TO:
Director,
Preliminary Plan Review Bureau

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

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SUBJECT: COMPUTER PROGRAM H805901
N.Y. CULVERT ANALYSIS PROGRAM

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Under certain outlet control conditions, the results produced by the subject program will not be valid. These conditions are:

1. Free surface through the entire length of the barrel with critical depth at outlet.

2. Free surface throughout and critical depth submerged by outlet channel flow.

3. Full flow near the inlet but critical depth submerged by outlet channel depths insufficient to result in full flow at the outlet.

When these conditions occur, the designer will spot the error in printout and, by being aware that the pipe indicated will not produce a headwater higher than pipe crown, determine if the pipe selection is still adequate.

To include additional formulas in the program to compute headwater under the above conditions (which rarely occur) could add unwarranted complexity to the program and would involve input such as stream entrance velocity which is difficult to obtain. Therefore, no program change will be made.

As points of information, the FHWA programs HY-1 and HY-2, upon which our culvert analysis program is based, print the message "Outlet Control Governs" under the above conditions and do not show a computed headwater. The use of HEC-5 nomographs under these conditions will also produce error in results.

WCD:MAK