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Perris, CA 92572

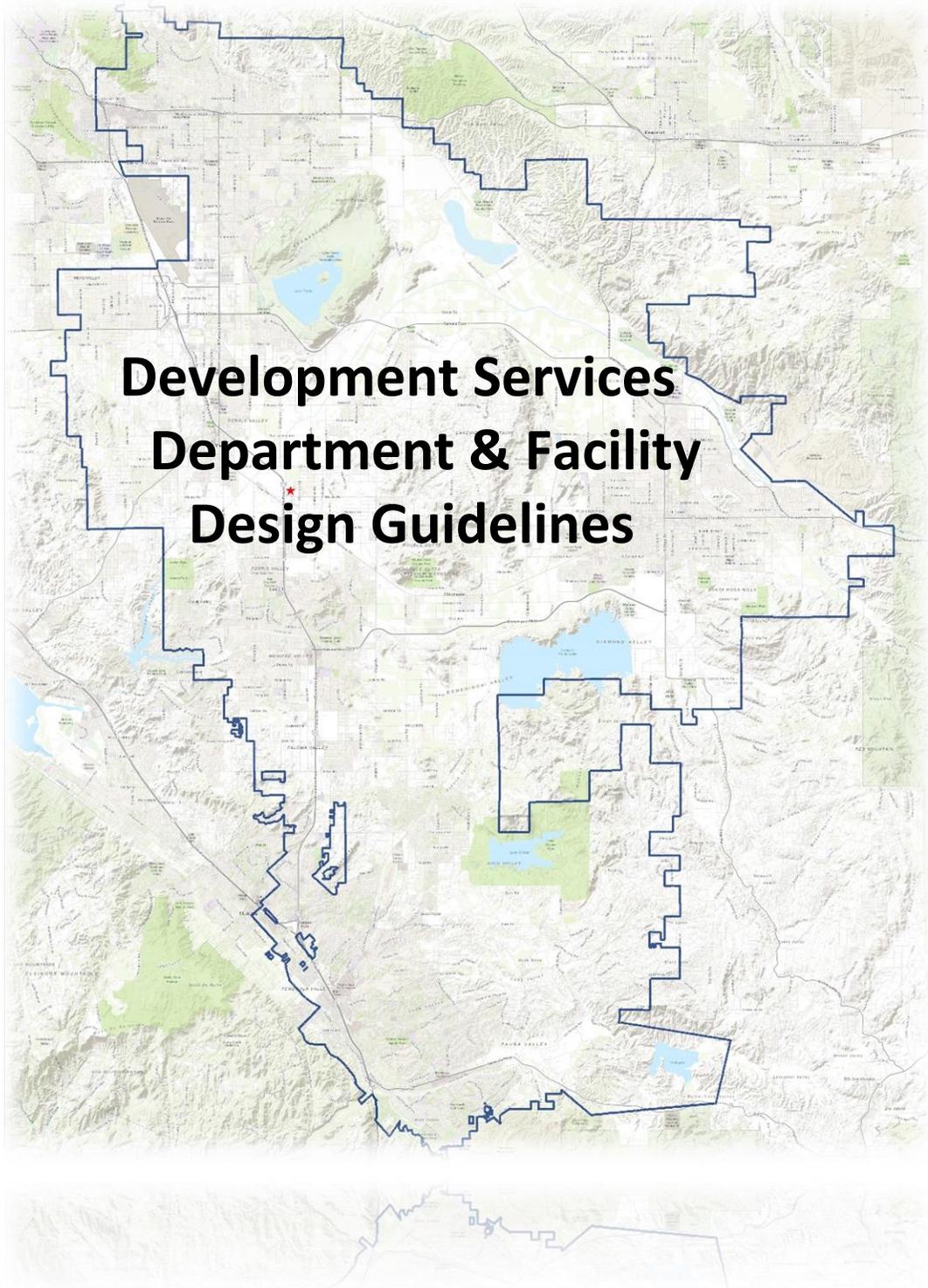


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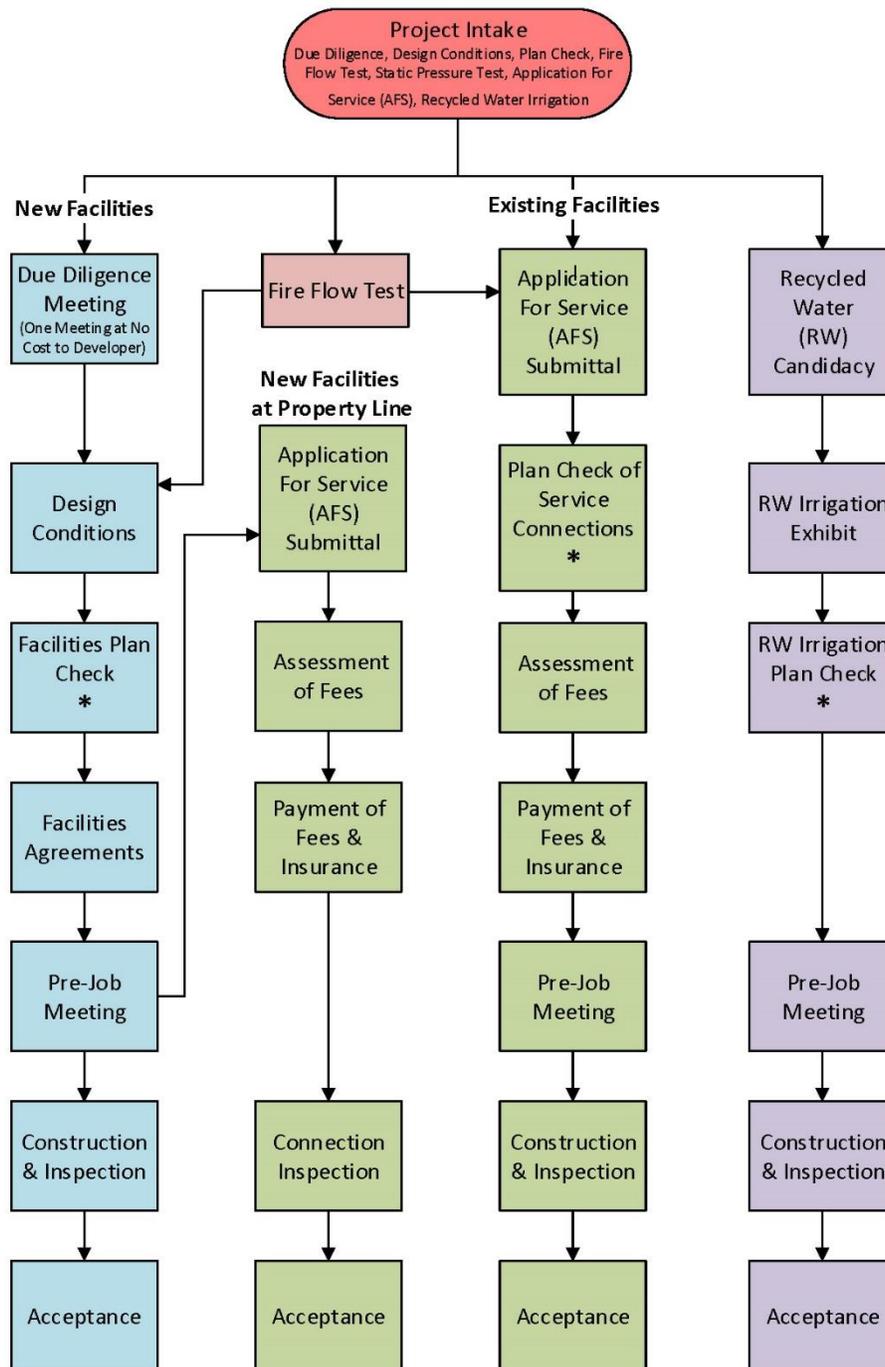
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Section 0. Chart: Development Services Process Workflow

Use 'Ctrl+Click' on chart to skip to section.



* **Note:** Requests for EMWD to provide authorization, in form of an EMWD First Release, to a jurisdictional agency for issuance of grading/building permits, projects require to be at this step in the process to ensure EMWD obtains sufficient information to review for such authorization.

'Ctrl+Click' here for a lower-level view of the department workflow

Section 1. Fire Flows & Will Serve Letters**A. Fire Flow Tests ([Form DS-001](#))****1. Purpose**

Fire Flow testing is required by County and/or City Fire Marshalls to identify the availability of flow rate, pressure, and duration from EMWD's existing water systems to serve the project's on-site and off-site water systems. Additionally, fire flow testing is used in planning new facilities to serve proposed developments.

- a. All new construction and major changes to existing structures (such as tenant improvements) will require a Fire Flow test to ensure the project demands/conditions can be met.
- b. Project requirements vary based on land use, building size, and building construction materials, subject to the California Fire Code as well as local jurisdictional requirements.
- c. Fire Flow testing may be required by EMWD, on-site fire sprinkler design companies, and/or other engineering consultants to aid in the design of project specific on-site or off-site water systems.

2. Method:

EMWD provides fire flow testing services that are performed via a computer simulation (model) of EMWD's existing water systems infrastructure in the vicinity of a particular project.

Deliverables: The test results will provide the following information:

- a. Project information such as: location, project's domestic water daily demands, and fire agency conditions (flow rate and duration)
- b. Approximate test location(s), elevation(s), and distance(s) from the property, such as Points of Connection and hydrant locations within the existing system
- c. Pressure Zone & water tank names
- d. Available flow (in GPM), pressure (in PSI) before and during the test
- e. Where applicable, additional hydraulic boundary conditions will be provided, including: available minimum pressure (in PSI) during Peak Hour Demands (under summer-time Maximum Day Demand conditions), and available maximum pressure (in PSI) during winter-time Average Day Demand conditions.
- f. Results will state whether Fire Agency Conditions were provided or will be provided at the time of Design Condition or Plan Check submittal, to confirm adequate testing.

3. Submittal Requirements and Method

A full submittal for a Fire Flow test differs according to the project type and the information sought. All Fire Flow submittals require the latest application which can be found on EMWD's website by navigating to the "Developer" tab from the home page and selecting

“New Development Process Forms.” (Or [click here](#) to access this page of forms). Submittal requirements are:

- a. Fire Flow Application (DS-001) – To process a complete application the following information must be provided:
 - i. Customer and Contact information
 - ii. Project location (APN & Address)
 - iii. GPM and Duration (Fire Agency Conditions) – these values are provided by City or County Fire Departments and detail the **Test Location GPM** and **Test Duration** that the flow test must evaluate. If the Fire Agency Conditions are not available, the test will be performed using customer assumptions.
 - Note that if the customer assumptions end up being less than the Fire Requirements a retest will be required. To avoid these situations, it is recommended to acquire the formal requirements for the project prior to applying for the flow test.
 - iv. On-site fire sprinkler demand (GPM): while fire agency requirements are not necessary for “Fire Sprinkler System” tests, all standalone fire sprinkler tests will be stamped as “Draft – Pending Formal Fire Agency Conditions.”
 - v. Number and Location(s) of test(s), such as point of connection(s) and hydrant(s)
 - vi. Project Type
 - vii. Signature of the Applicant
- b. A map identifying the project and test location(s)
- c. Testing Fee (dependent on the test type)

Submittal Method: Mail completed submittal package to EMWD’s main office, to the attention of the Development Services Department, along with a check for the appropriate testing fee (listed on application). Alternatively, it may be dropped off at drop-boxes (located outside EMWD’s main office front gate as well as inside the lobby) in a sealed envelope.

B. Will-Serve Letters ([Form DS-012](#))

1. Purpose

Will-Serve Letters demonstrate EMWD's willingness to serve a project within EMWD's service area boundary, subject to specific project conditions. These letters may be required by Land and/or Building Agencies for new developments to ensure that services are available to a site. These letters may also serve the purpose of demonstrating that current EMWD facilities are far from the subject property and the developer/owner may consider alternatives to connecting to EMWD's water and sewer systems.

Note: These Will-Serve Letters *are not* Clearance or First Release Letters. Those may be obtained by reaching out to Development Services Department by phone and touching base with a Development Services Technician.

2. Method

To provide Will-Serve Letters an engineer will review the location of the project and assess whether EMWD is able to provide services to the subject parcel. Letters can also reflect the distance to EMWD's nearest facilities to help evaluate the feasibility of connection. Once the letter is drafted and signed by the engineer, it will be sent via email, with an option for a hard-copy to be mailed out.

Deliverables:

- a. Verification that the property falls within EMWD's service area boundary
- b. EMWD's willingness to serve the property, subject to specific project conditions
- c. Identification of the distance to the nearest facilities (in case facilities are far away)
- d. Notification that the owner/developer would be responsible for the costs associated with the potential for extending facilities and other improvements to serve the subject property.
- e. Notification to applicant that EMWD expects the developer to provide proper notification when a Water Supply Assessment is required pursuant to Senate Bill 221 and/or 610.

3. Submittal

- a. Application ([Form DS-012](#)) - You can find the latest version of our application on our website by navigating to the "Developer" tab from the home page and selecting "New Development Process Forms." You may also click here to access this page of forms. The following information must be provided on the application:
 - i. Customer & Contact information
 - ii. Selection of letter type
 - iii. Project location
 - iv. Project Size in square feet (for commercial projects)
- b. Vicinity/Site map identifying the parcel(s) of land that the project falls on.
- c. Fee (listed on the application)

Submittal Method: Mail completed submittal package to EMWD’s main office, to the attention of the Development Services Department, along with a check for the application fee. Alternatively, it may be dropped off to EMWD’s drop-boxes (located outside the main office front gate as well as inside the lobby) in a sealed envelope.

C. Frequently Asked Questions

1. Is EMWD the water provider for my area?
 - a. To determine which water purveyor has jurisdiction over a project area, customers may [click here for a diagram of EMWD’s service area](#).
 - b. There are pockets of EMWD’s general service area that are served by other retail purveyors. If you are unsure, please call the Development Services Department at (951) 928-3777 extension 2081 to inquire about your provider.
2. How long will it take for Fire Flow test results to be returned?
 - a. Test results generally take 2-4 weeks to be processed and returned, beginning at the time a complete submittal is received. This time frame increases if the application is missing information, or the required additional submittals have not been provided (i.e. site maps with hydrant(s) selected or Fire Agency Conditions).
3. Can Fire Flow test results be expedited?
 - a. Fire flow test results are processed and issued in the order they were received. Expediting of results may be available on a case-by-case basis subject to available resources.
4. What are Fire Agency Requirements or Conditions of Approval for a project?
 - a. Conditions regarding the fire requirements of a project are provided by the County or City Fire Marshall with jurisdiction over the project area. These can be obtained by contacting the City’s Development Services Department, Building Division, or Fire Marshall. These requirements identify the flow rate and duration necessary to serve the project. In addition, these requirements may include the number of and nearest distance to hydrants. The County of Riverside Fire Marshal issues these requirements for unincorporated parts of the county.
5. Can expired test results be recertified?
 - a. If the test results were issued *within 12 months* of the new application date, you may select “re-issuance of an expired test.” This option is \$155 and may save time as the engineer will simply re-issue the *exact same test* as was initially performed, certifying that the old results are still valid, and return them to you, without additional testing.
 - b. If the test results are *older than 12 months* and/or the testing conditions have changed, you will need to submit a new application altogether.

6. Properties around me are on septic – do I still need to get a Will-Serve for sewer?
 - a. EMWD does not issue “No-Serve” letters. Instead, a Will-Serve letter for sewer may be helpful in justifying a septic system because it could demonstrate that the subject property is *too far from existing sewer facilities*. Contact the agency requiring the Will-Serve from you to determine what you need.

7. How do I get the date updated on a prior Will-Serve letter?
 - a. Will-Serve letters must be issued as new when requested by the land agency as they determine the expiration of these letters. Customers will need to complete a new application and pay the \$77 fee for a new Will-Serve Letter.

Section 2. Project Intake Meeting (formerly known as Due Diligence)**A. Purpose**

This complimentary meeting is intended to provide an overview of EMWD’s Development Services processes as well as a high level overview of the proposed project in relation to nearby existing District facilities, known system deficiencies, recycled water use requirements, and potential challenges to the project. If warranted, discussions about potential public infrastructure needs may need to be broached. District staff will discuss the next steps in the process and whether the proposed development will require Design Conditions (DC) or an Application For Service (AFS).

This may include discussion of recycled water use requirements and will result in submittal requirements for the project to move forward.

The Project Intake meeting is not intended to provide project approvals or design conditions. It is not meant to be a detailed technical or design focused meeting. The Design Conditions will be determined in the next phase of the process once a full submittal is received and assigned to a Project Engineer, necessary reviews have been performed by EMWD, and full approval of reports, exhibits, and summaries have been completed.

B. Method

To get a project in the right direction, after a submittal (detailed below) is received, an initial meeting will be scheduled between Development Services and the developing parties to establish general requirements for moving forward.

Deliverables:

Within a week of the DD meeting, the Developer/Customer can expect to receive an email with the DD Meeting summary. The summary will include the exhibits of the existing EMWD public facilities, the deposit amounts, and the submittal requirements checklist for starting the Design Conditions (DC) process, a work order form, and a sample timeline. If you have not received this within a week, please contact the Development Services Intake Group.

C. Submittal Requirements

A full submittal for Project Intake meetings differs according to the project type and the information sought. Generally, a submittal will require:

1. A complete Project Intake Form ([DS-058](#)) – The latest version can be found on EMWD’s website by navigating to the “Developer” tab from the home page and selecting “New Development Process Forms.” You may also click [here](#) to access forms.
2. Conceptual design plans and utility plans, preferably in electronic (PDF) format

3. Meeting Agenda including written questions and/or concerns to address in the meeting.
4. Submission – The above items should be sent via email to Project Intake Group at:

DSIntakeGroup@emwd.org

Although there is no charge for the initial Project Intake meeting, subsequent meetings will require a work order deposit to enlist District staff in further efforts.

D. Frequently Asked Questions

1. Who do we contact to discuss a proposed development or for initial project inquiries?
 - a. The Development Services Intake Group will manage all new developments and project inquiries. You may contact the Intake Group by phone at 951-928-3777 extension 2081 or by email at duediligence@emwd.org
2. How do I set up a Project Intake meeting?
 - a. Call or email the DS Intake Group. They will provide a project Questionnaire ([DS-058 Form](#)) to complete and help coordinate a Project Intake meeting, which typically is set up within two weeks of the initial request.
3. Is a Project Intake meeting required?
 - a. A meeting is highly recommended. If the proposed development is part of a larger/related development project Design Conditions evaluation, which has already been processed, then the meeting may be bypassed with the approval of the DC Engineer. Completion of the Project Intake paperwork will still be required.

Section 3. Design Conditions**A. Systems Planning and Design Principles**

The District's Systems Planning and Design Principles are based on EMWD's Vision, Mission, and Guiding Principles:

Mission: To deliver value to our diverse customers and the communities we serve by providing safe, reliable, economical and environmentally sustainable water, wastewater and recycled water services.

Vision: To provide an exceptional level of customer and community service, exceeding the performance of any other public or private entity

Guiding Principles: EMWD embraces excellence in all facets of our business:

Community: We will be actively engaged in promoting prosperity, environmental values and public health in the communities we serve.

Innovation: We will creatively seek to improve the services we provide.

Integrity: We will be honest and ethical in all of our interactions.

Leadership: We will take a proactive role in leading industry policies, practices and initiatives on behalf of our customers, employees and community.

Respect: We will be considerate, aware and caring.

Responsibility: We will be accountable for our conduct in serving our customers, employees and community.

Safety: We will ensure the safety of our employees and the public, without compromise.

Transparency: We will ensure the decisions and investments we make are clearly communicated and easily understood.

Achieving these Principles will require sound systems planning and design to accomplish the following:

1. Provide a "High" level of customer service, system reliability and safety with considerations for multiple sources of supply, back up source capacity and power capability, pipeline looping, proper service elevations, proper valving, and attention to water quality.

2. Anticipate and plan for predictable operating conditions and foreseeable circumstances to include, but not limited to, fire flow, power outages, and facilities and systems outages.
3. Accommodate normal operating and maintenance procedures for controlled staging of pumps for seasonal operations, MWD shutdowns, and maintenance and replacement of pipelines and other facilities, etc.
4. Perform planning and design for expansion of source capacity (i.e., pump stations, regulator stations, pipelines, valves, etc.) to anticipate annual growth and large developments.
5. Enhance operating efficiency through proper energy management, system automation, remote monitoring, etc.
6. Provide safe workplace for: chlorine handling, confined spaces, and access to facilities with traffic considerations, etc.

It is the District's intent to achieve and maintain the above. Improvements required for existing water systems will be phased with attention to existing pressure conditions, economic feasibility, and activity related to land development.

B. Purpose

If a proposed development project requires extension of public water, sewer, or recycled water facilities, approved EMWD's Design Conditions are required prior to proceeding to final design and Plan Check of such public facilities. The purpose of EMWD's Design Conditions is to form the basis of design of public facilities as well defining special conditions necessary to provide service to the project, such as: pipeline alignment, facility sizing, prevailing wage and oversizing participation, easements, facility relocations, property acquisition, interagency permits or agreements, service area annexation, high/low service pressure conditions, potential front footage reimbursement, special funding districts such as CFD, recycled water service candidacy, and development of water budgets.

C. Methodology

The process to obtain an approved Design Conditions package consists of the following steps:

1. If the project sponsor is familiar with EMWD's New Development process and does not need an initial Project Intake meeting, then submit a request to receive the Documents Required for Design Conditions (Form DS-047). Along with this request submit a completed Project Intake Form ([DS-058](#)).
2. If the project sponsor requires a Project Intake meeting, then complete and submit a Project Intake Form ([DS-058](#)). Following the meeting, staff will issue the Documents

Required for Design Conditions (Form DS-047) as well a Project Intake Meeting Summary.

3. When the project sponsor wishes to advance the project to design, then submit all required items listed in the (Form DS-047) including the Work Order Deposit to start the Design Conditions Review.
4. A complete Design Conditions submittal requires an iterative process of submitting and reviewing technical studies and other pertinent documents.
5. Deliverables: Following the above general structure will result in the issuance of approved Design Conditions for the project, which will remain valid for two years, or until Plan Check starts (whichever comes first). The Design Conditions package will include (but is not limited to):
 - a. An approved Design Conditions Summary Spreadsheet (DSD-045) and attachments, such as: vicinity map, Fire Flow Test results, proposed facility exhibits, and other pertinent conditions.

D. Submittal

1. Requirements for the initial Design Condition submittal differ per project but generally include:
 - a. Design Conditions Summary Spreadsheet (DSD-045)
 - b. Work Order Request Form (DS-050)
 - c. Recycled Water Contact Form (DS-039)
 - d. Formal Fire and Boundary Conditions
 - e. Valid Fire Flow Test with Hydraulic Boundary Conditions
 - i. Note that these Fire Flow Tests must be ordered separately and should be done early as they take 2-4 weeks to complete. See the Fire Flow section for more information.
 - f. Sewer Study account for projected sewer flows
 - g. Land Agency Conditions of Approval
 - h. Landscape & Irrigation Exhibit
 - i. Water Supply Assessment
 - j. Special Funding District Letter
 - k. Design Conditions Deposit
 - l. Work Order Request Form and Deposit
2. Method of Submittal
 - a. Digital (preferred) –
 - i. Project Intake – DSIntakeGroup@emwd.org
 - ii. Design Conditions Submittal – navarree@emwd.org
 - b. Hard Copies (optional) – use main office address.
3. Examples of some of the above DC items can be located on our [Forms for New Development Processes](#) webpage.

E. Water System Planning and Design Guidelines

The following defines planning & design guidelines for new development and water system replacement, betterment, and expansion. To improve the level of service, the District will consider alternative water system designs, on a case by case basis

1. Facilities for new development shall be planned and designed according to the attached planning and design criteria.
2. All facilities shall be planned, designed, and constructed in stages based on customer needs, District obligations and financial capabilities.
3. An existing water Pressure Zone should not have any part of its service area subjected to a pressure of less than 50 psi at the Water Service connection point, unless a Low Pressure Service Agreement allows for a low pressure condition. Where a low pressure condition occurs, the Water Facilities Master Plan (WFMP) shall consider this location in its next update to identify the basic facilities for that PZ to provide the desired service condition of 50 psi, without fire flow, as well as a minimum of 20 psi w/1,500 GPM or greater fire flow as required by the local fire agency.

Note: It is understood that the WFMP provides the recommended facilities required to meet the ultimate land use or build-out for a PZ. However, these facilities will be installed in stages based on need, District's obligation, and financial capability. There may be (historical) existing services that are unable to be raised to the minimum standard service condition.

4. Each water pressure zone or combination of water pressure zones shall have the capacity to provide for operational flow, emergency, and fire flows. In the case where source and/or storage capacity is temporarily borrowed from (an)other pressure zone(s), phased improvements shall be performed to ensure continued service and reliability when the borrowed capacity is no longer available.
 - a. Source Capacity
 - i. Source capacity is considered to be any source of water supply into a pressure zone via direct connection(s), pump station(s), regulator(s), well(s), etc.
 - ii. Source capacity for emergency and/or fire flow from another pressure zone may be considered borrowed.
 - iii. Source capacity used for emergency and/or fire flow in lieu of sufficient pressure zone storage requires redundancy such that no single-source facility failure renders the pressure zone(s) unable to provide emergency and fire flow services. Redundancy will be accomplished with back up source capacity and/or standby power capability (i.e., pumps on).
 - iv. Source capacity will be sized to provide for the maximum day demand rate in addition to the flow through demands for adjacent pressure zone(s). Additional

capacity may be required to supplement fire flow/emergency storage deficiencies, and/or use power cost savings' schedules.

b. Storage Capacity

- i. Ideally, each water pressure zone or combination of water pressure zones' storage capacity will be sufficiently sized to provide for operational flow, emergency, and fire flows. Each pressure zone, however, shall have at minimum the required operational storage. The operational storage is typically defined as a volume equivalent to one-half the maximum day demand. This provides for peak-hour flow rates over and above the maximum day demand capacity of the pressure zone's source(s). The emergency storage is also a volume equivalent to one-half the maximum day demand. This volume provides a minimum of 12 hours of storage. The fire flow storage capacity will provide for the required fire flow per the Water System Planning and Design Criteria Section III.
 - ii. Existing pressure zones having a storage volume less than identified above will be reviewed for either increasing the storage volume for that pressure zone or increasing the source capacity to that pressure zone. This review will be based on economic and reliability evaluations compatible with phased system upgrades pursuant to the District's Water Facilities Master Plan. In the case of increasing the source capacity to a pressure zone in lieu of increasing the storage volume, adequate storage must be available in an adjacent pressure zone(s) along with back up source capacity and/or standby power capability (i.e., pumps on) to ensure the supply reliability.
5. This document and related criteria will be reviewed and updated by EMWD staff when necessary on a periodic basis to reflect changes in District water system planning and design, principle(s), legal requirements, and technological changes that affect system performance and operational methods, etc.

6. FLOW DEMAND CALCULATION(S):

The following criteria are to be used in the planning and design of facilities for the District’s domestic water system. They apply to existing and future conditions.

a. Average Day Demand (ADD)

The recommended rates for determining ADD are:

Unit Potable Water Demand Factors to Compute Average Daily Demand			
Land Use	DU/ac	EDU/DU or EDU/ac	gpd/DU or gpd/ac ^(a)
Residential - DOPP			
Single-Family Residential ^(b)	440 gpd/EDU		
Residential - Ultimate Land Use (EDU/DU and gpd/DU)^(c)			
Open Space Rural (<0.1)	0.05	3	1320
Rural Mountains (0.05 to 0.1)	0.1	3	1320
Residential Rural (0.1 to 0.5)	0.2	3	1320
Estate Density (0.5 to 1)	0.5	1.5	660
Very Low Density (1 to 2)	1	1.5	660
Low Density (2-3)	2.0	1.3	570
Medium Density (3-6)	4.5	1.0	440
Medium/High Density (6 to 11)	6	0.9	400
High Density (11-17)	12	0.7	310
Very High Density (17 to 20)	17	0.65	290
Nonresidential - DOPP and Ultimate Land Use (EDU/ac and gpd/ac)^(d)			
Public Facilities/Schools/Mixed Use Policy Area	5		2,200
Commercial/Business Park/Hospital	5		2,200
Business Park/Light Industrial/Warehouse	1.25		550
Industrial	7.5		3,300
Open Space/Ag/Recreation (EDU/ac and gpd/ac)^(d)			
Agricultural, Open Space (Conservation, Landscape, Water)	0		0
Open Space Recreational	5		2200
(a) Values shown may not agree with calculated values due to rounding. (b) DOPP projection factor specified by District staff. Incorporates permanent conservation savings for compliance with SB x7-7. Residential water use factors developed using SFR water use factor in gpd/EDU multiplied by the DU/EDU for the land use type to get gpd/DU. (c) Non-residential land use factors developed using SFR water use factor, in gpd/EDU, multiplied by the EDU/acre, to get use in gpd/acre. gpd = gallons per day ac = acre			

b. Maximum Day Demand (MDD):

Based on the results of studies conducted to develop the Water Facilities Master Plan, recommended Peaking Factors (PF) are as follows for use in system analysis:

Land Use	Peaking Factors	
	MDD	PHD
Facilities Sizing*		
a. Small Pressure Zones Under 500 gpm ADD	3.0 x ADD	2.0 x MDD
b. Medium Pressure Zones 500-2,000 gpm ADD	2.5 x ADD	2.0 x MDD
c. Large Pressure Zones Above 2,000 gpm ADD	2.0 x ADD	2.0 x MDD
MDD = Maximum Day Demand ADD = Average Day Demand PHD = Peak Hour Demand MDD = ADD x PF PHD = MDD x PF		

Notes:

- i. Maximum Day Demand is equal to Average Day Demand times the Maximum Day Peaking Factor.
- ii. Peak Hour Demand is equal to the Average Day Demand times the Peak Hour Peaking Factor.
- iii. If a Peaking Factor is known to be higher or lower within an existing pressure zone (based upon record data), then it may be used.

c. Fire Flow Requirements

These Recommended Fire Flow Demands will be used by EMWD for planning and design purposes related to developer-projects, unless the local (approving) fire department stipulates or requires a different fire flow.

STRUCTURE	Flow (GPM)	Duration (Hours)	Number of Fire Hydrants
Single Family (Residential)	1,500	2	2
Multi-Family* (Residential)	4,000	4	3
Light Commercial/Industrial (Including Schools)	4,000	4	3
Heavy Commercial/Industrial	5,000	4	4

*Five or more units per acre

Notes:

- i. For planning purposes, the applicant shall use the appropriate fire flow demand/requirements corresponding to the proposed land use.
- ii. For design purposes, the applicant shall use fire-flow demand/requirements approved by fire marshal or listed in the land agency's Conditions of Approval.
- iii. The above recommended fire flows are assumed based on typical reduction in conjunction with fire sprinkler systems.
- iv. While fire flows are to be supplied with a minimum required residual pressure of 20 psi (within the same pressure zone, and under normal operating conditions), District requires a minimum residual pressure of 30 psi under computer-model fire flow conditions. This allows for potential variances between the model and actual field conditions. Accordingly, this provides a 10 psi buffer between the predicted pressures in the computer model, as compared to real-world conditions.

7. Pipeline Diameters

- a. EMWD only accepts pipe diameters as stipulated in the Approved Material List, as amended, generally listed as follows: 8", 12", 16", 18", 20", 24", 30", up to 60" for (potable and recycled) water system distribution and transmission
- b. Minimum pipe diameters for residential use is 8".
- c. Minimum pipe diameters for commercial, industrial, institutional, or mixed use is 12".

8. WATER PRESSURE ZONE AND SERVICE CONDITIONS:

In general, a pressure zone may be required for approximately every 100-150 feet change in elevation. Use existing pressure zones if they are compatible. A small amount of overlap should be included at zone boundaries.

The following table provides the District's static and dynamic water pressure conditions:

CONDITIONS for: Pressure Zones	WATER PRESSURE (At The Meter)
Service Pressure Min/Max- Dynamic	50 to 110 psi (a) (d)
Service Pressure Min/Max- Dynamic @ Max Day Demand	50 to 110 psi (d)
Service Pressure Min/Max- Dynamic @ Peak Hour	50 to 110 psi (d)
<i>Special Service Pressure Conditions</i>	<50 & >80 psi (b) (d)
Minimum Service Pressure- Dynamic @ Max Day Demand + FF	20 psi (c) (30 psi in the computer-model)

- a. Minimum and Maximum Pressures
 - i. Minimum desired dynamic water service pressure is 50 psi (116 ft. of head), calculated from computer-model results (derived from project's hydraulic boundary conditions, as requested by applicant and provided by District).
 - ii. Maximum desired water service pressure is 110 psi (254 ft. of head), calculated from computer-model results (derived from project's hydraulic boundary conditions, as requested by applicant and provided by District).
 - iii. If the applicant desires to compare computer-model results to static pressure calculations, then minimum service pressure may be calculated from an elevation level equal to 10 feet above the bottom of the tank, during Peak Hour Demands, and an elevation equivalent to 50% of the tank volume during Maximum Day Demands. Maximum service pressure may be calculated from an elevation equivalent to the high-water level (HWL) of the tank.
 - iv. Special case-specific water service pressure conditions may be allowed (higher or lower); however, such cases must be reviewed and approved by EMWD.

- b. Service pressures greater than 80 psi (185 ft. of head), require “Notice of High Pressure Condition” signed by the applicant and recorded with property title (see EMWD Resolution 5111, Section 5.106). Service pressures less than 50 psi (116 ft. of head), require a “Notice of Low Pressure Condition” signed by the customer and recorded with property title (see EMWD Resolution 5111, Section 5.106).
- c. Minimum dynamic pressure under Maximum Day Demand plus Fire Flow is 20 psi (30 psi in the model), except in historical low-pressure areas where low-pressure agreements may or may not exist.
- d. All service connections shall be fitted with individual private pressure and operated and maintained by the customer.

9. PERFORMING HYDRAULIC ANALYSIS, INVESTIGATIONS, AND/OR DESIGNING LAYOUTS:

- a. Planning and Design criteria for Distribution and Transmission Pipelines
 - i. In general, head loss for transmission pipelines should not exceed 3.0 feet/1000 feet for flows up to 20 cfs, 2.0 feet/1000 feet for flows between 20 cfs and 50 cfs and 1.0 feet/1000 feet for flows over 50 cfs.
 - ii. Pipeline flows should not exceed 7 fps, except during fire flow conditions.
 - iii. At least two different supply sources should be available for each development (looped system). Two sources from the same water transmission pipeline may be considered if a source from a different location is unavailable but likely to occur by other development activity within a reasonable time frame.
 - iv. Dead-end water pipelines are to serve no more than 25 services. A looped water pipeline system is required for 26 or more services on a existing or proposed dead-end pipeline.
 - v. A Double Check Detector Assembly (DCDA) is required for all private fire hydrants and fire sprinkler systems.
 - vi. Minimum widths for water pipeline easements are 30-feet for 8-inch diameter pipelines and 40-feet for 12-inch diameter (and larger) pipelines. Pipelines should be horizontally aligned within the center of the easement. Pipelines should not be constructed through a lot easement.
- b. Planning and Design criteria for Storage Facilities:
 - i. All proposed water storage capacities are to be determined based on one maximum day demand plus fire flow (MDD + FF) requirement. Fire Flows shall be stipulated by the local fire department or as recommended in Section I.C. above. Height of water storage tanks will be determined by District staff and will be either 32.0 feet or 40.0 feet tall, depending on case-specific criteria. During planning, a Usable tank volume will be identified with an expectation to add the

Nominal/Operational volume which consists of 5 ft of dead storage and 2 ft of overflow per Figure 5-1.

- ii. During maximum day demand plus fire flow, service pressure should not be less than 20 psi (30 psi in the model) for the period of the fire incident (assume tank to be half full). The following tabular summary is to be used when performing hydraulic analysis.
- iii. Usable Storage Tank volume shall consist of:
 - Fire Storage (use the highest fire flow for the pressure zone)
 - Operational Storage (include equalizations, time of use, and pump through)
 - Emergency Storage (determine number of pumps within the pressure zone to evaluate the peaking factors.)

c. Planning and Design criteria for Pumping Stations:

Pump station design criteria shall be determined by District staff on a case-specific basis. The following general guidelines shall be used when planning or designing a pump station:

- i. The total flow to be pumped will normally be Maximum Day Demand for the area to be served (plus all pump-through demands for the next higher pressure zones).
- ii. Pumping stations serving relatively small pressure zones will have a minimum of two pumping units, each sized to provide total (firm) capacity.
- iii. Pumping stations serving moderate to large pressure zones shall have three or more pumping units, each with adequate capacity to meet total (firm) capacity with the largest unit out of service.
- iv. Pumping capacity calculations will include time of use.
- v. Pumping capacity = MDD x (24/18) hours

Last Revised: 06-29-18; V:\IC\388\12-15-08\WP\MPI\030713 ca Figure 5-1.docx

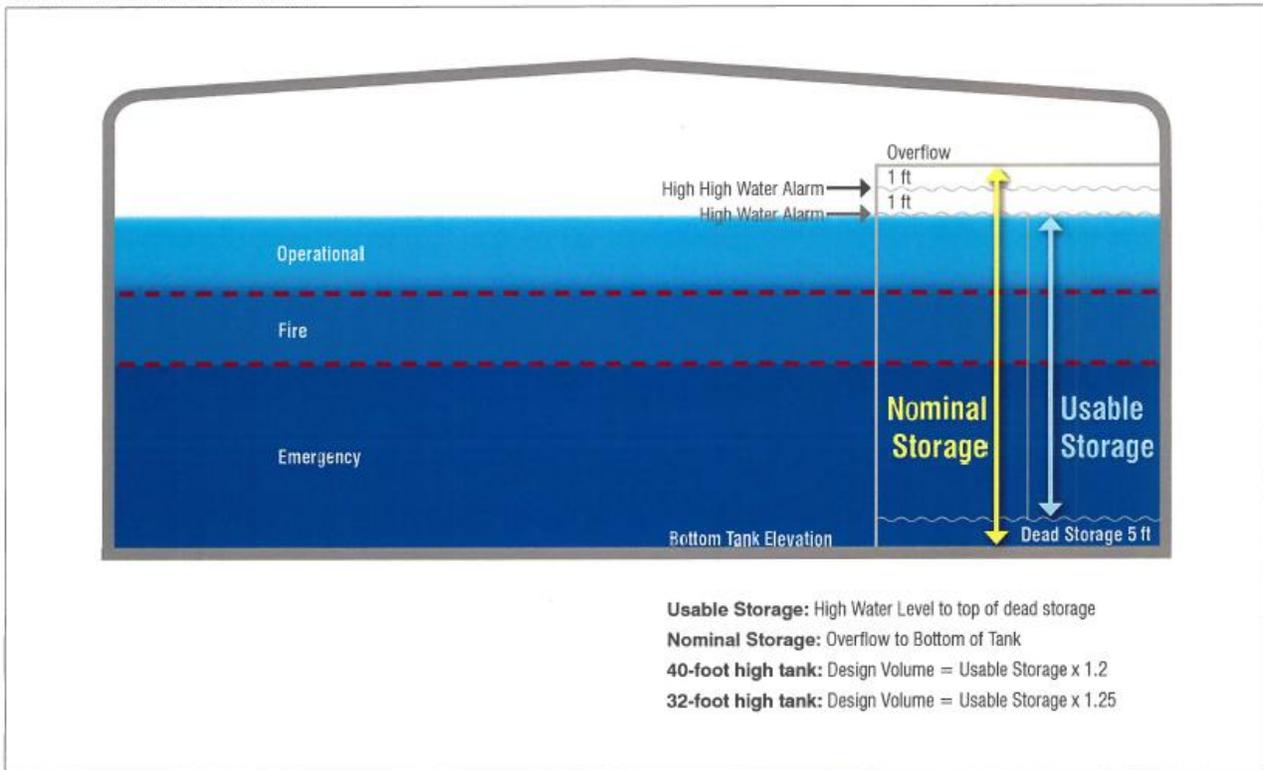


Figure 5-1
Definitions of Usable and Nominal Storage
 Eastern Municipal Water District
 Water Facilities Master Plan

F. Sewer System Planning and Design Criteria

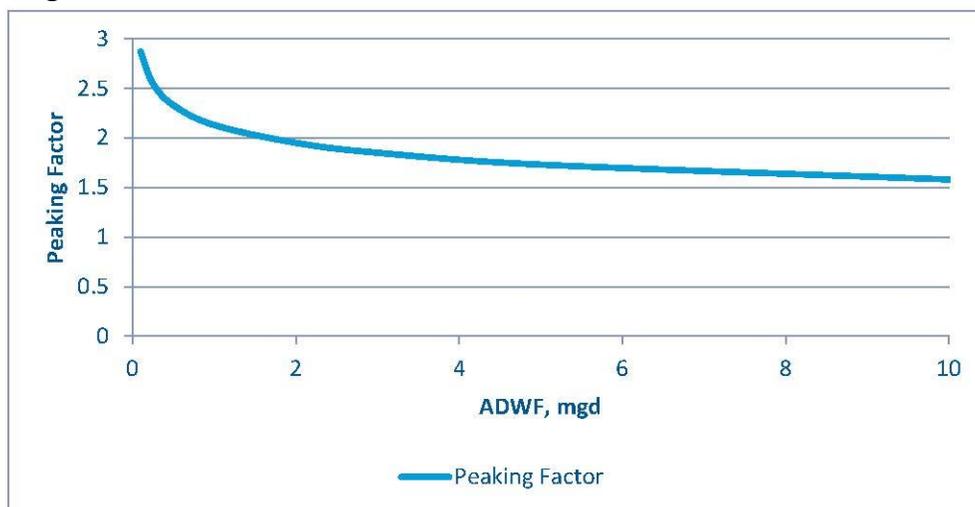
1. DESIGN FLOWS

In 2015, a survey of the District's sewer system was performed to determine flow generation rates from various land uses. This information is contained in the Wastewater Facilities Master Plan Supplement prepared by Black & Veatch dated 2015. The results of the survey showed variation in sewage generation not only by type of use but also by location. The survey also took into account the current conservation efforts of new development. However, for design purposes it is important that criteria be developed and used on a consistent basis.

To achieve this goal a meeting was held to agree on the current criteria for sewer design. The result of the meeting is a compromise of actual measurements vs design criteria. Table 1 attached shows the relationship of land use to the wastewater flow agreed to. The information in Table 1 shall be used by the District for future sewer design. This information has been adjusted to correspond to future conditions that are expected to uniformly occur as development takes place in all areas of the District.

The Wastewater Facility Master Plan also developed peak flow rates and obtained data which correlate peak flow rates with average flow rates. By a plot of this data, a curve has been established which is used in determining the peaking factor to be used in the design of the sewer. The peaking curve that is to be used in District design is shown in Figure 1 below. The peaking factors are determined an equation.

Figure 1
Peaking Factor Curve



Peaking Factor: $PF = 2.13 Q^{-0.13}$, where Q = Average Dry Weather Flow and PF = Peaking Factor.
(Max Peaking Factor is 2.87)

The procedure to be followed in determining design flows is to first determine the tributary drainage area for the sewer pipeline, determine the various average flows within the drainage area, add these average flows, and then convert these average flows to a peak flow for the design of the sewer (i.e., $Q_{\text{design}} = Q_{\text{avg}} \times \text{Peaking Factor}$).

Manning's Coefficient "n": use $n = 0.015$ (for sizing pipes)

Velocity: 2 ft/sec MINIMUM, 3 ft/sec recommended, & 10 ft/sec maximum

Flow per Equivalent Dwelling Unit: For all types of development, the land use categories were converted to EDU's based on Table 1. Wastewater flow (ADWF) was calculated by multiplying the number of EDU's per land parcel by a rate of **235 gpd/EDU**; the District's criteria use for regional planning.

2. PIPE SIZE SELECTION

Sewers 12-inches in diameter and smaller are designed to flow at a maximum depth of 0.50 D/d of the pipe diameter. Sewers 15-inches in diameter and larger are designed to flow at a maximum of 0.70 D/d of the pipe diameter.

It is important to maintain an air gap in the top of sewer pipes to convey sewer gases downstream along with the sewage flow. Maintaining the maximum depth of flow to pipe diameter ratio (D/d) conditions described above helps to ensure that sufficient space occurs to meet these conditions.

An 8-inch diameter pipeline has been established as the minimum sewer pipe size. This conclusion was established for two main reasons:

- a. Maintenance problems can occur on smaller size pipes.
- b. Sufficient space is necessary to convey sewage and debris downstream in the sewer pipe to avoid possible backflow up sewer laterals.

The only exceptions to the 8-inch minimum pipe size criteria are in the communities of Romoland, Homeland, and Green Acres, where 6-inch diameter sewer pipelines were installed due to formerly restricted Assessment District grant conditions applied to the financing of sewers in these communities. Not for new development.

MANNING'S FLOW EQUATION

Pipe size is determined by using Manning's equation which is shown below:

$$Q = (1.486/n) A R^{2/3} S^{1/2}$$

Q= flows (cfs)

n= Manning's coefficient (Use EMWD's value for sizing pipelines, $n=0.015$)

A= cross sectional area of pipe (feet²)

R= hydrologic radius of the wetted cross-section of the pipe (feet)

S=slope of energy gradient

Refer to the Handbook of Hydraulics by Brater and King or the Clay Pipe Engineering Manual for use of the equation.

3. PIPE SLOPES

The minimum slopes for sewer pipelines are based on obtaining a minimum velocity of 2 fps at design peak flow depth. This provides a means to resuspend solids deposited in the sewer during peak flows. Refer to Table 2 for minimum pipe slopes.

On small-size sewers, there is generally no particular concern with maximum slopes or velocities; however, they become a concern in the case that a dead-end sewer is insufficient in volume and velocity to move and cleanse solids. On large-size sewers, it is necessary to design sewers which would have a peak velocity not exceeding 10 fps to avoid damage to plastic liners on RCP joints and cause the release of hydrogen sulfide which can damage sewer manholes while creating local odor concerns (see **HYDRAULIC JUMPS** section below).

4. SEWER SIPHON

Sewer siphons are designed to convey sewage under obstructions. **All efforts should be made to design a sewer system to avoid sewer siphons**, because severe odor due to hydrogen sulfide gas and maintenance problems can result. The major concern is grease and other floating material cannot easily flow into and through the siphon and become trapped in the upstream manhole. These frequently require intensive maintenance to remain operational and avoid sanitary sewer overflows (SSOs).

5. LIFT STATIONS

All reasonable evaluations should be made to design a sewer system to avoid lift stations, to reduce the operation and maintenance costs to EMWD and its customers. The project applicant shall prepare all necessary reports identifying all possible alternatives to be reviewed and evaluated by EMWD during the Design Conditions phase. A lift station should be considered as the option of last resort. Temporary/Interim lift stations will be subject to developer deposits to guarantee the proper future abandonments of said facilities. Based on historical flow and maintenance data, the District has determined that a 20% allowance for wet weather flows and pump wear is adequate for lift station capacity planning. The District's lift stations and force mains are evaluated based on the ability to service the Peak Lift Station Flow (Peak Wet Weather Flow x 1.2). Lift station capacity is evaluated in terms of total and firm capacity. The total capacity is the maximum capacity of the lift station with all pumps operating. The firm capacity is defined as the capacity of the lift station with all duty pumps running; excluding backup pumps. The capacity of the lift station is dependent upon the pumping capacity and the system head that is experienced in the downstream force main. The system head is determined by the static pumping

requirements as well as the head loss experienced through the force main under the varying flow conditions. The system head is determined using the force main diameter, length, assumed C-factor, static pump requirements (wet well and discharge elevation). For each station, the pump curves are plotted against the system head curve expected to occur under the peak lift station flow for all planning years.

Further design details are available on our [Small Sewage Lift Station Guidelines, Standard Drawings, and Specifications.](#)

6. FORCE MAINS

The capacity of a sewer force main pipe is a function of the velocity in the pipe. The Hazen-Williams equation is used to calculate flows in force mains:

$$V = 1.318CR^{0.63}S^{0.54}$$

Where:

V = Velocity in feet per second (fps)

C = Hazen-Williams coefficient of roughness

R = hydraulic radius (flow area divided by wetted perimeter) in feet (ft)

S = Slope of energy grade line, ft/ft

The District assumes a Hazen-Williams coefficient value of 100 for all force mains. Velocity is the major criterion when sizing force mains. In general, force mains should be sized to convey Peak Lift Station Flow at build-out conditions with a velocity between 2-6 fps. Velocities less than 2 fps will result in wastewater spending additional time in the force main which can cause downstream operational problems. Force mains with a velocity greater than 6 fps tend to have excessive head loss and can affect the proper operation of the lift station.

Further design details are available on our [Small Sewage Lift Station Guidelines, Standard Drawings, and Specifications.](#)

7. HYDRAULIC JUMPS

Hydraulic jumps can occur when a steep slope suddenly turns flat. *Low jumps*, that is, when the change in depth is small, the water will not rise obviously and abruptly but will pass from the low to the high stage through a series of undulations gradually diminishing in size. When the jump is high, that is, when the change in depth is great, the jump is called a *direct jump*. The direct jump involves a relatively large amount of energy loss through dissipation in the turbulent body of water. High turbulence results in the release of hydrogen sulfide gases. Since hydrogen sulfide gases result in concrete corrosion it is necessary that all manholes are coated within 1000-feet downstream from the hydraulic jump location. **Hydraulic jumps should be avoided in sewer design.**

G. Sewer Planning and Design Reference Tables

Table 1 – Development Densities and Corresponding Average Daily Flow Rates

LAND USE CATEGORY	UNITS	AVERAGE RESIDENTIAL DENSITY (DU/ACRE)	RESIDENTIAL (EDU/DU)	DEVELOPMENT DENSITY (EDU/ACRE)
Residential Land Use				
Estate Density	DU	0.5	1.5	0.8
High Density	DU	12	0.7	8.4
Low Density	DU	2	1.3	2.6
Medium Density	DU	4.5	1	4.5
Medium High Density	DU	6	0.9	5.4
Mobile Home Park	DU	10	0.65	6.5
Rural Mountainous ⁽¹⁾	DU	0.1	3	0.3
Rural ⁽¹⁾	DU	0.2	3	0.6
Very High Density	DU	17	0.65	11.1
Very Low Density ⁽¹⁾	DU	1	1	1.5
Non-Residential Use				
Agriculture ⁽¹⁾	acre			0
Business Park/Light Industrial	acre			5
Business Park/Light Industrial/Warehouse	acre			1.25
Commercial Office	acre			5
Commercial Retail	acre			5
Heavy Industrial	acre			7.5
Hospital	acre			5
Mixed Use Policy Area	acre			5
Open Space (Conservation, Landscape, Recreation, Rural, or Water) ⁽¹⁾	acre			5
Public Facilities (Municipal or School)	acre			5

⁽¹⁾ The following uses were assumed to be served by septic systems and do not contribute flow to the wastewater collection system: Rural Mountainous, Rural, Very Low Density, and Agriculture, and Open Space.

TABLE 2 – Minimum Pipe Slopes in Gravity Sewer Mains

Pipe Diameter	Preferred Minimum	Ordinary Minimum	Maximum slope (not mandatory)
8-inch	.0065	.0040	.12
10-inch	.0050	.0032	.085
12-inch	.0040	.0024	.066
15-inch	.0032	.0016	.050
18-inch	.0024	.0014	.037
21-inch	.0020	.0012	.030
24-inch	.0017	.0010	.025
27-inch	.0015	.0008	.022
30-inch	.0013	.0007	.018

Notes:

1. 4 and 6-inch sewer laterals require a minimum slope of 0.020. 4-inch and 6-inch sewer laterals are private facilities and owned and maintained by the customer or maintenance association.
2. 8-inch sewer laterals are owned and maintained by the District and require manholes and easements for access and maintenance. If manholes or proper access cannot be provided, the 8-inch sewer lateral shall be privately owned and maintained similar to the above, and a letter of concurrence by the land agency shall be provided to EMWD. Please, refer to EMWD easement requirements.

Table 3 - Sewer Pipe Capacity

D/d = 0.5

K' Coeff. = 0.232

Manning Coeff. n = 0.015

Pipe Size (d) (in)	Minimum slope (S)	Q (cfs)	Max# of EDU's
8	0.004	0.332	318
10	0.0032	0.538	516
12	0.0024	0.758	726

D/d = 0.70

K' Coeff. = 0.388

Manning Coeff. n = 0.015

Pipe Size (d) (in)	Minimum slope (S)	Q (cfs)	Max# of EDU's
15	0.0016	1.89	1,811
18	0.0014	2.85	2,731
21	0.0012	4	3,833
24	0.0010	5.2	4,983
27	0.0008	6.35	6,085
30	0.0007	7.9	7,570
36	0.0007	12.8	12,266
42	0.0007	19.3	18,495
48	0.0007	27.6	26,449

54	0.0007	37.8	36,223
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Notes:

3. Per Table 1 and Table 2.
4. Equivalent Dwelling Unit (EDU) = 235 gpd
5. Use D/d ratio of 0.50 for 8", 10" and 12" sewer pipelines; Use D/d ratio of 0.70 for 15" and larger sewer pipelines.

Table 4 - Values of *K* for Circular Channels

Reference: Table 7-13 in HANDBOOK OF HYDRAULICS, Fifth Edition, pg. 7-59, Values of *K* for Circular Channels in the Formula

$$Q = \frac{K}{n} D^{8/3} S^{1/2} \quad K' = \frac{Qn}{d^{8/3} S^{1/2}} \quad Q = \text{cfs} \quad d = \text{FT}$$

D = depth of water *d* = diameter of channel

$\frac{D}{d}$.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0		15.02	10.56	8.57	7.38	6.55	5.95	5.47	5.08	4.76
.1	4.49	4.25	4.04	3.86	3.69	3.54	3.41	3.28	3.17	3.06
.2	2.96	2.87	2.79	2.71	2.3	2.56	2.49	2.42	2.36	2.30
.3	2.25	2.20	2.14	2.09	2.05	2.00	1.96	1.92	1.87	1.84
.4	1.80	1.76	1.72	1.69	1.66	1.62	1.59	1.56	1.53	1.50
.5	1.470	1.442	1.415	1.388	1.362	1.336	1.311	1.286	1.262	1.238
.6	1.215	1.192	1.170	1.148	1.126	1.105	1.084	1.064	1.043	1.023
.7	1.004	.984	.965	.947	.928	.910	.891	.874	.856	.838
.8	.821	.804	.787	.770	.753	.736	.720	.703	.687	.670
.9	.654	.637	.621	.604	.588	.571	.553	.535	.516	.496
1.0	.463									

6. Table 5 - Values of *K'* for Circular Channels

Reference: Table 7-14 in HANDBOOK OF HYDRAULICS, Fifth Edition, pg. 7-59, Values of *K'* for Circular Channels in the Formula

$$Q = \frac{K'}{n} d^{8/3} S^{1/2}$$

D = depth of water *d* = diameter of channel

$\frac{D}{d}$.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0		.00007	.00031	.00074	.00138	.00222	.00328	.00455	.00604	.00775
.1	.00967	.0118	.0142	.0167	.0195	.0225	.0257	.0291	.0327	.0366
.2	.0406	.0448	.0492	.0537	.0585	.0634	.0686	.0738	.0793	.0849
.3	.0907	.0966	.1027	.1089	.1153	.1218	.1284	.1352	.1420	.1490
.4	.1561	.1633	.1705	.1779	.1854	.1929	.2005	.2082	.2160	.2238
.5	.232	.239	.247	.255	.263	.271	.279	.287	.295	.303
.6	.311	.319	.327	.335	.343	.350	.358	.366	.373	.380
.7	.388	.395	.402	.409	.416	.422	.429	.435	.441	.447
.8	.453	.458	.463	.468	.473	.477	.481	.485	.488	.491
.9	.494	.496	.497	.498	.498	.498	.496	.494	.489	.483
1.0	.463									

H. Facility Oversizing

If construction work by Sponsor is subject to EMWD's cost participation to oversize facilities for regional benefit, then all related construction work shall comply with the State of California Prevailing Wage / Public Works standards. During the Design Conditions process and prior to final design approval, the Sponsor shall seek approval for reimbursement and submit cost estimates for each component of the subject facilities; however, if applicable, the Sponsor may inform EMWD of the intent to build oversized facilities and not seek EMWD's reimbursement.

For more information, please refer to the Policy Highlights of Facility Oversizing and Reimbursement Form in the Development Services process section within EMWD's web site.

I. Frequently Asked Questions

1. What happens once the customer/developer submits Design Conditions (DC)?
 - a. The administrative staff processes the DC documents and sends them to a DC Engineer for a completeness review. If the submittal is complete, then the documents are processed and a work order number is created. If the submittal is incomplete, the submittal is not processed and the DC Engineer will send an e-mail identifying the pending submittal items.
2. What is the typical turn-around time for my Design Conditions (DC) review?
 - a. The typical turn-around time for District review is approximately 3-4 weeks per review.
3. How many Design Conditions (DC) reviews does it take to get an approval?
 - a. It depends on the complexity of the project and if the consultant engineer is familiar with EMWD's process. On the average it takes about 3-4 reviews.
4. What will I receive when my project is approved in the Design Condition (DC) phase?
 - a. An Approved Design Condition package will be provided via email. This shall include a Design Condition form (DSD-045) that is signed by the Principal Engineer and DC Engineer. It will also include other documents i.e.: Vicinity Map, Fire flow results, facility exhibits, if potable water (landscape spreadsheet), RWUE, etc.
5. If I am proposing private onsite water facilities, does the District have standard requirements for the connections?
 - a. Yes, to minimize impacts and maintain the integrity of existing infrastructure, the District uses manifolds. Standard Manifold Details can be located and downloaded from EMWD's website. Link: <https://www.emwd.org/forms-new-development-process>

6. Can I order the Fire Flow hydraulic model test and hydraulic boundary conditions prior to submitting the Design conditions (DC)?
 - a. Yes, it is recommended as the hydraulic results tend to take about 3-5 weeks to process. There is a fire flow application and fee amount on EMWD's website www.emwd.org. Specific directions and information requirements are located on the application. Please coordinate with the Development Services Administrative Staff.

7. Is there a sample DC from EMWD for formatting purposes?
 - a. Yes, it is recommended you reference this sample. It is located in EMWD's website. Link: <https://www.emwd.org/forms-new-development-process>

8. If a sewer study is required what does it consist of?
 - a. The study consists of using EMWD's latest sewer design criteria to analyze the effects of increased of sewer flows generated by the proposed tributary area on the downstream existing system and to adequately size proposed sewer pipelines. The DC engineer shall help determine the outline of the tributary area and the extent of the study on downstream facilities. The sewer study may include different densities of residential, commercial, industrial and institutional developments with their associated peaking factors. The sewer study report includes an Objective, Analysis Criteria, Sewer Analysis, Conclusion, and other required attachments. The studies also include maps of areas to be studied, as well as tables and hand calculations. The study identifies locations of the existing sewer that cannot adequately handle the proposed sewer flows that are considered critical segments. A conclusion or recommendation shall be provided in the study report. An example for formatting purposes is located [here](#) on EMWD's website.

Section 4. Plan Check – Water, Sewer, & Recycled Water System Plans**A. Purpose**

This section will guide consulting engineers in the preparation of plans for the construction of water, sewer, and recycled water facilities. These guidelines draw from an extensive and rich 70-year EMWD experience, AWWA standards, ASTM standards, and other water industry standards. This section will provide the user with the necessary tools that will allow for a more efficient and expedient plan check process.

B. Methodology

Through the consistent application of standards, EMWD seeks to achieve robust and high-quality designs that will provide for long-lasting, accessible, operationally sound, and low maintenance facilities. These guidelines will furnish the user with a step-by-step guide for the preparation of plan sets, including forms, drawings, CAD templates, CAD standards, details, sample tables, and sample drawings. Please see below for list of how these guidelines are subdivided.

1. Submittal requirements (high-quality submittals will reduce plan check duration)
2. Title, Index, and Plan & Profile Sheet assistance and guidance
3. Assistance and guidance in the installation of appurtenances, laterals, services, fittings, and on-site and off-site (private facilities)
4. Access requirements and easements
5. Assistance and guidance on various other aspects related to facility design and funding
6. Standard Drawings for each product line
7. Construction notes for each water, sewer, and recycled water (include only those notes that are applicable to the project)
8. Answers to Frequently Asked Questions (FAQs)
9. Water, Sewer, and Recycled Water CAD Toolbox (link to various useful tools)

C. Submittal Requirements

1. EMWD will require the documents identified below to start the plan check process ([Form NBD-063](#)):
 - a. An Approved Design Conditions (DC) with all attachments with an approval date of two years or less from date of plan check submittal.
 - b. Water, Sewer, and Recycled Water Improvement Plans (2 sets)
 - c. Street Improvements Plans (1 set)
 - d. Storm Drain Plans (1 set)
 - e. Grading Plans (1 set)
 - f. Approved Tentative Tract Map (1 set), if applicable
 - g. Parcel or Tract Map (1 set)
 - h. Fire Pump Plans (1 set), if applicable
 - i. Private Fire and domestic pipelines (1 set), if applicable
 - j. Current Conditions of Approval (1 set)
 - k. Cover letter signed with plan check list by registered civil engineer
 - l. Plan Check Deposit
 - m. Community Facilities District (CFD) Letter ([NBD-008](#))
 - n. Work Order Request and Contact & Overview form ([DS-050](#))

This plan checklist is a general guide to assist Consulting Engineers in the design and drafting of water plans. Contact our Development Services Department concerning any exceptions; in order to prevent unnecessary plan revisions. Please note that if water, sewer, and recycled water are required, these are to be delineated on one set of 24" x 36" drawings.

D. Title or Cover Sheet

1. Index map that shows all water, sewer, and recycled water system facilities. Do not show storm drain facilities as part of the index map. Index map can be shown on sheet 2 if it will not fit on title sheet. [Click here](#) to access the CAD Toolbox.
 - a. Piping system; size and type.
 - b. Sheet number references to plan-profile drawings.
 - c. Potholing – EMWD strongly recommends the potholing of existing utilities during the design phase to avoid costly and time-consuming changes during construction. In addition, potholing will identify conflicts that will result in shutdowns of existing EMWD facilities. These possible shutdowns can be coordinated during the plan check process with EMWD Operations and Maintenance staff. If potholing is not conducted during design, the engineer of record will be required to assess the risk of unplanned shutdowns of existing EMWD facilities due to unforeseen conflicts.

Water

- d. Line valves and air valves.
- e. Fire hydrants, blow-offs, ITC stations and fittings, etc.
- f. Existing water lines with corresponding EMWD drawing number; shown dashed.
- g. Water lines dashed and shown “proposed per Tract No. Planned or constructed by other projects but not yet accepted by EMWD.
- h. Water services schematically showing approximate location on lot frontage and to which line it is connected.
- i. All notes specifying work to be done by EMWD at developer’s expense.

Recycled Water

- j. Line valves and air valves.
- k. Blow-offs, ITC stations and fittings, etc.
- l. Existing recycled water lines with corresponding EMWD drawing number; shown dashed.
- m. Recycled Water lines dashed and shown “proposed per Tract No._____”. Planned or constructed by other projects but not yet accepted by EMWD.
- n. Recycled water services schematically showing approximate location on lot frontage and to which line it is connected.
- o. All notes specifying work to be done by EMWD at developer’s expense.

Sewer

- p. Manholes, temporary cleanouts, end plugs and backwater valves.
- q. Existing sewer must be shown dashed with corresponding EMWD drawing number.
- r. Sewer dashed and labeled “proposed per Tract No._____” If planned or constructed by other projects but not yet accepted by EMWD.
- s. Sewer laterals schematically showing approximate location on lot frontage and to which sewer line it is connected.

- 2. (Do not show storm drain facilities as part of the index map).
- 3. General Notes and Requirements – County/City required notes only. (Do not include notes that conflict with EMWD required notes).
- 4. Estimate of Quantities; items such as pipe, pipe laterals, manholes, cleanouts valves, air valves, fire hydrants, blow-offs, water, & recycled services, etc. (on sheet with index map).
- 5. Notifications
- 6. EMWD Water, Sewer & Force Main, and Recycled Water Notes – See CAD Toolbox.
- 7. Water, Sewer, and Recycled Water Certification (tracts & parcel maps)
- 8. Time Limitation
- 9. Engineer’s Declaration of Responsible Charge
- 10. Typical Lot
- 11. Water, Sewer, and Recycled Water Legend – (on sheet with index map).
- 12. Estimate of Quantities; items such as pipe, valves, air valves, fire hydrants, blow-offs, water services, manholes, private sewer laterals, private sewer cleanouts, sewer main cleanouts, etc. (on sheet with index map).

13. EMWD Approval Block/Title Block
14. Minimum letter heights 0.08" (all sheets).
15. List of Implementing Facilities (on sheet with index map).
16. Pressure Zone (on sheet with index map).
17. Project Vicinity Map
18. Manholes, cleanout, valves, hydrants, blow-offs, air release/air vacuum valves, etc. should be at a **large enough scale** so as to be clear and obvious.
19. Pressure table indicating the pressure for each lot, and whether the pressure is low, normal, or high (on sheet with index map).

E. Plan and Profile

1. Plan and Profile Drawing
 2. Stationing shall correspond with street centerline.
 3. Pipe Size – Diameter in inches.
 4. Pipe Type
 - a. Water - CML&C and DI (Color: Stencil "WATER" in Blue), PVC C-900 (Color: Blue) with dimension ratio (DR 18 minimum), etc.
 - b. Recycled Water - CML&C and DI (Color: Stencil "RECYCLED WATER" in Purple), PVC C-900 (Color: Purple) with dimension ratio (DR 18 minimum), etc.
 - c. Sewer Force Main - PVC C-900, DR18 (Color-Green)
 - d. Gravity Sewer - VCP, HDPE (Color: Stencil "SEWER" in Green), PVC SDR-35 (Color-Green)
 - i. VCP is required when:
 - Serving industrial development.
 - On curved alignments (12" and above).
 - Sizes larger than 15" (unless otherwise approved by the District)
 - When pipe type is not dictated by above requirements, no pipe type shall be indicated on plan or profile.
 - When VCP is required, it shall be indicated on plan and profile.
 - Where existing grade goes cut to fill, use short joints 2.5' max., 10' each side for VCP pipe. Use flex couplings for plastic pipe. Note to be labeled on profile if applicable.
 - Where casings are used and the annular space is filled with grout per EMWD specifications, use VCP pipe or PVC C-900 or C-905 as required.
 - Special bedding for gravity sewer pipe: Refer to standard drawings SB-157, SB-158 and SB-159 for specific type of bedding.
5. Pipe Location
 - a. Water - 7' off the curb face in the street on the south or west side of the street.
 - b. Gravity Sewer - M.H. Location: 6' north or east of the centerline of street.

- c. Sewer Force Main - 7' off the curb face in the street on the north or east side of the street. If there is an existing or proposed recycled water pipeline on this location, the proposed force main shall be relocated towards the center of the street with a minimum of 4-feet clearance to the recycled water pipeline, or as otherwise approved by EMWD.
- d. Recycled Water - 7' off the curb face in the street on the north or east side of the street.

6. Pipe Depth

- a. Water - 4' cover over the top of the pipe, drawn to scale in profile. Sewer Pipe Depth – Minimum 7.5' cover over the top of pipe, drawn to scale in profile.
- b. Gravity Sewer - Minimum 7.5' cover over the top of pipe, drawn to scale in profile.
- c. Sewer Force Main - Minimum 4' cover over the top of pipe, drawn to scale in profile view. To avoid existing, proposed, or future potable water laterals and services crossing under force main, the force main shall be installed 12-inches deeper than potable water laterals and pipelines.
- d. Recycled Water - The top of recycled water transmission pipelines must be a minimum of 66-inches below the finished grade, unless otherwise approved. When recycled and potable water mains are to be installed in the same street or easement, the top of pipe of the recycled water main shall be 12-inches below the bottom of the potable water main. When crossing other utilities, including recycled water laterals, the designer shall indicate on the plans the elevation of the top of the recycled water pipe and the elevation of the bottom of the utility pipe or vice versa.
- e. When no other water facilities will be installed within the street right-of-way or no water laterals will cross the proposed recycled water pipeline, the recycled water pipeline shall be installed at 4-feet of cover.

7. Pipe Slopes

- a. Water, Recycled Water, and Sewer Force Main - C.G. (center grade) elevations, and stationing at all grade breaks to be shown in profile view in decimal format (ex: S=0.0040). Show top and bottom of pipe in profile view for sizes 16" and larger.
- b. Gravity Sewer - F.L. (flow line) elevations at all manholes to be shown in profile. Minimum slopes are as follows: Laterals: 4" & 6" - .0200; Main Lines: 8" - .0040, 10" - .0032, 12" - .0024, 15" - .0016 18" - .0014, 21" - .0012, 24" - .0010 for minimum accepted velocities of 2 f.p.s. at design flow depths of ½ full of 12" and less diameter, and ¾ full for 15" and larger diameter. Maximum slopes are as follows: 8" - .1200, 10" - .0850, 12" - .0660, 15" - .0500, 18" - .0370, 21" - .0300, 24" - .0250.
 - ii. Slopes shall be shown in decimal form, not as a percentage. The recommended velocity at design flow is 3 fps. Sewer lines of different sizes connecting to the same manhole shall match soffits (top of pipes) at the center of the manhole. Upsizing sewer size to obtain a flatter slope will not be allowed.

8. Restrained and Weld Limits – Water, Recycled Water, and Sewer Force Main - Show weld limits on CML&C steel pipe and restrained joint limits on PVC and Ductile Iron pipe by dimensions and stations in profile view at appropriate design locations.
9. Vertical Separation/Pipeline Crossings
10. Utility Crossings – Show caution note designating type, size and stationing of the existing/proposed utility line wherever it crosses the proposed pipeline. In note, also include top or bottom elevation of utility line and water main at minimum vertical crossing point. Where a minimum crossing separation is obtained, label on profile view between utilities “CDF per EMWD specs”.
 - a. Water – Water pipeline crossings over non-potable mains must have 1’ of vertical clearance between bottom of water and top of non-potable main. When there is no alternative except for non-potable to go over water, special conditions will be required per California Division of Drinking Water. No joints shall be allowed in the water pipeline within 10’ of the outside of the non-potable pipe on either side of the crossing.
 - b. Recycled Water – Recycled water crossings under water pipelines must have 1’ of vertical clearance between bottom of water and top of recycled water pipeline. No joints shall be allowed within 10’ of the outside water pipe on either side of the crossing.
 - c. Gravity Sewer – Gravity sewer crossings under water pipelines must have 1’ of vertical clearance between bottom of water and top of sewer.
 - iii. No joints shall be allowed in the proposed sewer pipeline within 8 feet of the outside of existing water pipeline on either side of the crossing.
 - iv. No joints shall be allowed in the proposed water pipeline within 8 feet of the outside proposed / existing sewer pipeline on either side of the crossing.
 - v. Otherwise, special conditions will be required per Division of Drinking Water (DDW) requirements. Give crossing elevations (top of gravity sewer, bottom of water). When there is no alternative except for sewer to go over water, special conditions will be required per DDW requirements.
 - d. Sewer Force Main – Sewer Force Main pipeline crossing under water pipelines must have 1’ of vertical clearance between top of sewer force main and bottom of water pipeline.
 - vi. No joints shall be allowed in the proposed sewer force main within 10 feet of the outside of existing water pipeline on either side of the crossing.
 - vii. No joints shall be allowed in the proposed water pipeline within 10 feet of the outside proposed / existing sewer force main on either side of the crossing.
 - viii. Otherwise, special conditions will be required per Division of Drinking Water (DDW) requirements. Give crossing elevations (top of sewer force main, bottom of water). When there is no alternative except for sewer to go over water, special conditions will be required per DDW requirements.

- e. At crossings of potable water, recycled water, and/or sewer pipelines, pipelines shall be located from the ground surface in order of descending quality, with potable water above recycled water and recycled water above sewer force main and gravity sewer. The minimum vertical separation shall be 12 inches between the outside top and bottom surfaces of pipes. If a 12-inch vertical separation is not possible, approval must be obtained from the District and DDW.
- f. Vertical separation shall adhere to the State Water Resource Control Board Division of Drinking Water (DDW) “GUIDANCE CRITERIA FOR THE SEPARATION OF WATER MAINS AND NON-POTABLE PIPELINES”.

11. Horizontal Separation

a. Water

- ix. A 10-foot horizontal clearance is required between water and gravity sewer/sewer force mains (outside pipe to outside pipe).
- x. An 8-foot horizontal clearance is required between edge of sewer main and curb face.
- xi. A 4-foot horizontal clearance is required between water and storm drains (outside pipe to outside pipe).

b. Recycled Water

- xii. A 4-foot horizontal clearance is required between recycled water and water mains (outside pipe to outside pipe). Common trench construction is not permitted. Horizontal separation of less than 4 feet is not allowed unless authorized in writing by the District and DDW.
- xiii. There are no special DDW requirements in terms of separation between recycled water and sewer, storm drain, and brine pipelines. Separation requirements will be based on constructability and future access to those facilities, but the minimum separation shall not be less than 4 feet.

c. Gravity Sewer and Force Main

- xiv. See above for separation requirements with water and recycled water pipelines.

d. Horizontal separation shall adhere to the State Water Resource Control Board Division of Drinking Water (DDW) “GUIDANCE CRITERIA FOR THE SEPARATION OF WATER MAINS AND NON-POTABLE PIPELINES”.

12. When no other water facilities will be installed within the street right-of-way or no water laterals will cross the proposed recycled water pipeline, the recycled water pipeline shall be installed at 4-feet of cover.

13. Manholes at the discharge point for sewer force mains shall be protected from corrosion. Existing manholes shall be interior coated as approved by the District and shown in Section “Y” of the notes. New manholes shall be polymer concrete (Armorock) or approved equal.

14. Storm drain to be profiled, dashed and labeled.
15. Design Recycled water mains with service laterals perpendicular to the main. Identify service laterals with a purple sleeve or tape that visibly extends to the angle stop. Service laterals shall be a minimum of 2-inch in size unless authorized by the District. Larger sized laterals may be required. A service lateral shall be designed for each lot or area to be served with recycled water. A service lateral shall generally not be designed to serve opposite sides of a street or easement and shall not be located in street medians or center islands.
16. Public recycled water systems shall not be designed with fire hydrants, wharf heads, or other appurtenances which would allow recycled water to be used for other than the approved uses, unless the appurtenances are expressly approved by the District.
17. Public recycled water mains shall not be designed with temporary connections unless expressly approved by the District. When permitted, temporary connections shall be located, sized, and designed according to the requirements of the District.
18. Where purple PVC pipe cannot be used because of size, depth, or load restrictions, an alternative pipe must be installed, subject to approval by the District. A purple identification tape shall be secured every 10 feet to the top of the pipe. Ductile iron pipe shall conform to Section 15057. Steel pipe shall conform to Section 15061.

F. Scale and North Arrow

All sheets to have same scale: Horizontal @ 1" = 40' to have Vertical @ 1" = 4 ft.; exceptions must have EMWD approval prior to submission of plans for review. Vertical scale 1" = 8 is not acceptable. North arrow pointing down is not acceptable.

G. Valves

1. RSGV valves must be used throughout the system (sizes 4" thru 24").
2. Show valve symbols in plan view only.
3. Located at all branches or intersections of mainlines in each direction from such branches or intersections, unless otherwise approved by EMWD.
4. Butterfly valves shall be used for pipelines larger than 24".
5. Valves will be placed at a minimum, every 2,500' of continuous mainline 12-inches and larger / every 1, 000' of continuous mainline 8-inches and smaller.

H. Fire Hydrants

Show proper fire hydrant symbol in plan view only. Show stationing and standard drawing number for each hydrant on plan view only. For projects where EMWD fire hydrants are prone to being struck by vehicles, EMWD fire hydrants must include Clow LBIW400A Hydrant Check Valves. (i.e. in parking islands, adjacent to drive aisles/ways, non-standard width streets, fire hydrants 18-inches from curb face, etc.).

I. Water Blow-offs

1. Use a blow-off at the end of all lines that will not be extended in the future where no fire hydrant exists (such as cul-de-sacs).
2. A blow-off is required between two valves along a pipe length where no fire hydrant exists.
3. Use Temporary Blow-off B-561 for steel pipe and B-568 for PVC and ductile iron pipe at ends of lines that will be extended in the future.

J. Recycled Blow-offs

1. Blow-off assemblies shall be installed at the end of all lines, at all low points (except where low point occur in drops under storm drains or other utilities), or as directed by the District's Representative. A minimum of two blow-off assemblies are required between mainline valves and as close as practical to each valve. Blow-off assemblies shall be per PB-18.
2. Use a blow-off at the end of all lines that will not be extended in the future (such as cul-de-sacs).
3. Use Temporary Blow-off PB-18 at ends of lines that will be extended in the future.
4. The discharge from blow-offs shall be designed to drain into a sewer. Discharge of recycled water to storm drains is restricted. If there is no sewer that can receive the discharge from a blow-off, the Santa Ana Regional Water Quality Control Board and DDW shall be consulted regarding acceptable alternatives.
5. If hot tap is required to install a blow-off, the assembly shall be no closer than 18 inches from a valve, coupling, joint, or fitting unless it is at the end of the pipeline.

K. Air Valves

1. Water and Recycled Water

- a. An air valve is required at high points in the water line wherever pipe grade changes from an “uphill” slope to a “downhill” slope. Show an air valve symbol in plan view. Station air valve in plan and profile with standard drawing number; 1” AV for pipe sizes 8” thru 12”; 2” AV for pipe sizes larger than 12” thru 30”; pipe sizes above 30” must be calculated.

2. Sewer Force Main

- a. High points in sewer force mains shall be avoided.
- b. To avoid high points and sewage air valves in the force main, start with a deep force main at the sewage lift station.
- c. If unavoidable, sewage air valves are required at high points in the force main wherever pipe grade changes from an “uphill” to a “downhill” slope. Show a sewage air valve symbol in plan view. Station sewage air valve in plan and profile views with standard drawing number; sewage air valve sizes shall be calculated for all sewer force mains. When a sewage air valve is required, a combination sewage air release and vacuum valve shall be used. Additional vacuum valves may be required based on the sewage lift station’s surge analysis.
- d. Air valves shall be stainless steel combination sewage air and vacuum valves as specified in EMWD Standard Detailed Provision Section 11210.
- e. Air valve discharge lines shall be plumbed to the nearest gravity sewer.
- f. Air valves may require odor control measures, as required by EMWD.

L. Fittings

1. Water and Recycled Water

- a. Call out all tees in plan view; specify size, type and stationing. Fittings for horizontal angle points to be called out in plan view. Fittings for vertical grade breaks to be called out in profile view.
- b. Steel Bends – For bends 12-inches in diameter and smaller, flanged ends shall be used per EMWD standards. For bends larger than 12-inches in diameter, the bends shall be fabricated by an EMWD-approved manufacturer per EMWD specifications.

2. Sewer Force Main

- a. Call out all fittings in plan view; specify size, type, and stationing. Fittings for vertical grade breaks to be called out in profile view.
- b. Ductile iron fittings shall be Class 250 and shall be cement mortar lined as specified in EMWD Standard Detailed Provision Section 11210.
- c. Ductile iron fittings shall be provided with an exterior asphaltic coating and polyethylene encasement as specified in EMWD Standard Detailed Provision Section 11210.

M. Water, Recycled Water, & Sewer Force Main Restrained System

When required, anchorage shall be provided by means of full welds (double pass) of all steel pipe joints, restraint fittings for plastic (PVC) pipe or ductile iron pipe. The use of concrete anchorage in lieu of restrained joints will not be allowed.

N. Connections to Existing and Proposed Water & Recycled Pipelines

1. To minimize the number of connections to existing water and recycled pipelines, a manifold shall be used to serve fire, domestic, and landscape irrigation services. For proposed water and recycled pipelines, individual connections are acceptable (see exhibits in CAD Toolbox).
2. Hot taps shall be conducted by an EMWD-approved contractor. All materials shall be per EMWD's approved material list, or as approved by EMWD (Submittals required for all materials used). Click [here](#) to access the EMWD Approved Material List. Click [here](#) to access the EMWD Approved Hot Tap Contractors List.

O. Manholes

The manholes shall be stationed, numbered and shown in the plan and profile. Terminus manholes are required at permanent ends of sewer mains. Number manholes starting with No.

1.

1. Shallow Manholes - Required for all manholes of depths less than 5' from finished street grade to sewer pipe shelf.
2. Manhole Spacing - The maximum distance between manholes on tangent sections is 500'. Manholes are required at beginning and end of curves.

P. Horizontal Curves

The minimum radius is 144' for VCP (4" to 12", 6' length), 200' for 8" PVC and 250' for 10" PVC. For radius equal to or greater than 500', maximum manhole spacing is 450'; for radius less than 500', maximum manhole spacing is 150'. Reverse curves and/or combination curve/tangent are not allowed between manholes.

Q. Mainline Cleanouts

The use of a temporary cleanout is permitted in lieu of a manhole at the end of a sewer main with a length of 150' or less and is to be extended in the future. Cleanout or stub shall extend 10' or the depth (whichever is greater) past the tract boundary. Temporary end of a sewer line that exceeds 150' will require a manhole.

R. Private Lateral Cleanouts

Private sewer cleanouts shall be placed on each private sewer lateral just inside of the property line or edge of easement per SB-52.

S. Sewer Laterals

Show all sewer laterals on the plan and on the index map. Locate laterals to miss driveways. Design lateral grades, per SB-177, to accommodate water system construction. Maximum number of laterals into terminus manhole not to exceed four. The maximum length of laterals shall be 55 feet from lateral cleanouts (see sub-paragraph I) to centerline of manhole or pipeline connection.

4-inch and 6-inch sewer laterals shall be private with private sewer cleanouts. Sewer laterals, 8 inches and larger, shall be owned and maintained by EMWD, with an on-site EMWD manhole at the property line or inside the property with an EMWD easement.

For the installation of new sewer laterals to existing sewer pipelines, use Tap-N-Tee connection systems. Tap-N-Tee connections can only be used for existing sewer pipelines of the following materials: PVC C-900, VCP, HDPE, Spirolite. Do not use Tap-N-Tee connections when using PVC SDR 35. EMWD to determine the use of Tap-N-Tee connection systems on other pipe materials.

T. Backwater Valves

Section 710.1 of the Uniform Plumbing Code states that “...Fixtures which have flood level rims located below the elevation of the next upstream manhole cover...shall be protected...by installing an approved type backwater valve.” EMWD will require lots with pad elevation below the elevation of the next upstream manhole cover to have a backwater valve. Show the backwater valve symbol on each protected lot in the plan view and on index map.

U. Connection of a Proposed Steel Water/Recycled Water Pipeline to an Existing Steel Water/Recycled Water Pipeline

If it has been in the ground longer than one year, it requires an insulating test connection shown as ITC per EMWD standard B-660.

V. Water/Recycled Water Service

Show symbol on plans and station any meter that is not to be installed as typical. Alternative is to designate as “field-located”. Show service on “Index Map”.

1. Typical size of residential water services shall be 1-inch in diameter.
2. For residential water services with less than 50 psi of pressure, the water service shall be increased to 1½-inch in diameter.

3. For residential tracts where 50% or more of the lots have pressures less than 50 psi, 1½-inch diameter water services shall be installed for all lots.
4. Minimum size for a recycled water service is 2-inch in diameter.

W. Pressure Regulators

Private pressure regulators are required for all residential lots.

X. Future Use of Recycled Water

In those areas where the District has determined that recycled water will be supplied in the future but is not currently available, recycled facilities shall be installed as detailed in this Section. Only landscape service laterals as identified on the RWIP shall be allowed unless otherwise authorized by the District and DDW. Provisions for future connection to the permanent recycled water system shall be included in the initial installation of the system as directed by the District. In the interim, the new recycled system will be supplied with potable water via a temporary connection performed by the contractor and as directed by the District. This temporary service connection shall be provided in accordance with the Standard Drawings and shall incorporate a master RP backflow prevention device located and installed in accordance with Standard Drawing B-597. Connections between recycled water mains and potable water mains shall only be permitted when the recycled water main is to temporarily convey potable water. No connection of any other kind shall be permitted between the potable water and recycled water mains. In the future, the owner shall be responsible to remove and abandon the temporary interconnection.

The developer shall make a cash deposit prior to the installation of temporary interconnections to ensure their removal and abandonment. Once facilities have been removed and abandoned, the cash deposit shall be returned to the developer. If the developer does not remove and abandon said facilities, EMWD shall use the cash deposit to conduct the work.

Y. Pad Elevations

Show the pad elevation of each lot on plan view. Any revisions to the grading plans should be reflected on the water, sewer, and recycled water plans.

Z. Easements

Water/Sewer/Recycled Water pipelines to be located in easements will not be allowed except upon approval by the Development Services Department. Provide easement description and plats where required. Show and label easements on the index map and plan view of improvement plans. Provide ingress and egress to all manholes and appurtenances, or a 72-foot diameter turn around if egress is not provided, or an EMWD-approved hammerhead design. For commercial and industrial projects, easement must be recorded before approval of plans. For residential

projects easement documents must be submitted before approval of plans. For commercial and industrial projects, easements must be recorded before approval of plans.

Water, Recycled Water, Sewer Force Main - Minimum width is 30' for 8" and smaller; 40' minimum for 12" and larger with recycled water in center of easement.

Sewer – Easement widths typically twice the depth; rounded up to the nearest 10' increment; 20' minimum. Sewers are to be in the center of the easement unless otherwise directed.

1. Easements within residential lots shall not be double-walled or double-fenced.
2. Easements that contain manholes, water, recycled appurtenances (air release/air vacuum valves, blow-offs, fire hydrants, valves, etc.) will require an access road within the easement, or alternate access/egress easement(s) to reach said appurtenances. Driveways and gates will be required to access and secure the easements, as necessary. Manhole covers within easements shall be bolted-down.
3. For residential developments, the preference by EMWD is to hold easements within lettered lots, which are maintained by an HOA, land agency, or other maintaining entity.
4. The preferred surfaces for access roads within easements shall be the following: Class II Aggregate Base and Gravel. Other surface materials may be used upon EMWD approval.
5. The following improvements are not allowed within proposed EMWD easements: trees, shrubs, irrigation pipelines, ribbon gutters, curb, reinforced and non-reinforced concrete pavement, stamped concrete, pavers, grouted and non-grouted river rock, rip-rap, water basins, and other structural improvements.
6. Encroachment into existing EMWD easements may only be allowed upon review and acceptance of the proposed improvements through an EMWD encroachment license.
7. Easements shall not straddle properties longitudinally, encompass slopes or water quality basins, contain structures, and have restricted access.
8. For temporary easements, existing facilities shall be either removed or abandoned as required by EMWD, prior to the quit claim of said easements. The developer shall make a cash deposit prior to the installation of facilities within temporary easements to ensure their removal or abandonment. Once facilities have been removed or abandoned, the cash deposit shall be returned to the developer. If the developer does not remove or abandon said facilities, EMWD shall use the cash deposit to conduct the work.

AA. Access Roads

A means of access and egress to sewer facilities shall be provided. When a separate point of egress is not provided, the project proponent shall provide a cul-de-sac with a radius of 38 feet, or a hammer head design to allow for a service vehicle to make a three-point turn. The project engineer shall provide a truck-turning wheel design to prove the design will be adequate (use a bus wheel template).

1. Surface Material - EMWD will consider the following materials for the access road:
 - a. Class II Base (95% Relative Compaction) – 8-inches in depth minimum (or as required by Geotechnical Report to support a fully loaded vector truck). Use HS-20 vehicle to determine Class II Base section. Manholes with access road shall include an AC pavement pad per standard drawing SA-47.
 - b. 2-inch Angular Gravel – 8-inches in depth. Manholes with access road shall include an AC pavement pad per standard drawing SB-181.
 - c. Asphalt Concrete Pavement with Class II Base (95% Relative Compaction) – 6-inches over 8-inches (or as required by Geotechnical Report to support a fully loaded vector truck). Use HS-20 vehicle to determine AC pavement with Class II Base section.
2. Driveways - A means of entry to access roads from public right-of-way will be required. EMWD will consider the following:
 - a. Driveway – Install 16-foot wide commercial driveway per the local land agency’s standards.
 - b. Rolled Curb – Install 16-foot wide section of rolled curb per the local agency’s standards. Increase the depth of the sidewalk to 8-inches and upgrade the base to account for the additional load.
 - c. Access/Egress Easements – If direct entry or exit from public right-of-way cannot be provided to access road, developer shall allow entry or exit through its property by means of an access/egress easement.
3. Gates - A means of limiting access to access roads shall be provided. Acceptable means of limiting access are: Pipe gates, chain link fence gates, and wrought iron gates. EMWD’s construction and safety inspector shall provide the locks to be used on these gates.
4. Horizontal Curves - Horizontal curves within access roads shall not have a radius of less than 50-feet.
5. Vertical Curves - Vertical angle points shall not be allowed in access roads. Vertical curves shall be introduced to avoid ground clearance “bottoming out” conditions. (Vector truck is 25 feet long from the center of the back hub to the center of the front hub. Lowest point on the unit is 11 inches from the ground).
6. Drainage Crossings – EMWD will consider the following for access roads drainage crossings:

- a. Grouted rounded river rock 6-inches in diameter or smaller.
- b. AC pavement.
- c. Subsurface structures as approved by EMWD.

7. Maximum permissible slopes shall be 12 percent on surfaces other than AC pavement.

BB. Abandonment of Existing EMWD Facilities

1. Water & Recycled Water

- a. Abandonment of Water Services (2-inches in diameter and smaller) – Salvage meter, if any. Remove and dispose of meter box. Remove and dispose of corporation stop. Install threaded plug at main.
- b. Abandonment of Water Services (4-inches in diameter and larger) – Salvage meter, if any. Remove and dispose of meter box/vault. Remove and dispose of valve at main. Install blind flange at main. Remove and dispose of vertical riser at meter box and install concrete plugs at both ends. Fill with grout per EMWD Standard Detailed Provision Section 03604 or Cellcrete.
- c. Abandonment of Potable Water & Recycled Water Intertie – Remove and dispose of above-grade assembly. Remove and dispose of potable and recycled water valves at mains. Install blind flanges at mains. Remove and dispose of vertical risers and install concrete plugs at pipe ends. Fill with grout per EMWD Standard Detailed Provision Section 03604 or Cellcrete.
- d. Abandonment of Fire Hydrants and Blow-offs - Remove and dispose of valve at main. Install blind flange at main. Remove and dispose of vertical riser and blow-off or fire hydrant head. Install concrete plugs at pipe ends. Fill with grout per EMWD Standard Detailed Provision Section 03604 or Cellcrete.
- e. Abandonment of Air Release/Air Vacuum valves (2-inches in diameter and smaller) – Remove and dispose air release/air vacuum valve. Remove and dispose of corporation stop. Install threaded plug at main.
- f. Remove and dispose of excess materials in accordance to local, state, and federal regulations.

2. Sewer

- a. Abandonment of Sewer Laterals – Cut sewer lateral at wye and remove 12-inches of pipe (minimum). Install plug at wye. Remove on-site clean out, if any. Install concrete end plugs on both ends of sewer lateral and fill with grout per EMWD Standard Detailed Provision Section 03604 or Cellcrete.
- b. Abandonment of Sewer Manholes – Remove and dispose of top 6 feet of manhole. Install concrete plugs on sewer inlets and outlet. Fill manholes with sand SE30 or better, or fill with grout per EMWD Standard Detailed Provision Section 03604 or Cellcrete.
- c. Abandonment of Sewer Pipeline/Sewer Force Main – Install concrete end plugs and fill with grout per EMWD Standard Detailed Provision Section 03604 or Cellcrete.

- d. Remove and dispose of excess materials in accordance to local, state, and federal regulations.

CC. District Financial Participation

1. For projects that require District financial participation, the project proponent shall obtain a minimum of three bids to determine the District's cost. EMWD staff will provide the developer with instructions and necessary documents on how to bid the work starting at the design conditions. Please refer to the Policy Highlights of Facility Oversizing and Reimbursement Form in the Development Services process section within EMWD's web site.
2. The developer shall provide the plan checker with copies of all the bids. The information will be used to prepare the standard facilities agreement between the District and the developer.

DD. Fire Pump Assemblies

1. For projects requiring onsite fire pumps, the project proponent shall submit fire pump plans that include a return line that will allow for recirculation of flow during the pump tests. In addition, the project proponent shall include necessary isolation valves to operate the pump during the pump tests without discharge.
2. For sample fire pump assembly see Toolbox.

EE. Index to Commonly Referenced Standard Drawings

Click [here](#) to access the standard drawings.

Pipelines

Water, Recycled Water, & Sewer Force Main

B-286B	Trench Backfill
B-407	Thrust Block Installation for Hub-End Pipe
B-408	Water Pipe Installation and concrete Cap Detail for ACP, PVC & DI Pipe
B-563	Steel Pipeline - Pipe Pad or Coupling for Cast Iron Fittings
B-575	Steel Pipe Casing Water Pipeline
B-638	Steel Cylinder Pipe - Field Joint Details Welded & Bonded Rubber Gasket
B-663	Standard Restraint Tee, Dead End, Bend for PVC C-900 & C-905

Sewer

SB-49	Pipe Casing (Sewer Main)
SB-157	Pipe Zone Bedding for Sewer Pipe

- SB-158 Trench Backfill for Sewer Pipe
- SB-159 Classification of Pipe Zone Bedding for Sewer Pipe
- SB-182 Connecting Dissimilar Sewer Pipes
- SB-184 Sewer Concrete Anchor

Valves

Water, Recycled Water, & Sewer Force Main

- B-255 Installation of Vertical Gate Valves (Steel Pipe 14" & Larger; ACP, PVC & DI Pipe 4" & Larger)
- B-577 Installation of Butterfly Valve
- B-665 Guard and Marker Posts
- B-668 Valve Cap & Riser Detail

Manholes

- SB-8 Locking Type Manhole Cover & Frame
- SB-30 Reinforced Precast Shallow Manhole
- SB-53 Precast Reinforced Concrete, 48" & 60" ID Manhole
- SB-54 Precast Reinforced Concrete, 60" & 72" ID Flat Top
- SB-58 Terminus Manhole
- SB-61 Manhole Cover and Frame Standard & Watertight Manholes
- SB-73 Precast Reinforced Concrete 36" ID Sampling Manhole
- SB-179 48" and 60" Diameter Manhole Installation for HDPE Sewer Main
- SB-181 Paving Detail Around Manholes

Specials

Water & Recycled Water

- B-271 Saddle Outlets – ¾" to 36"
- B-288 Steel Flanges, 4" to 54"
- B-304 Butt Strap Details
- B-659 Air Test Details

Services

Water

- B-590A 1" Service Connection
- B-965 1" Residential Meter Service Connection 1" Copper Tubing
- B-342A 1 1/2" Copper Service Connection
- B-344A 2" Copper Service Connection
- B-993 4" & Larger Service Connection
- B-658 Service Connections 1" through 4" on Water Appurtenance Lateral or Watermain 16" or Larger

B-976 Read Hole for Meter Vaults

Recycled Water

PB-10A 2" Recycled Service Connection

PB- 1 4" & Larger Recycled Service Connection

B-658 Service Connections 1" through 4" on Water Appurtenance Lateral or Watermain 16" or Larger

B-976 Read Hole for Meter Vaults

Sewer

SB-52 Sewer Cleanout (mainline & on-site)

SB-52A Sewer Tree Laterals & Cleanouts

SB-176 Sewer Lateral Connections

SB-177 Sewer Laterals

SB-180 Sewer Chimney Lateral

SB-63 Sewer Connection at Concrete Encasement

SB-70 Grease Interceptor with 24" Sampling Box

SB-75 Sand / Oil Interceptor with 24" Sampling Box

Meters

Water

B-590 5/8" & 3/4" Meter Installation

B-591 1" Meter Installation

B-342 1-1/2" Meter Installation

B-344 2" Meter Installation

B-633 3" Meter Installation

B-634 4" Meter Installation

B-635 6" Meter Installation

B-636 8" Meter Installation

B-994 Meter Cage – Flange Mount

Recycled Water

PB-10 2" Recycled Meter Installation

PB-11 1-1/2" Recycled Meter Service Connection

PB-12 1" Recycled Water Meter Installation

PB-13 3" Recycled Meter Installation

PB-14 4" Recycled Meter Installation

PB-15 6" Recycled Meter Installation

PB-16	8" Recycled Meter Installation
PB-17	Agricultural Above Ground Metered Service – Potable & Recycled Water
B-994	Meter Cage – Flange Mount

Backflow Preventers

Water

B-657	4", 6", 8" or 10" Double Check Detector Assembly & Reduced Pressure Detector Assembly
B-966	Double Check Backflow Preventer Assy. for sizes 3/4" - 2"
B-967	Double Check Backflow Preventer Assy. for sizes 2 1/2" - 3"
B-968	Double Check Backflow Preventer Assy. for sizes 4" - 10"
B-597A	Reduced Pressure Backflow Preventer Assy. for 3/4" - 2"
B-597B	Reduced Pressure Backflow Preventer Assy. for 2 1/2" - 3"
B-597C	Reduced Pressure Backflow Preventer Assy. for 4" - 10"

Recycled Water

B-966	Double Check Backflow Preventer Assy. for sizes 3/4" - 2"
B-967	Double Check Backflow Preventer Assy. for sizes 2 1/2" - 3"
B-968	Double Check Backflow Preventer Assy. for sizes 4" - 10"

Pressure Regulators

Water & Recycled Water

B-932	4" & 6" Pressure Regulator above Ground Installation
B-933	8" Pressure Regulator above Ground Installation

Air Valves

Water & Recycled Water

B-598	1" Air Valve Installation
B-367	2" Air Valve Installation
B-578	3" Thru 10" Air Valve Installation

Blow-offs

Water

B-561	4" x 1-2 1/2" Blow-Off Temporary End Installation (Steel Pipe)
B-568	6" x 1 - 2 1/2" Blow Off Temporary End Installation for ACP, PVC & DI Pipe
B-351	6" x 1-2 1/2" Blow Off Installation (Steel Pipe)
B-357	6" x 1-2 1/2" Blow-off Installation for ACP, PVC & DI Pipe
B-653	6" x 1 - 4" Blow-Off Installation - Saddle Tangent Outlet - Steel Pipe

Recycled water

PB-18 4"-8" Recycled Water Blow Off

Fire Hydrants

B-356 6" x 2-1/2" & 1-4" Fire Hydrant Installation (Steel Pipe)

B-362 6" x 1-2 1/2" & 1-4" Fire Hydrant Installation for ACP, PVC & DI Pipe.

B-516 6" x 2-2 1/2" x 1-4" Fire Hydrant Installation (Steel Pipe)

B-517 6" x 2-2 1/2" x 1-4" Fire Hydrant Installation for ACP, PVC & DI Pipe

ElectricalWater & Recycled Water

B-533 Telemetry Wire & Terminal

B-656 Locator Wire Installation

B-660 Test Stations: Insulated Joint and Insulated Joint at Valve

B-661 Thermite Weld Details

B-662 Test Stations: Line Current, Basic & Pipe with Casing

TanksWater

B-977 Typical Steel Tank Circumferential Stairway (sheet 1 of 2)

B-978 Typical Steel Tank Circumferential Stairway (sheet 2 of 2)

B-979 Steel Tank Roof Access Platform and Hatch

B-984 Steel Tank Roof Hatch

Miscellaneous

B-666 Formed Sealant Groove Detail and Typical Crack Repair

B-934 Recessed Trench Plate Detail

B-935 Potable Water Sample Station

B-987 EMWD Facility Monument Sign

B-1042 Emergency Shower & Eyewash

SB-183 Existing Sewer Manhole Median Installation

FF. Notifications

1. Engineering shall include the following notes:

At least 48 hours prior to commencing construction, contractor shall notify:

Eastern Municipal Water District, Field Engineering Department, (951) 928-3777, ext. 4372

2. Permit Agency (Engineering to select agency).

Riverside County Road Department
(951) 955-6885

City of Hemet
(951) 765-2360

City of San Jacinto
(951) 654-7337

City of Moreno Valley
(951) 413-3350

City of Temecula
(951) 694-6400

City of Perris
(951) 943-5003

City of Murrieta
(951) 698-1040

3. Underground Service Alert (USA)

- a. (800) 227-2600 or 811

4. All other affected agencies that are not members of USA. (Engineer to provide names and phone numbers of agencies).

GG. Plotting of Mylars

Mylars to be plotted mirrored on HP Matte Film (51642B) 5 mil.

HH. EMWD Notes

Use only those notes and standards determined appropriate by EMWD.

[See CAD Title sheet](#)

II. Detailed Requirements

(List on title sheet of construction plans. **List only those notes that are applicable to the project.**)

Water Notes:

1. Water pipeline and appurtenant construction shall be in accordance with EMWD standards and specifications.
2. Prior to construction of pipeline, contractor shall expose existing water system and verify its existing elevation and location.
3. Where sewers have been constructed by agencies other than EMWD, contractor shall verify sewer lateral locations prior to excavation for water pipeline. In the event sewer laterals are found to be at a depth less than in accordance with EMWD sewer standards, (for City of Hemet, refer to City of Hemet Std. No. 201) water pipeline contractor shall adjust water pipeline depth as directed by the Engineer to cross over the sewer lateral if possible, to provide 36" minimum cover to finish road grade; otherwise, cross under the lateral, which requires special construction.
4. All service connections shall be 1" services x 1" meters, unless otherwise noted; and shall be located as shown on the plans and adjusted as necessary to miss driveways. Water service assemblies shall be installed in accordance with Std. Dwg. B-591 & B-590A, type "A", "B" or "C" (select appropriate). (Engineer shall list other sizes and drawings when appropriate). Adjoining lot meter boxes shall be placed together at property line. EMWD RECOMMENDS B-965 FOR DOMESTIC WATER SERVICE WITH A RESIDENTIAL FIRE SPRINKLER SYSTEM.
5. Air valve assemblies shall be installed in accordance with Std. Dwg. B-598 (Select appropriate Type "A", "B", "C" or "D").
6. Water system profile elevations are to centerline (center grade) of pipe.
7. Approved Reduction Pressure Backflow Prevention Device (B-597 A, B, C) required for all industrial, commercial, apartment complexes and landscape services.
8. Install locator wire over water main per Std. Dwg. B-656.
9. Contractor shall coordinate water system shutdowns with EMWD Operations Department (through the construction inspector) at a minimum 10 days prior to the actual work. In addition, a second notice at 48 hours shall be given to confirm that work will take place as scheduled.

Sewer Notes:

10. Sewer system construction and materials shall be in accordance with EMWD's standards and specifications.
11. Gravity sewer profile elevations are to flow line (conduit invert). Force Main profile elevations are to centigrade (C.G.).

12. Contractor has the option to install PVC or VCP sewers, except where specifically designated on plans per EMWD standards and specifications. PVC pipe shall be colored green as manufactured.
13. Manholes shall be constructed in accordance with standard drawings SB-53, SB-58 and SB-61, as applicable. Sewer mains may be laid through the manholes and used as a form for the invert.
14. Manholes of depths less than five feet from finish street grade to sewer pipe shelf are to be constructed in accordance with standard drawing SB-30.
15. All sewer service laterals, 6-inch in diameter and smaller, shall be PRIVATE and shall have a PRIVATE on-site cleanout in accordance with standard drawings SB-52. In addition, for PRIVATE lower sewer service laterals serving industrial and/or commercial developments, the requirements for sampling and/or pretreatment facilities shall be determined by contacting EMWD's Source Control Division at (951) 928-3777, ext. 6209.
16. Mainline cleanouts, where called for on the plans, shall be constructed in accordance with standard drawing SB-52.
17. Prior to construction of sewer, contractor shall expose existing sewer and verify its existing elevation and location. Where connecting to existing manholes and inlet stub of proper size exists, no alterations shall be made to existing manhole base or stub except as specifically authorized by EMWD.
18. All sewer inlets at the manhole shall be such that its crown shall be level with the crown of the outlet pipe, at their projections to the manhole centerline.
19. Reconstruction of existing manholes shall be scheduled at the convenience of EMWD and shall be completed within five working days following its commencement.
20. PRIVATE lower sewer service laterals shall be constructed in accordance with SB-177. Locations of wyes and PRIVATE lower sewer service laterals, where not shown on the plans, are to be determined in the field prior to construction to miss driveways. All PRIVATE lower sewer service laterals are to be 4" in diameter unless otherwise shown on plans. Connections of new PRIVATE lower sewer service laterals to existing sewer are to be per standard drawing SB-176.
21. The contractor is advised that the work on this project may involve working in a confined air space. Contractor shall be responsible for "confined air space" Article 108, Title 8, California Administrative Code.
22. Backwater valves shall be installed per Section 710.1 of the Uniform Plumbing Code.

23. All pipe zone bedding & trench backfill are to be per standard drawing SB-157, SB-158 and SB-159.

Sewer Force Main Notes:

24. Force main profile elevations are to center grade (C.G.).
25. The design of force mains shall maintain a positive slope towards the discharge (avoiding high points). If there is an extraordinary need for a high point due to unavoidable constraints, then a high point with a sewage valve can be introduced. Sewage air valves shall be per EMWD's Approved material List. If available, sewage air valves shall be designed to discharge to existing/proposed sewer manholes.
26. Install locator wire over sewer force main per EMWD STD. B-656.
27. Install non-metallic identification tape 12-inches above the sewer force main. Identify sewer force main laterals with identification tape that visibly extends to the above grade appurtenance. Secure identification tape every 10 feet to the top of the pipe.
28. Joint restrainers shall be used on all mainline (sewer force main) pipe joints within specified limits and all joints on water appurtenance laterals off mainline, per EMWD STD. B-663. A joint restrain device shall be used on all mainline pipe joints within specified limits per STD. DWG. B-663.
29. Force main shall be Type C-900, DR18 Green, except where noted, otherwise pipe shall conform to AWWA specification. Force main shall be C-900, DR 18 pipe unless otherwise approved by the District. Pipe shall conform to AWWA specifications.
30. Fittings for PVC pipe shall be ductile gray iron. Fittings shall be flanged, bolted mechanical joints, or push on joints, and shall be cement mortar lined and tar (seal) coated per EMWD Standards and Specifications.
31. The contractor is advised that the work on this project may involve working in a confined air space. Contractor shall be responsible for "confined air space" Article 108, Title 8, California Administrative Code.
32. Manholes within 4000 feet of the force main discharge shall be Sauereisen coated. The manhole at the force main discharge shall be a polymer concrete manhole.
33. List other specific requirements as appropriate.

Recycled Water Notes:

34. Recycled water pipeline and appurtenant construction shall be in accordance with EMWD standards and specifications and Division of Drinking Water (DDW). Minimum recycled water pipeline diameter shall be 8" within offsite streets and 6" within dead end tracts (upon EMWD approval).
35. Prior to construction of pipeline, contractor shall expose existing recycled water system and verify its existing elevation and location.
36. Where sewer and potable water pipelines have been constructed by agencies other than EMWD, contractor shall verify sewer and water lateral locations prior to excavation for recycled water pipeline. In the event water laterals are found to be at a depth greater than in accordance with EMWD water standards, recycled water pipeline contractor shall adjust recycled water pipeline depth as directed by the Engineer to cross under the water lateral.
37. All service connections shall be 2-inch in diameter or greater, unless otherwise noted, and shall be located as shown on the plans and adjusted as necessary to miss driveways. Irrigation services will be installed in accordance with Std. Dwg. PB-10A or PB-1.
38. Fire hydrants assemblies or hose bib connections are **NOT** allowed on a recycled water system.
39. Install locator wire over recycled water main per Std. Dwg. B-656.
40. Recycled water valve cap shall have triangular shape insert and shall be constructed in accordance with Std. Dwg. B-668.
41. A minimum 4-ft. separation horizontal clearance (outside pipe to outside pipe) is required between potable and recycled water pipelines.
42. A minimum 1-ft. vertical clearance is required between proposed recycled water pipeline and crossing existing or proposed utilities or services, unless otherwise approved by EMWD engineer.
43. All recycled water appurtenances shall have a minimum separation of 4 ft. from potable water fire hydrants, blow-offs, air valves, and services.
44. Recycled water system profile elevations are to centerline (center grade) of pipe.
45. The contractor shall be responsible for paying any and all fines by the Regional Water Quality Control Board for any unpermitted recycled water discharges associated with the contractor's operations. The contractor shall immediately notify the inspector of any unpermitted discharges.

46. Air valve assemblies shall be installed in accordance with Std. Dwg. B-367 & B-598 (Select appropriate Type “A”, “B”, “C” or “D”).
47. Recycled Water system profile elevations are to centerline (center grade) of pipe.
48. Approved Double check Backflow Prevention Device per standard drawings B-966, B-967, & B-968 is required when private recycled water irrigation system has any form of chemical injection.
49. Permanent and temporary blow-offs shall be installed in accordance with Std. Dwg. PB-18.
50. Contractor shall coordinate recycled water system shutdowns with EMWD Operations Department (through the construction inspector) at a minimum 10 days prior to the actual work. In addition, a second notice at 48 hours shall be given to confirm that work will take place as scheduled.

JJ. ADD FOR WATER & RECYCLED WATER SYSTEMS:

1. Add for CML&C Pipe Systems:
 - a. Blow-off Assemblies shall be installed in accordance with Std. Dwg. B-351.
 - b. Temporary Blow-off Assemblies shall be installed in accordance with Std. Dwg. B-561.
 - c. Fire hydrant Assemblies shall be installed in accordance with Std. Dwgs. (Select appropriate standard drawing)
 - B-356 (6" x 1 - 2 ½" x 1 - 4")
 - B-516 (6" x 2 - 2 ½" x 1 - 4")
 - d. All steel cylinder pipes shall be bonded at rubber gasket joints in accordance with Std. Dwg. B-638.
 - e. All designated pipeline welds shall be full weld double passes at each pipe joint within designated weld length limits.
 - f. Shop drawings for CML&C shall be submitted and approved by EMWD prior to fabrication.
 - g. All CML&C Steel pipe shall be Class 150 except where noted otherwise. Pipe shall conform to AWWA specifications.
 - h. Steel flanged bends (6-inch to 12-inch diameter) conforming to AWWA standards C207 and C208, shall be used for instances where there are no regulatory constraints/separation requirements. Fabricated bends shall be used for all other conditions.
 - i. Add appropriate notes for corrosion protection per corrosion report. Galvanic anode cathodic protection systems shall be designed for a minimum of 40 years.

2. Add for PVC Pipe Systems:

- a. Fire Hydrant Assemblies shall be installed in accordance with Std. Dwg's. (Select appropriate standards)
B-362 (6" x 1 - 2 ½" x 1 - 4")
B-517 (6" x 2 - 2 ½" x 1 - 4")
- b. Blow-off Assemblies shall be installed in accordance with Std. Dwg. B-357.
- c. Temporary Blow-off Assemblies shall be installed in accordance with Std. Dwg. B-568.
- d. All PVC pipe through 12-inch shall be type C-900, DR 18, except where noted otherwise. Pipe shall conform to AWWA specifications. All PVC pipe 18-inch and larger should be C-905, DR 18. PVC pipe shall be colored purple as manufactured.
- e. Fittings for PVC pipe shall be Ductile or Gray iron. Fittings shall be flanged, bolted mechanical joints, or push-on joints, and shall be cement mortar lined and tar (seal) coated per EMWD standards and specifications.
- f. All ductile or gray iron fittings shall be polyethylene encased at the time of installation in accordance with ANSI/AWWA C105 and EMWD standards and specifications.
- g. A Joint Restraint Device shall be used on all main line pipe joints within specified limits and all joints or water appurtenance laterals off main line, per EMWD Std. Dwg. B-663.
- h. Add appropriate notes for corrosion protection (for metal fittings and copper services) per corrosion report.

3. Add for Ductile Iron Pipe Systems:

- a. Ductile iron pipe shall be tar (seal) coated [for underground installations] or painted per EMWD specifications [for above grade installations], and cement mortar lined with bolted mechanical or push-on joints.
- b. Fittings for PVC pipe shall be Ductile or Gray iron. Fittings shall be flanged, bolted mechanical joints, or push-on joints, and shall be cement mortar lined and tar (seal) coated per EMWD standards and specifications.
- c. All ductile or gray iron fittings shall be polyethylene encased at the time of installation in accordance with ANSI/AWWA C105 and EMWD standards and specifications.
- d. Joint Restraint Devices shall be used on all main line pipe joints within specified limits and all joints of water appurtenance laterals off main line, per EMWD standards and specifications.
- e. Add appropriate notes for corrosion protection per corrosion report.

4. Add for AC Pipe:

- a. SURVEY/TESTING
 - i. Prior to any construction project that involves disturbing or demolishing materials that may potentially contain asbestos, a survey with bulk sampling must be performed by a CAC (Certified Asbestos Consultant).

- ii. For ACP (asbestos cement pipe) a CAC must provide a survey of the pipe condition (friable vs. non-friable). Bulk sampling is not required in accordance with Rule 1403, Exemption (j)(3) “Subparagraph (d)(1)(A)(v),(vi), and (vii) and subclause (d)(1)(B)(iii)(VI) shall not apply to the owner or operator of any renovation or demolition activity, when the suspected material is removed, stripped, collected, and handled as ACM and disposed of in accordance with the provisions of this rule.” A District representative must inform the CAC that the ACP is to be presumed asbestos containing and samples are not required.
- iii. Once received, a copy of bulk sampling test results, asbestos surveys, SCAQMD notifications, and asbestos disposal manifests must be provided to the Safety, Risk and Emergency Management department.
- iv. The test results will be used to determine the Asbestos Work class and how the work is to be performed.
- v. When the project requires stripping, removal or demolishing of 100 sq. ft. or more of ACM, notification of Asbestos work shall be submitted to the SCAQMD. This notification will require the Survey from the CAC, proof of notification to SCAQMD via the Rule 1403 web portal. Notification shall be submitted at least 10 working days before commencing the ACM (Asbestos Containing Material) work. Procedure approvals must also occur before commencing the work. For additional information please consult the District’s Environmental and Regulatory Compliance department and/or Safety Risk and Emergency Management.

b. INSTRUCTIONS

- i. Warning Labels: Labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers. The warning labels shall have the following wording:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

- ii. ONLY CERTIFIED ASBESTOS ABATEMENT WORKERS MAY PERFORM CLASS I AND CLASS II ASBESTOS WORK.

c. ASBESTOS ABATEMENT

- i. All asbestos surveys must be according to AHERA protocol, and all inspectors must be Certified as a Certified Asbestos Consultant (CAC) or a Certified Site Surveillance Technician (SST).
- ii. If the work involves stripping, removing, or demolition of 100 sq. ft. or more of ACM, arrange for a Licensed Asbestos Abatement Contractor.

- iii. Note: All ACM, if present, shall be removed by a licensed abatement contractor prior to proceeding with any building demolition.

d. CLASS II ASBESTOS WORK

- i. Activities involving the removal of ACM which is not TSI (Thermal System Insulation) or surfacing material. This includes, but is not limited to, removal of asbestos-containing wallboard, floor tile and sheeting, roofing, and siding shingles, construction mastics, and Asbestos Cement Pipe (ACP).
- ii. EMWD employees are only authorized to work with Asbestos Cement Pipe (AC pipe or ACP), all other Class II work must be performed by a licensed asbestos abatement contractor.

e. DISPOSAL OF ASBESTOS WASTE

- i. Once the asbestos waste material is removed it must be thoroughly wetted, then properly packaged. Asbestos waste must be double bagged or double wrapped in 6-mil polyethylene. The polyethylene must be air-tight and puncture resistant and must be properly labeled.

DANGER

CONTAINS ASBESTOS FIBERS

MAY CAUSE CANCER

CAUSES DAMAGE TO LUNGS

DO NOT BREATHE DUST

- ii. Bagged and labeled asbestos waste material shall be stockpiled at the Operations and Maintenance center for disposal. Contractor shall contact an appropriate waste hauling company to transport waste to an approved landfill. Each load of asbestos waste must have a record (manifest) which shall be provided to SREM.

AVOID CREATING DUST

f. CONTRACTORS shall:

- i. Be a licensed and registered asbestos abatement contractor and have the appropriate AHERA training for the work being performed. All work shall meet the requirements of AHERA, NESHAP, EPA (SCAQMD rule 1403) and CAL/OSHA.

5. Add for Potable Sampling Station:

Potable sampling station (PSS) shall be installed in accordance with STD. DWG. B-935.

KK. ADD FOR SEWER SYSTEMS:

1. Add for Pedestrian Safety:

Where pedestrians will be walking on manhole covers, all manhole covers shall be GMI Composite Cover Attributes – 2600 Series (Titus Industrial Group, Inc., Phone No. 541-389-1975 or 541-948-4458, or approved equal.

2. Add for Odor Control:

Manholes with new force main discharge shall be fitted with a manhole odor eliminator system (MOE™). This is a cover filter system designed to remove odors from vented manholes.

3. Add for Manhole Lining (Corrosion Protection):

As noted per plans, manholes shall be coated in the interior (shaft, channel, and shelves) with a 100% solid epoxy polymer. Minimum total dry thickness of coating system shall be 125 mils.

- a. Saureisen SewerGard Glaze No. 210GL. Surface preparation including Saureisen Underlayment No. F-120 or No. 209 Filler Compound, abrasive blasting, mixing application, and curing shall be as recommended by manufacturer.
- b. Raven 400 lining system. Surface preparation, abrasive blasting, mixing application, and curing shall be as recommended by manufacturer. Minimum total dry thickness of coating system shall be 125 mils.

4. Add for Groundwater Waterproofing:

Where groundwater is encountered, all VCP pipe shall be treated for absorption resistance per EMWD's specifications. In addition, manholes shall be coated in the exterior with Barricoat-R (Carlisle Coatings & Waterproofing); Phone No. 800-527-7092, or with Mel-Rol-LM (W.R. Meadows); Phone No. 541-389-1975, or approved equal. Where groundwater infiltration persists, use Sauresein Instaplug F-180, Hydroactive Polyurethane Grout F-370, and Sewerseal F-170.

5. Add for Proposed Sewers Joining Existing Manholes:

Requirements to remove existing sewer manhole stub and join with new sewer. Remove existing sewer stub, install Sika Hydrophilic Leakmaster WaterStop, and seal opening with SikaTop 122 PLUS mortar. Join new sewer by coring manhole base (core sized to accommodate water stops). Install Sika Hydrotite Waterstops both on the pipe and the outside diameter of the cutout. Fill the annulus space with non-shrink grout per EMWD standard detail provision section 03300. Coat outer affected surface areas of manhole with Carlisle "Barricoat-R" Phone No. 800-527-7092 or W.R. Meadows "Mel-Rol-LM" Phone No. 800-342-5976. Rechannel manhole bottom.

6. Add for Temporary Sewer Bypass Systems:

- a. Temporary Sewer Bypass System – Where sewer conveyance facilities must be removed from service to allow modifications and connections to existing facilities,

which will require bypass of sewage flows. Conveyance of sewage shall not be interrupted by project construction. The Contractor shall be responsible for necessary bypassing of the existing gravity sewers.

- xv. Contractor shall have adequate bypass facilities, including pumping units (duty and backup), electric generators (if electric motor driven pumps are provided), suction and discharge piping, valves, and repair fittings to convey sewage without leakage.
- xvi. Contractor shall locate bypass facilities out of the traveled way. If discharge piping is located in areas subjected to traffic, Contractor shall install discharge piping below ground with sufficient cover to protect the discharge piping in place.
- xvii. A minimum of 15 calendar days prior to installing any bypass system and prior to beginning any sewer connections work, Contractor shall submit to EMWD the following for approval:
 - Proposed schedule, including installation of bypass system, bypass system testing, sewer construction, and bypass system removal.
 - A detailed written plan for bypassing the existing gravity sewer. Plan shall include layout drawing of temporary equipment and piping, manufacturer's data for major system components (data shall provide equipment performance capabilities and power requirements), backup pumping and power equipment, and method of operation and control. Plan shall also include a system head curve for bypass pump and temporary piping, along with supporting data and calculations.
- xviii. Temporary bypass pumping equipment shall be suitable to pump raw sewage and shall be capable of running dry. Pumping equipment may be engine driven or electric motor driven. Electric motor driven pumping units shall be provided with portable electric power generators. Portable electric power generators shall be sized to start and continuously operate connected pumping units. Contractor shall provide backup pumping equipment sized to pump 100% of the specified sewage flow. Backup pump(s) shall be installed and connected to temporary piping system. Backup pump(s) shall automatically start and operate upon failure of duty pump(s). Backup pumping units that are electric motor driven shall be provided with a backup portable electric power generator.
- xix. Temporary bypass pumping equipment and backup pumping equipment shall be sized to handle peak flow. Contractor shall assign competent personnel to operate the bypass pumping equipment during all bypass operations (24 hours per day). Reliable operation of bypass facilities for a minimum of 24 hours shall be demonstrated prior to removal of the existing gravity sewers from service (refer hereafter as "functional test"). During the 24-hour functional test, the emergency back-up system shall be activated a minimum of two (2) cycles to check the reliability, including capacity and controls. The Contractor shall be solely responsible for operation of the bypass facilities until such time as the new sewers are in operation and said sewers are acceptable to the District.

Contractor shall be responsible for and pay all costs for any sewage spills which result from his construction activities, including subsequent cleanup, fines, and damage due to backup into dwellings and/or businesses.

LL. ADD FOR WATER, SEWER, AND RECYCLED WATER SYSTEMS:

1. Add for Steel Casings with Blown Sand:

(Job site air quality management will adhere to Cal OSHA regulations and EMWD's Respirable Crystalline Silica: Exposure Control Plan.)

- a. Use air-blown sand to fill the annular space between the casing and the carrier pipe unless otherwise required by the agency having jurisdiction over the road or railroad crossing.
- b. Furnish the necessary sand, air compressor, hoses, pressure gauges, valves, and fittings for the filling operation.
- c. Air blown sand shall conform with the following universal standard ASTM C33:

<u>Sieve Size</u>	<u>% Passing</u>
3/8-in.	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	5 to 30
No. 100	0 to 10

- d. The fine aggregate shall not pass 45% from a single sieve and retained on the next consecutive sieve as shown in the above table. The fineness modulus of the fine aggregate shall be not less than 2.3 and more than 3.1. The fineness modulus shall not vary more than 0.20.
- e. Certification that the sand meets this requirement shall be provided. Sand shall be free of lumps when put into the hopper. Sand shall be of a consistency to flow unimpeded and completely fill all voids.
- f. Place a bulkhead for retaining the sand in the annular space between the casing and the carrier pipe at each end of the jacked casing. At the start of the sand fill operation, extend the sand discharge pipe from the placing equipment, through the inside of the casing, and to the bulkhead at the remote end of the casing. The method used to place the sand shall be such to ensure complete filling of the annular space. During placement, position the sand discharge pipe so that its discharge end shall be kept well buried in the sand at all times after the sand has been built up over the crown of the pipe at the remote end of the section being filled. Install a riser pipe suitable for a vent in the casing adjacent to the bulkhead at the near end of the casing. Plug the vent pipe with grout upon completion of sand filling.
- g. Job site air quality management will adhere to Cal OSHA regulations and EMWD's Respirable Crystalline Silica: Exposure Control Plan.

MM. Certifications

1. Water Certification

I certify that the design of the water system is in accordance with the water system expansion plans of the Eastern Municipal Water District, and that the water service, storage and distribution system will be adequate to provide water. This certification does not constitute a guarantee that it will supply water at any specific quantities, flows or pressure for fire protection or any other purpose.

EASTERN MUNICIPAL WATER DISTRICT

By: _____

Principal Engineer of Development Services

Date:

2. Sewer Certification

I certify that the design of the sewer system is in accordance with the Eastern Municipal Water District’s Sewer System Master Plan, and the District has programmed adequate capacity to treat wastes from the proposed tract.

EASTERN MUNICIPAL WATER DISTRICT

By: _____

Engineer of Development Services

Date:

3. Recycled Water Certification

I certify that the design of the recycled water system is in accordance with the recycled water system expansion plans of the Eastern Municipal Water District, and that the recycled water service, storage and distribution system will be adequate to provide recycled water. This certification does not constitute a guarantee that it will supply recycled water at any specific quantities, flows or pressure.

EASTERN MUNICIPAL WATER DISTRICT

By: _____

Engineer of Development Services

Date:

NN. Time Limitations

The time limit on drawing(s) approval shall be six (6) months from the date on the certification. If construction has not commenced within stated time, EMWD requires drawing(s) to be reviewed by the Developer/Design Engineer and resubmitted to EMWD for possible changes in Master Planned sizing and changes in specifications and standards.

OO. Engineer’s Declaration of Responsible Charge

I hereby declare that I am the engineer of work for this project, that I have exercised responsible charge over design of this project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with current standards.

I understand that the check of project drawings and specifications by Eastern Municipal Water District is confined to a review only and does not relieve me, as Engineer of Work, of my responsibilities for project design.

Name

P.E. #

Date

PP. Frequently Asked Questions

1. What is the typical turn-around time for plan checks?
 - a. The typical turn-around time is 3 weeks or 21 calendar days.
2. How many plan checks will it take to have approved drawings?
 - a. It will depend on how well comments are addressed by the design engineer. Typically, it will take a minimum of three plan checks.
3. What should I do if I have a question about a plan check comment, or it is not possible to follow the guidelines or standard drawings?
 - a. Please call or email the plan checker in charge, or as part of your next submittal submit redline comments with a question in green next to the redline comment.
4. Can I propose the installation of a valve within a gutter, cross-gutter, ditch, swale, channel, or water quality basin?

- a. No, valves will need to be placed in areas where water will not typically enter the trench through the valve can.
5. Can I use 11.25°, 22.5°, or 90° bends?
 - a. In general, EMWD's preference is to use 45° bends whenever possible. A combination of bends can be used in street knuckles or other locations where a single 45° bend is not sufficient.
 6. Can I place water meters or sewer cleanouts in driveways?
 - a. In general, water meters and cleanouts should be placed outside of sidewalks, driveways, and other concreted areas. Exceptions may be granted for the placement of sewer cleanouts in driveways at street knuckles, where lot frontage is limited. Please contact plan checker for coordination with EMWD sewer maintenance staff.
 7. What is considered a conflict?
 - a. There are direct and indirect conflicts. The direct conflicts physically affect the installation of existing or proposed water, sewer, and recycled water facilities. The indirect conflicts affect access to conduct future repairs of existing or proposed facilities. The District's plan checker will determine adequate access requirements as part of the plan check process.
 8. What is the plan check deposit required for a single SK drawing?
 - a. The deposit requirements are based on the number of sheets and number of easements required. Please refer to the Plan of Service & Plan Check Deposit Worksheet (NBD-053) in the following link: <https://www.emwd.org/forms-new-development-process>
 9. Can I install an 8-inch sewer lateral if sewer flows don't justify the larger size in order to avoid a shallow connection at the property line?
 - a. Sewer laterals cannot be enlarged to accommodate a deeper connection elevation at the property line.
 10. Can I use the finished floor elevation rather than the pad elevation to determine the need for a sewer backwater valve?
 - a. At the point of a spill there would be a slight pressurization of the gravity system (while sewage is discharged through the manhole cover), which would allow for the rise of the water level above the manhole rim elevation at residential lots. There is a safety factor involved in using the pad elevation to determine the need for a sewer backwater valve. The finished floor elevation shall not be used to make this determination.

11. Why does the sewer need to be 6 feet from the street centerline?
 - a. The sewer needs to be centered in the number one lane. On streets without painted or raised medians, the 6 feet offset from the centerline will typically center the sewer on the traffic traveled path and therefore will avoid tires tracking over the manhole covers. On streets with painted medians, the sewer will need to be centered on the number one lane, therefore the offset from the centerline will be greater than 6 feet.
12. Can I include private improvements within the water, sewer, and recycled water plans?
 - a. Yes, but please show these improvements screened back and without hatching.
13. Can I overlap text with linework?
 - a. Please avoid overlapping text and linework in all instances.
14. What is the maximum number of services on a manifold?
 - a. The maximum number of services beyond the principal lateral is five (5). Refer to the [Manifold Standard Detail](#) and [SK Example Water Service Manifold](#) for design details.
15. When do I include a meter with an existing or proposed water service?
 - a. Only show water meters on residential water services, for all other instances (residential club house water services, residential master water services, commercial water services, industrial water services, potable/recycled water landscape services) meters shall not be included. Meters will be installed in those instances once facilities have been accepted by the District, an Application for Service has been processed, and fees have been paid.
16. When is a valve needed for a water service?
 - a. A valve is needed at the connection point with the water main when the water service is 4 inches or larger per standard drawing B-993, or when the water main is 16-inches or larger per standard drawing B-658.
17. When is a recycled water pipeline required to be 1 foot deeper than the typical potable water pipeline?
 - a. A recycled water pipeline needs to be 1 foot deeper than the bottom of a potable water pipeline when potable/recycled water services will be crossing the potable/recycled water mains as part of the proposed improvements or in the future through potential development.
18. Does EMWD allow overlapping easements?
 - a. Overlapping easements may be allowed under special circumstances. EMWD's Real Property group will make that determination during its review of the easement documents.

19. Why do we specify the water material, but not the sewer material?
 - a. EMWD does not have a preference between the use of VCP or PVC pipe materials for sewer, therefore it is not specified in the sewer improvement plans. VCP is only required when: serving industrial developments, on curved alignments when greater than 12-inches in diameter, and for sizes larger than 15-inches in diameter.

20. Do I show driveways in water, sewer, and recycled water improvement plans?
 - a. Yes, please show driveways to determine possible conflicts with water/recycled water services and sewer laterals.

21. What happens after we receive approved plans/signed mylars?
 - a. After you receive signed plans from EMWD, you must enter into a standard construction facilities agreement with EMWD to build public facilities. Prior to receiving EMWD service, you must pay all applicable project and financial participation connection fees. This is coordinated in the agreement and post-construction phases with the DS Coordination group.

Section 5. Plan Check – Recycled Water Landscape Irrigation Guideline**A. Introduction & Purpose**

Eastern Municipal Water District (EMWD or District) is a full service agency providing water, wastewater and recycled water services to a 555-square mile service area from Moreno Valley southward along the I-215 corridor to Temecula and eastward to Hemet and San Jacinto. EMWD service area encompasses seven cities and unincorporated Riverside County and has a population of 795,000 residents.

In order to help continue providing sustainable and reliable water supplies to its customers, EMWD is committed to maximizing the beneficial use of recycled water for common area landscape.

This document along with the entire EMWD Recycled Water Landscape Guideline Toolbox (Toolbox – See Section 8 of this document for the Toolbox’s contents) are intended to support land use agencies, park districts, school districts, developers, engineers, landscape architects, and contractors in the safe, cost effective, and sustainable planning, design, construction, and management of landscape systems utilizing recycled water.

NOTE: THIS DOCUMENT IS A GENERAL OVERVIEW OF THE RECYCLED WATER. SEE “CAD STANDARD GUIDELINE” FOR MOST CURRENT DESIGN REQUIREMENTS

1. Regulations and Ordinances

- a. All public and onsite recycled water facilities and use shall be consistent with and adhere to the requirements described in:
- b. Eastern Municipal Water District Administrative Code
- c. Ordinance No. 859, Ordinance of the County of Riverside, Establishing Water Efficient Landscape Requirements
- d. All applicable Federal, State, or Local statutes, regulations, ordinances , and policies

2. Recycled Water Landscape Program

- a. Recycled water is a safe, reliable, and sustainable source of supply.
- b. EMWD’s regulatory responsibilities necessitate the oversight of “post meter” landscape irrigation systems. EMWD’s Recycled Water Landscape Program addresses the planning, design, construction, and management of recycled water landscape irrigation in accordance with regulatory requirements while achieving maximum beneficial use.
- c. EMWD’s Recycled Water Landscape Program main objectives are regulatory compliance and data acquisition.
- d. EMWD has provided numerous resources intended to aid engineers, landscape architects, and irrigation designers in file management, drafting, and formatting standards set by EMWD and the Division of Drinking Water’s (DDW) Title 22 California Code of Regulations. The personnel involved in drafting and preparing

any recycled water plans and exhibits shall be responsible for complying with the practices outlined in the Toolbox for their respective projects.

- e. For a complete list of the contents included in the Toolbox, see Section 8 in this document.

3. Professional requirements

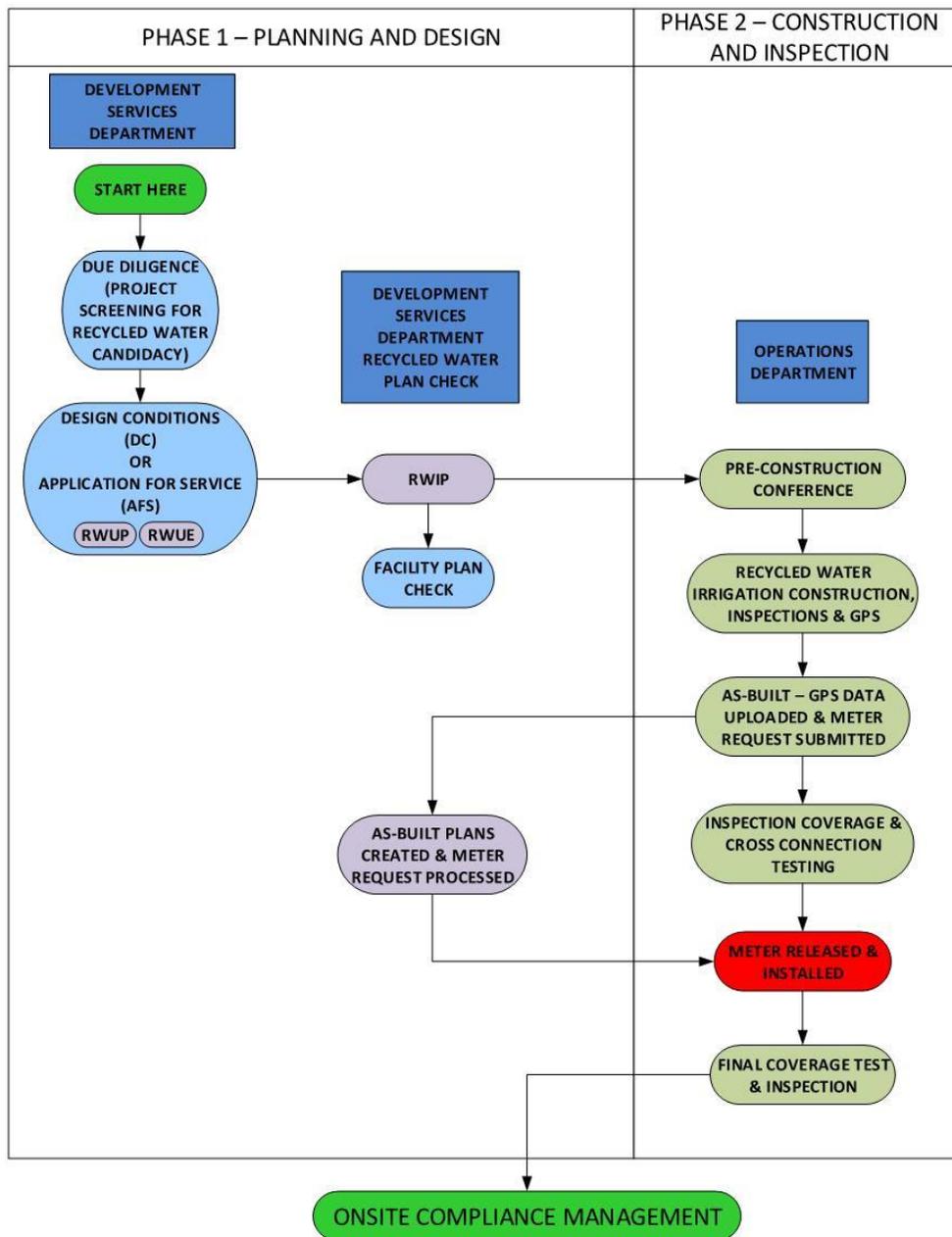
PLAN TYPE	PROFESSIONAL LICENSE REQUIRED	
	CIVIL ENGINEER	LANDSCAPE ARCHITECT
RWUP	YES	YES
RWUE	YES	YES
RWIP		YES

Where both are noted it can be either or.

4. Contact Information

Eastern Municipal Water District
 ATTN: Development Services/Recycled Water Plan Check
 2270 Trumble Road
 P.O. Box 8300
 Perris, California 92572-8300
 Phone: 951.928.3777
 800.426.3693
 Fax: 951.928.6177
 Web: www.emwd.org
 E-mail: [!RWIrrigationPlanChk@emwd.org](mailto:RWIrrigationPlanChk@emwd.org)
 Contact: Development Services/Recycled Water Plan Check

B. Recycled Water Irrigation Plan Overview & Methodology



1. Regulatory Review

- a. Projects requiring a DDW submittal shall be presented to DDW by EMWD. DDW submittal requirements shall be determined by EMWD.
- i. Project sites that shall require a submittal to DDW include but are not limited to the following:
 - Hospitals
 - Schools
 - Project sites deemed to have complex plumbing or contain conditions considered to be high risk by EMWD's ERC Department
 - Retrofit projects

2. Phase 1 – Planning, Design and Acceptance

- a. Planning Documents
 - i. Recycled Water Use Plan (RWUP)
 - The RWUP is a study of recycled water landscape use and the potential effects on future sites that are applying to use recycled water. Multiple and/or phased tracts, parcels, or projects can make up a Study Area (Study Area). The RWUP shall be used for facility planning, facility requirements, pipe alignment, sizing, source of supply information, which may be used for cost participation, land use zones, gross project and Study Area acreage, irrigation total and peak demands, recycled water use restrictions, as well as project phasing.
 - EMWD shall determine when a submittal of an RWUP is required.
 - ii. Recycled Water Use Exhibit (RWUE)
 - The RWUE graphically identifies project elements including:
 - Phasing boundaries (polygon)
 - Parcel boundaries (polygon)
 - Project site area boundaries (polygon)
 - Parcel/ownership boundaries (polygon)
 - Irrigated area and boundaries per POC (polygon)
 - Existing and proposed potable water/recycled water facility sizing and alignment (public and private). This includes including private fire systems
 - Sleeving size, location, and quantity
 - Irrigation demand data
 - Meter size and location

- Potable and recycled water use area delineation of facilities/use areas
- Source of irrigation water
- Maintenance entity(s)

The RWUE determines the maximum allowable recycled water annual and peak demand for each parcel/property within the Study Area. Therefore, the submittal of RWIPs within a RWUE Study Area shall not exceed the recycled water demand allotment calculated at the RWUE level.

- EMWD shall determine when a submittal of an RWUE is required.

iii. Recycled Water Irrigation Plan (RWIP)

- The RWIP is the irrigation construction plan for a specific project site area at a minimum, the plan graphically identifies:
 - Project site area boundaries (polygon)
 - Parcel boundaries (polygon)
 - Phasing boundaries (polygon)
 - Existing and proposed potable water/recycled water facility sizing and alignment (private). This includes fire systems
 - Meter size and location
 - Sleeving size, location, and quantity
 - Point of connection (POC) equipment
 - Potable water use areas by meter and valve (polygon)
 - Recycled water irrigation use areas by meter (polygon)
 - Recycled water irrigation use areas by valve (polygon)
 - Potable and recycled water use area delineation
 - Mainline size and location
 - Irrigation system components
 - Potable and recycled water line separation
 - Irrigation demand data by meter and valve
 - Identification of any areas that are restrictive/sensitive to the use of recycled water
- The RWIP provides irrigation specifications allowing EMWD to achieve regulatory compliance through inspections, on-going use site management, and use site data acquisition.

- b. Recycled Water Irrigation As-Built Plan (RWAB)
 - i. The Recycled Water Irrigation As-Built (As-built) is the As-Constructed condition of the recycled water irrigation system for the project site. EMWD's recycled water irrigation inspector (Inspector) shall GPS the onsite facilities (potable, fire, raw, well, and recycled water) during construction.
- c. As-built requirements shall be complete prior to meter release.

3. Plan Check Requirements

- a. Minimum Submittal Requirements for RWUP, RWUE, & RWIP
 - i. One (1) Hardcopy and a printable PDF (color documents for RWUP and RWUE), or as directed by the plan checker. PDF documents shall be created from the CADD files; no scanned PDF documents shall be accepted.
 - ii. AutoCAD files per EMWD's CAD Standard Guideline
 - iii. Excel file of the Summary Table
 - iv. Project Conditions of Approval from the City, County, or governing agency for the project. If the Conditions of Approval change, EMWD shall be notified and provided with the most current Conditions of Approval. Additional documents that may be required include easements, deeded lots, lot mergers, CCR's, etc. (Failure to provide updated documents may result in delays)
 - v. Private potable water plumbing plan
 - vi. Maintenance entity approval of the RWUE and/or RWIP
- b. Environmental Restriction Document(s)
 - i. The person or entity applying to receive recycled water on a certain site (Applicant) shall provide documentation from the entity responsible for governing the environmental requirements of any and all restrictions for a site. This may include but is not limited to the following: environmentally sensitive waterways, blue line streams, basins, bio-swales, storm water management, mitigation, habitat area conditions, etc.
- c. RWAB Minimum Submittal Documents
 - i. The As-built controller chart(s) from the contractor shall be submitted to the Inspector.
- d. Plan Check and Delivery Process of the RWUP, RWUE and RWIP is as follows:
 - i. First Plan Check Submittal
 - Once the EMWD Plan Checker (Plan Checker) receives the submittal documents/files and he/she performs an electronic plan check and CAD file review.
 - The Plan Checker shall provide comments back as a PDF file to the developer, engineer, and landscape architect.

ii. Subsequent Plan Check Submittal

- The Applicant shall re-submit the revised plans, electronic files, and any additional requested documents.
- Specific re-submittal directions shall be included, if required, in the plan check comments. Digital files can be uploaded or downloaded from the Districts Send Safely site. The Plan Checker shall provide further instructions on how to access the EMWD Send Safely site.
- Once all comments have been incorporated, EMWD shall notify the Applicant of the accepted document(s) and shall request one (1) set of bonds wet signed by the licensed professional(s).

iii. Time Limitations

- The time limit on plan check processing shall be six (6) months from the date of the last return of plan check comments or request for information.
- After six (6) months of inactivity, a response Letter of Notification shall be sent to the Applicant requesting a status or submittal.
- If there is no response to the notification, the project shall be considered “Idle” and shall be placed on hold.
- Once the project is placed on hold, an EMWD representative shall forward a letter of intent to the Applicant for information regarding the reason for the delay. Any project expected to be delayed for six (6) months or more shall automatically have the work order closed and final balance refunded or invoiced.
- Should the Applicant want to restart the project after a project is closed, the plan check shall begin at Project Intake phase.

e. Plan Acceptance Limitations

- i. The time limit on plan acceptance shall be six (6) months from the date the plan was signed. Any plan that has expired is subject to re-submittal. In addition, any plan that has expired is also subject to re-submittal of the RWUP and/or RWUE.

4. Phase 2 – Construction

- a. An EMWD Pre-Construction Conference is required prior to the start of Construction. A pre-construction conference is a meeting with the project's superintendent, landscape contractor, project owner, and EMWD. EMWD shall provide accepted RWIP drawings and EMWD's Best Management Practices booklet. Contractor shall provide copies of contractor license(s), material submittals, business cards, and construction schedule. Once all of the above requested items have been received

and approved by EMWD, the contractor receives a Notice to Proceed with construction of the recycled water irrigation system.

- b. Installation of the irrigation system shall be according to the accepted EMWD plans.
- c. EMWD shall conduct onsite inspections during the construction phase to ensure the installation is in accordance with the accepted irrigation plans, and all applicable governing agencies and regulations.
 - i. The recycled water irrigation system shall be inspected for, but not limited to the following:
 - Approved emission devices (rotors, spray, drip, bubbler, etc.)
 - Recycled water identification
 - Recycled water separation from all other sources of water
 - POC equipment
 - Irrigated area
 - Material
 - Installation depth
 - Valves
 - Sleeves
 - Mainline
 - Irrigation controller
 - Coverage tests
 - Backflow prevention
 - Cross connection inspection
 - All work performed without inspection shall be subject to rejection and removal.
 - EMWD reserves the right to access the site any time before, during, and after completion of construction to ensure regulatory compliance.
- d. Every project site shall be served from a Temporary Potable Water Construction T-meter during construction. The design of the irrigation system shall account for the potable water pressure operating the system while connected to the temporary potable water source.
- e. Request for Information (RFI)
 - i. RFIs shall be submitted at the direction of the Inspector. Any changes to the site or irrigation system shall receive approval from EMWD prior to the continuation of construction through the RFI process. All approved changes shall be documented through the RWIP update resubmittal, unless otherwise instructed by EMWD.

- ii. The Applicant submits the RFI form to the Inspector who shall review and forward to Plan Checker along with redlines of the revised sheet(s) and/or document package for review.
- iii. The Plan Checker provides comments and/or conditions and, if necessary, requests an updated plan for review and acceptance. Updates to the plans shall be conducted through a delta revision.

5. As-builts

- a. EMWD will as-built POC equipment, mainlines & sleeves, valves, irrigated areas of a set of plan using GPS data.
- b. If requested, EMWD can provide As-built CAD/GIS files of the recycled water irrigation system upon receipt/completion of the following.

6. Final Inspection, Site Acceptance and Meter Release

- a. A final inspection of the recycled water irrigation system shall be conducted by the Inspector with the landscape contractor. The inspection includes a minimum of the following: an irrigation coverage test, irrigation controller operation confirmation, receipt and acceptance of the irrigation controller charts (one complete set of laminated controller charts shall be provided to the District. Second copy of controller charts shall be placed in the controller cabinet), confirmation of identification signs, boxes, tags installation, and the cross connection shut down test.
- b. A cross connection shut down test shall be performed by EMWD prior to final approval and prior to recycled water delivery.
- c. For the meter release, the Inspector shall submit the As-built GPS data, controller charts, and Meter Release form.
 - i. The Applicant completes an Application for Service (AFS) and provides required fees. The Inspector schedules the meter installation with the project's landscape contractor, the meter is then installed, any final testing is completed, and the irrigation system is released.

7. Compliance Management

- a. EMWD performs annual site inspections of all recycled water use sites. EMWD may also conduct Cross Connection shut down testing. Testing frequency shall be determined by EMWD.
- b. It is the responsibility of the property owner/customer of the recycled water irrigation site to comply with the on-going management inspection correction reports, compliance regulations, record documentation requirements, and to follow EMWD's Best Management Practices.
- c. The property owner's/customer's Recycled Water Designated Site Supervisor (Supervisor) shall complete an EMWD approved Recycled Water Designated Supervisor Training course, provided by an EMWD approved trainer.

- d. A Supervisor shall be designated in writing. This individual shall be familiar with plumbing systems within the property, with the basic concepts of backflow/cross connection protection, the recycled purveyor's rules and regulations, and the specific requirements of a recycled water system. Said person is required to provide 24-hour contact information, complete EMWD approved site supervisor class, and renew the site supervisor certificate every five (5) years. Up to date contact information for the Supervisor shall be provided to EMWD.
- e. All site personnel shall be educated/reminded on a continuous basis of the presence of recycled water. Personnel shall be informed that recycled water is meant for irrigation purposes only and is not approved for drinking purposes, hand washing, cleaning of tools, washing down concrete, etc.
- f. Customer's failure to comply with any terms and conditions shall result in an enforcement action, which may include a fee or suspension and/or discontinuance of service.

C. Submittal Requirements

Refer to the individual sections (RWUP, RWUE, RWIP) for specific submittal requirements. You may find additional resources within the [CAD Toolbox](#).

D. Recycled Water Irrigation Design Requirements RWUP, RWUE, & RWIP

1. Planning

- a. It is the responsibility of the Applicant to ensure the civil engineer and the landscape architect collaborate and comply with specified requirements on the development of the public facility alignment, size, irrigation maximum, and peak demands for the Study Area. The demands and public facilities planned from the RWUP set the facility requirements and the limits of water demand for the RWUEs and RWIPs within the Study Area.
- b. The civil engineer shall be responsible for designing and providing verification of an infrastructure system that shall support the maximum and peak system demands for the Study Area. This includes the various water pressure conditions for the interim (during construction), temporary potable, and future recycled water source supply conditions so the irrigation system operates with optimum efficiency.
- c. It is the responsibility of the Applicant and the licensed professional(s) to coordinate and comply with requirements for all governing agencies within the Study Area to accommodate for all project conditions.

2. Design

- a. The RWUP determines the maximum allowable recycled water annual demand and peak demand for each parcel / property within the Study Area. Therefore, the total water demands of all RWUEs and RWIPs within a RWUP Study Area shall not exceed the recycled water demand allotment calculated at the RWUP level. The plan is comprised of the Site Plan (Civil CAD Base File), the Study Area boundaries, the parcels/properties within each Study Area, and the facilities (existing and proposed serving the Study Area).
- b. All recycled water public facilities, including the service lateral and meter shall be adjacent to the parcel it serves.
- c. Where conditions require recycled water public facilities installed and connected temporarily to potable water facilities, the location of the temporary intertie shall be identified on the RWUP, RWUEs, and RWIPs.
- d. Recycled water irrigation systems using chemical and/or fertilizer injection shall have a Double Check Backflow Device (DC) installed. Backflow devices that release water to the atmosphere are not allowed.

- e. Areas sensitive to recycled water uses shall be identified on all recycled water irrigation documents with the restrictions associated with the area indicated. Examples of areas sensitive to recycled water use include mitigation, habitat, potable wells, blue line streams, swimming pools, ponds, basins, drinking fountains, decorative fountains, playground equipment, outdoor eating, and sitting areas.
 - i. Special design considerations are associated with the irrigation design. Requirements shall vary depending on the intended use and level of sensitivity. Specific design criteria shall be provided by the Plan Checker once an RWUE/RWIP has been submitted.
 - f. The recycled irrigation water shall be contained to the recycled water use site. No discharging/flushing of recycled water into the storm/sewer systems are permitted.
 - g. The design and installation of irrigation equipment shall eliminate the occurrences of overspray, misting, run-off, and ponding.
 - h. The irrigation shall be designed to minimize peak system demands.
 - i. Designing to a 9-hour watering window
 - ii. The use of bubbler and/or drip irrigation is not limited to the water window restriction
 - i. All irrigation components shall operate in a manner, which does not allow for unauthorized and/or uncontrolled discharge, flushing, or release of recycled water. For example, internal check valve within irrigation spray heads are required
 - j. Irrigation valves on a mainline connected to a single meter shall be operated by an automatic irrigation controller
 - k. Recycled water irrigation shall be designed to operate within a 9-hour irrigation water window (9 PM - 6 AM) for spray and rotor equipment. Upon EMWD approval, drip and bubbler systems may be designed to operate within a 24-hour water window
3. Functional Turf
- a. Functional turf is defined as a turf area that serves as a surface for such purposes as playing a sport or gathering for group activities
 - b. Projects that include turf areas for aesthetic purposes shall not be approved

4. Irrigation Equipment and Materials

a. Irrigation Design

- i. Any equipment/materials required for a system will vary based on design. However, the following guidelines shall be followed.

b. POC Equipment and Sequence

- The equipment and sequence of the POC equipment shall accommodate the system operation and testing regulations. The POC equipment may vary depending upon the water meter type (i.e. temporary potable or recycled), water pressure conditions, use of chemigation or fertigation, etc.
- The recycled water POC equipment and sequence is the following: recycled water meter, isolation valve, recycled water quick coupler, backflow device (if necessary), strainer, booster pump (if necessary), pressure regulator (if necessary), master valve (normally closed), flow sensor, chemical and/or fertilizer injector (if necessary)
- The POC equipment sequence per meter shall include a ball valve and recycled water quick coupler located directly after the meter (and within 3' of the meter), as a testing station for the Inspector
- The irrigation mainline from the water meter to the flow sensor shall be brass piping (for 3" and smaller) or ductile iron/steel piping (for 4" and larger). Dissimilar metal piping requires dielectric coupling
- All equipment specified for use within a recycled water irrigation system shall use ethylene propylene diene monomer (EPDM) rubber components, i.e. valve seats, diaphragms, o-rings, etc.
- Refer to the POC Sequence Detail available in the Toolbox

c. Quick Coupler Valves

- i. Quick coupler valves shall be of a type approved for recycled water use, have acme threads, be of brass construction, and have a lockable purple cap
- ii. Quick coupler valves shall be installed with a recycled water ID tag below grade within a purple lockable valve box with a purple heat branded lid

d. Isolation Valves

- i. Isolation valves shall be installed below grade within a purple lockable valve box with a purple lid
- ii. Isolation valves shall include a purple recycled water identification handle, recycled water ID tag, and heat branded lid
- iii. Isolation valves shall be included for construction phasing purposes. Refer to the Stub Out Detail available in the Toolbox (The Stub Out Detail illustrates the irrigation mainline is proposed to be phased for construction purposes)

- iv. Isolation valves shall be included for building cross connection purposes. Refer to the Building Cross Connection Bypass Detail in the Toolbox.
- e. Backflow Devices (DC or RP)
 - i. A Double Check Backflow Device (DC) is required where a permanent or temporary recycled water meter serves an irrigation system containing any form of chemical injection. The DC shall be installed prior to the fertigation or chemigation component
 - ii. A Reduced Pressure Backflow Device (RP) is required where a permanent or temporary potable water source serves recycled or potable irrigation system
 - iii. Refer to EMWD's Engineering Standards, Specifications, and Drawings: Section 2 (Water Standard Drawings) and Section 8 (Recycled Water Standard Drawings)
 - iv. Where backflow prevention is required, the device shall be installed in a manner to restrict public access. EMWD recommends installation within a protected above grade enclosure
- f. Strainer
 - i. Strainer equipment is required and shall be at least the same nominal size as the irrigation mainline, installed in a manner to restrict public access, within a protected above grade enclosure, and identified as using recycled water
 - ii. Strainer equipment with an automatic flush shall be designed and operated to prevent uncontrolled run-off, ponding or discharge outside of the component to atmosphere. All discharge shall be contained within an EMWD approved sump
 - iii. Strainers shall be constructed of materials that shall not fail due to sun damage, corrosion, and are approved for use within the recycled water environment
 - iv. Strainers shall have the ability to flush the inlet side of the screen
 - v. Strainers shall be factory purple in color with a mesh screen size based on the irrigation system needs
- g. Booster Pump
 - i. A booster pump is recommended to optimize the operating pressure of the recycled water irrigation system
 - ii. Booster pumps shall be designed with a low flow/low pressure cut off switch
 - iii. Pressure relief valves shall be piped in a manner that does not release recycled water to atmosphere
 - iv. Booster pump equipment shall be installed in a manner to restrict public access, within a protected above grade, lockable enclosure and identified as using recycled water
- h. Pressure Regulator
 - v. A pressure regulator is recommended to optimize the operating pressure of the irrigation system. Sizing shall meet the design needs of the irrigation system

- vi. A pressure regulator shall be installed below grade within a purple lockable valve box with a purple lid
- i. Master Valve
 - i. A master valve shall be normally closed. A parallel master valve and flow sensor configuration is recommended for systems using both drip/bubbler and spray/rotor application methods within a single irrigation system. This will allow the controller to read the lowest flows, as well as the highest flows, minimizing the possibility of uncontrolled discharge due to equipment failure
 - ii. The master valve shall be installed in a manner to restrict public access, below grade within a purple lockable valve box with a purple lockable lid, heat branded with component identification, and marked with an ID tag
- j. Sensors
 - i. A flow sensor is required and shall be capable of monitoring the lowest and highest flow (in gpm) of the system, which may require a parallel flow sensor system. Refer to the Toolbox for example detail
 - ii. The flow sensor shall be installed in a manner to restrict public access, below grade within a purple valve box, with a purple lid, heat branded with component identification, and marked with an ID tag
 - iii. A wind sensor is mandatory to prevent over spray of recycled water irrigation during wind events
 - iv. A rain sensor is mandatory to prevent the recycled water irrigation system from operating during rain events
 - v. Moisture sensors shall be employed in basins to prevent ponding of recycled water in areas that are already saturated
- k. Automatic Irrigation Controllers
 - i. An automatic irrigation controller is required to have the capability to operate the normally closed master valve, flow sensor, booster pump, rain shut off device, moisture sensor, wind sensor, and all other system sensor components
 - ii. The irrigation controller shall be installed in a protected enclosure and marked with recycled water identification decals
 - iii. The irrigation controller shall be capable of turning off the irrigation system during any adverse weather event or irrigation component failure. The irrigation controller shall operate with a real-time evapotranspiration based monitoring system that includes all sensor devices
- l. Remote Control Valves
 - i. Remote control valves shall have a purple recycled water identification handle
 - ii. Remote control valves shall be of the type that does not automatically release recycled water to atmosphere

- iii. Remote control valves shall be installed with a recycled water ID tag below grade within a purple lockable valve box with a purple heat branded lid
- m. Drip Irrigation
 - i. The drip irrigation components shall include, but are not limited to the following: pressure regulator, filter, pipe/tubing, adapters, emission devices, etc. Each shall be installed in a manner to identify (purple in color) the use of recycled water, and restrict public access
 - ii. The drip irrigation flush valve or air release valve shall be of the type that does not automatically release recycled water to atmosphere. Refer to the Manual Flush Valve Detail available in the Toolbox for an example
 - iii. Irrigation Lateral Line Filters/Valve Strainers
 - iv. The irrigation filter and/or valve strainer shall not have a threaded outlet that can accommodate a hose connection
 - v. The irrigation filter and/or valve strainer shall be of the type that does not automatically release recycled water outside the component to atmosphere
 - vi. The filter and/or valve strainer shall be installed in a manner to restrict public access and shall be identified as using recycled water
- n. Irrigation Sleeves
 - i. Irrigation sleeves shall be purple, twice (2) the size of the diameter of the mainline pipe, and a minimum of DR-14 pipe type or EMWD approved equal
 - ii. EMWD recommends that all recycled irrigation pipe under hardscape, paving, etc., should be carried within an irrigation sleeve and shall be inspected by EMWD at the time of installation
 - iii. Refer to the EMWD Trench Detail available in the Toolbox
 - iv. On grade piping shall meet UVR resistance and recycled water identification requirements
- o. Emission Devices
 - i. All irrigation emission devices such as spray heads, rotors, bubblers, drip emitters, or drip assemblies shall be equipped with design features to eliminate recycled water overspray, mist, run-off, or low head drainage. Component features such as, low trajectory, memory arch, internal check valves, precision rotating nozzles, etc., shall be incorporated to meet the latest regulations and optimize the system operation
 - ii. All recycled water irrigation emission devices shall be permanently color coded or labeled as emitting recycled water

5. Recycled and Potable Water Separation Clearances

- a. All private onsite domestic and fire pipelines shall be designed and installed in a manner that minimizes crossings of recycled water irrigated areas and recycled water mainlines. All domestic and fire pipelines shall be installed under EMWD approved hardscape from the point of connection (meter, DCDA, RPDA, and/or RP) to the point the facility enters a building. An isolation/bypass tee assembly shall be installed where the potable water supply pipeline enters each building/structure. Refer to the Toolbox for Building Cross Connection Bypass detail
- b. The recycled water irrigation mainline shall meet the DDW's most current separation requirements:
 - i. Installed with a 4-foot minimum horizontal clearance from all potable, raw, and fire water pipelines
 - ii. Installed under all potable, raw, and fire water pipeline crossings with a minimum of one 1-foot vertical clearance
 - iii. Where proposed to be installed above the potable, raw, and fire water pipelines, recycled irrigation mainline shall be installed within a 20-foot continuous sleeve (PVC DR-14/CL-200 pipe minimum) with no connection joints. Sleeve shall extend a minimum of ten 10-feet from the center point of the crossing of the potable, raw, or fire water pipeline. 4-inch minimum vertical clearance shall be maintained from the bottom of the sleeve to the top of the adjacent potable, raw, and/or fire water pipeline
- c. Potable water services, appurtenances (air-vac, blow-off, meter boxes, etc.), potable water use areas, adjacent properties, adjacent maintenance entities, future installations, etc. shall be separated from the recycled water irrigation use area. The level of separation required is based upon the site condition. Examples of achieving the required separation include the following:
 - i. Sleeve the recycled water irrigation pipe to protect the potable water appurtenance at points of crossing
 - ii. Adjust or relocate the irrigation spray equipment to avoid overspray on or in the water potable appurtenance
 - iii. Install a concrete mow curb to define the separation of recycled water irrigation use area(s) per meter. Some conditions may require an additional geomembrane barrier to be installed vertically underneath the mow curb
 - iv. At a minimum, the installation of a mow curb and a 4-foot minimum offset between recycled water and potable water irrigation emitters shall be maintained when adjacent recycled and potable water irrigation systems are installed
- d. Additional Separation Requirements:
 - i. Maintain separation from adjacent properties and irrigation system(s) through the use of block walls, fencing, mow curbs, etc. Fencing and wall structures shall

be permanent and not have the ability of being easily disassembled (vinyl/wood split rail, etc.)

- ii. Recycled water irrigation shall not be established within 50 feet of wells, ponds, pools, etc. without EMWD and DDW approval
- iii. Recycled water quick coupler valves shall not be established within 50 feet of food preparation areas, outdoor eating areas, play equipment, splash pads, swimming pools, etc.
- iv. Potable quick couplers and potable water hose bibs are not allowed within the recycled water irrigated area unless installed above grade in a lockable enclosure that has been reviewed and approved by EMWD

6. POC Sequence

- a. All recycled water POC equipment shall be installed adjacent to the parcels they serve unless otherwise approved by EMWD
- b. EMWD requires a landscape service connection and meter for landscaped areas. Refer to EMWD Administrative Code for specific service connection requirements
- c. Where conditions require recycled water public facilities (EMWD pipeline) to be installed and connected temporarily to potable water facilities (EMWD pipeline), the RP device model, size and irrigation demand shall be shown on the RWUE. The temporary connection and service lateral shall be sized to accommodate the current and future potential projects that may connect to the recycled water facility that is temporarily fed potable water. A safety factor shall be used in determining the service connection and RP sizing. Refer to the Toolbox for Temporary Intertie Schematic detail

7. Initial Source of Water Supply

- a. A project site may be served by three different types of connections/sources:
 - i. Recycled Water Source: Connected directly to recycled water public facilities (EMWD pipeline) that feed a recycled water meter
 - ii. Temporary Potable Water Service: Potable water meter connection to a potable water public facility (EMWD pipeline) designed for future recycled water conversion. Irrigation plans shall require additional review, and approval by EMWD's Conservation Department
 - iii. Temporary Potable Water Source: Recycled water mainline (EMWD pipeline) with a recycled water service connection and recycled water meter. The recycled water public facility (EMWD pipeline) has a temporary intertie to a potable water public facility (EMWD pipeline) through an above grade RP device
- b. For reference, each recycled water meter/POC shall be assigned a designated numerical value and each potable water meter/POC shall be assigned a designated alphabetical letter. The number/letter designation/identification shall be shown with Standard Drawing Symbols per EMWD's CAD standards. The meter

identification/designation shall remain consistent throughout the recycled water irrigation plan check phases (RWUE & RWIP)

- c. Water pressure difference due to source of water supply (potable/recycled) may vary due to each system's operation. The Plan Checker shall provide a nominal HGL for the project location
- d. It is prohibited to interconnect more than one (1) meter to an irrigation mainline/system
- e. Recycled Identification
 - i. The recycled water identification including, warning signs, ID tags, and decals shall comply with the current DDW title 22 and EMWD requirements. Minimum requirements include the following:
 - The location for each recycled water warning sign shall be shown by a symbol on the RWIP. Warning signs shall be posted, at a minimum, at the following locations:
 - Driveway entrances - right hand side
 - Walkway entrances
 - At recycled water meters
 - Every 500' along the perimeter of recycled water use areas.
 - Signs shall be placed to inform the public, maintenance staff, and others that recycled water is being used
 - The recycled water warning sign and decals shall be of a size to meet current EMWD compliance and read "CAUTION: RECYCLED WATER, DO NOT DRINK", with letters at least 1 inch high on a purple background and with the international "DO NOT DRINK" symbol sign
 - The irrigation controller, booster pump, and associated equipment shall be identified by color, recycled water warning signs, and decals. Refer to the Toolbox for the Recycled Water Irrigation Advisory Signage detail

8. Irrigation Mainline and Lateral Pipe

- a. All recycled irrigation pipe shall be purple in color. Recycled irrigation mainline and lateral pipe shall meet the following conditions at a minimum but not limited to:
 - i. Continuous 3" wide recycled water ID tape be installed parallel with and 6" above recycled water irrigation mainlines. Recycled water ID tape shall be detectable and purple with the words "CAUTION: RECYCLED WATER" imprinted in minimum 1-inch high black letters. Imprinting shall be continuous and permanent
 - ii. On grade purple piping shall meet UVR resistance and recycled water identification requirements

9. Cross Connection Test Isolation/Bypass Tee Assembly
 - a. This assembly shall be installed where the potable water supply pipeline enters the building/structure. (Refer to the Toolbox for the Building Cross Connection Bypass detail)
 - b. The two (2) configurations that are commonly used are:
 - i. Double ball valve with a tee and keyed hose spigot between the ball valves
 - ii. Double ball valve with a tee and keyed hose spigot between the ball valves including a second tee and ball valve downstream of the first set to allow for a second supply of water to the building

E. Development of the RWUP

1. RWUP General Information/Setup

- a. Each RWUP shall include Summary Tables that summarize the demand and parcel data about each Study Area ([Refer to Toolbox for examples and tables](#))
- b. The Legend shall provide a list of the data symbols and descriptions shown on the RWUP
- c. Each RWUP shall include:
 - Legend
 - Notes
 - Details
 - Vicinity Map
 - Key Map
- d. Each Plan shall include the Vicinity Map on the first sheet
- e. Each Plan shall include the Study Area Phasing Map on each sheet

2. RWUP Drawing Standards

- a. At a minimum, the RWUP shall have the following items labeled/called out (Refer to the Toolbox for an example):
 - The Study Area
 - Street Names
 - Study Area Boundary
 - Study Areas (TM, PM, APN, TTM)
 - Phasing Number; i.e. Project Study Area 1
 - Parcel Number; i.e. Parcel 1
 - Legal Parcel Map Number (PM#)
 - Parcel, Property or Project Name
 - Tract Map Number (TM#) or Property Description
 - Project Study Area Boundary
 - Public Facilities: Existing or Proposed, Size, Recycled or Potable
 - All other project characteristics pertinent to the most current land use plan and recycled water landscape use areas

Commercial, Industrial, Manufacturing, Park, School, Residential, Streetscape, Medians, Open Space, Basin, Mitigation, etc.

F. Development of the RWUE

1. RWUE General Information/Setup

a. Each RWUE shall include:

- Summary Table
- Legend
- Notes
- Details
- Maps
- Labels

2. RWUE Drawing Standards

At a minimum, the RWUE shall show and identify the following elements:

- a. Descriptions: Parcels, Tracts, Property Boundaries, Lot Lines, APN, etc.
- b. Street Improvements: Streets, Street Names, Centerlines, Curbs, Sidewalks, and Right of Way Lines
- c. Land Use Types: Commercial, Industrial, Manufacturing, Park, School, Residential, Streetscape, Medians, Open Space, Basin, Mitigation, etc.
- d. Structures/Sensitive Use Areas: Buildings, Wells, Fencing, Walls, Parking Lots, Fields, Basins, Pools, Playground Equipment, etc.
- e. Project Phasing Lines and Descriptions: i.e. Project Phase I
- f. Off-site Public and On-site Private Facilities
 - i. Existing and proposed potable and recycled pipelines, alignments, sizes, station numbers (if available), mainline isolation valves, blow offs, air release/vacuum valves, detector checks (RPDA/DCDA), backflow devices (RP/DC), fire lines, fire hydrants, and temporary EMWD facility intertie through an RP device
 - Each facility and appurtenance has a designated color, line type, and symbol, which shall be identified within the Legend (Refer to the Toolbox)
 - ii. All projects requiring a DDW submittal shall include onsite plumbing plans with internal building plumbing as part of the RWUE and CAD base files
- g. Recycled and Potable Water Meters
 - i. Existing and proposed potable and recycled water meters, locations, sizes, station numbers (if available), and service line alignment from the facility
 - Each water meter type has a designated color and shall be identified on the RWUE with Standard Drawing Symbols (Refer to the Toolbox for the RWUE “Legend”)
 - The landscape architect shall coordinate with developer/owner engineer and/or architect to obtain all required civil base file and plumbing plans

- Any existing water service lateral that is not proposed to be used shall be identified with the Standard Drawing Symbol and station number noting the service line to be removed back to the EMWD mainline
- h. Recycled and Potable Water Use Areas
- i. The land use type for all properties and parcels on the RWUE shall be identified and labeled. Each type of water use area shall be designated with a separate color on the RWUE (Refer to the Toolbox for example)
 - ii. The boundaries of each recycled and potable water use area shall be defined with the Standard AutoCAD Drawing closed polygon, meter, and layer name
- i. At a minimum, the RWUE shall have the following items labeled (Refer to the Toolbox for an example):
- Study Area Limit
 - Street Names
 - Station Numbers (If available)
 - Land Use Type and/or Project Site Area(s); i.e. Streetscape, Park, Basin, Commercial, School, Residential
 - Legal Parcel Map Number (PM#) or Tract Map Number (TM#)
 - Project Phasing Number; i.e. Project Phase 1
 - Facilities; i.e. Offsite, onsite, existing, proposed, recycled, potable, and raw. The labels for these facilities shall also include sizing, EMWD D-sheet (if available), and Work Order Number (WO, if available)
 - Fire Lines and Private Onsite Domestic Water Facilities
 - Connections between Offsite EMWD Facilities (RW & PW)-Temporary Intertie
 - Drinking Fountains
 - All Irrigation Sleeving Sizes, Locations, and Quantities
 - Required Descriptions for Site Characteristics/elements; i.e. Buildings, building pads, restrooms, parking, sports fields, bio swales, wells, separation, etc.
 - Reference Areas Sensitive to Recycled Water Use; i.e. mitigation, potable wells, blue line streams, swimming pools, ponds, basins, decorative fountains, play grounds, outdoor eating, and sitting areas. Refer to the Toolbox for the Conditions & Mitigation Measures Table in the CAD Standard Guideline
- j. For example RWUE drawings, refer to the ["RWUE"](#) folder in the Toolbox

G. Development of the RWIP

1. RWIP General Information/Setup
 - a. All project site areas submitted as an RWIP shall be consistent with the irrigated Study Areas, meter size, meter location, the irrigation maximum, and peak demands set on the accepted RWUE
 - b. Each RWIP shall include but is not limited to:
 - Title Sheet
 - Vicinity Map
 - Sheet Index Map
 - Meter Data Table
 - Irrigation Plan
 - Detailed Construction Documents
 - Key Map
 - Detail drawings
 - Valve Demand Data Table
 - Equipment Legend Specifications
2. RWIP Drawing Standards
 - a. The equipment and sequence of the equipment shall accommodate the system's ultimate operation condition and meet all testing requirements. See Section 4 (Recycled Water Irrigation Design Requirements) of this document for further information
 - b. The following makes up the POC sequence:
 - EMWD Meter
 - Quick Coupler Valve
 - Isolation Valve
 - Backflow Device (DC/RP) (If required)
 - (Refer to EMWD's Engineering Standards and Specifications for Developer Projects Section 2 and Section 8 for the detailed EMWD Standard Drawings)
 - Strainer
 - Booster Pump
 - Pressure Regulator
 - Master Valve
 - Flow Sensor
 - Automatic Irrigation Controllers

- System weather sensors
- c. The following are irrigation system components:
- Remote Control Valves
 - Isolation Valves
 - Quick Coupler Valves
 - Irrigation Lateral Line Filters/Strainers
 - Drip, Bubbler, Spray and/or Rotor Irrigation
 - Irrigation Pipeline
 - Irrigation Sleeves
 - Recycled Water Identification Decals/Stickers, ID Tape, Signage, and ID Tags
- d. At a minimum, the RWIP shall have the following items labeled (Refer to the Toolbox for an example):
- Study Area Limit
 - Street Names
 - Station Numbers
 - Land Use Type and/or Project Site Area(s): Streetscape, Park, Basin, Commercial, School, or Residential
 - Legal Parcel Map Number (PM#) or Tract Map Number (TM#)
 - Project Phasing Number; i.e. Project Phase 1
 - Water Facility Callouts: offsite, onsite, existing, proposed, recycled, potable, and raw. The labels for these facilities shall also include sizing, EMWD D-sheet (if available), and Work Order Number (WO, if available)
 - Fire Lines and Private Onsite Domestic Water Facilities
 - Connections between Offsite EMWD Facilities (RW & PW) Temporary Intertie
 - Drinking Fountains
 - Required Descriptions for Site Characteristics/Elements; i.e. Buildings, building pads, restrooms, fencing/walls, mow curbs, parking, sports fields, bio swales, wells, separation, etc.
 - Reference Areas Sensitive to Recycled Water Use; i.e. Mitigation, potable wells, blue line streams, swimming pools, ponds, basins, decorative

fountains, play grounds, outdoor eating, and sitting areas. Refer to the Toolbox for Conditions & Mitigation Measures Table

- e. RWIP Examples ([Refer to the Toolbox for example](#))

H. Irrigation Water Budget Calculations

1. RWUP

The formulas for the irrigation demands are summarized in the tables shown on the RWUP. Refer to the Toolbox.

- a. The calculations shall be based on the most current land use plan for the projects/parcels within each Study Area and the RWUP Study Area
- b. An RWUP is a development study used to determine infrastructure requirements when specific project landscape area information is not yet determined
- c. EMWD may require more focused studies to calculate the water budget demands depending on the specific project conditions

2. RWUE

The calculations shall be based on the most current land use plan for the projects/parcels within the Study Area. Refer to the Toolbox

- a. The water budget calculated at the RWUE level sets the Maximum Irrigation Demand and the Maximum Peak Demand for each meter. As a result, EMWD shall confirm the demands are not exceeded for each meter on the future submittals of the RWIP(s)
- b. In cases where an RWUE or a portion of an RWUE lacks specific project landscape area information that can be used to determine specific areas that will be irrigated, refer to the planning criteria formulas used for the RWUP to develop the irrigation demand data
- c. EMWD may require more focused studies to calculate the water budget demands depending on the specific project conditions

3. RWIP

Maximum Irrigation Peak Demand Allowed: For the RWIP, the Maximum Peak Demand shall be based on the design demand (max combination of valves) not the maximum gpm allowed. The max design demand should be identified based on the actual design of the irrigation system and simply "cross-checked" against the maximum peak demand allowed that is referenced on the RWUE/RWUP

- a. As of 2015, EMWD requirements state that calculations shall be based on 50% of July Eton at the nearest CIMIS Station
 - i. The water budget calculated at the RWIP level sets the Maximum Irrigation Demand and the Maximum Peak Demand for each meter. As a result, EMWD shall confirm the demands for each meter do not exceed the demands as conditioned by the RWUE. Final RWIP irrigation system demands shall be based on valve data table combinations
 - ii. A Valve Demand Data Table identifying meter designation, valve ID, valve area served in square feet (sf), valve demand in gpm, irrigation type (drip, bubbler, rotor, etc.), cycle duration (run time), order of operation (series), total quantity of water used (AF/y), and run time totals per valve/controller per day, is required for each RWIP
 - iii. EMWD may require more focused studies to calculate the water demands depending on the specific project conditions

I. EMWD Recycled Water Landscape Guideline Toolbox/CAD Standards

1. EMWD Recycled Water Landscape Guideline Toolbox

- a. The Recycled Water Landscape Guideline Toolbox has numerous resources in the format of PDF, word documents, excel spreadsheets, and AutoCAD templates developed by EMWD to assist in the development of the documents needed for recycled water landscape use sites
 - 01_RW Landscape Irrigation Guideline V1.2
 - Recycled Water Landscape Irrigation Guideline Version 1.2 (This document)
 - CAD Standard Guideline (Most current design requirements and AutoCAD standards)
 - 02_Standard CAD Layer and Block Standards
 - 03_Title Block Drawing
 - 04_Maps
 - Vicinity Map
 - Key Map
 - Base Example
 - Project Study Area Map
 - 05_RWUP
 - Legends

- Notes
- RWUP Example
- Tables
- Legends
- Notes
- RWUE Examples
- Tables
- 07_RWIP and RWAB
- Legends
- Notes
- RWIP Example
- Tables
- 08_Details
- Temporary Potable Water Construction T-Meter Detail
- Point of Connection (POC) Sequence Detail
- Recycled Pipe/Potable Water Pipe Crossing Detail
- Trench for Recycled Water Irrigation Mainline and Laterals Detail
- Strainer Detail
- Recycled Water POC Stub Out Detail
- Recycled Water Quick Coupling Valve Detail
- Recycled Water Irrigation Advisory Sign Detail
- Manual Flush Valve Detail
- Temporary Inter-tie Schematic Diagram
- Cross Connection Building Bypass Detail

2. CAD Standards

- a. Created in AutoCAD version 2007 or as approved by EMWD
- b. Tied to the Horizontal Datum of the California State Plane Coordinate System Zone 6 (NAD 83) and to the North American Vertical Datum (NAVD 88) or as approved by Eastern Municipal Water District
- c. Units of measure shall be English units unless otherwise directed

- d. CAD files are required with each plan check submittal. Refer to the CAD Standard Guideline for required submittal documents
- e. Detailed CAD Standards are provided in the CAD Standard Guideline. All RWUP, RWUE, and RWIP drawings shall follow the standards stated in this document and in the CAD Standard Guideline
 - 06_RWUE

Section 6. Agreements for Mainline Extensions

A. Agreements

1. Purpose

Agreements serve as a contract between the Developer and EMWD to construct facilities, as required by EMWD Design Conditions, to provide services to the subject project.

2. Method

A project must have first gone through Project Intake, Design Conditions, and Plan Check processes to be eligible for an Agreement. After going through these processes, the Developer will be provided an Agreement and submittal instructions by the Development Services Coordination Group.

- a. Deliverables: Once an Agreement has been executed and approved the project will be forwarded to the Plan Checker for mylar updates and distribution for pre-job scheduling.

3. Submittal

To prepare for the Agreement process, the following items must be complete:

- a. Approved Cost Estimates – these are provided to the Development Services Coordination Group by the Plan Checker, and included as part of the Agreement documentation.
- b. Entity Request Form ([DS-073](#)) - this form details the Agreement contact and financially responsible parties. The completed form must be returned along with a copy of the Tract Map, Parcel Map, Grant Deed, and legal description of the properties included in the project.
- c. Insurance Requirements ([Example](#)) – the insurance are provided to the Developer in advance of the agreement. They are to be submitted and approved prior to *acceptance* of an executed agreement package and deposit.
 - Executed Agreement submittals *without* insurance provided will be considered incomplete.
 - Not having approved insurance prior to submittal would significantly delay pre-job distribution.

To submit the required components for an Agreement:

- d. Insurance – Insurance that meets EMWD requirements should be sent via email to the Development Services Coordination Group at DSCoordinationGroup@emwd.org

- e. Executed and Notarized Agreement – the Agreement submittal package and deposit should be sent as follows:
- Overnight Mail or Dropbox at:
Attn: Development Services Coordination Group
2270 Trumble Rd. Perris, CA 92572
 - Standard Mail
Attn: Development Services Coordination Group
PO Box 8300, Perris, CA 92572

B. Tract/Lot Assumptions

1. Purpose

An Assumption is required when a previously executed Agreement for facility construction and/or tract development has been sold to a 2nd party that has purchased either all or a portion of the subject project.

2. Method

Once a 2nd party has acquired a portion, or all, of the project, they must submit the required forms and legal documentation to the Development Services Coordination Group to assume the terms and conditions of the existing Agreement.

3. Submittal

- a. Requirements for assumption of a **complete** Tract Agreement
- New Ownership Contact Information Sheet ([DS-073](#))
 - Copy of Grant Deed
 - Copy of Purchase Agreement and Assignment highlighting if purchase was with assets and liabilities
 - Letterhead advising acceptance of all terms and conditions for Standard Facilities Agreement inclusive of any punch list items.
 - Copy of Tract Map & updated address list (if applicable)
 - Updated Fire Flow Test w/ Hydraulic Boundary Conditions in order to create high and low pressure tables (if applicable).
- b. Requirements for a **partial** assumption of a Tract Agreement (lots only)
- New Ownership Contact Information Sheet ([DS-073](#))
 - Letterhead from Master Developer confirming competition of facilities under original Standard Facilities Agreement and CO's, and noting if new Builder will have access to existing deposits, or if they will need to post their own deposits for property line inspections.

- Copy of Tract Map & updated address list (if applicable)
- c. Once the above items are received, research of the project status will be conducted, and additional requirements, if any, will be provided.
- d. All required items for project assumptions should be submitted via email to the Development Services Coordination Group at DSCoordinationGroup@emwd.org

C. Landscape Water Budget Spreadsheet Required – See Section 7D

Section 7. Addendum Requests - Lot Releases for Occupancy

A. Purpose

An Addendum request is a specifically structured request from the Developer. The addenda is generated by EMWD to provide the total applicable connection fees for occupancy release of an individual or a set of tract lots. These fees must be paid prior to release of services and occupancy release to the jurisdictional agency.

B. Method

1. Once an Agreement has been executed and the project has proceeded to construction, legal owners or their representatives may request and execute an addendum, either when lots are constructed and ready for occupancy, OR when model homes and model parking lots (Landscape) services are required. If ownership has changed, please see Section 6 for assumption requirements.
2. All lot developers within the EMWD sphere of influence will need to submit a **Sequence Sheet** to request an addendum before lots can be release for occupancy. EMWD and the City/County will require an addendum to be executed and paid at the then-in-effect rate for applicable water and/or sewer connection fees.

C. Submittal

1. Addendum Request requires submittal of Sequence Sheet ([Example](#)):
 - a. Tract Number noting Phases (i.e. TR 30072-1, -2, & -3)
 - b. Developer name and contact information
 - c. Lot numbers with matching addresses
 - d. APNs (if available)
 - e. Once the above items are received, research of the project status will be conducted, and additional requirements will be provided if needed.
 - f. Note that Completed Landscape Water Budget Spreadsheet will need to be submitted for lot review and approval prior to release (see next section).
2. Sequence Sheets for Addenda Requests should be submitted via email to the Development Services Coordination Group at DSCoordinationGroup@emwd.org
3. Payments for issued Addenda must arrive in check form along with an executed copy of the addenda as follows:
 - Overnight Mail or Dropbox at:

Attn: Development Services Coordination Group
2270 Trumble Rd. Perris, CA 92572
 - Standard Mail

Attn: Development Services Coordination Group
PO Box 8300, Perris, CA 92572

D. Landscape Water Budget Spreadsheet Required

1. Landscape Water Budget Spreadsheet will need to be completed and submitted for the lots. This budget sheet will be reviewed by EMWD’s Conservation Department at conservation@emwd.org to ensure compliance with EMWD’s administrative code landscaping requirements which includes, but is not limited to:
 - a. All newly constructed landscapes will have a default conservation factor (CF) of 0.5 effective June 1, 2015.
 - b. Only Functional turf areas will be considered. Functional Turf is defined as a turf area that serves as a surface for such purposes as playing a sport or gathering for group activities. Projects that include turf areas for aesthetic purposes will not be approved (including residential front yards).

Section 8. Temporary Meters**A. Purpose**

Temporary Meters (T-Meters) provide customers with potable or recycled metered access to fire hydrants and blow-offs for temporary use within EMWD's service boundaries. The common uses of T-Meters include but are not limited to:

- Grading
- Dust Control
- Compaction
- Facility line filling and testing
- Street improvements
- Construction trailers
- Temporary irrigation (for recycled services)
- Temporary fire protection during initial site construction

B. Method

The process by which a T-Meter is obtained can be summarized via the following steps. Note that standard processing time for T-Meter approval and installation is 5-10 business days.

1. Customer must contact the Development Services Department to receive the T-Meter Application (Form DS-021) (approximately 1-2 business days).
2. Once a completed application and hydrant location are submitted, the application will be reviewed for approval. The approved application will be returned to the customer with appropriate fees noted. (approx. 1-2 business days).
3. Once the approved application and payment are received, payment will be processed, and a request will be sent to the Meter Department (approx. 1-2 business days).
4. The meter will then be installed, and the customer notified (approx. 1-2 business days).
5. A Backflow device must be installed by the customer and tested by EMWD Inspections.
6. Once Backflow passes EMWD testing, services will be left on.

C. Submittal

1. Requirements for a T-Meter Application request differ according to the project type and use. Generally, a standard submittal will require:
 - a. Completed Form DS-021
 - b. Proposed Hydrant Location (i.e. Site Map or Google Map identifying hydrant location)
 - c. Field Confirmation, by the customer, that the Hydrant is not currently in use.

2. Method of Submission of the T-Meter Applicant Form & Payment

- a. Approved T-Meter Applicant Form DS-021 with fee noted
- b. Check for the required fee amount
- c. Sent to:

- **Overnight Mail or Dropbox at:**

*Attn: Development Services Coordination Group
2270 Trumble Rd. Perris, CA 92572*

- **Standard Mail**

*Attn: Development Services Coordination Group
PO Box 8300, Perris, CA 92572*

D. Backflow and Air Gap Requirements and Testing

Please see pages 4 – 10 on the original application for information regarding Backflow vendors and testing.

Section 9. Applications for Service (AFS) – Commercial Submittals

A. Purpose:

The term Application for Service (AFS) refers to the agreement a person, entity, or company (Applicant) completes with EMWD (EMWD/District). The AFS is a contract between an Applicant and EMWD that provides the Applicant with the capacity charges (connection fees) and other fees to acquire new water, sewer, and/or recycled connections for service. Prior to EMWD preparing the AFS, EMWD will require various documentation, pre-AFS fees/deposits (if applicable), and plans to proceed.

The purpose of this section aims to streamline the AFS commercial submittal process.

All commercial projects requiring to connect to existing EMWD facilities are required to inform the District of the proposed improvements. To initiate this process, contact the DEVELOPMENT SERVICES TECHNICIAN GROUP at DevelopmentServicesTechnicianGroup@emwd.org or (951) 928-3777 ext. 2081.

Once a commercial project starts the AFS process, a specific EMWD Development Services Technician (DST) will be assigned to the project. The DST will assist in the following:

1. Communicating to the Applicant the items that need to be submitted (Submittal)
2. Obtaining Submittal items from the Applicant and perform a pre-screen of Submittal
3. Clarifying inconsistencies in documents with the Applicant
4. Forwarding Submittal to various EMWD work groups for their review
5. Generating and sending the Formal AFS along the various fees to the Applicant
6. Obtaining additional legal documents, licensing, and copies of insurance from the Applicant (as needed)

Click [HERE](#) for the AFS detailed workflow.

B. EMWD Submittal Checklist:

EMWD will need different documentation depending on the project and the type(s) of connections being requested. The DST assigned to a specific project will email the Applicant and provide a specific list of documents required for each individual project.

NOTE: Ensure to have a complete submittal. Submittals that do not have all of the items requested will **NOT** advance in the process until the complete list of documents are submitted to the EMWD representative. The required items can include, but are not limited to the following:

1. A completed DS-041 Project Connection Form
 - For instructions to complete DS-041, click [HERE](#)
2. A copy of the **most current** Grant Deed that lists the correct Assessor's Parcel Number (APN), legal description, and owner. **Please note: If the deed submitted does not include the correct information, processing the AFS might be delayed.**
3. A copy of the most current Parcel/Tract Map
4. Any Lot Line Adjustments (if applicable)
5. Address Sequence Sheet with Proposed Use (For Shopping Centers and Projects with Multiple Addresses/Units)

6. EMWD issued **final** Fire Flow Test Report (DS-001) **with** formal fire conditions provided from the fire department/marshal. **NOTE:** Draft EMWD Fire Flow Test Reports will **not** be acceptable (For Fire Services – [See Section 1](#)).
7. \$3,000 Deposit for Plan Review (If new lateral connections are being requested)
8. Civil Drawings, in accordance with EMWD standards and specifications for all proposed service connections
 - EMWD Standards, Specifications and Drawings: <https://www.emwd.org/engineering-standards-specifications-and-drawings> or call EMWD (951) 928-3777 extension 4330
 - EMWD Civil Drawings Public Map Portal: <https://mapportal.emwd.org/>
 - For instructions on how to complete the Civil Drawings, click [HERE](#)
9. Electronic plans related to the project:
 - Site Plans (with Phasing Plans)
 - Architecture Plans (include a breakdown of all building areas)
 - Civil Plans
 - Grading Plans
 - Utility Plans (Onsite Water & Sewer Plans)
 - Fire Plans
 - Fire Pump Details/Pump Room Plan (If applicable)
 - Street Improvement Plans
 - Plumbing Plans
 - Demo Plans (If an existing building will be removed)
 - Landscape/Irrigation Plans with MAWA Calculations (For Landscape Connections)
 - Seating Plans and Full Menu ([For Restaurants](#))
 - Carwash Arch and Plumbing Plans (For Carwashes)

C. EMWD Submittal Review

Upon receiving the required items, the DST will perform a high-level review to ensure that all information required by EMWD is received. The DST's review can include, but is not limited, to the following:

- Verifying that needed items have been submitted.
- Ensuring the DS-041 has been completed correctly and is consistent with the plans and other information provided.

- Cross-referencing the requested fire service/detector check size with the flow requirement listed on the “FINAL” Fire Flow Report. The fire service/detector check should be sized according to the “Recommended Flow” table on [EMWD Detail B-657](#). Otherwise, please submit cut-sheet/detail of the detector check for further review.
- Cross-referencing the requested landscape and/or domestic service and meter sizes with the flow requested. The service lateral and meter should be sized according to the [Water Meter and Associated Meter and Connection Fees document](#). Ensure that the requested flow does not exceed the maximum flow (GPM) for the specified service lateral sizes and the “Maximum Continuous Capacity (GPM)” for the meter sizes.
- Reviewing the most current legal information since the AFS will include the legal description of the project parcel.
- Checking EMWD civil drawings and GIS mapping systems to see if there are existing services fronting the property. Existing services will need to be utilized or abandoned.
- Confirming there are no cross-connections proposed between any of the Domestic, Landscape, Fire, and/or Sewer systems.

D. Connection Types

The information EMWD requires the Applicant to submit depends directly on the type of connection being requested. The following sections will give an overview of how the type(s) of connection(s) affect submittal requirements and why this information is being requested.

1. Fire Protection (Fire Hydrants or Detector Checks)

Any site in EMWD water service area will need to provide conditions of approval (COA) from the Fire Department, County Fire, Fire Marshal, etc. These COAs need to have the date the conditions were generated, project information (APN, address, and/or legal description), the fire flow requirement (in GPM), the pressure (PSI), and duration (typically in hours). Please refer to “Section 1 – Fire Flows & Will-Serve Letters” of this document on how to submit. (Click [here](#) for reference).

Once the needed information is received and reviewed for the complete submittal, EMWD staff will forward the Applicant a “FINAL” Fire Flow Report. If information is missing (i.e. Fire Conditions), the Fire Flow Report will be at “DRAFT”. It is important to note, EMWD will **not** process an AFS with a Fire Flow that is at “DRAFT”.

For sites that are conditioned to install a Detector Check for fire sprinklers, please consider the following when completing the DS-041 mentioned above:

- **Type of Detector Check**

Many fire agencies in EMWD’s service area request the use of Double Check Detector Assemblies (DCDAs). However, in certain cases, EMWD might require the use of Reduced Pressure Detector Assemblies (RPDAs). Events that might cause private fire systems to require a RPDA(s) include the following:

- Use of chemical-additive injection, such as for fire-fighting
- Use of chemicals, such as for industrial use
- Use of on-site pump for fire system(s)
- Existing un-approved auxiliary water supply

- Sites that have marine facilities (i.e. lakes & water parks)
- Sites located in a regulatory floodway
- Sites with on-site water storage
- Sites with on-site well(s)

- **Size of Detector Check**

The size of a detector check is crucial. Review the flow requirements (GPM) as stated in the site's fire conditions and size your connection correctly with [EMWD Detail B-657](#).

2. Domestic Services/Meters:

Sites that will be requesting a new domestic service and/or meter will need to provide the utility plans and offsite civil plans showing the connection to EMWD's potable water mainline. The DS-041 will need to be completed with accurate information for the proposed service/meter. The size of the service/meter directly affects the total amount in fees that will need to be paid by the Applicant. For service/meter sizing and fees, please refer to the following: [Water Meter and Associated Meter and Connection Fees document](#).

3. For Potable Landscape Services/Meters

Sites that will be requesting a new landscape service and/or meter will need to provide the landscape plans and offsite civil plans showing the connection to EMWD's potable water mainline. The DS-041 will need to be completed with accurate information in regards to the the proposed service/meter and landscape area. The size of the service/meter directly affects the total amount in fees that will need to be paid by the Applicant. For service/meter sizing and fees, refer the following: [Water Meter and Associated Meter and Connection Fees document](#)

All dedicated potable landscape meters are required to comply with [EMWD's Administrative Code Title 5, Article 6 – Water Conservation](#), which states that such meters will be subject to tiered rate billing. This entails the dedicated landscape meter shall have a monthly water budget based on the size of the irrigated landscape area (sq. ft.) and current weather data (ETo). Effective, June 1, 2015 all outdoor water budgets will have to meet a 0.5 Conservation Factor (50% of ETo).

With the installation of a dedicated landscape meter, the following will be agreed to:

- a. Projects with a total landscape area greater than or equal to 2,500 square feet shall require a dedicated landscape meter.
- b. Onsite irrigation systems served from one irrigation meter cannot be connected to another irrigation system supplied from a different meter (no looped system).
- c. Owner or representing agent must provide a copy of the site landscape plan, depicting the square footage of the irrigated area, type of irrigation equipment being installed, and the plant legend.
- d. Only functional turf areas will be considered. Functional Turf is defined as a turf area that serves as a surface for such purposes as playing a sport or gathering for group activities. Projects that include turf for aesthetic purposes will not be approved.

- e. For functional turf areas, a higher ETo factor may be granted at the discretion of the District.
- f. Owner or representing agent shall notify EMWD of any changes pertaining to this agreement.
- g. EMWD will not approve, ensure the adequacy, efficiency, or functional ability of any landscape or irrigation system.

If you have any questions regarding the EMWD Conservation Plan Check process or Program, please contact an EMWD Conservation Representative at (951) 928-3777 ext. 3322

4. Recycled Landscape Services/Meters

In order to help continue providing sustainable and reliable water supplies to its customers, EMWD is committed to maximizing the beneficial use of recycled water for common area landscape. As a result, designated regions in EMWD's service area have been zoned for recycled water use. As a part of the AFS process, EMWD's Recycled Water Candidacy Group will review the project location and usage to determine if it is a candidate for recycled water.

For projects that are determined as recycled water candidates, the assigned DST will forward any needed information to EMWD's Recycled Water Plan Check Group. Once this group receives the project, they will follow up with the Applicant and request the needed items for their review. For more information regarding EMWD's recycled water program and overall guidelines, please visit the link [here](#).

5. Sewer Connections

Sites that will be requesting a new sewer connection will need to provide utility plans, offsite civil plans showing the connection to EMWD's sewer main, complete set of architecture plans, and plumbing plans. Once received, the DST will forward the plumbing plans to EMWD's Source Control Department for their review.

E. How to Complete EMWD's Project Connection Form (DS-041)

EMWD's Project Connection Form, DS-041 (updated 2021) is an interactive document created to provide EMWD staff a summary of the project in a quick glance. In an attempt to help avoid unnecessary comments back from the assigned Development Services Technician, this form is rigid in the information it accepts. Please see the below explanations:

PAGE 1 – Contact and Overview



Project Connection Form Contact and Overview

Date of Request: 1

4

COMPLETE ALL FIELDS BELOW:

Point of Contact (Company Name):		
Contact Name:	2	Phone Number:
Address:		Cell Number:
City:	State:	Zip Code:
Email Address:		

<input type="checkbox"/> Use Point of Contact's Information?		
Entity Responsible for Payment of Fees (Company Name):		
Contact Name:	3	Phone Number:
Address:		Cell Number:
City:	State:	Zip Code:
Email Address:		

Project Engineer (Company Name):		
Contact Name:	5	Phone Number:
Address:		Cell Number:
City:	State:	Zip Code:
Email Address:		

Landscape Architect (Company Name):		
Contact Name:	6	Phone Number:
Address:		Cell Number:
City:	State:	Zip Code:
Email Address:		

PROJECT INFORMATION:

Project Name:		
Service Address:	City:	Zip Code:
Project Location: 7		
Project Description:		
APN:		
Tentative/Recorded Map Number:		

EMWD Contact Information	
Development Service Technician:	_____
Phone: (951) 928-3777 Ext:	_____
Email:	_____
PPI #:	_____

8

9

DS-041
Rev: 10/2021

PAGE 1 – Contact and Overview (Continued)

1. Enter the date this form is being completed
2. Enter the Point of Contact's information. This should be the individual handling the bulk of the communication and is able to address any questions or concerns EMWD staff might have.
3. Enter the information of the Entity Responsible for Paying Fees. The information for this company/individual will be used on the AFS.
4. If the Entity Responsible for Paying Fees is the same as the "Point of Contact", clicking this box will copy all of the information from the Point of Contact.
5. Enter the information of the Project Engineer.
6. Enter the information of the Landscape Architect (If applicable).
7. Enter all of the proposed project's information. The more information included in these fields is helpful and might prevent additional comments which might delay the review of this project. Ensure that information inputted is consistent with other information that is provided.
8. EMWD's DST contact information
9. PPI # (TO BE FILLED OUT BY EMWD) is the identification number used by EMWD to identify the project. Please use this number in all correspondence to avoid any confusion.

PAGE 2 – Connection Overview

Project Connection Form



1 Date of Request: _____

2 Page ____ of ____

3	4	5	6	7	8	9	10	11	12	13	14
Connection Number	Connection Type (Connected to Public Facilities)	Service Lateral is:	Meter/DCDA is:	EMWD Drawing Number	Connection Station	Requested Flow (GPM)	Service Size (Inch)	Meter/DCDA Size (Inch)	Backflow Size (Inch)	Part of a Looped System?	Purpose (For landscape meters, specify the sq.ft. to be served)
Example	DCDA	Existing	Proposed	D-14304	128+08.85	3,500	12"	12"	-	Yes	DCDA will service building 'A' with fire pump
1		▼	▼							▼	
2		▼	▼							▼	
3		▼	▼							▼	
4		▼	▼							▼	
5		▼	▼							▼	
6		▼	▼							▼	
7		▼	▼							▼	
8		▼	▼							▼	
9		▼	▼							▼	
10		▼	▼							▼	
11		▼	▼							▼	
12		▼	▼							▼	
13		▼	▼							▼	
14		▼	▼							▼	
15		▼	▼							▼	

Please Respond to the Following:

- 15 Is a **DCDA** being requested?
 - NO
 - YES - If so, ensure that a FINAL Fire Flow Test³ has been completed with EMWD
2. Will a **Pump** be installed for the domestic or fire system(s)?
 - NO
 - YES - If so, submit water usage schedule, pump plans, and details.
3. Is a **Potable Landscape Meter** being requested?
 - NO
 - YES - If so, submit landscape plans for each meter. NOTE: Plans will be forwarded to EMWD's Conservation Department for review. For questions regarding potable landscape requirements, contact EMWD Conservation representative at (951) 928-3777 ext. 3322
4. Is a **Sewer Lateral** being requested? (This is NOT referring to private onsite connections)
 - NO
 - YES - If so, submit a Plumbing Plans for all proposed buildings. NOTE: Plans will be forwarded to EMWD's Source Control Department for review
5. Will any of the following apply to this project? Select all that apply:
 - Industrial Chemical Use
 - Aux. Water Supply
 - Marine Facilities (i.e. lakes & water parks)
 - Located in Regulatory Floodway
 - Onsite Water Storage
 - Onsite Well
 - Chemical injection (For Fire Systems)

NOTE:

1. For instructions in completing this form, please refer to EMWD's Application for Service (AFS) Guidelines located at the following link: <https://www.emwd.org/development>
2. Any questions regarding this form should be directed to the Development Services Technician assigned for the project (See contact info to the right)
3. For service manifolds and pumps, refer to samples in EMWD's Water, Sewer, and Recycled Water CAD Toolbox here: <https://www.emwd.org/post/water-sewer-and-recycled-water-cad-toolbox>

EMWD Contact Information

Development Service Technician: _____
 Phone: (951) 928-3777 Ext. **16**
 Email: _____
 PPI #: _____

Page 2 – Connection Overview (Continued)

The Connection Overview page is an interactive form. One drop-down box will allow the next field to be completed. Therefore, this form should be filled out in sequence. For an explanation of each field, refer to the below information; each number corresponds to the number above.

1. Enter the date this form is being completed
2. In the event more than 15 services/meters/hydrants are being utilized or abandoned, please include an additional “Connection Overview” sheet.
3. Connection Number will occasionally be used to identify connection points for communication purposes.
4. Connection Type refers to the type of connection being requested or abandoned. Please click in the drop down menu to select one of the following:
 - DCDA (Double Check Detector Assembly): This type of connection provides water supply to private onsite fire systems such as Fire Sprinkler System(s) and/or Private On-site Fire Hydrant(s).
 - Domestic: Water connections from the EMWD mainline to the proposed building.
 - Fire Hydrant (Standard)/Fire Hydrant (Super): Fire Hydrants connected directly from EMWD mainlines. Provide Fire Marshall requirements for all new fire hydrant requests.
 - Landscape (Potable): Dedicated landscape meter using potable water. Proposed landscape area more than 2,500 SF requires a dedicated landscape meter.
 - Landscape (Recycled): Projects determined as Recycled Water Candidates will be required to be irrigated by a dedicated recycled water landscape meter.
 - Sewer (6 Inch): For ALL commercial projects, it is typical that a 6 Inch sewer lateral is utilized.
 - Sewer (X Inch): Commercial projects that are proposing sewer laterals different than 6 Inch needs to be approved by EMWD Engineer.
5. A Service Lateral refers to the connection from the EMWD main in the street to the property line. Please click in the drop down menu to select one of the following:
 - Existing: This means there is a service lateral that already exists that the project can utilize. To determine if there is an existing service line for a project’s location, review EMWD’s civil drawings or field verify. Please refer to Section 9B – EMWD Submittal Checklist, Item #9 above for instructions to obtain EMWD’s Civil Drawings.
 - Proposed: This means the project will require the installation of a service lateral to receive service.
 - Abandon: This means there is a service lateral that already exists fronting the project’s property. If the service lateral will NOT be utilized, Applicants will be required to remove the service lateral back to EMWD mainline.
6. A Meter/DCDA refers to type of instrument that is connected to the Service Lateral and feeds the private onsite system. (NOTE: Depending on the “Connection Type”, the choices in the drop-down box might be different). Please click in the drop down menu to select one of the following:
 - DCDA/Domestic/Landscape (Potable)/Landscape (Recycled):
 - Existing: This means there is a meter/DCDA that already exists that the project can utilize. To determine if there is an existing meter/DCDA for a project’s location, review EMWD’s civil drawings or field verify. Please refer to Section 9B

- EMWD Submittal Checklist, Item #9 above for instructions to obtain EMWD’s Civil Drawings.
 - Proposed: This means the project will require the installation of a meter/DCDA to receive service.
 - Future: For phased or large-scale projects, EMWD will allow Applicants to install a service lateral without meter. Prior to service, a meter/DCDA will need to be installed.
 - Abandon: This means there is an existing meter/DCDA that already exists fronting the project’s property. If the meter/DCDA will NOT be utilized Applicants will be required to remove the meter/DCDA.
 - Fire Hydrant (Standard)/Fire Hydrant (Super):
 - Proposed: This means a new hydrant is proposed.
 - Relocate: This means that the current location of an existing hydrant is no longer acceptable and needs to be relocated.
 - Upgrade: This means that an existing hydrant is not acceptable and the Applicant needs to upgrade the hydrant per the direction of the Fire COAs.
 - Sewer (6 Inch)/Sewer (X Inch):
 - N/A – There is no meter or other device for sewer connections.
7. EMWD Drawing Number refers to the civil drawing that corresponds with EMWD facility fronting the project location. The EMWD civil drawing can be found through [EMWD Map Portal](#). If there are any questions regarding using this map portal, please contact EMWD’s Maps and Records Department at (951) 928-3777 ext. 4330.
 8. Connection Station is the location defined on the EMWD civil drawing of the existing or proposed service lateral. The stationing (Sta.) is a measurement in feet. An example stationing is 123+45.67. Therefore, the difference between Sta. 10+00.00 and Sta. 10+05.00 is 5 feet. Alternatively, the difference between Sta. 10+00.00 and Sta. 15+00.00 is 500 feet.
 9. The Requested Flow (GPM) is the actual flow being requested. To prevent possible comments/concerns that could arise (translating into potential project delays), **this field determines the service, meter/DCDA, and backflow size**. To determine the sizing for Landscape (Potable) and Domestic services and meters and corresponding flows, please click [here](#). To determine the sizing of Fire Services/DCDAs, please click [here](#).
 10. The Service Size is service lateral size in inches. It is automatically populated based on the value added to the “Requested Flow (GPM)” field (See point 9 above).
 11. The Meter/DCDA Size is the Meter/DCDA size in inches. It is automatically populated based on the value added to the “Requested Flow (GPM)” field (See point 9 above).
 12. The Backflow Size is the minimum backflow size in inches. It is automatically populated based on the value added to the “Requested Flow (GPM)” field (See point 9 above).
 13. A looped system refers to a fire system with two or more DCDAs that are connected onsite to ensure adequate flow. Please note that landscape, domestic, and/or sewer systems cannot be connected onsite and are required to maintain separation onsite.
 14. The purpose field allows the Applicant to include any additional information about the connection. The following information should be included (if applicable):
 - What the connection will serve (i.e. type of structure, building number, address, etc.)
 - For Landscape connections, include the proposed irrigated area (sq.)

15. Based the connections requested, answer the questions and provide the needed information.
16. EMWD Contact Information (TO BE FILLED OUT BY EMWD) provides the contact information of the DST assigned to a specific project and the PPI identification number is used by EMWD to identify the project. Please use this number in all correspondence to avoid any confusion.

Page 3 – Structure and Tenant Type Information

STRUCTURE AND TENANT TYPE INFORMATION

PPI# 1

This form is required for multi-family, retail, commercial, industrial, & institutional projects. Complete ALL fields to prevent processing delays.

Are there any existing buildings to be demolished? 2 <input type="radio"/> NO <input type="radio"/> YES - Please provide demo plans reflecting building square footage and prior tenant type information if available.		
Are there any existing EMWD easements on site? 3 <input type="radio"/> NO <input type="radio"/> YES - Please provide location: _____		
Structure Information		
Number of Buildings/Suites: 5 ▼ 4 *If multiple buildings/suites will be included in this application, provide building/suite numbers. Provide site map.		
1. Proposed Use:	5	▼ Square Footage: 6 Address/Bldg/Suite #: 7
2. Proposed Use:	8	▼ Square Footage: Address/Bldg/Suite #:
3. Proposed Use:	9	▼ Square Footage: Address/Bldg/Suite #:
4. Proposed Use:	10	▼ Square Footage: Address/Bldg/Suite #:
5. Proposed Use:	11	▼ Square Footage: Address/Bldg/Suite #:

Page 3 – Structure and Tenant Type Information (Continued)

The Structure and Tenant Type Information page is an interactive form. One drop-down box will allow for the next field to be completed. Therefore, this form should be filled out in sequence. For an explanation of each field, refer to the below information; each number corresponds to the number above.

1. PPI # (TO BE FILLED OUT BY EMWD) is the identification number used by EMWD to identify the project. Please use this number in all correspondence to avoid any confusion.
2. To determine possible credits for existing services, EMWD asks if the existing building(s) that will be demolished. Please specify the building to be demolished and provide demolition plans.
3. EMWD asks for existing easements on the project site to ensure that proposed construction does not interfere with the access of facilities. If there is an existing easement, please specify and provide the location.
4. The number of buildings/suites refers to individual buildings or number of suites that will be constructed. The number of buildings will generate additional fields. If there are more than 5 buildings/suites included for a project, please include additional sheet(s) with your submittal.
5. The Proposed Use dropdown lists a number of project types that have been seen in the EMWD's service area. Please select the building type that corresponds with each individual building.
 - For commercial buildings that will be built at shell (no tenant at time of construction), select "Commercial (Shell)".
 - For industrial buildings or warehouses that will be built at shell (no tenant at time of construction), select "Open Storage Facility/Warehouse".

Once a proposed use has been selected, fields will be generated showing information that needs submitted. ALL fields need to be completed and matching with corresponding arch plans, floor plans, seating plans, etc.

Please Note: Missing and/or inconsistent information on these fields might delay in processing the AFS.

6. If a proposed building will be separated into suites, the square footage for each suite needs to be provided. In addition, provide the entire building square footage (ensuring that any 2nd floors areas are included and accounted for). Ensure that the all building areas are consistent with the value(s) listed on floor plans or arch plans.
7. For projects with multiple suites, provide the building/suite number. If this does not apply to the project, label as "N/A".
8. Please complete items 5-7 for building 2.
9. Please complete items 5-7 for building 3.
10. Please complete items 5-7 for building 4.
11. Please complete items 5-7 for building 5.

F. Civil Drawing

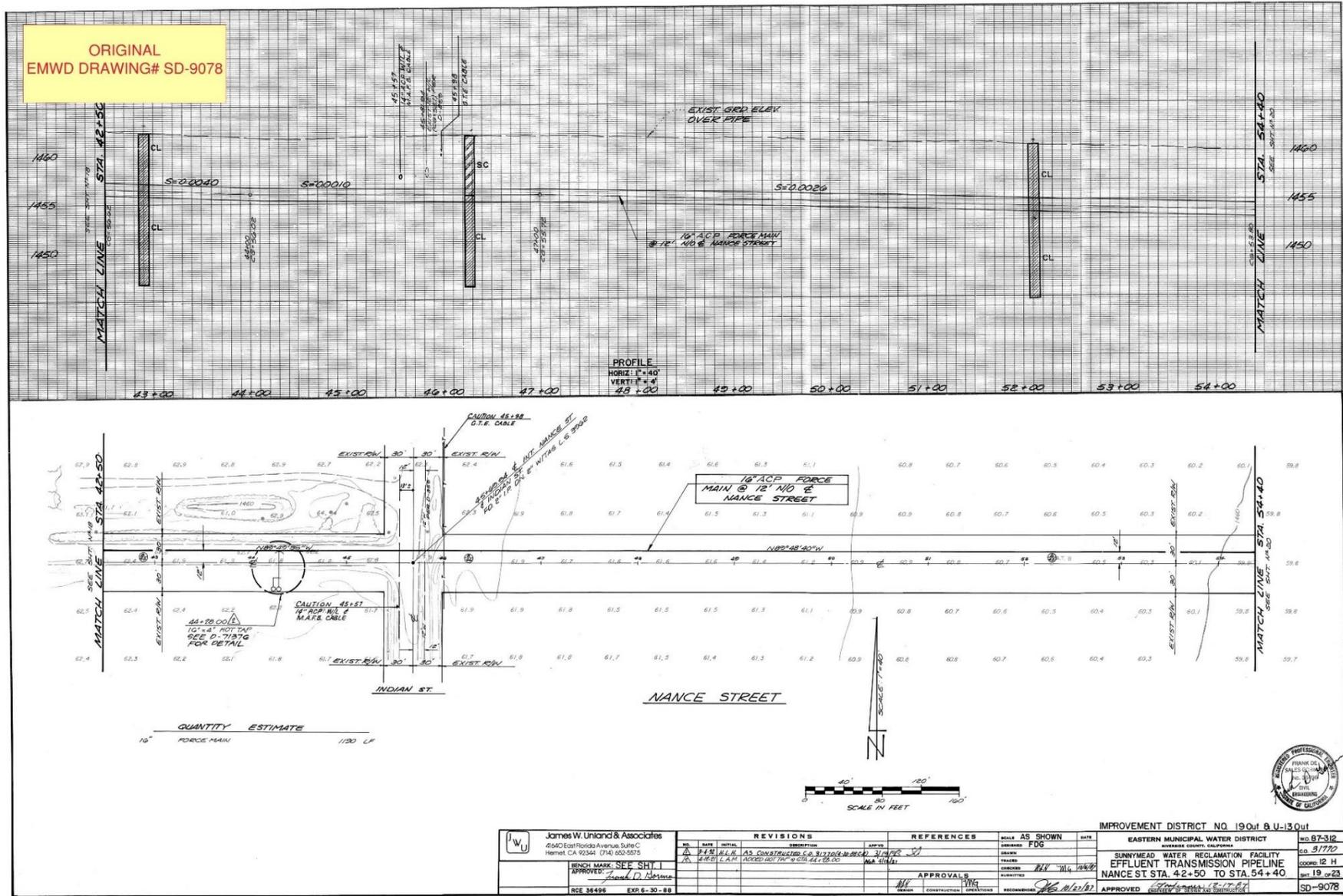
EMWD stores a vast number of record drawings that document the type, size, alignment, and design of EMWD facilities. To ensure that EMWD Civil Drawings stay up-to-date, new drawings corresponding to a project need to be generated for all new connections to EMWD facilities (water/recycled/sewer).

It is the Applicant's responsibility to create a new full-sized civil plan (D Drawing) for EMWD records. This section discusses the **minimum** information needed at the time of a project's initial submittal. See the reference information and sample D Drawing below:

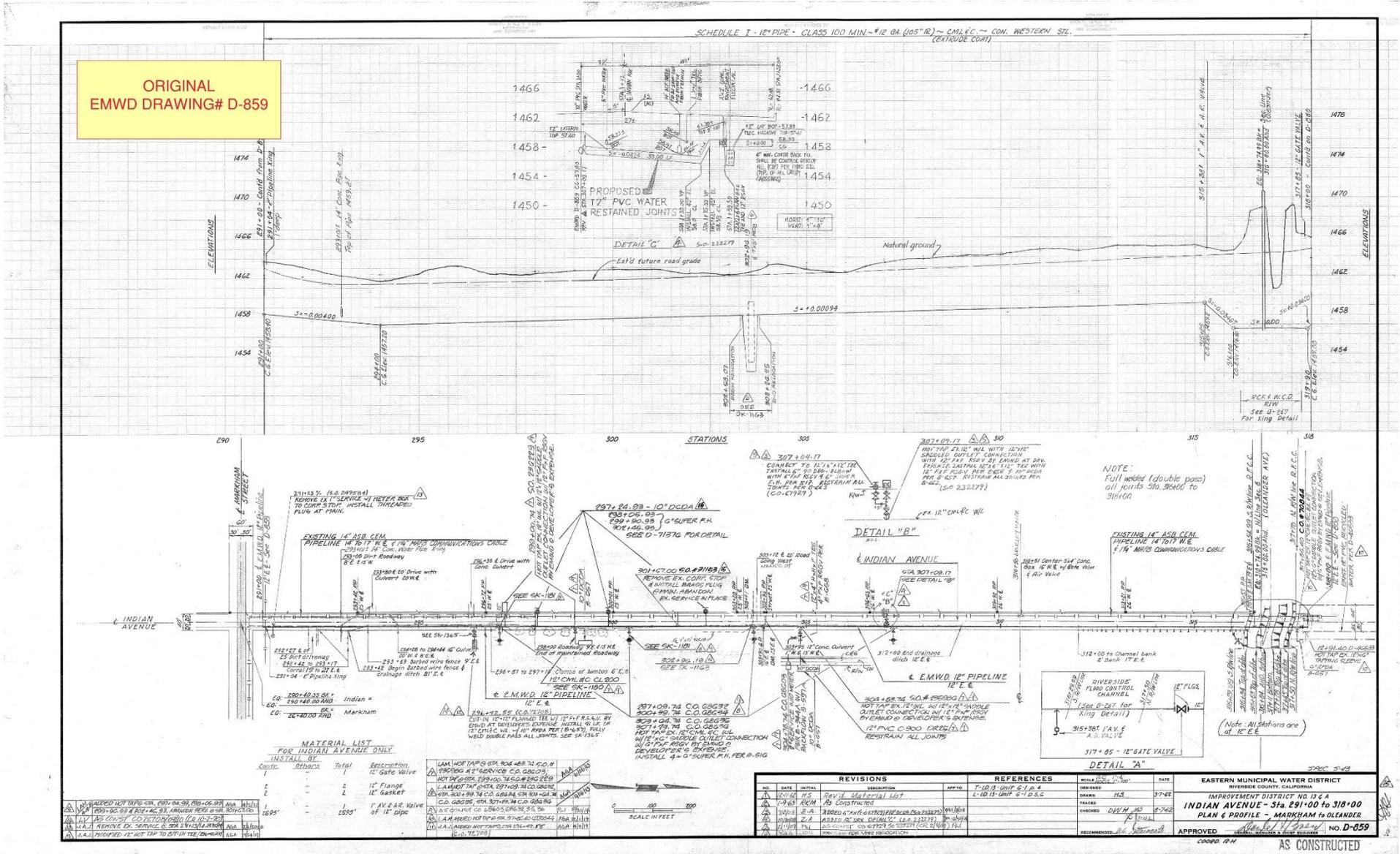
- Obtain existing EMWD Civil Drawings via Public Map Portal located here: <https://mapportal.emwd.org/> or call EMWD (951) 928-3777 extension 4330.
- Obtain EMWD Standards, Specifications and Drawings: <https://www.emwd.org/engineering-standards-specifications-and-drawings> for EMWD design standards.
- Determine the type, size, and stationing of the proposed connection and/or meter. Refer to Section 9.5 for a guide.
- For more information and examples for connecting to existing facilities, please visit <https://www.emwd.org/post/connections-existing-facilities-afs-toolbox>
- For more information regarding EMWD civil standards, please refer to [Section 4 - Plan Check – Water, Sewer, & Recycled Water System Plans](#) of this document.

On a case by case basis, EMWD will determine if a new D Drawing is required for a single hot-tap connection. If a new D Drawing is not required, it is the Applicant's responsibility to have a registered civil engineer electronically markup (redline) the existing EMWD Civil Drawing with the proposed connection. The connection needs to be designed and called out in accordance with EMWD standards. In addition, the Applicant's registered civil engineer will need to add their engineer's stamp to this marked up plan.

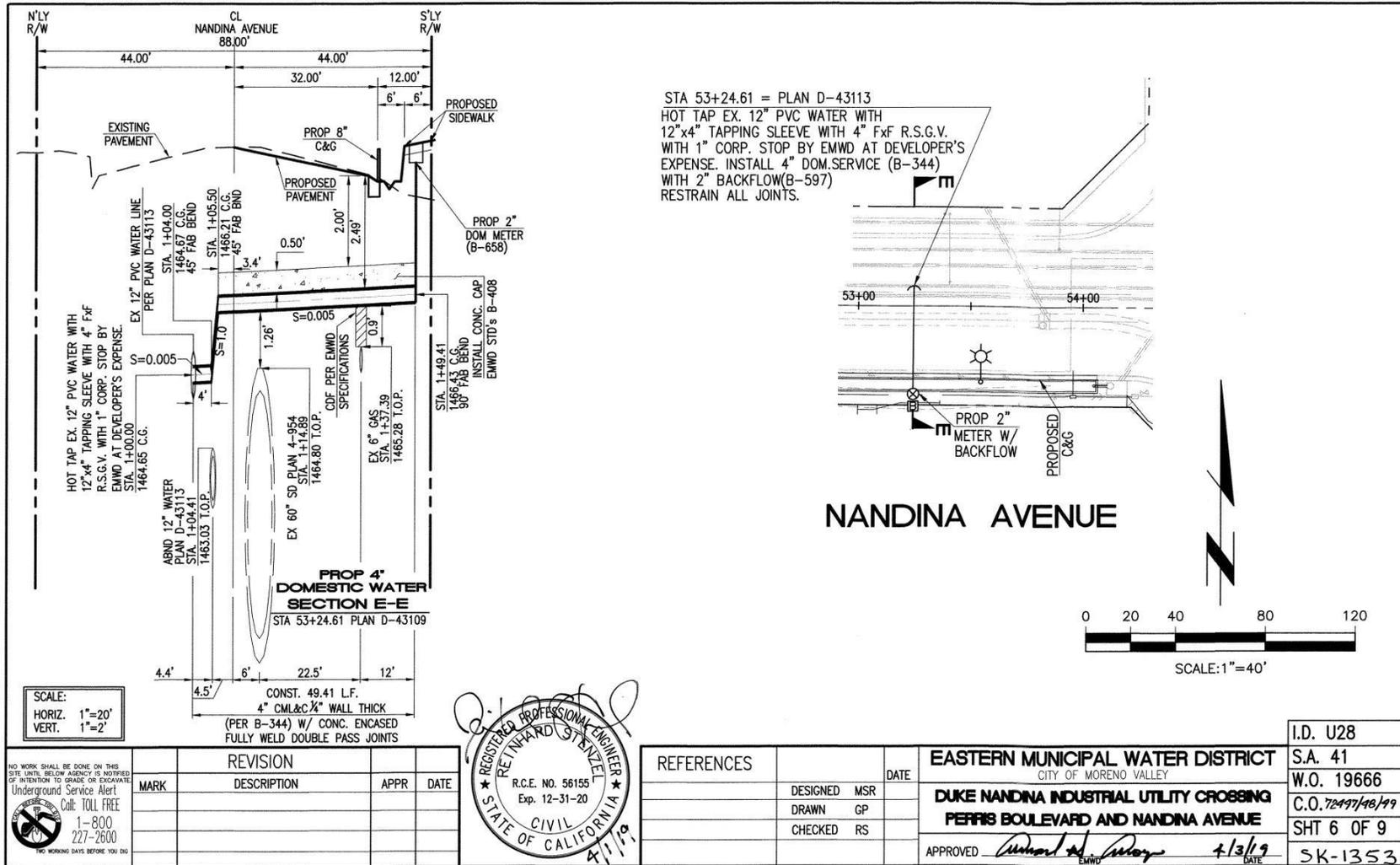
Civil Drawing – D Drawing Sample (Original 1)



Civil Drawing – D Drawing Sample (Original 2)

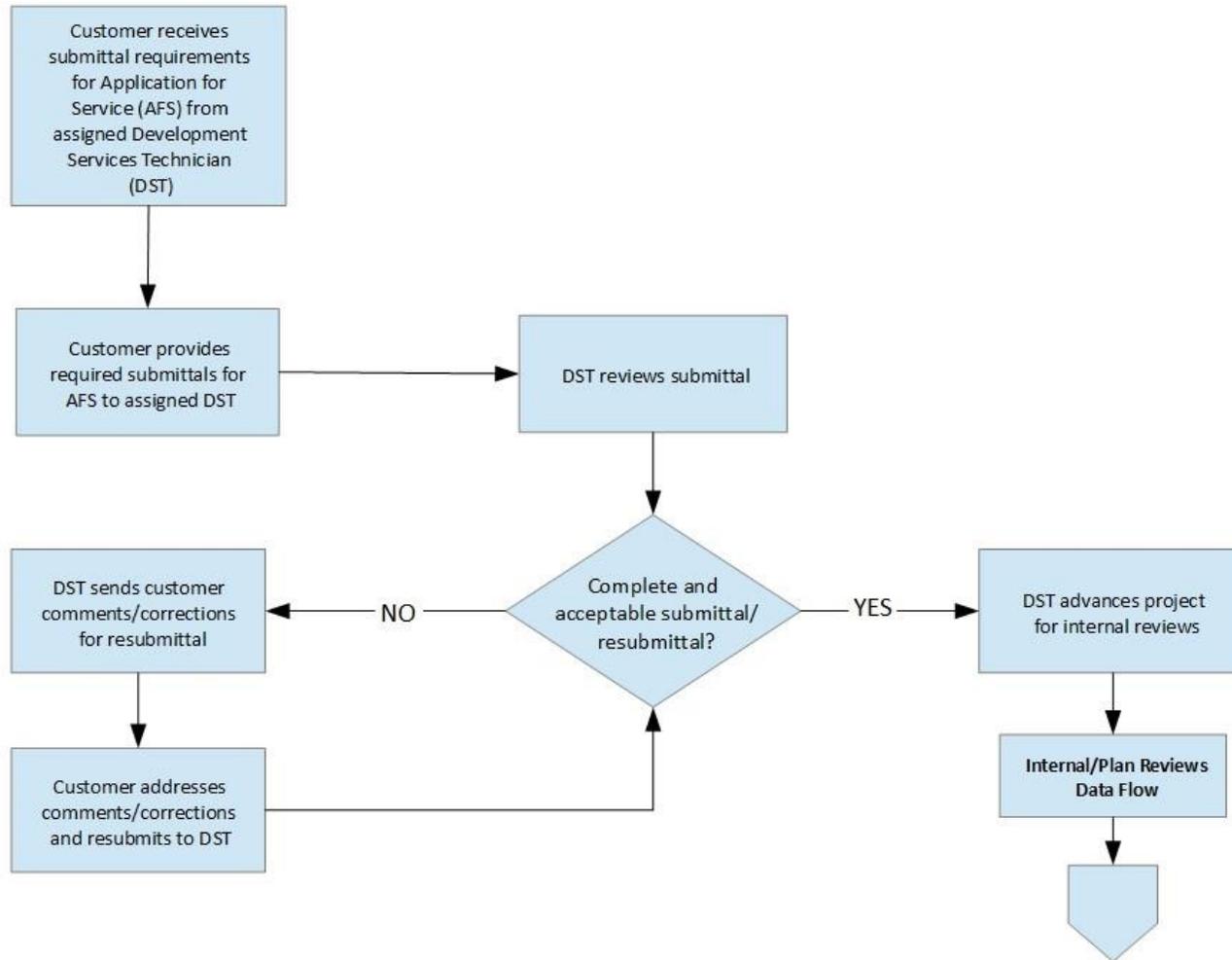


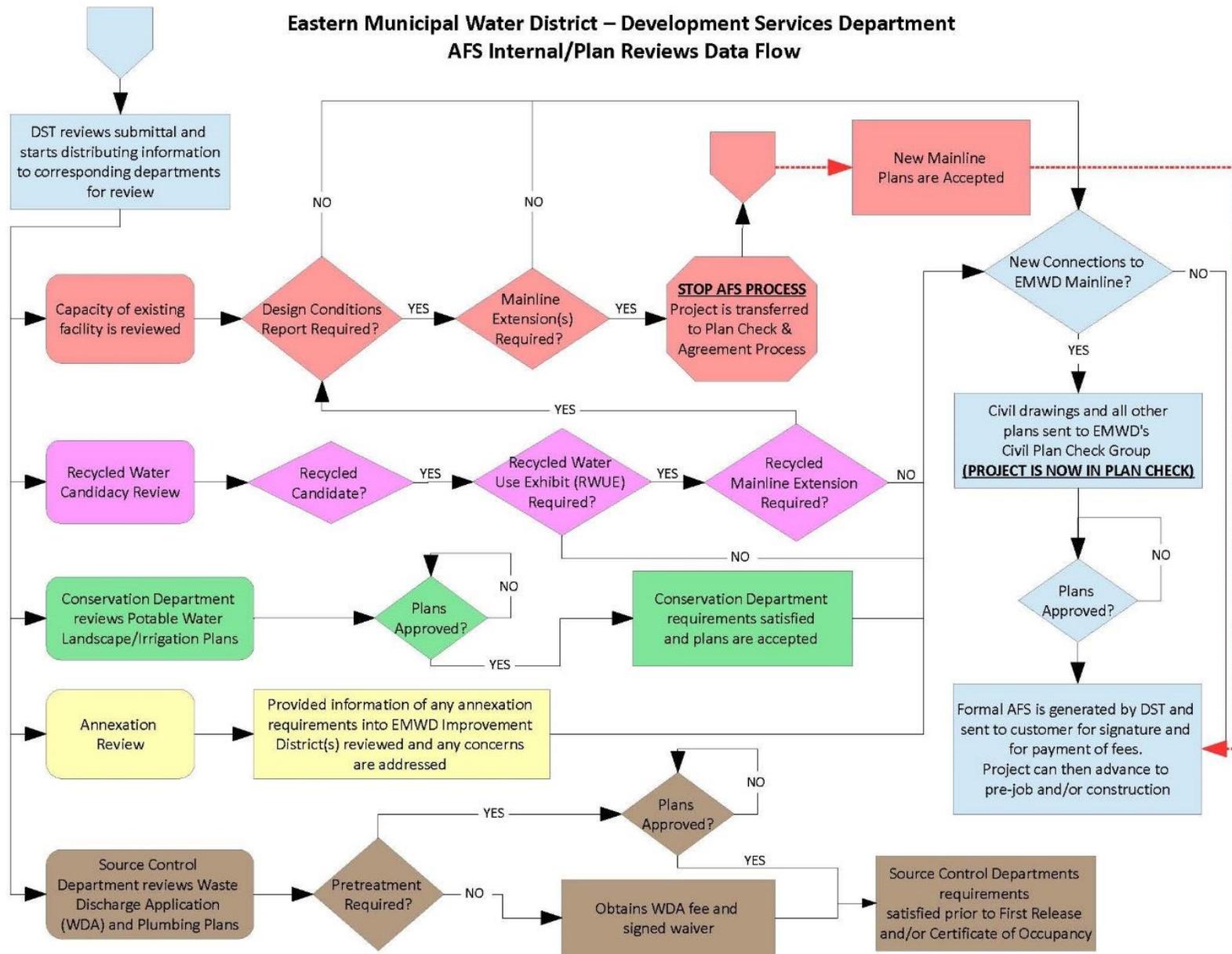
Civil Drawing – SK Drawing Sample



G. AFS Workflows

**Eastern Municipal Water District – Development Services Department
Application For Service (AFS) Initial Submittal Workflow**





Section 10. Glossary of Terms**AFS:**

Application for Service; the EMWD process for site connections to existing facilities, provided capacity is available

Approved Backflow Prevention Assembly:

A device approved by the State of California, the USC Foundation for Cross Connection Control and the District, which is installed to protect any water supply (recycled, potable, public, private, or on-site) from contamination through backflow of a substance containing a potential hazard

Approved Use Area:

A site, with well-defined boundaries, as designated in the approved RWUP/RWUE and RWIP plans, to receive recycled water for an approved use as recognized by the applicable regulatory agencies

AWWA Cross-Connection Control Specialist:

An individual who has a current Cross-Connection Control Specialist Certificate on file with AWWA and EMWD

Backflow:

A flow condition, caused by a differential pressure, that causes the flow of water or other liquids, gases, mixtures or substances into the distributing pipes of a water supply from any source or sources other than an approved water supply source

CC&R's:

Covenants, Conditions, and Restrictions issued by a Property Owners Association

DDW:

California Department of Health Services, Division of Drinking Water and Environmental Management

CIMIS:

California Irrigation Management Information System (www.cimis.water.ca.gov)

CIP:

EMWD's Capital Improvement Program

COA:

Conditions of Approval; project conditions set by the governing agency

Controller Charts:

RWIP drawings that graphically identify in color the area served by each remote control valve in the As-built condition

Cross-Connection:

Any unprotected actual or potential connection, or structural arrangement between a public or a consumer's potable water system and any other source or system, through which it is possible to introduce into any part of the potable system, any used water, recycled water, industrial fluid, gas, or substances other than the intended potable water, with which the system is supplied. By-pass arrangements, jumper connections, removable sections, swivel, or changeover devices and other temporary or permanent devices through which, or because of, backflow can occur, are considered cross-connections, and are prohibited

Cross-Connection Test:

Any test conducted by an American Water Works Association (AWWA) Cross-Connection Control Specialist to determine whether an interconnection between a potable and non-potable system exists. It may be in the form of a differential pressure shutdown test, a dye test or by visual inspection (above grade only)

DC:

Design Conditions; EMWD's process for sites with new facilities required to accommodate the development of the site

Double Check Assembly(DC):

Backflow prevention device using two gate valves assembled to block the backflow of water

ERC:

EMWD's Environmental Regulatory Compliance Department

ETo:

ETo or Annual Reference Evapotranspiration Rate is the amount of water dispersal from the soil service (evaporation) and the amount of water used by plants (transpiration) within a designated climate zone and calculated in inches

Send Safely:

The application given to EMWD's internet based network used to transfer files from the Application/Applicants Agent to EMWD.

FTP:

File Transfer Protocol; the universal name given to EMWD's internet-based network used to transfer files from the Applicant/Applicants Agent to EMWD

GPM:

Gallons per minute

Hardscape:

Concrete and/or asphalt type paving areas including streets, parking lots, sidewalks, driveways, patios, decks, etc.

HGL:

Hydraulic Grade Line

H.O.A.:

Homeowners Association

Inspector:

Any person authorized by EMWD to perform inspections on or off the customer's site before, during, or after construction

Landscape Architect:

A registered landscape architect licensed within the State of California and remains in good standing with the licensing board of the State Department of Consumer Affairs and the California Architects Board

LMD:

Landscape Maintenance District

Mainline:

The Irrigation constant or intermittent pressure pipeline that carries water from the water meter to the irrigation control valve

Non-Potable Water:

Non-potable water is not acceptable for human consumption in conformance with Federal, State, and Local drinking water standards

On-grade Piping:

On-grade piping is any piping, whether permanent or temporary, conveying water and placed on the soil surface

On-site:

All potable and/or recycled water facilities located on the downstream side of the meter. These are facilities that shall be owned, operated, and maintained by the customer

Overspray:

Dispersed, airborne particles of recycled water that can be transmitted through the air to locations other than those approved for the direct application of recycled water

POC:

Point of Connection; the point where the customer's system ties into the District's system. This is the water meter at the service connection

Ponding:

Retention of water on the surface of the ground or other natural or manmade surface, for a period following the cessation of a water use activity or irrigation system cycle

Potable Water:

Water approved for human consumption that conforms to the latest Federal, State, and local drinking water standards

Pre-Construction Conference:

A meeting held at EMWD's office that includes the developer, the landscape architect, the developer's contractor, and landscape contractor. The conference is required prior to any construction activities

Project Study Area:

The Project Study Area is the RWUE, which is comprised of multiple Project Site Areas (RWIP's) within a boundary defined by property ownership

Project Site Area

The Project Site Area is comprised of an individual tract, parcel, or lot within a boundary delineated by property ownership, maintenance entity, and land use type; i.e., commercial, industrial, manufacturing, park, school, residential, streetscape, medians, open space, basin, mitigation, etc.

PSI:

Pounds per square inch

Public Facilities:

Any and all recycled water facilities located on the upstream side of the meter, including the meter. These facilities are, or shall be, owned, operated, and maintained by the District

Record Drawings:

All drawings (RWUP, RWUE, RWIP, and RWAB) as described within these Guidelines, and as required by EMWD and/or DDW that depict the proposed, installed, or As-built project site condition

Recycled Water:

Tertiary-treated water produced from the treatment of municipal wastewater, as defined in Title 22, Division 4, Chapter 3 of the Environmental Health of the California Code of Regulations (Code)

Reduced Pressure Principal Backflow Prevention Device (RP):

A type of backflow prevention device used to protect the public system against non-

health or health hazards. The assembly shall include two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure relief valve located between the check valves and at the same time below the first check valve. To allow annual testing, the unit shall also include four resilient seated test cocks and two shutoff valves at each end of the assembly

Regulatory Agencies:

Public agencies legally constituted to protect the public health and water quality, such as Division of Drinking Water (DDW) California Regional Water Quality Control Board, County of Riverside Department of Environmental Health, and EMWD

RFI:

Request For Information; Information requested by the developer, contractor, or inspector in a written format in response to a variance from the approved irrigation plans

Runoff:

When recycled water drains away from or outside the approved use area

RWQCBs

Regional Water Quality Control Boards

Site Supervisor:

The on-site recycled water supervisor is a qualified person designated by the recycled water user and approved by the District. This person has attended a site supervisor training class, is knowledgeable in the construction and operation of the recycled water and irrigation systems, and in the application of the Federal, State, and local guidelines, criteria, standards, rules, and regulations governing the use of recycled water

Supply Line: Mainline

Any and all recycled, potable, or fire line water facilities located on the upstream side of the meter, including the meter. These facilities are, or shall be, owned, operated, and maintained by the District

SWRCB

State Water Resource Control Board

USC Foundation:

University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USCFCCC&HR)

Violation:

Non-compliance with any condition of the Recycled Water Agreement, the Guidelines, DDW, and EMWD regulations or BMP's by any person, action, or occurrence, whether willfully or by accident