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APPENDIX E

FIELD RECONNAISSANCE PROCEDURE FOR SEDIMENT STUDIES

E-1. Preparation for Field Reconnaissance. Prior to the actual field trip an investigation of data readily available in the office should be conducted. Knowledge of various historical, hydraulic and sediment parameters will make the field investigation easier and more efficient Figure E-1 shows a suggested sequence of preparation for field reconnaissance.

E-2. Field Reconnaissance. The following is a suggested check list of tasks and observations to be made during the field reconnaissance.

a. Checklist.

(1) Verify topographic maps.

(2) Note boundary conditions.

(3) Note bed and bank material slope.

(4) Note slope of stream in general and any break points.

(5) Obtain representative samples of the bed material.

(6) Note condition of banks, whether stable or caving, and the type of material found in the stream bed and banks, particularly any lenses.

(7) Record the conditions by locations.

(8) Record drift accumulations, debris.

(9) Estimate the percent of the bed that is naturally armored.

(10) Note problem areas and attempt to ascertain the cause.

(11) Note changes in bed gradation and take representative samples for the sediment study.

b. Observations.

(1) Note channel mining activities.

(2) Note tributary entry points, the amount of flow, turbidity of flow, condition of the tributary.

(3) Note diversion points.

(4) Note natural grade controls such as rock outcrops.

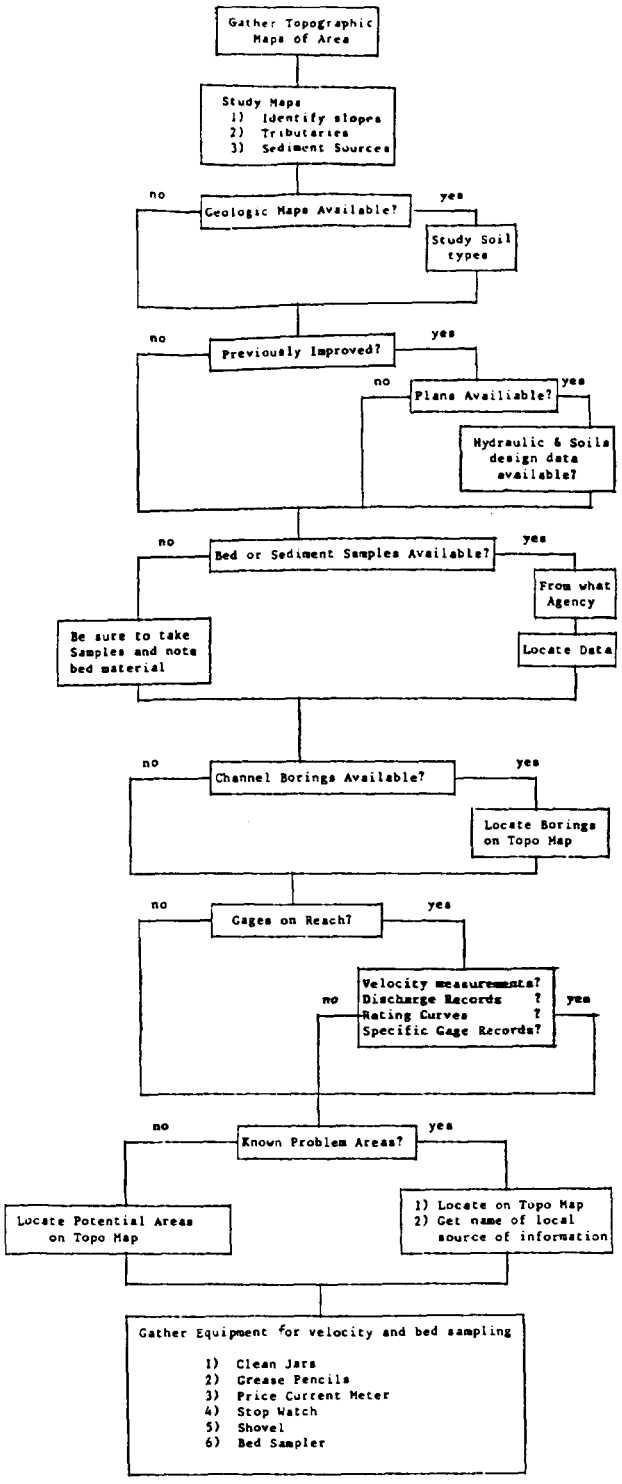

Figure E-1. Preparation for Field Reconnaissance

(5) Note presence of protection measures, their size, why they were placed.

(6) Note gage locations, type of gage.

(7) Note structural feature locations and observe bank and bed conditions in the vicinity of the structures.

(8) Note existing similar projects on same or adjacent streams - how they are performing.

(9) Note overbank conditions - areas of scour or deposition - If deposition exists - obtain samples and measure depth & note extent on map.

(10) Take velocity measurements at several locations using surface floats, pacing and a stop watch.

(11) Talk with locals to identify problem areas, get an estimate of time of problem. Also, inquire as to local land use history - when urbanized, cleared, etc.

E-3. Post Reconnaissance Activities.

a. Once the field reconnaissance is completed the engineer should have a good idea of the existing problems, the likely impacts of the proposed improvements, and which parameters may be the most sensitive to change. The engineer should also be able to outline a plan of study. The complexity of the study and quality of the results will likely depend on the availability of historic and contemporary data. Based on the data available in the office and additional field observation the engineer should be able to ascertain the following:

(1) The present stability of the stream. On a stable reach there should be little or no evidence of significant overbank deposition or recent bank erosion. The presence of large, vertical trees established on a presently stable bank indicate that the bank has been in that position for as long as it took them to grow.

General observations can be made as to the suspended sediment load. If the stream reach is unstable, it will characteristically display actively caving banks, large amounts of drift in the channel with existing trees leaning toward the channel and/or significant overbank deposition.

(2) The adequacy of present structural features.

(3) The adequacy of past channel improvements and/or alignment changes.

b. Depending on the availability of historic data, the engineer may be able to ascertain the following:

(1) Long term stability trends.

(2) Stream response to land use changes.

(3) Stream response to past improvements.

c. Depending on the availability of historic and contemporary hydraulic, hydrologic, topographic and sediment data the engineer should be able, either qualitatively or quantitatively, to evaluate:

(1) Future long term stability with and without the proposed improvement.

(2) Future maintenance requirements with and without the project.

(3) Design alternatives that address the interaction of sedimentation and all other project considerations in order arrive at the "best" design.