



**MESA WATER DISTRICT
WATER SYSTEM
PLAN SUBMITTAL AND APPROVAL REQUIREMENTS**

I. **GENERAL** – The following requirements, I through VII, shall be completed prior to the first plan check and shall comply with current Mesa Water District’s (Mesa Water) Standard Specifications for Construction of Water Facilities.

A. Basic Design Material For Pipe

1. Any steel pipeline material shall comply with AWWA C200 and associated requirements such as AWWA C205 (CML&C), AWWA C207 (pipe flange), AWWA C205 (welding), AWWA C203 (pipe fittings), see Mesa Water’s Standard Specifications, latest edition, for additional requirements.
2. Any other pipeline material shall comply with AWWA C900 or C905 “Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 6 inch through 30 inch for Water”. Pipe shall be furnished in cast-iron pipe equivalent outside diameters with rubber gasketed joints as listed C900 or C905 standards.

B. Plan check process shall be as follows:

1. Submittal from engineer of first plan check; allow 3 to 4 weeks for review.
2. Upon receipt of second or subsequent plan checks, if required, allow 2 weeks for review.
3. When plans are correct, all permit and Capacity Charges shall be paid prior to Mesa Water’s approval of plans.

NOTE: Each check shall be returned to Mesa Water with 2 corrected blueline sets and red-lined check prints.

- C. Design shall conform to requirements of AWWA Standards, State Health Department Standards, Mesa Water’s Standard Specifications, latest edition, and generally accepted water works practices.
- D. Calculations supporting network design, consumption, irrigation, and fire requirements shall be submitted for review in all cases.
- E. All drawings of public water supply works shall be on Mesa Water’s 24” x 36” mylars, for both plan and plan/profile. Record drawings shall be submitted to Mesa Water at the completion of the water facilities.

Exception: City of Costa Mesa’s plan and plan/profile mylar.



F. Drawings shall include the following:

1. Title Sheet or Single Sheet Project

- a. Mesa Water standard water construction notes.
- b. Project address and legal description.
- c. Vicinity map with a scale.
- d. Quantity estimate e.g., bid items, quantities.
- e. Index map (if applicable, w/sheet reference) of scale sufficient to see overall layout showing water facilities, e.g., lines, hydrants, services.
- f. Bench mark (OCS Datum).
- g. Name of design engineering firm.
- h. Signature by a Civil Engineer licensed to practice in the State of California, (with seal, expiration date, and signature on each sheet).
- i. City of Costa Mesa general notes.

2. Plan/Profile Sheets

- a. North arrow.
- b. Centerline/property lines/ROW lines-existing and proposed.
- c. Dimensions for specific water facility location.
- d. Building number/unit number, I.D. number.
- e. Scale-vertical and horizontal.
- f. Easement callouts – see Appendix “B”.
- g. All underground utilities shall be called out (e.g., sewer, gas, Edison, cable TV, telephone, storm drains).
- h. Centerline street stationing.
- i. Waterline and utility separation shall be:
 - (1) Edison: 5 foot clear parallel and 1 foot perpendicular minimum.
 - (2) Sewer: State health requirements, see attached.
- j. All connections, services, fittings, etc. shall be called out and stationed.
- k. Show all ties for location of project to existing known street centerlines.

3. Plan Sheet

- a. Overall onsite utility plan showing all utilities. See Sewer Appendix “D”.
- b. Irrigation plan showing all connections to water mains and backflow device locations.

Exception: Submit mylars of approved utility company construction drawings.



II. WATER SYSTEM DESIGN

See Paragraph I.A., “Basic Design Material for Pipe” for material requirements.

A. Sizing domestic services/meters:

1. Each residential dwelling unit under separate ownership shall be provided with its own service connection and meter.
2. Submit number of fixture units per dwelling unit, or gpm, (gallons per minute), per current UPC.
3. Multiple residential with association shall have separate irrigation services – submit irrigation calculations.

B. Sizing industrial and commercial services/meters:

1. Submit number of fixture units per dwelling unit, or gpm, (gallons per minute), per current UPC.
2. All domestic and irrigation services shall be equipped with an approved backflow device, see Section VIII.
3. Submit domestic and irrigation calculations for its requirement.
4. Each unit/building under separate ownership shall be provided with its own service connection and meter.

C. Sizing irrigation services/meters:

1. Irrigation – shall be a separate service with meter.
2. All irrigation and domestic services shall be equipped with an approved backflow device, see Appendix “C”.

D. Fire system demands:

Must submit approved fire flow calculations complying with City of Costa Mesa’s Fire Prevention Bureau – see Appendix “A”. Call Fire Department (714)327-7400 for required flow.

E. Fire Service

1. All fireline services, (private firelines used exclusively for fire protection), shall fall into 1 of 2 Mesa Water’s classes:

Class I: Automatic fire sprinkler system only.



Class II: System with private fire hydrants, whether or not the fireline has automatic fire sprinkler system.

- a. For Class I services, approved double check valve assemblies shall be installed on all fireline services, except where, in the opinion of Mesa Water, the double check does not offer sufficient backflow protection; Mesa Water will require the installation of an approved reduced pressure principle assembly.
- b. For Class II services, approved detector-double check valve assemblies with meter on the by-pass lines shall be installed on all fireline services, except where, in the opinion of Mesa Water, this assembly does not offer sufficient backflow protection. Mesa Water may require additional equipment.

III. **MAINS**

- A. Sizes shall conform to current Mesa Water Master Plan where applicable.
- B. Minimum size shall be 6" in residential and 8" in commercial and industrial. Larger sizes or a network analysis may be required by Mesa Water.
- C. All mains shall be interconnected at intersections.
- D. Dead ends are to be eliminated whenever possible. Where dead end/cul-de-sac streets require a fire hydrant, lines are to be looped where possible.
- E. Thrust blocks/anchor blocks shall be installed in accordance with Mesa Water Standard Nos. 11 and 12. If not applicable, special design is required.
- F. Pipe deflections shall normally be accomplished by means of standard fittings, the locations of which shall be detailed on the drawings. Where approved by Mesa Water, pipe may be roped. Fittings are to be called out by type and stationing.
- G. All high points (grade elevation difference greater than 12 inches) shall be equipped with air release valves per Mesa Water Standard No. 8, or fire hydrants, per Mesa Water Standard No. 4A.
- H. All mains 16" and larger shall be equipped with drains at low points. Use fire hydrants for blow-off, when possible, per Mesa Water Standard No. 4A.



IV. **FIRE HYDRANTS**

A. Spacing requirements.

Per City of Costa Mesa's Fire Prevention Bureau Standard – see Appendix "A".

B. Location requirements:

1. On the prolongation of the B.C. radial or on property line between lots or parcels.
2. Tactical location by Costa Mesa Fire Prevention Bureau.
3. Off largest main at intersection of mains.
4. Special location per Table 1, Appendix "A".

C. Hydrants shall be installed in accordance with Mesa Water Standard Drawing No. 4 or 4A. If not applicable, special design is required.

V. **HOUSE SERVICES** (Condo, Townhome, Single Family Home)

A. Each residential dwelling unit or building under separate ownership shall be provided with its own service connection and meter.

B. Minimum service size shall be 1" and installed in accordance with Mesa Water Standard Drawing No. 1.

C. If run is over 125 feet, install the next larger diameter size service line accepted by Mesa Water.

VI. **VALVES**

A. Valve spacing guidelines:

1. 800 feet in residential areas.
2. 500 feet in high value areas.
3. ¼ mile on arteries and secondary distribution mains.
4. 1 mile on transmission mains.
5. ½ mile for combination transmission/distribution mains.
6. Where otherwise required by Mesa Water.

B. Only R.S. gate valves to Mesa Water Specifications shall be used, per AWWA C-509-87. Valves larger than 12" shall be butterfly valves.

C. All valves on firelines shall be O.S.Y. resilient seated gate valves per AWWA C-509-87.



D. All valves shall be located at fittings, e.g., tees, 90 degree ells, etc.

VII. **DEPOSITS**

Deposits shall be based on a water facilities construction cost estimate or on an executed construction contract. Cost estimating shall be based on the latest Dodge Construction Guide.

All deposits must be paid before Mesa Water will approve the construction drawings or issue a permit.