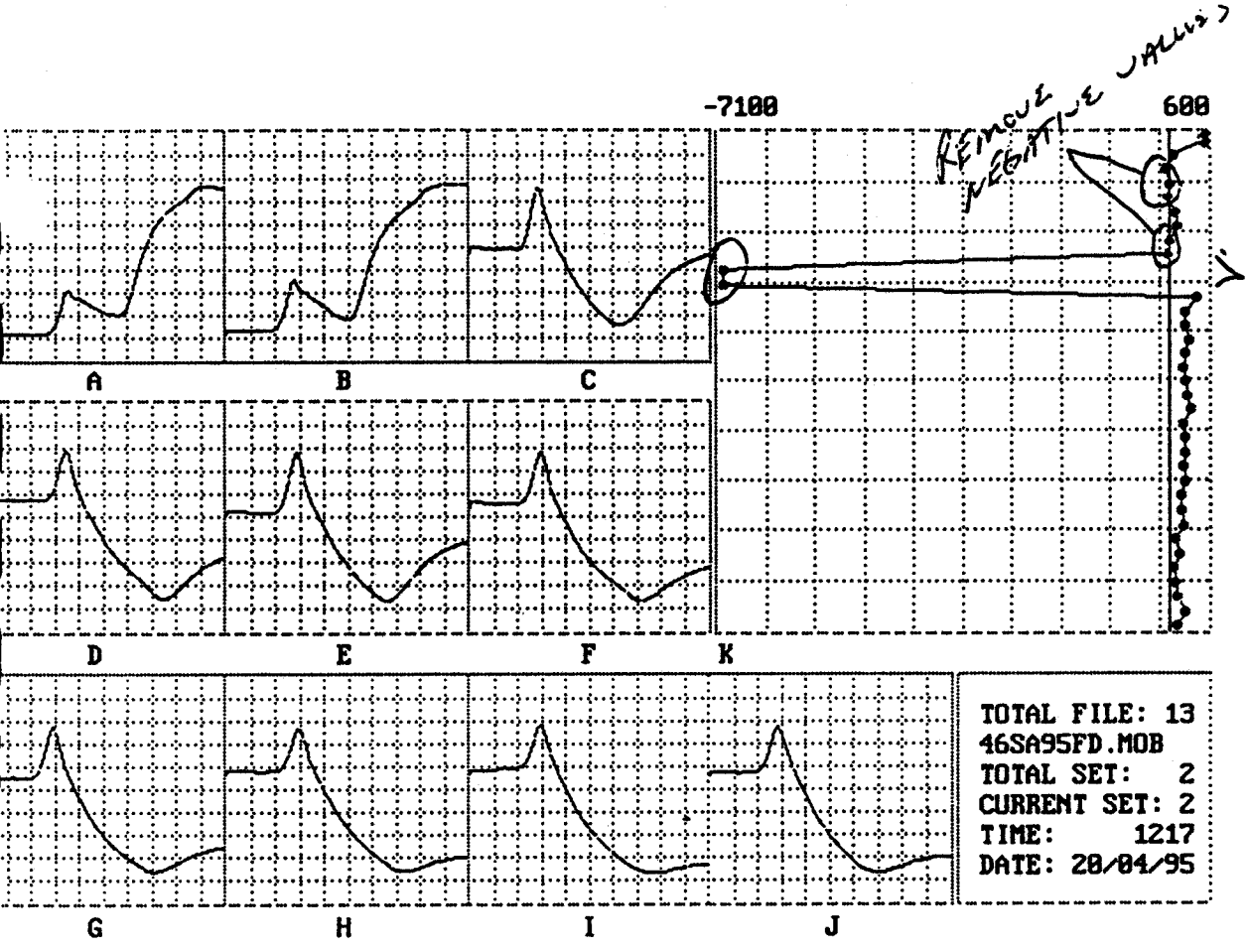
FHWA/TAC ADVISE GOOD/BAD

AC BAD

SPIKES FROM GOLD CABLE READER

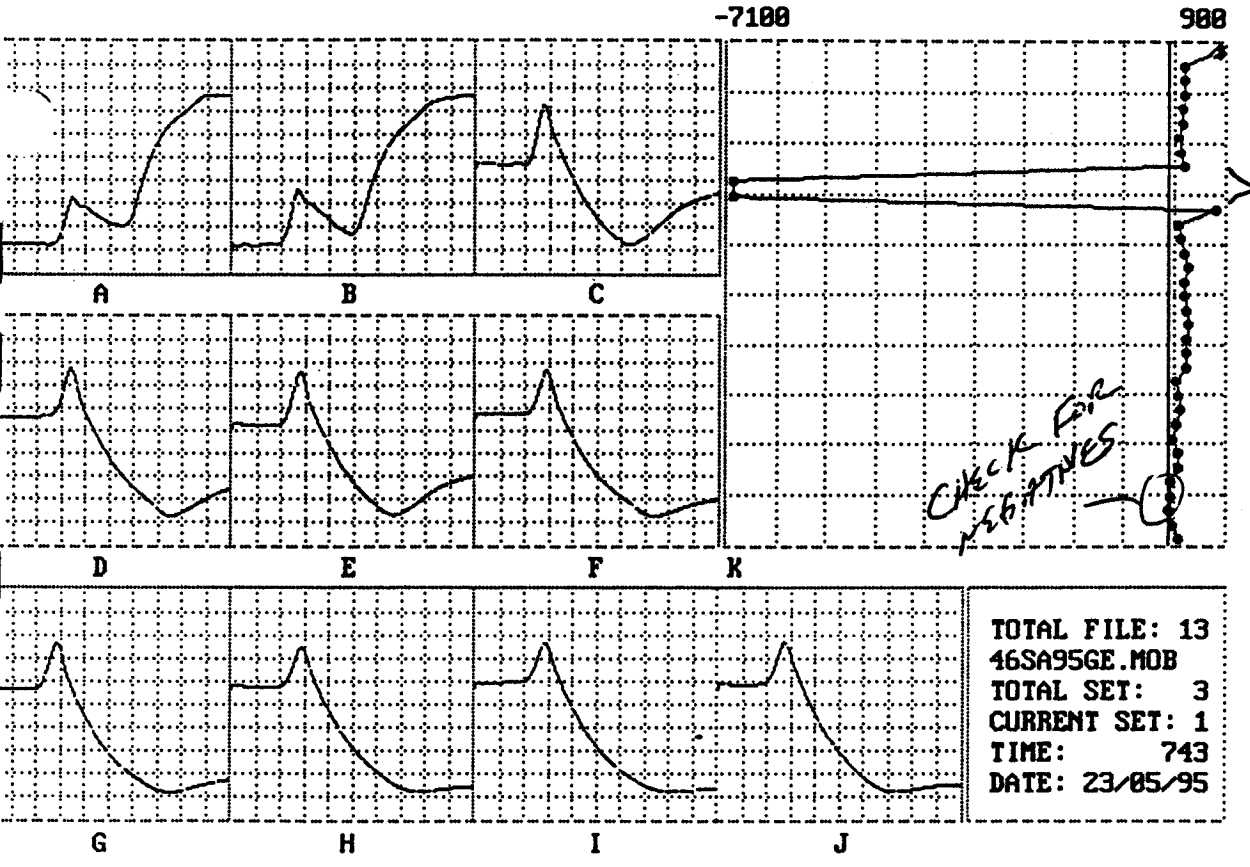
— FHWA/TAC ADVISE GOOD/BAD?


-300
600
A
B
C
D
E
F
K
G
H
I
J
TOTAL FILE: 13
46SA95FD.MOB
TOTAL SET: 2
CURRENT SET: 1
TIME: 814
DATE: 20/04/95
FHWA/
TAC
ADVISE
GOOD/BAD
?



Enter=Curve to select (*): PgU/PgD=Prior/Next set: Ctrl+PgU/PgD=Prior/Next File

FHWA / TAC ADVISE ON CRREL VOLTAGES



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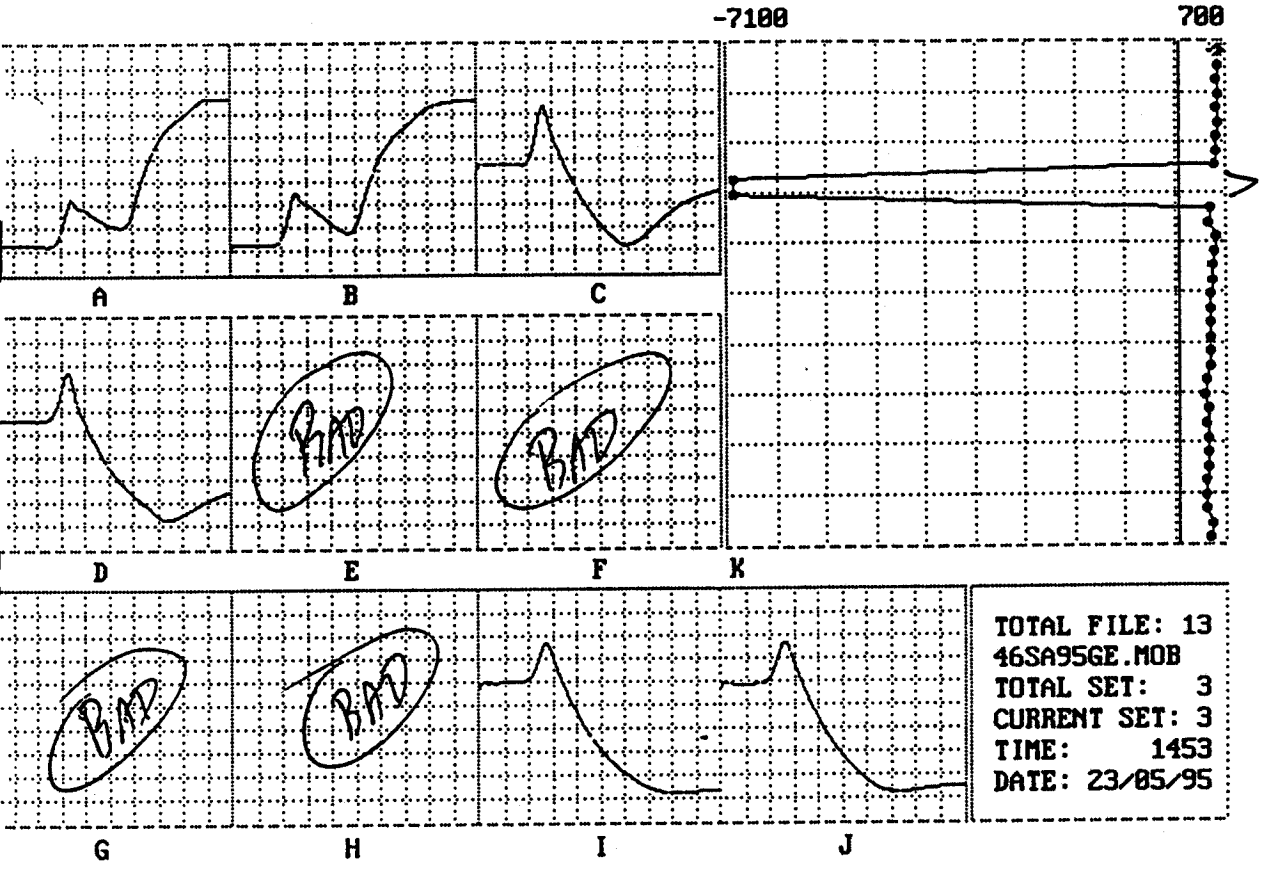
SEE SET 3/3 —



ASSIGN -6999 to -1

enter=Curve to select (*): PgU/PgD=Prior/Next set: Ctrl+PgU/PgD=Prior/Next File

- WHAT HAPPENED TO TDR 4, 5, 6, +7.

- SEE ~~NEXT~~ SET (3/2) + (3/1)

- PROBES WERE GOOD.