

Guidelines for Yolo County Drainage Study Reports

These guidelines have been prepared to assist consultants and engineers with preparation of a reasonably comprehensive drainage study report that will reduce the possibility of study oversights and reduce review time. This is a design aid, intended to help consultants and engineers demonstrate compliance with county standards. These guidelines are intended for use in conjunction with the County of Yolo Improvement Standards, and do not supersede any portion of the County of Yolo Improvement Standards.

COVER:

1. Project name
2. Submittal number (second and subsequent submittals)
3. Date
4. Preparer
5. Client
6. Professional seal
7. Signature

BACKGROUND/INTRODUCTION

1. Brief description of project
 - Location with location map
 - Project area (acres or square miles)
 - Existing and proposed land use with existing and proposed land use maps
 - Existing and proposed drainage facilities including locations of overflow with current effective FEMA FIRM
 - Potential impacts addressed (increased impervious area, off site flood risk, FEMA FIS, off site channel stability/erosion, etc)
 - Datum to which all elevations in report are referenced (NGVD-29, NAVD-88)
2. Identify design criteria being addressed by the analysis and report
3. Brief description of analyses
 - Hydrologic approach and model (rainfall-runoff)
 - Hydraulic approach and model (backwater)
4. Brief summary of results and conclusions

HYDROLOGIC ANALYSIS

1. Data and sources
 - Precipitation recurrences and storm durations
 - Subbasin areas with subbasin map
 - Losses and interception with soil type map having existing and proposed land use maps with subbasin boundaries superimposed and soil class map with subbasin boundaries superimposed

- Temporal precipitation distribution
 - If SCS curve numbers used, include a tables showing computation of area weighted CN for all subbasins for existing and proposed conditions
 - Include a tables identifying area, curve number (or alternative loss parameter if used), percent impervious, and subbasin lag for existing and proposed conditions
2. Models and methods
 - Identify program(s) employed for the analysis
 - For models containing five or more subbasins, include model schematic including all basin, combination, and routing elements
 - Antecedent moisture and other initial conditions
 - Routing methods and data including tables and figures as appropriate (tables of travel time components, stage-storage plots for ponds, etc)
 - Other data as appropriate (baseflows, boundary conditions, etc)
 3. Model results including tables and plots conveying the following:
 - Peak flows and hydrographs approaching development site and/or the combination point to which the development drains
 - Existing condition peak flows and hydrographs from the site to be developed
 - Developed condition peak flows and hydrographs from the proposed development
 - Existing condition peak flows and hydrographs downstream of the combination point to which the project drains
 - Developed condition peak flows and hydrographs downstream of the combination point to which the project drains
 - In some cases, additional existing and developed condition peak flows and hydrographs well downstream of the combination point to which the project drains

HYDRAULIC ANALYSIS

1. Data and sources
 - Cross-sections
 - Flows
 - Roughness coefficients
 - Bridge, culvert, and other structure data
 - Expansion and contraction coefficients
 - Weir/overflow data if appropriate
 - Routing data (dynamic models)
2. Models and methods
 - Boundary assumptions
 - Bridge/culvert methods
 - Other computation options as appropriate
3. Results
 - Existing and developed condition flood profiles for open channels
 - Existing and developed condition HGL for conduits
 - Flooding and overflow including map

- Figures as appropriate (include cross-section and structure locations on profiles and identify flood events on profiles and cross-sections)
4. Conclusions
 - Identify how the proposed project meets the design criteria
 - If appropriate identify requested exceptions to criteria (if previously approved by Yolo County, cite the approval document and include a copy)
 - Identify project features and design details necessary to meet the design criteria with requested/approved exceptions if appropriate (include grading plan and drainage plan)
 - Identify how the proposed project will address FEMA requirements as appropriate
 5. Models (include CD, DVD, or Blu-Ray with data files)