LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area:	Monitoring	Directive Number:	SM-37
Date:	April 10, 2000	Supersedes:	N/A
Subject:	Upgrade of OnsPlus Software Module to Version 1.05		

Attached for immediate implementation please find Version 1.05 of the OnsPlus software. This new version of OnsPlus contains modifications made to rectify problems identified during the pilot SMP Phase II installations. An updated copy of the users guide is also being provided with the software.

The following modifications were made to the program and documentation:

- The correct waveform resolution (0.25 m/div) determined by probe length, as used in instruction P100, was not being recorded for the TDR data collected using the OnsPlus program and the CR10X datalogger. The TDR measurements were ending up with a distance of 0.5 m/div, and in some instances even 1.0 m/div. For a brief moment, a scale of 0.25 m/div was visible on the Tektronix's cable tester screen, but this resolution is not what was captured and saved to file. To correct this problem, instruction P68 has been included after each instruction P100 to set the distance divisor to 0.25 m/div for all eleven (11) TDR sensor locations. This fix was provided by Campbell Scientific. There have been no changes to the instruction P100 from what was previously used with the CR10 datalogger; the problem potentially was related to the difference in processing speed between the CR10 and CR10X dataloggers.

- The default settings for probe length have been changed from 0.205 to 0.203 meters to match the setting used in Mobile and the typical probe length of eight inches or 203 millimeters. **The regions measured the probes and input the subtle differences, if any, when calibrating the probes prior to installation. If an update is required, this information is available in the installation reports.**

- Problems were encountered with the reference cable length check during the pilot SMP Phase II installations. Again, this was a result of the resolution problem and the additional cable length for the site installation of the Tektronix cable tester versus the Mobile setup.

The program has been updated with a default cable length of 5.2 meters and a distance resolution of 0.25 m/div. This should give a "length matches" for the continuous installations using the parts supplied, if the unit is in calibration and the cables are in good condition.

- The records for the ABF ERB20 resistivity multiplexer are recorded starting with pin 1 through 36. The ABF resistivity probes provided to FHWA through CRREL were wired with the number 1 sensor at the bottom of the probe. The LTPP database is expecting the output for pin 1 to be at the top of the probe. For the FHWA LTPP Mobile setups, a patch cable was manufactured to reverse the pin locations. For the continuous installations, the ABF cable is attached directly to the multiplexer. The software has been updated to reverse the order of the data for storage in record 7. This step was missed in the initial development. Included with this distribution, on a separate diskette, is a program called **OnsSwap7** that will reverse the order of the output voltages recorded in record 7. This needs to be executed on all data files collected with versions of OnsPlus prior to 1.05. **Before installing OnsPlus version 1.05, all data must be collected and retained in a file that will not be appended with future data.** Instructions are provided in 'readme.txt' for installation, execution and renaming of files.

- The wiring diagram in Appendix 2 has been updated to correct some errors discovered during the pilot SMP Phase II installations. In addition, as requested, a more detailed schematic has been put together for wiring and troubleshooting of the continuous setup. Instructions are also provided for the various tele-commuting options, depending on the equipment installed.

- The program TransOn, which is a simple Edlog program to supply power to the cellular transceiver from a separate CR10 datalogger, is incorporated in the OnsPlus distribution diskette. This program is needed in instances where a cellular hookup is used in conjunction with an ABF resistivity multiplexer, as there are not enough control ports on the CR10X datalogger to activate all devises. Instructions are provided in 'readme.txt' in the TransOn folder.

OnsPlus v1.05 should be installed on all computers used to transfer programs to the CR10X datalogger or collect data at continuous SMP Phase II site. The computers should have an installed copy of the Campbell Scientific PC208W Datalogger Support Software for Windows (version 2.06 or higher). Installation of OnsPlus v1.05 consists of copying the **t**emplate directory off the distribution diskette as a subdirectory to a **s**ites directory on the computer. Instructions are provided in the documentation for making site specific directories and for downloading the program (OnsPlus.DLD) to address the equipment installed at each site.

Note: ***Access to the CR10X datalogger will be done mostly through remote access, therefore, this program should only be loaded to a 'field' computer used during the initial installation or for troubleshooting purposes.***

TransOn version 1.0 should be installed on all computers used to transfer programs to the CR10X datalogger at continuous SMP II sites. This program is required when a cellular setup is

used in conjunction with the ABF resistivity multiplexer. Again, instructions are provided in the documentation for the setup and use of this program.

OnsSwap7 is a 'one time' distribution of a program used to correct resistivity records (record 7) in data files generated with earlier versions of OnsPlus. This program should be installed on all computers used to process OnsPlus data files. This program should be executed, following the instructions provided, on OnsPlus data files collected with program versions prior to 1.05. Subsequent to this process, the data can be reviewed with MOBFIELD and processed through SMPCheck version 3.0.

The OnsPlus v1.05 program and users guide supersedes previous versions that were provided during the pilot implementation.

If there are any problems, please submit a SMP problem report (SMPPR) form in accordance with the LTPP Monitoring Directive SM-6.

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