GENERAL DESIGN PLAN CRITERIA CHECKLIST

Updated February 2023

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The PWD Engineering department will follow the provided checklist below when performing water system improvement plan checks. All information below must be included in water plans for PWD approval, unless it is not applicable.

For all inquiries associated with the plan check process, please contact PWD Engineering Department at 661-947-4111.

Table of Contents

WHAT MUST BE SHOWN (*ALL SHEETS*)

☐ **TITLE BLOCK**
Include Palmdale Water District Water System Improvements, sheet number, number of sheets, description of content, or extent of improvements on sheet (i.e.: mat'l list, gen. notes, benchmark, vicinity map, etc.; or Avenue R-12 from 1+00.00 to 12+52.75, etc.)

☐ **REVISION BLOCK**

☐ **P.W.D. APPROVAL BLOCK**

☐ **P.W.D. WATER SERVICE MAP PAGE NUMBER**

☐ **TRACT NUMBER, PARCEL MAP NUMBER, OR PROJECT NAME**

☐ **ENGINEER INFORMATION**
Name, address, telephone number, stamp, signature, and expiration date

☐ **DEVELOPER INFORMATION**
Name, address, and telephone number

☐ **NORTH ARROW**
One north arrow per plan view map, drawing, or detail depicted on each sheet

☐ **SCALE**

- One scale per plan view, drawing, or detail depicted on each sheet.
- All plan view drawings, except details must be 1" = 40'.
- One scale per profile view, drawing, or detail depicted on each sheet.
- All profile view drawings, except details, must be 1" = 40' (horizontal) and 1" = 4' (vertical).

WHAT MUST BE SHOWN (COVER SHEET)

☐ **BENCHMARK**
Benchmark number, description, elevation, quad, and adjustment year

☐ **LEGEND**

☐ **VICINITY MAP**

☐ **ONE INCH = 200 FEET MAP**
- Include all items per section 1-06, 1), c) of PWD Standard Specifications for Water Distribution System Construction.
- Oversize valve and fire hydrant symbols so they are easily discernable.

☐ **GENERAL NOTES**
Refer to **suggested form of general notes** handout

☐ **ADDITIONAL NOTES**
Include applicable notes from **general construction notes** handout.

☐ **LIST OF MATERIALS**
List of materials must include material item number, description, quantity of each item per sheet, total quantity of each item, and units.

Material list descriptions must include size, type, configuration, material type, class, and lining information, as well as reference to standard drawing, if applicable. The following are examples of typical material list descriptions:

- 8" MJxFLG TEE, DI, CL 350, DCML
- 12" DIP,CL 350, DCML
- FH ASSY PER PWD STD W-2A
- 8" MJxFLG GV,CL 150, W/VALVE BOX PER PWD STD W-5
- 16"x 8" KOPPL CN-120 WELD-ON NOZZLE W/FLG'D OUTLET
- 12" FLG INSULATION KIT
- 12" MJxFLG ADAPTER, DI, CL 350, DCML
- 16" FLG'D BFV, CL 150, W/VALVE BOX PER PWD STD W-5
- 1" AIR/VAC PER PWD STD W-16
- ¾" METERED SERVICE PER PWD STD W-1
- 12" STL PIPE, 10 GA, CMLC
- 12" FLG'D 90º ELBOW, STL, CMLC

*Refer to **sections 2 and 3** of **PWD Standard Specifications for Water Distribution System Construction** for pipeline materials, valves, fire hydrants, and appurtenances.*

☐ **SIDEWALK DETAIL** (A plan view detail showing the back of sidewalk transitioning to provide the required A.D.A. clearance around fire hydrant riser in accordance with COP Std. No. C-6 must be shown on the cover sheet.)

WHAT MUST BE SHOWN (PLAN VIEW)

☐ **UTILITIES**
All existing and proposed utilities (i.e.: water, sewer, gas, storm drain, etc.) contained within the public right-of-way of all streets depicted on each sheet.

☐ **IMPROVEMENTS**
All existing and proposed improvements (i.e.: curb and gutter, sidewalk, cross gutters, structures, etc.) contained within or attached to the public right-of-way of all streets depicted on each sheet.

☐ **DRIVEWAYS**
All driveways within all streets depicted on each sheet.

☐ **STREETLIGHTS**
All streetlights within all streets depicted on each sheet.

☐ **SEWER LATERALS**
All sewer laterals within all streets depicted on each sheet.

☐ **SEWER MANHOLES**
All sewer manholes within all streets depicted on each sheet.

☐ **LOT LINES**
All lot lines for all lots fronting all streets depicted on each sheet.

☐ **LOT NUMBERS**
All lot numbers for all lots fronting all streets depicted on each sheet.

☐ **STREET NAMES**
All street names for all streets depicted on each sheet.

☐ **EASEMENTS**
- All easements to PWD contained within lots or parcels depicted on each sheet.
- All easements to PWD over adjacent property depicted on each sheet.
    - Refer to **easements to PWD** on sheet 12 for additional information.
- All easements to others, contained within streets or lots depicted on each sheet which may conflict with district facilities or easements.

☐ **STREET CENTERLINES**
All street centerlines within all streets depicted on each sheet.

☐ **STREET RIGHT-OF-WAY**
All right-of-way lines for all streets depicted on each sheet.

WHAT MUST BE SHOWN (PLAN VIEW CONTINUED)

☐ **DIMENSIONS**

- Dimensions, measured from street centerline, for all existing or proposed utilities or improvements within all streets depicted on each sheet.
- Dimensions (including overall and from main line to Pl or sideline) for all easements depicted on each sheet.
- Locate or place dimensions where they will not create clutter or confusion.

☐ **IDENTIFICATION**

- Identification, utilizing line type from cover sheet legend, of all utilities and improvements contained within all streets or easements depicted on each sheet.
- Identification, on each sheet, utilizing size and type (i.e.: 12" BFV, 8" GV, etc.) of all valves necessary to perform a planned or emergency shutdown.
- Identification, on each sheet utilizing size and type (i.e.: 8" VCP, 24" RCP, 4" Stl, 12" DIP, etc.) of all existing and proposed utilities including sewer, storm drain, gas, etc. depicted on each sheet. (Orient this information parallel to utility identified.)
- Identification of easements to PWD
- Locate identification information in a manner that does not create clutter or confusion.

☐ **LABELLING**

Labeling of all valves necessary to perform a planned shutdown (i.e.: gate valve, butterfly valve," etc.)

☐ **STATIONING**

- Station plans relative to street centerline in accordance with related Street Plans except through easements or along knuckle centerline curves. Within knuckles, station relative to projection of street centerline. Within easements runs, station relative to water main.

- Provide stationing for all centerline intersections, cul-de-sac radius points, and projected centerline intersections of knuckles, etc.

- Provide stationing for proposed main line valves, fittings, air/vacs, angle points, commercial services, and tie-in points if their location cannot be determined by required street dimensions.

- Provide stationing for existing valves necessary to perform a planned or emergency shut down if their location cannot be determined by required street dimensions.

- Provide station equations at centerline intersections where stationing is required to locate valves, shown on intersecting streets, for planned or emergency shutdowns.

WHAT MUST BE SHOWN (PLAN VIEW CONTINUED)

☐ **WATER SYSTEM IMPROVEMENTS**

- All existing valves, main line, and appurtenances contained within all streets depicted on each sheet.
- All existing valves necessary to perform a planned or emergency shutdown.
- Depict existing water system improvements with dashed lines and empty symbols.
- All proposed valves, fittings, tapping nozzles or sleeves, mainline and appurtenances, contained within all streets, or easements depicted on each sheet.
- Depict proposed water system improvements shown as to be constructed per other sheets with dashed lines and empty symbols.
- Depict proposed water system improvements shown as to be constructed per a particular sheet with solid lines and filled symbols on that sheet.
- Utilize consistent line weight, shade, symbol size and shape to represent water system improvements throughout plans.
- All reduced pressure detector assemblies or compound meters, vaults, and reduced pressure back flow devices proposed for commercial projects on the sheet depicting the location of said facilities. Refer to detail drawings on sheets 13 and 14 for required additional drawings.

☐ **MATERIAL NUMBERS**

- Encircled material numbers are required to identify all main line valves, fittings, tapping nozzles or sleeves, and appurtenances shown as to be constructed on each sheet. Grey scale encircled numbers are required to identify main line material, constructed per other sheets and joined, at the beginning or end of the plan view drawing.
- Material numbers (1, 2, 3, etc.) should be attached to leaders and arranged or strung vertically at each location, from top to bottom, in construction order.

☐ **JOIN NUMBERS**

- Join numbers are required to identify locations where proposed water system improvements (i.e.: main line, fire hydrants, large meter services, or R.P.D.A.s) will join existing water main and to reference join notes.
- Join numbers (J1, J2, J3, etc.) should be contained within hexagonal symbol and attached to the end of the related material number string. The identical number and symbol should appear next to the referenced note.

☐ **JOIN NOTES**

- Join notes are required to describe manner and order of work necessary to join proposed water system improvements to existing water main (i.e.: Hot Taps, Drop-Ins, etc.) The following are examples of join notes:
- Under District supervision hot tap exist. 12” D.I.P and join with material shown.
- After testing, disinfection and District personnel have closed all valves necessary to isolate the proposed join. Under District supervision, remove existing 12” blind flange and join existing 16”x12” cross with material shown. Shut down not to exceed two hours.

WHAT MUST BE SHOWN (PLAN VIEW CONTINUED)

☐ **ABANDONMENT NUMBERS**

- Abandonment numbers are required to identify locations where existing water system improvements will be abandoned after activation of proposed system.
- Abandonment numbers (A1, A2, A3, etc.) should be contained within a hexagonal symbol and attached to the end of the material and or join number string, if any. Otherwise, it should be attached to the leader.

☐ **ABANDONMENT NOTES**

Abandonment notes are required to describe the manner and order of work necessary to abandon existing water system improvements rendered obsolete by the proposed system.

☐ **LEADERS**

- Leaders are required for all items depicted on each sheet that require stationing, material numbers, join numbers, abandonment numbers, or descriptions.
- Orient leaders on each sheet (vertically) perpendicular to main line shown as to be constructed with that sheet.
- Leaders for tees or appurtenances should extend from the main line in the opposite direction of the branch or appurtenance (except services).
- Leaders for services should be shown in one or two places per sheet and should extend from the meter toward the lot it serves.
- Arrange leaders and all info attached thereto in a manner that does not create clutter or confusion. (i.e.: Spread out and/or lengthen leaders to create more room. Do not cross leaders over each other.)

WHAT MUST BE SHOWN (PROFILE VIEW)

☐ **EXISTING GROUND**

Plot existing ground, in the horizontal alignment of the water main, in all profile views.

☐ **REFERENCE PROFILE**

- Reference profiles are required for all plan view drawings showing main line to be constructed on each sheet.
- Within streets use top of curb closest to the proposed water main as the reference profile.
- Where main line tees into the main line of a connecting street provide additional profile of finish surface in the horizontal alignment of the water main.
- Within easement runs use finish surface over the horizontal alignment of the water main as the reference profile.
- It should be noted that finish surface over the main within the lot is not the same as the pad elevation due to the proximity of the side yard drainage swales and overall drainage of the lot.

WHAT MUST BE SHOWN (PROFILE VIEW CONTINUED)

☐ **STATIONING**

- Refer to **stationing** on sheet 5 for basis of stationing.
- Provide stationing at the beginning and end of the reference profile and at points on the reference profile where the water main transitions from 42" below top of curb.
- Provide stationing at the beginning and end of the water main profile and at all points on the water main profile necessary to fully define the vertical alignment of the main where it deviates from 42" below top of curb.
- Provide stationing for x-ing utilities which do not obviously meet the minimum one foot (1') separation from the water main.
- Provide reference stationing.

☐ **IDENTIFICATION**

Identify reference profile, all stationed points on the reference profile, and mainline grade breaks.

☐ **ELEVATIONS**

- Provide elevations for all points on the reference profile that require stationing.
- Provide top of pipe elevations on the water main profile at all points necessary to fully define the vertical alignment of the main where it deviates from 42" below top of curb.
- Provide elevations for x-ing utilities which do not obviously meet the minimum one foot (1') separation from the water main.
    - Top of pipe elevations for utilities crossing under water main.
    - Bottom of pipe elevations for utilities crossing over water main.
- Provide reference elevations for all profile view drawings.

☐ **SLOPES**

Provide slopes for proposed water main depicted on each sheet where top of main deviates from 42" below reference profile.

☐ **WATER SYSTEM IMPROVEMENTS**

- All existing main line valves and fittings or mainline depicted in the related plan view at or near proposed points of connection.
- Depict existing water system improvements with dashed lines and empty symbols.
- All proposed main line valves, fittings, tapping nozzles or sleeves, air/vacs, and main line shown in the related plan view as to be constructed with that sheet.
- Depict proposed water system improvements shown as to be constructed per other sheets with dashed lines and empty symbols.
- Depict proposed water system improvements shown as to be constructed per a particular sheet with solid lines and filled symbols on that sheet.
- Utilize consistent line weight, shade, symbol size and shape to represent water system improvements throughout plans.

Refer also to **detail drawings** on sheets 13 and 14

WHAT MUST BE SHOWN (PROFILE VIEW CONTINUED)

☐ **CROSSING UTILITIES**

☐ **LEADERS**

- Leaders are required for all items depicted on each sheet that require stationing or description.
- Orient leaders on each sheet vertically.
- Locate reference profile leaders above reference profile.
- Locate leaders for water system improvements below water main.
- Locate leaders for x-ing utilities above the utility if it crosses above the water main or below the utility if it crosses below the water main.
- Arrange leaders and all information attached thereto in a manner that does not create clutter or confusion. (i.e.: Spread out and or lengthen leaders to create more room. Do not cross leaders over each other.)

WATER SYSTEM IMPROVEMENT LOCATIONS

☐ **WATER MAIN**

(Horizontal Location)
Within streets water mains are to be located at ten (10) feet from the curb face except through localized horizontal curb transitions such as right turn pockets, knuckles, or cul-de-sacs.

Within easements water mains are to be centered.

(Vertical Location)
Within streets, top of water main is to be located forty two (42) inches below top of curb wherever practicable.

Within easements, top of water main is to be located a minimum of forty two (42) inches below finish surface. high points, if any, should be located near to public right-of-way.

☐ **MAIN LINE VALVES**

- At least one valve per street is required for street intersections at locations where the main line of one street intersects the right-of-way projection of the other street.
- At least one valve is required per knuckle at the intersection of the main line of one street with the right-of-way projection of the other street.
- Maximum valve spacing is six hundred (600) feet. Valves should be located at the lot line closest to that spacing where practicable.
- Valves are required at each end of easement runs within paved portion of the street no closer than six feet (6') from curb face.

WATER SYSTEM IMPROVEMENT LOCATIONS (CONTINUED)

☐ **FIRE HYDRANTS**

Fire hydrant risers are to be located at two feet (2') behind curb face on the same side of the street as the main line wherever practicable and on lot lines or at intersections a minimum of five feet (5') from curb return.

☐ **AIR/VACS**

Air/vacs are required at high points of the water main and must be located within the public right-of-way a minimum of five feet (5') behind back of curb.

☐ **METERS AND SERVICE LINES**

- Meters are to be located behind curb face.
- Service lines must run straight from the main line to the meter.

WATER SYSTEM IMPROVEMENT SEPARATIONS

☐ **WATER MAINS**

(Horizontal Separations)

Five feet (5') minimum horizontal separation is required from the outside edge of the water main to the outside edge of any utility of parallel construction other than sewer. For separation from sewer see PWD Std.W-10.

Pipe joints must be located at least four feet (4') from any x-ing utility, edge of gutter (including x-gutters), back of sidewalk, etc. For x-ing sewer see PWD Std. W-10.

Where water main transitions under a crossing utility, the edges of the closest transition fittings must be no less than five feet (5') from the outside edge of the x-ing utility.

(Vertical Separations)

One foot (1') minimum vertical separation is required from outside edge of water main to the outside edge of any utility crossing the water main. For x-ing sewer see PWD Std. W-10.

☐ **MAIN LINE VALVES AND FITTINGS**

- Valves and fittings must be located at least four feet (4') from any x-ing utility, edge of gutter (including x-gutters), back of sidewalk, etc. For x-ing sewer see PWD Std. W-10.
- The minimum allowable separation between the edge of any valve, fitting, tapping sleeve, service saddle, etc. and the edge of any other valve, fitting, tapping sleeve, service saddle, etc is two feet (2').

WATER SYSTEM IMPROVEMENT SEPARATIONS (CONTINUED)

☐ **FIRE HYDRANTS**

- Fire hydrants must be located at least five feet (5') from the edge of any driveway apron, sewer lateral, or streetlight.
- Back of walk in vicinity of the riser must transition where necessary to provide the A.D.A. required clearance in accordance with COP Std. No. C-6.

☐ **APPURTENANCES**

- Appurtenances, including air/vacs, blow-offs, meters, etc., must be located at least five feet (5') from the edge of any driveway apron, sewer lateral, or streetlight.
- Service lines and saddles must be located no closer than five feet (5') from any sewer lateral or two feet (2') from the edge of any valve, fitting, tapping sleeve, etc.

EASEMENTS TO PWD

☐ **EASEMENTS FOR TRACTS**

- Easements over lots within proposed tracts are required to allow water mains within cul-de-sacs to loop or connect to water mains within other streets.
- One easement sideline shall be coincident with the lot line of the lot or lots traversed by easement.
- Easements over property adjacent to proposed tracts are required to allow water mains within streets which end at the tract boundaries to loop or connect to water mains within other streets.
- Alignments shall be determined on a case by case basis.
- Easements shall be twice as wide as the depth to the bottom of the main at the deepest point within the easement but no less than ten (20) feet overall.
- Cross slopes within easements shall not exceed five (5) percent.
- Drainage swales of parallel construction must be located a minimum of five feet (5') from the center of the easement.

☐ **EASEMENTS FOR COMMERCIAL PROJECTS**

- Easements within project sites to accommodate compound meters and vaults are required for proposed commercial projects having private on-site systems.
- Easement width must abut right of way. Easement length must be oriented perpendicular to street centerline.
- Easement dimensions must be at least one foot (1') greater than the outside dimensions of the proposed vault.
- Drainage and irrigation must be directed away from easement.

DETAIL SHEETS

☐ **LARGE SERVICE METERS, VAULTS, VAULT LIDS, AND R.P.D.A.S**

- Detail sheets are required for proposed commercial projects served through large service meters.
- Sheets must include plan and profile views of compound meter and vault and plan view of vault lid.
- Construction notes are required on the sheet for all material associated with meter configuration and vault.
- See large service meter detail sheet of water system improvement example plans (commercial) for additional required notation.
- Detail sheets are required for commercial projects served through reduced pressure detector assemblies.
- Sheets must include plan and profile views of the R.P.D.A.
- See R.P.D.A. detail sheet of water system improvement example plans (commercial) for required notation.

DETAIL DRAWINGS

☐ **LARGE SERVICE METERS AND VAULTS (PLAN VIEW)**

- Items depicted in the detail should include the meter configuration, vault, all back flow devices, tees for domestic, and or irrigation, screen wall, and the easement.
- Back flow devices must be dimensioned for location only. All other listed items must be fully dimensioned.
- All material comprising meter configuration and vault must be identified by numbers or letters corresponding to construction notes listed on same sheet. Run material and back flow devices will be identified by numbers corresponding to cover sheet material list.
- All piping from main line connection to the primary back flow device must be Steel, 10ga, CMLC.
- All fittings outside of the vault must be Steel, CMLC. Fittings located within the vault may be CI, CL 150, CML.

☐ **LARGE SERVICE METERS AND VAULTS (PROFILE VIEW)**

- Items depicted in the detail should include the street and all utilities and improvements contained therein, the connection, run, meter configuration, vault, all back flow devices, tees for domestic, and or irrigation, screen wall, and the easement.
- All dimensions, descriptions, and elevations necessary to fully define the vertical alignments of the installation and reference profile as well as separations from utilities and vault floor must be provided in the profile view detail.

☐ **VAULT LID (PLAN VIEW)**

- Detail must show vault lid ring, lid sections, supports, and spring assist access hatch.
- All material comprising vault lid must be identified.
- Detail must be fully dimensioned.

DETAIL DRAWINGS (CONTINUED)

☐ **REDUCED PRESSURE DETECTOR ASSEMBLIES (PLAN VIEW)**

- Items depicted in this detail should include R.P.D.A., screen wall,

☐ **REDUCED PRESSURE DETECTOR ASSEMBLIES (PROFILE VIEW)**

- Items depicted in the detail should include the street and all utilities and improvements contained therein, the connection, the run and the RPDA.
- All stations and elevations necessary to fully define the vertical alignments of the installation and reference profile.
- All material comprising the connection and run must be identified by numbers corresponding to the cover sheet material list.
- All piping from main line connection to RPDA must be Steel, 10ga, CMLC.
- All fittings must be STL, CMLC.

☐ **FIRE HYDRANTS (PROFILE VIEW)**

- A profile view detail is required for proposed fire hydrants extending from existing mains and crossing existing utilities.
- Items depicted in the detail should include the street and all utilities and improvements contained therein, the connection, the run, including all transition elbows, reducers, etc., and the fire hydrant assembly.
- All stations, and elevations necessary to fully define the vertical alignments of the installation and the reference profile as well as separations from utilities must be provided in the profile view detail.
- All material comprising the fire hydrant configuration must be identified by numbers corresponding to the cover sheet material list.