U.S. Department
of Transportation
Federal Highway
Administration

LTPP Seasonal Monitoring Program
Site Monitoring Suspension
Status Report
Section 091803
Groton, Connecticut

Report No. FHWA-TS-98-09-01

January 1998

SEASONAL MONITORING PROGRAM SUSPENSION STATUS REPORT CONNECTICUT SECTION 091803

I. INTRODUCTION

Seasonal monitoring equipment was initially installed at site 091803 on Highway 117 near Groton, Connecticut in August, 1993 and was used to collect data continuously from October 15, 1993 to June 22, 1995 (Round 1) and from October 8, 1996 to October 16, 1997 (Round 2). On October 16, 1997, Round 2 site suspension activities were completed according to LTPP Directive SM-8 "Suspension of SMP Site Monitoring Activities". See Table 1 for a summary of the Round 2 data collected. The site will remain out of operation until a decision relative to further testing is reached.

This report entitled "SMP Site Monitoring Suspension Status Report" details the suspension preparation activities, site specific conditions, and provides information pertinent to seasonal site 091803.

II. SUSPENSION PREPARATION ACTIVITIES

The suspension preparation activities at site 091803 with the exception of a manual distress survey were conducted during the final site visit on October 16, 1997. The manual distress survey of the site was conducted on the September 11, 1997 site visit. The PK nails were reconfirmed and replaced as necessary. The site markings were in good condition and did not need to be refreshed. Four sets of FWD tests were completed. Transverse Dipstick surveys were completed. One set of elevations and a distress survey of the instrumentation area were obtained. The instrumentation area is considered to be in good condition. Water table measurements and manual resistivity measurements (2 and 4 point) were performed in the morning and afternoon. The onsite datalogger was downloaded before being dismantled. Two sets of TDR traces and resistance voltages were extracted by the mobile datalogger. The instrumentation area was cleaned and sealed as required.

The air temperature probe, tipping bucket, and the upper part of the support pole were dismantled. The lead wires from the air temperature probe and tipping bucket were removed from the cabinet and sprayed with an anti-corrosive compound. The bottom part of the support pole was cleaned and lubricated before installing the end cap.

The solar panel was disconnected. After all wires to the control panel were disconnected, the panel was detached from the equipment cabinet along with the CR10 datalogger, terminal strip and battery pack. The TDR cables, resistivity cable and MRC lead wires were sprayed with an anti-corrosive compound and sealed with desiccant packs in air tight bags. All cables/wires were hung up high inside the equipment cabinet. After the last piezometer reading was recorded, the pipe was cleaned and sealed with grease. The access cover and seat were cleaned and lubricated before being covered and brought up to grade with native soil.

The Profilometer survey corresponding to the close out was conducted on October 28, 1997.

All the necessary suspension activities were completed on October 16, 1997. The dismantled equipment was removed from the site. The suspended site contains all the underground instrumentation and equipment and an equipment cabinet with all the cables in it. The equipment cabinet was locked before leaving the site. The site was cleaned and left in a condition such that the instrumentation could be easily accessed when the need arises.

III. SPECIAL SITE CONDITIONS

The installation of site 091803 generally followed the "LTPP Seasonal Monitoring Program Installation and Data Collection Guidelines". Additional material from the shoulder was required to replace water saturated material removed from the surface area (bucket number one). The auguring of the instrument hole and equipment installation were done under a slight drizzle. The emergency installation of water lines in November 1994 caused some small "sink-hole" pockets to develop in the shoulder area of section 091803 as the shoulder foundation was undermined. These were subsequently repaired by Connecticut DOT forces.

IV. SUPPLEMENTAL INFORMATION

Figure 1 shows the locations of the installed instrumentation at the site. The instrumentation hole is at Station 5+21 and the piezometer is at Station 4+00. Table 2 gives the elevations of the portion of test section 091803 that was used for elevation measurements. All offsets are measured from the PK nails found at the outside pavement edge.

At the time of suspension, MRC #1 sensor was not functioning. This sensor was not functioning at the time Round 2 data collection began in October 1996. Figure 1 shows a sample period during which MRC sensor #1 was malfunctioning. Other than MRC #1 sensor, there were no unresolved problems with any of the sensors at the time of suspension activities. The plots from ONSFIELD, MOBFIELD and SMPCHECK follow expected trends and produce expected values.

TABLE 1:
SUMMARY OF ROUND TWO NORTHERN LOOP SMP DATA COLLECTION TO DATE

Agency Code [0 9]
LTPP Section I.D. [1 8 0 3]
Location Groton, Connecticut

		ONSITE Data			MOBILE Data		Manual Data								FWD Data				Distress Data		Profile Data		
Test Date dd/mmm/yy	Visit Ident./ Code	Pav Temp.	Ambient Temp.	Rainfall	Moisture (TDR)	Frost Depth (Resist.)	Backup Pav. Temp.	Backup Moisture (TDR)	Frost Depth 2 - point	Frost Depth 4 - point	Water Table	Surface Elev.	Joint Open.	Joint Fault.	Surface Layer Temp.	No. of Cycles/Visit OWP	ML	PE	Manual	PASCO	Profiler	Dipstick	Comments
08-Oct-96	A	X	X	X	X	X			X	X	X	X			X		1		X			X	Re-commission
07-Nov-96	B	X	X	X	X	X					X										14-Nov-96		no FWD Data due to rain and Solar Panel installed
05-Dec-96	C	X	X	X	X	X			X	X	X	X			X	3	3						
09-Jan-97	A	X	X	X	X	X			X	X	X	X			X	2	2				14-Jan-97		
06-Feb-97	B	X	X	X	X	X			X	X	X	X			X	3	3				11-Feb-97		
06-Mar-97	C	X	X	X	X	X					X				X	3	3						
20-Mar-97	D								X	X	X				X	5	4						no ONS/MOB data due to dual FWD mobilization
03-Apr-97	E	X	X	X	X	X					X				X	3	3				09-Apr-97		
17-Apr-97	F	X	X	X	X	X			X	X	X	X			X	4	4						
08-May-97	G	X	X	X	X	X			X	X	X				X	1	1		X			X	
05-Jun-97	H	X	X	X	X	X					X				X	3	3						
10-Jul-97	I	X	X	X	X	X			X	X	X	X			X	3	3						
07-Aug-97	J				X	X					X										23-Aug-97		no FWD data due to alternator malfunction, and no ONS data due to battery problem.
11-Sep-97	K				X	X					X				X	1	1		X				no ONS data due to battery problem
16-Oct-97	L	X	X	X	X	X			X	X	X	X			X	4	4				28-Oct-97	X	De-commission

Table 2. Surface Elevation Measurements

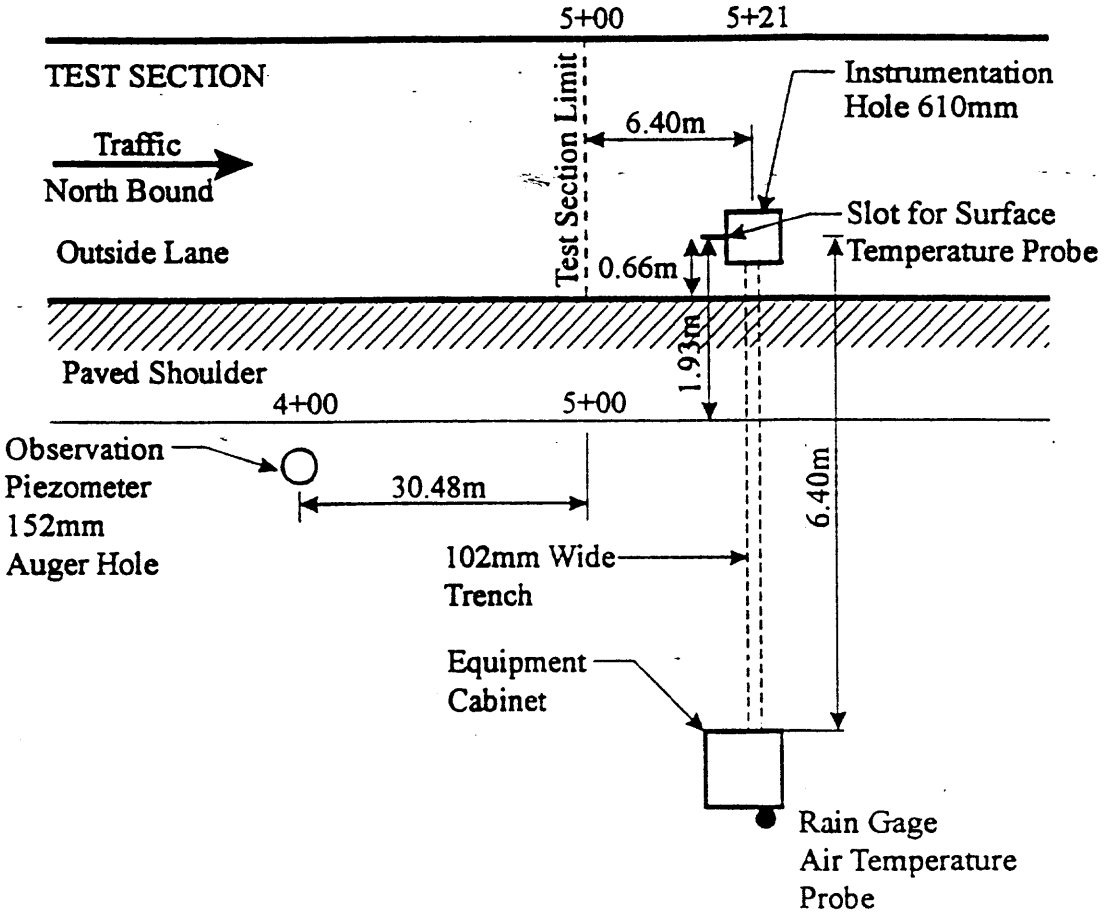
LTPP Seasonal Monitoring Study	State Code	[09]
Surface Elevation Measurements	Test Section Number	[1803]

Survey Date	October 16, 1997
Surveyed By	AL/DS
Surface Type	AC
Benchmark	Observation Piezometer - 1.000 meters - assumed

STATION	PE m offset 0.30m	OWP m offset 0.91m	ML m offset 1.83m	IWP m offset 2.74m	ILE m offset 3.35m
3+00	0.5550	0.5625	0.5850	0.6000	0.6125
3+25	0.7050	0.7175	0.7375	0.7575	0.7750
3+50	0.9000	0.8925	0.8975	0.9025	0.9075
3+75	1.0225	1.0275	1.0375	1.0450	1.0475
4+00	1.1750	1.1750	1.1900	1.1975	1.2025
4+25	1.3300	1.3325	1.3500	1.3600	1.3650
4+50	1.4850	1.4900	1.5050	1.5150	1.5250
4+75	1.6175	1.6200	1.6375	1.6525	1.6575
5+00	1.7825	1.7775	1.7850	1.7850	1.7875
5+14	1.8550	1.8525	1.8600	1.8600	1.8600
5+19	1.8750	1.8625	1.8850	1.8825	1.8850
5+24	1.8975	1.8975	1.9025	1.9125	1.9125

PE	Pavement Edge
OWP	Outer Wheel Path
ML	Mid Lane
IWP	Inner Wheel Path
ILE	Inner Lane Edge

Note: Offsets are measured from the PK nails at the outside of the pavement stripe at the pavement edge.



- Height of Air Temperature Probe (center): 3.58m
- Height of Tipping Bucket Rain Gage (center): 3.66m
- Total Depth of Piezometer: 3.06m
- Distance of Piezometer Below Ground Level: 51mm

Figure 1. Location for Seasonal Monitoring Instrumentation Installed at GPS 091803

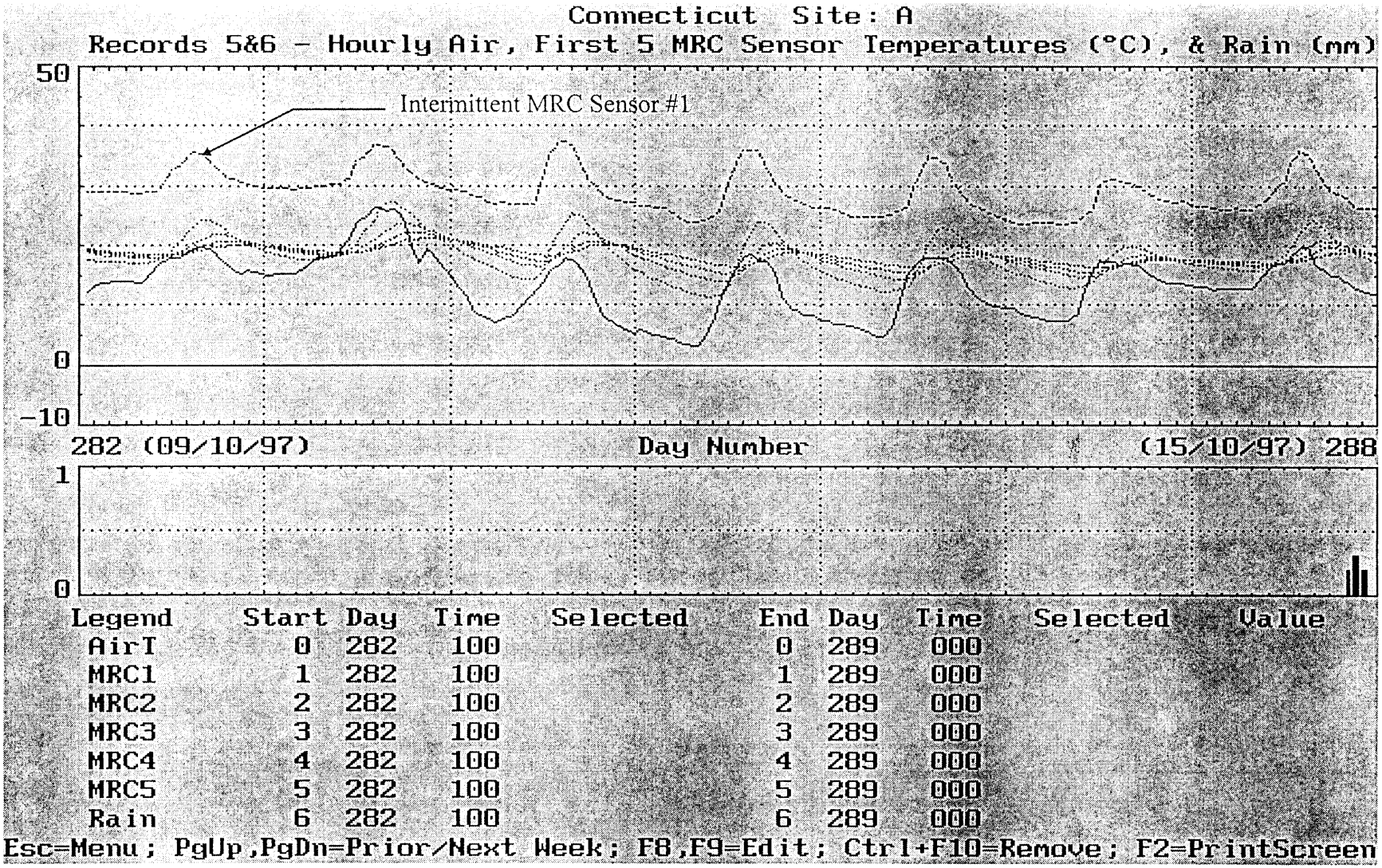
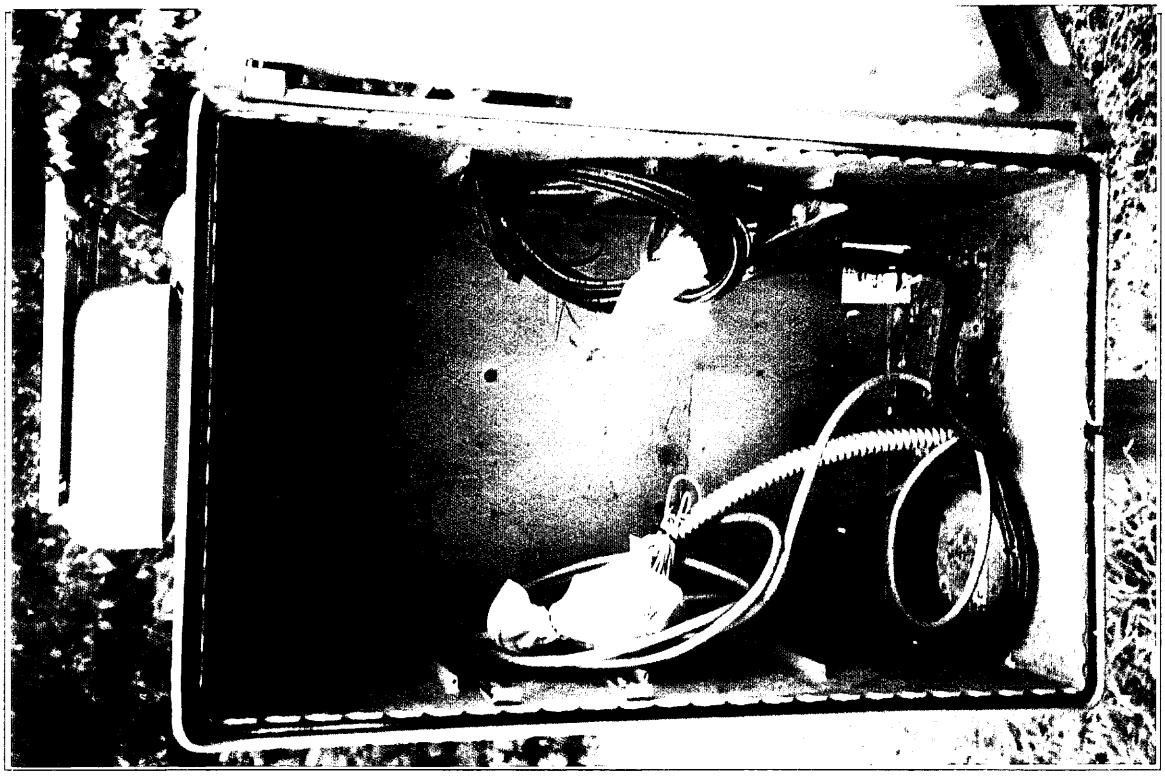
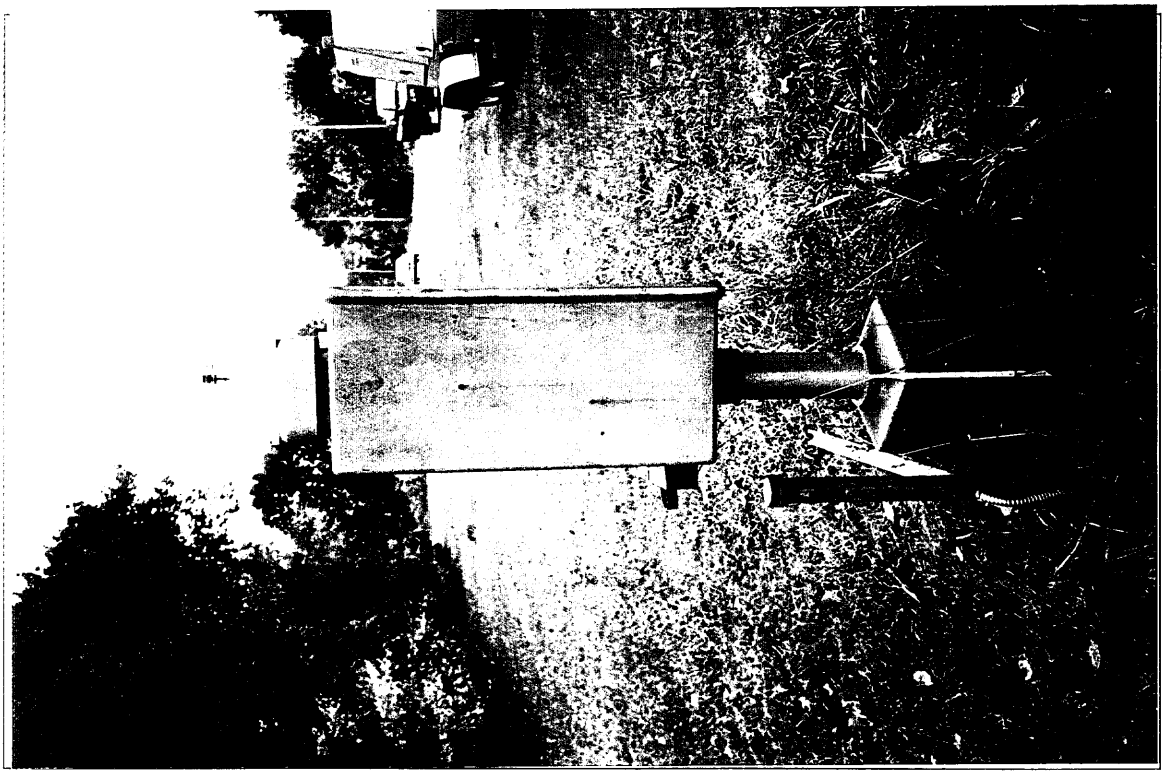


Figure 2: Sample of Erroneous Readings from MRC Sensor #1



Inside Equipment Cabinet, Seasonal Site 091803 - Oct. 1997, after Suspension Activities



Equipment Cabinet, Lower portion of inst. pole, Seasonal Site 091803 - Oct. 1997, after Suspension Activities