

- Cleanout on main where temporary phasing exists and run does not exceed 250' and 3 services. Manhole and stub when temporary stop exceeds 250' or more than 3 services are going to be installed. Terminal manhole on short runs that end shallow.
- Sewer - PVC Lining on manholes constructed on trunk mains.
- Manhole size i.e. 48", 60", etc..
- Storm calculations showing 2" over site (Engineer provides cross sections and map locations of the cross sections with calculations).
- An on-site high point behind driveway is established at least 0.8' above the gutter flow line. High points for Drop approaches will require 17' or more feet to locate a high point.
- Access to storm drain line does not exceed 500'. Access provided by catch basin, manhole, or open ditch (headwall).
- Trunk lines 1.25' behind top face of curb. Transition to enter catch basin in the center.
- Storms drain outlet protection provided.

### **C. WATER**

- Length shown as distance between crosses or tees.
- Invert elevations shown at grade breaks.
- Top of curb at hydrant locations.
- Blow-offs behind walks.
- Fire hydrants at back of cul-de-sacs for terminating water lines (in lieu of a blow-off).
- Connection to existing facilities.
- At points of future extension install temporary Blow-off with valve.
- Fire hydrants maximum spacing - 500' residential and 300' other. Hose lay lengths 250' residential and 150' other. Cul-de-sacs within 200' of radius point.

### **10. STREET LIGHTING**

- Streetlight locations, wattage and pole height shall be shown on plans and approved by the City of Modesto.
- Plans shall be 1" = 40', 50' or 100' scale
- Service Pedestal shall be located out of sight distance triangle area, 25' or more.
- Point of connection (MID transformer).
- Conduit location.

### **11. LANDSCAPE & IRRIGATION (See Landscaping Brochure for more details.)**

- Scale shall be 1" = 20'.
- Shall be submitted when Improvement Plans are submitted.
- Irrigation schematic to be shown separate from planting details.
- Property/Right of Way lines and Planting Easements.
- Drainage.

### **12. ENGINEERS COST ESTIMATE**

- Verify that unit costs compare with City Standard Costs.
- Verify quantities of all items.
- Review with plans to determine if there are missing items.
- 10% contingency required.
- Grading quantities shown - lump sum not acceptable.
- Driveways included as separate item.
- Sidewalk on square foot and not included in curb and gutter item.
- Increase costs of facilities installed in existing streets by 50%.
- Check groundwater depth. If pipes installed below water table, increase costs by \$10 per lineal foot.
- When resubmitted, verify that all changes in plans are reflected in the estimate.
- City fees shown – grading, water (systems, lateral and hot taps), sewer bond redemption, subtrunk, and lateral.

## **Contacts & Resources**

### **Community & Economic Development**

Building & Development (209) 577-5232  
 Planning (209) 577-5267  
 Land Development Engineering (209) 577-5462  
 Infrastructure Financing (209) 577-5211  
 Program Administration

### **Fire Department**

Fire Prevention (209) 571-5553

### **Parks, Recreation & Neighborhoods**

Parks Planning & Development Division (209) 571-5573

### **Public Works**

Main Number (209) 571-5569

City of Modesto Development Center  
[www.modestogov.com/development](http://www.modestogov.com/development)

Community & Economic Development  
[www.modestogov.com/ced](http://www.modestogov.com/ced)

Fire Department  
[www.modestogov.com/mfd](http://www.modestogov.com/mfd)

Parks, Recreation & Neighborhoods  
[www.modestogov.com/prnd](http://www.modestogov.com/prnd)

Public Works  
[www.modestogov.com/pwd](http://www.modestogov.com/pwd)

City of Modesto Web Site  
[www.modestogov.com](http://www.modestogov.com)



CITY OF MODESTO  
**DEVELOPMENT CENTER**

## **Land Development Engineering Division Checklist**

All Improvement Plans submitted to the City for plan check review should be submitted per the following checklist guidelines. Use this checklist as an aid when preparing plans. Additional information, not listed, may be requested at the time of plan check review.

### **1. GENERAL**

- Plans shall be prepared, signed and stamped by a Registered Civil Engineer.
- North arrow and scale on each sheet.
- Titles and numbers on all sheets and match index.
- Conformance to Parcel Map and Conditions of Approval, especially street and Right-of-way widths, grading, drainage, sewerage, water lines, etc.
- Submittal shall include a copy of the Soils Report.

### **2. TITLE SHEET** (May be with architect's cover sheet)

- Name of Subdivision or Project.
- Address of the property.
- Vicinity Map with North arrows (North up and/or left or right).
- Sheet Index.
- City Engineer's Signature Block.
- Consultant Signature Block.
- General Notes per Appendix "B" of the Design Standards.
- Resolution No. approving project and a detail sheet with the actual approval conditions on the plan sheet.
- Benchmark data to tie in the parcel.

### **3. SHEET ONE** (Title Sheet and/or sheet two)

- Map showing all streets, utilities, structures, etc. and show improvement plan sheet layout.
- Drafting symbol legend & list of abbreviations.
- Street sections shown.
- Structural sections shown in conformance with City Std. Detail No. 301 (T1, R-value, AB, AC).
- Curb shown.
- Right-of-way and street widths shown.
- Cross-slope shown - note relative difference of TC.
- Sidewalk shown.
- Pedestrian paths shown.
- Drainage ways shown.

- Temporary and permanent benchmarks and descriptions.

#### 4. **DEMOLITION & ABANDONMENT PLAN** (If required)

- Clearly show existing topography.
- Show existing septic tanks, leach fields, wells, buildings and structures.

#### 5. **GRADING PLANS** (On & Off-Site)

- Existing elevations or contours shown.
- Proposed pad grades.
- Show TC elevations at property line extensions, grade breaks, curb returns and drain inlets.
- Street slopes at centerline shown (0.2 % minimum).
- Pad numbers or letters shown.
- Retaining walls and sound walls shown (detail shown).
- On-site high point at driveways at least 0.8' above flowline.
- Show grading required for off-site drainage.
- Grading shown between back-of-curb or sidewalk and original ground at right-of-way line.
- Grading conforms to adjacent properties shown correctly and no adverse effect on future development.
- Maximum slopes 2:1 or per Soils Report.
- All pads above high water if storm drains plug. (Surface flows).
- Elevations at rear of lots shown.

#### 6. **STREETS: PLANS & PROFILES**

##### **Plan Views at a Scale of 1" = 40'**

- All existing and proposed improvements clearly shown.
- Radius of curvature, central angle, and length shown on all street curves.
- Curb curve data given; central angle, length, and radius (30' on residential streets and 50' on industrial streets).
- Cul-de-sac radius per Std. Detail No. 311.
- Right-of-way and street width dimensions shown.
- Centerline stationing at 100' and at BC and EC of curves.
- Profiles shall show existing and proposed grades.
- Lot/parcel lines and numbers/letters shown.
- Cul-de-sac cross slopes from high point to gutter lip minimum 2% and maximum 5%.
- Valley gutters (in-fill projects only) - show flow lines.
- Stationing on all drainage structures and utility stubs to property.
- TC elevations given at all drain structures.
- Drainage easements shown and dimensioned.
- Location of underground pipes and utilities shown.
- Street monuments shown.
- Pedestrian paths shown. Basic grades shown.

- Street names shown.
- Stations and elevations street intersections shown.
- All notes and symbols standard and conforming to legend.
- All existing utility poles, manholes, valves, signs, mailboxes, trees, etc. shown. Indicate those to be removed, relocated or adjusted to grade.
- Continuations and cross streets properly referenced.
- Project limits and City limits shown.
- Barricades shown in proper locations.
- Handicap ramps with reference to City Std. detail number.
- Show existing driveway locations on both sides of the streets adjacent to the proposed project.

##### **Profiles, Vertical Scale 1" = 2' or 4'**

- Minimum vertical curve lengths observed (50').
- Vertical curve, used for grade breaks greater than 1%.
- In cul-de-sacs, show profiles @ centerline from end of TC profile through the radius point to top of curb at end of cul-de-sac (dashed line).
- 2% maximum grade observed across intersections.
- 0.20% minimum grade on all streets at curb.
- 0.35' minimum fall around curb returns on all streets.
- All underground pipes and utilities shown; storm drain, water and sewers.
- Existing ground on centerline shown.
- Finished grade profile for top of curb shown.
- Centerline profiles of intersecting streets shown on to their point of intersection.
- Centerline stations and elevations shown @ all BVC, EVC, PIVC, grade breaks, low points and high points.
- All slopes in profile shown.
- Show all utility crossings with clearances indicated when closer than 15".
- Manhole and drop inlet invert and flowline elevations shown.

#### 7. **DRIVEWAYS: Flared & Drop Approaches**

- Design conforms to City Standards.
- Size of driveway shown.
- Flare ends a minimum of 2' from the property line.
- Use a Drop Approach instead of a flared approach for the heavier traffic volumes or truck traffic.
- An on-site high point is established at least 0.8' above the gutter flow line. Drop approach may require 17' or more.
- On-site drainage stays on-site except for minor driveway drainage. Contains 2" water over the site Drop Approach
- Handicap ramps 12:1 at driveway Drop Approach.
- Driveway part in sidewalk does not exceed 2% cross slope and is 4 feet wide for pedestrians to traverse.

#### 8. **DEDICATIONS (If required)**

- Right-of-Way Dedications made. New property line shown on plans. Off-tract drainage improvements (plan and profile) and accompanying easements shown. Off-tract offers of dedication for drainage easement submitted for review.
- All PUE's dedicated and shown on Improvement Plans. NO PUE's for private on-site utilities. These should be indicated as private utility easements.
- Planting easements dedicated.
- Off-tract work to be done but no easement requirements. Right-of-entry submitted for review.
- Easement widths indicated.
- Easements across lots are not permitted.

#### 9. **UTILITY PLANS**

##### **A. GENERAL**

- Design conforms to City Standards.
- Sizes of line shown. Stations annotated at all services to lots.
- Adequate cover; 42" min. to finished grade for water and sewer - 2' min. to sub grade, Ductile Iron Pipe or approved if shallower; storm at minimum 36" to finished grade. Engineered alternatives if shallower.
- Connections to existing facilities.
- Curves allowed within 80% of recommendations of pipe manufacturer. Show curve data or offsets if concentric with centerline.
- On all curves where short pipe lengths are used, indicate clearly on plans.
- Show all existing power poles to be relocated
- Conformance with Department of Health Requirements. Plans must specify length of section and type of pipe at crossing.
- Special approval areas shall be noted in profile (less than minimum cover and clearances).
- Water & Sewer – 8" minimum main size. Storm – 12" RCP minimum.
- Length & size of pipe shown in profile (indicate all changes in class of pipe exceeding CL 150).

##### **B. SEWER & STORM**

- Size, slope, length between structures, and type of pipe.
- Rim elevations on manhole shown.
- Stations given for manholes.
- Sewer - 400' maximum distance manhole to manhole. Storm – 500' maximum distance manhole to manhole
- Gravity Systems - Minimum 2 fps velocity.
- Sewer - 0.10' drop around corner through manhole.
- Bolted manhole covers for any off-street manholes under public maintenance.
- In unimproved areas of right-of-ways and PUEs, manholes extended 1' above ground, a minimum of 3 each one foot grade rings are used to bring up to grade.