



Scenic Pacifica
Incorporated Nov. 22, 1957

CITY OF PACIFICA

170 Santa Maria Avenue • Pacifica, California 94044-2506
www.cityofpacifica.org

MAYOR
Deirdre Martin

MAYOR PRO TEM
Sue Beckmeyer

COUNCIL
Sue Vaterlaus
Mary Bier
Mike O'Neill

DEPARTMENT OF PUBLIC WORKS

GUIDELINES FOR DRAINAGE REVIEW

The following is intended to summarize the City of Pacifica Policy on Storm Drainage to guide the applicant and the civil engineer when preparing a drainage analysis as required for a proposed development.

CITY OF PACIFICA DRAINAGE POLICY:

1. Storm water runoff shall be collected and conveyed by an approved storm drain system. The storm drain system shall be designed for the ultimate development of the watershed. The storm drain system shall provide for the protection of abutting and off-site properties which would be adversely affected by any increase in runoff attributed to the development. Off-site storm drain improvements may be required to satisfy this requirement.
2. Post-development peak flow (runoff) and velocity must be less than or equal to pre-development peak flow and velocity. No additional runoff, caused by development can cross property lines. In areas where there are existing storm drain systems, those systems must be of adequate size to accept the increased runoff, or mitigation procedures must be taken. Mitigation procedures may include on-site storm drain detention or off-site storm drain improvements.
3. If permanent structures are to be built over existing drainage courses or drainage facilities courses or drainage facilities.
 - a. Adequate drainage facilities must be provided to protect the proposed development and existing downstream development.
 - b. A means of adequate access must be provided for maintenance.
4. The use of dry wells to dispose of surface runoff may be allowed.
5. Drainage systems that are designed to rely on pumps may not be allowed.

To comply with City Policy, the applicant's civil engineer must submit a drainage report, hydrologic study, hydraulic calculations, and drainage improvement plans. The following sections present general guidelines for these items.

DRAINAGE REPORT:

A drainage report (written narrative) must be submitted to the City for review and include the following:

1. Delineation of drainage basins and sub-basins.
2. Description of proposed drainage system.
3. Discussion of rationale used to design system
4. Discussion of methods and/or calculations.
5. Description of how excess drainage will be detained.
6. Description of how discharge will be controlled to comply with City Policy.

HYDROLOGIC ANALYSIS:

The hydrologic calculations must be based on an appropriate design storm for the specific site conditions and project. The calculations shall be based upon a design storm of no less than a 100 year recurrence.

The hydrologic analysis must include the following:

1. ANALYSIS/CALCULATIONS MUST BE SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER. WITHOUT THIS REQUIREMENT BEING MET, NO FURTHER REVIEW OF THE DRAINAGE ANALYSIS WILL BE PERFORMED.
2. All drainage basins and/or sub-basins clearly shown on a map plan.
3. A clear description of the method used to determine peak flows.
4. If the rational method ($Q = CI A$) is used;
 - a. Provide a clear statement of the basis for the runoff coefficient, (C) rainfall intensity (I), time of concentration (T), and duration, etc., and
 - b. A clear description showing the areas used in the formula.
5. If another method is used, provide a statement of method, a clear description of the basis for all assumptions and the source of all information used in the particular method.
6. Calculations for pre-development peak flow AND velocity.
7. Calculations for post-development peak flow AND velocity.

8. Calculations for detention basin design and a determination of the required volume of storage to comply with a City Policy.

HYDRAULIC ANALYSIS:

The hydraulic analysis must include the following:

1. ANALYSIS/CALCULATIONS MUST BE SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER. WITHOUT THIS REQUIREMENT BEING MET, NO FURTHER REVIEW OF THE DRAINAGE ANALYSIS WILL BE PERFORMED.
2. Calculations shall clearly demonstrate that the post-development discharge will be controlled, and peak flow and velocity will not exceed pre-development values.
3. Calculations shall clearly demonstrate that all storm drainage facilities have sufficient capacity to carry the anticipated peak flows. These facilities include, but are not necessarily limited to:
 - a. Pipes
 - b. Culverts
 - c. Swales
 - d. Ditches
 - e. Valley gutters, etc.

DRAINAGE IMPROVEMENT PLANS:

The plans must incorporate the following items:

1. PLANS MUST BE SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER. WITHOUT THIS REQUIREMENT BEING MET, NO FURTHER REVIEW OF THE DRAINAGE ANALYSIS WILL BE PERFORMED.
2. All proposed storm drainage contours and/or spot elevations clearly indicated.
3. Existing and proposed contours and/or spot elevations clearly indicated.
4. All flow patterns clearly shown.
5. Profiles of all storm drain lines including all crossings of other utilities. A minimum one (1) foot clearance between utility lines and five (5) feet clearance from sewer lines are required.
6. Construction details must be shown, including but not necessarily limited to:

- a. Specific locations of all storm drainage facilities specified (i.e. stations, dimensions from property lines, etc.),
- b. dimensions of all storm drainage facilities, including Standard City Drawings where applicable,
- c. pipe/swales slopes, pipe sizes, etc.,
- d. invert elevations, and
- e. construction materials must be specified (i.e. RCP, PVC, DIP, etc.).

SUMMARY:

The above is intended only to provide the applicant and the applicant's civil engineer with minimum guidelines when preparing a drainage analysis. The City does not specify the design method that the applicant's engineer uses to prepare the drainage analysis. It is incumbent on the engineer to select a design method that is appropriate for the specific project and site accepting responsibility for the design. The City reviews the design as to concept and to see that the design adequately reflects City policy. The City's review does not include checking the calculations for accuracy nor making assumptions regarding the analysis.

It is to the applicant's advantage to clearly show what is being recommended for construction. Mistakes, ambiguities, incomplete information, and poor preparation of the analysis will only serve to delay the review and approval process.