Summary of Field Inspection

October 1989

16923-HPH

Cline Creek
Rodger Creek
FCD 89-15

Prepared for

Flood Control District
of
Maricopa County

Submitted by

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Introduction

The required field inspection was performed for Cline Creek and Rodger Creek on September 28, 1989. The Flood Control District of Maricopa County (FCD) was represented by Pedro Calza, Besian Khatiblou and Russ Cruff. Bill Jolly represented Michael Baker, Jr., Inc.

Purpose

The purpose of this report is to document field reconnaissance of the study reaches of Rodger Creek and Cline Creek and its tributaries.

Scope

The field observations included are: estimates of Manning's "n" values, determination of the methods for assignment of channel bank stations in various locations, location of suspected overflow or split flow areas. Task 3 of the Scope of Work also includes inspection of flood control facilities, of which none exist within the Cline Creek or Rodger Creek study reaches. Bridge measurements, also required in Task 3, were made by survey crew and will be included with the submittal of survey notes.

Discussion

- Manning's "n" Values

  Channel and overbank roughness values were determined at eight locations in the Cline Creek study area and at two locations on Rodger Creek. These determinations were made through visual inspection and engineering judgment. Captioned photographs showing typical cross sections and the selected "n" values for various wash conditions are included in the Appendix. Photo locations and direction of view are shown on a map included in the Appendix.

- Channel Bank Station

  For the purpose of floodplain delineation and determination of floodway limits, it was determined that the main channel should be defined as the narrow low-flow area within the wash bed. These are clean sand-to-boulder bed zones which are free from large plant growth. The width of this main channel is generally a small fraction of the width of the 100-year floodplain. They are defined by the lack of vegetation rather than by definite banks.

  The remainder of the floodplain will comprise the two overbanks. This area generally contains substantial vegetation of variable density, and secondary low-flow areas exist in many reaches. In certain areas the overbank roughness may need to be varied horizontally in the HEC-2 model to adequately define the actual conditions.

- Assignment of HEC-2 Parameters

  Because of the variation in terrain and vegetation within the study reaches, the photographs and captions represent only conditions at the respective sites, and not necessarily for the entire tributary. The values given are typical for other locations where it is determined that similar conditions occur. Since both roughness and channel limits are governed largely by vegetation, the aerial photography provides the best background to define "n" values and channel stations. These values for the HEC-2 model will be assigned through stereo inspection of the aerial photography.

- Overflow and Split Flow Areas

  The main stem of Cline Creek has the greatest potential for split flows of any of the study reaches. The New River Road dip crossing causes flows upstream to spread and probably to overflow into adjacent small washes. If over flow of a significant proportion of the 100-year peak flow does occur, then it is likely to persist all the way downstream to Skunk Creek.

In several other areas, divided flow may show up in the HEC-2 output, however, these locations are localized, and the splits should rejoin within one or two cross-sections.

Appendix

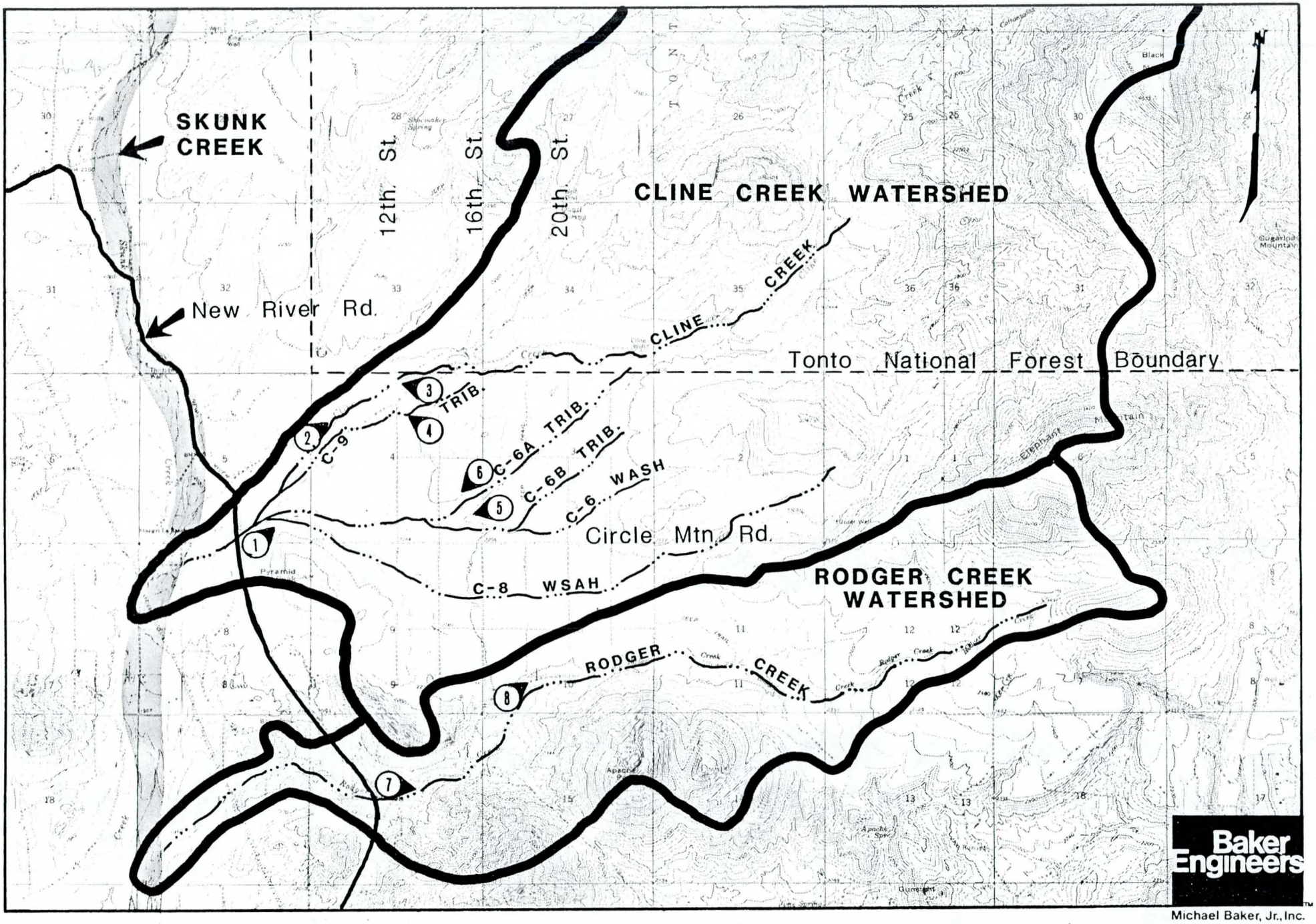
SKUNK CREEK
New River Rd.
12th St.
16th St.
20th St.
CLINE CREEK WATERSHED
CLINE CREEK
Tonto National Forest Boundary
C-9 TRIB.
C-6A TRIB.
C-6B TRIB.
C-6 WASH
Circle Mtn. Rd.
C-8 WSAH
RODGER CREEK WATERSHED
RODGER CREEK
1
2
3
4
5
6
7
8
Baker Engineers
Michael Baker, Jr., Inc.

PHOTO 1: CLINE CREEK - MAIN STEM UPSTREAM OF CIRCLE MOUNTAIN ROAD DIP CROSSING, LOOKING UPSTREAM. BED WIDTH 15' TO 25', CHANNEL INCISED 6' TO 10' DEEP. MAIN CHANNEL DEFINED AS UNVEGETATED GRAVEL/BOULDER BED. OVERBANKS BEGIN AT VEGETATION LIMITS.

CHANNEL N = 0.045 OVERBANK N = 0.065

PHOTO 2: CLINE CREEK - MAIN STEM WEST OF 10TH STREET, LOOKING UPSTREAM. APPROXIMATE FLOODPLAIN WIDTH IS 200' TO 300', 50' TO 150' WIDE MAIN CHANNEL IS NOT SHARPLY DEFINED, LIMITS OF MAIN CHANNEL DEFINED AS 2' TO 3' HIGH BENCH. OVERBANKS ARE ATOP THE BENCH ON EITHER SIDE AND SUPPORT ESTABLISHED RIPARIAN VEGETATION.

CHANNEL N = 0.055 OVERBANK N = 0.070

PHOTO 3: CLINE CREEK - MAIN STEM AT 12TH STREET, LOOKING DOWNSTREAM. BED INCISED 3' TO 6', WIDTH 100' TO 150', MAIN CHANNEL DEFINED AS 20' TO 30' WIDE SAND/GRAVEL/COBBLE BED AREA SOUTH SIDE. RIGHT OVERBANK - BRUSHY GRAVEL BAR, SECONDARY CHANNEL, VEGETATED BANK 3' TO 6' HIGH. LEFT OVERBANK - LIGHT TO MODERATE VEGETATION ON SLOPED BANK 5' HIGH.

CHANNEL N = 0.055
BRUSHY BAR N = 0.075
OVERBANK N, VARIABLE:
SECONDARY CHANNEL N = 0.055
VEGETATED BANKS N = 0.065

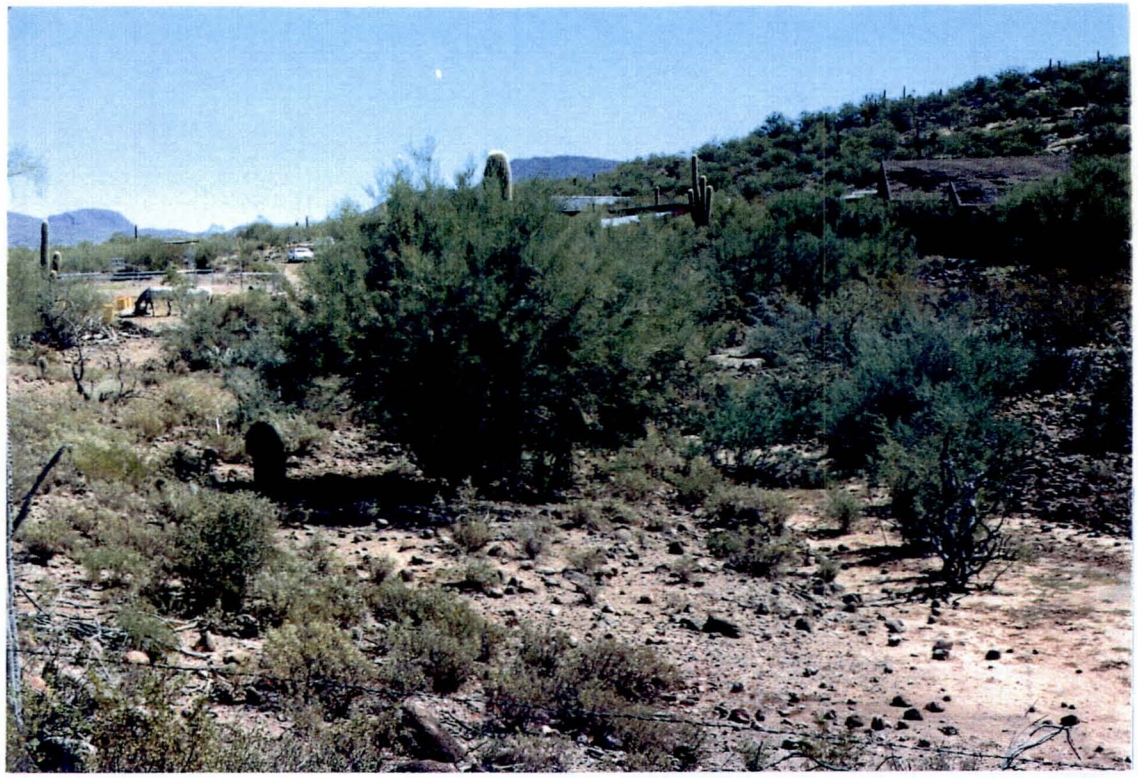

PHOTO 4: C-9 TRIBUTARY-OBLIQUE TO WASH, LOOKING UPSTREAM. TYPICAL SMALL TRIBUTARY WASH. CHANNEL DEFINED AS 4' TO 8' COBBLES AREA. OVERBANKS - DEVEGETATED BY GRAZING.

CHANNEL N = 0.055
OVERBANK N = 0.055

PHOTO 5: C-6 WASH - MAIN STEM AT 16TH STREET, LOOKING DOWNSTREAM. BED WIDTHS 5' TO 20', CHANNEL DEFINED AS SAND/GRAVEL/COBBLE AREA CLEAR OF VEGETATION. OVERBANKS - SLOPE GENTLY UP FROM CHANNEL WITH DENSE VEGETATION.

CHANNEL N = 0.055 OVERBANK N = 0.075

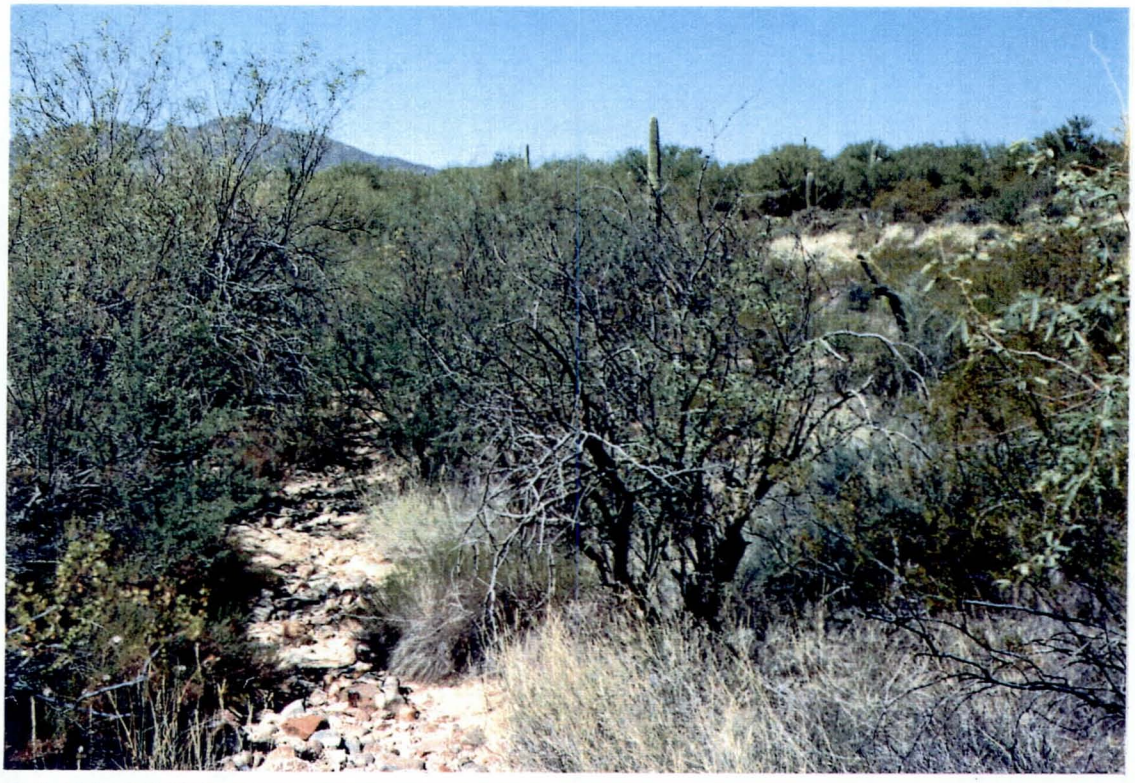

PHOTO 6: TRIBUTARY C-6A AT 16TH STREET, LOOKING DOWNSTREAM. BED WIDTH 4' TO 8' ADJACENT TO 50' WIDE FLAT OVERBANK AREA NEAR BED ELEVATION. CHANNEL DEFINED AS CLEAR GRAVEL/COBBLE AREA. OVERBANKS WITH MODERATELY DENSE VEGETATION.

CHANNEL N = 0.055 OVERBANK N = 0.070

PHOTO 7: RODGER CREEK AT NEW RIVER ROAD, LOOKING UPSTREAM. FLOODPLAIN INCISED 6' TO 10'. CHANNEL FAIRLY WELL DEFINED, WIDTH 15' TO 30', SAND/GRAVEL/COBBLES. OVERBANKS - DENSE BRUSH ON LOW BANK 2' ABOVE BED.

CHANNEL N = 0.045 OVERBANK N = 0.060

PHOTO 8: RODGER CREEK WEST OF 18TH STREET, LOOKING UPSTREAM. CHANNEL WIDTHS 5' TO 20', COBBLES AND BOULDERS. OVERBANKS - DENSE VEGETATION WITH OCCASIONAL SECONDARY CHANNELS 3' TO 10' WIDTH.

CHANNEL N = 0.060 OVERBANK N = 0.075