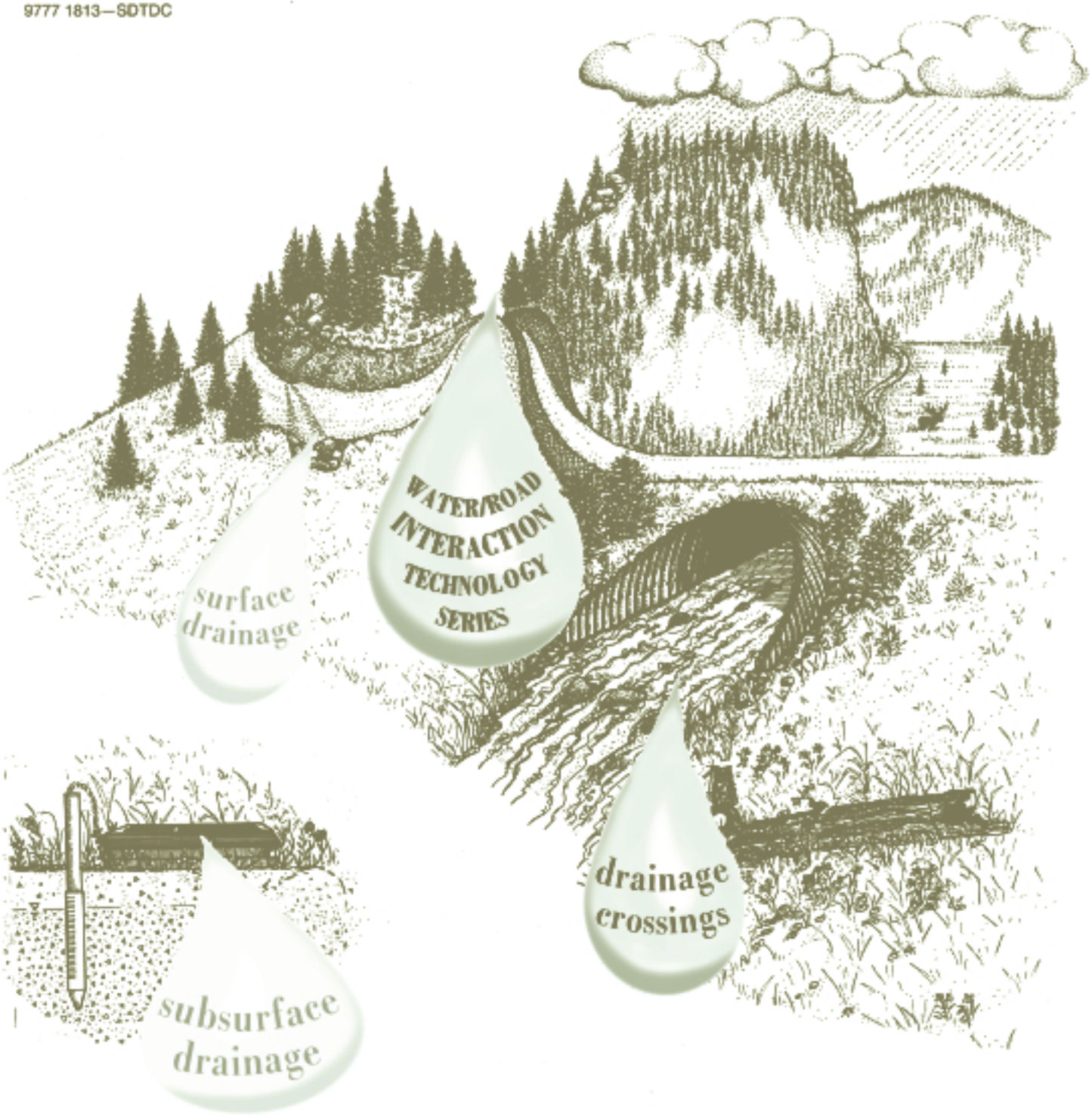
United States
Department of
Agriculture

Forest Service

**Technology &
Development
Program**

7700—Transportation System
2500—Watershed & Air Mgmt
December 1997
9777 1813—SDTDC

Road Stream Crossing Passage Questionnaire



Road Stream Crossing Passage Questionaire

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San Dimas, CA

December 1997

Forest Service field units were queried on road stream crossing "passage" topics—water, debris, bedload, and fish, by the San Dimas Technology and Development Center (SDTDC) in the spring of 1997. The original questionnaire is included as part of this report. The purposes of the questionnaire, as part of the Water/Road Interaction project at SDTDC, are to make information available to the field and facilitate communication between resource specialists, physical and biological scientists, and engineers. Twenty-five field units representing each Region of the Forest Service initially submitted responses to the questionnaire.

SDTDC created an interactive electronic version of the passage questionnaire. Responses may be viewed through the Forest Service Web on the intranet page by either of two methods:

1. View an entire questionnaire submitted by any field unit;
2. View any or all field unit responses to any one question in the questionnaire.

Forest Service employees may continue to submit responses to the questionnaire, which will be incorporated into the database and available instantly for viewing. To maximize usefulness, please submit as complete a questionnaire as possible. Additional questions may be submitted for inclusion; a question should be multi-Regional in scope and fit within the subject area and questionnaire format. If you have a questionnaire in the database you wish to expand on or modify, you must resubmit the entire form. Contact the person at the following address or phone number so that the obsolete form may be deleted from the database:

Senior Project Leader
Water/Road Interaction Project
444 E. Bonita Ave.
San Dimas, CA 91773
909-599-1267x246

Instructions for using the Electronic Road Stream Crossing Passage Questionnaire:

The passage questionnaire requires a web browser running on either the IBM (project 615) system in an X-Window session on an IBM compatible PC, or a Macintosh computer. Microsoft Internet Explorer version 3.0, or Netscape Navigator version 2.0 or higher are recommended for viewing questions and submitting answers to the database. Mosaic also works adequately.

If using Netscape Navigator, from the "File" menu, select "Open Location". Using Mosaic, from the "File" menu, select "Open URL". With Microsoft Internet Explorer, from the "File" menu, select "Open". In the blank, enter the following Universal Resource Locator: (URL:)

http://fsweb.sdtdc.wo.fs.fed.us/programs/eng/w-r/passage_quest.html

Click "Open" ("OK" using Microsoft Internet Explorer). Note: If Domain Name Service (DNS) is not yet configured at your site, you can access the page by replacing fsweb.sdtdc.wo.fs.fed.us with 166.5.227.20. The page can also be accessed from the engineering projects page located at:

http://fsweb.sdtdc.wo.fs.fed.us/programs/eng/projects.htm

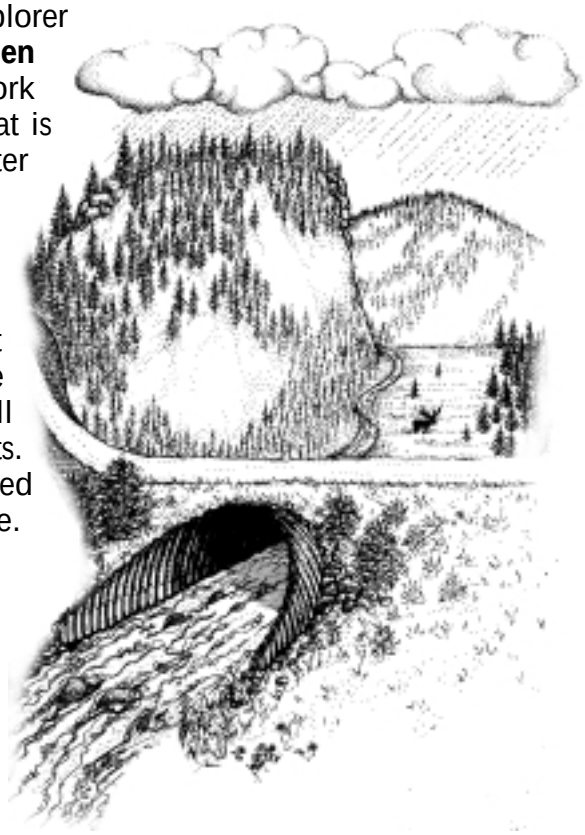
To view an entire questionnaire by unit, click on the link "View an entire questionnaire submitted by a field unit;" (Note: "links" show up as underlined blue text). A new page will come up showing a list of units that have responded to the questionnaire. Select one of the submitters by clicking the numbered button to the left of the submitter's name. A page containing the questionnaire and the unit's responses will come up. To view another unit's responses, click the "back" button on the

web browser, or click on the “back to select another passage questionnaire” link located at the bottom of the page.

To view all responses to a single question, click on the “View any or all field unit responses to any one question in the questionnaire” from the passage questionnaire page. A new page comes up showing the questions. Select a question to view by clicking on the button located to the left of the question number. Next, click one of the “Submit” buttons located at the bottom of each section. A page containing the selected question and each unit’s response will come up. To view the responses to another question, click on the “Back to select another question to view” link located at the bottom of the page, or click the “back” button on the web browser.

To submit a response the questionnaire, click on the link “submit responses” located in the last paragraph of the passage questionnaire page. A page containing the questions followed by input boxes or radio buttons will come up. Answer the questions by selecting the yes or no button, or by filling in the blanks provided. You must click inside the text boxes to enter text. Important: The text boxes provided on the questionnaire form use an automatic text-wrap feature which works with the Netscape Navigator and Microsoft Internet Explorer browsers. **Please do not use the enter key when inputting text**. The text wrap feature does not work with NCSA Mosaic, so to scroll through text that is typed into the text boxes without using the enter key, you will have to use the scroll bar at the bottom of each text box.

When all questions in the questionnaire have been answered, click the “Submit” button located at the bottom of the page. Once this is done, the submission will be added to the database and will be immediately available for viewing by other units. Note: Your name and phone number are required for your response to be submitted to the database.



United States Department of Agriculture | Forest Service | SDTDC

Reply to: 7710 (6E61L05) Date: May 14, 1997

Subject: Road Stream Crossing "Passage" Questionnaire

To: Forest Engineers

REPLY REQUESTED JUNE 13, 1997

Passage requirements for water, debris, bedload, and fish dictate location, design, construction, operation, and maintenance of stream crossing installations for low volume roads. The San Dimas Technology and Development Center, under the Water/Road Interaction projects, is compiling information on the latest techniques for protecting resources and the environment from interactions between low volume roads and hydrology. The attached questionnaire on passage topics for road stream crossing structures--mainly corrugated metal pipe--queries field unit experiences to document and make available information, identify needs, and aid ongoing technology development.

We believe many Forests possess useful knowledge or would be interested in participating with us in collecting or developing information. We are dependent on such support from the field on a project specific basis. We ask that you forward to and coordinate with Forest Hydrologists and Forest Biologists to give these specialists the opportunity to reply or contribute to this effort. You may elaborate on the questionnaire in any way you wish. We will screen replies and make followup contacts as necessary. Please try to reply--by DG or hard copy--by June 13, 1997. Results of the questionnaire will be available to interested field units in a few months.

Should questions arise, contact Jeff Moll by DG at J.Moll:W07a or (909) 599-1267, ext. 246. Thank you for your assistance.

/s/Leon R. Silberberger
LEON R. SILBERBERGER
Manager

Enclosure

QUESTIONNAIRE

The purpose of this questionnaire is to document and make available to the field information on passage topics for road stream crossings.

Instructions: Fill in the blank with the appropriate response. You may comment or expand on answers any way you wish. If the situation on your unit is not easily summarized by one answer, you may modify or duplicate the form as desired. Leave blank any questions not related to your situation.

SECTION A GENERAL

Question 1 What is the number of your Region? R-

Name of Forest? _____

Name of District (if appropriate)? _____

Question 2 What is your name, title, and phone #? _____

_____

_____

Question 3 Would you like to receive a summary of this questionnaire?
YES ___ NO ___

SECTION B WATER

Question 4 Describe factors dictating design life of road stream crossing structures:

Question 5 What peak flow recurrence intervals are used in road stream crossing structure sizing and design:

For inlet control, what allowable headwater depth in diameters (HW/D) is used in sizing pipes for peak flows?

Question 6 List and briefly describe methods the unit uses to estimate peak flow discharges associated with intervals described above. Specify whether these methods are general or specific to local conditions.

Question 7 Does the unit have information on accuracy of these peak flow estimation methods? YES ___ NO ___

Describe:

Question 8 Are overflows or low water crossings incorporated into road stream crossings to reduce consequences of exceeding the structure discharge capacity? YES ___ NO ___

Describe:

Question 9 Does the unit assess overall environmental risk of crossings and evaluate design options against chance of impact to water quality and fish? YES ___ NO ___

Describe:

SECTION C WOODY DEBRIS

Question 10 Is woody debris passage a concern in road stream crossing structure design, operation, or maintenance? YES ___ NO ___

Describe:

Question 11 Describe methods used in predicting debris problems at a site:

Question 12 Does the unit use debris catching structures (trash racks, traps) or passing structures (aligners, funnelers)? YES ___ NO ___

Describe success or shortcomings of such structures:

Does the unit configure the channel approaching the inlet to facilitate debris passage or trapping? YES ___ NO ___

Describe success or shortcomings:

Are beveled pipe inlets used? YES ___ NO ___

If yes, are they successful at limiting woody debris problems? YES ___ NO ___

Describe other methods used in providing for debris passage through structures:

SECTION D BEDLOAD AND SEDIMENT PLUGGING

Question 13 Is bedload passage a concern in road stream crossing structure design, operation, or maintenance? YES ___ NO ___

Describe:

Question 14 Describe design or maintenance strategies that are effective in passing sediment/bedload:

SECTION E FISH

Question 15 Are there separate provisions for migratory and resident fish passage? If yes, describe separately and if no, describe your universal standards.

For installations needing fish passage, describe criteria the unit uses for the proportion of time the structure should be passable? (i.e., most "passable" culverts are not passable at all flows)

Are projected flow duration and flow timing used to evaluate the timing of passability? Is this compared to migration timing to evaluate the actual chance of passage?

Is provision made for passage at low flow?

Is monitoring conducted to access performance of culverts in fish passage?

Question 16 Describe any designs to accommodate fish passage in unusual circumstances (e.g. baffled culverts)

Question 17 Do you have any special provisions/designs to accommodate fish passage problems(ie. drop outlets & beaver dams) after culvert installation? YES___ NO___
Describe:

Other than bridges, does the unit have passage solutions proven successful and cost effective?

This questionnaire may be returned via DG to J.Moll:W07a or a hard copy may be mailed to:

Jeff Moll
San Dimas Technology and Development Center
444 East Bonita Ave.,
San Dimas, CA 91773

Telephone: (909) 599-1267, ext. 246
Fax: (909) 592-2309