



**LAND DEVELOPMENT DIVISION  
STORM DRAINAGE UNIT**

TO: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 ( )  
 ATTN: \_\_\_\_\_

DATE [Click here to enter a date.](#)

PLAN CASE NO. \_\_\_\_\_ EIMP  
 PD/MTD NO. \_\_\_\_\_  
 TR/PM NO. \_\_\_\_\_  
 PLAN CHECK NO. \_\_\_\_\_  
 TRANSMITTAL DATE: \_\_\_\_\_

**REVIEW OF PROPOSED DRAINAGE IMPROVEMENTS**

**PLANS ARE DISAPPROVED**

We have reviewed the plans for the proposed drainage improvements. Make corrections as shown on the returned set of plans and as noted below. Resubmit, on CD, revised hydraulic calculations and/or revised plans for further consideration. Address all additional comments indicated in red on the returned set of project plan. Additional changes may be required as determined by further review.

After the revisions are corrected and approved, it will be necessary to obtain a Connection and/or Inspection Permit for the proposed drainage improvements prior to the commencement of construction.

- Army Corps 404 Permit, Regional Water Quality Control Board permit, & State Fish & Wildlife Permit may be required.
- Submit the **Draft** copies of the Corps 404 Permit, Regional Water Quality Control Board permit, & State Fish & Wildlife Permit for review before signing them.
- Caltrans approval required.
- Army Corps 408 Permit is required prior to construction.
- Army Corps of Engineers Connection Permit is required.

**COVER SHEET COMMENTS**

- Revise the list of General Notes as noted.
- Revise the list of American Public Work Association (APWA) Standard Drawings as noted.
- Show all street names, tract numbers, debris cone limits, and off-site easement areas on the Index Map.
- All sheets must be stamped and signed by a Registered Civil Engineer with current license.
- Include all laterals on the Hydraulic Elements Table. Indicate in the remarks column which lines outlet to a natural drainage course and which portions of the storm drain system are not to be maintained by LACFCD.
- Place the PD/MTD number on all sheets.
- Make the indicated changes to the Hydraulic Elements Table. Discrepancies were found between the Hydraulic Elements Table and profiles.
- Place the following note on the cover sheet, "PD/MTD \_\_\_\_\_ IS NOT ELIGIBLE FOR TRANSFER TO THE FLOOD CONTROL DISTRICT FOR MAINTENANCE UNTIL PD/MTD \_\_\_\_\_ IS TRANSFERRED" or "PD/MTD \_\_\_\_\_ MUST BE CONSTRUCTED BEFORE OR CONCURRENT WITH PD/MTD \_\_\_\_\_."
- Add a chart which identifies the total length of storm drain and the total square footage of easement or property acquired per the storm drain. Public Right-of-Way should not be counted as acquired square footage.

**GENERAL COMMENTS**

- Provide a copy of an Approved Hydrology in your next submittal.
- Provide a copy of the Grading Plans in your next submittal.
- Provide a copy of the Street Plans in your next submittal.
- A Conditional Letter of Map Revision (CLOMR) from FEMA is required **before** the PD plans are approved. Contact Mr. Eduardo Escobar in Watershed Management Division at (626) 458-4355 for more information. Also, see the enclosed material for reference and policy.
- A conditional letter of approval from the Board of Supervisors for revising/rescinding County adopted Floodplain/Floodway will be required **before** the PD plans are approved. Contact Mr. Eduardo Escobar in Watershed Management Division at (626) 458-4355 for more information. Also, see the enclosed material for reference and policy.
- Provide the following information when the storm drain and/or debris access road is adjacent to proposed lots:
  - Show all lot numbers and lot lines.
  - Label pad elevations.
  - Provide additional topography or contours.
  - Show the building footprint.
  - Easement should be located entirely in one lot and at the extreme side or back of the lot.
- Provide rubber gaskets to 3 joints or 24' (whichever is greater) in both directions of a cut/fill transition.
- Structures, pipe size, D-Loads, easements, and hydraulics were not checked at this time. These will be checked after approval of the Hydrology.
- Revise plans for the existing drains to reflect the connections to this drain once these plans have been bonded for.
- Shade the limits of slope protection and all access roads for clarity of the drawings.
- Lateral should be an open swale since there is an undeveloped watershed area.
- The minimum pipe size for a debris carrying system is 42 inches, and the minimum pipe slope is 5 percent.
- The minimum pipe size for a main line is 24" inches. Lines that are less than 24 inches that span longer than 100' are not allowed.
- The minimum radius allowed for curves in a clear-flow mainline is 22.5'. For a debris-carrying system it is 90'.
- Provide and extend fencing as shown.
- Indicate on all applicable profiles where additional concrete cover over the invert steel is required.
- The maximum angle of divergence is 5° 45'.
- Show the Q's, maximum velocity, and HGL in all profiles.
- Show the existing ground surface, proposed finish surface, and any over-excavation in all profiles.
- Show all utilities crossing the proposed drain in profile and specify their elevation.
- Provide blanket protection for utilities within 18 inches under storm drain. Minimum clearance is at least 6". Check SPPWC for minimum based on the size of pipes crossing.
- Revise storm drain layout to be consistent with Approved Hydrology.
- Additional comments may be forthcoming upon completion of review by our Design/Water Resources/Flood Maintenance Division(s).
- Revise manhole spacing as indicated. Ensure no manholes are in street intersections.
- Use a pressure manhole shaft and cover when the HGL is above the level of the manhole rim.
- Submit revised cost estimate.
- Security bond amounts are approved.
- Velocities over 20 will require additional 1/2" cover over invert steel. Velocities over 30 will require additional 1" cover over invert steel. Velocities over 40 fps isn't allowed without velocity control rings.
- Ensure all drains have a plan and profile view (e.g. underground, open channels and water quality lines)
- Proposed drainage improvements for private use must be labeled "Improvements are not to be maintained by LACDPW/LACFCD" on the plan. LACFCD identification must not appear on the proposed storm drain manhole and catch basin manhole covers.

**CATCH BASIN COMMENTS**

- Street grade must exceed four percent for curb opening catch basins with grates to be acceptable. If grates are necessary, make sure the SPPWC catch basin is modified to use City of LA's grates instead of the normal SPPWC ones.
- Provide catch basin calculations (including catch basins in series) and WSPG runs extending through the upstream and downstream existing drains in your next submittal.
- Upsize the connector pipe to the mainline to 24 inches for catch basins in series or sumps.

- Show in profile the lines entering the back of catch basins. The maximum size pipe allowed in the back of a catch basin is 12 inches.
- Raise the top of manhole six inches above adjacent proposed finish surface for all manholes outside of street right of way. Place a sign at the curb per Caltrans Standard Plan A73A.
- Provide a 7'x7' flat staging area around manholes outside public R/W so the underground crew can set-up their equipment for underground inspection and maintenance purposes.
- Provide paved pedestrian access to manholes located outside street right of way.
- Provide v-depth calculations for all catch basins. Minimum v-depth is 4.5' per SPPWC.
- All catch basins require both Automatic Retractable Screen (ARS) devices and Connector Pipe Screen (CPS) devices to be installed.
- Provide SPPWC 300 catch basins with the manhole in the sidewalk as opposed to SPPWC 307 with a manhole in the street.

**STRUCTURAL COMMENTS**

- Submit two complete sets of structural calculations for the proposed box sections, channels, inlets, outlets, and connections to existing drains. Calculations and plans must be wet signed and stamped by the Civil Engineer.
- Use a concrete collar to join proposed drains to existing drains.

**EASEMENT COMMENTS**

- Easements should be located entirely in one lot and either at the extreme back or side of the lot.
- Provide an exhibit sheet on your plans showing the storm drain system, all public right of ways, and all easements (including bearings and distances, who they will be dedicated to, and how they will be dedicated).
- Discrepancies were found in the easements and easement call-outs. Please make indicated changes to the easements on both the final map and storm drain plans.
- Provide a copy of the Final Map/Separate Instrument for checking all easements and easement call-outs.
- Clarify if any existing easements need to be abandoned where the proposed drains connect to existing systems.
- All easements shall be made to The City of \_\_\_\_\_ and be written so they can ultimately transfer to LACFCD.

**DEBRIS BASIN COMMENTS**

- Specify the slope at the bottom of all basins.
- Label the debris cone slope.
- Height of desilting walls may not exceed six feet.
- The berm extends outside of proposed easements. Extend easement to include the entire berm.
- Where fill slopes extend into adjacent lots, move the easements to the toe of slope.
- Place fencing at the toe of the downstream berm slope.
- Locate the swale outside of the debris storage area.
- Indicate the slope of the access road. Maximum slope is 12 percent.
- Demonstrate that the access road will function as a secondary overflow without impacting adjacent lots.
- Specify the top berm width. The minimum berm width is 20 feet unless substantiated in a soils report.
- Provide debris volume calculations with applicable cross-sections.
- Shade the limits of slope protection and all access roads.
- Provide a cut-off wall for the access road.
- Align the outlet structure with the natural drainage course.
- Provide additional topography upstream of the inlet to verify that the inlet is aligned with the natural watercourse.
- Do not block flows to the inlet with a fence.
- The minimum pipe size from desilting, elevated, and bulk flow inlets is 42 inches.
- Specify the required and provided debris potential volumes. If zero, please indicate this.
- Label the 0%, 5%, 25%, and 50% capacity contours and elevations on the plans.
- Larger debris basins will require a secondary inclined pipe. See attached for details.

**SLOPE PROTECTION COMMENTS**

- Protect slopes as indicated. Clearly show limits of slope protection.
- Provide a 5-foot cutoff depth for slope protection.
- Slope protection must extend a minimum of one foot above the specified limits of debris deposition.
- Slope protection must extend to the top of berm.

**SOILS COMMENTS**

- The plans must be signed and stamped by a Soils Engineer.
- Provide a soils report that specifically addresses the proposed storm drain. It must include sufficient subsurface exploration data, pertinent test results and analyses, which address and evaluate the site, the proposed storm drain plans, analysis of channels, top berm widths less than 20 feet, analysis of subdrainage system, suitability of existing soils, placement of storm drain next to faults, etc. The report must comply with the provisions of "Manual for Preparation of Geotechnical Reports" prepared by County of Los Angeles, Department of Public Works. (Note: Tract grading reports are not sufficient. An addendum soils report which specifically address the latest storm drain plans is required. This addendum report may utilize and compile results of previous subsurface exploration, as applicable.)
- Address slope stability for slopes steeper than 3:1 within all basins.
- Submit a Section 111 statement from the Consulting Soils Engineer for the proposed project.
- Depict the appropriate limits and depth of removal and recompaction required for unsuitable soils on the storm drain plans. Also, revise required D-loads and the location of required rubber or gasket joints as necessary.
- Comply with the Soils and Geology Section comments.

**INLET/OUTLET STRUCTURE COMMENTS**

- The plans indicate that ponding will occur at the inlet. Ponding is not allowed for debris flow.
- Show the existing ground surface beyond the inlet/outlet.
- Suggest you use a desilting inlet for this basin.
- Provide a walkway and steps down to the inlet/outlet structure.
- Provide fencing and a double-drive gate as indicated.
- Provide a commercial driveway.
- Specify the debris potential volume. If zero, please indicate this.
- Provide rip-rap slope protection for the cut slopes at the outlet. Adjust the easements to include all protected slopes.
- Provide paved vehicular access to the inlet structure.
- Provide calculations verifying the length of rip-rap provided at the outlet. Provide a 6-foot minimum cutoff wall at the end of the rip-rap.
- For pipes greater than 48 inches, inclined trash rack must be replaced with a slope protection barrier.
- Swinging protection barrier per APWA Standard Drawing 360 is required. To make these protection barriers work in pipes, provide a section of box and transition structure. In addition, the protection barriers must be installed in a section long enough so that the barrier does not swing into the mainline box or channel. Barriers shall open in direction of the flow.
- Provide additional topography upstream of the inlet to verify that the inlet is aligned with the natural watercourse.
- Do not block flows to the inlet with a fence.
- Ensure 15' wide access road on either side of a channel when the top width is over 29'. For channels with a top width of 29' or less, provide a 15' wide access road on one side and a 2' wide clear space on the opposite side of the channel.

**ACCESS COMMENTS**

- Provide lot numbers, lot lines, pad elevations, and additional topography/contours when the storm drain and/or access road is adjacent to proposed lots.
- Provide a 5-foot cutoff depth for slope protection.
- Provide and extend fencing as shown.
- Provide fencing and a double-drive gate as indicated.
- Ensure fencing is along LACFCD Right of Way (e.g. channels, debris basins etc.) and placed at inlets and outlets as fall protection.
- Provide a commercial driveway.

- Provide paved vehicular access.
- Access roads to debris basins must be constructed of concrete. AC pavement is not acceptable.
- Indicate the slope of the access road. Maximum slope is 12 percent.
- Provide a cut-off wall for the access road.
- Provide dual access roads for debris basins with a capacity over 5,000 cubic yards.
- Turnaround areas of not less than 40'x40', in addition to the access road width, are required if the access road exceeds 500' in length and dead ends.

**LID/WATERQUALITY COMMENTS**

- Provide features that address water quality requirements shown on drainage concept.
- Use LA County approved BMP device(s).
- Provide typical "no-dumping, drains to ocean" stencil detail to be placed on all catch basins and/or inlets.
- Add current Storm Water Quality Pollution Notes to plans (Caltrans 2003).

**TRANSFER DRAIN COMMENTS**

- Drainage improvements will not transfer until LOMR is approved by the Federal Emergency Management Agency (FEMA). Drainage plans will not be approved until CLOMR is approved by FEMA.
- Drainage improvements will not transfer until County ML adjustments have been adopted by the Board of Supervisors. Drainage plans will not be approved until a conditional letter of approval from the Board of Supervisors for revising/rescinding County adopted Floodplain/Floodway is obtained.
- Provide an exhibit sheet on your plans showing the storm drain system, all public right of ways, and all easements (including bearings and distances, who they will be dedicated to, and how they will be dedicated).
- Pay a fee to start the transfer drain process once this drain has been completed. See current fee schedule.
- Pay a fee to prepare, process, and/or quitclaim all necessary easements. See current fee schedule.
- Submit an 8 ½ X 11 copy of the key map.
- Submit long-term maintenance agreements from the Army Corp of Engineers and/or the Department of Fish and Wildlife.
- Storm Drain will not be eligible for transfer until all easements have been dedicated and or quitclaimed to the Los Angeles County Flood Control District (LACFCD).

**MISCELLANEOUS COMMENTS**

- Ensure all tentative map drainage conditions to be satisfied prior to improvement plan approval are satisfied.
- Submit balance/supplemental plan check fees in the amount of \$\_\_\_\_\_.
- A pipe inspection fee of \$\_\_\_\_\_ will be required prior to construction of the drain.
- Address all additional comments indicated in red on the returned set of project plan.
- Submit electronic drawing file (CAD) of final drain alignment.
- Submit final plans (electronic copy) signed by the Engineer of Record and the Soils Engineer for District signature.

**REVIEWED BY:** \_\_\_\_\_  
 - (626) 458-4921



<input type="checkbox"/>	<input type="checkbox"/>	<b>Antelope Valley Fees</b> <input type="checkbox"/> Paid <span style="float: right;">Date: _____</span>
<input type="checkbox"/>	<input type="checkbox"/>	\$_____ Remaining outstanding balance of plan checking fee \$_____ Remaining outstanding balance of verification fee
<input type="checkbox"/>	<input type="checkbox"/>	<b>Copy of conditions of approval or city's resolution for city project</b> <input type="checkbox"/> Provided <span style="float: right;">Date: _____</span>
<input type="checkbox"/>	<input type="checkbox"/>	<b>Condition of approval:</b> _____ <span style="float: right;">Date: _____</span>
<input type="checkbox"/>	<input type="checkbox"/>	<b>Other:</b> _____ <input type="checkbox"/> Provided <span style="float: right;">Date: _____</span>