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MEMORANDUM FROM PUBLIC WORKS DEPARTMENT

DATE: **FEBRUARY 10TH, 2011**

TO: **WHOM IT MAY CONCERN**

FROM: **GREGORY STANLEY, COUNTY ENGINEER**

RE: **AMENDMENT TO THE PINAL COUNTY DRAINAGE MANUAL, MINIMUM TIME OF CONCENTRATION**

PURPOSE: To amend Sections Section 2.2.1.2 and Section 4.4.1.2 of the Pinal County Drainage Design Manual Volume 2 – Design Methodologies and Procedures regarding the minimum time of concentration (T_c) used within the Rational Method. This memorandum will set a minimum time of concentration (T_c) for the purpose of calculating the rainfall intensity (i) and subsequently the peak discharge for a given watershed.

BACKGROUND: The Rational Method as outlined in Section 2.2.1 of the Volume II of the Pinal County Drainage Design Manual is an iterative process in which the time of concentration (T_c) and the rainfall intensity (i) are unknown quantities. The methodology estimates time of concentration (T_c) and then the value for rainfall intensity (i) is determined using the I-D-F curves. The value for time of concentration (T_c) is then calculated using Equation 2-2 and compared to the estimated value. This process is repeated until the estimated value for time of concentration (T_c) is equal to the value calculated from the equation. However, the Manual does not provide a minimum time of concentration (T_c) resulting in a linear extrapolation of the rainfall intensity (i) at the rising end of the I-D-F curves. This memorandum will eliminate the extrapolation process.

Section 4.4.1.2 provides a minimum time of concentration, but is not consistent with the methodology provided in Section 2.2.1. Enacting this memorandum will bring consistency between both sections.

POLICY: Effective as of today, the minimum time of concentration (T_c) to be used in determining the peak discharges within Pinal County as part of the Rational Method shall be no less than five (5) minutes. When the computed time of concentration (T_c) is less than the minimum value, the designer shall use five (5) minutes instead. The time of concentration (T_c) is defined to be the flood wave travel time from the most remote part of the watershed to the point of the design.

APPROVED BY:
Pinal County Public Works

2/10/2011

Gregory Stanley, P.E. Date
Director

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