

**PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT
PLANNING AND DEVELOPMENT DIVISION
DRAINAGE REPORT AND PROJECT CONDITIONS REVIEW CHECKLIST**

Project Name _____ **Project Number** _____

FEMA or RFCD STUDY? Yes _____ No _____
FEMA Panel Number _____ Effective Date _____ Zone _____
LOMR Case No. _____ Effective Date _____
RFCD Special Study _____

REZONING/SPECIFIC AREA PLANS/COMPREHENSIVE PLAN AMENDMENTS? Yes _____ No _____
Case No. _____ Flood Control Conditions Checked _____
If Hold Harmless required follow PDD-ADM-203

DRAINAGE COMPLAINTS? Yes _____ No _____
If yes, recent files checked _____

PRE-SUBMITTAL AGREEMENTS? **SDRC?**
If yes, documented in file _____ If yes, minutes in file _____

DRAINAGE REPORT REQUIREMENTS (to Follow TECH-114):

General

- _____ Engineer's Seal on Drainage Report
- _____ Cover Sheet follows TECH-114
- _____ General Location Description
- _____ Location Map
- _____ Description of Proposed Development
- _____ Description of Existing Conditions
- _____ Description of Affecting Watershed Conditions
- _____ Relevant Drainage Features 16.36.020
- _____ Aerial Photo
- _____ Description of FEMA Zones
- _____ Alterations to FEMA Mapping. CLOMR Requested.
(16.16.070, 16.36.040)
- _____ FEMA Firmette with project location show
- _____ Description of Special Studies
- _____ Description of Regulatory Floodplains/Sheet Flood Areas
- _____ Critical or Balanced Basin
- _____ Site-specific Detention/Retention Requirements?
- _____ 404 Compliance Statement
- _____ Summary and Conclusions
- _____ Engineer's Statement
- _____ References
- _____ Drainage Report CD

Procedures

- _____ Description of methodology and assumptions
- _____ Previous Studies? Engineer verifies discharges used.

Hydrology & Hydraulics

Offsite

- _____ Description of watersheds
- _____ Soils Map
- _____ Watershed Map
- _____ Rainfall Data
- _____ Peak Discharges with Hydro Sheets
- _____ Table of CP's, Drainage Areas, Peak Discharges
- _____ Exhibit with entering and exiting CP's (16.36.030)
- _____ Adjacent Improvement Plans/Plats Provided

Onsite/Existing

- _____ Description of Site-Specific Conditions
- _____ Peak Discharges with Hydro Sheets
- _____ Table of CP's, Drainage Areas, Peak Discharges
- _____ Drainage Exhibit
 - _____ Watershed Boundaries
 - _____ Drainage Infrastructure
 - _____ Entering/Exiting CP's
 - _____ Regulatory Floodplains
 - _____ Erosion Hazard Setbacks
 - _____ Hydraulic Cross-sections
 - _____ Average Depth of Flow for Sheet Flood Areas
 - _____ Hydraulic Modeling and CD

Onsite/Proposed

- _____ Description of Site-Specific Conditions
- _____ Peak Discharges with Hydro Sheets
- _____ Table of CP's, Drainage Areas, Peak Discharges
- _____ Drainage Exhibit
 - _____ Watershed Boundaries
 - _____ Drainage Infrastructure
 - _____ Entering/Exiting CP's
 - _____ Regulatory Floodplains (16.36.020)
 - _____ Erosion Hazard Setbacks
 - _____ Hydraulic Cross-sections
 - _____ Average Depth of Flow for Sheet Flood Areas
 - _____ Hydraulic Modeling and CD
- _____ Encroachment (16.08.220)
- _____ Developed Conditions approximate Existing
 - _____ Conditions at Property Boundaries
 - _____ Clear Drainage Pattern
- _____ Scuppers
- _____ Curb Openings
- _____ Catch Basins
- _____ Storm Drain
- _____ Culverts
 - _____ Headwater
 - _____ Inlet/Outlet Protection
 - _____ Sediment Transport Ratios
- _____ Channels, Swales
- _____ Security Barriers
- _____ Street and P.A.A.L. Capacity
- _____ Q₁₀₀ shown at all drainage structures
- _____ Details and profiles shown

ADDITIONAL REVIEW REQUIREMENTS:

Sheet Flood Area

- Special Study 46 (TECH-106)
- Shaded Zone X (TECH-013)
- Structures Elevated
 - .5 foot BFE
 - 1.5 feet RFE
- Fill pads extend 25 feet, or engineering analysis, or Erosion protection (TECH-006)
- Estimated depth of sheet flow; limits shown.

Walls and Fences (TECH-005)

- Elevation
- Wall Openings

Erosion Hazard Setbacks

- 16.28.020
 - i. Santa Cruz, etc. 500 feet
 - ii >10,000 cfs 250 feet
 - iii. 10,000 – 5,000 cfs 100 feet
 - iv. 5,000 – 2,000 cfs 75 feet
- 16.28.030
 - i. 2,000 – 500 cfs 50 feet
 - ii. <500 cfs 25 feet

Setback Reduction requires 9-point Engineering Analysis and approval of Division Manager (TECH-002)

Channel Design (16.36.120)

- Earthen channel (DCDC V-11 to V-24)
- Collector Channels 16.36.120B
- Minimum longitudinal slope .5%
- Impervious bottom requires Chief Engineer approval
- Toe Down (TECH-006)
- Rip-Rap (DCDS V-6, COT 9.3.3)
 - i. D_{50} (Minimum = 6")
 - ii. Thickness = $2D_{50}$
 - iii. Filter Fabric
 - iv. Grouted if side slopes < 3:1

Retention/Detention (SRDM, 16.36.100,16.48, TECH-007)

- Drainage report clear proposed = existing CP's (16.36.030)
- No adverse impact to adjacent property
- 2-yr or 5-yr Retention
- 100-year inflow and outflow
- Detention and Retention volumes
- Routing
- 100-year water surface elevation
- Top and bottom elevation
- Adjacent structure FFE
- Near structures require soils engineer recommendation
- Positive drainage, minimum .5% bottom slope
- Cross-sections of basin as appropriate
- Details/profiles of structures
- Security Barriers (TECH-008)
- Embankment details
- Underground emergency overflow, maintenance covenant
- Waiver Request follows PDD-ADM-202
- In-lieu Fee Payment

All-Weather Access

- Hydraulics and water surface verified (16.36.060)
 - Waiver requires approval of Chief Engineer.
- $dv^2 < 18$, $d < 3$ feet (16.26.050)

Other Project-Specific Requirements

- Existing Easement Conflicts
- New Easement Requirements
- Maintenance Access Easements
- CIP
- Public Dedications
- Maintenance Agreements/Covenants
- Right-of-way Use Permit/License Agreement
- Infrastructure Maintenance or Inspection Reports
- Sediment Transport Analysis
- Notification to Adjacent Jurisdiction (16.36.050)

Landscape Plan Review

- Conflicts with Drainage Infrastructure
- No obstructions at basin outlets
- TECH-009 Followed

Site Inspection

- Inspection Completed
- Photos filed on I: Drive

The purposes of this checklist are to assist Pima County Regional Flood Control District staff in completing a review of project drainage information and to help assure consistent reviews. The checklist is provided as a courtesy to the public. It is not a substitute for professional judgment or complete text of codes, policies and design standards. Submitting the items summarized by the checklist does not ensure project approval.