BOARD MEETING AGENDA
SPECIAL MEETING OF THE BOARD OF DIRECTORS OF
CITRUS HEIGHTS WATER DISTRICT (CHWD)
June 24, 2025 beginning at 6:00 PM

DISTRICT ADMINISTRATIVE OFFICE
6230 SYLVAN ROAD, CITRUS HEIGHTS, CA

CITRUS HEIGHTS WATER DISTRICT

PHONE CALL IN: (253) 205-0468
PHONE MEETING ID: 820 1810 2948
COMPUTER AUDIO/LIVE MEETING PRESENTATIONS: https://chwd-org.zoom.us/j/82018102948

In compliance with the Americans with Disabilities Act, if you have a disability and need a disability-related modification or accommodation to participate in this meeting, please contact the General Manager at (916) 725-6873. Requests must be made as early as possible, and at least one full business day before the start of the meeting.

Members of the public may attend the meeting in person at the District headquarters or remotely through the phone number and link above.

Materials related to an agenda item for an open session of a regular meeting of the Citrus Heights Water District are posted on the Citrus Heights Water District website at www.chwd.org.

CALL TO ORDER:

Upon request, agenda items may be moved to accommodate those in attendance wishing to address that item. Please inform the Chief Board Clerk or Deputy Board Clerk.

VISITORS:

PUBLIC COMMENT:

The Public shall have the opportunity to directly address the Board on any item of interest to the public before or during the Board's consideration of that item pursuant to Government Code Section 54954.3. Public comment on items of interest within the jurisdiction of the Board is welcome. The Presiding Officer will limit comments to three (3) minutes per speaker.

(A) Action Item (D) Discussion Item (I) Information Item

CLOSED SESSION:

CL-1. CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Pursuant to Section 54956.8:
Property: Parcel Number 243-0180-002-0000
Agency Negotiators: Steve Anderson, Brian Hensley, Josh Nelson, Hilary Straus, Annie Liu, Brittney Moore, Missy Pieri, Carlos Urrutia, Kayleigh Shepard, Todd Jordan, Jace Nunes, Mary Elise Conzelmann, Greg Snarr
Negotiating Parties: Ashwani Kumar, Teresita Kumar

Under Negotiation: Price and Terms of Payment

CL-2. CONFERENCE WITH LEGAL COUNSEL—EXISTING LITIGATION
(Paragraph (1) of subdivision (d) of Section 54956.9)
CHWD v. San Juan Water District, Sacramento Superior Court, Case No. 24WM000064

CL-3. CONFERENCE WITH LEGAL COUNSEL—EXISTING LITIGATION
(Paragraph (1) of subdivision (d) of Section 54956.9)
Name of case: Lashmett v. CHWD, Sacramento Superior Court, Case No. TC25-5026

FUTURE CHWD BOARD OF DIRECTORS MEETING DATES:

June 24, 2025	6:30 PM	Regular Meeting
August 26, 2025	6:30 PM	Regular Meeting
September 23, 2025	6:30 PM	Regular Meeting
October 28, 2025	6:30 PM	Regular Meeting
November 18, 2025	6:00 PM	Special Meeting
December 15, 2025	6:00 PM	Special Meeting

ADJOURNMENT:

CERTIFICATION:

I do hereby declare and certify that this agenda for this Special Meeting of the Board of Directors of the Citrus Heights Water District was posted in a location accessible to the public at the District Administrative Office Building, 6230 Sylvan Road, Citrus Heights, CA 95610 at least 24 hours prior to the special meeting in accordance with Government Code Section 54956.

Brittney Moore

Brittney Moore, Chief Board Clerk

Dated: June 19, 2025

BOARD MEETING AGENDA
REGULAR MEETING OF THE BOARD OF DIRECTORS OF
CITRUS HEIGHTS WATER DISTRICT (CHWD)
June 24, 2025 beginning at 6:30 PM

DISTRICT ADMINISTRATIVE OFFICE
6230 SYLVAN ROAD, CITRUS HEIGHTS, CA

PHONE CALL IN: (253) 205-0468
PHONE MEETING ID: 820 1810 2948
COMPUTER AUDIO/LIVE MEETING PRESENTATIONS: https://chwd-org.zoom.us/j/82018102948

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Materials related to an agenda item for an open session of a regular meeting of the Citrus Heights Water District are posted on the Citrus Heights Water District website at www.chwd.org.

CALL TO ORDER:

Upon request, agenda items may be moved to accommodate those in attendance wishing to address that item. Please inform the Chief Board Clerk or Deputy Board Clerk.

ROLL CALL OF DIRECTORS:

PLEDGE OF ALLEGIANCE:

VISITORS:

PUBLIC COMMENT:

The Public shall have the opportunity to directly address the Board on any item of interest to the public before or during the Board's consideration of that item pursuant to Government Code Section 54954.3. Public comment on items of interest within the jurisdiction of the Board is welcome. The Presiding Officer will limit comments to three (3) minutes per speaker.

(A) Action Item (D) Discussion Item (I) Information Item

CONSENT CALENDAR: (I/A)

All items under the Consent Calendar are considered to be routine and will be approved by one motion. There will be no separate discussion of these items unless a member of the Board, Audience, or Staff request a specific item be removed for separate discussion/action before the motion to approve the Consent Calendar.

CC-1a. Minutes of the Special Meeting –May 27, 2025 (A)

CC-1b. Minutes of the Regular Meeting –May 27, 2025 (A)

Recommendation:

Approve the minutes of the May 27, 2025 Special and Regular Meetings

CC-2. Revenue Analysis Report for May 2025 (I)

CC-3. Assessor/Collector's Roll Adjustment for May 2025 (I)

CC-4. Treasurer's Report for May 2025 (I)

CC-5. Treasurer's Report of Fund Balances for May 2025 (I)

CC-6. Operating Budget Analysis for May 2025 (I)

CC-7. Capital Projects Summary for May 2025 (I)

CC-8. Warrants for May 2025 (I)

CC-9. Purchase Card Distributions for May 2025 (I)

CC-10. Employee Recognitions (I)

CC-11. Long-Range Agenda (I)

CC-12. Engineering Department Report (I)

CC-13. Operations Department Report (I)

CC-14. Water Supply (I)

CC-15. Water Supply Reliability (I)

CC-16. Water Efficiency and Safety Program Update (I)

CC-17. Discussion and Possible Action to Approve Task Order Style Master Services Agreement with Raftelis Financial Consultants, Inc. (A)

Recommendation:

Approve the task order-style master services agreement with Raftelis Financial Consultants, Inc., and authorize the General Manager to execute the agreement.

CC-18. Resolution commending Tim Cutler for Service to the Citrus Heights Water District (A)

Recommendation:

Adopt Resolution No.10-2025 Commending Tim Cutler for service to the Citrus Heights Water District.

CC-19. Approval of 2026 Strategic Plan (A)

Recommendation:

Approve the 2026 Strategic Plan, and direct that Strategic Planning Objectives be included in the 2026 proposed budget, which will be considered by the Board of Directors for adoption later in 2025 for the 2026 budget year.

CC-20. Update of Cross-Connection Resolution (A)

Recommendation:

Adopt Resolution No.11-2025 - A Resolution adopting a cross-connection control program to protect the public water system.

CC-21. Appointment of District Staff Representatives and Alternates (A)

Recommendation:

Appoint and/or reappoint Representatives and Alternates to Various Organizations.

CC-22. Resolution Endorsing Ernesto Avila for Association of California Water Agencies (ACWA) President (A)

Recommendation:

Adopt Resolution No. 12-2025 Endorsing Ernesto Avila for ACWA President

PRESENTATIONS:

None.

PUBLIC HEARINGS:

PH-1. 2025 Public Health Goals Report (A)

Recommendations:

1. Hold a public hearing and receive comments on the draft water quality Public Health Goals Report.
2. Adopt the 2025 Public Health Goals Report

STUDY SESSION:

None.

BUSINESS:

B-1. Discussion and Possible Action to Adopt Engineering Standards and Approve District Policy Updates (A)

Recommendations:

1. Approve Resolution No. 09-2025 Adopting District Engineering Standards
2. Approve the updates to the District Policies (5000, 7000, 8000 and 9000 series) listed in Table 2.

B-2. Annual Comprehensive Financial Report for the Year Ended December 31, 2024 (A)

Recommendation:

Receive and File the District's Annual Comprehensive Financial Statements for the Year Ended December 31, 2024.

B-3. Discussion and Possible Action to Designate the District's Representative for the 2023-2025 Regional Water Authority (RWA)/Sacramento Groundwater Authority (SGA) Executive Director Performance Review (A)

Recommendation:

Designate the District's Representative for the 2023-2025 Regional Water Authority (RWA)/Sacramento Groundwater Authority (SGA) Executive Director Performance Review

MANAGEMENT SERVICES REPORTS (I):

None.

CONSULTANTS' AND LEGAL COUNSEL'S REPORTS (I):

None.

DIRECTOR'S AND REPRESENTATIVE'S REPORTS (I):

D-1. Regional Water Authority (Wheaton/Straus).
D-2. Sacramento Groundwater Authority (Sheehan/Riehle).
D-3. San Juan Water District (All).
D-4. Association of California Water Agencies (Riehle/Wheaton).
D-5. ACWA Joint Powers Insurance Authority (Wheaton/Moore).
D-6. City of Citrus Heights (Pieri).
D-7. Chamber of Commerce Update (Conzelmann).
D-8. RWA Legislative and Regulatory Affairs Update (Conzelmann).
D-9. Customer Advisory Committee (Riehle/Conzelmann).
D-10. Other Reports.

FUTURE CHWD BOARD OF DIRECTORS MEETING DATES:

August 26, 2025	6:30 PM	Regular Meeting
September 23, 2025	6:30 PM	Regular Meeting
October 28, 2025	6:30 PM	Regular Meeting
November 18, 2025	6:00 PM	Special Meeting
December 15, 2025	6:00 PM	Special Meeting

ADJOURNMENT:

CERTIFICATION:

I do hereby declare and certify that this agenda for this Regular Meeting of the Board of Directors of the Citrus Heights Water District was posted in a location accessible to the public at the District Administrative Office Building, 6230 Sylvan Road, Citrus Heights, CA 95610 at least 72 hours prior to the regular meeting in accordance with Government Code Section 54956.

Brittney Moore

Brittney Moore, Chief Board Clerk

Dated: June 19, 2025

CITRUS HEIGHTS WATER DISTRICT
BOARD OF DIRECTORS SPECIAL MEETING MINUTES
May 27, 2025

The Special Meeting of the Board of Directors was called to order at 6:00 p.m. by President Riehle and present were:

Raymond A. Riehle, President
Caryl F. Sheehan, Vice President
David C. Wheaton, Director

Also present were:

Steve Anderson, General Counsel
Mary Elise Conzelmann, Public Affairs Analyst
Teresa Highsmith, Special Labor Counsel
Al Johnson, Strategic Advisor
Annie Liu, Director of Administrative Services
Brittney Moore, Administrative Services Manager/Chief Board Clerk
Josh Nelson, Assistant General Counsel
Rebecca Scott, Director of Operations
Hilary Straus, General Manager

PUBLIC COMMENT:

None.

President Riehle adjourned the meeting to Closed Session at 6:00 p.m.

CLOSED SESSION:

CL-1. CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Initiation of Litigation pursuant to Government Code, section 54956.9(d)(4): (two cases)

In Closed Session, the Board gave unanimous direction to legal counsel regarding a claim made against the District.

CL-2. CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Pursuant to Section 54956.8:
Property: Parcel Number 243-0180-002-0000
Agency Negotiators: Steve Anderson, Rebecca Scott, Josh Nelson, Hilary Straus, Annie Liu, Brittney Moore, Carlos Urrutia, Todd Jordan, Mary Elise Conzelmann, Greg Snarr
Negotiating Parties: Ashwani Kumar, Teresita Kumar
Under Negotiation: Price and Terms of Payment

No reportable action

CL-3. CONFERENCE WITH LEGAL COUNSEL—EXISTING LITIGATION

(Paragraph (1) of subdivision (d) of Section 54956.9)
CHWD v. San Juan Water District, Sacramento Superior Court,
Case No. 24WM000064

No reportable action.

President Riehle adjourned the meeting back to open session at 6:43 p.m.

ADJOURNMENT:

There being no other business to come before the Board, the meeting was adjourned at 6:44 p.m.

APPROVED:

BRITTNEY C. MOORE Chief Board Clerk Citrus Heights Water District	RAYMOND A. RIEHLE, President Board of Directors Citrus Heights Water District

CITRUS HEIGHTS WATER DISTRICT
BOARD OF DIRECTORS REGULAR MEETING MINUTES
May 27, 2025

The Regular Meeting of the Board of Directors was called to order at 6:44 p.m. by President Riehle and roll was called. Present were:

Raymond A. Riehle, President
Caryl F. Sheehan, Vice President
David C. Wheaton, Director

Also present were:

Steve Anderson, General Counsel
Mary Elise Conzelmann, Public Affairs Analyst
Tamar Dawson, Assistant Engineer
Todd Jordan, Principal Civil Engineer
Annie Liu, Director of Administrative Services
Brittney Moore, Administrative Services Manager/Chief Board Clerk
Jace Nunes, Management Analyst
Melissa Pieri, Director of Engineering/District Engineer
Rebecca Scott, Director of Operations
Kayleigh Shepard, Management Analyst/Deputy Board Clerk
Hilary Straus, General Manager
Torrance York, Information Technology Technician

Rhodora Biagtan, West Yost Associates, Inc.
Ashley Casey, Water Forum
Ben Crawford, Crawford & Associates, Inc.
Craig Spiess, Wood Rodgers, Inc.
Tom Dugan, Dugan Management & Engineering, Inc.

VISITORS:

Liliana Hodges, Trajan Elementary School
Sophia Richards, Trajan Elementary School
Lyra Rutherford, Woodside K-8
Susanne Slayton, Woodside K-8
Sallee Weston, Trajan Elementary School

PLEDGE OF ALLEGIANCE:

President Riehle led the Pledge of Allegiance.

PUBLIC COMMENT:

None.

CONSENT CALENDAR:

CC-1a. Minutes of the Special Meeting – April 22, 2025 (A)
CC-1b. Minutes of the Regular Meeting – April 22, 2025 (A)
CC-1c. Minutes of the Special Meeting – April 28, 2025 (A)
CC-1d. Minutes of the Special Meeting – May 7, 2025 (A)

Recommendation:
Approve the minutes of the March 25, 2025 Special and Regular Meetings, the minutes of the April 28, 2025 Special Meeting, and the minutes of the May 7, 2025 Special Meeting.

CC-2. Revenue Analysis Report for April 2025 (I)
CC-3. Assessor/Collector's Roll Adjustment for April 2025 (I)
CC-4. Treasurer's Report for April 2025 (I)
CC-5. Treasurer's Report of Fund Balances for April 2025 (I)
CC-6. Operating Budget Analysis for April 2025 (I)
CC-7. Capital Projects Summary for April 2025 (I)
CC-8. Warrants for April 2025 (I)
CC-9. Purchase Card Distributions for April 2025 (I)
CC-10. Employee Recognitions (I)
CC-11. Long-Range Agenda (I)
CC-12. Engineering Department Report (I)
CC-13. Operations Department Report (I)
CC-14. Water Supply (I)
CC-15. Water Supply Reliability (I)
CC-16. Water Efficiency and Safety Program Update (I)
CC-17. Discussion and Possible Action to Adopt Resolution 07-2025 Approving and Confirming the Report of Delinquent Utilities Charges and Requesting Sacramento County to Collect Such Charges on the Tax Roll and Resolution 08-2025 Approving and Confirming the Report of Delinquent Utilities Charges and Requesting Placer County to Collect Such Charges on the Tax Roll (A)

Recommendation:
Adopt Resolutions 07-2025 (Sacramento County) and 08-2025 (Placer County) approving and confirming the Report of Delinquent Utilities Charges and requesting the respective county to place such charges on the respective tax roll.

CC-18. Discussion and Possible Action to Approve the Water Forum Fiscal Year 2025-2026 Funding Agreement (A)

Recommendation:
Approve the FY26 funding agreement for the Water Forum and authorize the General Manager to execute the agreement.

CC-19. Discussion and Possible Action to Approve a Professional Services Agreement with Dugan Management and Engineering, Inc. (A)

Recommendation:
Approve the professional services agreement with Dugan Management & Engineering, Inc., and authorize the General Manager to execute the agreement.

CC-20. Discussion and Possible Action to Approve a Professional Services Agreement with Crawford and Associates, Inc. (A)

Recommendation:
Approve the professional services agreement with Crawford & Associates,

Inc., and authorize the General Manager to execute the agreement.

CC-21. Discussion and Possible Action to Approve a Professional Services Agreement with Wood Rodgers, Inc. (A)

Recommendation:

Approve the professional services agreement with Wood Rodgers, Inc., and authorize the General Manager to execute the agreement.

CC-22. Discussion and Possible Action to Fill Vacancies on the Customer Advisory Committee (A)

Recommendation:

Appoint residential alternate members, Paul Dietrich and Julia Eunice, to the vacant residential member seats; and appoint Amanda Camacho as a CAC residential alternate member.

ACTION:
Director Wheaton moved, and Vice President Sheehan seconded a motion to approve the consent calendar.

The motion carried 3-0 with all Directors voting yes.

PRESENTATIONS:

P-1. Water Awareness Poster Contest (I/D)

P-2. Facilities Modernization and Expansion Project Update (I/D)

PUBLIC HEARINGS:

None.

STUDY SESSION:

None.

BUSINESS:

B-1. Discussion and Possible Action to Adopt Engineering Standards and Approve District Policy Updates (A)

The Board requested additional time to review the proposed Engineering Standards and District policy updates. By unanimous consent, the item was deferred and will be brought back for consideration at the June 24, 2025 Regular Board Meeting. No motion was made, and no action was taken.

B-2. Appointment of District Officers (A)

ACTION:
Vice President Sheehan moved, and Director Wheaton seconded a motion to appoint and/or reconfirm the following District Officers:

	Officer	Deputy Officer
Assessor/Collector	Annie Liu	Dana R. Mellado
Treasurer	Annie Liu	Accounting Manager

Secretary	Hilary M. Straus	Brittney C. Moore

The motion carried 3-0 with all Directors voting yes.

B-3. Discussion and Possible Action to Designate the District's Voter Representative for the ACWA 2025 Election (A)

The Board provided consensus direction for the General Manager to receive the election material. An overview of the candidates will be presented at a future board meeting, and the Board will provide directions on how to complete the ballot. No motion was made, and no action was taken.

MANAGEMENT SERVICES REPORTS (I):

None.

CONSULTANTS' AND LEGAL COUNSEL'S REPORTS (I):

None.

DIRECTOR'S AND REPRESENTATIVE'S REPORTS (I):

D-1. Regional Water Authority
D-2. Sacramento Groundwater Authority (Sheehan/Riehle).
D-3. San Juan Water District (All).
D-4. Association of California Water Agencies (Riehle/Wheaton).
D-5. ACWA Joint Powers Insurance Authority (Wheaton/Moore).
D-6. City of Citrus Heights (Pieri).
D-7. Chamber of Commerce Update (Conzelmann).
D-8. RWA Legislative and Regulatory Affairs Update (Conzelmann).
D-9. Customer Advisory Committee (Riehle/Conzelmann).
D-10. Other Reports.

ADJOURNMENT:

There being no other business to come before the Board, the meeting was adjourned at 7:56 p.m.

APPROVED:

BRITTNEY C. MOORE
Chief Board Clerk
Citrus Heights Water District

RAYMOND A. RIEHLE, President
Board of Directors
Citrus Heights Water District

CITRUS HEIGHTS WATER DISTRICT
May 2025
REVENUE ANALYSIS

Outstanding Receivables

Aged Trial Balance					
Total	Current	31-90	91-150	>150	Unapplied Current
1,338,709	956,000	160,686	71,582	304,801	154,361

General Ledger Balance		Total
Outstanding A/R		1,452,646.74
Outstanding Liens		-
Outstanding Grants		740.31
A/R Other		-
Less Unapplied Payments		(155,561)
Total	$	1,297,826
Diff	$	(40,882)

CITRUS HEIGHTS WATER DISTRICT
ASSESSOR/COLLECTOR'S ROLL ADJUSTMENTS FOR
May 31, 2025

LID	CID	Charge Type	Trans.Date	Reason For Cancellation	Amount
18254	23747	DEFAULT	4/9/2025	ONE TIME COURTESY	7.99000
06490	5784	DEFAULT	4/9/2025	ONE TIME COURTESY	6.66000
18987	33094	DEFAULT	4/9/2025	ONE TIME COURTESY	9.43000
17533	29741	DEFAULT	4/22/2025	ONE TIME COURTESY	7.41000
03341	3052	DEFAULT	4/22/2025	ONE TIME COURTESY	8.89000
09795	7283	DEFAULT	4/29/2025	ONE TIME COURTESY	8.15000
17446	33930	DEFAULT	4/29/2025	ONE TIME COURTESY	7.34000
04995	24821	DEFAULT	4/29/2025	ONE TIME COURTESY	7.74000
05066	32144	DEFAULT	4/29/2025	ONE TIME COURTESY	7.47000
04933	27597	DEFAULT	4/29/2025	ONE TIME COURTESY	5.06000
01462	16542	DEFAULT	4/29/2025	ONE TIME COURTESY	8.76000
08492	26590	DEFAULT	4/29/2025	ONE TIME COURTESY	6.28000
09200	40185	DEFAULT	4/29/2025	ONE TIME COURTESY	7.20000
05541	19302	DEFAULT	5/6/2025	ONE TIME COURTESY	10.92000

May 31, 2025

To: Citrus Heights Water District Board of Directors

Re: Citrus Heights Water District Investment Portfolio Report for May 2025

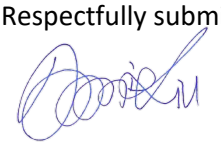
The attached Investment Report for May 2025 is submitted in accordance with the Citrus Heights Water District (District)'s Investment Policy. All investments are in compliance with the policy.

The Investment Report lists all short- term, mid-term and long-term investments held at the conclusion of business on the final day of the month. The combined cash and investments in the District's treasury total $33,370,812 with $9,648,253 under the management of the Local Agency Investment Fund, California Asset Management Program, Money Market Funds and BMO Bank.

Investments with original cost of $23,722,560 are selected based on criteria contained in the District's Investment Policy, which emphasized safety, liquidity, yield, and diversification. The core investments are marked to market daily based on a current market price determined by U.S. Bancorp Investments. The aggregate investment portfolio and holdings are included in the Investment Report.

The Investment Report demonstrates that sufficient liquidity is available to meet anticipated expenditures during the next six months.

Respectfully submitted,



Annie Y. Liu

Director of Administrative Services/Treasurer

TREASURER'S REPORT TO THE BOARD OF DIRECTORS

For May 31, 2025

Summary of Funds

Fund Name	Par Amount	Book Value	Original Cost	Market Value
BMO Checking Plus Money Market Funds	3,536,310	3,536,310	3,536,310	3,536,310
Local Agency Investment Fund (LAIF)	57,183	57,183	57,183	57,183
California Asset Management Program (CAMP)	6,054,760	6,054,760	6,054,760	6,054,760
CHWD Investment CORE	24,314,737	23,722,560	23,522,075	23,837,365
Total	**33,962,988.83**	**33,370,812.28**	**33,170,327.62**	**33,485,617.44**

TREASURER'S REPORT TO THE BOARD OF DIRECTORS

For May, 2025

Funds Reconciliation

BMO Beginning Balance 5/1/25			**$3,597,400**
RECEIPTS/TRANSFERS:			
Receipts	1,834,372		
		1,834,372	
DISBURSEMENTS/TRANSFERS:			
Checks Issued / ACH Payments	1,338,908		
Returned Checks	5,474		
Bank fees	11,734		
Payroll	539,346		
		1,895,462	(61,090)
Balance Per Bank 05/31/2025			**3,536,310**
Outstanding Checks			192,010
Deposit in Transit			195,867
Balance Per Books 05/31/2025			**$3,540,167**

RECONCILEMENT:	
BMO Checking Plus Money Market Funds	$3,536,310
CAMP Pool Account	$6,054,760
Local Agency Investment Fund	$57,183
TOTAL LIQUIDY BALANCE	**$9,648,252**

CASH & INVESTMENT SUMMARY:	
CHWD-Liquidity	9,648,252
CHWD-Investment Core	23,722,560
Total	**33,370,812**

I certify that this report accurately reflects all pooled investments and is in compliance with applicable State of California Government Codes and is in conformity with Investment of District Funds Policy 6300. As Treasurer of the Citrus Heights Water District, I hereby certify that sufficient investment liquidity and anticipated revenue are available to meet the next six months' estimated expenditures.

ANNIE Y. LIU
Treasurer
5/31/2025

HILARY M. STRAUS
Secretary

GPA GOVERNMENT PORTFOLIO ADVISORS

Monthly Investment Report
Citrus Heights Water District

May 31, 2025

Total Aggregate Portfolio

Month End Commentary - May 2025

The month of May looked calm compared to April which saw volatility spike to a 5-year high, however, there was still plenty to marvel at. Equities, as measured by the S&P 500 index, advanced by a solid 6.2% in May and turned positive for the first time in 2025 while April's impressive rally in fixed income evaporated as bonds posted their first monthly losses of the year. Yields surged, led by the 2-year Treasury note which climbed by 33 basis points during the month to 3.94% while the 5-year note rose by 28 basis points to 4.00%.

The backup in yields started early upon the release of the strong April jobs report that validated the Fed's cautious approach in navigating the path of monetary policy and was later reinforced by a myriad of other influences including waning recession odds, rising inflation expectations, and concerns surrounding fiscal policy particularly regarding the deficit and the sustainability of US debt levels. Unsurprisingly, Moody's Ratings stripped the US of its Aaa rating lowering it to Aa1, the second highest of the 21-notch scale, citing successive administrative and congressional failures to improve the trajectory of the fiscal budget. While the news circulated in headlines, the downgrade had been expected with Moody's being the last of the big three rating agencies to move and having already placed the US on negative outlook in November 2023. Exactly a week later, the House of Representatives passed the first rendition of the One Big Beautiful Bill Act which includes sweeping reforms to the tax code and federal spending. At first glance, economic consensus indicates that the bill in its current form could add more than $2.3 trillion to the deficit over the next decade. This has led fiscal hawks in Congress to balk at the legislation where it is already facing stiff resistance in the Senate and is likely to undergo significant changes before advancing.

The Fed meets next on June 18th where it is all but certain they will leave the fed funds rate unchanged in a range of 4.25% to 4.50% as they fulfill their dual mandate of maximum employment and stable prices. With the labor market remaining firm, the Fed has begun descending in its approach to the elusive 'soft landing' by reining in inflation without tipping the economy into recession. The latest reading of the Fed's preferred inflation yardstick, the PCE gauge, showed headline price levels decelerate from an annual 2.3% to 2.1% in April while the core reading, which strips out volatile food and energy prices, slowed from 2.6% to 2.5% leaving them a stone's throw from their 2% target. And while the implementation of tariffs carry potential to temporarily boost price growth, the current trend is encouraging.

Barring a sustained resurgence in inflation, the Fed is expected to resume easing policy in late 2025 towards a terminal rate of around 3%. We therefore continue to advise clients to manage portfolio durations neutral to their strategic targets. After widening in April, credit spreads snapped back and tightened in May leaving us less enthusiastic about building exposure and instead prefer maintaining exposures at or slightly lower than target allocations.

Treasury Curve Total Returns Last 12 Months

Treasuries	Total Return
3 month bill	4.762%
1 year note	4.785%
2 year note	5.398%
3 year note	6.073%
5 year note	6.196%

Treasury Benchmark Total Returns In Month

Benchmark	Period Return	YTM	Duration (Years)
ICE BAML 90 Day Bill	0.364%	4.20%	0.24
ICE BAML 0-1 Year Treasury	0.262%	4.26%	0.52
ICE BAML 0-3 Year Treasury	-0.070%	4.05%	1.44
ICE BAML 0-5 Year Treasury	-0.234%	4.01%	2.13

Changes In The Treasury Market (Absolute Yield Levels)

Treasuries	05/31/2024	03/31/2025	04/30/2025	05/31/2025	1 Month Change	12 Month Change
3 month bill	5.40%	4.29%	4.29%	4.33%	0.05%	-1.07%
6 month bill	5.38%	4.22%	4.17%	4.31%	0.14%	-0.87%
1 year note	5.18%	4.02%	3.85%	4.10%	0.25%	-0.77%
2 year note	4.87%	3.88%	3.60%	3.94%	0.33%	-0.74%
3 year note	4.68%	3.87%	3.60%	3.90%	0.30%	-0.61%
5 year note	4.51%	3.95%	3.73%	4.00%	0.28%	-0.50%
10 year note	4.50%	4.21%	4.16%	4.44%	0.28%	-0.06%

Compliance Report

Citrus Heights Water District | Total Aggregate Portfolio

May 31, 2025

Category

Policy Diversification Constraint	Policy Limit	Actual Value*	Status
US Treasury Obligations Maximum % of Holdings	100.000	23.627	Compliant
US Agency Callable Securities Maximum % of Total Portfolio	25.000	0.000	Compliant
US Agency Obligations Issuer Concentration	35.000	17.768	Compliant
US Agency Obligations Maximum % of Holdings	100.000	26.657	Compliant
Supranationals - Issuer is IADB, IBRD, or IFC	0.000	0.000	Compliant
Supranationals Issuer Concentration	5.000	2.861	Compliant
Supranationals Maximum % of Holdings	15.000	6.489	Compliant
Municipal Bonds - Other States Outside of CA	25.000	1.130	Compliant
Municipal Bonds - Other States Outside of CA Issuer Concentration	10.000	1.130	Compliant
Municipal Bonds - State of California	25.000	0.470	Compliant
Municipal Bonds - State of California Issuer Concentration	10.000	0.470	Compliant
Municipal Bonds CA Entities Issuer Concentration	10.000	0.701	Compliant
Municipal Bonds CA Entities Max. % of Holdings	30.000	2.778	Compliant
Mortgages, CMOs and Asset Backed Securities Issuer Concentration	5.000	0.598	Compliant
Mortgages, CMOs and Asset Backed Securities Maximum % of Holdings	20.000	1.756	Compliant
Corporate Notes Issuer Concentration	5.000	0.000	Compliant
Corporate Notes Maximum % of Holdings	25.000	8.239	Compliant
Corporate Notes must be Issued by US Corporation	0.000	0.000	Compliant
Commercial Paper Issued and Operating in the US	0.000	0.000	Compliant
Commercial Paper Issuer Concentration	5.000	0.000	Compliant
Negotiable CDs Issuer Concentration	5.000	0.000	Compliant
Negotiable CDs Maximum % of Holdings	10.000	0.000	Compliant
Non-Negotiable CDs Issuer Concentration	5.000	0.000	Compliant
Non-Negotiable CDs Maximum % of Holdings	10.000	0.000	Compliant
Banker's Acceptance Issuer Concentration	5.000	0.000	Compliant
Banker's Acceptance Maximum % of Holdings	20.000	0.000	Compliant
Money Market Issuer Concentration	20.000	4.536	Compliant
Money Market Maximum % of Holdings	20.000	4.977	Compliant
LGIP Maximum % of Holdings	100.000	0.171	Compliant
Bank Time Deposits/Savings Accounts Issuer Concentration	50.000	6.024	Compliant
Bank Time Deposits/Savings Accounts Maximum % of Holdings	100.000	11.002	Compliant

1) Actual values are based on market value.
2) The compliance report allows for resolutions to be documented if an actual value exceeds a limit. The specific resolution can be found on the client portal site.

Compliance Report

Citrus Heights Water District | Total Aggregate Portfolio

May 31, 2025

Category			
JPA Pool Max % Holdings	50.000	18.082	Compliant

1) Actual values are based on market value.
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Compliance Report

Citrus Heights Water District | Total Aggregate Portfolio

May 31, 2025

Category

Policy Maturity Structure Constraint	Policy Limit	Actual %	Status
Maturity Constraints Under 5 years Minimum % of Total Portfolio	100.000	100.000	Compliant
Policy Maturity Constraint	**Policy Limit**	**Actual Term**	**Status**
US Treasury Maximum Maturity At Time of Purchase (years)	5.000	5.000	Compliant
US Agency Maximum Maturity At Time of Purchase (years)	5.000	4.997	Compliant
Supranationals Maximum Maturity At Time of Purchase (years)	5.000	4.943	Compliant
Municipals Maximum Maturity At Time of Purchase (years)	5.000	4.995	Compliant
Mortgages, CMOs and Asset Backed Securities Maximum Maturity At Time of Purchase (years)	5.000	4.565	Compliant
Corporate Maximum Maturity At Time of Purchase (years)	5.000	4.833	Compliant
Commercial Paper Days to Final Maturity (days)	270.000	0.000	Compliant
Negotiable CDs Maximum Maturity At Time of Purchase (years)	1.000	0.000	Compliant
Non-Negotiable CDs Maximum Maturity At Time of Purchase (years)	1.000	0.000	Compliant
Banker's Acceptance Maximum Maturity At Time of Purchase (days)	180.000	0.000	Compliant
Weighted Average Maturity (years)	2.500	1.658	Compliant
Policy Credit Constraint			**Status**
Supranationals Ratings AA-/Aa3/AA- or better (Rated by 1 NRSRO)			Compliant
Municipal Bonds Ratings Minimum A-/A3/A- (Rated by 1 NRSRO)			Compliant
Mortgages, CMOs and Asset Backed Securities Minimum Credit Rating AA/Aa3/AA (Rated by 1 NRSRO)			Compliant
Corporate Notes Ratings Minimum A-/A-/A3 (Rated by 1 NRSRO)			Compliant
Commercial Paper Ratings Minimum A1/P1/F1 (Rated by 1 NRSRO)			Compliant
Commercial Paper Minimum Long Term Rating A-/A3/A- (Rated by 1 NRSRO)			Compliant
Money Market Ratings Minimum AAA/Aaa/AAA (Rated by 1 NRSRO)			Compliant

1) Actual values are based on market value.
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Summary Overview

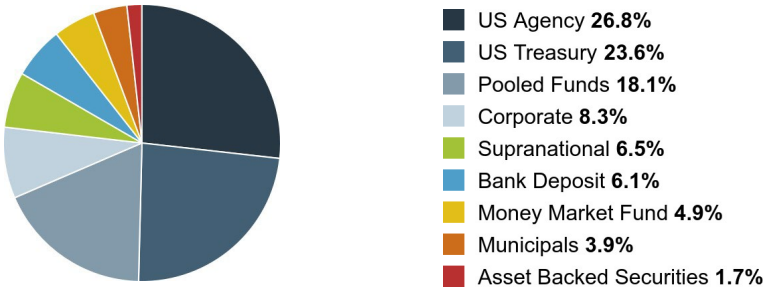
Citrus Heights Water District | Total Aggregate Portfolio

May 31, 2025

Portfolio Characteristics

Metric	Value
Cash and Cash Equivalents	9,819,330.42
Investments (Market Value + Accrued)	23,868,534.19
Book Yield	4.14%
Market Yield	3.93%
Effective Duration	1.51
Years to Maturity	1.65
Avg Credit Rating	AA+

Allocation by Asset Class



Strategic Structure

Account	Par Amount	Original Cost	Book Value	Market Value	Net Unrealized Gain (Loss)	Yield at Cost	Effective Duration	Benchmark Duration	Benchmark
CHWD-Investment Core	24,314,736.51	23,522,075.30	23,722,559.96	23,837,365.12	114,805.16	4.40%	2.12	2.13	ICE BofA 0-5 Year US Treasury Index
CHWD-Liquidity	9,648,252.32	9,648,252.32	9,648,252.32	9,648,252.32	0.00	3.48%	0.01	0.08	ICE BofA US 1-Month Treasury Bill Index
Total	**33,962,988.83**	**33,170,327.62**	**33,370,812.28**	**33,485,617.44**	**114,805.16**	**4.14%**	**1.51**		

CHWD Holdings Report

As of 05/31/2025

CHWD_Total Portfolio (354503)

Dated: 06/06/2025

Identifier	Description	Final Maturity	Par Amount	Book Value	Original Cost	Market Value	Net Unrealized Gain/Loss	Accrued Balance	Book Yield	GPA Effective Duration, Years to Final Maturity
CAL_CAMP	California Asset Management Program	05/31/2025	6,054,759.72	6,054,759.72	6,054,759.72	6,054,759.72	0.00	0.00	4.420	0.010 0.000
CAL_LGIP	CALIFORNIA LAIF	05/31/2025	57,182.68	57,182.68	57,182.68	57,182.68	0.00	0.00	4.272	0.010 0.000
CHWD_BMO_DEP	BMO Deposit	05/31/2025	2,017,262.51	2,017,262.51	2,017,262.51	2,017,262.51	0.00	0.00	0.000	0.010 0.000
60934N104	FEDERATED HRMS GV O INST	05/31/2025	1,519,047.41	1,519,047.41	1,519,047.41	1,519,047.41	0.00	0.00	4.330	0.000 0.000
31846V203	FIRST AMER:GVT OBLG Y	05/31/2025	147,655.95	147,655.95	147,655.95	147,655.95	0.00	0.00	3.940	0.000 0.000
CCYUSD	Receivable	05/31/2025	23,422.15	23,422.15	23,422.15	23,422.15	0.00	0.00	---	--- 0.000
3133EPNB7	FEDERAL FARM CREDIT BANKS FUNDING CORP	06/20/2025	300,000.00	299,969.97	298,854.00	300,024.00	54.03	6,205.21	4.829	0.055 0.055
3133EPRS6	FEDERAL FARM CREDIT BANKS FUNDING CORP	07/28/2025	350,000.00	349,881.72	348,539.10	350,206.50	324.78	5,829.69	5.103	0.160 0.159
06428CAC8	BANK OF AMERICA NA	08/18/2025	250,000.00	249,995.70	249,960.00	250,362.50	366.80	4,041.32	5.658	0.132 0.216
89236TKZ7	TOYOTA MOTOR CREDIT CORP	09/11/2025	200,000.00	200,068.37	200,490.00	200,614.00	545.63	2,488.89	5.469	0.277 0.282
91282CFK2	UNITED STATES TREASURY	09/15/2025	300,000.00	299,059.60	292,769.53	299,244.00	184.40	2,225.54	4.649	0.290 0.293
17325FBA5	CITIBANK NA	09/29/2025	250,000.00	249,972.39	249,832.50	250,752.50	780.11	2,524.78	5.900	0.251 0.331
14041NGB1	COMET 2022-3 A	10/15/2025	200,000.00	199,863.72	199,156.25	200,230.00	366.28	440.00	5.200	0.363 0.375
3133EPMB8	FEDERAL FARM CREDIT BANKS FUNDING CORP	12/08/2025	300,000.00	299,276.56	296,577.00	299,700.00	423.44	5,946.88	4.621	0.501 0.523
3133EPW68	FEDERAL FARM CREDIT BANKS FUNDING CORP	01/22/2026	500,000.00	499,282.67	497,790.00	499,585.00	302.33	7,390.63	4.360	0.621 0.646
3133ERNJ6	FEDERAL FARM CREDIT BANKS FUNDING CORP	02/06/2026	500,000.00	501,211.54	502,520.00	500,745.00	-466.54	7,187.50	4.129	0.658 0.687
91282CGL9	UNITED STATES TREASURY	02/15/2026	350,000.00	348,376.24	344,175.78	349,349.00	972.76	4,099.45	4.702	0.688 0.712
3133EPNV3	FEDERAL FARM CREDIT BANKS FUNDING CORP	03/30/2026	300,000.00	299,724.77	299,085.00	300,216.00	491.23	2,223.96	4.496	0.805 0.830
3133EPPR0	FEDERAL FARM CREDIT BANKS FUNDING CORP	04/10/2026	400,000.00	399,701.87	399,045.60	401,748.00	2,046.13	2,620.83	4.721	0.833 0.860
14913UAA8	CATERPILLAR FINANCIAL SERVICES CORP	05/15/2026	150,000.00	149,431.45	148,278.00	149,956.50	525.05	290.00	4.779	0.927 0.956
3133EPUD5	FEDERAL FARM CREDIT BANKS FUNDING CORP	05/28/2026	300,000.00	299,698.18	299,160.60	301,713.00	2,014.82	118.75	4.863	0.963 0.991
24422EWX3	JOHN DEERE CAPITAL CORP	06/08/2026	150,000.00	149,995.86	149,988.00	150,652.50	656.64	3,423.96	4.752	0.967 1.022
89239KAC5	TAOT 2022-A A3	06/15/2026	6,148.32	6,064.47	5,918.00	6,140.08	75.62	3.36	5.555	0.044 1.041
3133EPNG6	FEDERAL FARM CREDIT BANKS FUNDING CORP	06/23/2026	300,000.00	299,886.65	299,679.00	300,792.00	905.35	5,760.42	4.413	1.011 1.063
3133EPQC2	FEDERAL FARM CREDIT BANKS FUNDING CORP	07/17/2026	250,000.00	249,845.83	249,595.25	251,432.50	1,586.67	4,303.82	4.684	1.075 1.129
78016FZZ0	ROYAL BANK OF CANADA	07/20/2026	150,000.00	149,847.58	149,596.50	151,375.50	1,527.92	2,838.33	5.298	1.078 1.137
06051GLA5	BANK OF AMERICA CORP	07/22/2026	150,000.00	149,849.53	147,766.50	149,983.50	133.97	2,594.51	5.363	0.143 1.142
797272RN3	SAN DIEGO CALIF CMNTY COLLEGE DIST	08/01/2026	145,000.00	139,903.14	131,719.45	140,507.90	604.76	698.42	4.718	1.135 1.170
94988J6D4	WELLS FARGO BANK NA	08/07/2026	250,000.00	249,962.49	249,905.00	252,767.50	2,805.01	4,314.58	5.464	1.050 1.186
3133EPSW6	FEDERAL FARM CREDIT BANKS FUNDING CORP	08/14/2026	350,000.00	349,893.08	349,733.30	351,564.50	1,671.42	4,681.25	4.527	1.149 1.205

CHWD Holdings Report

As of 05/31/2025

CHWD_Total Portfolio (354503)

Dated: 06/06/2025

Identifier	Description	Final Maturity	Par Amount	Book Value	Original Cost	Market Value	Net Unrealized Gain/Loss	Accrued Balance	Book Yield	GPA Effective Duration, Years to Final Maturity
3130AWTQ3	FEDERAL HOME LOAN BANKS	09/11/2026	350,000.00	349,207.69	348,110.00	352,376.50	3,168.81	3,597.22	4.814	1.222 1.282
91282CLS8	UNITED STATES TREASURY	10/31/2026	525,000.00	523,119.42	522,621.09	525,614.25	2,494.83	1,883.15	4.388	1.361 1.419
78016EZZ3	ROYAL BANK OF CANADA	11/02/2026	200,000.00	190,409.50	177,770.00	192,238.00	1,828.50	225.56	5.114	1.382 1.424
13067WRD6	CALIFORNIA ST DEPT WTR RES CENT VY PROJ REV	12/01/2026	165,000.00	155,717.55	145,063.05	157,363.80	1,646.25	759.00	5.028	1.458 1.504
17325FBC1	CITIBANK NA	12/04/2026	250,000.00	252,026.39	254,080.00	253,597.50	1,571.11	6,745.67	4.872	1.333 1.512
3130ATVE4	FEDERAL HOME LOAN BANKS	12/11/2026	500,000.00	504,599.46	506,825.00	503,550.00	-1,049.46	10,625.00	3.864	1.437 1.531
91282CJT9	UNITED STATES TREASURY	01/15/2027	500,000.00	499,047.32	498,261.72	500,060.00	1,012.68	7,569.06	4.125	1.538 1.627
912828Z78	UNITED STATES TREASURY	01/31/2027	375,000.00	358,176.54	339,667.97	360,176.25	1,999.71	1,880.18	4.438	1.616 1.671
3130A3DU5	FEDERAL HOME LOAN BANKS	03/12/2027	500,000.00	493,038.61	490,142.50	491,300.00	-1,738.61	3,291.67	3.827	1.705 1.780
91282CKE0	UNITED STATES TREASURY	03/15/2027	500,000.00	500,039.92	500,058.59	502,580.00	2,540.08	4,504.08	4.244	1.699 1.789
3133ENVD9	FEDERAL FARM CREDIT BANKS FUNDING CORP	04/26/2027	350,000.00	340,012.92	330,400.00	343,080.50	3,067.58	978.30	4.522	1.827 1.903
91412HFP3	UNIVERSITY CALIF REVS	05/15/2027	200,000.00	188,985.93	178,080.00	189,694.00	708.07	121.42	4.469	1.898 1.956
3133ERFJ5	FEDERAL FARM CREDIT BANKS FUNDING CORP	05/20/2027	500,000.00	506,459.09	508,888.00	504,695.00	-1,764.09	687.50	3.802	1.870 1.969
91282CEW7	UNITED STATES TREASURY	06/30/2027	300,000.00	294,674.19	289,699.22	296,238.00	1,563.81	4,093.92	4.187	1.968 2.082
7994082A6	SAN RAMON VALLEY CALIF UNI SCH DIST	08/01/2027	250,000.00	232,904.15	218,142.50	235,045.00	2,140.85	986.67	4.688	2.096 2.170
799038NS9	SAN MATEO CNTY CALIF CMNTY COLLEGE DIST	09/01/2027	220,000.00	205,344.25	192,810.20	207,534.80	2,190.55	806.85	4.768	2.170 2.255
65480BAD9	NAROT 2021-A A4	09/15/2027	84,946.78	81,100.54	77,852.40	84,219.63	3,119.10	21.52	5.002	0.286 2.293
91282CFM8	UNITED STATES TREASURY	09/30/2027	300,000.00	299,744.29	299,531.25	301,653.00	1,908.71	2,096.31	4.164	2.195 2.334
419792DB9	HAWAII ST	10/01/2027	200,000.00	195,106.74	191,052.00	196,410.00	1,303.26	1,116.67	4.514	1.947 2.337
89236TKL8	TOYOTA MOTOR CREDIT CORP	11/10/2027	150,000.00	151,952.58	153,498.00	154,015.50	2,062.92	476.88	4.850	2.269 2.446
12663JAC5	CNH 2022-B A3	11/15/2027	130,995.71	128,987.24	127,444.50	130,452.08	1,464.84	226.48	5.368	0.525 2.460
023135CP9	AMAZON.COM INC	12/01/2027	150,000.00	149,762.30	149,578.50	151,617.00	1,854.70	3,412.50	4.620	2.239 2.504
142921AD7	CARMX 2023-2 A3	01/18/2028	166,567.61	166,226.27	165,975.51	167,058.98	832.71	373.85	5.252	0.721 2.635
24422EWR6	JOHN DEERE CAPITAL CORP	01/20/2028	150,000.00	150,064.05	150,111.00	152,020.50	1,956.45	2,592.71	4.731	2.421 2.641
3133EPAV7	FEDERAL FARM CREDIT BANKS FUNDING CORP	02/14/2028	250,000.00	248,295.39	247,082.50	249,392.50	1,097.11	2,879.34	4.154	2.516 2.709
912833RY8	UNITED STATES TREASURY	02/15/2028	700,000.00	626,457.52	619,542.00	629,349.00	2,891.48	0.00	4.162	2.660 2.712
931142FB4	WALMART INC	04/15/2028	150,000.00	148,256.15	147,082.50	149,686.50	1,430.35	747.50	4.352	2.644 2.876
91282CMW8	UNITED STATES TREASURY	04/15/2028	525,000.00	524,743.19	524,733.40	523,320.00	-1,423.19	2,528.18	3.768	2.690 2.876
46647PDA1	JPMORGAN CHASE & CO	04/26/2028	150,000.00	147,417.58	144,790.50	149,338.50	1,920.92	630.44	5.145	1.802 2.906
91282CCE9	UNITED STATES TREASURY	05/31/2028	300,000.00	277,152.73	262,359.38	277,956.00	803.27	10.25	4.082	2.879 3.000

CHWD Holdings Report

As of 05/31/2025

CHWD_Total Portfolio (354503)

Dated: 06/06/2025

Identifier	Description	Final Maturity	Par Amount	Book Value	Original Cost	Market Value	Net Unrealized Gain/Loss	Accrued Balance	Book Yield	GPA Effective Duration, Years to Final Maturity
91282CCE9	UNITED STATES TREASURY	05/31/2028	400,000.00	370,007.59	367,843.75	370,608.00	600.41	13.66	3.937	2.879 3.000
3130AWN63	FEDERAL HOME LOAN BANKS	06/30/2028	300,000.00	299,339.55	298,938.00	300,858.00	1,518.45	5,033.33	4.080	2.829 3.082
419792YT7	HAWAII ST	08/01/2028	200,000.00	180,530.70	169,290.00	181,888.00	1,357.30	763.33	4.623	3.042 3.170
459058KW2	INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	08/01/2028	500,000.00	506,797.20	509,670.00	510,115.00	3,317.80	7,708.33	4.150	2.887 3.170
3133EPUN3	FEDERAL FARM CREDIT BANKS FUNDING CORP	08/28/2028	350,000.00	351,583.54	352,439.50	355,302.50	3,718.96	4,068.75	4.328	2.965 3.244
91282CDF5	UNITED STATES TREASURY	10/31/2028	650,000.00	605,552.44	596,933.60	598,130.00	-7,422.44	777.17	3.542	3.280 3.419
45950VSM9	INTERNATIONAL FINANCE CORP	11/27/2028	250,000.00	253,473.90	254,912.50	254,840.00	1,366.10	125.00	4.056	3.209 3.493
3130AXQK7	FEDERAL HOME LOAN BANKS	12/08/2028	500,000.00	510,700.97	514,770.00	512,850.00	2,149.03	11,413.19	4.071	3.155 3.523
91282CDW8	UNITED STATES TREASURY	01/31/2029	425,000.00	393,536.45	382,101.56	394,004.75	468.30	2,486.02	3.997	3.478 3.671
4581X0EN4	INTER-AMERICAN DEVELOPMENT BANK	02/15/2029	450,000.00	448,367.36	447,825.15	452,412.00	4,044.64	5,465.63	4.233	3.371 3.712
45950VSZ0	INTERNATIONAL FINANCE CORP	03/27/2029	500,000.00	492,829.61	490,789.00	507,480.00	14,650.39	3,888.89	4.800	3.472 3.821
3133ERDH1	FEDERAL FARM CREDIT BANKS FUNDING CORP	04/30/2029	625,000.00	631,942.13	633,768.75	639,625.00	7,682.87	2,556.42	4.430	3.538 3.914
91282CES6	UNITED STATES TREASURY	05/31/2029	650,000.00	612,702.51	604,144.53	622,147.50	9,444.99	48.84	4.360	3.687 4.000
91282CFC0	UNITED STATES TREASURY	07/31/2029	500,000.00	472,312.23	468,398.44	475,255.00	2,942.77	4,387.09	4.101	3.862 4.167
91282CFJ5	UNITED STATES TREASURY	08/31/2029	400,000.00	392,779.72	391,546.88	387,424.00	-5,355.72	3,158.97	3.593	3.903 4.252
459058LN1	INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPM	10/16/2029	450,000.00	442,732.20	441,909.00	447,952.50	5,220.30	2,179.69	4.287	3.970 4.378
91282CFY2	UNITED STATES TREASURY	11/30/2029	500,000.00	495,132.54	494,628.91	498,440.00	3,307.46	52.94	4.116	4.016 4.501
31358DDR2	FEDERAL NATIONAL MORTGAGE ASSOCIATION	05/15/2030	1,000,000.00	811,368.38	809,700.00	815,660.00	4,291.62	0.00	4.208	4.857 4.956
---	**---**	**01/22/2027**	**33,962,988.83**	**33,370,812.28**	**33,170,327.62**	**33,485,617.44**	**114,805.16**	**202,247.16**	**4.137**	**1.513** **1.646**

* Weighted by: Market Value. * Holdings Displayed by: Lot.

This report is for general informational purposes only and is not intended to provide specific advice or recommendations. Government Portfolio Advisors (GPA) is an investment advisor registered with the Securities and Exchange Commission and is required to maintain a written disclosure statement of our background and business experience.

Questions About an Account: GPA's monthly & quarterly reports are intended to detail the investment advisory activity managed by GPA. The custodial bank maintains the control of assets and settles all investment transactions. The custodial statement is the official record of security and cash holdings and transactions. GPA recognizes that clients may use these reports to facilitate record keeping and that the custodial bank statement and the GPA report should be reconciled, and differences documented.

Trade Date versus Settlement Date: Many custodial banks use settlement date basis and post coupons or maturities on the following business days when they occur on weekend. These items may result in the need to reconcile due to a timing difference. GPA reports are on a trade date basis in accordance with GIPS performance standards. GPA can provide all account settings to support the reason for any variance.

Bank Deposits and Pooled Investment Funds Held in Liquidity Accounts Away from the Custodial Bank are Referred to as Line Item Securities: GPA relies on the information provided by clients when reporting pool balances, bank balances and other assets that are not held at the client's custodial bank. GPA does not guarantee the accuracy of information received from third parties. Balances cannot be adjusted once submitted however corrective transactions can be entered as adjustments in the following months activity. Assets held outside the custodial bank that are reported to GPA are included in GPA's oversight compliance reporting and strategic plan.

Account Control: GPA does not have the authority to withdraw or deposit funds from or to any client's custodial account. Clients retain responsibility for the deposit and withdrawal of funds to the custodial account. Our clients retain responsibility for their internal accounting policies, implementing and enforcing internal controls and generating ledger entries or otherwise recording transactions.

Custodial Bank Interface: Our contract provides for the ability for GPA to interface into our client's custodial bank to reconcile transactions, maturities and coupon payments. The GPA client portal will be available to all clients to access this information directly at any time.

Market Price: Generally, GPA has set all securities market pricing to match custodial bank pricing. There may be certain securities that will require pricing override due to inaccurate custodial bank pricing that will otherwise distort portfolio performance returns. GPA may utilize Refinitiv pricing source for commercial paper, discount notes and supranational bonds when custodial bank pricing does not reflect current market levels. The pricing variances are obvious when market yields are distorted from the current market levels.

Performance Calculation: Historical returns are presented as time-weighted total return values and are presented gross and net of fees.

Amortized Cost: The original cost on the principal of the security is adjusted for the amount of the periodic reduction of any discount or premium from the purchase date until the date of the report. Discounts or premiums are amortized on a straight-line basis on all securities. This can be changed at the client's request.

Callable Securities: Securities subject to redemption in whole or in part prior to the stated final maturity at the discretion of the security's issuer are referred to as "callable". Certain call dates may not show up on the report if the call date has passed or if the security is continuously callable until maturity date. Bonds purchased at a premium will be amortized to the next call date while all other callable securities will be amortized to maturity. If the bond is amortized to the call date, amortization will be reflected to that date and once the call date passes, the bond will be fully amortized.

Duration: The duration is the effective duration. Duration on callable securities is based on the probability of the security being called given market rates and security characteristics.

Benchmark Duration: The benchmark duration is based on the duration of the stated benchmark that is assigned to each account.

Rating: Information provided for ratings is based upon a good faith inquiry of selected sources, but its accuracy and completeness cannot be guaranteed.

Coupon Payments and Maturities on Weekends: On occasion, coupon payments and maturities occur on a weekend or holiday. GPA's report settings are on the accrual basis so the coupon postings and maturities will be accounted for in the period earned. The bank may be set at a cash basis, which may result in a reconciliation variance.

Cash and Cash Equivalents: GPA has defined cash and cash equivalents to be cash, bank deposits, LGIP pools and repurchase agreements. This may vary from your custodial bank which typically defines cash and equivalents as all securities that mature under 90 days. Check with your custodial bank to understand their methodology.

Account Settings: GPA has the portfolio settings at the lot level, if a security is sold our setting will remove the lowest cost security first. First-in-first-out (FIFO) settings are available at the client's request.

Historical Numbers: Data was transferred from GPA's legacy system, however, variances may exist from the data received due to a change of settings on Clearwater. GPA is utilizing this information for historical return data with the understanding the accrual settings and pricing sources may differ slightly.

Financial Situation: In order to better serve you, GPA should be promptly notified of any material change in your investment objective or financial situation.

No Guarantee: The securities in the portfolio are not guaranteed or otherwise protected by GPA, the FDIC (except for non-negotiable certificates of deposit) or any government agency. Investment in securities involves risks, including the possible loss of the amount invested.

GPA GOVERNMENT PORTFOLIO ADVISORS

TREASURER'S REPORT OF ACCOUNT BALANCES
May 31, 2025

Fund Name	Beginning Balance 01/1/2025	Year to Date Transfers In / Collections	Year to Date Transfers Out	Current Month Transfers In / Collections	Current Month Transfers Out	Ending Balance 05/31/2025	2025 Target Balance per Policy
Operating Reserve	$ 3,943,592					$ 3,943,592	$ 3,892,710
Operating Fund	$ 14,377,842	$ 7,324,632	$ (8,147,766)	1,834,372	(1,895,462)	$ 13,493,617	N/A
Rate Stabilization Fund	$ 1,000,000					$ 1,000,000	$ 1,000,000
Capital Improvement Reserve	$ 3,146,633					$ 3,146,633	$ 3,146,633
Restricted for Debt Service	$ -					$ -	N/A
Water Supply Reserve	$ 3,023,173					$ 3,023,173	N/A
Water Efficiency Reserve	$ 200,000					$ 200,000	N/A
Water Meter Replacement Reserve	$ 2,125,000					$ 2,125,000	N/A
Water Main Reserve - Project 2030	$ 4,272,713	$ 691,266		$ 123,159		$ 5,087,138	N/A
Fleet Equipment Reserve	$ 471,395					$ 471,395	$ 471,395
Employment-Related Benefits Reserve	$ 1,015,536					$ 1,015,536	$ 1,015,536
	$ 33,575,885	**$ 8,015,898**	**$ (8,147,766)**	**$ 1,957,531**	**$ (1,895,462)**	**$ 33,506,085**	**$ 9,526,274**

ANNIE Y. LIU, Treasurer

TREASURER'S REPORT OF FUND BALANCES
May 31, 2025

Fund Transfers Summary:		
Operating Fund:		
Fund Collected/Transferred	$	1,834,372
Fund Disbursed/Transferred	$	(1,895,462)
Net Fund Transferred:	**$**	**(61,090)**
Water Main Reserve - Project 2030	**$**	**123,159**
NET CHANGES- ALL FUNDS	**$**	**62,069**

Citrus Heights Water District
Budget Performance Report
As of 05/31/2025

	May 2025 Actual	Year-to-Date Actual	Year-to-Date Budget	YTD Variance Amount	Percent of Total Budget	Approved Budget
Revenues						
Metered Service Charges	$852,633.93	$5,996,033.72	$5,665,394.20	330,639.52	44%	$13,761,219.83
Metered Water Deliveries	218,358.55	1,691,560.30	$1,743,635.31	(52,075.01)	22%	7,729,492.26
Water Main Replacement Revenue	123,158.89	814,425.12	610,217.01	204,208.11	56%	1,466,376.28
Penalties	6,957.69	42,884.95	54,167.70	(11,282.75)	23%	188,431.82
Interest	29,575.24	149,637.55	355,000.00	(205,362.45)	15%	1,000,000.00
Backflow Fees	3,485.34	34,677.48	34,415.29	262.19	40%	86,293.14
Water Service Install & S&R		35,888.45	22,343.00	13,545.45	82%	43,762.42
Grant Funds		825.00		825.00	-	-
Cost Reimbursements		175.00	6,571.41	(6,396.41)	2%	10,029.69
Income - Wheeling Water				-	0%	55,318.65
Income - Connection Fees		11,784.88	102,894.68	(91,109.80)	5%	240,165.80
Total Revenue	**1,231,856.49**	**8,775,165.14**	**8,598,900.43**	**176,264.71**	**36%**	**24,584,362.76**
*includes Assessments, New Account, Back Charges & other Miscellaneous Revenue Sources						
Operating Expenses						
Cost of Water						
Purchased Water		1,340,331.03	1,399,900.03	(59,569.00)	43%	3,141,035.05
Ground Water	59,068.55	288,175.42	456,333.73	(168,158.31)	24%	1,212,931.83
	59,068.55	**1,628,506.45**	**1,856,233.76**	**(227,727.31)**	**37%**	**4,353,966.88**
Labor & Benefits						
Labor Regular	360,868.29	1,959,433.98	1,740,282.64	219,151.34	48%	4,085,127.08
Labor Non-Regular	1,743.14	3,913.51	38,000.00	(34,086.49)	4%	91,200.00
Labor Taxes	25,947.74	158,687.13	125,484.75	33,202.38	43%	371,863.07
Labor Workers Comp		27,850.80	49,750.45	(21,899.65)	23%	119,401.08
Labor External	1,400.00	7,800.00	292,748.31	(284,948.31)	1%	702,596.04
Benefits Med/Den/Vis	51,526.51	332,350.86	343,052.66	(10,701.80)	42%	784,895.96
Benefits LTD/Life/EAP	6,212.28	39,095.92	36,167.71	2,928.21	51%	75,987.03
Benefits CalPers	34,828.90	146,663.28	190,005.38	(43,342.10)	30%	490,728.04
Benefits Other	10,188.26	60,654.53	202,708.55	(142,054.02)	14%	440,448.95
Benefits OPEB			38,696.65	(38,696.65)	0%	92,871.96
Benefit Retiree Expenses	5,695.08	28,475.40	31,119.37	(2,643.97)	30%	94,641.01
Benefit GASB 68		267,574.50	275,000.00	(7,425.50)	56%	476,282.84
Benefit UAL OPEB			6,689.60	-	0%	16,055.04
Capitalized Labor & Benefit Contra	(61,103.17)	(135,763.37)	-	(135,763.37)	-	-
	437,307.03	**2,896,736.54**	**3,369,706.07**	**(466,279.93)**	**37%**	**7,842,098.10**
General & Administrative						
Fees & Charges	15,534.83	67,236.55	85,935.18	(18,698.63)	31%	216,257.92
Regulatory Compliance/Permits		95,562.81	159,174.99	(63,612.18)	40%	239,900.00
District Events & Recognition	5,155.20	20,031.79	21,535.65	(1,503.86)	35%	57,999.98
Maintenance/Licensing	1,906.37	205,533.26	207,923.71	(2,390.45)	76%	269,300.00
Equipment Maintenance	4,889.58	61,487.59	76,967.52	(15,479.93)	34%	178,899.96
Professional Development	14,750.73	70,016.22	84,591.97	(14,575.75)	44%	158,749.97
Department Admin		3,000.00	43,750.05	(40,750.05)	3%	105,000.12
Dues & Subscriptions	9,449.21	144,226.97	73,901.09	70,325.88	89%	161,569.99
Facility Improvements			12,500.00	(12,500.00)	0%	30,000.00
Fuel & Oil	6,220.45	25,555.01	29,935.08	(4,380.07)	32%	79,000.00
General Supplies	6,724.89	49,188.67	53,875.47	(4,686.80)	40%	124,045.02
Insurance - Auto/Prop/Liab		115,753.35	136,720.25	(20,966.90)	51%	225,000.05
Leasing/Equipment Rental	1,406.54	21,916.38	48,399.75	(26,483.37)	23%	96,699.99
Parts & Materials	11,510.44	273,901.96	225,474.39	48,427.57	152%	180,000.00
Postage/Shipping/Freight	5,585.88	34,065.16	39,954.93	(5,889.77)	30%	114,999.99
Rebates & Incentives	225.00	3,176.15	5,925.24	(2,749.09)	17%	19,100.01
Telecom/Network	3,275.69	25,936.72	30,781.09	(4,844.37)	34%	75,480.02
Tools & Equipment	13,976.10	69,441.51	35,688.74	33,752.77	97%	71,449.98
Utilities	8,429.98	23,895.20	23,507.39	387.81	40%	59,222.99
Capitalized G&A Contra	(20,803.35)	(108,406.80)		(108,406.80)	-	-
Capitalized Equipment Contra	(30,371.86)	(151,688.53)		(151,688.53)	-	-
	57,865.68	**1,049,829.97**	**1,396,542.49**	**(346,712.52)**	**43%**	**2,462,675.99**

Citrus Heights Water District
Budget Performance Report
As of 05/31/2025

	May 2025 Actual	Year-to-Date Actual	Year-to-Date Budget	YTD Variance Amount	Percent of Total Budget	Approved Budget
Professional & Contract Services						
Support Services	204,077.73	693,088.67	853,913.47	(160,824.80)	25%	2,814,894.93
Legal Services	56,812.20	191,040.09	213,996.43	(22,956.34)	34%	556,199.97
Printing Services	1,739.70	15,567.61	12,580.89	2,986.72	48%	32,149.94
	262,629.63	**899,696.37**	**1,080,490.79**	**(180,794.42)**	**26%**	**3,403,244.84**
Total Operating Expenses	**816,870.89**	**6,480,469.57**	**7,748,806.46**	**(1,268,336.89)**	**36%**	**18,232,773.85**
Net Income / (Expense)	**$ 414,985.60**	**$ 2,294,695.57**	**$ 850,093.97**	**$ 1,444,601.60**	**36%**	**$ 6,351,588.91**

Citrus Heights Water District
Capital Projects Summary
Fiscal Period End as of 05/2025

Project Number	Project Name	Project Forecast Budget	AMOUNTS PAID			PROJECTION
			Month to Date	Year to Date	Project to Date	Remaining Budget for Total Project
C25-004	Annual Tech Hardware & Softwar	100,000.00	-	-	-	100,000.00
C25-005	Annual Facilities Improvements	112,000.00	-	-	-	112,000.00
C25-010	Annuall Water Main Pip Replac	53,000.00	-	1,890.51	1,890.51	51,109.49
C25-011	Annual Valve Replacements	135,000.00	6,446.50	10,086.36	10,086.36	124,913.64
C25-012	Annual Water Service Connectio	1,510,000.00	144,887.39	398,730.35	398,730.35	1,111,269.65
C25-013	Annual Water Meter Replacement	130,000.00	6,130.22	17,252.04	17,252.04	112,747.96
C25-014	Annual Fire Hydrants Repl, Upg	175,000.00	2,827.50	30,889.59	30,889.59	144,110.41
C25-020	Annual Groundwater Wel Improve	200,000.00	-	-	-	200,000.00
C25-040	Annual Other City Partnerships	100,000.00	-	365.75	365.75	99,634.25
C25-041	Misc Infrastructure Projects	100,000.00	-	-	-	100,000.00
Construction in Progress		**$2,615,000**	**$160,292**	**$459,215**	**$459,215**	**$2,155,785**
C24-003	Fleet/Field Operations Equip	330,000.00	-	46,946.36	46,946.36	283,053.64
C25-003	Fleet/Field Operations Equip	40,000.00	-	-	-	40,000.00
Fleet and Equipment		**$370,000**	**$0**	**$46,946**	**$46,946**	**$323,054**
C16-134	Auburn Blvd-Rusch Park Placer	900,285.00	543.54	3,502.85	78,632.41	821,652.59
C24-101	Minnesota Drive	727,000.00	131.33	309,160.70	367,251.56	359,748.44
C24-102	Fair Oaks Blvd at Leafcrest Wy	615,000.00	1,149.90	23,526.34	66,579.59	548,420.41
C24-103	Menke Way	103,000.00	-	-	-	103,000.00
C25-101	Greenback Ln - Birdcage St to	900,000.00	11,163.26	40,020.30	40,020.30	859,979.70
C25-102	Greenback - Sunrise Blvd to Bi	100,000.00	15,730.44	26,060.00	26,060.00	73,940.00
C25-103	Donnawood Way	100,000.00	138.50	871.74	871.74	99,128.26
Water Mains		**$2,345,285**	**$28,857**	**$403,142**	**$579,416**	**$2,865,869**
C25-104	Corporation Yard and Admin Fac	3,000,000.00	-	1,500.00	7,048.54	2,992,951.46
C25-105	ERP System	400,000.00	-	-	-	400,000.00
C25-106	SCADA Upgrade	120,000.00	-	-	-	120,000.00
C25-107	Madison Property Acquisition	-	512.00	1,805,259.50	1,805,259.50	-
Miscellaneous Projects		**$3,400,000**	**$512**	**$1,806,760**	**$1,812,308**	**$3,512,951**
C20-107	Well #7 Ella	4,442,536.00	69,452.52	439,101.72	1,883,134.58	2,559,401.42
C23-103	Well #8 Highland	5,300,000.00	2,942.50	17,589.51	87,107.72	5,212,892.28
Wells		**$9,742,536**	**$72,395**	**$456,691**	**$1,970,242**	**$7,772,294**
Grand Totals		**$18,472,821**	**$262,056**	**$3,172,754**	**$4,868,127**	**$16,629,954**

MAY 2025 WARRANTS

CHECK	PAYEE	DESCRIPTION	AMOUNT
79931	GERALD L WESTERMAN	Customer Refund	$678.02
79932	SWAGERTY FAMILY TRUST	Customer Refund	$162.56
79933	WILLIAM OR DARAH L WOO	Customer Refund	$22.40
79934	CHOPAN FAMILY TRUST	Customer Refund	$215.69
79935	RHONDA C SCHWARTZ	Customer Refund	$26.23
79936	ALI NAVAIE	Customer Refund	$400.00
79937	FUKATSCH FAMILY REVOCABLE TRUST	Customer Refund	$32.35
79938	CHRISTINA PRESTON	Customer Refund	$22.23
79939	LORENE M WORTENBERG	Customer Refund	$160.19
79940	REBECCA A GILL	Customer Refund	$73.82
79941	JAMES VAN NOY	Customer Refund	$63.40
79942	DINGFELDER FAMILY TRUST	Customer Refund	$163.77
79943	YUN HUI GONZALES OR YONG MAN SEO	Customer Refund	$29.75
79944	ARX HOLDINGS INC	Customer Refund	$11.53
79945	OPENDOOR PROPERTY TRUST I	Customer Refund	$141.86
79946	SITEONE LANDSCAPE SUPPLY LLC	Supplies-Field	$76.54
79947	AAA AUTO REPAIR CENTER	Repair-Trucks	$1,440.91
79948	ADVANCED CHEMICAL TRANSPORT INC	Contract Services-Other	$1,044.40
79949	AFLAC	Employee Paid Insurance	$187.46
79950	AIA SERVICES LLC	Tools/Equipment	$10,094.07
79951	ALEXANDERS CONTRACT SERVICES	Contract Services-Meter Reads	$8,051.50
79952	ANSWERNET	Telephone-Answering Service	$362.35
79953	AREA PORTABLE SERVICES	Equipment Rental-Field	$128.88
79954	BEST BEST AND KRIEGER	Legal & Audit	$10,003.00
79955	BLUE JAY TRUCKING INC	Contract Services-Other	$3,938.75
79956	BSK ASSOCIATES	Water Analysis	$1,380.24
79957	CALIFORNIA LANDSCAPE ASSOCIATES INC	Janitorial	$862.50
79958	ROBIN COPE	Retiree Benefits	$539.00
79959	CORE AND MAIN LP	Material	$2,955.46
79960	CORELOGIC INFORMATION SOLUTIONS INC	Dues & Subscriptions	$238.81
79961	COVINO SMITH AND SIMON	Consulting Services	$1,666.67
79962	DEBBY DUNN	Contract Services-Other	$1,250.00
79963	EVERBANK NA	Equipment Rental-Office	$522.59
79964	ERNESTINE FREEMAN	Retiree Benefits	$185.00
79965	HARRIS INDUSTRIAL GASES	Supplies-Field	$224.30
79966	INTEGRITY ADMINISTRATORS INC	Health Insurance	$985.20
79967	J COMM INC	Contract Services-Other	$8,366.66
79968	J4 SYSTEMS	Contract Services-Other	$1,077.25
79969	KEI WINDOW CLEANING 12	Janitorial	$120.00
79970	JENNIFER LIEBERMANN CONSULTING	Consulting Services	$260.80
79971	MESSENGER PUBLISHING GROUP	Publication Notices	$225.00
79972	MITCHS CERTIFIED CLASSES	Professional Development	$1,400.00
79973	MOONLIGHT BPO LLC	Contract Services-Bill Print/Mail	$2,100.40
79974	NAPA AUTO PARTS	Repair-Equipment	$720.38
79975	NOR CAL PERLITE INC	Supplies-Field	$3,401.20

MAY 2025 WARRANTS

CHECK	PAYEE	DESCRIPTION	AMOUNT
79976	ONE STOP TRUCK SHOP	Repair-Trucks	$3,335.34
79977	PACE SUPPLY CORP	Material	$7,391.60
79978	PIRTEK POWER INN	Repair-Trucks	$1,122.64
79979	PRECISION ACTUARIAL INC	Contract Services-Financial	$2,000.00
79980	RED WING SHOE STORE	Tools/Equipment	$793.94
79981	REPUBLIC SERVICES 922	Utilities	$509.81
79982	MARY LYNN SCHERRER	Retiree Benefits	$185.00
79983	SONITROL	Equipment Rental-Office	$216.12
79984	TEE JANITORIAL MAINTENANCE	Janitorial	$2,989.00
79985	MELINDA M TUPPER	Retiree Benefits	$539.00
79986	USA BLUE BOOK	Supplies-Field	$156.34
79987	HENLEY PACIFIC LA LLC	Repair-Trucks	$99.60
79988	WATER SYSTEMS CONSULTING INC	Contract Services-Other	$7,176.00
79989	JOELLE GIBSON WITTRUP	Toilet Rebate Program	$75.00
79990	WIZIX TECHNOLOGY GROUP INC	Equipment Rental-Office	$179.12
79991	ACWA JPIA	Workers Comp Insurance	$109.12
79992	CALIFORNIA NEVADA SECTION AWWA	Dues & Subscriptions	$340.00
79993	CITY OF CITRUS HEIGHTS PROCESSING CENTER	Equipment Rental-Office	$17.00
79994	MARY ELISE CONZELMANN	Professional Development	$225.00
79995	ANDREW JOHNSON	Professional Development	$370.00
79996	ROBERT OR NANCY S BOLIARD	Customer Refund	$40.24
79997	MATTHEW OR SABRENA D DONATO	Customer Refund	$40.30
79998	JYTTE TAYLOR LIVING TRUST	Customer Refund	$108.67
79999	PATRICIA OR JOHN R WILSON	Customer Refund	$160.28
80000	MAX CORTEZ LAZO	Customer Refund	$389.60
80001	DAVE A MOSELY ESTATE	Customer Refund	$24.59
80002	SHARON K PATTERSON REVOC TRUST	Customer Refund	$19.05
80003	MAXIM POPOV OR DIANA SHAKIROVA	Customer Refund	$11.14
80004	REBEKAH MICHAL AGUIRRE	Customer Refund	$82.16
80005	PETER D MUELLER	Customer Refund	$314.79
80006	PAUL OR SARA GLEASON	Customer Refund	$46.32
80007	19SIX ARCHITECTS	Contract Services-Engineering	$3,200.00
80008	AFMAN SUPPLY	Tools/Equipment	$634.86
80009	ANG AUDIO VISUAL SERVICES	Contract Services-Miscellaneous	$1,295.00
80010	BEST BEST AND KRIEGER	Legal & Audit	$23,614.00

MAY 2025 WARRANTS

CHECK	PAYEE	DESCRIPTION	AMOUNT
80011	BENDER ROSENTHAL INCORPORATED	Contract Services-Engineering	$1,831.65
80012	BSK ASSOCIATES	Water Analysis	$879.68
80013	CALIFORNIA LANDSCAPE ASSOCIATES INC	Janitorial	$1,002.00
80014	CAROLLO ENGINEERS INC	Contract Services-Engineering	$33,344.35
80015	CITRUS HEIGHTS SAW AND MOWER	Repair-Equipment	$2,413.60
80016	COLANTUONO HIGHSMITH WHATLEY PC	Legal & Audit	$20,781.06
80017	COMCAST	Equipment Rental-Office	$102.88
80018	CONSOLIDATED	Telephone-Local/Long Distance	$3,256.00
80019	CTY OF SAC DEPT OF FINANCE	Contract Services-Miscellaneous	$159.45
80020	FAIR OAKS ARBORIST	Contract Services-Other	$6,400.00
80021	FIFTH ASSET INC DBA DEBTBOOK	Dues & Subscriptions	$5,000.00
80022	GOVERNMENT PORTFOLIO ADVISORS	Contract Services-Financial	$1,370.95
80023	GRAINGER	Small Tools	$151.08
80024	HUNT AND SONS INC	Gas & Oil	$2,215.19
80025	IB CONSULTING LLC	Consulting Services	$3,062.50
80026	J4 SYSTEMS	Contract Services-Other	$6,196.37
80027	KASL CONSULTING ENGINEERS	Contract Services-Engineering	$25,409.00
80028	LEAF	Equipment Rental-Office	$670.57
80029	LOWES	Supplies-Field	$538.16
80030	Void	Void	$0.00
80031	MACQUARIE EQUIPMENT CAPITAL INC	Equipment Rental-Office	$376.97
80032	NAPA AUTO PARTS	Repair-Equipment	$202.01
80033	NINJIO LLC	Dues & Subscriptions	$130.00
80034	ONE PRINT SOURCE AND GRAPHICS	Printing Services	$441.73
80035	PACIFIC GAS AND ELECTRIC	Utilities	$42.86
80036	SHARON PURICELLI	Toilet Rebate Program	$150.00
80037	LES SCHWAB TIRES	Repair-Trucks	$3,118.13
80038	WEST YOST ASSOCIATES	Contract Services-Engineering	$2,550.00
80039	WEX BANK	Gas & Oil	$4,005.26
80040	WM CORPORATE SERVICES INC	Utilities	$555.87
80041	SAWWA	Dues & Subscriptions	$400.00
80042	KATHERYN L HATFIELD ESTATE	Customer Refund	$52.45
80043	TINA E MARVEL OR SHIRLEY A ELWELL	Customer Refund	$161.53
80044	TINA HARRINGTON	Customer Refund	$7.43
80045	LONI M HARLOW TRUST	Customer Refund	$63.09
80046	PATRICK SOTELLO	Customer Refund	$264.27
80047	MELISSA SELLERS	Customer Refund	$24.57
80048	TANNER C REYNOLDS	Customer Refund	$257.55

MAY 2025 WARRANTS

CHECK	PAYEE	DESCRIPTION	AMOUNT
80049	19SIX ARCHITECTS	Contract Services-Engineering	$13,920.80
80050	BEST BEST AND KRIEGER	Legal & Audit	$19,925.70
80051	CALTRONICS BUSINESS SYSTEM	Small Office Equipment	$426.71
80052	CAROLLO ENGINEERS INC	Contract Services-Engineering	$27,201.25
80053	EDELSTEIN GILBERT ROBSON AND SMITH LLC	Contract Services-Financial	$5,833.33
80054	J COMM INC	Contract Services-Other	$1,000.00
80055	NAPA AUTO PARTS	Repair-Equipment	$364.94
80056	NOWSPEED INC	Contract Services-Other	$250.00
80057	QUICK QUACK CAR WASH	Maintenance Agreement-Equipment	$380.00
80058	RDO EQUIPMENT	Repair-Trucks	$245.74
80059	REGIONAL GOVERNMENT SERVICES	Consulting Services	$22,265.33
80060	SAGENT	Consulting Services	$6,313.75
80061	SMUD	Utilities	$444.83
80062	WATER SYSTEMS CONSULTING INC	Contract Services-Other	$27,726.48
80063	WATERWISE CONSULTING INC	Contract Services-Conservation	$1,565.00
80064	WOLF CONSULTING	Contract Services-Other	$6,750.00
80065	CHRISTY BLAKE	Supplies-Conservation	$100.00
80066	LILIANA HODGES	Supplies-Conservation	$50.00
80067	LYRA RUTHERFORD	Supplies-Conservation	$100.00
80068	BRITTNEY MOORE	Professional Development	$405.00
80069	RAY RIEHLE	Professional Development	$968.27
80070	REBECCA SCOTT	Professional Development	$138.60
80071	SUSANNE SLAYTON	Supplies-Conservation	$100.00
80072	SOPHIA RICHARDS	Supplies-Conservation	$50.00
80073	HILARY STRAUS	Professional Development	$45.00
80074	STATE WATER RESOURCES CONTROL BOARD	Dues & Subscriptions	$90.00
80075	JOSEPH VAZQUEZ	Tools/Equipment	$234.39
80076	WESTON, SALLEE	Supplies-Conservation	$100.00
80077	ALEXANDER FAMILY TRUST	Customer Refund	$688.50
80078	Harry/Mary R Bunfill	Customer Refund	$2,531.25
80079	RAWLES ENGINEERING INC	Customer Refund	$2,583.00
80080	MOSES OR JANUARY SISON	Customer Refund	$157.50
80081	B AND M BUILDERS	Contract Services-Engineering	$87,637.58
80082	BEST BEST AND KRIEGER	Legal & Audit	$1,350.50
80083	COLANTUONO HIGHSMITH WHATLEY PC	Legal & Audit	$18,846.00
80084	CORE AND MAIN LP	Material	$8,058.63
80085	VERTUS PROPERTIES INC	Customer Refund	$12.03
80086	FAST ACTION PEST CONTROL	Contract Services-Miscellaneous	$184.80

MAY 2025 WARRANTS

CHECK	PAYEE	DESCRIPTION	AMOUNT
80087	GOVERNMENT PORTFOLIO ADVISORS	Contract Services-Financial	$1,406.84
80088	FERGUSON ENTERPRISES INC 1423	Material	$337.26
80089	PACE SUPPLY CORP	Material	$3,114.55
80090	SONITROL	Equipment Rental-Office	$216.12
80091	VERIZON WIRELESS	Telephone-Wireless	$19.69
Total			$515,551.33
ACH	#011	Consulting Services	$5,850.00
ACH	#012	Consulting Services	$5,720.40
ACH	1168-2025-4	Bank Fee	$7,407.06
ACH	ADP 689171054	Contract Services-Financial	$424.80
ACH	ADP 690668519	Contract Services-Financial	$84.24
ACH	ADP 691260990	Contract Services-Financial	$491.20
ACH	ADP 690192122	Contract Services-Financial	$609.40
ACH	BMO APRIL 2025	Bank Fee	$2,090.52
ACH	CALIFORNIA CHOICE JUNE 2025	Health Insurance	$56,382.62
ACH	CHASE APRIL 2025	Bank Fee	$4,469.09
ACH	ICMA 5/22/2025 PAYDAY	Deferred Compensation	$14,141.09
ACH	ICMA 5/8/2025 PAYDAY	Deferred Compensation	$14,276.42
ACH	JP MORGAN APRIL 2025	See May Agenda Item CC-8	$25,203.99
ACH	MID AMERICA 5/13-5/19/2025	Employee Paid Insurance	$440.00
ACH	PERS 4/24/2025 PAYDAY	PERS	$32,162.06
ACH	PERS 5/19/2025 PAYDAY	PERS	$32,162.06
ACH	PRINCIPAL JUNE 2025	Health Insurance	$12,504.12
ACH	VALIC 5/22/2025 PAYDAY	Deferred Compensation	$2,883.14
ACH	VALIC 5/8/2025 PAYDAY	Deferred Compensation	$2,883.14
Total			$220,185.35
Grand Total			$735,736.68

JP Morgan Purchase Card Distributions
May-25

Name	Professional Development	District Events & Recognition	Tools & Equipment	General Supplies	Dues & Subscription	Equipment Maintenance	Printing Services	CIP	Maintenance/ Licensing	Fees & Charges	Total Bill
Conzelmann	$ 1,236.50	$ 97.27		$ 5.71		$ 120.00				$ 34.36	$ 1,493.84
Shockley	$ 4,591.30	$ 1,144.77	$ 925.11	$ 254.04	$ 393.17			$ 1,938.96	$ 3,819.05		$ 13,066.40
Scott		$ 116.97									$ 116.97
Tran			$ 693.68	$ 102.66	$ 416.40						$ 1,212.74
Shepard		$ 734.14		$ 207.84	$ 2.95						$ 944.93
Moore	$ 260.52	$ 283.34					$ 654.00				$ 1,197.86
Liu		$ 126.35									$ 126.35
Nunes				$ 81.30							$ 81.30
Total Bill	**$ 6,088.32**	**$ 2,502.84**	**$ 1,618.79**	**$ 651.55**	**$ 812.52**	**$ 120.00**	**$ 654.00**	**$ 1,938.96**	**$ 3,819.05**	**$ 34.36**	**$ 18,240.39**

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**EMPLOYEE RECOGNITION**
Status:	Action Item
Report Date:	June 17, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk Kayleigh Shepard, Management Analyst/Deputy Board Clerk

The following District employees were recognized for perfect attendance, outstanding customer service, and quality of work during the month of May 2025.

Administrative Services

Name	Attendance	Customer Service	Work Quality
Dana Mellado	Yes	A customer preparing for an upcoming vacation contacted us to pay ahead on her account. During the interaction, she was so impressed with Dana's assistance that she specifically asked that her appreciation be shared with leadership. She praised Dana for her outstanding customer service, describing her as incredibly pleasant, helpful, and professional. Dana's ability to make the customer feel supported and valued truly exemplifies CHWD's commitment to excellence.	

Name	Attendance	Customer Service	Work Quality
Brittney Moore	Yes		Coordinated logistics and setup for the 5/7/2025 Strategic Planning session.
Viviana Munoz		A customer experiencing financial hardship recently contacted our office with questions regarding their water bill. They were assisted by Viviana, who provided exceptional service with professionalism, empathy, and clarity. Viviana was commended for being polite, courteous, and reassuring throughout the conversation. She clearly explained the customers balance and important deadlines to avoid tax-related consequences. Most importantly, she relieved the customer's concern by confirming that there would be no disruption to their water service. The customer expressed deep appreciation for Viviana's support and the understanding shown during a difficult time.	
Megan Selling	Yes	Megan assisted the Deputy Board Clerk with enabling security features on an Adobe PDF file. Her technical expertise and commitment to helping our team succeed are much appreciated. Assisted Board Clerk staff with set up for the Strategic Planning session on 5/7/2025.	

Name	Attendance	Customer Service	Work Quality
Kayleigh Shepard	Yes		Coordinated logistics and setup for the 5/7/2025 Strategic Planning session.
Beth Shockley	Yes	CHWD Board President Riehle commended Beth for her assistance with his expense reimbursements for a recent conference. He stated that Beth is the best and is proof of what he says to people in other Districts. "CHWD is the easiest place to serve on a board. Not only do we have a 100+ year history of good governance, but we also have the best staff in the water world!" Coordinated employee recognition and retirement breakfast celebration.	
Desiree Smith	Yes		5/6/2025 - Collaborated with the Engineering team to update the new Engineering Project Cover Sheet for projects. 5/28/2025 - Cross-trained Viviana on generating Tax Levy notification letters to customers for Placer County and Sacramento County. The team was able to get the letters out to customers before the anticipated deadline.

Name	Attendance	Customer Service	Work Quality
Andy Tran	Yes		Andy has been a huge help in troubleshooting and getting the Finance team the needed information for Capital Improvement Project Labor entries for the year. He also helped set up a report that will allow the team to reconcile timesheet entries against Cityworks monthly entries for optimal tracking. Exceptional IT support this month!
Torrance York	Yes		Assisted with troubleshooting connection issues with the new VPN (Global Secured Access).

Engineering Department

Name	Attendance	Customer Service	Work Quality
Tamar Dawson		Tamar assisted Board Clerk staff with reformatting a PowerPoint template file for the May Regular Board Meeting presentations. Despite this task falling outside his regular responsibilities, Tamar's collaborative efforts made the process smooth and efficient, and his contribution was instrumental in meeting a tight deadline. 5/26/2025 – The District received a request from a customer through social media asking about the piping material from the meter to their house. The customer stated Tamar went out of his way to assist with questions and was very helpful.	Prepared a staff report for a professional services agreement with Dugan Management & Engineering, Inc., and attended the May Board meeting.

Name	Attendance	Customer Service	Work Quality
Todd Jordan		5/7/2025 – Participated in the District's Strategic Planning Meeting. 5/27/2025 – Prepared a staff report for and attended the Board Meeting to provide an update to the Board regarding the Facilities Maintenance & Expansion Project.	
Tim Katkanov	Yes		
Neil Tamagni	Yes		

Operations Department

Name	Attendance	Customer Service	Work Quality
Chris Bell			May 7th & 8th – Volunteered to work a modified work schedule to remove broken 8" valve on Sunrise Boulevard (10pm – 6:30am)
Andrew Callister			May 27th – Responded to emergency main repair on Tupelo Drive.
Jose Calvillo	Yes		
Brady Chambers	Yes		
Kelly Drake	Yes		

Name	Attendance	Customer Service	Work Quality
James Ferro	Yes		May 11th – responded to after-hours call to repair damaged 2" blow-off on Victory Way (8:30pm – midnight).
Jarrett Flink			May 7th & 8th – Volunteered to work a modified work schedule to remove broken 8" valve on Sunrise Boulevard (10pm – 6:30am).
Brandon Goad		May 8th – Demonstrated one of the service trucks to the attendees at the City of Citrus Heights "Tools of the Trade" Public Works Showcase and Career Fair.	
Chris Nichols	Yes		
Jace Nunes		Filled in for HR and Public Affairs to staff the District's booth at the City of Citrus Heights "Tools of the Trade" Public Works Showcase and Career Fair on 5/8/2025.	Managed the annual Poster Contest and presented the winners at the 5/27/2025 Board Meeting.
Ryon Ridner		On Saturday, 5/17/2025, Ryon demonstrated exceptional professionalism, responsiveness, and sound judgment while responding to an emergency call regarding a reported water leak near Sunrise Boulevard and Greenback Lane. May 8th – Demonstrated one of the service trucks to the attendees at the City of Citrus Heights "Tools of the Trade" Public Works Showcase and Career Fair.	

Name	Attendance	Customer Service	Work Quality
John Spinella	Yes		
Joey Vazquez	Yes		

Public Affairs Department

Name	Attendance	Customer Service	Work Quality
Mary Elise Conzelmann	Yes		

AGENDA ITEM: CC-11

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR BOARD MEETING

SUBJECT : LONG RANGE AGENDA
STATUS : Consent/Information Item
REPORT DATE : June 18, 2025
PREPARED BY : Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Listed below is the current Long Range Agenda.

Legend	
S	Study Session
CC	Consent Calendar
P	Presentation
B	Business
PH	Public Hearing
CL	Closed Session

CITRUS HEIGHTS WATER DISTRICT LONG RANGE AGENDA

MEETING DATE	MEETING TYPE	ITEM DESCRIPTION	ASSIGNED	AGENDA TYPE	AGENDA ITEM
July 2025 Meeting Cancelled -Summer Recess					
August 26, 2025					
August 26, 2025	**Annual**	Budget Options/Prop 218 Direction	**Liu/Straus**	**SS**	I/D
September 23, 2025					
September 23, 2025	**Annual**	Proposed Misc Fees and Charges	**Liu**	**SS**	A
October 28, 2025					
November 18, 2025					
November 18, 2025		2026 Board Meeting Schedule	**Moore**	**CC**	I/D
December 15, 2025					
December 15, 2025	**Annual**	Committee Assignments	**Moore**	**B**	A
December 15, 2025	**Annual**	District Officers	**Moore**	**B**	A
December 15, 2025	**Annual**	Selection of President and Vice President	**Moore**	**B**	A

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**Engineering Department Report**
Status:	Information Item
Report Date:	June 11, 2025
Prepared By:	Missy Pieri, Director of Engineering/District Engineer

Significant assignments and activities for the Engineering Department are summarized below. I will be available at the meeting to answer questions and/or provide additional details.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
PROJECT 2030 Water Main Replacement Project - Pipeline Condition Assessment	Engineering	Director of Engineering, Principal Civil Engineer, Management Analyst	Yes, updates as necessary	Yes	Pipeline Condition Assessment	Segment 1 (42-inch): External Corrosion Direct Assessment scheduled for September 2025. Pipeline Condition Assessment Protocol in process. Pilot Study to begin in July 2025.
PROJECT 2030 Project Workflow	Engineering	General Manager, Director of Engineering, Principal Civil Engineer, Management Analyst, Engineering and Operations Department, Finance Team	Yes, updates as necessary	Yes	Project Management and Coordination of Nine Project 2030 Workflows	Quarter 3 update meeting scope being developed by CHWD. Meeting scheduled for October 2025.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
DISTRICT ENGINEERING STANDARDS	Engineering	Director of Engineering, Engineering and Operations Department	Yes, 06/24/25 (Anticipate Action by Board)	No	Develop Engineering Standards for Private Development Projects	Engineering Standards Complete. Anticipate presentation to and approval by the Board in June 2025.
DISTRICT POLICY UPDATE & DEVELOPMENT (ENGINEERING RELATED)	Engineering	Director of Engineering, Engineering and Operations Department	Yes, 06/24/25 (Anticipate Action by Board)	No	Develop and update District Policies that relate to Engineering/Development Projects	Policies updated. Presented to the Board in May 2025. Board will consider for approval in June 2025.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
DISTRICT WATER SYSTEM MASTER PLAN	Engineering	Director of Engineering, Principal Civil Engineer, Associate Civil Engineer	Yes, 10/22/24 (Award of Contract)	Yes	Update to the District's Existing Water System Master Plan	Progress meetings occurring for various elements of the report. SCADA Draft Technical Memo under review. Draft Water System Master Plan anticipated in Q4 2025.
DISTRICT-WIDE EASEMENT PROJECT Phase 4	Engineering	Director of Engineering and Assistant Engineer	Yes, updates as necessary	Yes	Obtaining easements for District-owned facilities.	Group 3 Easements in progress. Group 4 Easements in progress.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
CAPITAL IMPROVEMENT PROJECT Facilities Modernization & Expansion Project - 7803 Madison Ave	Engineering	Director of Engineering, Principal Civil Engineer, Management Analyst, Technical Advisory Committee	Yes, TBD	Yes	Development of Contract Documents for tenant and site improvements for District facilities located at 7803 Madison Avenue.	Design Scope of Services Task Order issued. Project Kick-off meeting to occur in late June/early July.
CAPITAL IMPROVEMENT PROJECT Facilities Modernization & Expansion Project - 6230 Sylvan Rd	Engineering	Director of Engineering, Principal Civil Engineer, Management Analyst, Technical Advisory Committee	Yes, TBD	Yes	Development of Contract Documents for tenant and site improvements for District facilities located 6230 Sylvan Road.	Design Scope of Services and proposal being prepared by Consultant. Environmental documents and lot merger/parcel rezoning underway. Tree survey completed.
CAPITAL IMPROVEMENT PROJECT - Minnesota Dr Water Main Project	Engineering	Director of Engineering and Assistant Engineer	Yes, 11/18/24 (Award of Contract)	Yes	2024 design, 2025 construction	Construction 100% complete. Project Closeout in progress.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
CAPITAL IMPROVEMENT PROJECT - Fair Oaks Blvd to Leafcrest Water Main Project	Engineering	Director of Engineering and Assistant Engineer	Yes, 4/22/25 (Award of Contract)	Yes	2024/25 design, 2025 construction	Award of Contract occurred at the 04/22/25 Board Meeting. Construction began on 06/16/25.
CAPITAL IMPROVEMENT PROJECT - Greenback Ln (Sunrise Blvd to Birdcage St) Water Main Project	Engineering	Director of Engineering and Assistant Engineer	Yes, TBD	Yes	2025 design, 2026 construction	District preparing 60% plans. Survey completed.
CAPITAL IMPROVEMENT PROJECT - Greenback Ln (Birdcage St to Burich Ave) Water Main Project	Engineering	Director of Engineering and Assistant Engineer	Yes, TBD	Yes	2025 design, 2026 construction	District preparing 90% plans. Potholing completed.
CAPITAL IMPROVEMENT PROJECT - Donnawood Way Water Main Project	Engineering	Director of Engineering and Assistant Engineer	Yes, TBD	Yes	2025, 2026 construction	District preparing 30% plans. Survey completed.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
PRIVATE DEVELOPMENT Sayonara Dr Habitat for Humanity Multiple Parcels	Engineering	Director of Engineering and Associate Civil Engineer	No	No	26 single family homes	Plans approved on 04/30/25. Plan Check and Inspection Fees paid. Capacity Fees due upon water service activation.
PRIVATE DEVELOPMENT 6031 Sunrise Vista Dr Apartments	Engineering	Director of Engineering and Associate Civil Engineer	No	No	Proposed apartments.	All fees paid. Water facilities construction 50% complete.
PRIVATE DEVELOPMENT 7975 Twin Oaks Ave Parcel Split 1 - 3	Engineering	Director of Engineering and Associate Civil Engineer	No	No	Parcel Split - 1 to 3 lot split; 3 single family homes with frontage improvements.	Plans approved on 03/03/25. Plan Check Fees paid.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
PRIVATE DEVELOPMENT 7501 Greenglen Ave Parcel Split 1 - 2	Engineering	Director of Engineering and Assistant Engineer	No	No	Parcel Split - 1 to 2 lot split per SB9; 4 water services for 4 duplexes.	Plan Check Fees and Installation Deposit Paid. Capacity Fees due prior to water service activation. CHWD completed installation of 2 water services on 12/02/24 and 2 more water services are in progress as of 06/16/25.
PRIVATE DEVELOPMENT 7401 Mariposa Ave Parcel Split 1 - 2	Engineering	Director of Engineering and Associate Civil Engineer	No	No	Parcel Split - 1 parcel to 2 parcels.	Parcel split approved by the City. District provided plan review comments on 04/02/25.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
PRIVATE DEVELOPMENT 7509 Twin Oaks Ave Food Truck Plaza	Engineering	Director of Engineering and Associate Civil Engineer	No	No	Existing vacant site (with existing water service) to be used for a Food Truck Plaza.	Plan Check and Inspection Fees Paid. Improvement plans received from the developer on 05/12/25.
PRIVATE DEVELOPMENT 8425 Harper Way New Single Family Dwelling Unit	Engineering	Director of Engineering and Associate Civil Engineer	No	No	New Single Family Dwelling Unit with a 1" water service.	All fees paid. Construction completed and easement obtained. Project closeout in progress.

Item of Interest	Department	Project Team	To Board? If so, Date	Strategic Planning Item	Item Description	Update from Last Report/ Current Status
CITY OF CITRUS HEIGHTS PROJECT Auburn Blvd - Complete Streets Phase 2	Engineering	Director of Engineering, Associate Civil Engineer, and Senior Inspector	No	No	City of Citrus Heights Frontage Improvements and Utility relocation on Auburn Blvd from Rusch Park to north. 3 new irrigation services.	Final plans signed on 02/24/23. Fees for irrigation services paid. Construction on water related work began on 07/29/24. Water related construction 90% complete.

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**OPERATIONS DEPARTMENT REPORT**
Status:	Information Item
Report Date:	June 10, 2025
Prepared By:	Jace Nunes, Management Analyst Rebecca Scott, Director of Operations

The Citrus Heights Water District has 20 employees in its Operations Department. The following report summarizes their work in May.

OPERATIONS MONTHLY ACTIVITIES

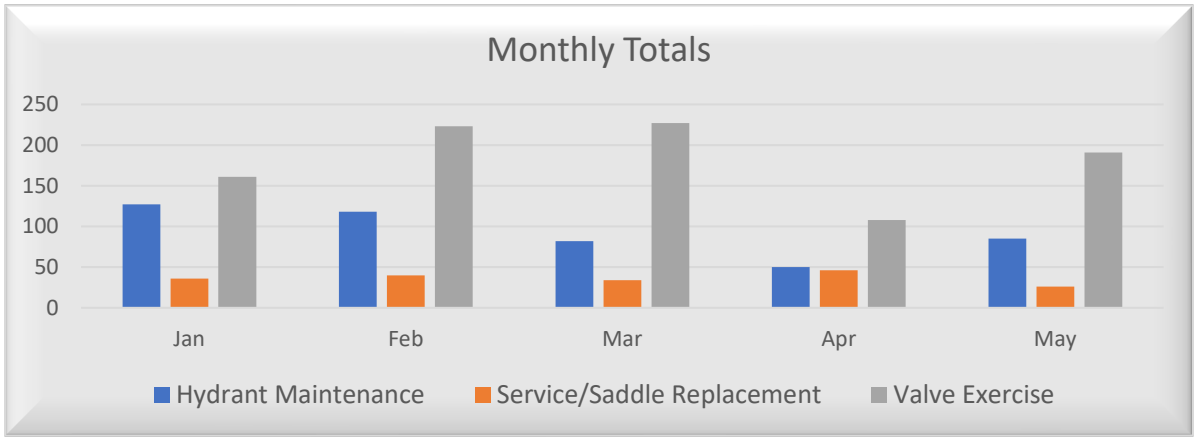
A. Distribution Division

The Operations Department includes 10 Distribution Operators who perform the necessary maintenance to properly operate and maintain over 250 miles of pipelines and more than 21,000 service connections. The table below summarizes noteworthy common tasks staff members perform.

Distribution Maintenance	May 2025	Total CY 2025	Total # in System
Air Valve Inspection (ARV)	0	0	147
Hydrant Maintenance	85	462	2,170
Mainline Repair/Maintenance	1	3	
Meter Box Maintenance	4	16	21,007
Meter Register Replacement	2	44	21,007
Service/Saddle Replacement	26	172	21,007
Valve Exercise	191	910	4,631
Total	**309**	**1607**	

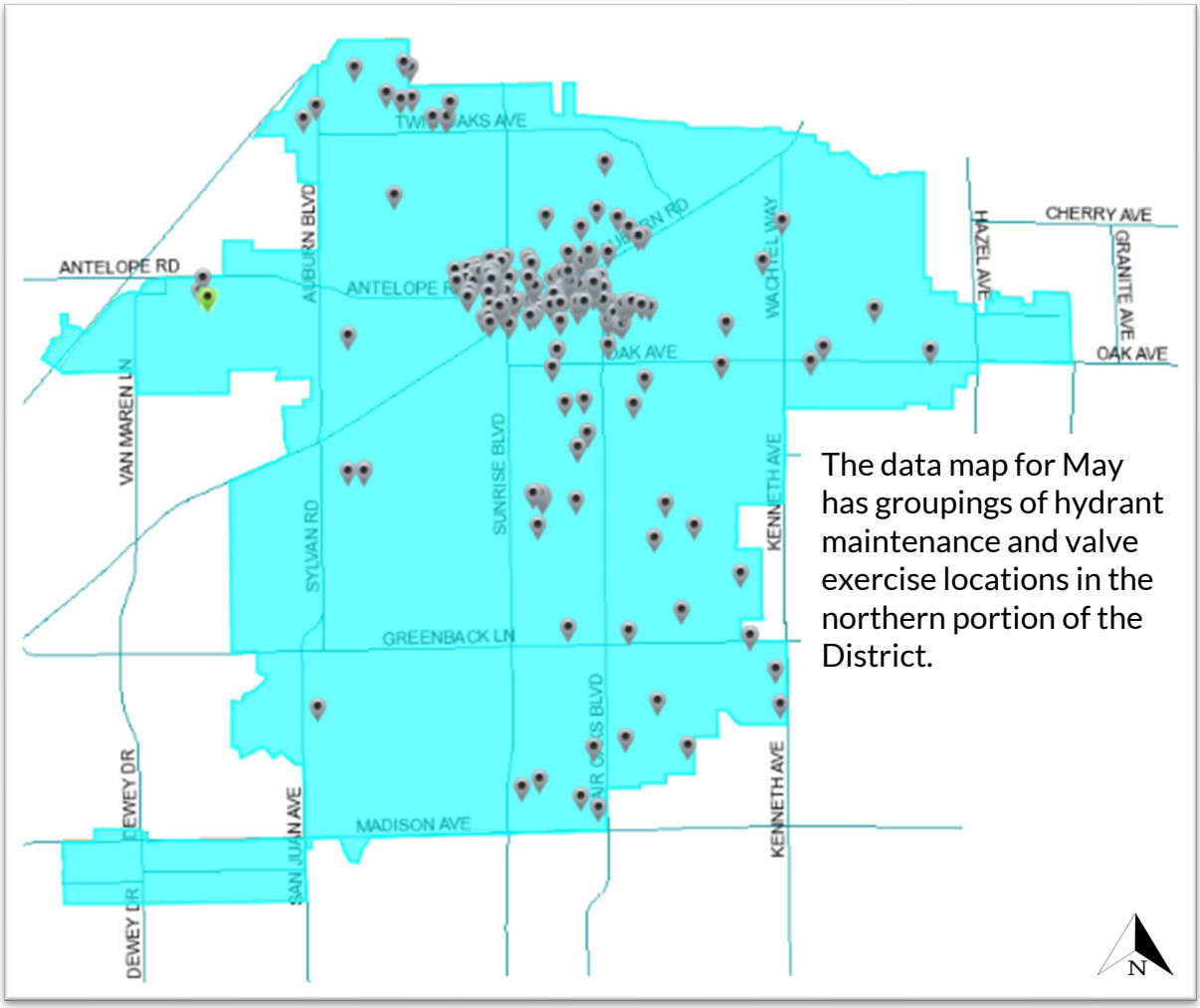
CIP Projects	May 2025	Total CY 2025
C25-010 Water Mainline	0	1
C25-011 Water Valves	2	4
C25-012 Water Services	27	158
C25-013 Water Meters	8	22
C25-014 Fire Hydrants	0	5
C25-103 Pothole Main	0	1

Total	**37**	**191**



The map below shows the locations where the Operations crews worked in May.

Locations Worked within the Citrus Heights Water District



B. Standby Summary

The Operations Department assigns employees to weekly standby duty to provide 24-hour coverage in case of water emergencies within the District. The year-to-date standby activity is provided below.

Standby Summary			
Standby Reporting Month	**Total Calls to After-Hours Answering Service**	**Site Visits**	**Resolutions Via Phone Call**
January	20	13	7
February	29	18	11
March	28	18	10
April	22	10	12
May	41	21	20

C. Operations Specialist

The District's Operations Specialist performs the USA markings to help protect the District's distribution system by identifying CHWD utilities for entities working in the District's service area. The Operations Specialist also responds to leak investigations; requests to locate meters; and water turn ons/offs (additional information in the chart below).

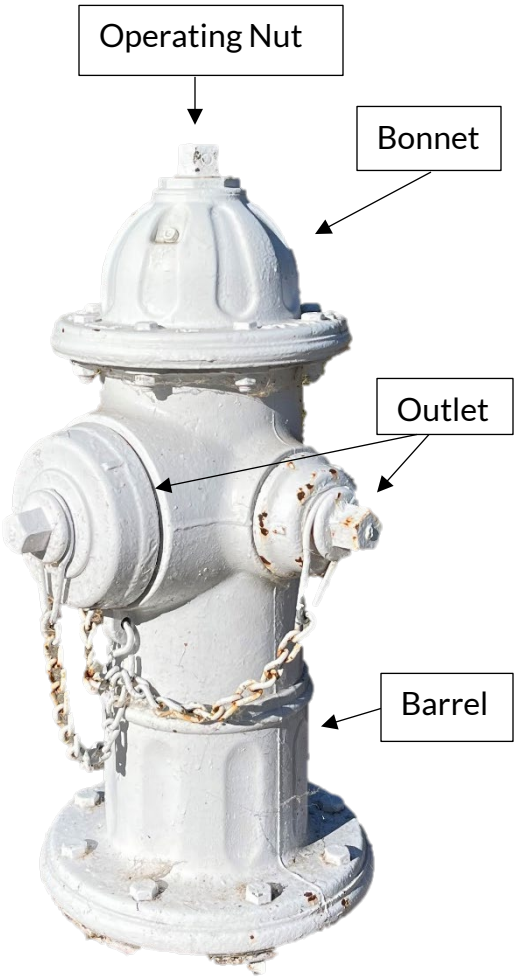
Operations Specialist Summary		
Work Description	**May 2025**	**Total CY 2025**
USA Markings	549	2,523
Check for Leak	28	164
Fire Hydrant Investigation	0	2
Locate a Meter	0	0
Turn Water On/Off	15	39
Total	**582**	**2,136**

D. Water Quality/Sampling Summary

The Water Resources Division oversees routine monthly bacteriological testing as required by the California Division of Drinking Water. In May, 72 samples were collected with no positive results.

Fire Hydrant Maintenance Refresher:

The Citrus Heights Water District owns and maintains 2,170 fire hydrants throughout its service area. The District follows California Fire Code for fire hydrant spacing. In 2024, Operations staff performed maintenance inspections on 546 hydrants. During a routine maintenance inspection, staff operates the fire hydrant to verify all components are working properly; regreases all outlets; then cleans and repaints the body, if needed. Below are pictures showing typical fire hydrant components and a fire hydrant installation.



Typical fire hydrant components

Photo: CHWD fire hydrant installation

CITRUS HEIGHTS WATER DISTRICT
DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

SUBJECT : 2025 WATER SUPPLY - PURCHASED & PRODUCED
STATUS : Information Item
REPORT DATE : June 10, 2025
PREPARED BY : Brian M. Hensley, Water Resources Supervisor
: Rebecca Scott, Director of Operations

OBJECTIVE:

Monthly water supply report, including a comparison to the corresponding month in the prior 5 years. The 2013 data is included for reference as it is the baseline consumption year for water conservation mandates.

Month	**2013**	2020	2021	2022	2023	2024	2025				Year-to-Date Comparison to 2013	
	Total Water Monthly acre feet						Surface Water Purchased	Ground Water Produced	Total Water Monthly	Total Water Annual		
							acre feet				acre feet	%
Jan	**602.52**	519.03	575.54	528.73	501.92	515.29	495.86	60.36	556.22	556.22	**-46.30**	**-7.7%**
Feb	**606.36**	589.8	485.17	605.17	487.3	467.3	408.07	72.34	480.41	1,036.63	**-172.25**	**-14.2%**
Mar	**819.55**	654.31	601.02	774.74	472.65	539.72	477.36	79.62	556.98	1,593.61	**-434.82**	**-21.4%**
Apr	**1,029.73**	767.24	1,001.96	763.83	698.84	634.32	682.01	58.74	740.75	2,334.36	**-723.80**	**-23.7%**
May	**1,603.43**	1,168.99	1,277.33	1,133.06	1,016.07	1,044.91	1,152.38	37.84	1,190.22	3,524.58	**-1,137.01**	**-24.4%**
Jun	**1,816.73**	1,475.82	1,541.32	1,288.62	1,265.25	1,399.15						
Jul	**2,059.21**	1,682.83	1,643.73	1,536.69	1,513.02	1,645.98						
Aug	**1,924.28**	1,660.59	1,538.76	1,461.15	1,494.76	1,501.15						
Sep	**1,509.82**	1,381.14	1,333.29	1,228.49	1,220.46	1,321.12						
Oct	**1,297.42**	1,185.00	972.09	1,065.99	966.12	1,159.16						
Nov	**911.55**	779.34	576.37	637.25	648.08	668.79						
Dec	**700.94**	620.34	536.97	541.93	558.87	573.3						
Total	**14,881.54**	12,484.43	12,083.55	11,565.65	10,843.34	11,470.19	3,215.68	308.90	3,524.58	3,524.58		
% of Total							91.24%	8.76%				

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025, REGULAR MEETING

Subject:	WATER SUPPLY RELIABILITY
Status:	Information Item
Report Date:	June 10, 2025
Prepared By:	Brian Hensley, Water Resources Supervisor Rebecca Scott, Director of Operations

OBJECTIVE:
Receive and file status report on surface water supplies available to the Citrus Heights Water District (District).

BACKGROUND AND ANALYSIS:
As of June 1, 2025, storage in Folsom Lake was at 914,294 acre-feet, ninety-four (94%) of the total capacity of 977,000 acre-feet. This represents an increase in storage of 8,983 acre-feet in the past month. Total storage in the lake is above the 5-year average for this month (131%).

The District's total water use during May 2025 (1,190.22 acre-feet) was twenty-six percent (26%) below that of May 2013 (1,603.43 acre-feet).

The District's groundwater production wells: Bonita, Skycrest, Mitchell Farms, and Sylvan are operational and used on a rotational or as-needed basis. Other District groundwater production wells, Palm and Sunrise, are available for emergency use. Construction on the Ella Way Well Project has begun, as well as drilling on our Highland site.

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**WATER EFFICIENCY & SAFETY PROGRAM UPDATE**
Status:	Information Item
Report Date:	June 10, 2025
Prepared By:	Jace Nunes, Management Analyst Rebecca Scott, Director of Operations

Water Efficiency, Safety and Meter Program updates are summarized below.

ACTIVITIES AND PROGRESS REPORT

- Water Efficiency activities during the month of May 2025 included the following:
  - One High Efficiency Toilet (HET) rebate was processed.
  - One Pressure Reducing Valve rebate was issued.
  - Three smart irrigation controllers were installed.
- Six reports of water waste were received in May. Staff continues to reach out to customers concerning water waste violations.

The District typically holds several safety meetings per month. The May safety meetings were titled "Trench Safety," "Hazard Recognition on the Job," "Silica Safety," and "Heat Illness Prevention Plan."

The District offers a variety of WaterSmart classes throughout the year. The remaining 2025 WaterSmart classes are below.

Date	Titles	Format
Sat., Sept. 13	DIY Dirtbag: A Guide to at Home Composting	In-person, Sylvan Oaks Library
Thurs., Oct. 9	Purple Rain Barrels: A Guide to Rainwater Catchment and Storage	Online

CHWD has a demonstration garden at the Sylvan Ranch Community Garden featuring water efficient landscaping. CHWD works with a customer-based volunteer "Garden Corps," who maintain the plots by removing weeds and checking the irrigation system and controller timers.

The garden's webpage, www.chwd.org/garden, allows viewers to see detailed information about each plant in the District's plots, and create a customized plant list for their property.

The following table summarizes CHWD's Residential Gallons Per Capita Per Day (R-GPCD) values for 2025:

January	71	66	8%
February	68	66	3%
March	70	69	2%
April	101	86	18%
May	145*	130	11%

**Preliminary number as of the report date*

The following table summarizes the service requests and work orders of Water Efficiency staff for May 2025:

Work Orders	May 2025	May 2024
CHANGE TOUCH-READ TO RADIO READ	8	5
CONVERT TO RADIO-READ METER	35	8
METER BOX MAINTENANCE	3	2
METER REPAIR	0	0
METER REPLACEMENT	1	1
METER TESTING	0	0
REGISTER REPLACEMENT	2	10
RADIO-READ REGISTER REPLACEMENT	5	5
INSTALL METER	0	0
TOTAL	**54**	**31**

Service Requests	May 2025	May 2024
CONSERVATION REQUEST	3	11
CHECK FOR LEAK	2	3
UNABLE TO OBTAIN METER READ	95	37
TRIM SHRUBS	5	2
METER BURIED	21	25
METER MAINT.	13	8
LOCKED GATE	4	2
RE-READ METER	21	12
READ METER	0	0
METER BOX MAINT.	5	4
MOVE-IN/MOVE-OUT	15	15
CAR OVER METER	8	15
TOTAL	**192**	**134**

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**DISCUSSION AND POSSIBLE ACTION TO APPROVE A TASK ORDER STYLE MASTER SERVICES AGREEMENT WITH RAFTELIS FINANCIAL CONSULTANTS, INC.**
Status:	Action Item
Report Date:	June 13, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Consider approval of a task order style master services agreement with Raftelis Financial Consultants, Inc. (Rafetlis) for on-call support services.

BACKGROUND AND ANALYSIS:
In 2019, the Board of Directors approved a professional services agreement with Raftelis to conduct several important components of financial planning and analysis for the District. Past projects completed by Raftelis have included groundwater rate analysis, funding strategies for capital improvements and operations and maintenance, and development of financial models.

As CHWD continues to operate with a lean staff structure, leveraging the expertise of contract partners like Raftelis is a strategic approach to efficiently managing complex projects without significantly increasing ongoing operating costs. Since its founding in 1993, Raftelis has established itself as a premier consulting firm serving public agencies, known for its depth of knowledge and trusted guidance, particularly within California's local government sector.

Given the successful partnership to date and Raftelis' proven capabilities, staff recommends expanding the scope of services through an updated, task order–based professional services agreement. The proposed agreement will extend beyond financial

planning support to include District-wide strategic initiatives. Services may include, but are not limited to, organizational development, performance measurement, long-term planning, and support for cross-functional programs aligned with CHWD's evolving needs.

The updated agreement is structured to allow flexible engagement models, offering either Time-and-Materials/Hourly Billable arrangements or Project-Based/Not-to-Exceed (NTE) contracts, each with clearly defined scopes, schedules, and budgets. This format aligns with CHWD's standard task order contracting practices and provides scalable support as needed. The agreement term is open-ended but includes provisions for termination by either party without cause.

All services covered by the agreement are anticipated within the District's Operating Budget and will be subject to availability of funds. This expanded partnership with Raftelis represents a strategic investment in CHWD's ability to advance critical initiatives efficiently and with expert guidance.

RECOMMENDATION:
Approve the task order-style master services agreement with Raftelis Financial Consultants, Inc., and authorize the General Manager to execute the agreement.

ATTACHMENT:
Professional Services Agreement for On-Call Support Services.

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

CITRUS HEIGHTS WATER DISTRICT
PROFESSIONAL SERVICES AGREEMENT
FOR ON-CALL SUPPORT SERVICES

1. PARTIES AND DATE.

This Agreement is made and entered into this 24th day of June 2025, by and between the Citrus Heights Water District, a public agency organized and operating under the laws of the State of California with its principal place of business at 6230 Sylvan Road, Citrus Heights, CA 95610 ("District") and Raftelis Financial Consultants, Inc. ("Consultant"). District and Consultant are sometimes individually referred to as "Party" and collectively as "Parties" in this Agreement.

2. RECITALS.

2.1 District. District is a public agency organized under the laws of the State of California, with power to contract for services necessary to achieve its purpose.

2.2 Consultant. Consultant desires to perform and assume responsibility for the provision of certain professional services required by the District on the terms and conditions set forth in this Agreement and in the task order(s) to be issued pursuant to this Agreement and executed by the District and Consultant ("Task Order"). Consultant represents that it is experienced in providing all of the support services listed in the scope of services provided for in Exhibit "A" to public clients, is licensed in the State of California, and is familiar with the plans of District.

2.3 Project. District desires to engage Consultant to render such services on an on-call basis. Services shall be ordered by Task Order(s) to be issues pursuant to this Agreement for future projects as set forth herein (each such project shall be designated a "Project" under this Agreement).

3. TERMS.

3.1 Scope of Services and Term.

3.1.1 General Scope of Services. Consultant promises and agrees to furnish to the District all labor, materials, tools, equipment, services, and incidental and customary work, on an on-call basis, as necessary to fully and adequately supply the professional human resources and related consulting services necessary for the Project ("Services"). The types of Services to be provided are generally described in Exhibit "A," attached hereto and incorporated herein by reference. The Services shall be more particularly described in the individual Task Order issued by the District's General Manager or designee. No Service shall be performed unless authorized by a fully executed Task Order in the form attached hereto as Exhibit "B". All Services shall be subject to, and performed in accordance with, this Agreement, the relevant Task Order, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state and federal laws, rules and regulations.

3.1.2 Term. The term of this Agreement shall be from June 24, 2025, until terminated as provided herein. Consultant shall meet any other established schedules and deadlines set forth in the applicable Task Order. All applicable indemnification provisions of this Agreement shall remain in effect following the termination of this Agreement.

3.2 Responsibilities of Consultant.

3.2.1 Control and Payment of Subordinates; Independent Contractor. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement and such directions and amendments from District as herein provided. District retains Consultant on an independent contractor basis and not as an employee. No employee or agent of Consultant shall become an employee of District. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall also not be employees of District and shall at all times be under Consultant's exclusive direction and control. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to social security taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.

3.2.2 Schedule of Services. Consultant shall perform the Services expeditiously, within the term of this Agreement, and in accordance with the specific schedule that shall be set forth in the Task Order ("Schedule of Services"). Consultant shall be required to commence work within five (5) days, or as soon thereafter as reasonably practicable, of receiving a fully executed Task Order. Consultant represents that it has the professional and technical personnel required to perform the Services in conformance with such conditions. In order to facilitate Consultant's conformance with the Schedule of Services, District shall respond to Consultant's submittals in a timely manner. Upon request of District, Consultant shall provide a more detailed schedule of anticipated performance to meet the Schedule of Services.

3.2.3 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the approval of District.

3.2.4 RESERVED.

3.2.5 District's Representative. The District hereby designates the General Manager, or his or her designee, to act as its representative for the performance of this Agreement ("District's Representative"). District's Representative shall have the power to act on behalf of the District for all purposes under this Contract. Consultant shall not accept direction or orders from any person other than the District's Representative or his or her designee.

3.2.6 Consultant's Representative. Consultant hereby designates Jan Perkins, Vice President, or her designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of the Consultant for all purposes under this Agreement. The Consultant's Representative shall supervise and direct the Services, using his best skill and attention, and shall

be responsible for all means, methods, techniques, sequences and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

3.2.7 Coordination of Services. Consultant agrees to work closely with District staff in the performance of Services and shall be available to District's staff, consultants and other staff at all reasonable times.

3.2.8 Standard of Care; Performance of Employees. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California at the time the Services are performed. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant warrants that all employees and subcontractors shall have sufficient skill and experience to perform the Services assigned to them. Finally, Consultant represents that it, its employees and subcontractors have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, including a City of Citrus Heights Business License, and that such licenses and approvals shall be maintained throughout the term of this Agreement. As provided for in the indemnification provisions of this Agreement, Consultant shall perform, at its own cost and expense and without reimbursement from the District, any services necessary to correct errors or omissions which are caused by the Consultant's failure to comply with the standard of care provided for herein. Any employee of the Consultant or its sub-consultants who is determined by the District to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project, a threat to the safety of persons or property, or any employee who fails or refuses to perform the Services in a manner acceptable to the District, shall be promptly removed from the Project by the Consultant and shall not be re-employed to perform any of the Services or to work on the Project.

3.2.9 Laws and Regulations. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner applicable to the performance of the Project or the Services, including all Cal/OSHA requirements, and shall give all notices required by law. If required, Consultant shall assist District, as requested, in obtaining and maintaining all permits required of Consultant by federal, state and local regulatory agencies. Consultant shall be liable for all violations by Consultant of applicable local, state and federal laws, rules and regulations in connection with the Project and the Services. If the Consultant performs any work knowing it to be in violation of such laws, rules and regulations and without giving written notice to the District, Consultant shall be solely responsible for all costs arising therefrom. Consultant shall defend, indemnify and hold District, its officials, directors, officers, employees and agents free and harmless, pursuant to the indemnification provisions of this Agreement, from any claim or liability arising out of any failure or alleged failure to comply with such laws, rules or regulations.

3.2.10 Insurance.

3.2.10.1 Time for Compliance. Consultant shall not commence the Services under this Agreement until it has provided evidence satisfactory to the District that it has secured all insurance required under this section. In addition, Consultant shall not allow any

subcontractor to commence work on any subcontract until it has provided evidence satisfactory to the District that the subcontractor has secured all insurance required under this section.

3.2.10.2 Minimum Requirements. Consultant shall, at its expense, procure and maintain for the duration of the Agreement insurance meeting the requirements set forth herein. In the event Consultant is self-insured, Consultant shall provide evidence of self-insured coverage that provides coverage that is equal to the insurance requirements set forth herein. Consultant shall require all of its subcontractors to procure and maintain the same insurance specified herein for the duration of the Agreement. Such insurance shall meet at least the following minimum levels of coverage:

(A) Minimum Scope of Insurance. Coverage shall be at least as broad as the latest version of the following: (1) *General Liability*: Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001); (2) *Automobile Liability*: Insurance Services Office Business Auto Coverage form number CA 0001, code 1 (any auto); (3) *Workers' Compensation and Employer's Liability*: Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance; and (4) *Professional Liability (Errors and Omissions)*: professional liability or Errors and Omissions insurance appropriate to its profession.

(B) Minimum Limits of Insurance. Consultant shall maintain limits no less than: (1) *General Liability:* One Million Dollars ($1,000,000) per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with general aggregate limit is used, either the general aggregate limit shall apply separately to this Agreement/location or the general aggregate limit shall be twice the required occurrence limit; (2) *Automobile Liability:* One Million Dollars ($1,000,000) combined single limit (each accident) for bodily injury and property damage; (3) *Workers' Compensation and Employer's Liability:* Workers' Compensation limits as required by the Labor Code of the State of California. Employer's Liability limits of One Million Dollars ($1,000,000) per accident for bodily injury or disease; and (4) *Professional Liability (Errors and Omissions)*: One Million Dollars ($1,000,000) per claim and aggregate (errors and omissions).

Requirements of specific coverage or limits contained in this section are not intended as a limitation on coverage, limits, or other requirement, or a waiver of any coverage normally provided by any insurance. Any available coverage shall be provided to the parties required to be named as additional insured pursuant to this Agreement. Defense costs shall be payable in addition to the limits.

3.2.10.3 Insurance Endorsements. The insurance policies shall contain the following provisions, or Consultant shall provide endorsements on forms supplied or approved by the District to add the following provisions to the insurance policies:

(A) Commercial General Liability. The commercial general liability policy shall be endorsed to provide the following: (1) the District, its directors, officials, officers, employees, shall be covered as additional insureds using ISO endorsement forms CG 20 10 10 01 and 20 37 10 01, or endorsements providing the exact same coverage; (2) the insurance coverage shall be primary insurance as respects the District, its directors, officials, officers,

employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the District, its directors, officials, officers, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way; and (3) the insurance coverage shall contain or be endorsed to provide waiver of subrogation in favor of the District, its directors, officials, officers, employees, agents and volunteers or shall specifically allow Consultant to waive its right of recovery prior to a loss. Consultant hereby waives its own right of recovery against District and shall require similar written express waivers and insurance clauses from each of its subconsultants.

(B) Automobile Liability. The automobile liability policy shall be endorsed to provide the following: (1) the District, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insureds with respect to the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Consultant or for which the Consultant is responsible; (2) the insurance coverage shall be primary insurance as respects the District, its directors, officials, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the District, its directors, officials, officers, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way; and (3) the insurance coverage shall contain or be endorsed to provide waiver of subrogation in favor of the District, its directors, officials, officers, employees, agents and volunteers or shall specifically allow Consultant to waive its right of recovery prior to a loss. Consultant hereby waives its own right of recovery against District and shall require similar written express waivers and insurance clauses from each of its subconsultants.

(C) Workers' Compensation and Employers Liability Coverage. The insurer shall agree to waive all rights of subrogation against the District, its directors, officials, officers, employees, agents and volunteers for losses paid under the terms of the insurance policy which arise from work performed by the Consultant.

(D) Professional Liability (Errors and Omissions). This insurance shall be endorsed to include contractual liability applicable to this Agreement and shall be written on a policy form coverage specifically designed to protect against acts, errors or omissions of the Consultant. "Covered Professional Services" as designated in the policy must specifically include work performed under this Agreement. The policy must "pay on behalf of" the insured and must include a provision establishing the insurer's duty to defend.

(E) All Coverages. Each insurance policy required by this Agreement shall be endorsed to state that: (1) coverage shall not be suspended, voided, reduced or canceled except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the District; and (2) any failure to comply with reporting or other provisions of the policies, including breaches of warranties, shall not affect coverage provided to the District, its directors, officials, officers, employees, agents and volunteers.

3.2.10.4 Separation of Insureds; No Special Limitations. All insurance required by this Section shall contain standard separation of insureds provisions. In addition, such

insurance shall not contain any special limitations on the scope of protection afforded to the District, its directors, officials, officers, employees, agents and volunteers.

3.2.10.5 Deductibles and Self-Insurance Retentions. Any deductibles or self-insured retentions must be declared to and approved by the District. Consultant shall guarantee that, at the option of the District, either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the District, its directors, officials, officers, employees, agents and volunteers; or (2) the Consultant shall procure a bond guaranteeing payment of losses and related investigation costs, claims and administrative and defense expenses.

3.2.10.6 Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best's rating no less than A:VII, admitted to transact in the business of insurance in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law, and satisfactory to the District.

3.2.10.7 Verification of Coverage. Consultant shall furnish District with original certificates of insurance and endorsements effecting coverage required by this Agreement on forms satisfactory to the District. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf and shall be on forms provided by the District if requested. All certificates and endorsements must be received and approved by the District before work commences. The District reserves the right to require complete, certified copies of all required insurance policies, at any time.

3.2.10.8 Subconsultants. Consultant shall not allow any subcontractors or subconsultants to commence work on any subcontract until they have provided evidence satisfactory to the District that they have secured all insurance required under this section. Policies of commercial general liability insurance provided by such subcontractors or subconsultants shall be endorsed to name the District as an additional insured using ISO form CG 20 38 04 13 or an endorsement providing the exact same coverage. If requested by Consultant, District may approve different scopes or minimum limits of insurance for particular subcontractors or subconsultants.

3.2.10.9 Compliance With Coverage Requirements. If at any time during the life of the Agreement, any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, District has the right but not the duty to obtain the insurance it deems necessary and any premium paid by District will be promptly reimbursed by Consultant or District will withhold amounts sufficient to pay premium from Consultant payments. In the alternative, District may terminate this Agreement for cause.

3.2.11 Safety. Consultant shall execute and maintain its work so as to avoid injury or damage to any person or property. In carrying out its Services, the Consultant shall at all times be in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of employees appropriate to the nature of the work and the conditions under which the work is to be performed. Safety precautions as applicable shall include, but shall not be limited to: (1) adequate life protection and life-saving equipment and procedures; (2) instructions in accident prevention for all employees and subcontractors, such as equipment and other safety devices, equipment and wearing apparel as are necessary or lawfully

required to prevent accidents or injuries; and (3) adequate facilities for the proper inspection and maintenance of all safety measures.

3.3 Fees and Payments.

3.3.1 Compensation. Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth in Exhibit "A," attached hereto and incorporated herein by reference. The total compensation per Task Order shall be set forth in the relevant Task Order, and Consultant shall be compensated in one of two billable methods: a) Time and Materials/Hourly Billable; or b) Project Basis/Not-to-Exceed (NTE) amount. Extra Work may be authorized, as described below; and if authorized, said Extra Work will be compensated at the rates and manner set forth in this Agreement.

3.3.2 Payment of Compensation. Consultant shall submit to District a monthly itemized invoice which indicates work completed and hours of Services rendered by Consultant. The invoice shall reference the relevant Task Order and describe the amount of Services and supplies provided since the initial commencement date of Services under this Agreement, and since the start of the subsequent billing periods, through the date of the invoice. Consultant shall include a Project Task Tracking Sheet with each invoice submitted. District shall, within forty-five (45) days of receiving such invoice and Project Task Tracking Sheet, review the invoice and pay all approved charges thereon.

3.3.3 Reimbursement for Expenses. Consultant shall not be reimbursed for any expenses unless authorized under Exhibit "B" or otherwise in writing by District.

3.3.4 Extra Work. At any time during the term of this Agreement, District may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by District to be necessary for the proper completion of the Project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization from District's Representative. Where Extra Work is deemed merited by the District, an amendment to this Agreement shall be prepared by the District and executed by both Parties before performance of such Extra Work, or the District will not be required to pay for the changes in the scope of work. Such amendment shall include the change in fee and/or time schedule associated with the Extra Work. Amendments for Extra Work shall not render ineffective or invalidate unaffected portions of this Agreement

3.3.5 Prevailing Wages. Consultant is aware of the requirements of California Labor Code Sections 1720 et seq., and 1770 et seq., as well as California Code of Regulations, Title 8, Section 16000 et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. If the Services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is One Thousand Dollars ($1,000) or more, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall obtain a copy of the prevailing rates of per diem wages in effect at the commencement of this Agreement. Consultant shall make copies of the prevailing rates of per diem wages for each craft, classification or type of worker needed to execute

the Services available to interested parties upon request and shall post copies at the Consultant's principal place of business and at the project site. Consultant shall defend, indemnify and hold the District, its officials, officers, employees, volunteers and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws.

If the Services are being performed as part of an applicable "public works" or "maintenance" project, then pursuant to Labor Code Sections 1725.5 and 1771.1, the Consultant and all subconsultants performing such Services must be registered with the Department of Industrial Relations. Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants, as applicable. This Project may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements.

3.4 Accounting Records.

3.4.1 Maintenance and Inspection. Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of District during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of three (3) years from the date of final payment under this Agreement.

3.5 General Provisions.

3.5.1 Termination of Agreement.

3.5.1.1 Grounds for Termination. Either party may terminate the whole or any part of this Agreement at any time and without cause by giving written notice to the other party of such termination, and specifying the effective date thereof, at least fifteen (15) days before the effective date of such termination. Upon termination, Consultant shall be compensated only for those Services which have been adequately rendered to District, and Consultant shall be entitled to no further compensation.

3.5.1.2 Effect of Termination. If this Agreement is terminated as provided herein, District may require Consultant to provide all finished or unfinished Documents and Data (defined below) and other information of any kind prepared by Consultant in connection with the performance of Services under this Agreement. Consultant shall be required to provide such documents and other information within fifteen (15) days of the request.

3.5.1.3 Additional Services. In the event this Agreement is terminated in whole or in part as provided herein, District may procure, upon such terms and in such manner as it may determine appropriate, services similar to those terminated.

3.5.2 Delivery of Notices. All notices permitted or required under this Agreement shall be given to the respective Parties at the following address, or at such other address as the respective parties may provide in writing for this purpose:

District	**Consultant**
Citrus Heights Water District	Raftelis Financial Consultants,
P.O. Box 286	Inc.
Citrus Heights, CA 95611	24640 Jefferson Ave. Ste #207
Attn: Hilary Straus, General Manager	Murrieta, CA 92562

Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.5.3 Ownership of Materials and Confidentiality.

3.5.3.1 Documents & Data; Licensing of Intellectual Property. This Agreement creates a non-exclusive non-assignable and perpetual license for District to copy, use, modify, reuse, deliverables prepared or caused to be prepared by Consultant under this Agreement ("Documents & Data"). Consultant shall require all subcontractors to agree in writing that District is granted a non-exclusive and perpetual license for any Documents & Data the subcontractor prepares under this Agreement. Consultant represents and warrants that Consultant has the legal right to license any and all Documents & Data. Consultant makes no such representation and warranty in regard to Documents & Data which were prepared by design professionals other than Consultant or provided to Consultant by the District. District shall not be limited in any way in its use of the Documents & Data at any time, provided that any such use not within the purposes intended by this Agreement shall be at District's sole risk. Nothing contained herein shall be deemed a transfer, assignment or divestiture by Consultant of its trade secrets, know how or intellectual property.

3.5.3.2 Confidentiality. All ideas, memoranda, specifications, plans, procedures, drawings, descriptions, computer program data, input record data, written information, and other Documents & Data either created by or provided to Consultant in connection with the performance of this Agreement shall be held confidential by Consultant. Such materials shall not, without the prior written consent of District, be used by Consultant for any purposes other than the performance of the Services. Nor shall such materials be disclosed to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant which is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use District's name or insignia, photographs of the Project, or any publicity pertaining to the Services or the Project in any magazine, trade paper, newspaper, television or radio production or other similar medium without the prior written consent of District.

3.5.4 Cooperation; Further Acts. The Parties shall fully cooperate with one another and shall take any additional acts or sign any additional documents as may be necessary, appropriate or convenient to attain the purposes of this Agreement.

3.5.5 Attorney's Fees. If either Party commences an action against the other Party, either legal, administrative or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorney's fees and all other costs of such action.

3.5.6 Indemnification.

3.5.6.1 Standard Indemnification. To the fullest extent permitted by law, Consultant shall defend, indemnify and hold the District, its officials, officers, employees, volunteers, and agents free and harmless from claims, demands, causes of action, costs, expenses, liability, loss, damage or injury, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or relating to any negligence, recklessness, or willful misconduct of Consultant, its officials, officers, employees, consultants, and contractors arising out of or in connection with the performance of the Services, the Project or this Agreement, including without limitation the payment of all consequential damages, expert witness fees, and attorney's fees and other related costs and expenses. Consultant shall defend, expense and risk, any and all such aforesaid suits, actions or other legal proceedings instituted against District, its directors, officials, officers, employees. Consultant shall pay and satisfy any judgment, award or decree that may be rendered against District or its directors, officials, officers. Consultant shall reimburse District and its directors, officials, officers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided, including correction of errors and omissions. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the District, its directors, officials officers, employees, agents or volunteers.

3.5.7 Entire Agreement. This Agreement contains the entire Agreement of the Parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings or agreements. This Agreement may only be modified by a writing signed by both Parties.

3.5.8 Governing Law. This Agreement shall be governed by the laws of the State of California. Venue shall be in Sacramento County.

3.5.9 Time of Essence. Time is of the essence for each and every provision of this Agreement.

3.5.10 District's Right to Employ Other Consultants. District reserves right to employ other consultants in connection with this Project.

3.5.11 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of the District. Any attempt to do so shall be null and void, and any assignees,

hypothecates or transferees shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer.

3.5.12 Subcontracting. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of District. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

3.5.13 Construction; References; Captions. Since the Parties or their agents have participated fully in the preparation of this Agreement, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. Any term referencing time, days or period for performance shall be deemed calendar days and not work days. All references to Consultant include all personnel, employees, agents, and subcontractors of Consultant, except as otherwise specified in this Agreement. All references to District include its officials, officers, employees, agents, and volunteers except as otherwise specified in this Agreement. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

3.5.14 Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by both Parties.

3.5.15 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.

3.5.16 No Third-Party Beneficiaries. There are no intended third-party beneficiaries of any right or obligation assumed by the Parties.

3.5.17 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

3.5.18 Prohibited Interests. Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid, nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, District shall have the right to rescind this Agreement without liability. For the term of this Agreement, no member, officer or employee of District, during the term of his or her service with District, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

3.5.19 Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any subcontractor, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

3.5.20 Labor Certification. By its signature hereunder, Consultant certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code and agrees to comply with such provisions before commencing the performance of the Services.

3.5.21 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

3.5.22 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

[Signatures on Following Page]

SIGNATURE PAGE
TO
CITRUS HEIGHTS WATER DISTRICT
PROFESSIONAL SERVICES AGREEMENT
FOR SUPPORT SERVICES

CITRUS HEIGHTS WATER DISTRICT

By: _____
Hilary M. Straus
General Manager

Date: _____

RAFTELIS FINANCIAL CONSULTANTS, INC

By: _____
Jan Perkins
Vice President

Date: _____

EXHIBIT "A"
SCOPE OF SERVICES

RAFTELIS

Citrus Heights Water District

As-Needed Consulting Services

PROPOSAL / MAY 14, 2025

RAFTELIS

May 14, 2025

Hilary Straus, General Manager
Citrus Heights Water District
P.O. Box 286
Citrus Heights, CA 95611-0286

Subject: Proposal for As-Needed Consulting Services

Dear Mr. Straus:

We are pleased to submit this proposal to provide a variety of services to the Citrus Heights Water District (District) on an as-needed, on-call basis. Our focus has always been to help local government and utility clients solve their financial, organizational, and technology challenges.

Through expansion and growth, Raftelis now offers a variety of valuable services to its clients. While you are already familiar with our executive coaching and our rate-setting offerings, other available services include:

- Organizational Assessment
- Strategic Planning
- Technology
- Strategic Communications
- Climate and Culture Assessment
- Effective Board/Commission Governance and Retreat Planning and Facilitation
- Raftelis Performance Academy (RPA)
- Executive Search
- Facilitated Executive Performance Evaluations

We are proud of the resources that we can offer and welcome the opportunity to assist the District with its management consulting needs. If you have any questions, please do not hesitate to contact me.

Sincerely,

Michelle Ferguson
Executive Vice President
P: 513.221.0500/ E: mferguson@raftelis.com

RAFTELIS CHARITABLE GIFT FUND

Giving back

The Raftelis Charitable Gift Fund seeks to make a difference on issues that matter to our clients and employees by helping build sustainable, inclusive communities locally and worldwide. We do this by allocating company profits and employee contributions of time and money. We support organizations that:

- Promote efficient, sustainable resource use
- Advance diversity, equity, and inclusion within the public sector
- Invest in access to clean water and sanitation
- Help vulnerable communities by addressing affordability issues

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DEI@RAFTELIS

Diversity and inclusion are an integral part of Raftelis' core expectations.

We are committed to doing our part to fight prejudice, racism, and discrimination by becoming more informed, disengaging with business partners that do not share this commitment, and encouraging our employees to use their skills to work toward a more just society that has no barriers to opportunity.

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FIRM OVERVIEW

Who We Are

RAFTELIS: HELPING LOCAL GOVERNMENTS AND UTILITIES THRIVE.

Since our founding in 1993, local government and utility leaders have partnered with Raftelis to transform their organizations by enhancing performance, planning for the future, identifying top talent, improving their financial condition, and telling their story. We've helped more than 700 organizations in the last year alone. We provide trusted advice, and our experts include former municipal and utility leaders with decades of hands-on experience running successful organizations. People who lead local governments and utilities are innovators—constantly seeking ways to provide better service to the communities that rely on them. Raftelis provides management consulting expertise and insights that help bring about the change that our clients seek.

We believe that Raftelis is the *right fit* for your projects for the following reasons:

RESOURCES AND EXPERTISE: With more than 190 consultants, Raftelis has one of the largest local government management and financial consulting practices in the nation. Our depth of resources will allow us to provide the District with the technical expertise necessary to meet your objectives. In addition to having many of the industry's leading management and financial consultants, we also have experts in key related areas, like stakeholder engagement and data analytics, to provide additional insights as needed.

DECADES OF COLLECTIVE EXPERIENCE: Our associates and subject matter experts have decades of experience strengthening local municipalities and nonprofit organizations. They've served in a wide range of positions, from city manager to public works director to fire chief.

PERSONAL SERVICE FROM SENIOR-LEVEL CONSULTANTS: You appreciate it when deadlines are met, phone calls are returned, and your challenges are given in-depth, out-of-the-box thinking. While other firms may assign your business to junior-level people, our approach provides exceptional service from senior-level consultants.

NICHE EXPERTISE: Our expertise lies in strengthening public-sector organizations. We're consulting specialists rather than generalists, focusing our strengths to do a highly effective job for a specific group of clients.

FIRM CAPABILITIES

Firm Capabilities

Raftelis offers a variety of services to assist utilities and local governments, as outlined below. Our team has extensive experience working with local government clients, including many in California and surrounding states. Our focus is on providing solutions that work within the available resources and culture of the organizations we assist. The most innovative solutions in the world are valueless if they cannot be implemented or will not be accepted by the community. We pride ourselves on our ability to listen, analyze, and work with our clients to find not just a random selection of best practices taken from a manual, but real solutions that can be implemented effectively.

One of our strengths is the ability to build upon existing capabilities and resources and to help organizations see things from a different perspective. We do this by listening to our clients and really understanding what they have to say. We do not operate with a pre-packaged set of recommendations, and we diligently work to avoid trying to fit our clients into a standard mold.

We are excited about the opportunity to assist the District to proactively plan and prepare for the future.

Finance and Rate Setting

Municipal utilities across the country are facing significant challenges due to aging infrastructure, stringent regulatory requirements, and a lack of accessible, low-cost funding. These factors place a heavy financial burden on utilities, which often translates into higher costs for ratepayers, some of whom are economically vulnerable. To address these issues, it's crucial for utilities to partner with financial experts like Raftelis, who can help ensure financial stability by employing best practices in financial planning.

There are many strengths that Raftelis provides, including:

Resources and Expertise
Raftelis has the largest water-industry financial and rate consulting practice in the nation, with over 190 consultants, allowing us to provide you with the technical expertise needed for this project. Our team includes not only some of the industry's leading rate consultants but also specialists in related fields such as affordability, Capital Improvement Plan (CIP) planning, stakeholder engagement, demand forecasting, and elasticity analyses.

Industry-Recognized Experience
We are leaders in developing mission-responsive rate structure designs, evaluating and establishing affordability programs, and building public support for change. Our project team includes nationally recognized experts in rates and finance, and members of our firm regularly contribute to the development of industry rates and financial practices and standards through their involvement in regional and national industry trade organizations. Our project team members have also been published in leading industry journals and magazines.

Industry Leadership
Our staff plays a key role in shaping industry standards by leading and participating in various American Water Works Association (AWWA) and Water Environment Federation (WEF) committees. We've authored significant publications, including *Water and Wastewater Financing and Pricing: The Changing Landscape*, and co-authored AWWA's *Manual M1, Principles of Water Rates, Fees and Charges,* and WEF's *Manual of Practice No. 27, Financing and Charges for Wastewater Systems*. We conducted the biennial national *Water and Wastewater Rate Survey* with AWWA. We also contributed to the "Developing a Framework for Household Affordability and Financial Capability Assessment in the Water Sector" report for AWWA, WEF, and the National Association of Clean Water Agencies (NACWA).

Custom Model
Our approach to addressing your utility rate and financial planning issues will be facilitated by our utility rate and financial planning model, adapted to accommodate your existing budgetary process. Our rate and financial model is an excellent tool to support decision-making, communicate the sensitivity of key variables during interactive work sessions, and share study results and recommendations with stakeholders.

Proven Project Approach
We have developed a methodology for executing projects with flexibility to meet your needs. Our proven process allows us to maximize the value we provide to our clients while staying within budget and on schedule.

Cost-of-Service Principles
We understand that cost-of-service analyses provide insights into the true cost of providing service to different customer classes and are essential when developing the proper pricing signal for promoting water conservation. Our

staff has co-authored industry-standard publications that provide in-depth explanations of cost-of-service principles, including the American Water Works Association's (AWWA) *Manual M1, Principles of Water Rates, Fees and Charges,* and the Water Environment Federation's (WEF) *Manual of Practice No. 27, Financing and Charges for Wastewater Systems*.

Local and National Affordability Work
From the beginning of the U.S. EPA's Clean Water Act Financial Capability Assessment Guidance to the development of new Affordability Metrics and Customer Assistance Programs, Raftelis has been and remains a significant contributor to the conversations around affordability in water, wastewater, and stormwater finance. We have led the way in affordability assessments with clients and crafting solutions for both retail and wholesale water providers.

Stakeholder Engagement and Public Communication Expertise
We understand that the successful adoption of recommendations is achieved through effective board and public engagement. Raftelis' Strategic Communications group comprises industry-leading professionals who work with utilities nationwide to tell their clients' stories and facilitate impactful community engagement. Clear presentations that explain complex topics and strategic messages that enhance your community's understanding are key to a successful rate review.

Proven Methodology
Our rate-setting methodology, developed through years of developing rates and financial models with clients nationwide, involves an iterative process with multiple review cycles to ensure there are no surprises.

Key Tasks Include:

- Project Initiation and Management
- Consumption and Current Revenue Analysis
- CIP and Operating Budget Review
- Development of Financial Plans
- Cost-of-Service Analysis and Rate Calculation
- Rate Model Development
- Reports and Presentations

Organizational Assessment

Every organization benefits from the periodic review and assessment of its operations. As outsiders with local government experience and years of work in similar agencies nationwide, Raftelis' consulting team can quickly review and assess your organization and operations, providing recommendations for improved efficiency and effectiveness.

To complete this work, our team will apply a project approach, focusing on these specific objectives using our "Six R" approach. This involves soliciting and collecting information on District **Responsibilities**, **Resources**, **Requirements**, and **Results** in order to identify possible organizational and operational **Recommendations** with an associated **Roadmap** to implement positive change. This approach is depicted in the graphic below.

Responsibilities – **What drives the need for your services?** It might be the organization's vision, mission, Federal, State, local ordinance, or community service standards or expectations. We review these drivers to better understand service level constraints and opportunities for change.

Resources – **What assets are available to achieve your responsibilities?** These may include time, human resources, staffing, management capacity, financial position, contractual services, technology, and equipment and facilities. We assess the adequacy of these resources based on the service level expectations.

Requirements – **What direction is provided to staff?** The method by which staff approach service delivery is often guided by laws, codes, policies, and procedures or informal mechanisms like past practices or on-the-job training. These sources provide staff with direction on how they approach tasks and complete their work. We review these business processes to determine opportunities for improvement.

Results – **What are the outcomes of your services?** Our approach connects your responsibilities, resources, and requirements with the outcomes expected of your services. We assess measures of efficiency and effectiveness to assist in data-driven decision-making.

Recommendations – **Are there opportunities for improvement?** Based on our qualitative and quantitative analysis of your programs and services, we develop recommendations for improving organizational performance. These changes can range from high-level considerations (i.e., should we be in this business?) to strategic issues (i.e., should we consider alternative service sources?) to tactical issues (i.e., how can we improve the productivity, efficiency, and effectiveness of the activity or service?).

Roadmap – How do we get there? We develop a plan that will guide the organization through the implementation of the recommendations for improvement. The Roadmap offers the recommended priority order of implementation, suggestions for phasing, and key milestones for success. It also serves as a valuable tool for the organization and the community to promote accountability and communicate progress toward implementation.

An Organizational Assessment Includes:

- Analyze Operations
- Assess Organization Structure
- Apply Best Management Practices and Benchmarking
- Assess Staffing Levels
- Review Maintenance and Technology
- Raftelis will review policies and procedures related to your operations
- Prepare Project Deliverables

Strategic Planning

Raftelis' Approach to Strategic Planning

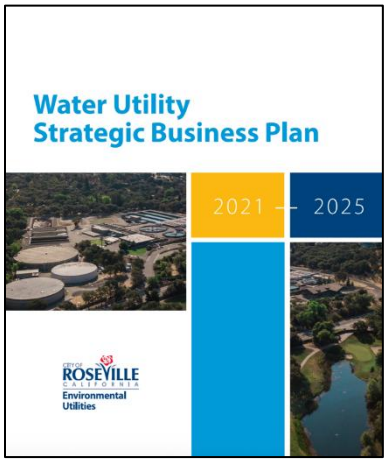
Raftelis recognizes that successful strategic planning programs must have sufficient organizational capability and capacity to support three distinct phases of work—strategy development, strategy execution, and strategy progress reporting. Without ensuring sufficient resources for organizational development in support of strategic planning, each of these distinct phases will be less successful and more challenging for the District to implement.

Successfully developing a strategic plan and implementation approach relies on an organization consistently and deliberately creating spaces to answer three questions:

- ***What do we know to be true today?***
- ***What do we hope will be true in the future?***
- ***What must go well in order to make that future a reality?***

The Strategy Development phase of the approach is designed to answer these questions by identifying the District's operating context and where opportunities for improvement exist through some combination of organizational and operational scanning processes, best practices, peer review, analysis of industry trends and the local situation, and stakeholder engagement.

The Strategy Execution phase of the approach shifts the underlying activity from planning to doing. While the Strategy Development phase identified the organization's goals and provided direction for achieving them, the Execution phase begins by digging into specifics.



Raftelis' recommended approach includes annual implementation activity planning, with the understanding that many projects will take longer than a year to implement or operationalize; creating an on-going inventory of prioritized, non-routine projects, programs, and initiatives that support progress against the strategic goals; and a process to identify and close gaps between current and desired strategic performance.

When done effectively, organizations make significant investments of often-scarce resources in strategy development and execution. The final stage—tracking, monitoring, and reporting is how they demonstrate return on that investment. Tracking, monitoring, and reporting typically focus on two categories—progress/activities and performance.

Progress can be tracked and monitored in a variety of ways and with a variety of tools—many organizations manage their strategic plans and activities through MS Excel spreadsheets. Where specialized technology can be especially useful, however, is in reporting.

Strategic planning is also a communication tool—strategic planning ultimately helps to share, internally and externally, what's important to an organization as a way of building alignment. Regularly reporting on progress helps to sustain the involvement and engagement of stakeholders who participate in strategy development and/or execution.

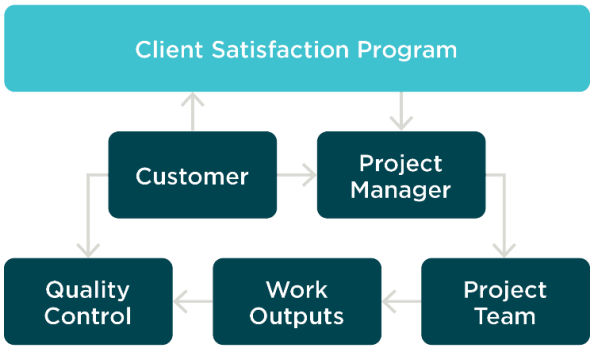
Key Phases Include:

- Project Kick-off
- Stakeholder Engagement and Information Gathering
- Strategic Planning Workshop
- Implementation Development
- Preparation of the Strategic Plan

An example of the work of our visual facilitator.

Technology

Raftelis can provide a variety of information technology support services, including assisting in the selection and implementation of a new Customer Information/Management System (CIS/CMS), Enterprise Resource Planning (ERP), and assessing the District's cybersecurity readiness. Below is an outline of a scope for a CIS selection and implementation project; we are happy to provide specific scope and pricing to meet your needs.



PHASE ONE: NEEDS ASSESSMENT AND RFP DEVELOPMENT

Raftelis will develop an objective baseline assessment of the District's current functional and operational CIS needs. We will conduct a gap analysis to document existing successes and any identified gaps against industry best practices, providing valuable insight into key areas for improvement, including more efficient business processes, improved data quality, and/or enhanced customer services. We will also identify the current and future CIS interfaces and other tools, technologies, and resources needed for successfully sustaining efficiency and effectiveness improvements.

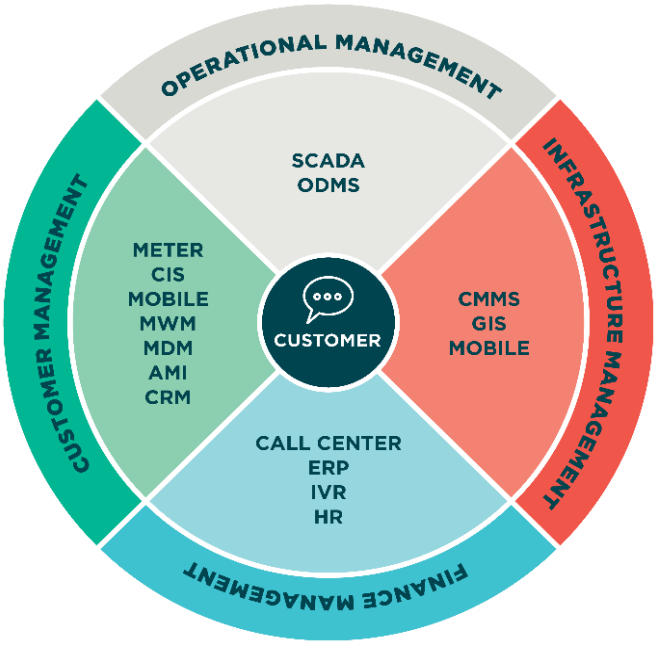
Key Elements Include:

- Project Initiation
- Project Management
- Business Needs Workshop
- Process Discovery Workshops
- Current State Report

Procurement Strategy Report

Key Tasks Include:

- System and Technical Requirements Workshops
- Interfaces Evaluation
- Market Analysis Workshop
- Draft CIS Procurement Strategy Report (with Budget Estimates, Time Estimates, Project Resources)
- Final CIS Procurement Strategy Report
- Executive Presentation



Raftelis Customer Management Vision

Draft Request for Proposal ("RFP") and Requirements

PHASE TWO: VENDOR/SOLUTION SELECTION

Raftelis will provide services for scoring vendor proposals, including our proven scoring system. Raftelis will assist in the creation of vendor demonstration scripts, manage the scripted demonstrations, evaluate reference checks, and organize site visits as appropriate to ultimately select the best-fit CIS solution for the District. Raftelis will serve as a key resource in assisting the District in managing the vendor contract negotiations. Our services will be in support of the District's formal procurement processes and will be conducted in accordance with the District's procurement standards. Raftelis will provide comprehensive assistance to the District's project team throughout the software procurement process, resulting in an enforceable contract with the selected vendor.

PHASE THREE: IMPLEMENTATION AND GO-LIVE

Raftelis program management services for CIS implementations are designed to assist, advise, augment, and support the District's Project Manager and Core Team through the successful CIS go-live and post-live business transformation. The selected vendor will provide CIS implementation services to the District. Raftelis' team will work collaboratively to provide complementary project and vendor management services on behalf of the District to help align, manage, and integrate all project resources across the implementation project phases (Discovery, Configuration and Development, Testing, Go-Live, and Post Go-Live). We will define, document, and clearly communicate each party's roles and responsibilities within this important project.

Strategic Communications

Inform and engage with your stakeholders to build understanding and support

There has never been a more critical time for local governments and utilities to communicate the value of the services you provide.

Well-crafted strategic communications can build trust, reputation, influence, and brand equity. We specialize in strategic communication counsel, public engagement, and community involvement. We can provide guidance, structure, strategies, and tactics to help make your new program, infrastructure project, or revenue request successful and avoid costly delays and reputational crises.

UTILITY COMMUNICATIONS EXPERTS

Raftelis' strategic communications practice comprises staff who are accredited in public relations and have spent decades in utility communication as consultants and leaders of public affairs programs for large and small utilities nationwide.

Our Strategic Communications Services

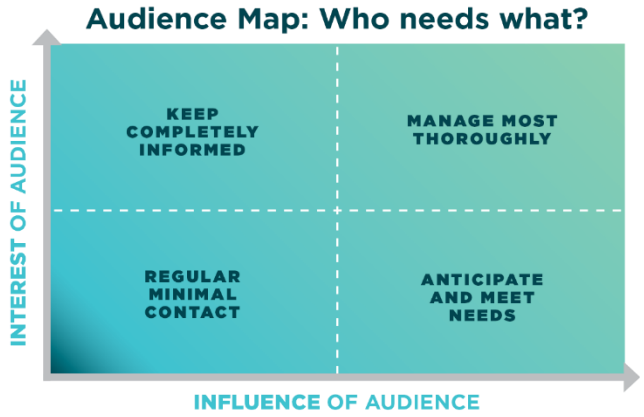
+ **Strategic Communication Planning**
+ **Public Involvement and Community Outreach**
+ **Public Meeting Facilitation**
+ **Graphic Design and Marketing Materials**
+ **Media and Spokesperson Training**
+ **Risk and Crisis Communication**
+ **Social Media Strategy**
+ **Technical Writing and Content Development**
+ **Visual Facilitation**
+ **Virtual Engagement**

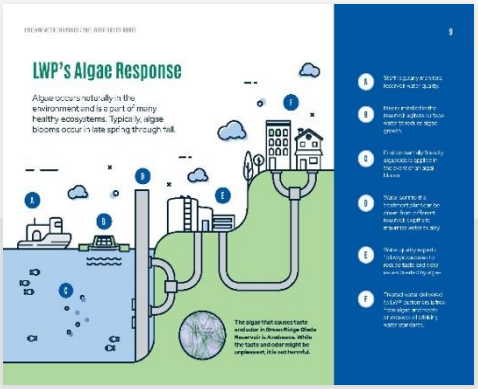
Consumers pay attention and seek out information about their local water resources, public health regulations, and contaminants of potential concern. This comes at a time when utilities need support for investments in infrastructure to meet changing regulations and replace systems at the end of their useful lives. Utilities also need assistance in protecting water resources and assets in a way that only consumers can provide—whether by committing to using water efficiently or by carefully disposing of household waste, chemicals, and pharmaceuticals.

Our team will work alongside yours to create an inclusive internal and external communication strategy and execution that leverages existing activities and capitalizes on new ideas. We envision our work with you as an extension of your team. We'll bring insight, strategy, and a team that can flex with your needs to create an integrated marketing and communications program that meets and exceeds the goals outlined in the District's strategic plan.

Key Tasks Include:

- Strategic Communications Planning
  - Kick-off Meeting/Situation Analysis
  - Communications Audit
  - Monthly Planning Sessions
  - Project Specific Meetings
  - Monthly Reports
- Strategic Communications and Outreach Plan
- Media Releases/Publication Messaging
- Crisis Communications
- Media Training
- Communications Support (e.g., Innovative infographics, fact sheets, PowerPoint templates, concept copywriting)
- Consumer Confidence Report (CCR) (for multiple audiences)
- Ongoing Communications and Outreach Support (e.g., videos, website updates, FAQs, and more)





Raftelis designed this CCR for Loveland Colorado.
View the full report here.

Climate and Culture Assessment

Local government and utility leaders are always looking to improve the services they provide to the community that relies on them. Understanding how your employees experience working for the organization is the first step in ensuring the employee experience aligns with your stated organizational values.

Knowing where you are and what you have set up to achieve means you know the gap you need to close to ensure organizational alignment. Changes in leadership, structure, services, and external factors can all lead to an organizational climate and culture that feels out of alignment with what you must accomplish. Culture is always evolving, whether it's intentional or not. We can help you understand how your workforce experiences the organizational culture and provide the context to chart a path toward the intended outcome.

Our team will develop and administer an online survey of your staff to learn about their perceptions of what works well and what can be improved. The draft survey will be reviewed in collaboration with the District, and we will assist with marketing materials to increase the response rate. Once closed, we will analyze the survey and provide a detailed analysis of the results and recommendations for improvement.

Effective Board/Commission Governance and Retreat Planning and Facilitation

Boards, commissions, and local government and utility leadership benefit greatly from opportunities to work together to develop a strategic vision for how they want to govern and lead. Retreats allow for focused time to grow governance and leadership capacity, and a skilled retreat facilitator can ensure that the group progresses and hits the desired outcomes of the retreat.

Managing group processes is equal parts art and skill. Over the years, we have facilitated countless group exercises, including governing body and staff retreats and goal-setting conversations. We excel at navigating complex interpersonal dynamics within an organization to ensure its employees are aligned to carry out its vision. Our knowledgeable facilitators create an atmosphere where all parties are engaged, all voices are heard, and people of all backgrounds find common ground.

Key Tasks Include:

- Planning call with the District to ensure an understanding of the intended outcomes of the session
- Solicit feedback from the governing body and others
- Prepare a customized agenda, along with workshop materials
- Coordinate logistics of the workshop with District staff
- Facilitate workshop
- Prepare a summary report

Our visual facilitator, who translates the discussion into graphic form live, is available for such engagements.

Raftelis Performance Academy (RPA)

TRAINING THAT ADDRESSES UTILITY AND LOCAL GOVERNMENT NEEDS

Local governments and utilities have specific training requirements related to the programs and services they deliver. They need employees who have a wide array of leadership, analytical, and problem-solving competencies to effectively provide their communities and customers with high-quality and equitable services. The Raftelis Performance Academy (RPA) customized training programs are tailored to meet these evolving demands. Recent offerings developed by the RPA include:

• Process improvement and innovation • Transformative leadership • Outstanding customer service • Effective facilitation • Change management • Developing effective performance measures	• Building a positive organizational culture • Strategic planning • Effective work planning • Succession planning • Effective Utility Management (EUM) • Developing efficient workflows	• Business process re-engineering • Process mapping • Innovation and disruption • Media training • Crisis and risk communication • Community engagement

Dynamic Trainers with Real-World Experience

Our instructors and curriculum designers are seasoned industry professionals with years of experience serving the utility and local government sectors. They bring industry best practices and dynamic content together to engage participants in meaningful and enjoyable experiences.

Training Opportunities for All Career Stages

Learning and development opportunities are developed to meet the needs of individuals as they progress throughout their careers:

- Entry- to mid-level analysts
- Field/line employee to supervisor transition
- Middle manager to executive transition
- First-time managers

The Raftelis Performance Academy Facility

While training opportunities provided by the RPA can be offered at your site or virtually, we've found that many organizations are looking for an immersive program to send individuals or a whole team. Our state-of-the-art training center in Cincinnati provides flexible seating for 34 participants and break-out rooms for small-group work. Conveniently located for air and car travel, the facility also has lodging across the street.

RPA Course Offerings (Classes)

Personal and Professional Skill Development

Authentic Leadership

For current and emerging leaders, identifying and honing their authentic leadership styles and behaviors is important for motivating, leading, and sustaining high-performing teams and organizations. In the Authentic Leadership workshop, participants are led through exercises and discussions aimed at helping them better understand their authentic leadership styles and behaviors, as well as how their individual approach toward leadership impacts others. Prior to the program, participants will complete the Everything DiSC® Management profile, an online assessment aimed at providing insights into the one-on-one relationships a leader has with individual staff and colleagues. Participants will explore various dimensions of leadership and work to identify and cultivate their personal and authentic leadership priorities.

Transformative Local Government Leaders

Participants will spend an immersive four days focused on transformative leadership concepts through a curriculum designed to support emerging and seasoned leaders alike. Key areas of focus include authentic leadership, strategic planning and visioning, communications and innovation, and change management. The Transformative Local Government Leaders program uses a blend of direct instruction, shared experiences, connection building, hands-on exercises, and self-exploration to support participants' professional and leadership development.

Technical Skill Development

Introduction to Process Improvement and Innovation

The Introduction to Process Improvement and Innovation program is focused on creating a common understanding of process improvement and innovation concepts. It is intended to create awareness and interest in the Process Improvement and Innovation program sessions. It is appropriate for staff in all areas of the workforce and at all levels of their careers.

Process Improvement and Innovation

Participants will learn and practice process improvement and innovation concepts and techniques, rooted in the disciplines of Lean, Six Sigma, and Change Management, tailored to the specific needs and challenges of the local government sector. Through a mix of direct instruction and hands-on activities, participants will learn and apply process improvement and innovation skills to improve operations and solve organizational issues. Problem-solving concepts and tools will include root cause analysis, gap analysis, and addressing equity in process improvement. Innovation concepts and tools include creative problem-solving techniques such as behavioral insights and "yes," thinking.

Process Improvement and Innovation Train-the-Trainer Coaching

In order to build organizational capacity within the District, additional train-the-trainer coaching is available for individuals who have participated in the Process Improvement and Innovation program and who wish to participate in future sessions as a trainer and lead process-improvement efforts in their organizations.

These coaching sessions are designed to:

- Help participants identify process improvement and innovation content areas of interest and aptitude
- Guide participants in developing an action plan to prepare for training
- Provide follow-up support after training

Performance Measurement

In this training, we introduce participants to the use and development of performance measures in order to manage performance and track the progress of process improvement and innovation initiatives. We review the principles of performance management and why measures are important. We will discuss the Success Pyramid to ensure measures meet the expectations of target audiences, best practices in performance measurement development and use, and common terminology on the types of measures. Finally, we will talk about how measures should be tracked and used to better analyze and review operational performance.

Assessing Your Organization's Communications and Outreach

This workshop walks participants through a seven-step checkup for assessing an organization's efforts and outputs as well as the outcomes of its communications, all in a cost-effective and efficient manner. The seven steps include examination of materials, messaging, planning, outreach techniques, and more, and provide guidance for how to measure success. The workshop is highly interactive with a mix of direct instruction, individual and group exercises, and using a workbook participants can take home with them and use again.

Building a Strategic Communications Plan from Scratch

Participants will learn through a mix of individual and group hands-on activities how to develop and execute strategic and measurable communications and outreach plans to support community initiatives. Using industry standards and best practices, participants will learn to understand the difference between tactical and strategic communications, identify cost-effective ways for conducting research to inform communications strategies, explore best practices in media relations, digital relations, and community engagement, and learn how to measure the success of communications and outreach efforts.

Crisis and Risk Communications

No organization is immune to crisis. It is not a matter of "if" but "when." A crisis can make or break an organization's reputation, so knowing what to do, in what order, and more importantly, how to communicate through it is essential to making it through a crisis effectively. In this very interactive training, participants will learn two key things: (1) how to develop a useful and customized crisis communication plan to serve them through a variety of scenarios, and (2) what and how to communicate through a crisis to establish your organization as trusted experts and to alleviate fear.

Executive Search

When organizations need to fill key positions, they turn to Raftelis and benefit from this guiding principle: meaningful hiring involves finding the right employee and preparing them for ongoing success. Our approach to executive search services comprises three key phases.

Inquiring, Understanding, and Defining

Each of our clients has a unique culture and set of objectives. Because selecting the right individual is critical to success, we begin our relationship by conducting a needs assessment to identify the specific benchmarks the search must accomplish. We will identify qualifications and requirements as well as map out the new hire's first-year goals, so both our client and the employee remain on the same track for success. We will build an accurate position profile, thus ensuring we attract the right people for the position.

Candidate Search and Evaluation

To reach the right candidates, Raftelis customizes each search process to fit the client's needs. Often, the professionals who best fit an open position are already employed and not searching for a traditional job posting. So, we leverage our extensive, diverse professional network to attract the best talent nationwide. We have been successful in identifying a candidate pool that is racially, ethnically, and gender diverse. We are committed to helping local government leadership positions reflect the communities they serve. Once the right candidates are found, we help manage the hiring process from interviews to background checks. Our in-depth service empowers clients to achieve their goals at every step.

39% of our recruitments resulted in the hiring of **females**

21% of our recruitments resulted in the hiring of **people of color**

Supporting Success

We support the top candidate's long-term success by creating a goals-driven work plan that is actionable from day one. Many firms focus solely on finding qualified applicants, leaving the client on their own once the position is filled. Our team, however, uses the objectives gathered during the inquiry stage to prepare new hires for their first year. We take a tailored, goals-based approach to each recruitment. By looking beyond the hiring process, our holistic view ensures that each candidate will fit the role and the organization. In the end, we are not just looking for a successful professional; we are finding the right employee to be successful in their new position long after they are hired.

Key Tasks Include:

- Develop Candidate Profile
- Conduct Outreach and Initial Screening
- Support Interviews and Selection

EXPERIENCE

Experience

RAFTELIS HAS THE MOST EXPERIENCED UTILITY FINANCIAL AND MANAGEMENT CONSULTING PRACTICE IN THE NATION.

Raftelis has assisted hundreds of local governments across the country. In many instances, we have worked with organizations over multiple years and established long-term partnerships to build capacity and lasting improvements throughout an organization. We have become trusted advisors to these local governments, as outlined in the following references. Below is a representative (not exhaustive) list of California projects the firm has completed.

Type of Project	Client	Project Title
Strategic Planning	City of Alameda	Public Works Strategic Plan
Organization Assessment	Alameda County	Development Review Assessment
Finance	Alameda County Water District	Rate Design and Financial and Capital Improvements Planning
Organization Assessment	City of Anaheim	Police Strategic Staffing Study
Finance	City of Anaheim	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Organization Assessment	City of Arroyo Grande	Citywide Organizational Assessment
Executive Evaluation	City of Bakersfield	City Manager Evaluation
Finance	City of Bakersfield	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Finance	City of Beverly Hills	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Strategic Planning	City of Beverly Hills	Community Services Strategic Plan
Organization Assessment	City of Beverly Hills	Public Works Engineering and Inspection Assessment
Finance	Central Contra Costa Sanitary District	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Organization Assessment	City of Coachella	Utility Department Staffing Study
Organization Assessment	Dublin San Ramon Services District	Workforce Study and Organizational Assessment
Finance	East Bay Municipal Utility District	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Strategic Planning	City of El Cerrito	Citywide Strategic Plan
Strategic Planning	City of Folsom	Strategic Plan

Type of Project	Client	Project Title
Executive Evaluation	City of Fremont	City Manager and City Attorney Executive Evaluation
Organization Assessment	City of Fullerton	Administrative Services Department and Human Resources Organizational Assessment
Organization Assessment	City of Gilroy	Detective and Records Staffing Study
Organization Assessment	City of Gilroy	Police Shift Analysis Review
Executive Evaluation	City of Glendale	City Manager and City Attorney Evaluation
Strategic Planning	City of Glendale	Strategic Planning
Executive Evaluation	City of Hayward	City Manager, City Attorney, and City Clerk Evaluations
Facilitation	City of Hayward	Council Retreat
Organization Assessment	City of Hayward	Assessment of Public Works, Utilities, and Maintenance Services Departments
Organization Assessment	City of Huntington Beach	Human Resources Assessment
Finance	City of Huntington Beach	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Executive Evaluation	City of Indian Wells	City Manager Evaluation
Finance	Inland Empire Utilities Agency	Financial and Capital Improvements Planning
Executive Evaluation	City of Laguna Beach	City Manager Evaluation
Organization Assessment	City of Laguna Beach	Finance Department Organizational Assessment
Finance	Las Virgenes Municipal Water District	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Strategic Planning	City of Long Beach	Development Services Department Strategic Plan
Organization Assessment	City of Long Beach	HR Organizational Assessment and Facilitation
Finance	Los Angeles Department of Water and Power	Rate Design and Cost of Services
Facilitation	City of Manhattan Beach	Goal Setting Retreat
Strategic Planning	City of Manhattan Beach	Strategic Plan
Finance	Metropolitan Water District of Southern California	Dispute Resolution
Organization Assessment	Montecito Water and Sanitary Districts	Consolidation Study and Approval Process
Executive Evaluation	Monterey County Water Resources Agency	General Manager Evaluation
Finance	Monterey County Water Resources Agency	Rate Design and Cost of Services
Strategic Planning	County of Monterey	Strategic Plan
Executive Evaluation	County of Monterey	Executive Evaluation of Seven Execs

Type of Project	Client	Project Title
Organization Assessment	City of Moorpark	Finance Department Support
Finance	Municipal Water District of Orange County	Rate Design and Cost of Services
Facilitation	City of Napa	Public Works Management Team Workshop
Strategic Planning	City of Napa	Public Works Department Strategic Plan
Organization Assessment	Napa Sanitation District	Organizational Structure and Staffing Review
Organization Assessment	City of Norco	Water and Sewer Operational Assessment
Finance	City of Ontario	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Facilitation	City of Palo Alto	Governance Retreat
Strategic Planning	City of Palo Alto	Strategic Plan for Administrative Services
Strategic Planning	Placer County	Strategic Plan
Facilitation	Placer County	Facilitation
Executive Coaching	City of Pleasanton	Executive Coaching for the Library
Strategic Planning	City of Pleasanton	Citywide Strategic Plan
Finance	City of Pomona	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
RPA	City of San Diego	Development of Customer Support Policies and Procedures
Facilitation	City of Rancho Cordova	Council Retreat
Strategic Planning	City of Rancho Cordova	Strategic Plan
Organization Assessment	City of Richmond	Citywide Workforce Analysis
Finance	Rincon del Diablo Water District	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Organization Assessment	Rincon del Diablo Water District	Consolidation Study
Finance	City of Roseville	Debt Issuance and Financial and Capital Improvements Planning
Strategic Planning	City of Roseville	Strategic Planning
Utility Strategic Planning	City of Roseville	Effective Utility Management Assessment and Strategic Business Plan
Raftelis Performance Academy	Sacramento Regional Water Authority	Transformative Utility Leaders Training
Finance	City of San Diego Public Utilities	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Facilitation	City of San Luis Obispo	Council Workshop
Strategic Planning	City of San Marino	Strategic Plan

Type of Project	Client	Project Title
Facilitation	City of Santa Barbara	Governance Retreat
Organization Assessment	City of Santa Barbara	Development Review Assessment
Organization Assessment	City of Santa Barbara	Organizational Structure Review
Organization Assessment	City of Santa Clara	Assessment of Community Development and Parks and Recreation departments
Finance	Santa Clara Valley Water District	Dispute Resolution, Rate Design, and Financial and Capital Improvements Planning
Strategic Planning	City of Santa Cruz	Strategic Planning
Strategic Planning	City of Santa Cruz	Citywide Strategic Plan
Executive Evaluation	City of Santa Monica	City Manager Evaluation
Facilitation	City of Santa Monica	Executive Team Retreat Facilitation
Executive Coaching	City of Santa Rosa CA	Executive Coaching
Executive Coaching	City of Santa Rosa	Executive Team coaching
Organization Assessment	Southern California Edison	Catalina Operations Assessment
Executive Evaluation	City of Seal Beach	City Manager and City Attorney Evaluations
Executive Evaluation	City of Seal Beach	City Manager Evaluation
Organization Assessment	City of South Pasadena	Organizational Assessment of Police Department
Executive Evaluation	City of Stockton	City Manager, City Attorney, and City Clerk Evaluations
Utility Strategic Planning	Stockton East Water District	Strategic Plan Services
Strategic Planning	City of Union City	Technology Roadmap
Strategic Planning	City of Union City	Strategic Plan
Executive Evaluation	City of Vallejo	City Manager and City Attorney Evaluations
Facilitation	City of Ventura	Rate Design, Cost of Service, and Financial and Capital Improvements Planning
Finance	City of Ventura	Department Head Retreat
Strategic Planning	City of Victorville	Strategic Plan
Organization Assessment	City of Victorville	Executive Coaching and Finance Department OA
Finance	West Basin Municipal Water District	Rate Design and Cost of Services
Executive Coaching	West County Wastewater District	Executive Coaching

PRICING

Pricing

Hourly rates by Raftelis team member job classification are provided below. Projects would be billed at hourly rates plus expenses at cost; copies of receipts will be provided.

Should the District wish, we are happy to fully scope and price each project individually.

Classification	Hourly Rate
Executive Vice President	$425
Senior Vice President	$400
Vice President	$375
Senior Manager	$340
Manager	$295
Senior Consultant	$260
Consultant	$230
Associate	$195
Visual Facilitator	$195

It is our practice to invoice clients for monthly progress payments based upon work completed.

EXHIBIT "B"
SAMPLE TASK ORDER FORM

TASK ORDER

Task Order No. _____ (YEAR - ##)

Contract: Agreement for [Contract Name] with Citrus Heights Water District

Consultant: [Consultant Name]

The Consultant is hereby authorized to perform the following work subject to the provisions of the Contract identified above:

[Insert description of services to be provided]

List any attachments: (Please provide if any.)

Compensation Form: [INSERT HOURLY OR PROJECT BUDGET/NOT-TO-EXCEED (NTE)]

Reimbursements: [INSERT WHETHER MILEAGE AND OTHER REIMBURSEMENTS WILL BE PROVIDED]

Dollar Amount of Task Order: Not to exceed $_____,_____.00 (If NTE)

Completion Date: _____, 20__

The undersigned consultant hereby agrees that it will provide all equipment, furnish all materials, except as may be otherwise noted above, and perform all services for the work above specified in accordance with the Contract identified above and will accept as full payment therefore the amount shown above.

Citrus Heights Water District	**Consultant**
Dated:_____	Dated:_____
By: _____	By: _____

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**RESOLUTION COMMENDING TIM CUTLER FOR SERVICE TO THE CITRUS HEIGHTS WATER DISTRICT (CHWD)**
Status:	Action Item
Report Date:	June 13, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Consider adoption of Resolution No. 10-2025 Commending Tim Cutler for his service to the District.

BACKGROUND AND ANALYSIS:
Water Distribution Supervisor, Tim Cutler is retiring from the District on August 14, 2025, after providing over twenty-two (22) years of service to CHWD.

A Resolution acknowledging and commending Tim's service is presented for the Board's consideration.

RECOMMENDATION:
Adopt Resolution No. 10-2025 Commending Tim Cutler for service to the Citrus Heights Water District.

ATTACHMENT:
Resolution No. 10-2025 Commending Tim Cutler for his service to the District

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

CITRUS HEIGHTS WATER DISTRICT
RESOLUTION NO. 10-2025
RESOLUTION OF THE BOARD OF DIRECTORS
OF CITRUS HEIGHTS WATER DISTRICT
COMMENDING TIM CUTLER FOR OUTSTANDING SERVICE

WHEREAS, Timothy (Tim) R. Cutler began his career with Citrus Heights Water District (CHWD or District) as a Maintenance and Construction Worker II on December 30, 2002; and was promoted to Construction Inspector on January 1, 2004; and thereafter promoted to Water Distribution Supervisor on March 25, 2012 where he has provided supervision and support of the Water Distribution division, and multiple work programs in the Operations department for over 13 years; and

WHEREAS, during Tim Cutler's 22-year tenure with the District, he has exemplified excellence as an employee, delivering exceptional value and service to customers and colleagues through numerous significant contributions, including advancing District strategic planning initiatives; offering expert project management for water system installations; supporting the completion of thousands of efficient work orders; and successfully leading a team of twelve (12) staff members,

WHEREAS, Tim Cutler has demonstrated exemplary leadership by guiding and mentoring Water Distribution personnel, actively supporting their professional growth, and has played a pivotal role in advancing succession planning efforts within CHWD's Operations Department; and

WHEREAS, Tim Cutler's unwavering work ethic, strong leadership, and commitment to advancing the District's mission have garnered the respect of Board Directors, two General Managers, colleagues, peers in public service, consultants, and the appreciation of customers and contractors he has served during his career with the District; and

WHEREAS, Tim Cutler is retiring from Citrus Heights Water District on August 14, 2025, with more than 22 years of dedicated service.

THEREFORE, BE IT RESOLVED that the Board of Directors of the Citrus Heights Water District does hereby commend Timothy R. Cutler for his dedication and outstanding service to the Citrus Heights Water District and extends best wishes for many years filled with happiness and good health during his retirement.

PASSED AND ADOPTED by the Board of Directors of the CITRUS HEIGHTS WATER DISTRICT this 24th day of June, 2025 by the following vote, to-wit:

AYES: Directors:
NOES: Directors:
ABSTAIN: Directors:
ABSENT: Directors:

RAYMOND A. RIEHLE, President
Board of Directors
Citrus Heights Water District

SEAL

BRITTNEY C. MOORE, Chief Board Clerk
Citrus Heights Water District

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**2026 Strategic Plan Approval**
Status:	Discussion and Action Item
Report Date:	June 13, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Consider approval of the Citrus Heights Water District's 2026 Strategic Plan.

BACKGROUND AND ANALYSIS:
This is the tenth year that CHWD has engaged in a Strategic Planning process to help shape the development of its annual budget. The goal of Strategic Planning is to bring the Board of Directors, key District staff and stakeholders together to identify and prioritize the District's high priority policy, program and project issues, and to identify what items, given limited resources (i.e., funding, time and staffing resources) the District should be working on over and above daily operations in the coming year.

The Strategic Planning process includes three major components: 1) Education/Issues Briefing; 2) Team Building; 3) Work Program Development.

The ***Education/Issues Briefing Component*** consisted of a 2024 Strategic Plan Update and 2025 Strategic Plan Preview by CHWD staff in a Study Session to the Board at its January 28, 2025, Regular Board Meeting. The Board of Directors received an additional 2025 Strategic Plan update in the April 22, 2025, Regular Meeting Agenda Packet.

The ***Team Building*** and ***Work Program Development*** components took place on May 7, 2025, in a session attended by the Board of Directors, Customer Advisory Committee (CAC) members, and key District staff, facilitated by Jennifer Liebermann. During this session, The Board of Directors and CAC members proposed considering future amendments to the District's decision-making principles to include a component focused on risk management. This topic will be brought to the Board for additional discussion at a future meeting. A full summary of the May 7, 2025 session, prepared by facilitator Jennifer Liebermann, accompanies this report as an attachment.

In early 2026, leadership staff will present a 2026 Strategic Plan Preview, including who will serve as the Executive staff member responsible for each one-year objective, the Project Lead, a project timeline, and who will serve on the Project Team to accomplish each objective within a projected timeframe.

District leadership staff will be reviewing progress on the Strategic Plan several times each month and will update the Board of Directors quarterly or more often as required. Additional updates will be distributed to the CAC via Public Affairs staff.

RECOMMENDATION:
Approve the 2026 Strategic Plan, and direct that Strategic Planning Objectives be included in the 2026 proposed budget, which will be considered by the Board of Directors for adoption later in 2025 for the 2026 budget year.

ATTACHMENT:
2026-2028 Strategic Plan Session Summary

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

CITRUS HEIGHTS WATER DISTRICT

2026-2028 STRATEGIC PLAN

Developed May 7, 2025

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INTRODUCTION

On Wednesday, May 7th, 2025, the following members of the Board and Management of the Citrus Heights Water District met to develop the District's 2026-2028 Strategic Plan:

Board Members
Raymond A. Riehle, President
Caryl F. Sheehan, Vice President
David C. Wheaton, Director

District Staff
Mary Elise Conzelmann, Public Affairs Analyst
Tim Cutler, Water Distribution Supervisor
Kelly Drake, Water Efficiency Supervisor
Brian Hensley, Water Resources Supervisor
Todd Jordan, Principal Civil Engineer
Annie Liu, Director of Administrative Services
Brittney Moore, Administrative Services Manager/Chief Board Clerk
Jace Nunes, Management Analyst
Melissa Pieri, Director of Engineering/District Engineer
Kyler Rayden, BBK Associate
Rebecca Scott, Director of Operations
Megan Selling, Accountant
Kayleigh Shepard, Management Analyst/Deputy Board Clerk
Hilary Straus, General Manager
Andrew Tran, Information Technology Manager

Residential Customer Advisory Committee (CAC) Members:
Andrew Johnson
Jodi Ash
Suzanne Guthrie
Andrew Johnson
Eric Lindberg
Richard Moses
Mike Nishimura

Visitors
Amanda Camacho

Strategic Planning Consultant/Facilitator
Jennifer Liebermann

DISTRICT ACCOMPLISHMENTS AND STRENGTHS

Customer Advisory Committee members, Staff and Board Members shared district accomplishments and strengths over the past year. These were captured and clustered into seven categories below:

1. Administrative Best Practices
Increased efficiency of Project 2030 by mapping workflows and facilitating team collaboration
Developed engineering standards and updated related policies
Enhanced IT Team for better efficiency
Customer service is top notch in addressing concerns and educating customers
CHWD is a "model" district related to finances, operations, innovation and staffing
Selected the District's new Enterprise Resources Planning (ERP) system
2. Financial Management
Government Finance Officers Association (GFOA) awards for financial reporting and budget
Community engagement on district budget and financials
Awarded for clean financial audit
Implemented pre-funding for Project 2030

3. Operations and Infrastructure
There is great outreach from CHWD to customers when there are leaks or problems
Successful completion of the Auburn Blvd Complete Streets Project with the City of Citrus Heights
Federal grant applications for Wells # 7 & #8
Operational efficiency to keep water flowing and collaboration with the City of Citrus Heights
Met goal of 50% for Easement project Phase 4
Final grant documents executed for Highland and Ella wells
Finalizing alternatives for corporation yard
Completed Automated Metering Infrastructure (AMI) pilot
4. Strategic Planning
Proactive nature of Project 2030
Proactive monitoring of state water regulations
Led and organized a 3-party negotiation with San Juan Water District
Developing a condition assessment program
Kicked off water system master plan project
Facility modernization and expansion plan approved by Board; implementation underway

5. Risk Management & Safety
Completed cybersecurity awareness training
Recipient of an Association of California Water Agencies Joint Powers Insurance Authority (ACWA JPIA or JPIA) risk control grant
Received JPIA Award for loss ratios of 20% or less in liability and property programs
Finalized updates on CHWD's Illness and Injury Prevention Plan
6. People and Culture
Staff and leadership want to do what's right for ratepayers
Succession planning: promotion of a Water Distribution Operator to Lead Water Distribution Operator
Proactive nature of everything the district does / strong leadership
District staff and leadership's positive attitude is felt
The culture of a tight knit crew
There is a strong sense of purpose

7. Community Engagement and Public Affairs
Customer Advisory Committee – seven meetings held in 2024 including strategic planning. Members are taken into the field to see actual well sites.
A well organized and committed Board of Directors and Customer Advisory Committee shares pertinent information with the community
Increased local media presence
Community outreach and a commitment to transparency
Increased number of water classes for the public
Supported industry knowledge with conference presentations (California Special Districts Association's Special District Leadership Academy in NorCal and SoCal)

ISSUES, FACTORS, AND TRENDS

The following key issues, factors, and trends that currently or could affect the District moving forward were reviewed and refined by the Board of Directors, District staff, and the Customer Advisory Committee (CAC) members.

DISTRICT MISSION, VISION, VALUES, AND DECISION-MAKING PRINCIPLES

MISSION STATEMENT

The mission of the Citrus Heights Water District is to furnish a dependable supply of safe, quality water delivered to its customers in an efficient, responsive, and affordable manner.

VISION STATEMENT

The Citrus Heights Water District will continue to evolve as a dynamic provider of municipal water service to assure that our customers receive the best value without giving it a second thought.

VALUES

Integrity
Teamwork
Dependability
Accountability
Professionalism

DECISION-MAKING PRINCIPLES

The Mission, Vision, and Values are incorporated in the following decision-making principles upon which Board of Director policy decisions for the District shall be made. CHWD will:

Educate and engage customers.

Protect customers from unfair ongoing cost burdens and opposing unfunded mandates.

Safeguard multi-generational investments in District assets and water supply sources.

Fulfill its purpose to advance local, community decision-making.

THREE-YEAR GOALS – 2026-2028

(not in priority order)

1. ***Manage a Dependable Water Supply and Empower Customers to Use Water in an Efficient Manner***

2. ***Manage, Improve, and/or Reinvest in District Infrastructure, Facilities and Other Assets***

3. ***Continue Preparation to Implement the Project 2030 Water Main Replacement Program to Maintain a Reliable Water Distribution System***

4. ***Enhance Organizational Effectiveness and Promote Best Practices to Local Government***

5. ***Engage Customers and Communicate the District's Priorities and Value-Added Programs***

CITRUS HEIGHTS WATER DISTRICT ☼ 2026 STRATEGIC OBJECTIVES

- **THREE-YEAR GOAL:** ***Manage and Diversify a Dependable Water Supply and Empower Customers to Use Water in an Efficient Manner***

Objectives To Be Completed in 2026
1. Complete construction for Well Site 7; assess the injection and extraction capabilities of the Aquifer Storage and Recovery (ASR) technology; initiate ASR permit process with the State of CA.
2. Complete design and bid phase for Well Site 8 equipping.
3. Pursue the acquisition of 1-2 potential sites for water facilities for groundwater and distribution.
4. Continue to build awareness, support, and participation in water efficiency programs through a new tree rebate program.

CITRUS HEIGHTS WATER DISTRICT ☼ 2026 STRATEGIC OBJECTIVES

- **THREE-YEAR GOAL:** ***Manage, Improve, and/or Reinvest in District Infrastructure, Facilities or Other Assets***

Objectives To Be Completed in 2026
1. Determine whether AMR (drive-by meter reading) or AMI (real-time networked reading) will be pursued, based on analysis in the Water System Master Plan, to modernize the system and enhance customer service.
2. Determine the need for above-ground storage based on analysis in the Water System Master Plan.
3. Project 2030 Workflow 6: Complete 100% construction documents for the Facilities Modernization & Expansion Project (Madison Avenue and Sylvan Road facilities)
4. Project 2030 Workflow 6: Begin construction of the Facilities Modernization & Expansion Project, completing 100% of improvements at Madison Avenue & 15% of improvements at Sylvan Road.
5. Complete Easement Acquisition on the "high priority" locations as identified by the prioritized list.
6. Project 2030 Workflow 2: Complete the Water System Plan and incorporate projects into the District's rate model.

CITRUS HEIGHTS WATER DISTRICT ☼ 2026 STRATEGIC OBJECTIVES

THREE-YEAR GOAL: ***Continue Preparation to Implement the Project 2030 Water Main Replacement Program to Maintain a Reliable Water Distribution System***

Objectives To Be Completed in 2026
1. Project 2030 Workflow 4: Perform pre-design alternatives analysis on one key watermain from the Water System Master Plan list.
2. Project 2030 Workflow 3: Implement an Annual Pipeline Condition Assessment Program focused on structural integrity inspection and leak detection to establish baseline data.
3. Project 2030 Workflow 1: Select water mains from the Project 2030 list to complete $2 million of water main replacements.

CITRUS HEIGHTS WATER DISTRICT ☼ 2026 STRATEGIC OBJECTIVES

THREE-YEAR GOAL: ***Enhance Organizational Effectiveness and Promote Best Practices to Local Government***

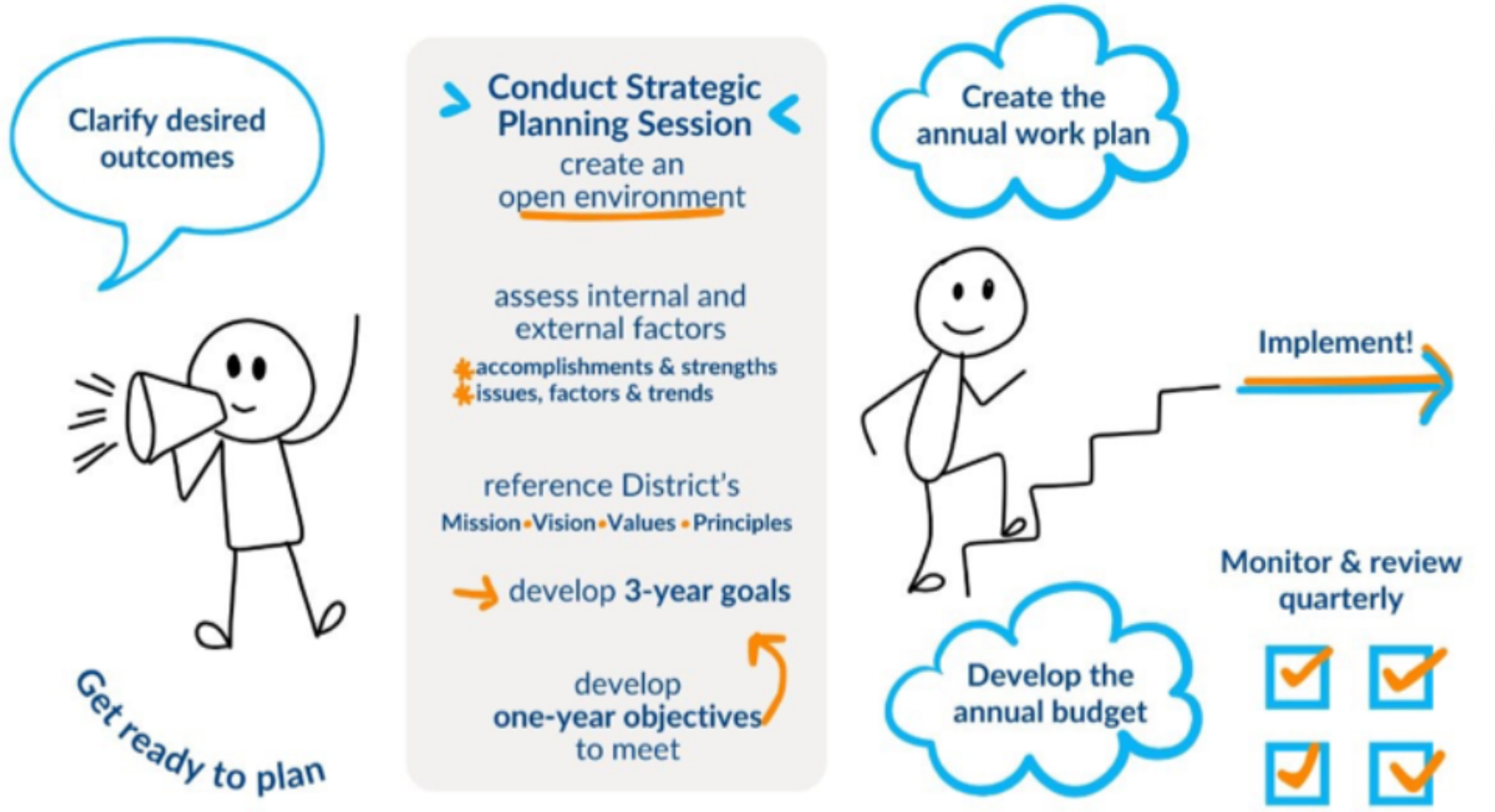
Objectives To Be Completed in 2026
1. Complete implementation of the Springbrook Enterprise Resource Planning (ERP) system, including a utility billing module to improve efficiency and customer services.
2. Formalize IT five-year work plan/roadmap. Complete Assessment and Foundation phase and work on Infrastructure Upgrades & VPN Consolidation phase to enhance cybersecurity measures and to improve efficiency.
3. Implement an organizational development program to strengthen technical and organizational skills at the individual and team levels to support the District's strategic objectives and improve recruitment and retention.
4. Engage with regional water agencies to protect CHWD's customers' financial interests and water supply.
5. Demonstrate industry leadership through presenting at one professional association event such as ACWA, CSDA, CAPIO, RWA, ACWA JPIA, etc.

CITRUS HEIGHTS WATER DISTRICT ☼ 2026 STRATEGIC OBJECTIVES

THREE-YEAR GOAL: ***Engage Customers and Communicate the District's Priorities and Value-Added Programs***

Objectives To Be Completed in 2026
1. Increase customer awareness and favorability of the District through outreach using both traditional and digital media, as well as in-person engagement opportunities. Conduct market research in 2025 and use the data collected to inform and evaluate the effectiveness of the strategy in 2026 and beyond. Special focus on CHWD key pillars: • Project 2030 water main replacements • Groundwater expansion and reinvestment • Asset management
2. Advocate for and protect customer interests with regard to legislative and regulatory issues and through intergovernmental relations. Monitor and analyze activities that impact CHWD's policies, operations, capital, finances, and water supply, and update customers on relevant matters.
3. Implement a comprehensive customer engagement strategy that fosters meaningful connections with the community, including the CAC, Garden Corps, neighborhood associations, community organizations, service clubs, and businesses. Enrich the experience for participants and empower them to act as ambassadors for CHWD.
4. Develop and implement a strategy to secure grants, loans, and other non-ratepayer funding to offset customer costs.

ATTACHMENT A
Strategic Planning Process



ATTACHMENT B
Project 2030 Workflows

ATTACHMENT C
Regional Partners

ATTACHMENT D
Industry Partners

ATTACHMENT E
Takeaways from Strategic Planning Session Participants

- Advocate for "leveling up" the organization—thinking beyond traditional operations to build capacity and deliver forward-looking services that respond to evolving community needs.

- Expressed appreciation for being actively involved in the planning process and emphasized the value of proactive communication to prevent surprises in setting objectives and priorities.

- Requested the inclusion of a mechanism in future plans to review how prior-year objectives were accomplished, supporting a transparent and results-oriented approach.

- Noted the importance of connecting the strategic plan to actionable and funded initiatives, ensuring that priorities are translated into tangible outcomes.

- Reflected on comments about water storage, identifying this as a valuable prelude to upcoming discussions and expressing enthusiasm for continued exploration of this topic at future CAC meetings.

- Underscored the need to effectively communicate the rationale behind rate increases, helping the public understand how rates support investments in infrastructure, service reliability, and long-term sustainability.

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**Update of Cross-Connection Program Resolution**
Status:	Action Item
Report Date:	May 13, 2025
Prepared By:	Brian Hensley, Water Resources Supervisor Rebecca Scott, Director of Operations

OBJECTIVE:
Consider adoption of Resolution No. 11-2025 - a Resolution adopting a cross-connection control program to protect the public water system.

BACKGROUND AND ANALYSIS:
In December 2023, the State Water Resources Control Board ("SWRCB") adopted a Cross-Connection Control Policy Handbook ("CCCPH"), replacing State regulations governing cross-connection control set forth in Title 17 of the California Code of Regulations. Staff has revised and updated the Citrus Heights Water District's (District) cross-connection control and backflow program in compliance with the CCCPH, which took effect on July 1, 2024.

Resolution No. 11-2025, accompanying this staff report, revises and updates original Ordinance No. 3-88, adopted in 1988, regarding District cross-connection and backflow policies and replaces previously adopted Resolution No. 10-2017. District General Counsel has reviewed and assisted in the preparation of the proposed Resolution.

Notable proposed changes include:

- Specifies that customers shall protect the District system with no less than Double Check valve backflow prevention assembly ("DC") protection for a user premise with a fire protection system, within 10 years of adoption of the CCCPH.

- Requires that the District implement a public outreach and education program, identified in its plan, that includes educating staff, customers, and the community about backflow protection and cross-connection control.

RECOMMENDATION:

Adopt Resolution No. 11-2025 - a Resolution adopting a cross-connection control program to protect the public water system.

ATTACHMENTS:

1. Resolution No. 11-2025 - a Resolution adopting a cross-connection control program to protect the public water system
2. State Water Resources Control Board – Cross-Connection Control Handbook (CCCPH)

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

ATTACHMENT 1

Resolution 11-2025 – A Resolution Adopting a Cross-Connection Control Program to Protect the Public Water System

CITRUS HEIGHTS WATER DISTRICT
RESOLUTION NO. 11-2025

A RESOLUTION ADOPTING A CROSS-CONNECTION CONTROL PROGRAM TO PROTECT THE PUBLIC WATER SYSTEM

WHEREAS, the Citrus Heights Water District ("District") is responsible for providing its customers with water including, most importantly, water for human consumption, sanitation, and fire protection; and

WHEREAS, in compliance with state law and the District's Board of Directors ("Board") previously adopted Ordinance No. 3-88, implementing a cross-connection control and backflow prevention program; and

WHEREAS, in December 2023, the State Water Resources Control Board ("SWRCB") adopted a Cross-Connection Control Policy Handbook ("CCCPH"), replacing State regulations governing cross-connection control set forth in Title 17 of the California Code of Regulations; and

WHEREAS, the Board now desires to revise and update the District's cross-connection control and backflow program in compliance with the CCCPH, which took effect on July 1, 2024.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Citrus Heights Water District, as follows:

1. Incorporation of Recitals. The Recitals set forth above are incorporated herein and made an operative part of this Ordinance.

2. Cross-Connection Control Program. The Board of Directors hereby adopts the Cross-Connection Control and Backflow Prevention Program as set forth in Exhibit A attached and incorporated by this reference.

3. Severability. If any section, subsection, clause, or phrase in this Ordinance or the application thereof to any person or circumstances is for any reason held invalid, the validity of the remainder of this Ordinance or the application of such provisions to other persons or circumstances shall not be affected thereby. The Board hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause, or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses, or phrases, or the application thereof to any person or circumstance be held invalid.

PASSED AND ADOPTED, by the Board of Directors of the Citrus Heights Water District, on this 24th day of June 2025.

AYES:	Directors:
NOES:	Directors:
ABSTAIN:	Directors:
ABSENT:	Directors:

SEAL

_____
RAYMOND A. RIEHLE, President
Board of Directors
Citrus Heights Water District

This is to certify that the foregoing document is a true and correct copy of the Resolution of the Governing Board of the Citrus Heights Water District.

_____
HILARY M. STRAUS, General Manager

EXHIBIT A

Cross-Connection Control Program.

I. Purpose

a. This cross-connection control program ("Program") is intended to comply with the State Water Resources Control Board's ("SWRCB") CCCPH. To the extent anything in this Program conflicts with the provisions of the CCCPH, as amended from time to time, the provisions of the CCCPH shall control.

b. This Program and the CCCPH are intended to protect the Citrus Heights Water District ("District") system from the possibility of contamination or pollution, by isolating within customer systems such contaminants or pollutants that could backflow or back-siphon into the District system. This Program is also intended to provide for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of the District system.

II. Plan for Cross-Connection Control

a. The District shall submit a written Cross-Connection Control Plan ("Plan") to the SWRCB in accordance with the requirements set forth in CCCPH Section 3.1.4 and other applicable sections of the CCCPH, but no later than July 1, 2025. The District will ensure its Plan remains updated and representative of its Program and will resubmit the Plan to the SWRCB when substantive revisions are made.

III. Definitions

a. Except as otherwise specified herein, the terms used in this Program shall have the meanings ascribed to them in Section 3.1.1. of the CCCPH.

IV. Failure to Comply

a. Failure to comply with this Program or the CCCPH shall constitute a violation of the District's rules and regulations for service. The District may implement corrective actions in the event a water user fails to comply in a timely manner with the District's provisions regarding installation, inspection, field testing, or maintenance of a backflow prevention assembly ("BPA") required by this Program. Such corrective actions include, but are not limited to: (1) denial or discontinuation of water service; (2) installation, inspection, field testing, or maintenance of a BPA at a water user's premises at the water user's cost; and (3) instituting legal action to require compliance.

b. Notwithstanding any other provisions for the discontinuance or termination of water service available to the District, the District may discontinue or terminate water service in accordance with the following:

i. Immediate. The District may discontinue or terminate water service without advanced notice anytime a condition exists which creates an immediate health risk to the public water system.

ii. Forty-Eight-Hour Notice. The District may discontinue or terminate water service for violations of this Program that do not create an immediate health risk to the public water system after providing 48 hours' notice of the scheduled discontinuance. The District will post such notice in a conspicuous location on the property and make a good faith effort to contact an adult person at the residence by telephone or in person.

c. Service will not be restored until the backflow prevention device has been installed or repaired at the customer's expense and is in good working order, the cross-connection is abated to the satisfaction of the District, or the violation is otherwise corrected or remediated. The District may require a fee to reinstate service after such a turnoff.

V. Coordinator

a. The District's Water Resources Supervisor/Specialist is hereby designated as the Program Coordinator ("Coordinator"), responsible for being involved in the development of, and the reporting, tracking, and other administrative duties of the Program. The Coordinator shall maintain status as a cross-connection control specialist.

b. The Coordinator and the General Manager (or designee) are authorized to administer and enforce this Program.

VI. Hazard Assessments

a. The District will survey its service area and conduct a hazard assessment as required by Chapter 3, Article 2 of the CCCPH.

VII. Backflow Prevention

a. Backflow Prohibited. No person is permitted to cause, permit, facilitate, or maintain an actual or potential cross-connection or any type of connection that permits an actual or potential backflow of water to the District's system. All installations are subject to inspection and regulation by the District for the purpose of avoiding the possibility of backflow. Backflow prevention devices shall be installed by customers when required by State law or regulation, the State Health Department, or by the District, in accordance with this Program and State

law or regulation (including the CCCPH). The cost thereof shall be borne by the customer.

b. Installation of Approved BPA.

i. Any person who is required to install an approved BPA pursuant to this Program must do so in accordance with all applicable state laws and regulations, the CCCPH, and with this Program at the customer's own expense and within the time specified for installation. Every BPA required by law, regulation, or this Program must be of model and size approved by the District. Failure, refusal, or inability on the part of the customer to install said assembly or assemblies constitutes grounds for discontinuing water service to such metered or non-metered water service connections until such assembly or assemblies have been properly installed.

ii. NEW COMMERCIAL SERVICE CONNECTIONS - It shall be the customer's responsibility, and expense, to provide for the installation of the BPA in accordance with District requirements and at a location approved by the District by one of the following methods. Installation of a BPA where required by the District shall be a condition of water service.

1) INSTALLATION BY THE CUSTOMER — A BPA may be installed by the customer. Installation is subject to inspection by the District to determine that all requirements have been met before being put into service.

2) INSTALLATION BY THE DISTRICT — A BPA may be installed by the District at the customer's expense. The customer shall deposit, in advance, the estimated cost of the assembly and the installation. The final billing from the District to the customer shall be the actual cost of the work.

iii. EXISTING COMMERCIAL SERVICE CONNECTIONS WITHOUT BACKFLOW PREVENTION ASSEMBLIES — Whenever the District determines that an approved BPA is required (at the customer's water service connection) under this Program, for the safety of the water system, the District or its designated agent shall give notice in writing to the customer. The customer shall install an approved backflow prevention assembly(s), in accordance with current District installation specifications and guidelines, at the customer's own expense; and, failure, refusal, or inability on the part of the customer to install and maintain the assembly(s), shall constitute grounds for discontinuing water service to the premises until all requirements have been satisfactorily met. The approved assembly(s) must be installed and tested within sixty (60) calendar days for all assemblies measuring less than or equal to 2.5" in size, and within ninety (90) calendar days for all assemblies measuring 3" or larger.

iv. EXISTING BACKFLOW PREVENTION ASSEMBLIES –

1) Backflow prevention assemblies in service at the time of Program, which do not comply with the provisions of this Resolution, may continue to remain in use until such time as the assembly is determined to be defective and necessitating repair, or until such time as the premises facilities are changed thereby dictating a higher degree of required protection.

2) Any such assembly that is determined to be defective shall be repaired or replaced by an assembly, within the time period described in subparagraph "iii" above, that is approved by the District and complies with the provisions of this Program.

c. Discontinuance of Service. No person is permitted to install, maintain, or allow a metered water service connection to any premises served by the District unless the District system is protected in conformance with all applicable state laws and regulations and the rules and regulations in this Program. If an approved BPA required by these rules and regulations is not installed, tested, and maintained, or if it is found that a BPA has been removed, by-passed, or if an unprotected cross-connection exists on the premises, service of water to any premises may be discontinued by the District. Service will not be restored until such conditions and defects are corrected to the specifications of the District.

In addition to the other grounds for discontinuation of service set forth in this Program, water shall be discontinued if District or County Health Department personnel determine that any of the following have occurred:

i. The District's water system is being polluted or is in immediate danger of contamination from a cross-connection;

ii. The backflow prevention device has not been installed after due notice has been given;

iii. A defect found in the backflow prevention device has not been corrected after due notice has been given to make repairs;

d. Entry and Inspection. All customer systems and premises shall be open for inspection at all reasonable times to authorized representatives of the District to enable the District to ascertain the existence of cross-connections or other structural or sanitary hazards, including violations of the cross-connection rules and regulations in this Program. When such a condition becomes known, the District shall deny or discontinue service to the premises, in accordance with this Program. Water service will be discontinued until the customer has corrected the condition(s) in conformance with State laws and District requirements relating to plumbing and water supplies, and with regulations adopted pursuant thereto.

e. Levels of Protection Required.

i. Customers shall install BPAs as required in this Section. BPAs installed must be no less protective than that which is commensurate with the degree of hazard at a user premises, as specified in this Program and the CCCPH (see CCCPH Appendix D) and as determined based on the results of the hazard assessment conducted pursuant to CCCPH section 3.2.1. The hazard assessment conducted pursuant to CCCPH Section 3.2.1, once complete, is incorporated herein by reference to establish hazard levels customers must account for.

ii. Customers shall at all times protect the District system from high-hazard cross-connections through premises containment, through the use of an Air Gap separation ("AG") or Reduced Pressure principle BPA ("RP"). Customers shall comply with any additional requirements or degrees of protection for particular high-hazard cross-connections set forth in CCCPH Appendix D.

iii. A swivel-ell may be appropriate for use instead of an AG, subject to District approval at District's discretion if all of the criteria listed in CCCPH section 3.2.2(d) are met.

iv. Unless an exception applies, customers shall protect the District system with no less than Double Check valve BPA ("DC") protection for a user premises with a fire protection system, within 10 years of adoption of the CCCPH.

1) Exceptions.

a) A high-hazard cross-connection fire protection system (including those that may utilize chemical additions or an auxiliary water supply) must have at least RP protection.

b) A BPA is not needed for a low-hazard fire protection system on a residential user premises if the District determines all of the criteria listed in CCCPH section 3.2.2(e)(3) are satisfied.

c) If the District identifies alternatives in its Plan, pursuant to CCCPH section 3.2.2(e)(2), for existing premises that cannot timely comply with DC protection requirements, such alternatives may apply unless the SWRCB disapproves.

f. Backflow Prevention Assemblies

i. Standards.

1) Each AG must meet the requirements in Table 1, Minimum Air Gaps for Generally Used Plumbing Fixtures, page 4 of the American Society of Mechanical Engineers (ASME) A112.1.2-2012(R2017) (See Appendix B of CCCPH).

2) Each replaced or newly installed Pressure Vacuum Breaker assembly ("PVB"), Spill-resistant Pressure Vacuum Breaker assembly ("SVB"), DC, and RP must be approved through both laboratory and field evaluation tests performed in accordance with at least one of the following: (1) Standards found in Chapter 10 of the Manual of Cross-Connection Control, Tenth Edition, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research; or (2) certification requirements for BPAs in the Standards of ASSE International current as of 2022 that include ASSE 1015-2021 for the DC, ASSE 1048-2021 for the DCDA & DCDA-II, ASSE 1013-2021 for the RP, and ASSE 1047-2021 for the RPDA & RPDA-II and must have the 1YT mark. BPAs must not be modified following approval.

ii. Installation Criteria.

1) BPAs must be installed in accordance with any and all criteria set forth in CCCPH Section 3.3.2

2) Except as otherwise provided and required by the CCCPH, approved BPAs shall be installed and located as close as practical to the customer's service connection, or at a location approved by the District's Coordinator or designee, and all approved BPAs shall be installed before the first branch line leading off the service.

iii. Certification of Specialists and Testers

1) All BPA testers and cross-connection control specialists shall be certified per CCCPH Chapter 3, Article 4.

iv. Backflow Prevention Assembly Testing

1) Through implementation of this section, the District will ensure compliance with CCCPH section 3.3.3, governing field testing and repair of BPAs and inspection of AGs. The District will also comply with and ensure compliance with the procedures for testing identified in its Plan.

v. Testing

1) Annual Testing. The customer will own the approved BPA and shall have each such assembly tested at the time of installation and annually thereafter or more often as required by the District. All such tests shall be conducted at the expense of the customer by a District authorized tester. AGs must be visually inspected by District personnel at least annually.

2) Service is Contingent. The District will not provide continuous water service to a water user with a newly installed BPA until the District performs field tests and receives a passing inspection. All such tests shall be conducted at the expense of the customer by a District authorized tester.

3) Certified Testers. AGs must be visually inspected by certified District BPA testers or certified District cross-connection control specialists.

4) Additional Tests. Additional tests shall be conducted as frequently as necessary to ensure the effectiveness of the BPAs and in any event not less frequently than once a year.

5) Failed Tests. In the event a backflow assembly is found to be unsatisfactory, the District Coordinator or designee shall take immediate steps to ensure that corrective measures are accomplished and/or service terminated in accordance with the provisions of this Program. BPAs that fail field tests/inspections must be repaired or replaced by the customer within thirty (30) days of notification from the tester of the failure. The District may allow extensions if included as part of the District's Plan.

6) Backflow Incidents. If a backflow incident or an unprotected cross-connection is observed at the BPA or the user premises during field testing, the District will immediately conduct an investigation and discontinue service to the user premises pursuant to this Program. If a backflow incident is confirmed, water service will not be restored to that user premises until the District performs a BPA field test; receives a passing inspection, and determines the assembly is protecting the District.

7) Customers shall ensure all BPAs are in compliance with this Program and CCCPH section 3.3.3. Any and all costs related to installation, inspection, testing, maintenance, and repair shall be the customer's responsibility as the owner of the BPA.

g. Recordkeeping

i. The District will maintain records in accordance with CCCPH Section 3.5.1.

h. Backflow Incident Response, Reporting and Notification

i. Pursuant to Chapter 3, Article 5 of the CCCPH, the District will include backflow incident response procedures in its Plan, and the District will comply with such procedures.

ii. The District will notify the SWRCB and local health agencies of any known or suspected incidents of backflow within 24 hours of the District's determination and comply with applicable reporting and/or notification requirements, including those contained in CCCPH Section 3.5.3.

i. Public Outreach and Education

i. The District will implement a public outreach and education program, identified in its Plan, that includes educating staff, customers, and the community about backflow protection and cross-connection control. Methods may include providing information on cross-connection control and backflow protection in periodic water bill inserts, pamphlet distribution, new customer documentation, email, consumer confidence reports, and the District's website.

j. Local Entity Coordination

i. The District will coordinate with applicable local entities that are involved in either cross-connection control or public health protection (including plumbing, permitting, health officials, law enforcement, fire departments, maintenance, and public and private entities) to ensure hazard assessments can be performed; to ensure appropriate backflow protection is provided; and to assist in the investigation of backflow incidents.

k. Appeals

i. A customer may appeal any determination made pursuant to this Program by filing in writing with the General Manager within 10 days after the determination, setting forth the following:

1) The customer's full name, address and phone number;

2) The determination subject to the appeal;

3) The date of the determination;

4) The customer's interest in the challenged determination; and

5) Each issue that the customer alleges was wrongly determined together with every argument and a copy of every item of evidence that supports the customer's allegations.

ii. If an appeal concerns a matter involving an immediate health risk to the public water system, the District shall be entitled to take any action authorized by this Program, its rules and regulations, or State law for the benefit of the public water system while such appeal is pending and proceeding.

ATTACHMENT 2

State Water Resources Control Board –
Cross-Connection Control Handbook (CCCPH)

Attachment 2

State Water Resources Control Board

Cross-Connection Control Policy Handbook

Standards and Principles for California's Public Water Systems

Adopted: December 19, 2023
Effective: July 1, 2024

California Environmental Protection Agency

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Acronyms and Abbreviations

As used in this policy, acronyms and abbreviations reference the following:

Acronym or Abbreviation	***Meaning***
AB	Assembly Bill
AG	Air Gap separation
BAT	Best Available Technology
BPA	Backflow Prevention Assembly
Bus. & Prof. Code	Business and Professional Code
CA	California
CBSC	California Building Standards Commission
CCCPH	Cross-Connection Control Policy Handbook
CCR	California Code of Regulations
C.F.R.	Code of Federal Regulations
CHSC	California Health and Safety Code
Civ. Code	Civil Code
DC	Double Check valve backflow prevention assembly
DCDA	Double Check Detector backflow prevention Assembly
DCDA-II	Double Check Detector backflow prevention Assembly – type II
Division	Division of Drinking Water
EPA	Environmental Protection Agency
Gov. Code	Government Code
MCL	Maximum Contaminant Level
Pen. Code	Penal Code
PVB	Pressure Vacuum Breaker backsiphonage prevention assembly
PWS	Public Water System
RP	Reduced Pressure principle backflow prevention assembly
RPDA	Reduced Pressure principle Detector backflow prevention Assembly
RPDA-II	Reduced Pressure principle Detector backflow prevention Assembly – type II
RW	Recycled Water
SB	Senate Bill
SDWA	Safe Drinking Water Act
State Water Board	State Water Resources Control Board
SVB	Spill-resistant Pressure Vacuum Breaker backsiphonage prevention assembly
U.S.	United States

Chapter 1 – Policy Overview

1.1 Objective

The primary objective of the Cross-Connection Control Policy Handbook (CCCPH) is the protection of public health through the establishment of standards intended to ensure a public water system's (PWS) drinking water distribution system will not be subject to the backflow of liquids, gases, or other substances. In addition, by providing basic educational information on backflow prevention, the State Water Resources Control Board (State Water Board) intends to build a foundation of awareness within the regulated community regarding the importance of backflow protection and cross-connection control, leading to the implementation of a robust cross-connection control program for PWSs.

1.2 Applicability

The CCCPH and its standards apply to all California PWSs, as defined in California's Health and Safety Code (CHSC, section 116275 (h)). Compliance with this CCCPH is mandatory for all California PWSs.

1.3 Policy Development Background and Legal Authorities

Through the adoption of the CCCPH, the State Water Board is exercising its authority, under California's Safe Drinking Water Act[1] (SDWA), to establish enforceable standards applicable to California's PWSs. Failure to comply with the CCCPH may result in the issuance of compliance, enforcement, or other corrective actions against a PWS.

1.3.1 California Safe Drinking Water Act

On October 6, 2017, Assembly Bill 1671 (AB 1671) was approved and filed with the Secretary of State (see Appendix A). AB 1671 amended California's SDWA through the establishment of CHSC sections 116407 and 116555.5. AB 1671 also amended section 116810 of the CHSC, which is briefly discussed in Appendix G.

On October 2, 2019, Assembly Bill 1180 (AB 1180) was approved and filed with the Secretary of State. AB 1180 amended Section 116407 of the CHSC and added section 13521.2 to the Water Code. AB 1180 requires that the CCCPH include provisions for the use of a swivel or changeover device (swivel-ell).

[1] CHSC, div. 104, pt. 12, ch. 4, section 116270 et seq.

AB 1671 and 1180 established the following:

- The State Water Board must adopt standards for backflow protection and cross-connection control by January 1, 2020.
- The State Water Board may establish standards for backflow protection and cross-connection control through the adoption of the CCCPH, with the CCCPH not being subject to the requirements of the CA Administrative Procedure Act.[2]
- If standards for backflow protection and cross-connection control are established via the CCCPH, the State Water Board must:
    - Consult with state and local agencies and persons, identified by the State Water Board, as having expertise on the subject of backflow protection and cross-connection control.
    - Hold at least two public hearings before adoption of the CCCPH.
    - Post the CCCPH on the State Water Board website.
- Upon the effective date of the CCCPH, the previous cross-connection control standards[3] become inoperative, and are repealed 90 days later, unless the State Water Board determines not to repeal a specific existing regulation.
- A PWS must implement a cross-connection control program that complies with the standards adopted by the State Water Board.
- Use of a swivel-ell must be consistent with any notification and backflow protection provisions contained in the CCCPH.

The development of the CCCPH included consultation with stakeholders, including state and local agencies, on an array of subjects related to cross-connection control, consistent with the statutory mandate, as well as consideration of input from other stakeholders and the general public in a February 20, 2020 workshop.

Prior to adoption of the CCCPH, in accordance with the statutory mandate, the State Water Board held two public hearings - one on April 27, 2021, and the other on December 5, 2022. A Board Workshop was held on October 18, 2023.

Pursuant to sections 116407 and 116555.5 of the CHSC, the State Water Board chose to adopt standards for backflow protection and cross-connection control through the adoption of this CCCPH, which became effective July 1, 2024.

Aside from the mandates of AB 1671 related to the State Water Board's need and authority to develop and adopt an enforceable CCCPH, there are long-standing statutory mandates in California's SDWA concerning backflow protection and cross-connection control, some of which are summarized below.

---

[2] Gov. Code, tit. 2, div. 3, pt. 1, ch. 3.5, section 11340 et seq.
[3] Cal. Code Regs., tit. 17, div. 1, ch. 5, subch. 1, grp. 4, arts. 1 & 2, section 7583 et seq.

- The State Water Board is required to adopt regulations for the control of cross-connections that it determines to be necessary for ensuring PWSs "distribute a reliable and adequate supply of pure, wholesome, potable, and healthy water." (CHSC section 116375, subd. (c).)
- Any person who owns a PWS is required to ensure that the distribution system will not be subject to backflow under normal operating conditions. (CHSC section 116555, subd. (a)(2).)

Prior to AB 1671 and the adoption of this CCCPH, California's regulations pertaining to cross-connection control were set forth in regulations in CCR Title 17,[4] which were adopted in 1987 with minor revisions in 2000. Although still protective to public health, the CCR Title 17 cross-connection regulations required updating as both the drinking water and cross-connection control industries had evolved. This CCCPH updates those regulations, which as previously noted are no longer operative following the adoption of the CCCPH.

The State Water Board may update its standards for backflow protection and cross-connection control through revisions of the CCCPH. Prior to adopting substantive revisions to the CCCPH, the State Water Board will consult with state and local agencies and persons identified as having expertise on the subject by the State Water Board, and the State Water Board will hold at least one public hearing to consider public comments.

[4] Cal. Code Regs., tit. 17, div. 1, ch. 5, subch. 1, grp. 4, arts. 1 & 2, section 7583 et seq.

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Chapter 2 – Background on Backflow Protection and Cross-Connection Control

2.1 What is a Cross-Connection?

A cross-connection is an interconnection between a potable water supply and a non-potable source via any actual or potential connection or structural arrangement between a PWS and any source or distribution system containing liquid, gas, or other substances not from an approved water supply. Bypass arrangements, jumper connections, removable sections, improperly installed swivel or change-over devices and other temporary or permanent devices through which, or because of which backflow can occur are considered to be cross-connections.[5] The CCCPH includes acceptable installation criteria for swivel-ell and other types of backflow prevention assemblies (BPAs) to prevent backflow.

Backflow is the undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a PWS's distribution system or approved water supply.

The presence of a cross-connection represents a location in a distribution system through which backflow of contaminants or pollutants can occur. Backflow occurs when a non-potable source is at a greater pressure than the potable water distribution system. Backflow can occur from either backsiphonage or backpressure. Backsiphonage occurs when a non-potable source enters the drinking water supply due to negative (i.e., sub-atmospheric) distribution system pressure. Backpressure occurs when the pressure from a non-potable source exceeds the pressure in the potable water distribution system.

Backsiphonage may be caused by a variety of circumstances, such as main breaks, flushing, pump failure, or emergency firefighting water demand. Backpressure may occur when heating, cooling, waste disposal, or industrial manufacturing systems are connected to potable supplies and the pressure in the external system exceeds the pressure in the distribution system. Both situations act to change the direction of water, which normally flows from the distribution system to the customer, so that non-potable substances from industrial, commercial, or residential premises flows back into the distribution system through a cross-connection.

Cross-connections are not limited to industrial or commercial facilities. Submerged inlets are found on many common plumbing fixtures and are sometimes necessary features of the fixtures if they are to function properly. Examples of this type of design are siphon-jet urinals or water closets, flushing rim slop sinks, and dental cuspidors.

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[5] California Department of Health Services (DHS), Public Water Supply Branch. (1988). *Guidance Manual for cross connection Control Program (Green Manual).* California Department of Health Services.

Older bathtubs and lavatories may have supply inlets below the flood level rims, but modern sanitary design has minimized or eliminated this cross-connection in new fixtures. Chemical and industrial process vats sometimes have submerged inlets where the water pressure is used as an aid in diffusion, dispersion and agitation of the vat contents. Even though a supply pipe may be installed above a vat, backsiphonage can still occur. Siphon action has been shown to raise a liquid in a pipe such as water almost 34 feet. Some submerged inlets are difficult to control, including those which are not apparent until a significant change in water level occurs or where a supply may be conveniently extended below the liquid surface by means of a hose or auxiliary piping. A submerged inlet may be created in numerous ways, and its detection may be difficult.

Chemical and biological contaminants have caused illness and deaths during known incidents of backflow, with contamination affecting several service connections, and the number of incidents reported is believed to be a small percentage of the total number of backflow incidents that actually occur. The public health risk from cross-connections and backflow is a function of a variety of factors including cross-connection and backflow occurrence and type and amount of contaminants.

2.2 Purpose of a Cross-Connection Control Program

The purpose of a cross-connection control program is to prevent the occurrence of backflow into a PWS's distribution system in order to protect customers from contamination or pollution from any on-site hazards. Properly installed and maintained BPAs, devices or methods provide protection against the threat posed by many conditions typically found on a user's premise.

The use of approved BPAs ensures that the appropriate performance evaluation of the assembly was conducted. It is important and required by the CCCPH to select and properly install an approved BPA that is capable of protecting the distribution system from the hazard identified. The success of a program depends on individuals that are knowledgeable about cross-connection control to identify actual and potential hazards, apply principles of backflow protection and prevention, and implement cross-connection control policies and procedures. A successful program will have ongoing surveillance of a PWS to ensure BPAs, devices or methods are working, and identify new hazards or changes in the distribution system. Certified specialists are needed to properly evaluate the degree of hazard that exists in the distribution system. Hazards typically identified in distribution systems along with the required level of protection are specified in Chapter 3 of the CCCPH.

2.3 Notes on Applicability of the Cross-Connection Control Policy Handbook

The CCCPH provides the basis for regulating the use and management of cross-connection control programs and BPAs in PWSs, and related requirements for supporting programs and policies. Activities or uses outside of the scope of the

authority of the State Water Board to regulate PWSs are not regulated by the CCCPH, including California Plumbing Code requirements and definitions not related to PWSs.

Recycled water cross-connection control installations and programs for the purposes of protecting the recycled water supply are not regulated by the CCCPH, although a PWS that uses recycled water is regulated by the CCCPH to ensure that a PWS's drinking water system has adequate backflow protection from a recycled water system.

Water systems that do not meet the definition of a PWS (e.g. "State Small Water Systems" under CCR Title 22, Article 3) are not regulated by the CCCPH, although they may need to comply with the California Plumbing Code, local health agencies, and other laws or entities.

Transient noncommunity and nontransient noncommunity systems are PWSs and must comply with both the California Plumbing Code and CCCPH. The California Plumbing Code and the CCCPH will overlap in protection of these user premises. To ensure compliance, these noncommunity water systems may need to have internal cross-connection control programs within the user premises.

Noncommunity water systems must have the ability to enforce backflow protection within the premises. Compliance with the California Plumbing Code can be verified by the PWS and used for compliance with the CCCPH. Compliance with the CCCPH is documented through the hazard assessment and maintenance of an inventory of field-testable BPAs and methods. Annual field testing of BPAs is required. Where the minimum backflow protection differs between the California Plumbing Code and the CCCPH, the more protective minimum protection will be required.

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Chapter 3 – Standards for Backflow Protection and Cross-Connection Control

Article 1 – Definitions and General Requirements

3.1.1 Definitions

The following definitions apply to the terms used in the CCCPH:

"**Air-gap separation**" or "**AG**" means a physical vertical separation of at least two (2) times the effective pipe diameter between the free-flowing discharge end of a potable water supply pipeline and the flood level of an open or non-pressurized receiving vessel, and in no case less than one (1) inch.

"**Approved water supply**" means a water source that has been approved by the State Water Board for domestic use in a public water system and designated as such in a domestic water supply permit issued pursuant to section 116525 of the CHSC.

"**Auxiliary water supply**" means a source of water, other than an approved water supply, that is either used or equipped, or can be equipped, to be used as a water supply and is located on the premises of, or available to, a water user.

"**Backflow**" means an undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a public water system's distribution system or approved water supply.

"**Backflow prevention assembly**" or "BPA" means a mechanical assembly designed and constructed to prevent backflow, such that while in-line it can be maintained and its ability to prevent backflow, as designed, can be field tested, inspected and evaluated.

"**Backflow prevention assembly tester**" means a person who is certified as a backflow prevention assembly tester.

*"***Community water system"** means a public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system.

*"***Contact hour"** means not less than 50 minutes of a continuing education course.

*"***Continuing education course"** means a presentation or training that transmits information related to cross-connection control programs and backflow prevention and protection.

"**Cross-connection**" means any actual or potential connection or structural arrangement between a public water system, including a piping system connected to the public water system and located on the premises of a water user or available to the water user, and any source or distribution system containing liquid, gas, or other substances not from an approved water supply.

"**Cross-connection control specialist**" means a person who is certified as a cross-connection control specialist.

"**Distribution system**" has the same meaning as defined in section 63750.50 of CCR, Title 22, Division 4, Chapter 2.

"**Double check detector backflow prevention assembly**" or "**DCDA**" means a double check valve backflow prevention assembly that includes a bypass with a water meter and double check backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 1, Appendix C.

"**Double check detector backflow prevention assembly – type II**" or "**DCDA-II**" means a double check valve backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 2, Appendix C.

"**Double check valve backflow prevention assembly**" or "**DC**" means an assembly consisting of two independently-acting internally-loaded check valves, with tightly closing shut-off valves located at each end of the assembly (upstream and downstream of the two check valves) and fitted with test cocks that enable accurate field testing of the assembly. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 3, Appendix C.

"**Existing public water system**" or "**existing PWS**" means a public water system initially permitted on or before July 1, 2024 as a public water system by the State Water Board.

"Hazard Assessment" means an evaluation of a user premises designed to evaluate the types and degrees of hazard at a user's premises.

"**High hazard cross-connection**" means a cross-connection that poses a threat to the potability or safety of the public water supply. Materials entering the public water supply through a high hazard cross-connection are contaminants or health hazards. See Appendix D for some examples.

"**Low hazard cross-connection**" means a cross-connection that has been found to not pose a threat to the potability or safety of the public water supply but may adversely affect the aesthetic quality of the potable water supply. Materials entering the public water supply through a low hazard cross-connection are pollutants or non-health hazards.

"**New public water system**" or "**new PWS**" means a public water system permitted after July 1, 2024 as a public water system by the State Water Board. A new public water system includes a public water system receiving a new permit because of a change in ownership.

"**Noncommunity water system"** means a public water system that is not a community water system.

"**Nontransient noncommunity water system"** means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over six months per year.

"**Premises containment**" means protection of a public water system's distribution system from backflow from a user's premises through the installation of one or more air gaps or BPAs, installed as close as practical to the user's service connection, in a manner that isolates the water user's water supply from the public water system's distribution system.

"**Pressure vacuum breaker backsiphonage prevention assembly**" or "**PVB**" means an assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with test cocks and tightly closing shutoff valves located at each end of the assembly that enable accurate field testing of the assembly. This type of assembly may only be used for protection from backsiphonage and is not to be used to protect from backpressure. See Diagram 4, Appendix C.

"**Public water system**" or "**PWS**" has the same meaning as defined in section 116275(h) of the CHSC.

"**Recycled Water"** is a wastewater which as a result of treatment is suitable for uses other than potable use.

"**Reduced pressure principle backflow prevention assembly**" or "**RP**" means an assembly with two independently acting internally-loaded check valves, with a hydraulically operating mechanically independent differential-pressure relief valve located between the check valves and below the upstream check valve. The assembly shall have shut-off valves located upstream and downstream of the two check-valves, and test cocks to enable accurate field testing of the assembly. See Diagram 5, Appendix C.

"**Reduced pressure principle detector backflow prevention assembly**" or "**RPDA**" means a reduced pressure principle backflow prevention assembly that includes a bypass with a water meter and reduced pressure principle backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. See Diagram 6, Appendix C.

"**Reduced pressure principle detector backflow prevention assembly – type II**" or "**RPDA-II**" means a reduced pressure principle backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. See Diagram 7, Appendix C.

"**Spill-resistant pressure vacuum breaker backsiphonage prevention assembly**" or "**SVB**" means an assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with shutoff valves at each end and a test cock and bleed/vent port, to enable accurate field testing of the assembly. This type of assembly may only be used for protection from backsiphonage and is not to be used to protect from backpressure. See Diagram 8, Appendix C.

"**State Water Board**", unless otherwise specified, means the State Water Resources Control Board or the local primacy agency having been delegated the authority to enforce the requirements of the CCCPH by the State Water Resources Control Board.

"**Swivel-Ell**" means a reduced pressure principle backflow prevention assembly combined with a changeover piping configuration (swivel-ell connection) designed and constructed pursuant to this Chapter. See design and construction criteria, as well as Diagrams 9a and 9b, Appendix C.

"**Transient noncommunity water system"** means a noncommunity water system that does not regularly serve at least 25 of the same persons over six months per year.

"**User premises**" means the property under the ownership or control of a water user and is served, or is readily capable of being served, with water via a service connection with a public water system.

"**User's service connection**" means either the point where a water user's piping is connected to a water system or the point in a water system where the approved water supply can be protected from backflow using an air gap or backflow prevention assembly.

"**User Supervisor"** means a person designated by a water user to oversee a water use site and responsible for the avoidance of cross-connections.

"**Water supplier**" means a person who owns or operates a public water system.

"**Water user**" means a person or entity who is authorized by the PWS to receive water.

3.1.2 Applicability

A public water system (PWS) must comply with the requirements of the CCCPH.

3.1.3 Program for Public Water System Cross-Connection Control

(a) A PWS must protect the public water supply through implementation and enforcement of a cross-connection control program. Unless otherwise specified by this Chapter or directed by the State Water Board, a PWS may implement its cross-connection control program, in whole or in part, either directly or by way of contract or agreement with another party. The PWS, however, shall not be responsible for abatement of cross-connections which may exist within a user's premises. The cross-connection control program must include at a minimum the following elements:

(1) **Operating rules or ordinances** – Each PWS must have operating rules, ordinances, by-laws or a resolution to implement the cross-connection program. The PWS must have legal authority to implement corrective actions in the event a water user fails to comply in a timely manner with the PWS's provisions regarding the installation, inspection, field testing, or maintenance of BPAs required pursuant to this Chapter. Such corrective actions must include the PWS's ability to perform at least one of the following:

(A) deny or discontinue water service to a water user,
(B) install, inspect, field test, and/or maintain a BPA at a water user's premises, or
(C) otherwise address in a timely manner a failure to comply with the cross-connection control program.

(2) **Cross-Connection Control Program Coordinator** – The PWS must designate at least one individual involved in the development of and be responsible for the reporting, tracking, and other administration duties of its cross-connection control program. For PWS with more than 3,000 service connections the Cross-Connection Control Program Coordinator must be a cross-connection control specialist.
(3) **Hazard Assessments** – The PWS must survey its service area and conduct hazard assessments per Article 2 of this Chapter that identifies actual or potential cross-connection hazards, degree of hazard, and any backflow protection needed.
(4) **Backflow Prevention** – The PWS must ensure that actual and potential cross-connections are eliminated when possible or controlled by the installation of approved BPAs or AG's consistent with the requirements of the Article 3 of this Chapter.

(5) **Certified Backflow Prevention Assembly Testers and Certified Cross-Connection Control Specialists** – The PWS must ensure all BPA testers and cross-connection control specialists used are certified per Article 4 of this Chapter.
(6) **Backflow Prevention Assembly Testing** – The PWS must develop and implement a procedure for ensuring all BPAs are field tested, inspected, and maintained and AG's are inspected and maintained in accordance with CCCPH section 3.3.3.
(7) **Recordkeeping** – The PWS must develop and implement a recordkeeping system in accordance with CCCPH section 3.5.1.
(8) **Backflow Incident Response, Reporting and Notification** – The PWS must develop and implement procedures for investigating and responding to suspected or actual backflow incidents in accordance with Article 5 of this chapter.
(9) **Public Outreach and Education –** The PWS must implement a cross-connection control public outreach and education program element that includes educating staff, customers, and the community about backflow protection and cross-connection control. The PWS may implement this requirement through a variety of methods which may include providing information on cross-connection control and backflow protection in periodic water bill inserts, pamphlet distribution, new customer documentation, email, and consumer confidence reports.
(10) **Local Entity Coordination** – The PWS must coordinate with applicable local entities that are involved in either cross-connection control or public health protection to ensure hazard assessments can be performed, appropriate backflow protection is provided, and provide assistance in the investigation of backflow incidents. Local entities may include but are not limited to plumbing, permitting, or health officials, law enforcement, fire departments, maintenance, and public and private entities.

(b) The cross-connection control program must be developed in consultation with a cross-connection control specialist if:

(1) The PWS has 1,000 or more service connections, or
(2) required by the State Water Board.

(c) A PWS must have at least one cross-connection control specialist as a permanent or contracted employee of the PWS, and that specialist, or their designee, must be able to be contacted within one hour, if:

(1) The PWS has 3,000 or more service connections, or
(2) the PWS has less than 3,000 service connections and is directed by the State Water Board based on hazard assessments conducted pursuant to CCCPH section 3.2.1. or the PWS's history of backflow incidents.

3.1.4 Plan for Public Water System Cross-Connection Control

(a) After adoption of the CCCPH, each PWS must submit a written Cross-Connection Control Plan for State Water Board review in accordance with the following schedule:

(1) An Existing PWS must submit the Cross-Connection Control Plan no later than 12 months after the effective date of the CCCPH.
(2) A new PWS must submit the Cross-Connection Control Plan for review and approval prior to issuance of a domestic water supply permit.
(3) A PWS may submit a written request to the State Water Board for an extension of the deadline for submittal of its initial Cross-Connection Control Plan. The PWS's application must include a written description of the need for an extension. Approval of an extension will be at the sole discretion of the State Water Board.

(b) The Cross-Connection Control Plan for a community water system must include, at a minimum, the following cross-connection control program procedures and documentation:

(1) a description of how the community water system will achieve and maintain compliance with each requirement in this Chapter;
(2) a description of the process, personnel, and timeframes for completing initial and ongoing hazard assessments pursuant to CCCPH section 3.2.1;
(3) a description of the legal authority pursuant to CCCPH section 3.1.3 to implement corrective actions in the event a water user fails to comply in a timely manner with the provisions of the PWS's cross-connection control program;
(4) a description of the process and timeframes for ensuring each BPA is inspected and field tested, and AG is inspected, at a frequency no less than required by this Chapter;
(5) a description of the process and timeframe for ensuring each non-testable backflow preventer that is under the PWS ownership or administration is installed and maintained according to the California Plumbing Code;
(6) a description of the process for ensuring individuals field testing and inspecting BPAs are no less qualified than required by this Chapter, including but not limited to confirmation of the individual's:

(A) certification as a backflow prevention assembly tester,
(B) field test kit or gage equipment accuracy verification, and
(C) BPA field test result reports;

(7) a description of the procedures and timeframes of activities for responding to backflow incidents, including notification of customers, and reporting of backflow incidents pursuant to CCCPH section 3.5.2;
(8) contact information for cross-connection control personnel including any cross-connection control program coordinator and specialist;
(9) a description of the tracking system that maintains current and relevant information, including:

(A) recordkeeping information required pursuant to CCCPH section 3.5.1,
(B) location and type of each BPA, and
(C) highest threat potential hazard from which a given BPA is protecting the public water system distribution system;

(10) for user supervisors, if used, the required information pursuant to CCCPH section 3.2.2 (f);
(11) the corrective actions, including timeframes for the corrective actions, that a community water system will implement when:

(A) a cross-connection exists and the BPA installed is not commensurate with the user premises' hazard or no BPA has been installed, or
(B) a BPA needs to be replaced or maintained;

(12) a description of the public outreach and education program to comply with CCCPH section 3.1.3(a)(9); and
(13) the procedures for coordination with local entities

(c) The Cross-Connection Control Plan for a noncommunity water system must include, at a minimum, the following cross-connection control program procedures and documentation:

(1) a description of how the noncommunity water system will achieve and maintain compliance with each requirement in this Chapter that is applicable to the noncommunity water system;
(2) a description of the process, personnel, and timeframes for completing initial and ongoing hazard assessments pursuant to CCCPH section 3.2.1;
(3) a description of the legal authority pursuant to CCCPH section 3.1.3 to implement corrective actions in the event a water user fails to comply in a timely manner with the provisions of the PWS's cross-connection control program;
(4) a description of the process and timeframes for ensuring each BPA is inspected and field tested and AG is inspected, at a frequency no less than required by this Chapter;
(5) a description of the process and timeframe for ensuring each non-testable backflow preventer for internal protection that is under the PWS ownership or administration is installed and maintained according to the California Plumbing Code;
(6) a description of the process for ensuring individuals field testing and inspecting BPAs are no less qualified than required by this Chapter, including but not limited to confirmation of the individual's:

(A) certification as a backflow prevention assembly tester,
(B) field test kit or gage equipment accuracy verification, and
(C) BPA field test result reports;

(7) a description of the procedures and timeframes of activities for responding to backflow incidents, including notification of customers, and reporting of backflow incidents pursuant to CCCPH section 3.5.2;
(8) contact information for cross-connection control personnel including the cross-connection control program coordinator;
(9) maintaining a tracking system with current and relevant information, including:

(A) recordkeeping information required pursuant to CCCPH section 3.5.1,
(B) location and type of each BPA,
(C) location and type of each non-testable backflow preventer used for internal protection in accordance with the California Plumbing Code, if applicable, and
(D) potential hazard from which a BPA is protecting the public water system distribution system;

(10) for user supervisors, if used, the required information pursuant to CCCPH section 3.2.2(f);
(11) the corrective actions, including timeframes for the corrective actions, that a noncommunity water system will implement when:

(A) a cross-connection exists and the BPA installed is not commensurate with the user premises' hazard or no BPA has been installed, or
(B) a BPA or non-testable backflow preventer needs to be replaced or maintained;

(12) a description of the public outreach and education program to comply with CCCPH section 3.1.3(a)(9); and,
(13) the procedures for coordination with local entities (e.g., local health departments with internal cross-connection control programs, building officials, plumbing officials, etc.).

(d) A PWS must ensure its Cross-Connection Control Plan is, at all times, representative of the current operation of its Cross-Connection Control program. The PWS must make its Cross-Connection Control Plan available to the State Water Board for review upon request. If a PWS makes a substantive revision to its Cross-Connection Control Plan, the PWS must submit the revised Cross-Connection Control Plan to the State Water Board for review.

Article 2 – Hazard Assessments and Required Protection

3.2.1 Hazard Assessments

(a) To evaluate the potential for backflow into the PWS, each community water system must conduct an initial hazard assessment of the user premises within its service area and each noncommunity water system must conduct an initial hazard assessment of its water distribution system. The hazard assessment must consider:

(1) The existence of cross-connections;
(2) the type and use of materials handled and present, or likely to be, on the user premises;
(3) the degree of piping system complexity and accessibility;
(4) access to auxiliary water supplies, pumping systems, or pressure systems;
(5) distribution system conditions that increase the likelihood of a backflow event (e.g., hydraulic gradient differences impacted by main breaks and high water-demand situations, multiple service connections that may result in flow-through conditions, etc.);
(6) user premises accessibility;
(7) any previous backflow incidents on the user premises; and
(8) the requirements and information provided in the CCCPH.

(b) Each hazard assessment must identify the degree of hazard to the PWS's distribution system as either a high hazard cross-connection, a low hazard cross-connection, or having no hazard. Examples of some high hazard cross-connection activities may be found in Appendix D.

(c) The hazard assessment must determine whether an existing BPA, if any, provides adequate protection based on the degree of hazard.

(d) Hazard assessments completed prior to the adoption of the CCCPH may be considered as an initial hazard assessment provided that such hazard assessments and associated backflow protection provide protection consistent with the CCCPH and the PWS describes their review of these assessments in the Cross-Connection Control Plan required in CCCPH section 3.1.4.

(e) Subsequent to the initial hazard assessment described in subsection (a), a community water system must perform a hazard assessment under the following criteria:

(1) if a user premises changes account holder, excluding single-family residences;
(2) if a user premises is newly or re-connected to the PWS;
(3) if evidence exists of changes in the activities or materials on a user's premises;
(4) if backflow from a user's premises occurs;
(5) periodically, as identified in the PWS's Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4.;

(6) if the State Water Board requests a hazard assessment of a user's premises; and
(7) if the PWS concludes an existing hazard assessment may no longer accurately represent the degree of hazard.

(f) Noncommunity water systems must conduct an initial or follow-up hazard assessment within two years of the adoption of the CCCPH.

(g) Noncommunity water system must conduct a follow-up hazard assessment of its water distribution system if any changes are made that could result in a cross-connection or any backflow incidents occur.

(h) A cross-connection control specialist must review or conduct each initial and follow-up hazard assessment pursuant to this section and make a written finding that, in the specialist's judgment based on cross-connection control principles, the PWS's hazard assessment properly identified all hazards at the time of the assessment, the appropriate degree of hazards, and the corresponding backflow protection.

3.2.2 Backflow Protection Required

(a) A PWS must ensure its distribution system is protected from backflow from identified hazards through the proper installation, continued operation, and field testing of an approved BPA (see Article 3 for installation and approved BPA criteria). When a DC is required or referenced in the CCCPH, a DCDA or DCDA-II type of assembly may be substituted if appropriate. When an RP is required or referenced in the CCCPH, an RPDA or RPDA-II type of assembly may be substituted if appropriate.

(b) The BPA installed must be no less protective than that which is commensurate with the degree of hazard at a user premises, as specified in this Chapter and as determined based on the results of the hazard assessment conducted pursuant to CCCPH section 3.2.1.

(c) Unless specified otherwise in this Chapter, a PWS must, at all times, protect its distribution system from high hazard cross-connections (see Appendix D for examples), through premises containment, through the use of AG(s) or RP(s).

(1) Following State Water Board review and approval, a PWS may implement an alternate method of premises containment in lieu of a required AG provided that the proposed alternative would not increase the level of risk to protection of public health.
(2) Following State Water Board review and approval, a PWS may accept internal protection in lieu of containment when premises containment is not feasible.

(d) Except as otherwise allowed or prohibited in statute or in CCR Title 22, Division 4, Chapter 3, a swivel-ell may be used instead of an AG for premises containment protection when temporarily substituting tertiary recycled water use areas with potable water from a PWS if all the following criteria are met:

(1) the swivel-ell is approved by the State Water Board;
(2) the PWS has a cross-connection control program, required pursuant to CCCPH section 3.1.3, and the use and operation of the swivel-ell is described in the Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4;
(3) the design and construction-related requirements of the swivel-ell adheres to the criteria in Appendix C;
(4) at least every 12 months, inspections are performed and documented to confirm ongoing compliance with the design and construction-related requirements in Appendix C;
(5) the RP used in conjunction with the swivel-ell is field tested and found to be functioning properly:

(A) immediately upon each switchover to potable water use, a visual inspection of the RP must be completed
(B) within 72 hours of each switchover to potable water use, a field test must be completed, and
(C) at least every 12 weeks the use site is supplied with potable water; and

(6) there is a legally binding agreement between the PWS and the entity supplying the recycled water, signed by those with relevant legal authority, that includes the following requirements:

(A) The State Water Board will be notified within 24 hours of all switchovers to or from potable water, will be given an estimate of the timeframe until the next switchover, and will be provided the results of the field testing required in paragraph (5);
(B) a trained representative of the PWS be present to supervise each switchover; and
(C) within seven days of each switchover, if requested by the State Water Board, the PWS will submit a written report describing compliance with this subsection, as well as potable and recycled water usage information.

(e) Except as noted below, a PWS must ensure its distribution system is protected with no less than DC protection for a user premises with a fire protection system within ten years of adoption of the CCCPH.

(1) A high hazard cross-connection fire protection system, including but not limited to fire protection systems that may utilize chemical addition (e.g., wetting agents, foam, anti-freeze, corrosion inhibitor, etc.) or an auxiliary water supply, must have no less than RP protection.

(2) For existing fire protection systems that do not meet Section 3.2.2 (e)(3) or cannot install DC protection within ten years of adoption of the CCCPH, a PWS may propose in the cross-connection control plan submitted for CCCPH Section 3.1.4:

(A) an alternative date; or
(B) an alternative method of backflow protection that provides at least the same level of protection to public health.

(3) A BPA is not necessary for a low hazard fire protection system on a residential user premises if the following criteria are satisfied:

(A) the user premises has only one service connection to the PWS;
(B) a single service line onto the user premises exists that subsequently splits on the property for domestic flow and fire protection system flow, such that the fire protection system may be isolated from the rest of the user premises;
(C) a single, water industry standard, water meter is provided to measure combined domestic flow and fire protection system flow;
(D) the fire protection system is constructed of piping materials certified as meeting NSF/ANSI Standard 61; and
(E) the fire protection system's piping is looped within the structure and is connected to one or more routinely used fixtures (such as a water closet) to prevent stagnant water.

(f) The State Water Board and PWS may, at their discretion, require a water user to designate a user supervisor when the user premises has a multi-piping system that conveys various types of fluids and where changes in the piping system are frequently made. If a user supervisor is designated the following is required:

(1) The user supervisor is responsible for the avoidance of cross-connections during the installation, operation and maintenance of the water user's pipelines and equipment. The user supervisor must be trained on the fluids used and backflow protection for the premise, and must inform the PWS of changes in piping, and maintain current contact information on file with the PWS; and
(2) The PWS must include in the Cross-Connection Control Plan required in CCCPH section 3.1.4 the training and qualification requirements for user supervisors, identify the entity that will provide the user supervisor training, and frequency of any necessary recurring training. The training must adequately address the types of hazards and concerns typically found.

(g) Facilities producing, treating, storing, or distributing drinking water that are an approved water supply or water recycling plants as defined by CCR Title 22, Section 60301.710 must have proper internal protection from cross-connections to ensure that all drinking water produced and delivered to customers and workers at those facilities is free from unprotected cross-connections.

Article 3 – Backflow Prevention Assemblies

3.3.1 Standards for Types of Backflow Protection

(a) The PWS must ensure that each AG used for its Cross-Connection Control Program meets the requirements in Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4 of the American Society of Mechanical Engineers (ASME) A112.1.2-2012(R2017) (See Appendix B).

(b) The PWS must ensure that each replaced or newly installed PVB, SVB, DC, and RP for protection of the PWS is approved through both laboratory and field evaluation tests performed in accordance with at least one of the following:

> (1) Standards found in Chapter 10 of the *Manual of Cross-Connection Control, Tenth Edition*, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research; or
> (2) certification requirements for BPAs in the Standards of ASSE International current as of 2022 that include ASSE 1015-2021 for the DC, ASSE 1048-2021 for the DCDA & DCDA-II, ASSE 1013-2021 for the RP, and ASSE 1047-2021 for the RPDA & RPDA-II and must have the 1YT mark.

(c) BPAs must not be modified following approval granted under section 3.3.1 (b). PWS must require BPA testers to notify the PWS if a water user or PWS-owned BPA has been modified from the CCCPH section 3.3.1 (b) approval.

3.3.2 Installation Criteria for Backflow Protection

(a) For AGs, the following is required:

> (1) The receiving water container must be located on the water user's premises at the water user's service connection unless an alternate location has been approved by the PWS;
> (2) all piping between the water user's service connection and the discharge location of the receiving water container must be above finished grade and be accessible for visual inspection unless an alternative piping configuration is approved by the PWS;
> (3) the PWS must ensure that the AG specified in CCCPH section 3.3.1 (a) has been installed; and
> (4) any new air gap installation at a user's service connection must be reviewed and approved by the State Water Board prior to installation.

(b) RPs must be installed such that the lowest point of an assembly is a minimum of twelve inches above grade, and a maximum of thirty-six inches above the finished grade, unless an alternative is approved by the PWS.

(c) DCs installed or replaced after the adoption of the CCCPH must be installed according to CCCPH section 3.3.2 (b). Below ground installation can be considered if approved by the PWS where it determines no alternative options are available.

(d) A PVB or SVB must be installed a minimum of twelve inches above all downstream piping and outlets.

(e) SVBs may not be used for premises containment. PVBs may only be used for roadway right of way irrigation systems as premises containment where there is no potential for backpressure.

(f) A RP or DC installed after the adoption of the CCCPH must have a minimum side clearance of twelve inches, except that a minimum side clearance of twenty-four inches must be provided on the side of the assembly that contains the test cocks. The PWS may approve alternate clearances providing that there is adequate clearance for field testing and maintenance.

(g) Backflow protection must be located as close as practical to the water user's service connection unless one or more alternative locations have been approved by the PWS. If internal protection is provided in lieu of premises containment, the PWS must obtain access to the user premises and must ensure that the on-site protection meets the requirements of this Chapter for installation, field testing, and inspections.

(h) Each BPA and air gap separation must be accessible for field testing, inspection, and maintenance.

3.3.3 Field Testing and Repair of Backflow Prevention Assemblies and Air Gap Inspection

(a) PWS must ensure that all BPAs installed for its Cross-Connection Control Program are field tested following installation, repair, depressurization for winterizing, or permanent relocation. All required field testing must be performed by certified backflow prevention assembly testers.

(b) BPAs must be field tested at least annually. The CCCPH does not preclude a PWS, the State Water Board, or a local health agency from requiring more frequent field testing for premises with high hazard cross-connection or BPA at increased risk of testing failure.

(c) Air-gap separations must be visually inspected at least annually to determine compliance with this Chapter by persons certified as backflow prevention assembly testers or certified as a cross-connection control specialist pursuant to this Chapter.

(d) PWS must receive passing field tests before providing continuous service to a water user with a newly installed BPA.

(e) PWS must ensure that BPAs that fail the field test are repaired or replaced within 30 days of notification of the failure. Extensions may be allowed by the PWS if included as part of the Cross-Connection Control Plan.

(f) PWS must require backflow prevention assembly testers to notify the PWS as soon as possible within 24 hours if a backflow incident or an unprotected cross-connection is observed at the BPA or prior to the user premises during field testing. PWS must immediately conduct an investigation and discontinue service to the user premises if a backflow incident is confirmed, and water service must not be restored to that user premises until the PWS receives a confirmation of a passing BPA field test from a backflow prevention assembly tester and the assembly is protecting the PWS.

Article 4 – Backflow Prevention Assembly Testers and Cross-Connection Control Specialists

3.4.1 Backflow Prevention Assembly Tester Certification

(a) A PWS must ensure that each BPA required by this Chapter to protect the public water system is field tested by a person with valid certification from a certifying organization recognized by the State Water Board pursuant to this Article.

(b) A State Water Board-recognized organization certifying backflow prevention assembly testers is one that has a certification process that, at a minimum, includes the following:

(1) A timed and proctored written[6] exam, using a closed-book, objective grading format, consisting of no less than 100 questions for initial certification and no less than 50 questions for recertification. A passing score must be achieved by an examinee as a requirement for certification.

(A) Written exam proctors must:

1. not provide an examinee any assistance in answering exam questions, verbal or otherwise; and
2. be impartial.

(B) Passing scores for the written exams are to be determined prior to exam sessions, such that passing a written exam demonstrates sufficient knowledge of subjects associated with the proper field testing of BPAs, including but not limited to:

1. the hydraulics and theory of backflow;
2. California's laws, regulations, and requirements related to cross-connection control;
3. types of BPA field test equipment and the need to verify accuracy, at least annually and when otherwise necessary, to ensure accuracy of field test results;
4. field test procedures for an RP, RPDA, RPDA-II, DC, DCDA, DCDA-II, PVB, and SVB using the procedures provided in the *Manual of Cross-Connection Control, Tenth Edition,* published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or equivalent;
5. identification of improperly functioning BPAs (i.e., diagnostics or troubleshooting); and
6. recordkeeping and safety.

[6] The requirement for a written exam does not preclude using computerized exams.

(2) A performance (i.e., hands-on) exam, using a closed-book, objective grading process and the field test procedures in paragraph (1)(B)(4), designed such that passing the performance exam demonstrates proficiency in accurately determining the operating condition of an RP, DC, PVB, and SVB, when properly or improperly functioning, including but not limited to BPAs with leaks in shutoff valves, and failures in check valves, air inlet valves, or relief valves. A passing score must be achieved by an examinee as a requisite for certification. The performance exam process must include the following:

(A) Performance exam proctors must:

1. be certified as a backflow prevention assembly tester pursuant to this Article;
2. evaluate no more than one examinee at a time;
3. not provide an examinee any assistance in answering exam questions, verbal or otherwise;
4. provide no indication an examinee has erred until completion of a BPA field test, at which time only the fact the examinee has erred may be indicated (i.e., not the nature of the error);
5. be impartial and not affiliated with the certifying organization's preparation of, or preparatory course for (if applicable), the performance exam; and
6. not evaluate an examinee who was trained by the proctor during the six-month period prior to the exam or other conflict of interest.

(B) An examinee is considered to have failed a performance exam if the examinee:

1. makes a field test procedure or recording error that could impact an accurate determination of the operating condition of a BPA,
2. completes the BPA performance exam form with an error,
3. is informed of making an error (see subparagraph (A)(4)) and begins the procedure a second time, and
4. errs a second time and completes the BPA performance exam form accordingly.

(3) recertification requirements of no less frequently than every three years which includes both a written and performance exam;
(4) provisions for revocation of a backflow prevention assembly tester's certification, including but not limited to, revocation for falsifying field test results or field test reports;

(5) a website providing public access to the most recent list of backflow prevention assembly testers:

(A) who hold a valid certification from the certifying organization. At a minimum, the list is to include each backflow prevention assembly tester's last name, first name, certification number, and the date on which each backflow prevention assembly tester's certification expires; and
(B) whose certification was revoked, pursuant to paragraph (4), in the three years preceding the date of the list. At a minimum, the list is to include each backflow prevention assembly tester's last name, first name, revoked certification number, the date on which each backflow prevention assembly tester's certification was revoked, and the reason for revocation.

(6) as a prerequisite to sections 3.4.1(b)(1) and (b)(2), completion of an instructional training course accepted by the certifying organization[7] that covers the subjects in subsection (1)(B) and is no less than 30 hours in length over no fewer than four days for:

(A) a backflow prevention assembly tester's initial certification;
(B) a backflow prevention assembly tester's recertification as a result of revocation; or

(7) In lieu of compliance with section 3.4.1(b)(6) a certifying organization may accept two years prior experience in backflow prevention assembly testing.

(c) To be recognized by the State Water Board as a certifying organization for backflow prevention assembly testers, a certifying organization shall:

(1) submit an application with the following information to the State Water Board for review:

(A) written documentation of a certification program that includes a process that is no less stringent than the criteria in subsection (b);
(B) evidence that the organization's certification program and exam process has been reviewed, with concerns adequately addressed, by a credentialed psychometrician proficient in the design of objective exams, experienced in the assessment of certification or licensing organizations, and familiar with the application of the requirements of *ISO[8]/IEC[9] 17024: Conformity Assessment- General Requirements for Bodies Operating Certification of Persons*; and

[7] But not limited only to training provided by the certifying organization or its affiliates.
[8] International Organization for Standardization
[9] International Electrotechnical Commission

(C) a written statement, signed by the certifying organization's representative(s) having the authority and legal responsibility for operation of the certifying organization, attesting that the certifying organization will implement its certification program in a manner meeting or exceeding the criteria in subsection (b) and consistent with the application submitted to the State Water Board.

(2) adequately address each State Water Board comment and/or question concerning the application, and
(3) receive written acknowledgment from the State Water Board that the application is complete.

(d) An American National Standards Institute (ANSI)-accredited certifying organization, accredited in accordance with subsection (b) and ISO/IEC 17024, will be considered to be a State Water Board-recognized certifying organization. Beginning three years after the effective date of the CCCPH, only those testers with a valid certification from an ANSI-accredited certifying organization shall satisfy subsection (a) and certifications obtained by organizations in accordance with subsection (c) will be invalid.

(e) This Article does not preclude a local health agency from maintaining a backflow prevention assembly tester certification program for the field testing of BPAs within the local health agency's jurisdiction. Accepting a tester certified by a local health agency does not relieve a PWS from meeting the requirements of this Article.

(f) This Article does not preclude a PWS from disallowing the use of an individual tester certified pursuant to this Article if the PWS has reason to believe a certified tester may not be proficient in accurately determining the operating condition of BPA, or for any other reason (e.g., fraud, deceit, negligence, misconduct, etc.). A PWS must report any evidence of a tester falsifying reports to that tester's certifying organization.

(g) This Article is effective July 1, 2025.

3.4.2 Cross-Connection Control Specialist Certification

(a) A PWS must ensure that cross-connection control specialists, used pursuant to the CCCPH, have valid certification from a certifying organization recognized by the State Water Board pursuant to this Article.

(b) A State Water Board-recognized organization certifying cross-connection control specialists is one that has a certification process that, at a minimum, includes the following:

(1) A timed and proctored, written[10] exam, using a closed-book, objective grading format, consisting of no less than 100 questions for certification. A passing score must be achieved by an examinee as a requirement for certification.

(A) Written exam proctors must:

1. not provide an examinee any assistance in answering exam questions, verbal or otherwise; and
2. be impartial.

(B) Passing scores for the exams are to be determined prior to exam sessions, such that passing an exam demonstrates sufficient and comprehensive range of knowledge of the subjects provided in Appendix E, as they may relate to cross-connection control and the causes, effects, and prevention of backflow.

(2) recertification requirements of no less frequently than every three years. Recertification may be done through at least one of the following:

(A) an exam as required by section 3.4.2 (b)(1),
(B) through 12 contact hours from continuing education courses covering material in Appendix E or,
(C) a combination of exam and continuing education contact hours equivalent to (A) or (B);

(3) provisions for revocation of a specialist's certification, including but not limited to, falsifying information or providing negligent recommendations inconsistent with industry-standard cross-connection control guidelines;
(4) a website providing public access to the most recent list of cross-connection control specialists:

(A) who hold a valid certification from the certifying organization. At a minimum, the list is to include each specialist's last name, first name, certification number, and the date on which each specialist's certification expires; or

[10] The requirement for a written exam does not preclude using computerized exams.

(B) whose certification was revoked, pursuant paragraph (3), in the three years preceding the date of the list. At a minimum, the list is to include each specialist's last name, first name, revoked certification number, the date on which each specialist's certification was revoked, and the reason for revocation.

(5) initial certification requirements:

(A) a valid backflow prevention assembly tester certification from a certification organization recognized by the State Water Board pursuant to section 3.4.1; and
(B) completion of an instructional training course (acceptable to the certifying organization[11]) that covers the subjects in Appendix E and is no less than 30 hours in length over no fewer than five days (inclusive of an exam, if provided). This paragraph does not preclude a certification organization from providing the instructional training course to the public, including certified specialists.
(C) As an alternative to (A) the certifying organization may accept additional instruction in the subject areas of testing, maintaining and repairing BPAs equivalent in length and scope to the requirements in 3.4.1(b)(6).
(D) As an alternative to (A) the certifying organization may accept a minimum of five (5) years documented experience performing cross-connection control specialist duties, as outlined in Appendix E.

(c) To be recognized by the State Water Board as a certifying organization for cross-connection control specialists, a certifying organization shall:

(1)submit an application with the following information to the State Water Board for review:

(A) Written documentation of a certification program that includes a process that is no less stringent than the criteria in subsection (b);
(B) evidence that the organization's certification program and exam process has been reviewed, with concerns adequately addressed, by a credentialed psychometrician proficient in the design of objective exams, experienced in the assessment of certification or licensing organizations, and familiar with the application of the requirements of *ISO[12]/IEC[13] 17024: Conformity Assessment- General Requirements for Bodies Operating Certification of Persons*; and

[11] But not limited only to training provided by the certifying organization or its affiliates.
[12] International Organization for Standardization
[13] International Electrotechnical Commission

(C) a written statement, signed by the certifying organization's representative(s) having the authority and legal responsibility for operation of the certifying organization, attesting that the certifying organization will implement its certification program in a manner meeting or exceeding the criteria in subsection (b) and consistent with the application submitted to the State Water Board.

(2) adequately address each State Water Board comment and question concerning the application, and
(3) receive a written acknowledgment from the State Water Board that the application is complete:

(d) A certifying organization, accredited by the American National Standards Institute (ANSI) in accordance with ISO/IEC 17024, which complies with subsection (b), will be considered to be a State Water Board-recognized certifying organization. Beginning three years after the effective date of the CCCPH, only those specialists with a valid certification from an ANSI-accredited certifying organization shall satisfy subsection (a) and certifications obtained by organizations in accordance with subsection (c) will be invalid.

(e) This Article does not preclude a local health agency from maintaining a cross-connection control specialist certification program for specialists within the local health agency's jurisdiction. Using a specialist certified by a local health agency does not relieve a PWS from meeting the requirements of this Article.

(f) This Article does not preclude a PWS from disallowing the use of an individual cross-connection control specialist certified pursuant to this Article if the PWS has reason to believe a certified specialist may not be proficient in their knowledge of cross-connection control and the causes, effects, and prevention of backflow, or for any other reason (e.g., fraud, deceit, negligence, misconduct, etc.). A PWS must report any evidence of a specialist falsifying reports to that specialist's certifying organization.

(g) This Article is effective July 1, 2025.

Article 5 – Recordkeeping, Backflow Incident Response, and Notification

3.5.1 Recordkeeping

(a) Each PWS must maintain the following records:

(1) The two most recent hazard assessments for each user premise, conducted pursuant to CCCPH section 3.2.1 (Hazard Assessment);
(2) for each BPA, the associated hazard or application, location, owner, type, manufacturer and model, size, installation date, and serial number;
(3) for each AG installation, the associated hazard or application and the location, owner, and as-built plans of the AG;
(4) results of all BPA field testing, AG inspection, and swivel-ell inspections and field tests for the previous three calendar years, including the name, test date, repair date, and certification number of the backflow prevention assembly tester for each BPA field test and AG and swivel-ell;
(5) repairs made to, or replacement or relocation of, BPAs for the previous three calendar years;
(6) the most current cross-connection tests (e.g. shutdown test, dye test);
(7) if a user supervisor is designated for a user premise, the current contact information for the user supervisor and water user, and any applicable training and qualifications as described by CCCPH section 3.2.2(f);
(8) descriptions and follow-up actions related to all backflow incidents;
(9) if any portion of the cross-connection control program is carried out under contract or agreement, a copy of the current contract or agreement;
(10) the current Cross-Connection Control Plan as required in CCCPH section 3.1.4.; and
(11) any public outreach or education materials issued as required in CCCPH section 3.1.3.(a)(9) for the previous three calendar years.

(b) All information in subsection (a) must be available to the State Water Board upon request.

3.5.2 Backflow Incident Response Procedure

Each PWS must include backflow incident response procedures in the Cross-Connection Control Plan required in CCCPH section 3.1.4. The PWS must describe its procedures for investigating and responding to suspected backflow incidents including, but not limited to, the following:

(a) Consideration of complaints or reports of changes in water quality as possible incidents of backflow;

(b) Water quality sampling and pressure recording; and

(c) Documentation of the investigation, and any response and follow-up activities.

3.5.3 Backflow Incident Notification

(a) Each PWS must notify the State Water Board and local health agencies of any known or suspected incident of backflow within 24 hours of the determination. If required by the State Water Board, a PWS must issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1.

(b) If required by the State Water Board, the PWS must submit, by a date specified by the State Water Board, a written incident report describing the details and affected area of the backflow incident, the actions taken by the PWS in response to the backflow incident, and the follow up actions to prevent future backflow incidents. The written report must contain, at a minimum, the information requested in Appendix F.

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Appendix

Appendix A: Assembly Bill 1671 (2017, Chapter 533) and Assembly Bill 1180 (2019, Chapter 455).
Appendix B: ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4
Appendix C: Backflow Prevention Assembly Diagrams
Appendix D: High Hazard Premises
Appendix E: General Range of Knowledge for Cross-Connection Control Specialists
Appendix F: Example Backflow Incident Reporting Form
Appendix G: Related Statutes and Regulations

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Appendix A

Assembly Bill 1671 (2017, Chapter 533)
Assembly Bill 1180 (2019, Chapter 455)

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STATE OF CALIFORNIA
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Assembly Bill No. 1671

CHAPTER 533

An act to amend Section 116810 of, and to add Sections 116407 and 116555.5 to, the Health and Safety Code, relating to drinking water.

[Approved by Governor October 6, 2017. Filed with Secretary of State October 6, 2017.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1671, Caballero. Backflow protection and cross-connection controls: standards.

(1) Existing law, the California Safe Drinking Water Act, requires the State Water Resources Control Board to administer provisions relating to the regulation of drinking water to protect public health, including, but not limited to, conducting research, studies, and demonstration projects relating to the provision of a dependable, safe supply of drinking water, enforcing the federal Safe Drinking Water Act, adopting regulations, and conducting studies and investigations to assess the quality of private domestic water wells. Existing law makes certain violations of the act a misdemeanor.

Existing law requires any person who owns a public water system to ensure that the system does certain things, including, but not limited to, that it will not be subject to backflow under normal operating conditions. Existing law, to ensure that testing and maintenance of backflow prevention devices are performed by persons qualified to do testing and maintenance, authorizes local health officers to maintain programs for certification of backflow prevention device testers and requires the certification program to be consistent with backflow protection regulations adopted by the state board. A violation of these provisions, or an order by a local health officer pursuant to these provisions, is a misdemeanor.

This bill would require a public water system to implement a cross-connection control program that complies with, and would require the certification program to be consistent with, applicable regulations and the standards described in (2).

(2) Existing regulations establish standards for a backflow prevention device and cross-connection control.

This bill, on or before January 1, 2020, would require the state board to adopt standards for backflow protection and cross-connection control and would authorize the state board to do so through the adoption of a policy handbook, as specified. By authorizing the state board to adopt standards, the violation of which would be a crime, the bill would create a new crime and impose a state-mandated local program.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

The people of the State of California do enact as follows:

SECTION 1. Section 116407 is added to the Health and Safety Code, to read:

116407. (a) On or before January 1, 2020, the state board shall adopt standards for backflow protection and cross-connection control.

(b) The state board may implement subdivision (a) through the adoption of a policy handbook that is not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The policy handbook shall include standards for backflow protection and cross-connection control. In developing the standards and any amendments to those standards, the state board shall consult with state and local agencies and other persons whom the state board has identified as having expertise in the subject of backflow protection and cross-connection control. The state board shall hold at least two public hearings before adopting the policy handbook. The policy handbook shall be posted on the board's Internet Web site.

(c) (1) Upon the effective date of a policy handbook adopted by the state board pursuant to subdivision (b), the regulations set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations shall become inoperative, and, 90 days thereafter, are repealed, unless the state board makes a determination not to repeal a specific regulation.

(2) If the state board determines not to repeal a specific regulation pursuant to paragraph (1), the state board shall provide to the Office of Administrative Law and the Secretary of State written notice of its determination, including identification of the specific regulation that is not repealed. That regulation, upon the provision of that written notice to the Office of Administrative Law and the Secretary of State, shall become operative.

SEC. 2. Section 116555.5 is added to the Health and Safety Code, to read:

116555.5. A public water system shall implement a cross-connection control program that complies with applicable regulations and with standards adopted by the board pursuant to Section 116407.

SEC. 3. Section 116810 of the Health and Safety Code is amended to read:

116810. To ensure that testing and maintenance of backflow prevention devices are performed by persons qualified to do testing and maintenance,

local health officers may maintain programs for certification of backflow prevention device testers. The local health officer may suspend, revoke, or refuse to renew the certificate of a tester, if, after a hearing before the local health officer or his or her designee, the local health officer or his or her designee finds that the tester has practiced fraud or deception or has displayed gross negligence or misconduct in the performance of his or her duties as a certified backflow prevention device tester. The local health officer may collect fees from certified testers to offset the cost of the certification program provided pursuant to this section. The certification standards shall be consistent with standards adopted by the state board pursuant to Section 116407 and any other applicable backflow protection regulations.

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

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STATE OF CALIFORNIA
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Assembly Bill No. 1180

CHAPTER 455

An act to amend Section 116407 of the Health and Safety Code, and to add Section 13521.2 to the Water Code, relating to water.

[Approved by Governor October 2, 2019. Filed with Secretary of State October 2, 2019.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1180, Friedman. Water: recycled water.

(1) Existing law, the California Safe Drinking Water Act, requires the State Water Resources Control Board to administer provisions relating to the regulation of drinking water to protect public health. Existing law requires, on or before January 1, 2020, the state board to adopt standards for backflow protection and cross-connection control through the adoption of a policy handbook, as specified.

This bill would require that handbook to include provisions for the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service.

(2) Existing law requires the state board to establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health.

This bill would require the state board, on or before January 1, 2023, as specified, to update the uniform statewide criteria for nonpotable recycled water uses.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) On December 11, 2018, the State Water Resources Control Board unanimously adopted an amendment to the policy for water quality control for recycled water, which included a goal to increase the use of recycled water in the state from 714,000 acre-feet per year in 2015 to 1,500,000 acre-feet per year by 2020 and 2,500,000 acre-feet per year by 2030.

(b) Section 13521 of the Water Code requires the state board to establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health.

(c) The regulations establishing the uniform statewide criteria for recycled water uses are set forth in Chapter 3 (commencing with Section 60301.050) of Division 4 of Title 22 of the California Code of Regulations. The regulations that pertain to nonpotable recycled water uses have not been updated since 2000.

(d) The regulations relating to backflow protection and cross-connection control for recycled water are set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations. These regulations have not been updated since 1987.

(e) Section 1 of Chapter 533 of the Statutes of 2017 (Assembly Bill 1671 of the 2017–18 Regular Session) requires, on or before January 1, 2020, the state board to adopt backflow protection and cross-connection control standards and authorizes their implementation through a policy handbook.

(f) In order to maximize the amount of recycled water California can safely use for beneficial purposes, it is necessary to update the uniform statewide criteria for nonpotable recycled water uses and specify certain associated backflow protection and cross-connection control provisions.

SEC. 2. Section 116407 of the Health and Safety Code is amended to read:

116407. (a) On or before January 1, 2020, the state board shall adopt standards for backflow protection and cross-connection control.

(b) (1) The state board may implement subdivision (a) through the adoption of a policy handbook that is not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The policy handbook shall include standards for backflow protection and cross-connection control. In developing the standards and any amendments to those standards, the state board shall consult with state and local agencies and other persons whom the state board has identified as having expertise in the subject of backflow protection and cross-connection control. The state board shall hold at least two public hearings before adopting the policy handbook. The policy handbook shall be posted on the board's internet website.

(2) (A) The policy handbook described in this subdivision shall include provisions for the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service.

(B) The use of a swivel or changeover device shall be consistent with any notification and backflow protection provisions contained in the policy handbook.

(c) (1) Upon the effective date of a policy handbook adopted by the state board pursuant to subdivision (b), the regulations set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations shall become inoperative, and, 90 days thereafter, are repealed, unless the state board makes a determination not to repeal a specific regulation.

(2) If the state board determines not to repeal a specific regulation pursuant to paragraph (1), the state board shall provide to the Office of Administrative Law and the Secretary of State written notice of its determination, including identification of the specific regulation that is not repealed. That regulation, upon the provision of that written notice to the

Office of Administrative Law and the Secretary of State, shall become operative.

SEC. 3. Section 13521.2 is added to the Water Code, to read:

13521.2. (a) On or before January 1, 2023, the state board shall update the uniform statewide criteria for nonpotable recycled water uses established in Chapter 3 (commencing with Section 60301.050) of Division 4 of Title 22 of the California Code of Regulations. The deadline imposed by this section is mandatory only if the Legislature has appropriated sufficient funds, as determined by the executive director of the state board, in the annual Budget Act or otherwise to cover the state board's costs associated with the performance of the duties imposed by this section.

(b) For purposes of the update to the uniform statewide criteria for nonpotable recycled water uses described in subdivision (a), the state board shall adopt a regulation that incorporates by reference the criteria and applicable backflow protection provisions, including the provisions for the use of a swivel or changeover device for dual-plumbed systems, that are contained in the most recently adopted version of the policy handbook adopted pursuant to Section 116407 of the Health and Safety Code and any future versions of the policy handbook.

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Appendix B

ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4

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Appendix B
ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures,[1] page 4

TABLE 1
Minimum Air Gaps for Generally used Plumbing Fixtures[4]

FIXTURES	WHERE NOT AFFECTED BY SIDEWALLS[1] (inches)	WHERE AFFECTED BY SIDEWALLS[2] (inches)
Effective opening[3] not greater than ½ of an inch in diameter	1	1 1/2
Effective openings[3] not greater than ¾ of an inch in diameter	1 1/2	2 1/4
Effective openings[3] not greater than 1 inch in diameter	2	3
Effective openings[3] greater than 1 inch in diameter	Two times the diameter of effective opening	Three times the diameter of effective opening

For SI units: 1 inch = 25.4 mm

Notes:

[1] Sidewalls, ribs, or similar obstructions do not affect air gaps where spaced from the inside edge of the spout opening at a distance exceeding three times the diameter of the effective opening for a single wall, or at a distance exceeding four times the effective opening for two intersecting walls.

[2] Vertical walls, ribs, or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening other than specified in Footnote 1 above. The effect of three or more such vertical walls or ribs has not been determined. In such cases, the air gap shall be measured from the top of the wall.

[3] The effective opening shall be the minimum cross-sectional area at the seat of the control valve or the supply pipe or tubing that feeds the device or outlet. Where two or more lines supply one outlet, the effective opening shall be the sum of the cross-sectional areas of the individual supply lines or the area of the single outlet, whichever is smaller.

[4] Air gaps less than 1 inch (25.4 mm) shall be approved as a permanent part of a listed assembly that has been tested under actual backflow conditions with vacuums of 0 to 25 inches of mercury (85 kPa).

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Appendix C

Backflow Prevention Assembly Diagrams

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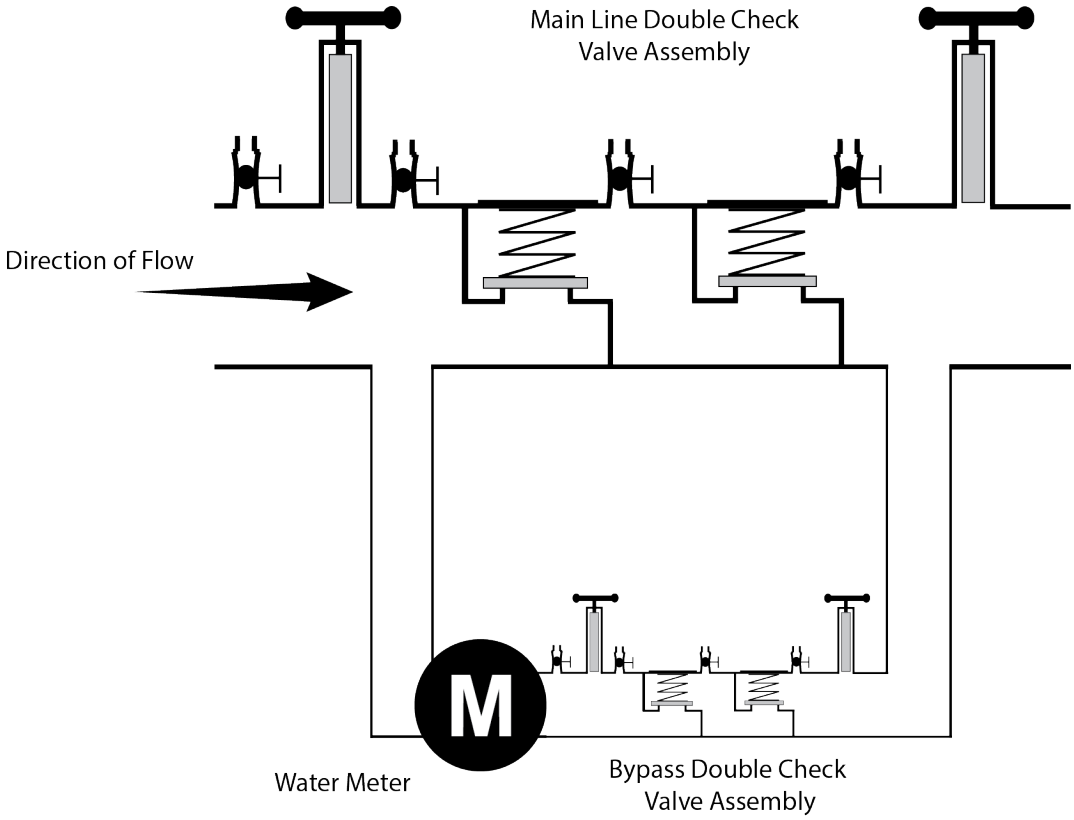
Appendix C

Diagram 1
Double check detector backflow prevention assembly[1]

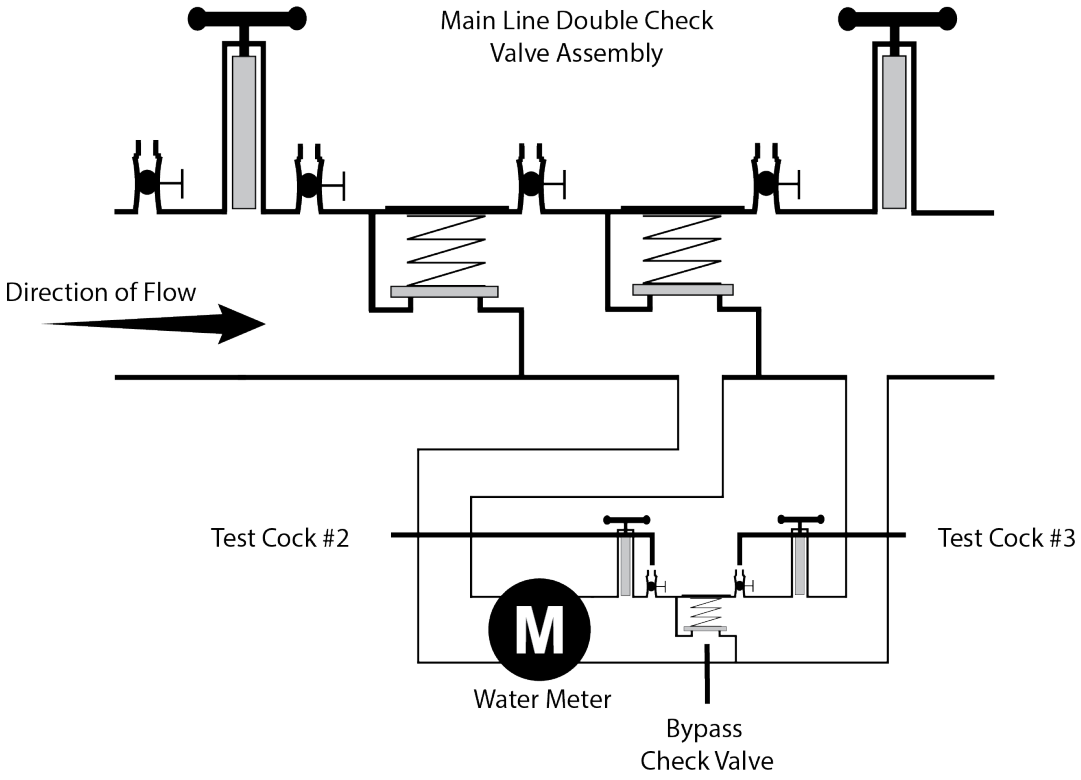


[1] © 2023 University of Southern California. Used with permission.

Appendix C

Diagram 2

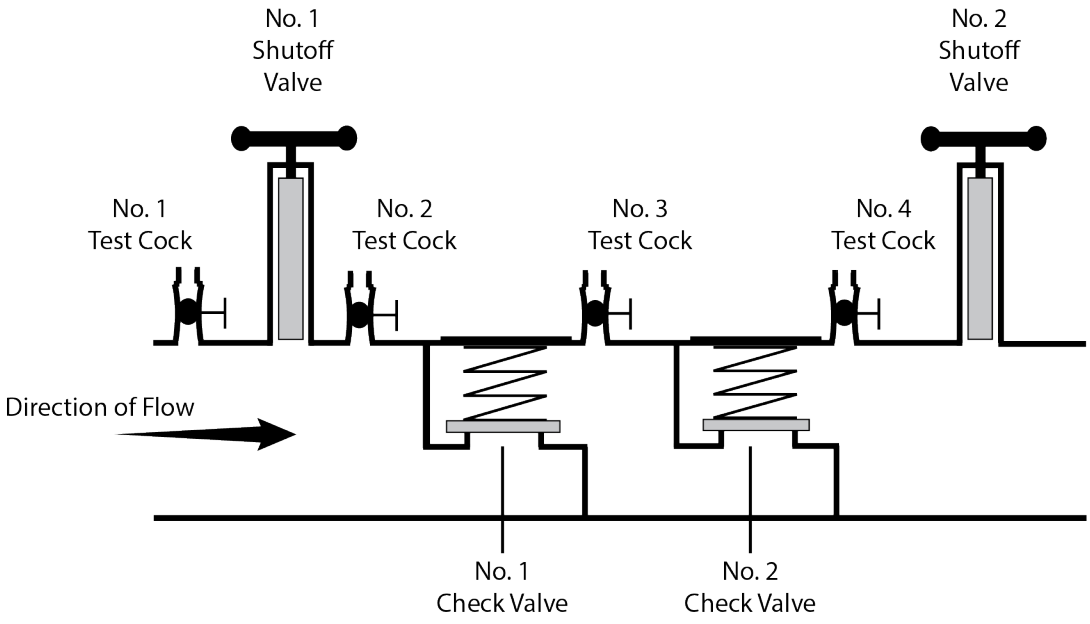
Double check detector backflow prevention assembly – type II [2]



[2] © 2023 University of Southern California. Used with permission.

Appendix C

Diagram 3
Double check valve backflow prevention assembly[3]

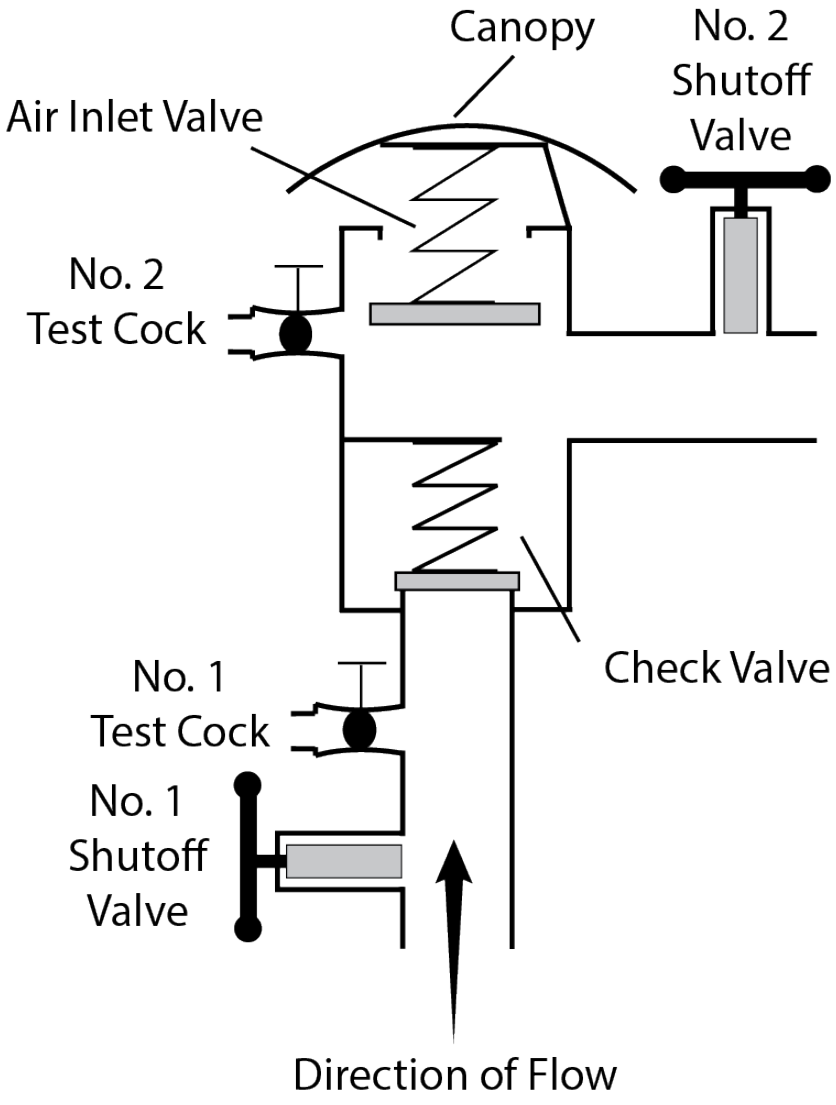


[3] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 4

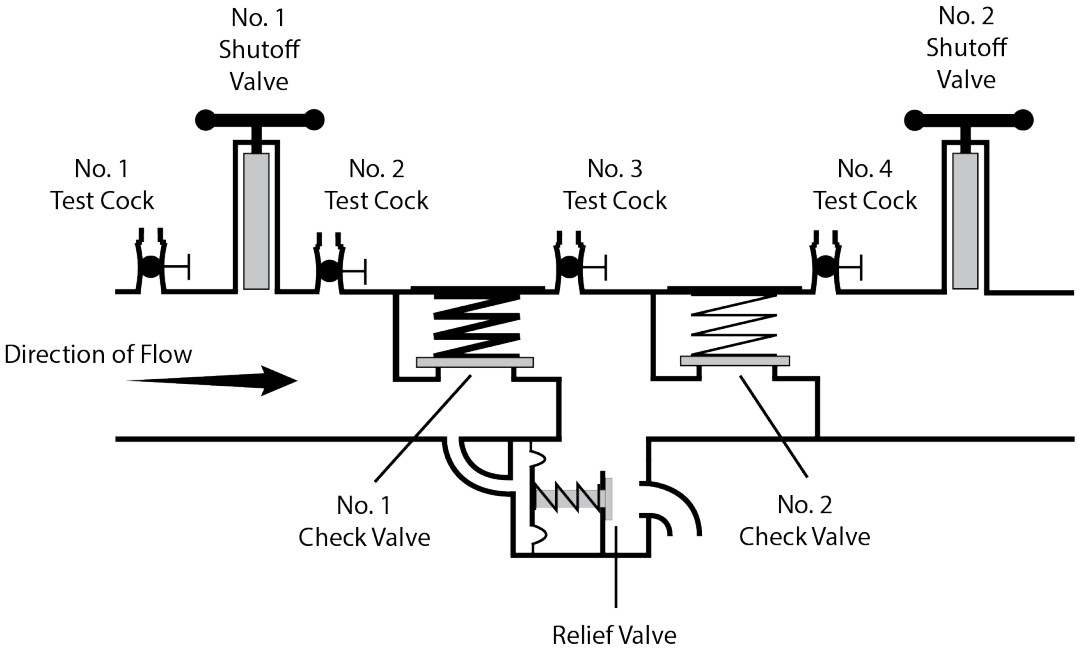
Pressure vacuum breaker backsiphonage prevention assembly [4]



[4] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 5
Reduced pressure principle backflow prevention assembly [5]

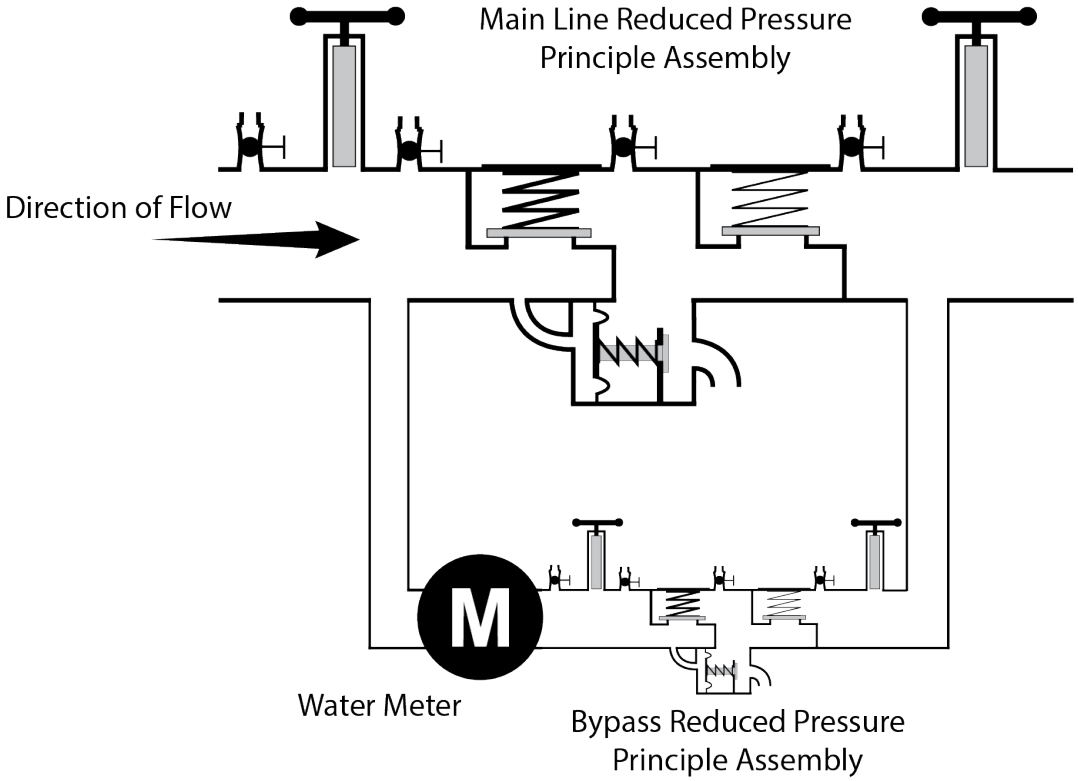


[5] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 6

Reduced pressure principle detector backflow prevention assembly [6]

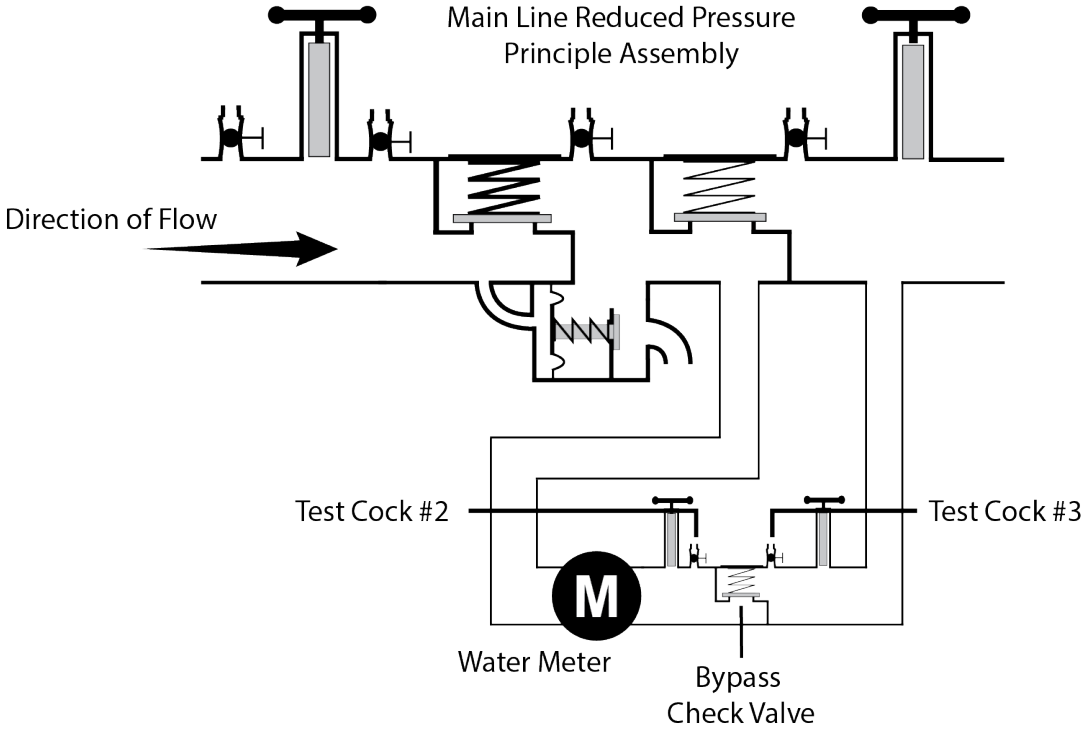


[6] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 7

Reduced pressure principle detector backflow prevention assembly – type II [7]

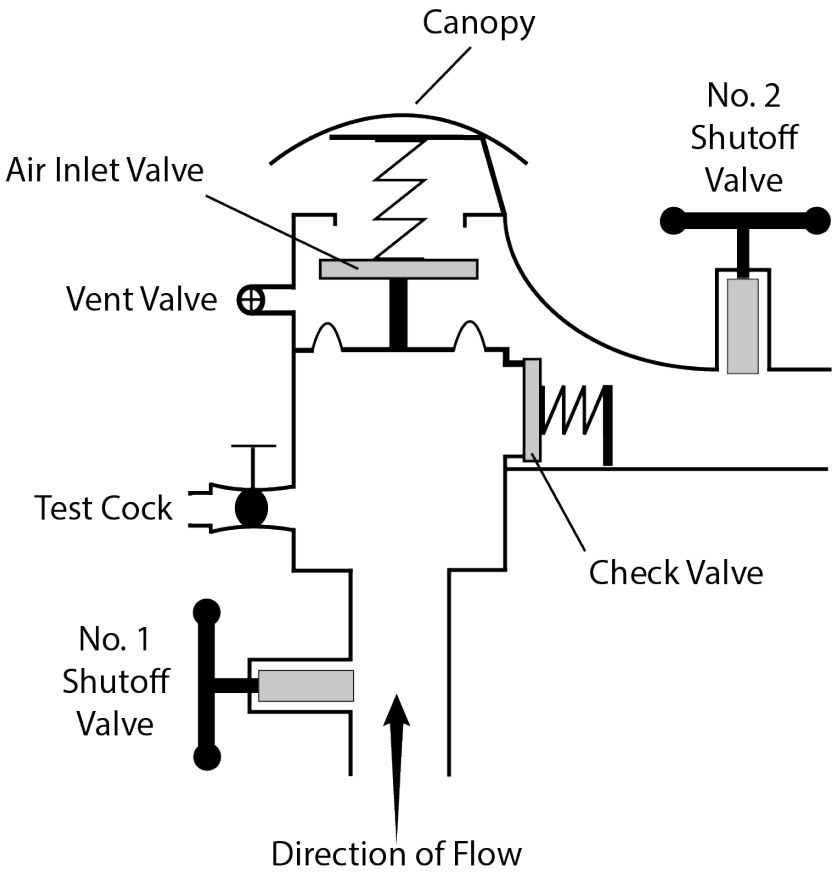


[7] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 8

Spill-resistant pressure vacuum breaker backsiphonage prevention assembly [8]



[8] © 2023 University of Southern California. Used with permission

Appendix C

Swivel-Ell Design and Construction Criteria

The criteria below, in conjunction with the swivel-ell diagrams that follow (Diagrams 9a and 9b), are **minimum** acceptable design and construction-related requirements for utilizing a swivel-ell. For restrictions and allowances for utilizing a swivel-ell, see CCCPH section 3.2.2.

A. Prior to operation of a swivel-ell, the PWS will receive approval for the design and construction plans of that swivel-ell from the State Water Board.

B. The drinking water supply must not, under any circumstances, be directly connected to the recycled water supply, nor be designed such that the recycled water use site could be supplied concurrently by a recycled water supply and a drinking water supply.

C. The drinking water supply line and the recycled water supply line must be offset (see Diagram 9b) in a manner that ensures a tee-connection, spool, or other prefabricated mechanical appurtenance(s) could not be readily utilized in lieu of the swivel-ell connection, nor result in the recycled water use site being supplied concurrently by recycled water and drinking water.

D. The recycled water supply line used in conjunction with the swivel-ell must be the only recycled water supply to the recycled water use area.

E. The swivel-ell must be located as close as practical to the public water system service connection, with the swivel-ell connection being located as close as practical to the RP upstream of the swivel-ell.

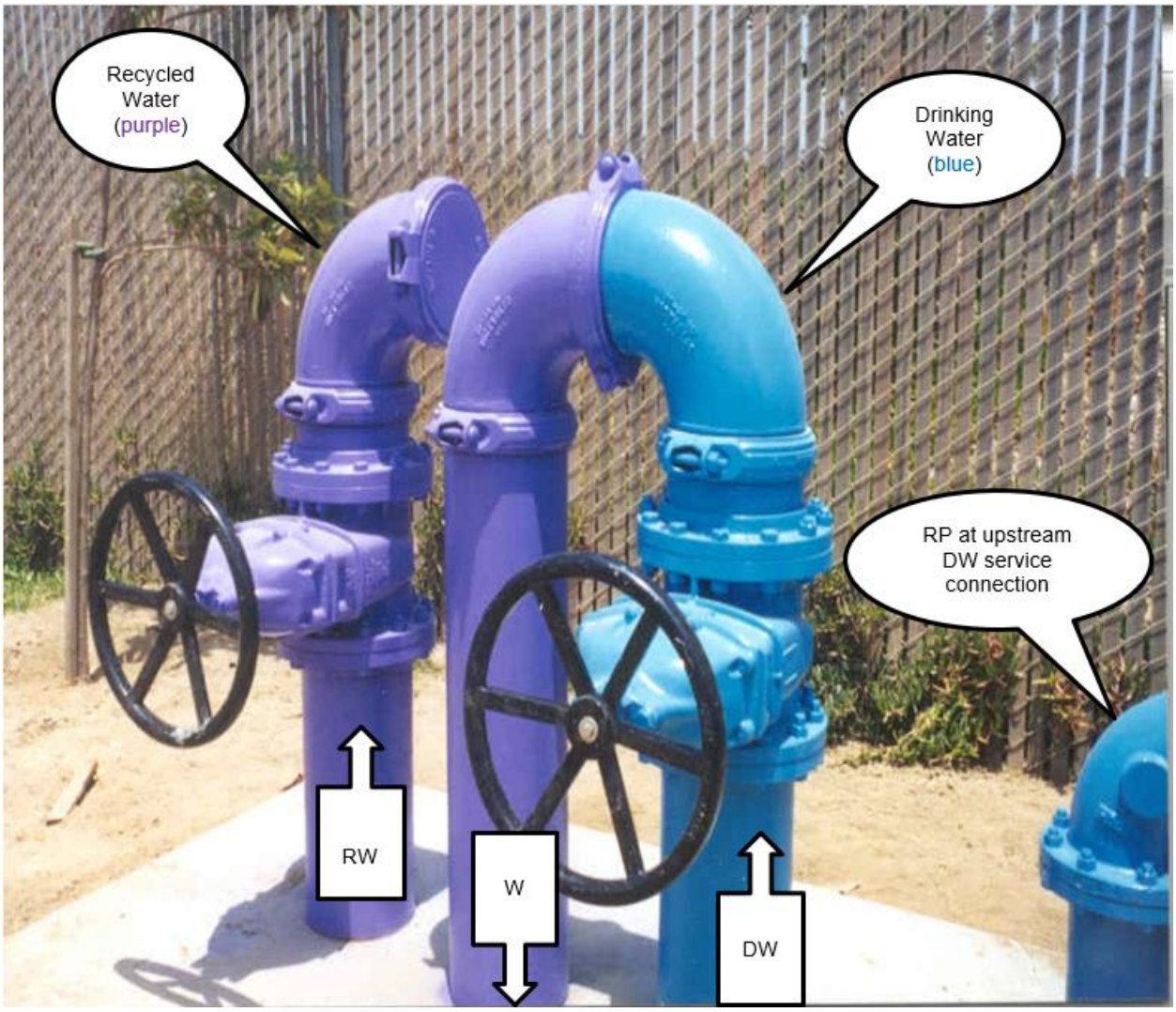
F. The swivel-ell must:

1. be located above ground;
2. be color-coded pursuant to section 116815 of the CHSC and its implementing regulations;
3. include appropriate signage, as required by regulation and the State Water Board;
4. be provided the security necessary to prevent interconnections, vandalism, unauthorized entry, etc.; and
5. be provided with meters on both the recycled water service and drinking water service connections.

Legend for Diagram 9a and 9b (also see next page)

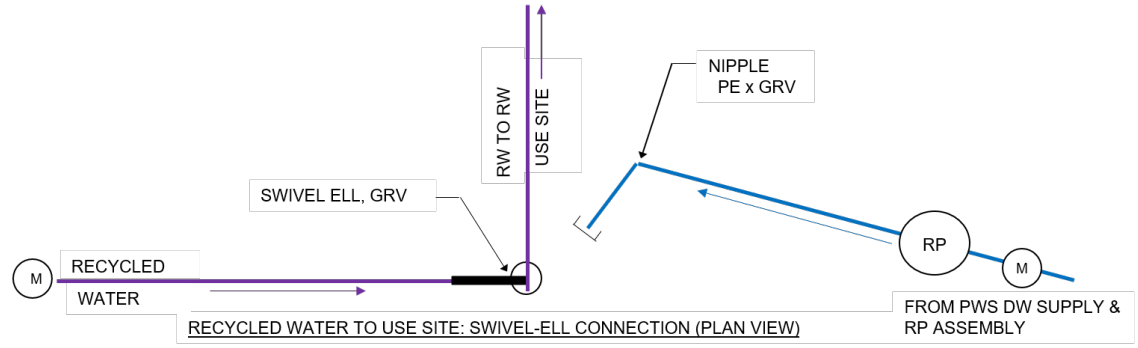
RP = Reduced pressure principle backflow prevention assembly
RW = Tertiary-treated recycled water originating from wastewater treatment facility
DW = Drinking water originating from a public water system
W = Water (tertiary recycled water **or** drinking water) to use site. As pictured, configured for supplemental drinking water to the use site.
M = Meter (*next page*)
PE = Plain End (*next page*)
GRV = Groove (*next page*)
PWS = Public Water System (*next page*)

Diagram 9a: Example Swivel-Ell Pictorial (also see Plan View Schematics)

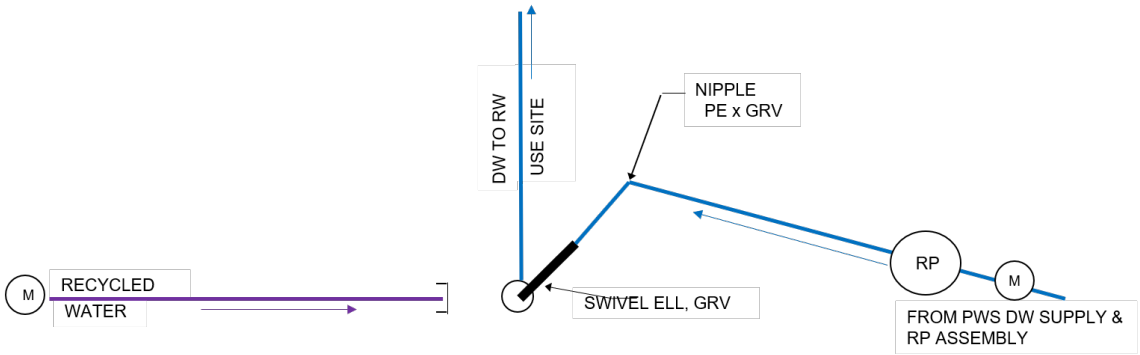


Note: The RP, a required component of an acceptable swivel-ell, is not shown in the picture.

Diagram 9b: Swivel-Ell Typical Plan View Schematics
(not intended to be an exact portrayal of the pictorial)



RECYCLED WATER TO USE SITE: SWIVEL-ELL CONNECTION (PLAN VIEW)



POTABLE WATER TO USE SITE: SWIVEL-ELL CONNECTION (PLAN VIEW)

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Appendix D

High Hazard Premises

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APPENDIX D

HIGH HAZARD CROSS-CONNECTION CONTROL PREMISES

The list below identifies premises that require backflow protection provided by an air gap or a reduced pressure principle backflow prevention assembly, unless noted otherwise. The list below is not intended to be all-inclusive. A PWS, State Water Board, or local health agency may require an AG, RP, or both to protect a PWS from other hazards not listed below and identified in premises through the hazard assessment completed in CCCPH Chapter 3, section 3.2.1. A PWS may reduce or increase the minimum protection required for a previously hazard-assessed user premise following a hazard reassessment as described in CCCPH Chapter 3, section 3.2.1.

1. Sewage handling facilities
2. Wastewater lift stations and pumping stations
3. Wastewater treatment processes, handling, or pumping equipment that is interconnected to a piping system connected to a PWS (+)
4. Petroleum processing or storage plants
5. Radioactive material storage, processing plants or nuclear reactors
6. Mortuaries
7. Cemeteries
8. Sites with an auxiliary water supply interconnected with PWS (+)
9. Sites with an auxiliary water supply not interconnected with PWS
10. Premises with more than one connection to the PWS (++++)
11. Recycled water (++)(+++)
12. Recycled water interconnected to piping system that contains water received from a PWS (+)
13. Graywater systems, as defined in California Water Code Section 14876, that are interconnected to a piping system that is connected to a PWS
14. Medical facilities
15. Kidney dialysis facilities
16. Dental office with water-connected equipment
17. Veterinarian facilities
18. Chemical plants
19. Laboratories
20. Biotech facilities
21. Electronics manufacture
22. Dry cleaner facilities
23. Industrial or commercial laundry facilities
24. Metal-plating facilities
25. Business park with a single meter serving multiple businesses
26. Marine-port facilities
27. Car wash facilities
28. Mobile home park, RV park, or campgrounds with RV hookups

29. Hotels/motels
30. Gas stations
31. Fire stations
32. Solid waste disposal facilities
33. Pet groomers
34. Agricultural premises
35. Hazard assessment access denied or restricted
36. Railroad maintenance facilities
37. Incarceration facilities (e.g. prisons)
38. Temporary connections to fire hydrants for miscellaneous uses, including construction
39. Private water distribution mains
40. Drinking water storage tank overflow connected to a sump or storm drain (+)
41. Airports

(+) Premise isolated by air gap only except as allowed through CCCPH Section 3.2.2(c)

(++) Dual-plumbed use areas established per CCR Title 22, Section 60313 through 60316.

(+++) Residences using recycled water for landscape irrigation as part of an approved dual plumbed use area established pursuant to CCR Title 22, sections 60313 through 60316 shall use, at a minimum, a DC. If the water supplier is also the supplier of the recycled water, then the recycled water supplier may obtain approval of the local public water supplier or the State Water Board, to utilize an alternative backflow protection plan that includes an annual inspection of both the recycled water and potable water systems and an annual cross-connection test of the recycled water and potable water systems pursuant to subsection 60316(a) in lieu of any BPA.

(++++) All connections must receive at least the same level of protection excluding fire protection when connected to the PWS distribution system (e.g. if one connection requires an RP then all connections must have RPs installed).

Appendix E

General Range of Knowledge for Cross-Connection Control Specialists

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APPENDIX E

General Range of Knowledge for Cross-Connection Control Specialists

To effectively prevent unintended backflow into a PWS's distribution system, it is necessary for a cross-connection control specialist to have an understanding of a range of subjects related to cross-connection control. This appendix provides a list of such subjects.

This appendix is not meant to preclude instruction of additional subjects that may be necessary or beneficial to the goal of a prospective or existing cross-connection control specialist in being proficient in protecting public health from backflow through cross-connection control measures. Emphasis on particular subjects should be in a manner that best achieves that goal.

(a) GENERAL

(1) Cross-connection control terminology.
(2) The history leading to the need for cross-connection control, including causes, impacts, including but not limited to:

(A) potable water distribution systems;
(B) examples of backflow incidents and actual or potential public health impacts; and
(C) evolution of methods of cross-connection control and backflow prevention assemblies.

(3) Hydraulics (general) – An understanding of hydraulic gradients, pressure variations, flow rates, temperature, the properties of water, backsiphonage, backpressure, and other elements necessary to understand the causes for backflow.
(4) Public outreach – How to appropriately convey the value of cross-connection control to PWS personnel and the public.

(b) LAWS, REGULATIONS, AND GUIDANCE

(1) Federal – Applicable federal laws, regulations, and guidance.
(2) State – California laws and regulations, including, but not limited to, the State Water Resources Control Board's most recent edition of its *Cross-Connection Control Policy Handbook* and other requirements related to cross-connection control.
(3) Local – An understanding of the need to ensure local requirements are considered and how best to find such requirements.

(c) HAZARD ASSESSMENTS AND METHODS TO PREVENT BACKFLOW

A comprehensive understanding of how to conduct cross-connection surveys of water systems for the purpose of identifying cross-connections, assessing hazards, and identifying the most effective and legally appropriate methods for protection from backflow. At a minimum, the following topics should be considered to achieve such an understanding:

(1) Surveys:

(A) Preparation (e.g., authority, notification, prioritizing customers/premises, coordinating with public water systems, etc.);
(B) Design and as-built drawings related to water supply and cross-connection control;
(C) Public water system schematics;
(D) How to identify existing and new construction, with an understanding of how construction may impact backflow protection;
(E) How to identify cross-connections (actual and potential);
(F) How to identify and differentiate between high hazard and low hazard cross-connections; and
(G) Problems associated with multi-story buildings, multiple service connections at a premises, typical water-use equipment, etc., and varying types of water service, including irrigation, recycled water, gray water, fire prevention systems, and dual plumbed premises.

(2) Assessing Hazards:

(A) Identifying and differentiating between premises activities leading to high hazard cross-connections and low hazard cross-connections (for examples of high hazard activities, see Appendix D); and
(B) Understanding potential public health impacts from backflow associated with the problems in section (c)(1)(G) of this appendix.

(3) Assemblies and Methods for Backflow Prevention:

(A) A comprehensive understanding of approved methods for cross-connection control and preventing backflow with respect to an assessed hazard;
(B) Identifying unapproved methods for cross-connection control and preventing backflow;
(C) An understanding of components, design and operation, proper installation and location of backflow prevention assemblies, including air gaps, and backflow prevention assembly field test methods, field test results, and the assessment of air gaps; and
(D) Identifying unapproved assemblies, as well as those assemblies whose operation and/or state of repair necessitates replacement with an approved assembly.

(d) CROSS-CONNECTION CONTROL PROGRAMS

A comprehensive understanding of the development, elements, and administration of cross-connection control programs, including, but not limited to:

(1) An ability to assess the federal, state, and local requirements applicable to a public water system's cross-connection control program, such that adherence to the cross-connection control program would result in compliance with the requirements;
(2) The roles, responsibilities, and authority of individuals and entities involved in the critical elements of a successful plan for cross-connection control (see CCCPH section 3.1.4); and
(3) The ability to assess the components of a public water system's Cross-Connection Control Plan (see CCCPH section 3.1.4) that best assures the prevention of undesired backflow into the public water system's distribution system, and to communicate deficiencies to public water system personnel.

(e) CROSS-CONNECTION TESTS

A comprehensive understanding of:

(1) The purpose of a cross-connection test and when a cross-connection test should be performed;
(2) The ability to develop protocols and make arrangements for cross-connection tests, and subsequently oversee and/or perform such cross-connection tests, in a manner that determines whether interconnections exist between unapproved sources and approved water supplies; and
(3) Follow-up actions and notifications if a cross-connection test indicates an interconnection.

(f) RECORDKEEPING AND INCIDENT RESPONSE

A comprehensive understanding of:

(1) The agencies and authorities to be notified in the event of a backflow incident;
(2) How to determine the cause of a backflow incident and the actions necessary to prevent similar incidents in the future;
(3) How to properly document a backflow incident, including but not limited to the information in the example backflow incident response form in Appendix F; and
(4) How to properly document the elements associated with surveys and hazard assessments, including those identified in section (c) of this appendix.

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Appendix F

Example Backflow Incident Reporting Form

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BACKFLOW INCIDENT REPORT FORM

Water System: _____

Water System Number: _____

Incident Date: _____

Incident Time (if known):_____

Incident Location: _____

How was the incident discovered?

_____

<u>Backflow Originated from:</u>

Premise Location: _____

Address: _____

Premise Contact Person: _____ Title:_____

Phone:_____ Email: _____

Connection Type: (please check one)

□ Industrial □ Commercial □ Single-Family Residential □ Multi-Family Residential

□ Irrigation □ Recycled Water □ Water System Facility

□ Other: _____

Description and source of backflow substance (please be as descriptive as possible):

_____

_____

If available, please attach an MSDS or other chemical description form

Was the backflow fluid contained within the user side? YES □ NO □

Estimated Number of Affected Persons: _____

Number and description of consumer complaints received:

_____

_____

Did any consumers report illness? Please describe.

_____

_____

If applicable, please describe the consumer notification:

_____

_____

INVESTIGATION

Please describe the water system investigation including time frames:

_____
_____
_____
_____
_____
_____

What was the area system pressure? _____

Is this within typical range: YES ☐ NO ☐ - typical pressure: _____

Was a sample of the water contaminated by the backflow incident collected and stored before flushing? YES ☐ NO ☐

Please describe all sampling:

_____

_____

_____

DDW recommends laboratory or field sampling for the following parameters: total coliform, E. coli, free and total chlorine residual, pH, odor, turbidity, temperature, and color. Additional sampling should be collected at the PWS and regulatory agency's discretion.

CORRECTIVE ACTIONS

Please describe the corrective actions taken by the water system:

_____
_____
_____
_____
_____
_____

Was the chlorine residual increased after discovery of backflow incident? YES ☐ NO ☐

Date of the last cross-connection control hazard assessment of the premise with the backflow incident conducted: _____

Did the premise have backflow prevention assemblies? YES ☐ NO ☐

Date of most recent backflow prevention assembly test(s): _____

When was the Division of Drinking Water or Local County Health office notified?

Date: _____Time: _____ Contact Person: _____

Was the Division or Local County Health notified within 24 hours? YES ☐ NO ☐

Other agencies or organizations contacted?

CERTIFICATION

Name: _____ Job Title: _____

Certification(s): _____

_____

Please list all cross-connection control related certifications including number and expiration date

I certify that the forgoing information is true and correct to the best of my ability.

Signature: _____ Date: _____

Attach the following applicable documentation

1. Laboratory Test Results
2. Sketch of the cross-connection and modifications
3. MSDS or chemical information forms if chemical hazard is known
4. Applicable backflow assembly test reports including the most recent test before the incident
5. Other relevant supporting documentation

Appendix G

Related Statutes and Regulations

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The following laws and regulations are considered related or tangential to the CCCPH, and are included in a descriptive format to provide additional, relevant background information

California Laws and Regulations

In addition to the California SDWA statutory requirements cited in CCCPH Chapter 1, section 1.3.1, California has statutes addressing certain authorities and requirements that may have influenced the CCCPH or may otherwise be of interest.

- Urban and community water systems must have a written policy on discontinuation of residential service for nonpayment and must not discontinue residential service for nonpayment if certain conditions are met. (CHSC sections 116900 – 116926)

- Senate Bill 1263 (2017) requires that before a person submits an application for a permit for a proposed new public water system, the person shall first submit a preliminary technical report which must include a cost comparison of a new public water system and consolidations with an existing system. (CHSC section 116527)

- Effective June 24, 2015, Senate Bill 88 (SB 88) (Statutes 2015, Chapter 27) added sections 116680-116684 to the CHSC, allowing the State Water Board to require certain water systems that consistently fail to provide safe drinking water to consolidate with, or receive an extension of service from, another public water system. The consolidation can be physical or managerial.

- Local health officers may maintain programs for the control of cross-connections by water users, within water users' premises, where public exposure to backflow may occur. Such programs may include water user premises inspections, collection of fees, certification of backflow prevention assembly[1] (BPA) testers, and other discretionary elements. Local health officer BPA tester certification standards must be consistent with the standards prescribed in the CCCPH. Water users are required to comply with all orders, instructions, regulations, and notices from the local health officer regarding installation, testing, and maintenance of a BPA. (CHSC sections 116800 - 116820).

- Pursuant to the California Building Standards Law (CHSC sections 18901 - 18949.31), the California Building Standards Commission (CBSC) must administer the processes related to the adoption, approval, and publication of regulations referred to as the California Building Standards Code (Title 24, California Code of Regulation). Title 24 serves as the basis for the minimum design and construction

[1] California statutes use a variety of terms when referencing a 'backflow prevention assembly' (e.g., backflow protective device, backflow protection equipment, backflow prevention device, backflow or back siphonage protection device, backflow preventer, or backflow device). For consistency with industry terminology, 'backflow prevention assembly' is used in the CCCPH, unless directly quoted otherwise.

of buildings in California and includes the California Plumbing Code (Part 5 of Title 24), which contains requirements pertaining to cross-connection control and backflow prevention.

- A BPA intended to convey or dispense water for human consumption via drinking or cooking must meet California's "lead free" requirements. (CHSC section 116875)

- Limits are established for the installation of backflow protection equipment where automatic fire sprinkler systems are utilized. (CHSC section 13114.7)[2]

- Cross-connection control must be addressed in engineering reports that are required (CCR Title 22, section 60323) for recycled water projects. (Wat. Code section 13552.8)

- If a public agency requires the use of recycled water for toilet and urinal flushing in a structure (except certain mental health facilities), the public health agency must prepare an engineering report that addresses cross-connection control. (Wat. Code section 13554)

- Prior to indoor use of recycled water in a condominium project, the entity delivering the recycled water must submit a report, for State Water Board[3] approval, and include the following related to cross-connection control (Wat. Code section 13553(d)(1)):

    - The condominium project must be provided with a backflow prevention assembly approved by the State Water Board.

    - The backflow prevention assembly must be inspected and tested annually by a certified tester.

    - The condominium project must be tested by the recycled water agency or local agency at least once every four years for indications of possible cross-connections between the condominium's potable and non-potable systems.

- California's Department of Water Resources was required to convene a task force, known as the 2002 Recycled Water Task Force, to identify constraints, impediments, and opportunities for the increased use of recycled water and report

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[2] CHSC section 13114.7 historically provided potential limits for backflow prevention assemblies on fire sprinklers. Even though current standards differ from the language stated in CHSC section 13114.7, it is still being provided as a historical reference as there may still be installations with the now outdated limits established in section 13114.7

[3] The California Department of Public Health's authority and responsibility pertaining to this reference was transferred to the State Water Board via Senate Bill 861 (2014, Chapter 35). As such, applicable statutory mandates that may refer to "California Department of Public Health" or "Department" may be referred to as "State Water Board" in this document.

to the Legislature by July 1, 2003. The task force was also asked to advise and make recommendations concerning cross-connection control, including the applicability of visual inspections instead of pressure tests for cross-connections between potable and non-potable water systems. (Wat. Code section 13578(b)(1). The final report[4] provided the following recommendations to the State Water Board – Division of Drinking Water (Division):

- ▫ Prepare guidance on dual plumbed regulations (22 CCR sections 60313-60316) consistent with Appendix J of plumbing code (Chapter 15 of 2019 California Plumbing Code, formerly Chapter 16A).
- ▫ Support thorough assessment of risk associated with cross-connections between disinfection tertiary recycled water and potable water.
- ▫ Ensure uniform interpretation of cross-connection control requirement of Title 22 regulations (recycled water) and Title 17 (cross-connection control regulations)
- ▫ Recommend stakeholders to review draft Title 17 regulations.

▪ A person engaged in the salvage, purchase, or sale of scrap metal who knowingly possesses a backflow prevention assembly (or connections to the assembly or any part of the assembly), or who failed to report the possession of such items, which was previously owned by a utility or public agency, is guilty of a crime. (Pen. Code section 496e)

▪ Junk dealers or recyclers who possess a backflow prevention assembly (or connections to that assembly or any part of the assembly) without a written certification from the agency or utility owning or previously owning the assembly will be liable to the agency or utility for the wrongful possession. (Civ. Code section 3336.5 and, similarly, Bus. & Prof. Code section 21609.1)

Please note that a number of the codes, regulations, and statutes cited above are implemented under the authority of regulatory entities other than the State Water Board and would therefore be beyond the scope of this CCCPH. The intent of providing such citations is to increase general awareness with respect to other potential statutory requirements associated with cross-connection control. The list is not exhaustive and does not include other requirements that may exist, including those via regulations that may have been adopted by an appropriate regulatory entity.

Federal Laws and Regulations

[4] California Department of Water Resources. (2003). *Water Recycling 2030: Recommendations of California's Recycled Water Task Force*

All suppliers of domestic water to the public are subject to regulations adopted by the U.S. Environmental Protection Agency (EPA) under the U.S. Safe Drinking Water Act (SDWA) of 1974, as amended (42 U.S.C. section 300f et seq.), as well as by the State Board under the California SDWA (Health & Saf. Code, div. 104, pt. 12, ch. 4, section 116270 et seq.). Additionally, the State Water Board has been delegated primacy - the responsibility and authority to administer U.S. EPA's drinking water regulations within California – on the condition that California adopt enforceable requirements no less stringent than U.S. EPA's.

The U.S. EPA currently has no distinct cross-connection control requirements that apply broadly to public water systems (PWS); however, the importance of cross-connection control is evident by the issue papers and guidance documents developed by U.S. EPA and their recognition that cross-connections and backflow represent a significant public health risk (see discussion in Chapter 2). Although U.S. EPA currently has no distinct cross-connection control requirements, the subject of cross-connection or backflow prevention assemblies is included in the U.S. SDWA and the Code of Federal Regulations (C.F.R.) in relation to PWS, including the following:[5]

- If used exclusively for non-potable services, a backflow prevention assembly (BPA) is exempt from the federal lead prohibitions. (42, U.S.C. section 300g)
- Allows increasing disinfectant concentrations in a PWS distribution system in the event of a cross-connection (backflow) event. (40 C.F.R. section 141.130(d))
- Proper maintenance of the distribution system, including cross-connection control, is identified as a best available technology (BAT) for microbial contaminant control. (40 C.F.R. section 141.63(e))
- Under the federal Revised Total Coliform Rule, a PWS having a cross-connection control program is one of the enhancements necessary to reduce monitoring for a PWS that had been under an increased monitoring frequency. (40 C.F.R. section 141.854(h)(2))
- Under the federal Revised Total Coliform Rule, a PWS having a cross-connection control program is a criterion for a state to allow a reduced monitoring frequency (40 C.F.R. section 141.855(d)(1))
- If a state allows the monitoring frequency reductions previously mentioned under the federal Revised Total Coliform Rule, a state is required to include in its primacy package to U.S. EPA how a PWS will be required to demonstrate cross-connection control. (40 C.F.R. section 142.16(q))

[5] For requirements unrelated to cross-connection control, please consult California's laws and regulations specific to the topic of interest. California may have more stringent requirements (e.g., reduced monitoring allowed via federal regulations may be prohibited in California).

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**Appointment of District Staff Representative and Alternates**
Status:	Action Item
Report Date:	June 13, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Consider staff appointment(s) to serve as District representative(s) for Regional Water Authority (RWA) and the Sacramento Water Forum.

BACKGROUND AND ANALYSIS:

Appointment of Representatives
Pursuant to District practice, each December or as otherwise necessary, the Board of Directors has appointed its Members, Officers, or staff to serve as District representatives and/or alternates to various organizations.

Staff recommends that newly promoted Director of Operations, Todd Jordan be appointed as the RWA staff alternate, and the staff representative for the Sacramento Water Forum.

RECOMMENDATION:
Appoint and/or reappoint Representatives and Alternates to the following organizations listed below:

Organization		Representative	Alternate
Association of California Water Agencies Joint Powers Insurance Authority (ACWA/JPIA)	Director	David C. Wheaton	Raymond A. Riehle
	Staff	Brittney Moore	Kayleigh Shepard
Association of California Water Agencies (ACWA) Region 4		Raymond A. Riehle	David C. Wheaton

Organization		Representative	Alternate
Citrus Heights Regional Chamber of Commerce Government Issues Committee		Mary Elise Conzelmann	Public Affairs Staff
San Juan Family of Agencies	Director	Raymond A. Riehle	Caryl F. Sheehan
	Staff	Hilary M. Straus	General Manager Appointee Based on Issue
Regional Water Authority (RWA)	Director	David C. Wheaton	Raymond A. Riehle
	Staff	Hilary M. Straus	Todd Jordan
Sacramento Groundwater Authority (SGA)*		Caryl F. Sheehan	Raymond A. Riehle
Sacramento Water Forum		Todd Jordan	Jace Nunes
*Changes must be confirmed by City of Citrus Heights			

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**CONSIDER ADOPTING RESOLUTION NO. 12-2025 IN SUPPORT OF ERNESTO AVILA FOR THE POSITION OF ACWA PRESIDENT**
Status:	Discussion and Action Item
Report Date:	June 18, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Consider adopting Resolution No. 12-2025 in support of Ernesto Avila for the position of Association of California Water Agencies (ACWA) President.

BACKGROUND AND ANALYSIS:
On June 17, 2025, the Citrus Heights Water District (CHWD) received correspondence from Ernesto Avila requesting consideration of CHWD's endorsement for his candidacy as President of ACWA for the 2026–2027 term. In response to this correspondence and at the request of Director Wheaton, this item has been added to the June 24, 2025, regular Board meeting agenda for potential action by the CHWD Board of Directors.

Mr. Avila currently serves as the ACWA Vice President and has demonstrated a distinguished record of leadership and service in the water industry over a career spanning more than four decades. He is a licensed civil engineer with extensive experience across public, private, and nonprofit sectors of the water industry. His notable roles include President of the Contra Costa Water District (CCWD) Board of Directors, Director of Engineering at CCWD, General Manager of the Monterey Peninsula Water Management District, and Executive Director of the California Urban Water Agencies.

Mr. Avila's ACWA service includes:

- Vice President and member of the Executive Committee of the ACWA Board of Directors
- Chair of the ACWA Strategic Plan Task Force, leading the development of the 2025–2029 Strategic Plan focusing on Advocacy, Connections, Education, and Organizational Effectiveness
- Chair of the Local Government Committee and active participation in the Federal Affairs Committee and multiple working groups

- Executive Committee member of the ACWA Joint Powers Insurance Authority (ACWA JPIA or JPIA)
- Long-standing engagement in Region 5 representation and ACWA Foundation fundraising efforts

Mr. Avila's career reflects a consistent focus on advancing water reliability, infrastructure investment, and water policy advocacy.

His contributions have been recognized with several accolades, including the 2023 "Salt of the Earth" Award from the Multi-State Salinity Coalition, highlighting his leadership and dedication to water resource innovation and management.

Mr. Avila's candidacy is being supported by Contra Costa Water District, which adopted Resolution No. 25-009 on April 16, 2025, formally nominating him for ACWA President and expressing confidence in his qualifications and leadership.

CHWD staff recommends that the Board of Directors consider adopting a resolution in support of Mr. Avila's candidacy for the office of ACWA President.

RECOMMENDATION:
Adopt Resolution No. 12-2025 in support of Ernesto Avila for the position of Association of California Water Agencies (ACWA) President.

ATTACHMENT:
Resolution No. 12-2025 in support of Ernesto Avila for the position of Association of California Water Agencies (ACWA) President.

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

CITRUS HEIGHTS WATER DISTRICT
RESOLUTION NO. 12-2025

RESOLUTION OF THE BOARD OF DIRECTORS
OF CITRUS HEIGHTS WATER DISTRICT
IN SUPPORT OF THE NOMINATION OF
ERNESTO A. AVILA, AS A CANDIDATE FOR THE POSITION OF THE
ASSOCIATION OF CALIFORNIA WATER AGENCIES PRESIDENT

WHEREAS, the Election Committee has announced a call for nominations of candidates for the election of President and Vice President of the Association for the 2026-'27 term; and

WHEREAS, the Election Committee will present an open ballot with all qualifying candidates to the members for a vote by written ballot; and

WHEREAS, the individual who fills an officer position will need to have a working knowledge of water industry issues and concerns, possess strength of character and leadership capabilities, and be experienced in matters related to the performance of the duties of the office; and

WHEREAS, this person must be able to provide the dedication of time and energy to effectively serve in this capacity; and

WHEREAS, Ernesto A. Avila has served in a leadership role as a member of the Contra Costa Water District (CCWD) Board of Directors since 2016, and was selected to serve as President of the CCWD Board in May 2022; and

WHEREAS, Mr. Avila has served as a Professional Civil Engineer, Construction Manager with CH2M Hill, Associate Engineer with East Bay Municipal Water District, Director of Engineering at CCWD, General Manager of Monterey Peninsula Water Management District and is currently Principal/Vice-President of Avila and Associates Consulting Engineers, Inc. He also served as Executive Director for the California Urban Water Agencies, Program Director of the Multi-State Salinity Coalition, and CCWD Los Vaqueros Reservoir Joint Powers Authority Director;

WHEREAS, Mr. Avila currently serves as the ACWA Vice President and on the ACWA Joint Powers Insurance Authority (JPIA) Executive Committee for the 2024-2025 term; and

WHEREAS**,** Mr. Avila has served on several ACWA Committees such as Executive, Local Government (Chair) and Federal Affairs Committees; served as an ACWA Region 5 Board member and actively participates in the following ACWA committees and Boards: Finance Committee, State Legislative Committee, Paving Standards Subcommittee, City and County Planning Nexus Subcommittee, ACWA Strategic Plan Task Force, and Foundation Board of Trustees; and

WHEREAS, it is the opinion of the Citrus Heights Water District Board of Directors that Ernesto A. Avila possesses all of the qualities needed to fulfill the duties of the office of ACWA President.
NOW, THEREFORE, BE IT RESOLVED, that the Citrus Heights Water District Board of Directors supports Ernesto A. Avila for nomination as a candidate for the office of ACWA President.

PASSED AND ADOPTED by the Board of Directors of the CITRUS HEIGHTS WATER DISTRICT this 24th day of June 2025 by the following vote, to-wit:

AYES: Directors:
NOES: Directors:
ABSTAIN: Directors:
ABSENT: Directors:

RAYMOND A. RIEHLE, President
Board of Directors
Citrus Heights Water District

SEAL

BRITTNEY C. MOORE, Chief Board Clerk
Citrus Heights Water District

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**2025 PUBLIC HEALTH GOALS REPORT**
Status:	Action Item
Report Date:	May 21, 2025
Prepared By:	Brian Hensley, Water Resources Supervisor Rebecca Scott, Director of Operations

OBJECTIVE:
Discussion and Possible Action to adopt the water quality Public Health Goals (PHG) Report.

BACKGROUND AND ANALYSIS:
Provisions of the California Health and Safety Code (Attachment No. 1) specify that water utilities with more than 10,000 service connections prepare a special report by July 1, 2016, and every three years thereafter, that gives information on the detection of any constituents above the Public Health Goals (PHGs). PHGs are non-enforceable goals established by the California Environmental Protection Agency (Cal-EPA's) Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the Maximum Contaminant Level Goals (MCLGs) adopted by U.S. Environmental Protection Agency (U.S. EPA). Only constituents which have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed.

Attached is a table of all detected regulated constituents with the Maximum Contaminant Levels (MCLs) and PHGs or MCLGs (Attachment 2) along with Section 116470 of the California Health and Safety Code (Attachment 1).

MCLs are enforceable regulatory standards to which all public water systems in the state must adhere. Conversely, PHGs and MCLGs are non-enforceable health-based goals that do not consider the limits of detection and available treatment technologies. As such, many PHGs and MCLGs are set at a level that water systems cannot meet. Accurate cost estimates are difficult, if not impossible, and are highly speculative and theoretical. Therefore, they have limited value and may not warrant significant investment of agency time and money.

The PHG Report is unique to California. It is required in addition to the extensive public reporting of water quality in the federally mandated annual Consumer Confidence Report.

Public notice for this Hearing was posted in the Citrus Heights Messenger.

A copy of the District's PHG Report prepared on May 21, 2025, is attached.

RECOMMENDATIONS:

1. Hold a public hearing and receive comments on the draft water quality Public Health Goals Report.
2. Adopt the 2025 Public Health Goals Report

ATTACHMENTS:

1. 2025 Public Health Goals Report
2. Excerpt from California Health & Safety Code: Section 116470 (b)
3. Table of Regulated Constituents with MCLs, PHGs or MCLGs
4. Cost Estimates for Treatment Technologies

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

ATTACHMENT 1

2025 Public Health Goals Report

CITRUS HEIGHTS WATER DISTRICT
2025 REPORT ON SOURCE WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS

Background:

Provisions of the California Health and Safety Code (Attachment No. 1) specify that larger (>10,000 service connections) water utilities prepare a special report by July 1, 2025, if their water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the MCLGs adopted by USEPA. Only constituents which have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed.

There are a few constituents that are routinely detected in water systems at levels usually well below the drinking water standards for which no PHG has been adopted by OEHHA or USEPA including Total Trihalomethanes. These will be addressed in a future report after a PHG has been adopted.

The law specifies what information is to be provided in the report. If a constituent was detected in the District's water supply for years 2022 - 2024 at a level exceeding an applicable PHG or MCLG, this report provides the information required by the law. Included are the numerical public health risk associated with the MCL and the PHG or MCLG, the category or type of risk to health that could be associated with each constituent, the best treatment technology available that could be used to reduce the constituent level, and an estimate of the cost to install that treatment if it is appropriate and feasible.

What Are PHGs?

PHGs are set by the California Office of Environmental Health Hazard Assessment (OEHHA) which is part of Cal-EPA and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the USEPA or the California Division of Drinking Water in setting drinking water standards (MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, benefits, and costs. The PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent of PHGs.

Water Quality Data Considered:

All of the water quality data collected by our water system for years 2022 - 2024 for purposes of determining compliance with drinking water standards was considered. This data was all summarized in our 2022, 2023, and 2024 Consumer Confidence Reports which were mailed to all of our customers by June of each year.

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a workgroup that prepared guidelines for water utilities to use in preparing these newly required reports. The ACWA guidelines were used in the preparation of our report. No guidance was available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and DDW adopt what are known as BATs or Best Available Technologies which are the best-known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible or feasible

to determine what treatment is needed to further reduce a constituent downward to or near the PHG or MCLG, many of which are set at zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible because it is not possible to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

Treatment cost estimates for constituents listed are derived from the "Cost Estimates for Treatment Technologies" (included as Attachment 3) that were included as part of the ACWA guidance. The estimates for specific treatment technologies do not include other factors such as permitting and waste disposal. Furthermore, before any treatment system is approved by DDW, the District is required to conduct a California Environmental Quality Act (also known as CEQA) review to assess potential environmental impacts that may be related to the project. The results of that assessment could add significant costs to mitigate potential concerns or could preclude using a specific treatment technology altogether. Waste disposal costs associated with various treatment technologies vary widely. Some waste disposal costs are known and can be estimated as part of the routine operations and maintenance of the system. Others requiring direct discharge to the sanitary sewer or hauling of potentially hazardous waste would have to be determined on a case-by-case basis.

Constituents Detected That Exceed a PHG or a MCLG:

The following is a discussion of constituents that were detected in one or more of our drinking water sources at levels above the PHG, or if no PHG, above the MCLG.

Arsenic is a naturally occurring element found throughout the earth's crust.

The PHG for arsenic is 0.004 ug/L and the MCL is 10 ug/L. Low levels of arsenic have been found in one of CHWD's groundwater sources with the level being 2.1 ug/L in 2022. This level is below the MCL, therefore no action is proposed.

The health risk category associated with arsenic is carcinogenicity. The numerical health risk for carcinogenicity at the 10 ug/L MCL is 2.5 $x10^3$ (2.5 per 1,000) and $1x10^6$ (1 per 1 million) at the 0.004 ug/L PHG. This means that for every million people who drink two liters of water at the 0.004 ug/L PHG level of Arsenic daily for 70 years, no more than one person would be expected to develop cancer from exposure to Arsenic.

The BATs for arsenic removal at the 95% level are reverse osmosis, ion exchange, activated alumina, and modified coagulation and filtration. The most effective BAT for arsenic removal in groundwater is ion exchange which would increase treatment costs significantly. The cost estimates for ion exchange range from $2.19 to $9.16 per 1,000 gallons of water treated. The annualized capital and operation and maintenance (O&M) costs could range from approximately $490,025 per year or $24 per customer to $2,049,605 per year or $100 per customer.

Hexavalent Chromium is a naturally occurring element found throughout the earth's crust.

The PHG for Hexavalent Chromium is 0.02 ug/L and the MCL is 10 ug/L. Low levels of Hexavalent Chromium have been found in CHWD's groundwater sources with levels ranging between 1.6 - 3 ug/L in 2022. These levels are below the MCL, therefore no action is proposed.

The health risk category associated with Hexavalent Chromium is carcinogenicity. The numerical health risk for carcinogenicity at the 10 ug/L MCL is 5 $x10^4$ (5 per 10,000) and $1x10^6$ (1 per 1 million) at the 0.02 ug/L PHG. This means that for every million people who drink two liters of water at the 0.02 ug/L PHG level of Arsenic daily for 70 years, no more than one person would be expected to develop cancer from exposure to Hexavalent Chromium.

The BATs for Hexavalent Chromium removal at the 95% level are ion exchange, reverse osmosis, and RCF (reduction, coagulation and filtration). The most effective BAT for Hexavalent Chromium removal in groundwater is ion exchange which would increase treatment costs significantly. The cost estimates for ion exchange range from $2.19 to $9.16 per 1,000 gallons of water treated. The annualized capital and operation and maintenance (O&M) costs

could range from approximately $490,025 per year or $24 per customer to $2,049,605 per year or $100 per customer.

Uranium is a naturally occurring radioactive element that is ubiquitous in the earth's crust.

The PHG for Uranium is 0.43 pCi/L and the MCL is 20 pCi/L. Low levels of Uranium have been found in one of CHWD's groundwater sources with a level of 1.7 pCi/L in 2022. These levels are below the MCL, therefore no action is proposed.

The health risk category associated with Uranium is carcinogenicity. The numerical health risk for carcinogenicity at the 20 pCi/L MCL is 5 $x10^5$ (5 per 100,000) and $1x10^6$ (1 per 1 million) at the 0.43 pCi/L PHG. This means that for every million people who drink two liters of water at the 0.43 pCi/L PHG level of Arsenic daily for 70 years, no more than one person would be expected to develop cancer from exposure to Uranium.

The BATs for Uranium removal at the 95% level are ion exchange, reverse osmosis, and enhanced coagulation and filtration. The most effective BAT for Uranium removal in groundwater is ion exchange which would increase treatment costs significantly. The cost estimates for ion exchange range from $2.19 to $9.16 per 1,000 gallons of water treated. The annualized capital and operation and maintenance (O&M) costs could range from approximately $490,025 per year or $24 per customer to $2,049,605 per year or $100 per customer.

Perchlorate is a ubiquitous environmental contaminant.

The PHG for Perchlorate is 1 ug/L and the MCL is 6 ug/L. Low levels of Perchlorate have been found in one of CHWD's groundwater sources with a level of 2.6 ug/L in 2022 and 1.3 ug/L in 2023. These levels are below the MCL, therefore no action is proposed.

The health risk category associated with Perchlorate is endocrine toxicity. PHGs for noncarcinogens are based on levels estimated to be without risk of any adverse effects for exposures up to a lifetime, to the general population as well as any significant identifiable sensitive subpopulations.

The BATs for Perchlorate removal at the 95% level are ion exchange, biological treatment, and reverse osmosis. The most effective BAT for Perchlorate removal in groundwater is ion exchange which would increase treatment costs significantly. The cost estimates for ion exchange range from $2.19 to $9.16 per 1,000 gallons of water treated. The annualized capital and operation and maintenance (O&M) costs could range from approximately $490,025 per year or $24 per customer to $2,049,605 per year or $100 per customer.

Recommendations for further action:

The drinking water quality of the Citrus Heights Water District meets all State of California, and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report to meet Public Health Goals would require additional costly treatment processes. The effectiveness of the treatment processes to provide any significant reductions in constituent levels at these already low values is uncertain. The health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. The District currently provides "safe drinking water" significantly below all USEPA and California Maximum Contaminant Levels. Therefore, no action is proposed.

ATTACHMENT 2

Excerpt from California Health and Safety Code:
Section 116470 (b)

Attachment 2

Section 116470. Consumer Confidence Report

(a) As a condition of its operating permit, every public water system shall annually prepare a consumer confidence report and mail or deliver a copy of that report to each customer, other than an occupant, as defined in Section 799.28 of the Civil Code, of a recreational vehicle park. A public water system in a recreational vehicle park with occupants as defined in Section 799.28 of the Civil Code shall prominently display on a bulletin board at the entrance to or in the office of the park, and make available upon request, a copy of the report. The report shall include all of the following information:

(1) The source of the water purveyed by the public water system.
(2) A brief and plainly worded definition of the terms "maximum contaminant level," "primary drinking water standard," and "public health goal."
(3) If any regulated contaminant is detected in public drinking water supplied by the system during the past year, the report shall include all of the following information:
(A) The level of the contaminant found in the drinking water, and the corresponding public health goal and primary drinking water standard for that contaminant.
(B) Any violations of the primary drinking water standard that have occurred as a result of the presence of the contaminant in the drinking water and a brief and plainly worded statement of health concerns that resulted in the regulation of that contaminant.
(C) The public water system's address and phone number to enable customers to obtain further information concerning contaminants and potential health effects.
(4) Information on the levels of unregulated contaminants, if any, for which monitoring is required pursuant to state or federal law or regulation.
(5) Disclosure of any variances or exemptions from primary drinking water standards granted to the system and the basis therefore.

(b) On or before July 1, 2010, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable public health goal, shall prepare a brief written report in plain language that does all of the following:
(1) Identifies each contaminant detected in drinking water that exceeds the applicable public health goal.
(2) Discloses the numerical public health risk, determined by the office, associated with the maximum contaminant level for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the public health goal for that contaminant.
(3) Identifies the category of risk to public health, including, but not limited to, carcinogenic, mutagenic, teratogenic, and acute toxicity, associated with exposure to the contaminant in drinking water, and includes a brief plainly worded description of these terms.
(4) Describes the best available technology, if any is then available on a commercial basis, to remove the contaminant or reduce the concentration of the contaminant. The public water system may, solely at its own discretion, briefly describe actions that have been taken on its own, or by other entities, to prevent the introduction of the contaminant into drinking water supplies.
(5) Estimates the aggregate cost and the cost per customer of utilizing the technology described in paragraph (4), if any, to reduce the concentration of that contaminant in drinking water to a level at or below the public health goal.
(6) Briefly describes what action, if any, the local water purveyor intends to take to reduce the concentration of the contaminant in public drinking water supplies and the basis for that decision.

(c) Public water systems required to prepare a report pursuant to subdivision (b) shall hold a public hearing for the purpose of accepting and responding to public comment on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.

(d) The department shall not require a public water system to take any action to reduce or eliminate any exceedance of a public health goal.

(e) Enforcement of this section does not require the department to amend a public water system's operating permit.

(f) Pending adoption of a public health goal by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national maximum contaminant level goal adopted by the United States Environmental Protection Agency for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

(g) This section is intended to provide an alternative form for the federally required consumer confidence report as authorized by 42 U.S.C. Section 300g-3(c

ATTACHMENT 3

Table of Regulated Constituents with MCLs, PHGs, or MCLGs

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Alachlor	carcinogenicity (causes cancer)	0.004	NA[5,6]	0.002	NA
Aluminum	neurotoxicity and immunotoxicity (harms the nervous and immune systems)	0.6	NA	1	NA
Antimony	hepatotoxicity (harms the liver)	0.001	NA	0.006	NA
Arsenic	carcinogenicity (causes cancer)	0.000004 (4×10^{-6})	1×10^{-6} (one per million)	0.01	2.5×10^{-3} (2.5 per thousand)
Asbestos	carcinogenicity (causes cancer)	7 MFL[7] (fibers >10 microns in length)	1×10^{-6}	7 MFL (fibers >10 microns in length)	1×10^{-6} (one per million)
Atrazine	carcinogenicity (causes cancer)	0.00015	1×10^{-6}	0.001	7×10^{-6} (seven per million)
Barium	cardiovascular toxicity (causes high blood pressure)	2	NA	1	NA

[1] Based on the OEHHA PHG technical support document unless otherwise specified. The categories are the hazard traits defined by OEHHA for California's Toxics Information Clearinghouse (online at: https://oehha.ca.gov/media/downloads/risk-assessment//gcregtext011912.pdf).
[2] mg/L = milligrams per liter of water, equivalent to parts per million (ppm)
[3] Cancer Risk = Upper bound estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] MCL = maximum contaminant level.
[5] NA = not applicable. Cancer risk cannot be calculated.
[6] The PHG for alachlor is based on a threshold model of carcinogenesis and is set at a level that is believed to be without any significant cancer risk to individuals exposed to the chemical over a lifetime.
[7] MFL = million fibers per liter of water.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Bentazon	hepatotoxicity and digestive system toxicity (harms the liver, intestine, and causes body weight effects[8])	0.2	NA	0.018	NA
Benzene	carcinogenicity (causes leukemia)	0.00015	1×10^{-6}	0.001	7×10^{-6} (seven per million)
Benzo[a]pyrene	carcinogenicity (causes cancer)	0.000007 (7×10^{-6})	1×10^{-6}	0.0002	3×10^{-5} (three per hundred thousand)
Beryllium	digestive system toxicity (harms the stomach or intestine)	0.001	NA	0.004	NA
Bromate	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.01	1×10^{-4} (one per ten thousand)
Cadmium	nephrotoxicity (harms the kidney)	0.00004	NA	0.005	NA
Carbofuran	reproductive toxicity (harms the testis)	0.0007	NA	0.018	NA
Carbon tetrachloride	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.0005	5×10^{-6} (five per million)

[8] Body weight effects are an indicator of general toxicity in animal studies.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Chlordane	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.0001	3×10^{-6} (three per million)
Chlorite	hematotoxicity (causes anemia) neurotoxicity (causes neurobehavioral effects)	0.05	NA	1	NA
Chromium, hexavalent	carcinogenicity (causes cancer)	0.00002	1×10^{-6}	0.010	5×10^{-4} (five per ten thousand)
Copper	digestive system toxicity (causes nausea, vomiting, diarrhea)	0.3	NA	1.3 (AL[9])	NA
Cyanide	neurotoxicity (damages nerves) endocrine toxicity (affects the thyroid)	0.15	NA	0.15	NA
Dalapon	nephrotoxicity (harms the kidney)	0.79	NA	0.2	NA
Di(2-ethylhexyl) adipate (DEHA)	developmental toxicity (disrupts development)	0.2	NA	0.4	NA
Di(2-ethylhexyl) phthalate (DEHP)	carcinogenicity (causes cancer)	0.012	1×10^{-6}	0.004	3×10^{-7} (three per ten million)

[9] AL = action level. The action levels for copper and lead refer to a concentration measured at the tap. Much of the copper and lead in drinking water is derived from household plumbing (The Lead and Copper Rule, Title 22, California Code of Regulations [CCR] section 64672.3).

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,2-Dibromo-3-chloropropane (DBCP)	carcinogenicity (causes cancer)	0.000003 ($3x10^{-6}$)	1×10^{-6}	0.0002	7×10^{-5} (seven per hundred thousand)
1,2-Dichloro-benzene (*o*-DCB)	hepatotoxicity (harms the liver)	0.6	NA	0.6	NA
1,4-Dichloro-benzene (*p*-DCB)	carcinogenicity (causes cancer)	0.006	1×10^{-6}	0.005	8×10^{-7} (eight per ten million)
1,1-Dichloro-ethane (1,1-DCA)	carcinogenicity (causes cancer)	0.003	1×10^{-6}	0.005	2×10^{-6} (two per million)
1,2-Dichloro-ethane (1,2-DCA)	carcinogenicity (causes cancer)	0.0004	1×10^{-6}	0.0005	1×10^{-6} (one per million)
1,1-Dichloro-ethylene (1,1-DCE)	hepatotoxicity (harms the liver)	0.01	NA	0.006	NA
1,2-Dichloro-ethylene, cis	nephrotoxicity (harms the kidney)	0.013	NA	0.006	NA
1,2-Dichloro-ethylene, trans	immunotoxicity (harms the immune system)	0.05	NA	0.01	NA
Dichloromethane (methylene chloride)	carcinogenicity (causes cancer)	0.004	1×10^{-6}	0.005	1×10^{-6} (one per million)

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
2,4-Dichloro-phenoxyacetic acid (2,4-D)	hepatotoxicity and nephrotoxicity (harms the liver and kidney)	0.02	NA	0.07	NA
1,2-Dichloro-propane (propylene dichloride)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.005	1×10^{-5} (one per hundred thousand)
1,3-Dichloro-propene (Telone II®)	carcinogenicity (causes cancer)	0.0002	1×10^{-6}	0.0005	2×10^{-6} (two per million)
Dinoseb	reproductive toxicity (harms the uterus and testis)	0.014	NA	0.007	NA
Diquat	ocular toxicity (harms the eye) developmental toxicity (causes malformation)	0.006	NA	0.02	NA
Endothall	digestive system toxicity (harms the stomach or intestine)	0.094	NA	0.1	NA
Endrin	neurotoxicity (causes convulsions) hepatotoxicity (harms the liver)	0.0003	NA	0.002	NA
Ethylbenzene (phenylethane)	hepatotoxicity (harms the liver)	0.3	NA	0.3	NA
Ethylene dibromide (1,2-Dibromoethane)	carcinogenicity (causes cancer)	0.00001	1×10^{-6}	0.00005	5×10^{-6} (five per million)

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Fluoride	musculoskeletal toxicity (causes tooth mottling)	1	NA	2	NA
Glyphosate	nephrotoxicity (harms the kidney)	0.9	NA	0.7	NA
Haloacetic acids: dibromoacetic acid	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.06*	2×10^{-3} (two per thousand)[10]
Haloacetic acids: dichloroacetic acid	carcinogenicity (causes cancer)	0.0002	1×10^{-6}	0.06*	3×10^{-4} (three per ten thousand)[11]
Haloacetic acids: monobromo-acetic acid	musculoskeletal toxicity (causes muscular degeneration)	0.025	NA	0.06*	NA
Haloacetic acids: monochloro-acetic acid	general toxicity (causes body and organ weight changes[8])	0.053	NA	0.06*	NA
Haloacetic acids: trichloroacetic acid	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.06*	6×10^{-4} (six per ten thousand)[12]
Heptachlor	carcinogenicity (causes cancer)	0.000008 (8×10^{-6})	1×10^{-6}	0.00001	1×10^{-6} (one per million)

* For total haloacetic acids (the sum of dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, and trichloroacetic acid). There are no MCLs for individual haloacetic acids.
[10] Based on 0.060 mg/L dibromoacetic acid; the risk will vary with different combinations and ratios of the other haloacetic acids in a particular sample.
[11] Based on 0.060 mg/L dichloroacetic acid; the risk will vary with different combinations and ratios of the other haloacetic acids in a particular sample.
[12] Based on 0.060 mg/L trichloroacetic acid; the risk will vary with different combinations and ratios of the other haloacetic acids in a particular sample.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Heptachlor epoxide	carcinogenicity (causes cancer)	0.000006 (6×10^{-6})	1×10^{-6}	0.00001	2×10^{-6} (two per million)
Hexachloro-benzene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.001	3×10^{-5} (three per hundred thousand)
Hexachloro-cyclopentadiene (HCCPD)	digestive system toxicity (causes stomach lesions)	0.002	NA	0.05	NA
Lead	developmental neurotoxicity (causes neurobehavioral effects in children) cardiovascular toxicity (causes high blood pressure) carcinogenicity (causes cancer)	0.0002	$<1\times10^{-6}$ (PHG is not based on this effect)	0.015 (AL[9])	2×10^{-6} (two per million)
Lindane (γ-BHC)	carcinogenicity (causes cancer)	0.000032	1×10^{-6}	0.0002	6×10^{-6} (six per million)
Mercury (inorganic)	nephrotoxicity (harms the kidney)	0.0012	NA	0.002	NA
Methoxychlor	endocrine toxicity (causes hormone effects)	0.00009	NA	0.03	NA
Methyl tertiary-butyl ether (MTBE)	carcinogenicity (causes cancer)	0.013	1×10^{-6}	0.013	1×10^{-6} (one per million)

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Molinate	carcinogenicity (causes cancer)	0.001	1×10^{-6}	0.02	2×10^{-5} (two per hundred thousand)
Monochloro-benzene (chlorobenzene)	nephrotoxicity (harms the kidney)	0.07	NA	0.07	NA
Nickel	developmental toxicity (causes increased neonatal deaths)	0.012	NA	0.1	NA
Nitrate	hematotoxicity (causes methemoglobinemia)	45 as nitrate	NA	10 as nitrogen (=45 as nitrate)	NA
Nitrite	hematotoxicity (causes methemoglobinemia)	3 as nitrite	NA	1 as nitrogen (=3 as nitrite)	NA
Nitrate and Nitrite	hematotoxicity (causes methemoglobinemia)	10 as nitrogen[13]	NA	10 as nitrogen	NA
N-nitroso-dimethyl-amine (NDMA)	carcinogenicity (causes cancer)	0.000003 (3×10^{-6})	1×10^{-6}	none	NA
Oxamyl	general toxicity (causes body weight effects)	0.026	NA	0.05	NA

[13] The joint nitrate/nitrite PHG of 10 mg/L (10 ppm, expressed as nitrogen) does not replace the individual values, and the maximum contribution from nitrite should not exceed 1 mg/L nitrite-nitrogen.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Pentachloro-phenol (PCP)	carcinogenicity (causes cancer)	0.0003	1×10^{-6}	0.001	3×10^{-6} (three per million)
Perchlorate	endocrine toxicity (affects the thyroid) developmental toxicity (causes neurodevelop-mental deficits)	0.001	NA	0.006	NA
Perfluorooctane sulfonic acid (PFOS)	carcinogenicity (causes cancer)	1×10^{-6}	1×10^{-6}	NA	NA
Perfluoro-octanoic acid (PFOA)	carcinogenicity (causes cancer)	7×10^{-9}	1×10^{-6}	NA	NA
Picloram	hepatotoxicity (harms the liver)	0.166	NA	0.5	NA
Polychlorinated biphenyls (PCBs)	carcinogenicity (causes cancer)	0.00009	1×10^{-6}	0.0005	6×10^{-6} (six per million)
Radium-226	carcinogenicity (causes cancer)	0.05 pCi/L	1×10^{-6}	5 pCi/L (combined $Ra^{226+228}$)	1×10^{-4} (one per ten thousand)
Radium-228	carcinogenicity (causes cancer)	0.019 pCi/L	1×10^{-6}	5 pCi/L (combined $Ra^{226+228}$)	3×10^{-4} (three per ten thousand)
Selenium	integumentary toxicity (causes hair loss and nail damage)	0.03	NA	0.05	NA

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Silvex (2,4,5-TP)	hepatotoxicity (harms the liver)	0.003	NA	0.05	NA
Simazine	general toxicity (causes body weight effects)	0.004	NA	0.004	NA
Strontium-90	carcinogenicity (causes cancer)	0.35 pCi/L	1×10^{-6}	8 pCi/L	2×10^{-5} (two per hundred thousand)
Styrene (vinylbenzene)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.1	2×10^{-4} (two per ten thousand)
1,1,2,2-Tetrachloro-ethane	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.001	1×10^{-5} (one per hundred thousand)
2,3,7,8-Tetra-chlorodibenzo-*p*-dioxin (TCDD, or dioxin)	carcinogenicity (causes cancer)	5×10^{-11}	1×10^{-6}	3×10^{-8}	6×10^{-4} (six per ten thousand)
Tetrachloro-ethylene (perchloro-ethylene, or PCE)	carcinogenicity (causes cancer)	0.00006	1×10^{-6}	0.005	8×10^{-5} (eight per hundred thousand)
Thallium	integumentary toxicity (causes hair loss)	0.0001	NA	0.002	NA

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Thiobencarb	general toxicity (causes body weight effects) hematotoxicity (affects red blood cells)	0.042	NA	0.07	NA
Toluene (methylbenzene)	hepatotoxicity (harms the liver) endocrine toxicity (harms the thymus)	0.15	NA	0.15	NA
Toxaphene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.003	1×10^{-4} (one per ten thousand)
1,2,4-Trichloro-benzene	endocrine toxicity (harms adrenal glands)	0.005	NA	0.005	NA
1,1,1-Trichloro-ethane	neurotoxicity (harms the nervous system), reproductive toxicity (causes fewer offspring) hepatotoxicity (harms the liver) hematotoxicity (causes blood effects)	1	NA	0.2	NA
1,1,2-Trichloro-ethane	carcinogenicity (causes cancer)	0.0003	$1x10^{-6}$	0.005	2×10^{-5} (two per hundred thousand)
Trichloro-ethylene (TCE)	carcinogenicity (causes cancer)	0.0017	1×10^{-6}	0.005	3×10^{-6} (three per million)

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Trichlorofluoro-methane (Freon 11)	accelerated mortality (increase in early death)	1.3	NA	0.15	NA
1,2,3-Trichloro-propane (1,2,3-TCP)	carcinogenicity (causes cancer)	0.0000007 (7×10^{-7})	$1x10^{-6}$	0.000005 (5×10^{-6})	7×10^{-6} (seven per million)
1,1,2-Trichloro-1,2,2-trifluoro-ethane (Freon 113)	hepatotoxicity (harms the liver)	4	NA	1.2	NA
Trihalomethanes: Bromodichloro-methane	carcinogenicity (causes cancer)	0.00006	$1x10^{-6}$	0.080#	1.3×10^{-3} (1.3 per thousand)[14]
Trihalomethanes: Bromoform	carcinogenicity (causes cancer)	0.0005	$1x10^{-6}$	0.080#	2×10^{-4} (two per ten thousand)[15]
Trihalomethanes: Chloroform	carcinogenicity (causes cancer)	0.0004	$1x10^{-6}$	0.080#	2×10^{-4} (two per ten thousand)[16]

For total trihalomethanes (the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane). There are no MCLs for individual trihalomethanes.
[14] Based on 0.080 mg/L bromodichloromethane; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.
[15] Based on 0.080 mg/L bromoform; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.
[16] Based on 0.080 mg/L chloroform; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Trihalomethanes: Dibromochloro-methane	carcinogenicity (causes cancer)	0.0001	$1x10^{-6}$	0.080[#]	8×10^{-4} (eight per ten thousand)[17]
Tritium	carcinogenicity (causes cancer)	400 pCi/L	$1x10^{-6}$	20,000 pCi/L	5×10^{-5} (five per hundred thousand)
Uranium	carcinogenicity (causes cancer)	0.43 pCi/L	1×10^{-6}	20 pCi/L	5×10^{-5} (five per hundred thousand)
Vinyl chloride	carcinogenicity (causes cancer)	0.00005	1×10^{-6}	0.0005	1×10^{-5} (one per hundred thousand)
Xylene	neurotoxicity (affects the senses, mood, and motor control)	1.8 (single isomer or sum of isomers)	NA	1.75 (single isomer or sum of isomers)	NA

[#] For total trihalomethanes (the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane). There are no MCLs for individual trihalomethanes.
[17] Based on 0.080 mg/L dibromochloromethane; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] at the MCLG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Disinfection byproducts (DBPs)					
Chloramines	acute toxicity (causes irritation) digestive system toxicity (harms the stomach) hematotoxicity (causes anemia)	4[5,6]	NA[7]	none	NA
Chlorine	acute toxicity (causes irritation) digestive system toxicity (harms the stomach)	4[5,6]	NA	none	NA
Chlorine dioxide	hematotoxicity (causes anemia) neurotoxicity (harms the nervous system)	0.8[5,6]	NA	none	NA
Radionuclides					

[1] Health risk category based on the US EPA MCLG document or California MCL document unless otherwise specified.
[2] MCLG = maximum contaminant level goal established by US EPA.
[3] Cancer Risk = Upper estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] California MCL = maximum contaminant level established by California.
[5] Maximum Residual Disinfectant Level Goal, or MRDLG.
[6] The federal Maximum Residual Disinfectant Level (MRDL), or highest level of disinfectant allowed in drinking water, is the same value for this chemical.
[7] NA = not available.

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] at the MCLG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Gross alpha particles[8]	carcinogenicity (causes cancer)	0 (^{210}Po included)	0	15 pCi/L[9] (includes radium but not radon and uranium)	up to $1x10^{-3}$ (for ^{210}Po, the most potent alpha emitter)
Beta particles and photon emitters[8]	carcinogenicity (causes cancer)	0 (^{210}Pb included)	0	50 pCi/L (judged equiv. to 4 mrem/yr)	up to $2x10^{-3}$ (for ^{210}Pb, the most potent beta-emitter)

[8] MCLs for gross alpha and beta particles are screening standards for a group of radionuclides. Corresponding PHGs were not developed for gross alpha and beta particles. See the OEHHA memoranda discussing the cancer risks at these MCLs at http://www.oehha.ca.gov/water/reports/grossab.html.

[9] pCi/L = picocuries per liter of water.

ATTACHMENT 4

Cost Estimates for Treatment Technologies

Table 1 – Cost Estimates for Treatment Techologies (2012 ACWA PHG Survey)

No.	Treatment Technology	Source of Information	Estimated Cost 2012 Survey Indexed to 2024* ($/1,000 gallons treated)
1	Ion Exchange	Coachella Valley WD, for GW, to reduce Arsenic concentrations. 2011 costs.	2.68
2	Ion Exchange	City of Riverside Public Utilities, for GW, for Perchlorate treatment.	1.30
3	Ion Exchange	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce waterconcentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.98
4	Granular Activated Carbon	City of Riverside Public Utilities, GW sources, for TCE,DBCP (VOC, SOC) treatment.	0.65
5	Granular Activated Carbon	Carollo Engineers, anonymous utility, 2012 costs for treating SW source for TTHMs. Design souce water concentration: 0.135 mg/L. Design finished water concentration: 0.07 mg/L. Does not include concentrate disposal or land cost.	0.47
6	Granular Activated Carbon, Liquid Phase	LADWP, Liquid Phase GAC treatment at Tujunga Wellfield. Costs for treating 2 wells. Treament for 1,1 DCE (VOC). 2011-2012 costs.	1.99
7	Reverse Osmosis	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce waterconcentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	1.05
8	Packed Tower Aeration	City of Monrovia, treatment to reduce TCE, PCE concentrations. 2011-12 costs.	0.58
9	Ozonation+ Chemical addition	SCVWD, STWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations. 2009-2012 costs.	0.12
10	Ozonation+ Chemical addition	SCVWD, PWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations, 2009-2012 costs.	0.26
11	Coagulation/ Filtration	Soquel WD, treatment to reduce manganeseconcentrations in GW. 2011 costs.	0.98
12	Coagulation/ Filtration Optimization	San Diego WA, costs to reduce THM/Bromate, Turbidity concentrations, raw SW a blend of State Water Project water and Colorado River water, treated at Twin Oaks Valley WTP.	1.12
13	Blending (Well)	Rancho California WD, GW blending well, 1150 gpm, to reduce fluoride concentrations.	0.93
14	Blending (Wells)	Rancho California WD, GW blending wells, to reducearsenic concentrations, 2012 costs.	0.76
15	Blending	Rancho California WD, using MWD water to blend with GW to reduce arsenic concentrations. 2012 costs.	0.91
16	CorrosionInhibition	Atascadero Mutual WC, corrosion inhibitor addition to control aggressive water. 2011 costs.	0.11

* Costs were adjusted from date of original estimates to present using the Engineering News Record (ENR) 20-City average Construction Cost Index of 13,571 for 2024.

Table 2 – Cost Estimates for Treatment Techologies (Other Agencies)

No.	Treatment Technology	Source of Information	Estimated Cost 2012 Survey Indexed to 2024* ($/1,000 gallons treated)
1	Reduction – Coagulation – Filtration	February 28, 2013, Final Report Chromium Removal Research, City of Glendale,CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	2.14 – 13.38
2	IX - Weak Base Anion Resin	February 28, 2013, Final Report Chromium Removal Research, City of Glendale,CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	2.19 – 9.16
3	IX	Golden State Water Co., IX w/disposable resin, 1MGD, Perchlorate removal, built in 2010.	0.67
4	IX	Golden State Water Co., IX w/disposable resin, 1000 gpm, perchlorate removal (Proposed; O&M estimated).	1.47
5	IX	Golden State Water Co., IX with brine regeneration, 500 gpm for Selenium removal, builtin 2007.	9.59
6	GFO/Adsorption	Golden State Water Co., Granular Ferric Oxide Resin, Arsenic removal, 600 gpm, 2 facilities, builtin 2006.	2.51 – 2.67
7	RO	Inland Empire Utilities Agency : ChinoBasin Desalter. RO cost to reduce 800 ppm TDS, 150 ppm Nitrate (as NO_3); approx. 7 mgd.	3.28
8	IX	Inland Empire Utilities Agency : ChinoBasin Desalter. IX cost to reduce 150 ppm Nitrate (as NO_3); approx. 2.6 mgd.	1.82
9	Packed Tower Aeration	Inland Empire Utilities Agency : ChinoBasin Desalter. PTA-VOC air stripping, typical treated flow of approx. 1.6 mgd.	0.55
10	IX	West Valley WD Report, for WaterRecycling Funding Program, for 2.88 mgd treatment facility. IX to remove Perchlorate, Perchlorate levels 6-10 ppb. 2008 costs.	0.76 – 1.08
11	Coagulation Filtration	West Valley WD, includes capital, O&M costs for 2.88 mgd treatment facility – Layne Christensen packaged coagulation Arsenic removal system. 2009-2012 costs.	0.50
12	FBR	West Valley WD/Envirogen design data for the O&M + actual capitol costs, 2.88 mgdfluidized bed reactor (FBR) treatment system, Perchlorate and Nitrate removal, followed by multimedia filtration & chlorination, 2012. NOTE: The capitol cost for the treatment facility for the first 2,000 gpm is $23 million annualized over 20 years with ability to expand to 4,000 gpm with minimal costs in the future. $17 million funded through state and federal grants with the remainder funded by WVWD and the City of Rialto.	2.26 – 2.38

* Costs were adjusted from date of original estimates to present using the Engineering News Record (ENR) 20-City average Construction Cost Index of 13,571 for 2024.

Table 3 – Cost Estimates for Treatment Techologies (Updated 2012 ACWA Cost of Treatment)

No.	Treatment Technology	Source of Information	Estimated Cost 2012 Survey Indexed to 2024* ($/1,000 gallons treated)
1	Granular Activated Carbon	Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	0.77 – 1.47
2	Granular Activated Carbon	Carollo Engineers, estimate for VOC treatment (PCE), 95% removal of PCE, Oct. 1994,1900 gpm design capacity	0.36
3	Granular Activated Carbon	Carollo Engineers, est. for a large No. Calif. surf. water treatment plant (90 mgd capacity) treating water from the State Water Project, to reduce THM precursors, ENR construction cost index = 6262 (San Francisco area) – 1992	1.69
4	Granular Activated Carbon	CH2M Hill study on San Gabriel Basin, for135 mgd central treatment facility for VOC and SOC removal by GAC, 1990	0.66 – 0.96
5	Granular Activated Carbon	Southern California Water Co. – actual data for "rented" GAC to remove VOCs (1,1-DCE), 1.5 mgd capacity facility, 1998	3.03
6	Granular Activated Carbon	Southern California Water Co. – actual data for permanent GAC to remove VOCs (TCE), 2.16 mgd plant capacity, 1998	1.96
7	Reverse Osmosis	Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	2.28 – 4.35
8	Reverse Osmosis	Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	5.37
9	Reverse Osmosis	Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	3.31
10	Reverse Osmosis	Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	3.58
11	Reverse Osmosis	Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	2.77
12	Reverse Osmosis	Arsenic Removal Study, City of Scottsdale, AZ – CH2M Hill, for a 1.0 mgd plant operated at 40% of design capacity, Oct. 1991	8.99
13	Reverse Osmosis	Arsenic Removal Study, City of Scottsdale, AZ – CH2M Hill, for a 1.0 mgd plant operated at 100% of design capacity, Oct. 1991	5.31
14	Reverse Osmosis	Arsenic Removal Study, City of Scottsdale, AZ – CH2M Hill, for a 10.0 mgd plant operated at 40% of design capacity, Oct. 1991	3.97

* Costs were adjusted from date of original estimates to present using the Engineering News Record (ENR) 20-City average Construction Cost Index of 13,571 for 2024.

Table 3 (Continued) – Cost Estimates for Treatment Techologies (Updated 2012 ACWA Cost of Treatment)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey Indexed to 2024* ($/1,000 gallons treated)
15	Reverse Osmosis	Arsenic Removal Study, City of Scottsdale, AZ – CH2M Hill, for a 10.0 mgd plant operated at 100% of design capacity, Oct. 1991	2.46
16	Reverse Osmosis	CH2M Hill study on San Gabriel Basin, for135 mgd central treatment facility with RO to remove nitrate, 1990	2.48 – 4.35
17	Packed Tower Aeration	Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 1.4 mgd facility operating at 40% of design capacity, Oct. 1991	1.42
18	Packed Tower Aeration	Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 14.0 mgd facility operating at 40% of design capacity, Oct. 1991	0.76
19	Packed Tower Aeration	Carollo Engineers, estimate for VOC treatment (PCE) by packed tower aeration, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air strippingoperation, 1900 gpm design capacity, Oct. 1994	0.38
20	Packed Tower Aeration	Carollo Engineers, for PCE treatment by Ecolo-Flo Enviro-Tower air stripping, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.39
21	Packed Tower Aeration	CH2M Hill study on San Gabriel Basin, for135 mgd central treatment facility – packed tower aeration for VOC and radon removal, 1990	0.63 – 1.01
22	Advanced Oxidation Processes	Carollo Engineers, estimate for VOC treatment (PCE) by UV Light, Ozone, Hydrogen Peroxide, O&M costs based on operation during 329 days/year at 10% downtime, 24 hr/day AOP operation, 1900 gpm capacity, Oct. 1994	0.75
23	Ozonation	Malcolm Pirnie estimate for CUWA, large surface water treatment plants using ozone to treat water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, *Cryptosporidium* inactivation requirements,1998	0.17 – 0.36
24	Ion Exchange	CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility – ion exchange to remove nitrate, 1990	0.82 – 1.08

* Costs were adjusted from date of original estimates to present using the Engineering News Record (ENR) 20-City average Construction Cost Index of 13,571 for 2024.

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**Discussion and Possible Action to Adopt Engineering Standards and Approve District Policy Updates**
Status:	Action Item
Report Date:	June 11, 2025
Prepared By:	Missy Pieri, Director of Engineering/District Engineer Todd Jordan, Director of Operations

OBJECTIVE:
Consider adoption of Engineering Standards and approval of updates to the District's Policies (5000, 7000, 8000 and 9000 series).

BACKGROUND AND ANALYSIS:
This item was brought before the Board of Directors at the May 27, 2025, meeting. The Board requested to defer it to the June meeting to allow more time for document review.

This item addresses a Strategic Planning and a Board-directed significant policy objective. Development in the Citrus Heights Water District (CHWD or District) service area has occurred steadily since the District was formed in 1920. Although much of the District's service area is now built out, infill development and changes in development patterns will continue. The District's Engineering Department manages and regulates private development within its service area through a combination of District Construction Specifications (detail drawings and water system notes), District Policies, standard water system design criteria and current practices.

This approach has been adequate for the District historically; however, the District Policies need to be updated to align with current practices and regulations. Thus, staff recommend establishing comprehensive Engineering Standards (Standards) that consolidate improvement standards, submittal requirements, and procedures into a single, easily accessible document.

Engineering Standards will ensure developers receive consistent guidance when planning and constructing water system improvements. Updated Engineering policies and standards will protect the District and its existing ratepayers from potential adverse impacts associated with development projects that, if left with ambiguity, can result in substandard facilities or fail to include important water facilities. Further, CHWD's engineering policies and design standards create more certainty for developers and can facilitate economic development and community revitalization.

To develop an outline of the Standards for private development and to identify which District policies should be modified or created, the District selected West Yost Associates, Inc. (WYA) to prepare a Needs Assessment Study (Study). The Study included:

- Collection and review of existing District Construction Specifications and standard procedures
- Discussions with CHWD staff to understand the District's current standards, policies, and procedures that are effective, need changing, or are missing
- Review of other similar, local agencies' standards, policies, and procedures
- Outline of the proposed standards and a list of recommended policy updates

After the Study was completed, the CHWD Board of Directors approved an On-Call Professional Services Agreement with WYA. Task orders under the professional services agreement (PSA) were then issued for the preparation of engineering standards and policy updates.

Engineering Standards: The first task was to prepare the Standards for private (applicant-initiated) development projects. The purpose of the Standards is to establish minimum requirements for the design, materials of construction, and construction methods for water system improvements located within public and private properties in CHWD's service area. These improvements include water mains, water service assemblies, fire hydrants, valves, and all other necessary appurtenances. Key drawings and reference documents related to the Standards are included in the Appendix.

Table 1 summarizes the sections of the Standards along with a brief description of each section.

Table 1
Summary of District Engineering Standards

Section #	Title	Description
1	Purpose and Definitions	Explains the overall purpose of the Standards along with general definitions of key terms and abbreviations.
2	Application and Administration	Outlines the responsibilities of all parties and describes the planning, review, and construction-related requirements and processes of applicant-initiated projects.
3	Design Standards and Criteria	Presents the District's minimum design standards and criteria for planning and designing the water distribution system.
4	Construction Standards	Specifies the required materials, installation methods, testing procedures, and general construction requirements of the water distribution system.

Section #	Title	Description
Appendix	Appendix A – Appendix E	Contains Standard Detail Drawings, Project Checklist, Project Acceptance Summary, District's Cross-Connection and Backflow Prevention Regulation and Disinfection/Sampling Procedures

District Policies: Once the Standards were developed, the District's Policies were reviewed to identify any necessary amendments or adjustments to ensure consistency between the Standards and Policies.

Table 2 summarizes the Policy sections that were added, amended, or deleted, and a description of the changes made.

Table 2
Policy Updates

Policy Section	Title (Added/Moved/Amended/Deleted)	Description of Edits
5040	Water System Master Plan (Moved and Amended)	Policy moved to Policy 9000. See new Policy 9000 for amendments.
5050	Capital Improvement Plan (Moved and Amended)	Policy moved to Policy 9010. See new Policy 9010 for amendments.
5300	Maintenance of Water Meters and District-Owned Water Services, Owner Responsibility for Equipment and Appliances from Point of Connection to Water Meter (Amended)	Clarifies the District's responsibilities for maintenance of water meters, District-owned water services, and related items, and defines property owner responsibilities for non-District items.
5310	Relocation of Water Meters (Amended)	Clarifies the conditions under which a water meter can be relocated, who can perform the work, and who is responsible for the cost.
5930	Fire Hydrant Operation and Maintenance (Amended)	Clarifies the definition of private fire hydrants.
7500	Capacity Charges (Amended)	Updates the method of assessment to align with updated industry standards, revises payment requirements to comply with updated regulations.
7600	Development Fees (Added)	Establishes requirements for assessing and collecting Development Fees for new or modified service connections including plan check, inspection and meter set fees.

Policy Section	Title (Added/Moved/Amended/Deleted)	Description of Edits
8200	Basis of Service (Added)	Defines the conditions under which the District provides water service to properties. It describes the requirements for water use and connection exemptions for new development.
8300	Application for Water Service (Added)	Describes how to apply for water service or change in service, and outlines circumstances under which the District can refuse service.
8400	**Old Title:** Metering of Services – General **New Title:** Service Requirements (Amended)	Updates service requirements for properties, including those with multiple buildings or service types. Describes service connection approvals, cross-connection prohibitions, and use restrictions.
8404 8404 cont.	**Old Title**: Metering of Single Dwelling, Duplex Dwelling, and Condominium/Townhome Dwelling Water Services **New Title:** Metering of Water Services (Amended)	Describes metering requirements for all occupancy types into one Policy.
8405	Metering of Apartment Complex and Mobile Home Development Water Services (Deleted)	Content combined language into Policy 8404
8410	Metering of Commercial Water Services (Deleted)	Content combined language into Policy 8404
9000	Water System Master Plan (Moved and Amended)	Policy moved from the previous Policy 5040. Describes the content, preparation, adoption, administration, and updating of the District's Water System Master Plan.
9010	Capital Improvement Plan (Moved and Amended)	Policy moved from the previous Policy 5050. Describes the content, preparations, adoption, administration, and updating of the District's Capital Improvement Plan.
9100	Engineering Standards (Added)	Defines the purpose of the Engineering Standards, establishes requirements for conformance with the Standards, and clarifies District responsibilities for maintaining and updating the Standards.

Policy Section	Title (Added/Moved/Amended/Deleted)	Description of Edits
9200	Infrastructure Improvement and Responsibility (Added)	Provides guidelines and responsibilities for the planning, design, construction, funding, operation and maintenance of expansions of the District's water system.
9300	Reimbursement (Added)	Clarifies reimbursement procedures when an applicant installs or upsizes infrastructure that benefits properties beyond their own development. 06/24/25 Addition: Added reimbursement term of 10 years.

The Standards and Policies were reviewed by key internal and external stakeholders, including District staff from all departments, District legal counsel, and representatives from partner agencies (i.e. City and County staff, fire department personnel) to ensure the requirements complied with their specific areas of jurisdiction.

Next Steps: Following Board approval of the Engineering Standards and Policies, the following actions will be completed:

1. Develop Administrative Procedures for District staff to clarify any areas of the Standards and Policies that require additional guidance consistent with Board policy.
2. Update the District's website, including the Engineering page, to reflect any changes to forms, procedures, and other related documents.

RECOMMENDATIONS:

1. Approve Resolution 09-2025 Adopting District Engineering Standards
2. Approve the updates to the District Policies (5000, 7000, 8000 and 9000 series) listed in Table 2.

ATTACHMENTS:

1. Resolution 09-2025 Adopting District Engineering Standards
2. District Policies (5000, 7000, 8000 and 9000 series) as listed in Table 2

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

ATTACHMENT 1

Resolution 09-2025 Adopting District Engineering Standards

CITRUS HEIGHTS WATER DISTRICT
RESOLUTION NO. 09-2025

RESOLUTION OF THE BOARD OF DIRECTORS
OF CITRUS HEIGHTS WATER DISTRICT
ADOPTING ENGINEERING STANDARDS

WHEREAS, it is the policy of the Citrus Heights Water District (CHWD) to ensure the reliable, safe, and efficient delivery of water service through the implementation of consistent design and construction practices; and

WHEREAS, the District has developed Engineering Standards, which include design and construction requirements for water system facilities, to establish the minimum requirements for the planning, design, materials, and construction of facilities under District jurisdiction; and

WHEREAS, the formal adoption of the Engineering Design and Construction Standards is in accordance with District Policy No. 9100, Engineering Standards;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE CITRUS HEIGHTS WATER DISTRICT DOES RESOLVE that the Engineering Standards, attached hereto as Exhibit A, are hereby adopted as the official standards of the District; and

BE IT FURTHER RESOLVED that the District Engineer or their designee is authorized to make administrative updates or clarifications to the Engineering Standards as necessary to reflect regulatory changes, field conditions, or operational needs, provided such changes do not materially alter the intent or technical requirements of the standards.

PASSED AND ADOPTED by the Board of Directors of the CITRUS HEIGHTS WATER DISTRICT this 24th day of June 2025, by the following vote:

AYES: Board Members-

NOES: Board Members-

ABSTAIN: Board Members-

ABSENT: Board Members-

SEAL

RAYMOND A. RIEHLE, President
Board of Directors
Citrus Heights Water District

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution 09-2025 adopted by the Board of Directors of Citrus Heights Water District at its regular meeting held June 24, 2025.

_____

BRITTNEY C. MOORE, Chief Board Clerk
Citrus Heights Water District

FINAL | JUNE 2025

ENGINEERING STANDARDS

CITRUS HEIGHTS WATER DISTRICT

REVISIONS

Users of Citrus Heights Water District's Engineering Standards shall be responsible to confirm they are using the most recent versions. To confirm the most recent versions of the Engineering Standards and Approved Materials List, see www.chwd.org, or contact the CHWD Engineering Department at (916) 725-6873.

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Appendix E. CHWD Disinfection/Sampling Procedure

SECTION 1. PURPOSE AND DEFINITIONS

1.1 Scope and Purpose

The scope and purpose of these Engineering Standards ("Standards") are to define party responsibilities and establish minimum requirements for the design, construction materials, installation, and testing of facilities within the Citrus Heights Water District's ("District") water system located on both public and private properties. The water system includes mains, service assemblies, hydrants, valves, and all other necessary appurtenances.

These Standards implement the District's policies. If a conflict arises between these Standards and District Policies, District Policies shall prevail. These Standards apply to Applicants proposing to install and connect water facilities to the District's water system, as well as to those proposing to replace, relocate, or repair District water facilities, and privately owned backflow prevention devices.

1.2 Organization

The Standards are organized as listed below:

- Section 1 – Purpose and Definitions: Identifies the purpose of these Standards and lists definitions for terms used throughout the Standards
- Section 2 – Application and Administration: Identifies responsibilities of all parties related to planning, review, approval, and construction requirements and administrative processes
- Section 3 – Design Standards and Criteria: Establishes minimum design standards and criteria for planning and design of public water facilities
- Section 4 – Construction Standards: Identifies requirements for construction, including installation and testing requirements and allowable materials
- Appendix A – Standard Detail Drawings
- Appendix B – Project Checklist
- Appendix C – Project Acceptance Summary/Value of Facilities Form
- Appendix D – District Cross-Connection and Backflow Prevention Regulation
- Appendix E – CHWD Disinfection/Sampling Procedure

1.3 Definitions

Whenever the following terms, or pronouns used in their place, occur in these documents or in any documents that these Design Criteria and Standards govern, the intent and meaning shall be interpreted as defined below:

Authority Having Jurisdiction	The federal, state, or local agency that has jurisdiction over a project or portion of the project.
Applicant	Any person(s), firm, partnership, corporation, agency, or combination thereof, financially responsible for the water system improvements.
Appurtenance	A general term used to describe components such as valves, fire hydrants, and meters.
Board	The Board of Directors of the Citrus Heights Water District.
Contract	The agreement covering the performance of the Work and the furnishing of labor, materials, tools, and equipment in the construction of the Work.
Contractor	The person or persons, firm, partnership, corporation, or combination thereof, that has entered into a contract with the District or the Applicant, and who is duly licensed under the laws of the State of California to do or perform such tasks as said contract may define.
County	Either the County of Sacramento or County of Placer, California, whichever applies.
Customer	Any property owner, tenant, or other water user who receives water from or pays a water bill to the District.
Day	A calendar day of 24 hours.
Development	The act or process of constructing on properties, including subdivision improvement.
Distribution Main	A water main less than 14 inches in diameter.
District	The Citrus Heights Water District.
District Engineer	The District Engineer of the Citrus Heights Water District, or his/her duly appointed representative.
District Facilities	Water facilities owned by the District, located upstream of and including the water meter.
Engineering Standards	The standard procedures, specifications, and drawings established by the District in this document.
Fire Authority	Organization or agency responsible for overseeing fire protection, prevention, and emergency response services within its specific jurisdictional area.
General Manager	The General Manager of the Citrus Heights Water District, or his/her duly appointed representative.
Hydrant Valve	A valve that is installed in a water line between a fire hydrant and the main, which can be closed to isolate the hydrant.
Improvement Plans	Drawings showing all Work necessary to provide water to a proposed project, including all water services, mains, and appurtenances.
Inspector	An employee or agent of the District, duly authorized by the District Engineer and engaged to observe and record field compliance with these Standards, design criteria, plans, and construction standards.
Isolation Valve	A valve that is used to stop flow or isolate a portion of the water system.
Main	A water pipeline dedicated for public use in the District's system, excluding services and laterals.

Water Service	A metered connection from the District's water system to a customer's facilities.
Service Assembly	Service assemblies are the complete set of components that connect a water main to a customer's plumbing system. They typically include the service saddle, corporation stop, service line, curb or angle stop, meter, meter box or vault, backflow device (if required), and related fittings. Configurations vary by service type and size and must meet the requirements of these Standards and Detail Drawings.
Service Line	The pipe and fittings between the District's main and the meter.
Standards	The specifications and drawings contained herein and approved addenda, plus any other standard specifications incorporated by reference. In general, the referenced standards or specifications shall be understood as being the latest edition.
Transmission Main	A water main 14 inches in diameter or larger.
Water	Potable water that is safe for drinking and complies with the latest edition the California Safe Drinking Water Act, the United States Environmental Protection Agency (EPA) National Primary Drinking Water Regulations, and/or other applicable standards.
Water Facilities	Infrastructure and systems used for sourcing, treating, storing, distributing, and otherwise managing water as part of the District's water system.
Water System	The potable water supply system of the District approved by or under the public health supervision of the Division of Drinking Water of the California State Water Resources Control Board.
Work	All obligations, duties, and responsibilities necessary to the successful completion of the project assigned to or undertaken by a Contractor including all labor, materials, equipment, and other incidentals, and the furnishing thereof.

1.4 Abbreviations

Whenever the following abbreviations occur in these documents or in any documents that these Design Criteria and Standards govern, the intent and meaning shall be interpreted as defined below:

AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ADU	Accessory Dwelling Unit
ANSI	American National Standards Institute
ARV	Air and Vacuum Relief Valve
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BOV	Blow-off valve
Cal/OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CCCPH	Cross Connection Control Policy Handbook
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CHWD	Citrus Heights Water District

DDW	Division of Drinking Water
DIP	Ductile Iron Pipe
DIPRA	Ductile Iron Pipe Research Association
DOT	Department of Transportation
DR	Dimension Ratio
DWG	Drawing
e.g.	For example
EPA	Environmental Protection Agency
fps	feet per second
gpm	gallons per minute
HDD	Horizontal Directional Drilling
ISO	Insurance Services Office
MGD	Million Gallons per Day
NAD	North American Datum
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
NPT	National Pipe Thread
NSF	National Sanitation Foundation
OD	Outside diameter
OSHA	Occupational Safety and Health Administration
ppm	parts per million
psi	pounds per square inch
psig	pounds per square inch gauge
PUE	Public utility easement
PVC	Polyvinyl Chloride
ROW	Right-of-way
SDR	Standard Dimension Ratio
SJWD	San Juan Water District
SWPPP	Storm Water Pollution Prevention Plan
USA	Underground Services Alert
UWMP	Urban Water Management Plan
WEF	Water Environment Federation

SECTION 2. APPLICATION AND ADMINISTRATION

This section applies to applicant-initiated projects and outlines the responsibilities of all parties involved. It also describes the planning, review, and construction-related requirements and processes.

2.1 Roles and Responsibilities

The responsibilities of the District, Applicant, Applicant's Engineer, and Applicant's Contractor with respect to administrative implementation of an applicant-initiated project are defined in the following subsections.

2.1.1 District Responsibilities

The District shall be responsible for the review and approval of Improvement Plans and the inspection of all water facilities to be dedicated to the District. This may include facilities within public rights-of-way, private property, public utility easements and dedicated water easements.

2.1.2 Applicant Responsibilities

The Applicant shall have ultimate responsibility for compliance with all requirements specified in these Standards and any other standards, codes, regulations, and requirements as they may apply. The Applicant is solely responsible for all administrative requirements including application, submittal of all required Improvement Plans and payment of fees. The Applicant shall reference and adhere to the Project Checklist and Application for Water Service provided on the District website (www.chwd.org). The Applicant is also responsible for ensuring that the Applicant's Engineer meets all design requirements and that the Applicant's Contractor meets all construction-related requirements. The Applicant shall obtain approval of improvement plans, construct the project per approved plans, and successfully pass inspections and testing prior to connection to existing District facilities.

Upon Applicant's request, the District may install a single water service for the residential parcel.

2.1.3 Applicant's Engineer Responsibilities

These Standards establish requirements for the design and construction for the District's water system and are not a substitute for engineering knowledge, judgment, or experience. The Standards presented herein shall be reviewed by the Applicant's Engineer and shall be applied as necessary to the project. Proposed deviations from these Standards shall be submitted, in writing, to the District Engineer, for review and approval.

All development project plans, specifications, reports, or other documents shall be prepared by a civil engineer registered in the State of California or by a subordinate employee under the direction of a civil engineer registered in the State of California. All documents shall be signed by a civil engineer registered in the State of California and stamped with the registered seal to indicate responsibility for them. District plan approval does not in any way relieve the Applicant's Engineer of the responsibility to: adhere generally to accepted engineering standards and exercise the same level of care, skill, and diligence in the performance of the services as is ordinarily provided by a professional engineer under similar circumstances; and meet all District requirements. The Improvement Plans shall be revised or supplemented at any time it is determined that the District's requirements have not been met. Any design changes made after plan approval shall be submitted to the District for review and approval.

The Applicant's Engineer shall be responsible for compliance with all governing federal, state, and local laws, ordinances, codes, orders, and regulations.

In conformance with the California Environmental Quality Act (CEQA), all actions by the District in reviewing and approving Improvement Plans and inspecting construction for applicant-initiated projects shall be deemed ministerial. It shall be the Applicant's responsibility to conform to the requirements of CEQA and the requirements of the lead agency, which has approved a development project or entitlement, including all mitigation measures that may relate to public improvements under District approval and inspection. The District shall be held harmless from any suit or action arising out of noncompliance by the Applicant with CEQA, or performance or lack of performance by the Applicant of any mitigation measures adopted or required by any local government.

2.1.4 Applicant's Contractor Responsibilities

The Contractor shall hold a valid State of California Class "A" General Engineering Contractor license throughout construction. The Contractor shall provide the District with valid Contractor's license information including license number, name of license holder, classification, and expiration date. The Contractor shall be skilled and regularly engaged in constructing public water systems.

The Contractor shall be solely responsible for all construction means, methods, techniques, sequences, and procedures of construction not otherwise specified in these Standards or the Improvement Plans. At all times, the Contractor shall be responsible for compliance with all governing federal, state, and local laws, ordinances, codes, orders, and regulations that in any manner affect those engaged or employed on the job site, the materials used in the Work, and the safe conduct of the Work. The Contractor shall also be solely responsible for ensuring all finished work complies with these Standards and the approved Improvement Plans.

Inspection or approval by the District Engineer or Inspector of the work does not relieve the Contractor of the responsibility to: adhere to the standards generally prevailing for the construction; exercise the same degree of care, skill, and diligence in the performance of the work as is ordinarily provided by a licensed Contractor under similar circumstances; and adhere to the approved plans and these Standards. Any defective work discovered by the District before the expiration of the period prescribed for latent deficiencies in Section 337.15 of the Code of Civil Procedure shall be removed and replaced, at the applicant's expense, by work that fully conforms to the provisions of the approved plans and these Standards.

2.2 Plan Submittal

The first step an Applicant shall take for project review is to submit an Application for Water Service to the District, as provided on the District's website. The District will perform a cursory review of the project to determine if a formal fee-based plan review is required. The District Engineer will review proposed Work in accordance with the District Standards to identify the best plan for delivery of water for a development project. The District Engineer will determine if a Will Serve Letter is required for the proposed work, which will list the anticipated water system improvements.

2.3 Planning and Review Services

To identify the most effective plan for water delivery to a development project, the District Engineer will review proposed Work in accordance with District planning documents, including its Water Master Plan as amended from time to time. The District Engineer shall determine if the proposed Work will require a plan of services.

A plan of services may include any water planning documents needed to evaluate water service for a proposed project while maintaining service to existing customers. This may include, but is not limited to,

water supply assessments, water supply verifications, and water system capacity analyses. Any and all costs associated with preparation of a plan of services, if required, shall be the Applicant's responsibility.

The District's standard plan review includes review by District staff of any required engineering documentation such as Improvement Plans or calculations prepared by the Applicant or Applicant's Engineer. Standard plan review includes up to two (2) hours of consultation time with District staff. Consultation time includes any in person, phone, and virtual meetings. Additional time may be necessary depending on the project's size and scope (e.g., number of connections).

The District operates and maintains a water system model. Upon request, the District may conduct a fire flow evaluation for the Applicant's project. Applicant is responsible for costs associated with the evaluation.

The District will collect a Base Plan Check fee associated with its standard plan review process. In the event that District time for plan review services exceeds three (3) review iterations and two (2) hours of consultation time, the Applicant may be charged for further planning consultation services based on District staff time, equipment, and labor costs.

2.4 Plan Approval Process – Improvement Plans

District approval of Improvement Plans is required prior to construction of water facilities.

The plan approval process shall typically consist of, but not be limited to:

1. Submittal of Improvement Plans and Final Map or Parcel Map for District review.
2. Submittal of the Application for Water Service and payment of the plan check deposit.
3. Submittal of Engineer's Cost Estimate for water facilities.
4. Payment of District Total Plan Check Fee.
5. Submittal (if applicable) of all required easement offers, legal descriptions, and plat plans. The fee title owner shall sign the easement offer. See other sections of these Standards for requirements about water easement dedication.
6. For projects with potentially unstable soils (e.g., on steep slopes, near a creek), submittal of a report prepared by a licensed geotechnical engineer that documents existing conditions and provides recommendations for construction.
7. Submittal of any project-specific documents as required by the District Engineer.

Once all plan review requirements have been satisfied and plan check fees have been paid, final plans will be approved by the District Engineer and will remain valid for construction for one (1) year from date of signature on the design documents. Note: Plans must be approved by the Fire Authority prior to the District's approval.

2.4.1 Improvement Plan Requirements

The Improvement Plans shall show all Work necessary to provide water to the Project, including Work necessary for the installation of mains, services, and appurtenances. The Improvement Plans shall be prepared under the direction of, and signed by, a currently registered professional civil engineer in the State of California.

Improvement Plans showing the proposed Work shall be submitted to the District for review and approval. Included with this submittal shall be all calculations requested by the District Engineer to verify the design of any portion of the water system. Calculations shall be based on methods generally accepted by the

engineering profession and shall be neatly and legibly done in such form as to enable them to be readily checked. Calculations shall be signed and stamped by a State of California registered civil engineer. In addition, literature and technical data concerning any of the materials and equipment to be used shall be furnished to the District Engineer upon request.

Improvement Plans shall comply with the following requirements. Exceptions for projects that do not require water main extensions may be granted subject to the discretion of the District Engineer.

1. A full-size PDF file along with two (2) sets of full-size Improvement Plans, with a minimum drawing size of 22 inches by 34 inches, shall be submitted. Refer to the District website for directions on electronic plan submittal.
2. All proposed water facilities, including pipe sizes, types, and classes, shall be shown on the plans. All proposed mains and valves, including fire hydrants, shall be shown in plan and profile views. The profile shall also include other existing and proposed utilities with crossing details. An enlarged detail(s) may be required for clarity.
3. All points of connection and tie-ins shall be shown in detail.
4. All existing water facilities shall be shown.
5. All private water facilities (existing or proposed) shall be shown on the plans and identified as private.
6. All existing water pipelines and facilities to be abandoned shall be shown. The plans shall indicate how active water facilities on or adjacent to the construction area are to be protected and shall show that the abandonment of lines does not adversely affect the water system.
7. All existing and proposed buildings and other structures, including light standards and accessory structures, which may affect maintenance, operations, or replacement of water facilities, shall be shown.
8. All existing and proposed easements shall be shown.
9. Plan and profile drawing scale shall be 1-inch equals 20 feet or 1-inch equals 40 feet with scale bar shown.
10. If necessary, an overall plan view of the entire proposed water system shall be provided and shown on one sheet with a drawing key for subsequent plan and profile sheets. A smaller drawing scale can be used for this purpose.
11. A location map showing the area to be served relative to established public roads shall be shown.
12. A note that states: “Work shall conform to the most current edition of the Engineering Standards and Detail Drawings of Citrus Heights Water District” shall be shown.
13. All existing and proposed dry and wet utilities in the vicinity of any proposed water facilities shall be shown. “Water Only” plans shall not be approved by the District Engineer.
14. All items on the District’s Project Checklist shall be addressed. The Applicant shall reference the Project Checklist provided on the District website (www.chwd.org). A sample of the Project Checklist is provided in Appendix B.
15. Any other project-specific requirements as determined by the District Engineer shall be included.

Once a development project plan set has been signed by the District Engineer and all other agencies, two (2) full-size sets, and one (1) full-size PDF file shall be submitted to the District. All submitted map drawings shall use the Global Coordinate System of USA, California, NAD 83 California State Planes, Zone III, and U. S. foot unless approved by the District Engineer.

No changes shall be made to the signed plan set unless approved by the District Engineer. In the case of an approved change, all submitted sheets affected by the change shall be replaced.

During construction, one (1) complete set of signed plans shall be kept on site at all times.

2.4.2 Standard Notes and Details

Improvement Plans shall include applicable District Water System Notes and Detail Drawings as provided in Appendix A.

2.4.3 Interpretation of Standards

These Standards are intended to serve as one document. This means that the written standards and the drawings are complementary, and requirements stated in either the written standards or the drawings shall be equally binding. In the case of conflict between the written standards and drawings, the written standards shall govern. In case of conflict between the Improvement Plans and Detail Drawings, the Detail Drawings will govern unless the District Engineer has approved a specific variance.

In the event of discrepancies, errors, or omissions found in these Standards, or should it appear there is not sufficient detail to perform the Work, then the Applicant shall promptly submit in writing to the District Engineer a request for clarification or interpretation. The request shall identify the exact requirement(s) at issue and indicate the proposed interpretation. The District Engineer will act upon such a request within ten (10) working days.

2.4.4 Variances

A request for a variance from any requirements contained in these Standards must be submitted in writing to the District Engineer by the Applicant. The request must clearly identify the specific requirement and the proposed variance with supporting factual information. The District Engineer will begin review of such requests within ten (10) working days. The District may assess fees for District cost and efforts associated with the variance request review.

Any appeal for a decision by the District Engineer must be submitted in writing to the General Manager within ten (10) working days of the District Engineer's action.

2.4.5 Payment of Fees

All remaining Plan Check Fees shall be paid before final approval and signature by the District. The District reserves the right to charge additional fees if the plan review process exceeds typical review times described in Section 2.3.

Water facilities construction (including any preconstruction meeting and material submittal review) shall not commence until plans and supporting documents (e.g., easements) are approved by the District and all required fees are paid (including one-time San Juan Water District (SJWD) wholesale capital facility fees). These wholesale fees are applicable to new services, based on the new service size, and are subject to annual updates by SJWD.

Detailed information regarding fees is provided on the District website.

2.5 Plan Approval Process – Tenant Improvements

District approval of Tenant Improvement Plans is required prior to construction.

The plan approval process shall typically consist of, but not be limited to:

1. Submittal of Tenant Improvement Plans for District review.
2. Submittal of the Plan Submittal Form.
3. Payment of District plan check fees.
4. Submittal of any project-specific documents as required by the District Engineer.

Once all plan review requirements have been satisfied and plan check fees have been paid, final plans will be approved by the District Engineer and will remain valid for construction for one (1) year from date of signature on the design documents.

2.6 Easements

All public water facilities must be installed within public right-of-way (ROW), public utility easement (PUE), or dedicated water easement.

When conditions require that District water facilities be located in private property, including water services located outside the property they serve, an easement for the area must be prepared and granted by the property owner to the District, at no cost to the District. The easement shall grant the District the permanent right to construct, operate, and maintain public water facilities on private property. Section 3 of these Standards provides detailed easement requirements. In circumstances where an easement is required across an adjacent property not owned by the Applicant, the Applicant shall be responsible for negotiating and acquiring easements for water facilities that may be required.

The easement documents must be received and approved by the District prior to improvement plan approval by the District.

2.6.1 Grant of Easement

Applicant shall complete the following and provide them to the District for review.

1. Grant of easement form, to be provided by the District
2. Easement legal description
3. Plat map

After the District review and tentative approval of the easement documents, original documents with notarized wet signature(s) shall be provided to the District for acceptance. The District will record the document with the appropriate County. Easements will not be recorded until construction is complete and it is determined that no modifications to the easement are required. Any revisions to the easement documents shall be prepared by the property owner and resubmitted to the District for approval.

2.7 Inspection and Testing

The Contractor shall coordinate all Work with the District Construction Inspector.

All materials furnished and all Work performed as indicated on the approved plans shall be subject to inspection by the District Engineer. The Contractor shall be held strictly accountable to the true intent of the Standards with respect to material quality, workmanship, and diligent execution of the Work. Such inspection may include mill, plant, shop, or field inspection as required. The District Engineer shall be permitted access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated; and shall be furnished with such materials, information, and assistance by the Contractor and subcontractors and suppliers as is required to make a complete and detailed inspection. The District shall have unrestricted access to all premises on which any District facilities have

been constructed. The District shall also have unrestricted access at reasonable hours to all premises to which the District provides water, including private water facilities that are connected or may potentially be connected to District facilities, to inspect and to see that the rules and regulations of the District regarding installation of facilities and use of water are being observed.

2.7.1 The Inspector

District Inspectors are authorized to inspect, on behalf of the District Engineer, all Work done and all materials furnished. Such inspection may extend to all or any part of the Work. The Inspector is authorized to call attention of the Contractor to any failure of the Work or materials to conform to the Standards. The Inspector has the authority to reject materials or suspend the Work until any questions at issue can be referred to and decided by the District Engineer or a duly appointed representative. The Inspector shall in no case act as a supervisor or perform other duties for the Contractor, nor interfere with the management of the Work by the Contractor. Any advice the Inspector provides shall in no way be construed as binding to the District in any way or releasing the Contractor from fulfilling all the Contractor's responsibilities.

If the Contractor refuses to suspend operations on verbal order from the Inspector, the District Engineer shall then issue a written order stopping all Work. After delivery of the order to the Contractor or person in charge, the Inspector will immediately leave the job, and all Work done in the absence of the Inspector shall not be accepted.

2.7.2 Work Done in the Absence of Inspection

Work done in the absence of District inspection will require removal and replacement. The entire cost of removal and replacement shall be borne by the Contractor, regardless of whether the Work removed is found to be defective or not.

2.7.3 Testing

All required testing, as outlined in Section 4 of these Standards, and any other testing as determined by the District Engineer, shall be completed and passed prior to Project approval. The Contractor shall furnish all materials and labor necessary to complete all required testing. The Contractor shall be responsible for any retests and any corrective measures deemed necessary by the District Engineer.

2.7.4 Cost of Inspection and Testing

The cost of initial inspection and testing is developed on a per project basis, based on the District's development fees, and collected prior to any water related construction activities. If District expenses exceed the initial calculated inspection fees due to any reason (e.g., non-compliance or failed testing, or estimated less than the actual cost), the Applicant shall pay the difference.

Overtime/off hour construction work, whether required by the District or requested by the Contractor, shall be at the expense of the Applicant. These fees will be determined on a case-by-case basis based on District staff time, equipment, and labor costs. The District's normal business hours are four (4) 10-hour days, Monday through Thursday. Overtime charges shall apply beyond the District 40-hour work week and for any time on Friday, Saturday, Sunday, or District holidays. The Applicant or Contractor shall submit a written request for any overtime or off-hours work two (2) weeks in advance of the planned work and coordinate with the Inspector.

2.8 Use and Service

2.8.1 Beneficial Use

The District may, prior to acceptance of the Work, use any completed part or parts of the Work, providing these areas have been approved for use by the District. Only the District shall operate and maintain parts of the Work in use to ensure continued service to its customers. The exercise of this right shall in no way constitute an acceptance of such parts, or any part of the Work.

District use of part(s) of the Work does not relieve the Applicant or Contractor from completing the remaining Work associated with those part(s) of the Work in use. During the beneficial use period, the Applicant and/or Contractor shall perform maintenance and/or repairs on those part(s) of the Work in use associated with faulty or insufficient materials, workmanship, and/or installation, and any damages associated with the construction of the Project. During construction activities, the Applicant and the Contractor shall protect those part(s) of the Work in use and shall be responsible for responding to any Underground Services Alert (USA) requests for information.

Operation of facilities during the beneficial use period shall be performed by District personnel, or under the District inspector's supervision and with prior District approval. The Applicant and the Contractor shall be responsible for fines and District costs incurred to correct issues caused by unauthorized operation of facilities during beneficial use.

The warranty period for these part(s) of the Work in use shall commence upon District acceptance of all of the Work.

2.8.2 Service

The following conditions shall be met before water is supplied to a property and/or water meters are set:

1. All mains, services, and major appurtenances such as fire hydrants and valves for water systems have been installed to the satisfaction of the Inspector.
2. A meter box for each service has been installed by the Applicant's Contractor.
3. All connections to existing District systems and facilities have been completed.
4. All testing and certification as required in these Standards have been successfully completed.
5. No further construction Work, such as roadwork, will jeopardize the integrity or quality of water facilities already installed.
6. District has access to all operating facilities such as vaults and valves.

The District reserves the right to withhold a portion of project water meters or deny water service until all Work is completed.

2.9 Acceptance and Warranty

Acceptance of the Applicant's Development Project shall occur only after the following conditions are satisfied:

1. All applicable District fees and charges pertaining to the project shall be paid in full.
2. Facilities to be accepted must be adequately protected from on-going construction. Where facilities are installed in paved areas, the final lift of pavement must be in place.
3. All Work, including punch list, shall be completed in accordance with these Standards and the approved Improvement Plans.
4. All required testing has been conducted and successfully completed.

5. The project Record Drawings shall be submitted to the District in accordance with Section 2.10 of these Standards.
6. The Project Acceptance Summary/Value of Facilities Form shall be submitted to the District. A copy of this form is included as Appendix C.
7. Property dedication requirements for water facilities to be dedicated shall be complete.
8. A satisfactory final inspection has been completed.
9. Necessary easement(s) have been accepted by the District.

Once all conditions are satisfied, the District Engineer shall issue a Letter of Acceptance.

Immediately upon issuance of a Letter of Acceptance by the District, the warranty period on all Work shall be in effect. The standard warranty period shall be one (1) year unless the District Engineer requires a longer period.

Any faulty workmanship and/or defective materials, which are discovered within the warranty period, shall be corrected and/or replaced by the Contractor at no expense to the District. The Contractor shall also correct and/or replace any damage to surrounding areas caused by the faulty workmanship and/or defective materials. Such warranty period on the repaired work may be extended for one (1) year after the repair unless the District Engineer requires a longer period.

All repair work (except emergency work) required during the warranty period shall be performed within five (5) working days of issuance of written notification to the Contractor. Emergency work, as deemed necessary by the District, shall be addressed immediately. Emergency work performed by the District on Work of the Contractor; and work performed by the District due to non-performance of the Contractor shall be reimbursed by the District within thirty (30) days of invoice.

At the conclusion of the warranty period, an inspection of the Work will be performed by the District. A letter will be sent to the Applicant releasing the warranty or requesting repair of any deficiencies.

2.10 Record Drawings

The Applicant or the Applicant's Contractor shall maintain one (1) set of full-size prints as Record Drawings and accurately mark thereon the actual work, including any deviations from plan dimensions, elevations, or orientations. Upon completion of the job, the Record Drawings shall be prepared under the supervision of the Applicant's Engineer and submitted in a condition acceptable to the District as a condition of acceptance of the Project. Marked prints shall be updated on a regular basis by the Contractor and shall be available for District review.

At the completion of all Work, Applicant shall submit Record Drawings as follows:

- One (1) full-size copy in PDF form
- One (1) full-size hardcopy set
- One (1) electronic set in the latest AutoCAD format, NAD 83

Record Drawings submitted for approval shall include the following information:

1. Water Facilities Depth: Record drawings shall indicate the depth, clearance, and location of each water facility at a crossing with existing or proposed utilities and where the facilities depth differs by six (6) inches or more from the plans. If possible, the actual depth shall be marked on the profile.
2. Inverts: Any deviation from the invert elevations proposed on the plan shall be recorded.

3. Horizontal Main Alignment: Any change in horizontal main alignment greater than twenty-four (24) inches shall be recorded.
4. Unexpected obstruction and difficulties: All unexpected obstructions or difficulties found during construction shall be recorded, noting the type of obstruction, station and/or location, and dimensions at the point of crossing with water facilities.

All submitted map drawings shall use the Global Coordinate System of USA, California, NAD 83 California State Planes, Zone III, and U. S. feet, unless approved by the District Engineer.

2.11 (RESERVED)

2.12 (RESERVED)

SECTION 3. DESIGN STANDARDS AND CRITERIA

This Section outlines general design information and criteria for water distribution systems that serve District customers. It establishes the District's minimum standards for planning and designing of public water systems. These Standards are not a substitute for the engineering knowledge, judgment, or experience of the design engineer. The standards presented herein shall be reviewed by the Applicant's Engineer and shall be applied as necessary to the Applicant's project.

Proposed variances from these Standards or special designs not addressed in these Standards shall be submitted in writing to the District Engineer. All variances and special designs shall be reviewed and approved by the District prior to District review of the affected portion of the project plans.

3.1 Pipe Sizing Design Criteria

Each water main segment shall be sized to provide sufficient flow and pressure to meet domestic, commercial, and fire flow demands at all times. Water mains designed to serve future development shall also include capacity for future demands. Capacity for future demands shall be as determined by the District Engineer in accordance with the Water System Master Plan and applicable planning documents.

Water mains shall be sized using the Hazen-Williams formula. The design criteria to be used to determine the sizes of the mains in the distribution system shall be the values which are given in the following sections.

3.1.1 Water Supply

Water mains shall be designed to deliver water at a rate sufficient to meet the combined demand of all the service connections served by the system or facilities as described in Table 3-1.

Table 3-1. Design Flow Criteria

Development Type	Design Combined Flow[(a)]
Residential Area	100 percent of maximum daily demand plus fire flow from two (2) nearest fire hydrants within the existing and proposed water system.
Commercial/Industrial Area	100 percent of maximum daily demand plus fire flow from three (3) nearest fire hydrants within the existing and proposed water system.
Transmission Main	100 percent of maximum day transmission main flows plus highest fire flow in the system, as determined by District Engineer by using the District's Water Model and District planning documents, including its Water Master Plan as amended from time to time.

(a) Fire flow shall be as required by the local Fire Authority.

3.1.2 Design Water Demand

Average daily demand shall be calculated based on the water use factors in Table 3-2.

Table 3-2. Water Use Factors	
User Type	Average Daily Demand Water Use Factor, gallons per minute/service connection[(a)]
Single Family Residential	0.31
Multi-Family Residential	0.62
Commercial/Institutional	0.78
Industrial	3.81
Landscape	1.51
(a) Average Daily Demand water use factors are based on the CHWD 2020 UWMP and include the projected 4.8% of non-revenue water.	

Design water demand shall be based on the maximum daily demand. Maximum daily water demand shall be 2.09 times the average daily demand.

3.1.3 Required Fire Flows

Fire flow requirements shall be established by the Fire Authority. For preliminary designs, fire flows shall be in accordance with the criteria in Table 3-3.

Table 3-3. Fire Flow Rates and Duration[(a)]		
Use Type	Flow, gpm	Duration, hour
Single Family Residential	1,500	2
Multi-Family Residential	2,500	2
Commercial/Institutional[(b)]	2,500	3
Industrial[(b)]	4,000	4
(a) Applicant shall contact the fire authority who has jurisdiction about the fire flow requirements. Required fire flow shall be provided on the improvement plans. (b) Fire flow requirements for commercial, institutional, and industrial uses assume the structures will have approved automatic sprinkler systems installed.		

Industrial, institutional, and medium to large commercial developments shall be evaluated on a case-by-case basis by the Fire Authority using procedures as outlined in the Insurance Services Office publication, "Fire Suppression Rating Schedule," latest edition.

In accordance with Section 2.3, the District may conduct a fire flow evaluation for a project upon request.

3.1.4 Pressure Requirements

3.1.4.A System Minimum Pressure

Under normal operating conditions and during maximum day demand scenario, a minimum of forty (40) pounds per square inch (psi) system pressure shall be maintained at all times except under fire flow conditions. Under fire flow conditions with the required fire flow rate plus maximum daily demand, the system residual pressure at the hydrant outlet or the customer's meter outlet shall not fall below twenty (20) psi.

3.1.4.B Typical System Pressure

Static pressure in the District ranges from 75 to 115 psi.

3.1.5 Velocity Requirements

Pipeline stresses shall be minimized and kept within the design limits of the pipe. Water velocity in the main shall account for variable flow conditions, cyclic surging, and water hammer effects. Water velocity shall not exceed seven (7) feet per second (fps) under peak-hour demand.

Under fire flow conditions, velocities up to a maximum of ten (10) fps may be allowed by the District Engineer, provided that consideration is given to the design and operation of control valves, relief valves, and pumps when included in the water system. All requested variances from the maximum flow velocity of seven (7) fps shall require an independent hydraulic analysis conducted by the District or its consultant. Costs for such analysis will be borne entirely by the Applicant.

3.1.6 Allowable Water Main Pipe Materials

Water mains shall comply with AWWA standards and NSF/ANSI Standard 61. Mains 10 inches in diameter and smaller shall be polyvinyl chloride (PVC) pipe C900, DR 14, Pressure Class 305, or ductile iron pipe (DIP), Pressure Class 350.

Ductile iron pipe (DIP), Pressure Class 350 will be required in the following situations:

1. Mains 12-inches and larger.
2. Where separation from structures as stated in this Standard cannot be maintained.
3. Where burial depth of pipe exceeds 6 feet.
4. Where pipeline is located in an unpaved area outside the public ROW.
5. Mains within any arterial roadway.
6. At utility crossings requiring Detail Drawing UC_001.
7. Where thirty-six (36) inches of cover cannot be maintained.
8. In other special circumstances, as determined by the District Engineer.

The Applicant's Engineer shall be responsible for designing the proposed water system in compliance with these requirements. Pipe size, type, and class shall be clearly indicated on the improvement plans.

3.1.7 Pipe Friction Factor

For design consistency, the District requires the use of pipe friction factors shown in Table 3-4 are used in calculations.

Table 3-4. Pipe Friction Factors

Pipe Type	Hazen Williams C Factor
Ductile Iron Pipe (DIP), Cement-Lined	120
Polyvinyl Chloride (PVC) Pipe	130

3.2 Minimum Water Main Size

Water mains shall be a minimum of eight (8) inches in diameter. Upon review and approval, the District Engineer may allow the use of a 6-inch main in small cul-de-sacs or dead-ends without fire flow requirements or hydrants.

3.3 Placement of Water Mains

Mains shall be located within public rights-of-way, public utility easements, or dedicated water easements. Water facilities shall be placed in a separate trench from all other utilities. Water mains shall be located with the required horizontal and vertical separations from all utilities in conformance with Section 3.3.3.

3.3.1 Street

Water mains shall be placed a minimum of three (3) feet from the lip of gutter, in the street, unless otherwise specified by the Plans or Detail Drawings. In any case, mains shall be located so that excavation and repair of the main or its appurtenances will not encroach on private property without a public utility easement or dedicated water easement.

Pipelines shall not be installed under pavers, decorative pavement, or concrete. Furthermore, pipelines shall not be installed within building courtyards or alleyways.

3.3.2 Building and Other Above-ground Structure Set Back from Mains

Water mains shall be placed no closer than seven and one-half (7.5) feet clear from any building or structure foundation.

The installation of mains less than seven and one half (7.5) feet from the building or above-ground structure shall be subject to the approval of the District Engineer. In such cases, DIP shall be used.

Water facilities must maintain a minimum horizontal clearance of twenty-four (24) inches from concrete street light foundations.

3.3.3 Separation of Water Mains from Other Pipelines

All horizontal and vertical separations between water mains and sanitary sewer and storm drainage lines shall meet the minimum installation requirements provided in this section pursuant to Title 22 of the California Code of Regulations. If a conflict arises between these criteria and Title 22 separation criteria, whichever is more stringent shall prevail. Wherever separation criteria cannot be maintained, all special construction criteria must be proposed to and approved by the Division of Drinking Water (DDW) as an alternative. Parallel and crossing requirements are as follows:

1. New water mains shall be installed with a minimum separation of ten (10) feet horizontally and one (1) foot vertically above any parallel pipeline that is conveying sanitary sewer.
2. New water mains shall be installed with a minimum separation of four (4) feet horizontally and one (1) foot vertically above any parallel pipeline conveying storm drainage.
3. All water facilities shall be installed with a minimum separation of four (4) feet horizontally and (1) one foot vertically from any utility other than listed above.
4. All new water mains and services crossing other utilities shall include a minimum separation of one (1) foot above the top of the utility. No connection joints shall be made in the water main within ten (10) feet horizontally from sanitary sewer mains or four (4) feet horizontally from storm drain.

3.3.4 Minimum Cover

Minimum cover shall be measured from the top of pipe to finished grade.

3.3.4.A Water Mains

Minimum cover for water mains shall be thirty-six (36) inches below finished grade and in conformance with the detail drawings in the TREN series.

In cases where minimum cover cannot be maintained, such as at the crossing of a water main with a sanitary sewer main or any other utility line, then either an under-crossing or over-crossing shall be chosen based upon an evaluation by the Applicant's Engineer and approval by the District Engineer. Evaluation shall include the need for higher class pipe or protection of the pipe, ability to meet the DDW criteria for the separation of water mains and non-potable pipelines and the resulting need for either blow off or air and vacuum relief valves. All detailed drawings and calculations involved in this evaluation shall be submitted to the District Engineer for review and acceptance. DIP shall be used wherever cover becomes less than the minimum subject to prior approval. Under no circumstances shall a water main be installed with less than twenty-four (24) inches of cover from finished grade.

3.3.4.B Water Services and Air Relief Service Lines

A minimum of twenty-four (24) inches of cover is required from finish grade.

3.3.4.C Fire Hydrant Lateral Lines

A minimum of thirty-six (36) inches of cover is required from finish grade.

3.4 Connections to Existing Mains

3.4.1 New Main Connections

Existing mains and appurtenances that would otherwise remain in good working condition without disturbance due to new main connection shall be replaced and brought up to current District standards. The extent of facilities to be replaced shall be as determined by the District Engineer.

3.4.2 Water Line Taps

Connection of water service lines to an empty water main shall be by dry tap.

The connection of water service lines two (2) inches or smaller in diameter to pressurized mains shall be made by wet tap or hot tap using a tapping sleeve with a tapping valve. Hot taps greater than two (2) inches in diameter will be reviewed on a case-by-case basis.

Hot taps of the same size as the main (size-on-size) are not permitted.

Hot taps are not allowed for water main extensions six (6) inches and greater in diameter. Connection of water mains shall be by dry tap, connecting to an empty water main. A gate valve shall be installed at the connection for water mains up to twelve (12) inches in diameter, and a butterfly valve for new water mains fourteen (14) inches and greater.

3.5 Easement Requirements and Locations

3.5.1 General Requirements

Easements granted to the District shall allow for the installation, maintenance, operations, and repair of public water facilities, allow for the perpetual right of ingress and egress, and must comply with the following:

1. No other utilities, private or public, shall be constructed within the easement unless they are approved by the District.
2. No buildings, facilities, walls, fences, or other structures shall be situated within the easement.
3. Planting of trees is not allowed within the easement.
4. Easements shall be prepared and granted to the District as outlined in Section 2.6.

3.5.2 Easement Location and Access

The full easement width shall be located on a single parcel or lot. Access to District facilities shall not be obstructed by walls, trees, or other permanent improvements. Where this requirement cannot be met without interfering with existing buildings, easements may straddle lot lines providing approval is received from the District Engineer.

3.5.3 Easement Size

Facility location within the easement will be determined by the District and in general shall meet the following size requirements:

1. Easement for Transmission Mains shall be a minimum of twenty (20) feet wide. Where additional public water facilities (e.g., air and vacuum relief valve [ARV], blow off valve [BOV], or hydrant) are to be installed or are already existing on the transmission main, the easement shall encompass all facilities with a minimum of five (5) feet buffer on all sides.
2. Easement for Distribution Mains shall be a minimum of fifteen (15) feet wide (five [5] feet and ten [10] feet from the pipe center line). Additional easement width may be required where the depths of bury exceed ten (10) feet, or as deemed necessary by the District Engineer.
3. Easement for Hydrants, ARVs, and BOVs shall be a minimum of ten (10) feet wide, centered over the facility, and shall provide a minimum of five (5) feet buffer on all sides.
4. Easement for Water Services, when required based on Section 2.6, shall be a minimum of ten (10) feet wide, centered over the service line, and shall provide a minimum of five (5) feet buffer on all sides.
5. Easement for Water Wells or Other Facilities shall be determined by the District.
6. Easement for water mains shall have a minimum of twenty (20) feet vertical unobstructed access.

3.6 Layout of Mains

3.6.1 Water Main Looping

All water mains shall be designed in a looped system. At looped connections, tee or cross fittings shall be used and valves installed at the main or branches. Cross fittings shall have up to four (4) valves; tee fittings

shall have up to three (3) valves as determined by the District. The District may require the Applicant to construct additional water mains outside of the project boundary to provide a looped system for the area.

Maximum unconnected water main reaches shall be determined on a case-by-case basis and verified by analysis by the District's water model to meet District service criteria.

3.6.2 Dead End Mains

All mains shall have a minimum of two points of connection, except dead-end mains, which may be allowed for cul-de-sacs and dead-end streets. Dead-end mains shall be provided with a blow-off valve or other means of flushing acceptable to the District. The maximum length for dead-end mains shall be 500 feet, unless approved by the District Engineer. Dead-end mains intended for future extension shall include a blow-off valve and be sized by the District.

3.6.3 Main Extension

Per District Policy 8300, water mains shall be constructed in the public rights-of-way adjacent to the entire frontage of the parcel and/or in an approved easement. The minimum pipe size required in the frontage and within the easement shall be in accordance with Section 3.1, or as required by the District.

At the discretion of the District Engineer, if the main extension along the entire frontage (and or side street for corner lots) is not necessary, the main shall be extended to the location identified by the District. The Applicant shall then install a service line at their own expense from the water meter to the property and shall be responsible for obtaining appropriate property rights required for installation of the water service line.

3.6.4 Dual Mains

Dual mains (one main on each side of the street) shall be installed on streets constructed with either:

1. A raised center median separating opposing lanes of traffic, or
2. A public right-of-way width of 80 feet or greater.

The minimum size of the main shall be as required in Section 3.2. Larger sized mains may be required to serve multi-family residential, commercial, or industrial projects or areas, as determined by an analytical evaluation of the anticipated requirements.

The District Engineer may waive this requirement based on review of local water system reliability and determination of minimal interruption of water service to customers.

Dual mains shall be interconnected ("cross-tied") as required by the District Engineer.

3.6.5 Horizontal and Vertical Curves

In curved streets, the main shall follow the street curvature, and the alignment shall be planned to minimize crossing the street centerline. In general, horizontal and vertical curves shall be formed by deflecting the joints or by use of fittings. The amount of deflection in a joint shall not exceed fifty (50) percent of the value recommended by the pipe manufacturer or in accordance with AWWA standards, whichever is more stringent. Individual lengths of PVC pipe shall not be bent.

3.7 Distribution System Appurtenances

Materials for all distribution system appurtenances shall be as listed in Section 4 of these Standards.

3.7.1 Valves

3.7.1.A Gate Valves

Gate valves shall be resilient wedge gate valves (AWWA C509) and shall be installed on all distribution mains twelve (12) inches in diameter and smaller such that:

1. No more than four valves need to be closed to shut down and isolate any section of water main.
2. Cross fittings shall have up to four (4) valves at the cross and tee fittings shall have up to three (3) valves at the tee, as determined by the District.
3. A minimum of one valve, located on the fire hydrant lead, is required at any tee installed for a fire hydrant.
4. Valves are no more than 800 feet apart on distribution mains, unless otherwise approved by the District.
5. No distribution main shutdown shall result in shutting down a transmission main.
6. No more than two (2) fire hydrants shall be out of service from any single shutdown.
7. Valves are placed on both sides of all casings and crossings of bridges, drainage channels, irrigation canals, railroads, and arterial roads.
8. Valves shall not be located in gutters or in driveways, if possible.
9. If an inline valve is required, it shall be located on a property line.

3.7.1.B Butterfly Valves and Gear Actuated Gate Valves

Butterfly valves shall be resilient seat valves (AWWA C504) and shall be placed to isolate transmission mains fourteen (14) inches in diameter and larger such that valves are no more than 2,000 feet apart on the transmission main, unless otherwise required by the District.

Gear actuated gate valves (AWWA C515) may be required by the District in place of a butterfly valve at specific locations identified by the District.

A minimum of one blow-off valve or hydrant, and one air and vacuum relief valve, shall be installed between isolation valves on mains 14 inches or larger.

Valve symbols shall indicate on which side of the pipe to install valve operator (valve box). No more than one valve operator shall be located in a single quadrant of a tee or cross.

3.7.1.C Combination Air and Vacuum Relief Valves

The water distribution system shall be designed to minimize high points where air can accumulate. All high points in the distribution system shall be provided with combination ARVs (AWWA C512). ARVs shall be provided in accordance with Table 3-5.

Table 3-5. Combination Air and Vacuum Relief Valve Sizing

Pipe Diameter	ARV Size
6 to 12 inches	1 inch
14 to 24 inches	2 inches

Any pipe larger than 24 inches in diameter shall have an ARV designed by an engineer to allow for proper release of air and prevent vacuums during operation and maintenance.

ARVs shall be installed in accordance with Detail Drawings in the AV series. When possible, ARVs shall be located behind sidewalks, outside traffic areas, or within public rights-of-way or easements. ARVs shall be accessible to District personnel at all times.

3.7.1.D Blow off Valves

Blow off valves (BOVs) shall be installed at all low points and dead ends. BOVs shall be designed to allow dewatering sections of main for maintenance and repair or for water quality flushing. The District may require the installation of a fire hydrant in lieu of a BOV at dead ends.

BOV sizing shall be as identified in Table 3-6.

Table 3-6. Blowoff Assembly Sizing

Pipe Size / Blow off Valve Type	BOV Size / Detail Drawing No.
Up to 12-inch pipe / dead end	2-inch Blowoff / BO_511
Up to 12-inch pipe / low point	2-inch Blowoff / BO_512

Any pipe larger than twelve (12) inches in diameter shall have a BOV designed by an engineer to allow for proper flushing velocity and flow.

BOVs shall be installed in accordance with Detail Drawings in the BO series. When possible, BOVs shall be located outside of traffic areas. BOVs shall be accessible to District personnel at all times.

3.7.1.E Tapping Valves

All taps into existing mains shall include tapping valves.

3.7.2 Fire Hydrants

Hydrants (AWWA C502 and C503) shall be located to provide adequate water for fire protection needs.

Hydrants shall be located with a maximum separation, as measured along the street curb, as follows:

1. Single Family Residential Areas: Five hundred (500) feet
2. Commercial and Multi-Family Residential Areas: Three hundred (300) feet

The local Fire Authority has ultimate authority for the location of hydrant placement. If feasible, within residential areas, hydrants shall be located on property lines between lots.

Hydrants shall be located within public rights-of-way, public utility easements, or dedicated water easements. Hydrants shall be located no less than three (3) feet from above ground surface features to provide unobstructed access in conformance with Detail Drawings in the FH series. Bollards shall be installed around fire hydrants (e.g., parking lots) as required by the District.

Hydrant runs shall not cross curb returns. The hydrant lateral line shall be a minimum of six (6) inches DIP. The District may require a larger diameter service line if the length exceeds fifty (50) feet.

Blue reflective hydrant markers shall be installed in accordance with the requirements of the Fire Authority, immediately upon being placed into service.

3.7.3 Metered Water Services

All water services shall be metered per District Policy 8000 series. The number of service connections and water service sizes, and water meter sizes shall be in accordance with District Policy 8000 series. Common spaces (e.g., pools and community buildings) shall be served by dedicated meters with a minimum size of three-quarters (3/4) inch.

3.7.3.A Single Family Residential

A separate water service shall be installed for each residential parcel. The water service and meter size shall be as summarized below. The water service line size shall be equivalent to the proposed meter size, except for three-quarters (¾) inch meters as described below.

Single Dwelling – Detached: Single parcel with one (1) detached dwelling unit; minimum one (1) inch service line and meter.

Single Dwellings – Detached: Single parcel with two (2) detached dwelling units, one of which is an accessory dwelling unit (ADU); minimum one (1) inch service and meter. An additional one (1) inch service line and minimum three-quarters (3/4) inch meter may be allowed for the ADU.

Halfplex Dwelling – Attached: Common wall halfplex designed for occupancy by two households, each side being its own parcel; minimum one (1) inch service line and minimum three-quarters (3/4) inch meter per parcel.

Duplex Dwelling – One side: Common wall duplex designed for occupancy by two households living independently of each other, on a single parcel; one (1) service line supplying each side, minimum one (1) inch service lines and minimum three-quarters (3/4) inch meters.

Condominium/Townhome: Multiple (3 or more) attached dwellings, where each unit has its own front access on the ground floor, each having its own service; minimum one (1) inch service line and minimum three-quarters (3/4) inch meter.

Residential Parcels: Requests for water service lines and meter sizes exceeding the minimum will be evaluated on a case-by-case basis.

When possible, residential services and meters shall be installed within three (3) feet of adjacent property lines. Services for adjacent lots shall be located on the shared property line with a minimum of three (3) feet of separation.

3.7.3.B Multi-Family Residential

Multi-family residential communities, consisting of one or more residential buildings, each divided to accommodate three (3) or more households living independently of each other in separate dwelling units, and mobile home communities, consisting of any site on which two or more residential mobile home lots are located, may be served by either of the following methods, as determined by the District Engineer in accordance with District Policy 8000 series:

- For communities with no existing District-owned mains through the property, metered service(s) shall be installed adjacent to the public ROW. All water facilities after the meter(s) are private.

- For communities with existing District-owned mains through the property, metered services shall be installed at each multi-unit building or mobile home space. Services shall be connected to District-owned mains internal to the community, all located in dedicated water easements or PUEs.

Service and meter size shall be determined by the Applicant's engineer based on maximum continuous demand.

3.7.3.C Non-Residential

Service and meter size shall be determined by the Applicant's engineer based on the maximum continuous demand and shall be a minimum of one (1) inch in diameter.

Non-residential properties requiring internal mains and service lines may be designed for private ownership or District ownership within an easement, as determined by the District Engineer based on offsite impacts to the water system.

3.7.3.D Dedicated Irrigation Meters – Residential and Non-Residential

A parcel shall have a separate irrigation meter when the parcel includes more than the prescribed square footage of irrigable landscape area per the authority having jurisdiction, in accordance with Policy Series 8000. The irrigation meter shall be either part of a dedicated metered irrigation service from the District or a privately owned submeter.

3.7.3.E Meter Locations

Water meters shall generally be located outside of traffic areas and shall conform to the District's Detail Drawings in the WS Series. Water meters and services shall be located in areas accessible to District personnel or agents at all times. Water meters and services not located on the property being served will require an easement, as determined by the District Engineer.

3.7.4 Meter Banks

In areas where water services and meters are installed in a bank of (3) three or more, the Applicant's Improvement Plans shall include the alignment of each private service line from meter to structure. Design and construction of these "meter banks" shall be developed in coordination with the District Engineer. Each meter shall be installed with permanent identification tags clearly indicating the address of the unit served.

3.7.5 Fire Service Lines

Fire lines shall be provided as required by the local Fire Authority and as specified below.

1. Fire Service for Single Family Residential Dwellings: The metered domestic water service to single family residential dwellings may be used for fire protection purposes. The Applicant's engineer shall size the water service to provide adequate flow for both domestic use and fire protection.
2. Fire Service for Non-residential Facilities and Multi-family Dwellings: A dedicated fire service(s) is required for commercial/industrial and institutional facilities and multi-family dwellings when protection is required by the Fire Authority.
3. Fire service shall be sized by the Applicant's engineer.

4. Fire service design and construction shall conform to the District's Detail Drawings in the FP series.
5. A backflow prevention device shall be installed on the fire service in accordance with Section 3.7.6.

3.7.6 Backflow Prevention Devices

Backflow prevention devices shall be installed in the branch or service line supplying water to residential, commercial, or institutional customers where a potential exists for back siphonage of water into the distribution main, in accordance with the California State Water Resources Control Board Cross Connection Control Policy Handbook (CCCPH) and District cross-connection and backflow prevention regulation (included as Appendix F). In general, backflow prevention devices shall be installed on services to the following:

1. Single family residential services with auxiliary water supply, such as groundwater wells or water storage tanks
2. Irrigation water services
3. Multi-family residential, commercial/industrial, institutional, and governmental water services
4. Fire service lines

Backflow devices shall be listed on the most current List of Approved Backflow Prevention Assemblies published by the Foundation for Cross-Connection Control and Hydraulic Research, a Division of the University of Southern California, and as approved by the District. Backflow devices must also be on the District's list of approved products in Section 4.3.10 of these Standards.

All backflow devices shall be installed outside of building structures, and a minimum of thirty (30) inches and a maximum of sixty (60) inches downstream of the water meter. Backflow prevention devices for fire lines shall be located as close to the water main connection as feasible, at or near the property boundary and out of traffic areas.

3.7.6.A New Services

Backflow prevention devices shall be installed on all new services connected to the District water system, except for single-family residential users without auxiliary water supply.

3.7.6.B Existing Services

The District shall review existing water services for tenant improvement projects for conformance with current State and/or District standards and regulations. If the District determines that protection from backflow is needed, the existing water facilities shall be upgraded to comply with the current standards, in accordance with District Policy 8400.

3.7.7 Thrust Blocks and Restrained Joints

3.7.7.A Mechanical Joints

All mechanical joints shall be restrained.

3.7.7.B Thrust Blocks

Thrust blocks shall be provided for all horizontal bends of 11-1/4 degrees and greater, tees, crosses, reducers, dead ends, and as required by the District Engineer. Thrust blocks for fittings

up to twelve (12) inches shall comply with District standard drawing TB_001. Thrust blocks for fittings larger than twelve (12) inches shall be sized by the applicant's engineer. Thrust blocks shall be designed for test pressures of 150 psi with a minimum safety factor of 1.25.

3.7.7.C Restrained Joints

For all vertical bends of 11-1/4 degrees and greater, and in instances where thrust blocks are not feasible, restrained joints, tie rods, or other methods of anchoring the pipes and fittings shall be provided. Such alternate methods shall be designed by the applicant's engineer and subject to approval by the District Engineer.

Pipe joints shall be mechanically restrained for pipe installed on slopes exceeding thirty (30) percent.

3.7.8 Sampling Stations

Sampling stations shall be installed at locations where required by the District Engineer in accordance with Detail Drawing WS_079. Sampling stations shall be located behind curbs or sidewalks, outside traffic areas, and within public ROW, PUE, or dedicated water easement, where it is accessible to District personnel or its agents at all times.

3.8 Special Conditions

3.8.1 Separation from Structures

Proposed water facilities shall be located to protect all existing and proposed structures. The minimum clear separation from any structure shall be seven and one-half (7.5) feet horizontally and one (1) foot vertically. If this minimum cannot be maintained, the following modifications may be required:

- Upgraded pipe material
- Pipe encasement

In such cases, the Applicant's engineer shall be responsible for the design and submission of the modification to the District for review and approval.

3.8.2 Flexible Joints

Flexible joints shall be installed when water mains transition from below ground to above ground, where water mains enter a bridge or encasement, or in any other situation where differential settlement may be a concern, as determined by the District Engineer. The Applicant's engineer shall be responsible for the design and submission to the District for review and approval.

3.8.3 Steep Grades

Water mains proposed on grades steeper than thirty (30) percent and not under nor intended to be under pavement shall be provided with special erosion protection over the pipe trench. As a minimum requirement, ground cover shall be planted. Trench dams to control water and sediment flow, diversion structures, and other surface improvements shall be required for slopes steeper than 10 percent.

The Applicant's engineer shall be responsible for the design of special erosion protection of the pipe and submission to the District for review and approval.

3.8.4 Water Mains Mounted on a Structure

Water mains mounted on a structure may be required in special situations and will require District approval. A structural engineer shall prepare the design plans and calculations for review and approval by the District. The design shall include the following:

1. Pipe shall be DIP with internal restrained joints and external restrained fittings.
2. Flexible joints, as required.
3. Pipe support system.
4. ARV with cover at high point.
5. Valves, as required.
6. Pipe protection measures to prevent vandalism or unauthorized access, as required.

3.8.5 Trenchless Construction

Boring and jacking, or horizontal directional drilling (HDD), may be required in specific situations and shall require prior approval by the District. A geotechnical evaluation shall be completed to verify soil conditions and viability of design. The design shall include the following:

1. Bore and jack shall be designed in accordance with Detail Drawings in the BORE series.
2. The design shall be shown in plan and profile with clear horizontal and vertical distances from existing structures.
3. Pipe installed within casings shall be supported by polyethylene runners.
4. The casing pipe shall be sized to provide adequate space to allow for the installation of pipe centralizers/runners and no less than eight (8) inches greater in diameter than the water pipe to be installed.
5. Pipe shall be ductile iron with restrained joints.
6. End seals shall be provided.
7. An in-line blow off valve or fire hydrant shall be provided at the low point in accordance with Detail Drawing BO_512 or FH_621.
8. ARVs may be required on one or both sides of the trenchless installation.
9. Valves on either side of the trenchless installation may be required.

3.9 Corrosion Protection

Cathodic protection systems, if required by the District, shall be designed by a licensed Corrosion Engineer and approved by the District. The cathodic protection system shall include test stations on all reaches of the pipeline.

3.10 Abandonment of Water Facilities

When existing water facilities are to be abandoned, they shall be physically disconnected from the active water system and rendered inoperable. All water mains designated for abandonment shall be abandoned in place and capped and sealed to the satisfaction of the District. If the abandonment of facilities in place is not feasible, the facilities shall be completely removed. The extent of removal shall be determined at the discretion of the District Engineer. Water mains twelve (12) inches and smaller shall be cut and capped, or plugged and completely encased in concrete, at each end. Water mains larger than twelve (12) inches shall be completely filled with sand or cement slurry mixture and capped, or plugged and completely encased in

concrete, at each end. Where an existing main is to remain in service, the tee or cross shall be blind flanged and restrained with a thrust block.

The meter, meter box, setter, and wood supports, for water service lines connected to water mains to be abandoned shall be removed.

When a water service line is to be abandoned on a main that will remain in service, the water service line and service saddle shall be removed. A minimum twelve (12) wide full circle stainless steel repair band shall be installed around the water main.

Abandonment of any water facilities or structures not listed in this section shall be as directed by the District.

SECTION 4. CONSTRUCTION STANDARDS

This Section outlines the materials, installation, testing, and general construction requirements for the water system intended to deliver water to District customers. It establishes the District's minimum standards for constructing all water facilities.

These standards do not replace all construction requirements. If a specific construction requirement is not addressed in these Standards or the approved Project Plans, the appropriate requirements from the authority having jurisdiction shall apply. The Applicant's Engineer and the Applicant's Contractor must review and apply these standards to the Applicant's projects, as necessary.

4.1 General Requirements

4.1.1 Approved Plans Required

No work shall commence on any water facilities which are intended to be attached to the District's system unless the Contractor is in possession of complete, fully approved plans and specifications bearing the signature of the District Engineer or duly authorized representative and covering all phases of the proposed construction. At the District Engineer's discretion, smaller projects, such as a single water service, may be allowed to submit simplified plans.

4.1.2 Reference to Standards

References to standards in these specifications shall always pertain to the most recent officially adopted revision, including but not limited to AWWA, ASTM, manufacturer standards, and other relevant guidelines.

4.1.3 Construction Safety

The Contractor shall be responsible for initiating, maintaining, supervising, and enforcing all safety precautions and programs related to the Work, as required by Labor Code Section 6401.7. The Contractor must take all necessary measures to ensure the safety of all workers on site and other individuals who may be affected by the Work.

The Contractor shall adhere to all applicable laws, ordinances, rules, regulations, and orders of any authority having jurisdiction for the safety of persons or property to protect them from damage, injury, or loss. This includes compliance with Cal/OSHA standards and the Construction Safety Orders and rules of the Division of Industrial Safety, State of California, as contained in the California Administrative Code, Title 8, Chapter 4, and any subsequent amendments.

4.1.4 Asbestos Cement Pipe Handling

The District requires a current certificate of completion for training that qualifies individuals to perform asbestos construction work with asbestos cement pipe. Training must meet all applicable local, state, and federal regulations, as well as the District's Asbestos Cement Pipe Safety Plan.

4.1.5 Traffic Control

The Contractor shall comply with all local ordinances and regulations established by the authority having jurisdiction for traffic control. A traffic control plan shall be prepared and submitted with the application for an encroachment permit. The Contractor must obtain approval from the authority having jurisdiction prior to starting construction. A copy of the approved encroachment permit, including the traffic control plan, shall be provided to the District before construction begins.

4.1.6 Utilities and Existing Facilities Coordination

The Contractor is responsible for locating and protecting all existing utilities within the project limits. The Contractor must notify Underground Service Alert (USA) at least forty-eight (48) hours before any underground construction. Existing underground utilities must be exposed and their locations and elevations verified prior to constructing new improvements. Fire hydrants on or near the work site must always remain accessible to firefighting equipment.

Any damage to existing pipelines, services, utilities, fences, buildings, landscaping, or other improvements shall be repaired or replaced by the Contractor at their expense.

Where construction impacts existing water facilities, the Contractor shall replace the affected facilities in accordance with the District's Standards and District Engineer requirements.

If an unexpected water facility not shown on the Improvement Plans is encountered, the Contractor must immediately notify the District. The District Engineer will decide whether to modify the Improvement Plans, relocate the utility, or have the contractor work around it.

4.1.7 Permits, Licenses, and Fees

The Contractor shall obtain all required permits and licenses, and pay any applicable fees required for construction of the Work. All Contractors performing work must hold a valid license under California law and in accordance with Section 2.1.4 to undertake such work. The Contractor shall acquire all permits necessary for construction, including any required encroachment permits for work within city, county, or state rights-of-way or easements. The Contractor shall comply with all requirements imposed by the authority having jurisdiction as specified in the encroachment permit.

4.1.8 Security

The Contractor shall be responsible for the security and protection of the job site, including all work, materials, equipment, and existing facilities, until final acceptance of the work measures must be taken to prevent vandalism and unauthorized access.

4.1.9 Pre-Construction Meeting

An on-site pre-construction meeting shall be held at least two (2) days before construction. The meeting will include the District Inspector, Applicant’s Engineer, representatives of any authorities having jurisdiction, and the Applicant’s Contractor to review materials, schedule inspections, discuss the approved water system construction plans, and arrange any necessary tie-in connections. The Contractor must possess the approved improvement plans before the pre-construction meeting and throughout the construction process. Pre-construction meetings shall only be scheduled after all water related fees are paid.

The Contractor shall contact the District five (5) working days prior to the requested pre-construction meeting.

4.1.10 Required Notice

The Contractor shall notify the District at least three (3) days before commencing construction. The Contractor must also provide the District with at least two (2) days’ notice when inspections are required, as outlined in Section 4.2.1.

4.1.11 Water System Shutdown

Only District personnel are authorized to perform water system shutdowns. Under no circumstances shall anyone other than a District representative open or close any valve in the District's system.

The Contractor must notify the District Engineer in writing at least seven (7) calendar days before a required shutdown to allow the District to provide advance notice to affected customers and the local Fire Authority. The written notice shall specify the expected duration and extent of the shutdown. Shutdowns shall not begin until the District Inspector verifies that the Contractor is present on-site and prepared with the necessary personnel, materials, and equipment as specified on approved plans.

Generally, shutdowns shall be scheduled to minimize interference with water usage by any District customer. If the shutdown period exceeds normal working hours, the Contractor will be responsible for the District's costs associated with providing overtime inspections.

4.2 Control of Work and Materials

4.2.1 Inspection Requirements

All construction inspection and testing are subject to provisions outlined in Section 2.7, Inspection and Testing, of these Standards. District Inspectors, acting on behalf of the District Engineer, are authorized to inspect any portion of the Work and all materials provided. Inspections may extend to all, or any part of the construction process as needed.

Typically, District construction inspection is required at the following stages:

1. Upon material delivery, prior to installation
2. During the installation of any facilities, before initial backfill
3. After initial backfill has been placed
4. During hydrostatic and bacteriological testing

The Contractor must keep the District construction inspector informed of the general progress of water system construction. Work performed without District inspection may require removal and replacement at the Contractor's expense.

If the Inspector identifies any failure of the Work or materials to meet the Standards, approved plans, or safety requirements, they may verbally notify the Contractor. The Inspector has the authority to reject materials or halt Work until the issue is resolved by the District Engineer or a duly appointed representative.

If the Contractor refuses to suspend operations on verbal order from the Inspector, the District Engineer shall then issue a written order stopping all Work. After delivery of the order to the Contractor or person in charge, the Inspector will immediately leave the job, and all Work done in the absence of the Inspector shall not be accepted.

4.2.1.A Final Inspection

Within ten (10) days after receiving a request for a final inspection, the District will inspect the completed work. The District will provide written notification to the Contractor, Applicant's Engineer, and the Applicant regarding any defects or deficiencies that must be addressed. The Contractor shall promptly correct any identified issues. Once corrective actions are completed,

the District will conduct a follow-up inspection to ensure compliance with the plans. The District will not accept the work or project until all deficiencies have been resolved to its satisfaction.

4.2.2 Lines and Grades

All Work shall be performed in accordance with the lines, grades, and elevations shown on the District approved Improvement Plans.

Basic horizontal and vertical control points will be established or designated by Applicant's Engineer. These points serve as the datum for the work. As a part of the construction, the Applicant's Engineer or Contractor shall perform all necessary surveys, layouts, and measurement tasks.

The Applicant's Engineer or Contractor shall provide skilled personnel, appropriate instruments, tools, stakes, and materials required for survey and layout tasks. Additionally, they must furnish competent staff and necessary equipment to establish control points, set construction easement boundaries, and verify the accuracy of survey work. Survey cut sheets showing stations, grade elevations, and cut and fill amount shall be submitted to the District Inspector prior to starting any work.

4.2.3 Materials Approval

At least ten (10) days before the pre-construction meeting, the Contractor shall submit a list of all materials proposed for use in the water system construction to the District for approval. The list must include the manufacturer, location of manufacture, and model number for each item. Construction work involving water system components shall not commence until all material submittals are approved by the District.

4.2.4 Quality of Material

All materials incorporated into the work shall be new and of a quality equal to or better than specified in these Standards. If the specified grade of a material is not clear, the highest quality available shall be used.

The Contractor shall, upon request, provide the District Engineer with authenticated documents or other proof demonstrating compliance with the specifications. This may include factory or laboratory test reports that verify the strength and quality of materials used. For all reinforced concrete work, the Contractor shall submit the mix design and calculated concrete strength prepared by the concrete supplier before pouring, if requested.

4.2.5 Substitutions

Where specific brands or trade names are listed in the Standards, the Contractor may propose alternative materials if they demonstrate equivalent design, quality, and efficiency. Any proposed substitution must be submitted in writing to the District Engineer, accompanied by supporting data. The District Engineer will review the proposal and provide a response within ten (10) business days.

No deviations from the Standards will be allowed unless the District Engineer approves substitutions. Any schedule delays resulting from submittals or use of "or equal" materials will be the sole responsibility of the Contractor.

4.2.6 Defective Material and Work

Any materials that do not conform to the specified requirements will be considered defective. Such materials, whether installed or not, shall be rejected and removed from the project site at the Contractor's expense.

4.2.7 Quality of Workmanship

All construction work shall be performed by experienced personnel under competent supervision, using best practices to meet the District's standards. The District reserves the right to reject any work that does not meet the required quality.

4.3 Materials

This section specifies the materials required for water mains, fittings, and other components in the distribution system. All materials must be certified for potable water systems, comply with AWWA standards, and meet NSF 61 potable water certification. Additionally, they must adhere to California Assembly Bill (AB) 1953, which mandates a lead content of less than 0.25 percent lead by average weight.

4.3.1 Materials and Brand Names

All materials supplied under these specifications shall be new and exhibit the functional quality and efficiency specified. Where a brand or trade name is specified, it indicates a product known to meet the operational requirements. The Contractor must provide adequate documentation if proposing alternative materials, as outlined in Section 4.2.5.

All material proposed to be used shall carry the AWWA stamp of approval with test results to verify the material satisfies AWWA Standards and shall be subject to approval by the District Engineer.

4.3.2 Water Pipe and Fittings

Pipe used in constructing the water distribution system shall be one of the types specified below unless a particular type is explicitly required or shown on the approved plans.

All Water main materials must comply with Section 3 of these Standards. Pipes shall be free of defects and discoloration.

4.3.2.A Ductile Iron Pipe

DIP shall meet the requirements specified in AWWA C151. Pipes shall be lined and coated as specified herein.

The minimum pressure class for DIP shall be 350.

4.3.2.A.1 Joints for DIP

Joints for DIP shall be selected to suit the installation conditions. Gaskets for push-on joints, mechanical joints, and flanged joints shall consist of standard styrene- butadiene rubber in accordance with AWWA C111 and AWWA C115. Joints shall be in accordance with the AWWA C111 for push-on and mechanical joints, and AWWA C115 for flanged joints. Minimum rating of all joints shall be 250 psi. Flange gaskets shall be one-eighth (1/8) inch, either ring type or full face, in accordance with AWWA C115.

Push-on restrained joint pipe and fittings for ductile iron shall be boltless and capable of deflection after assembly. Restrained joints shall be rated for 350 psi working pressure for sizes four (4) inch through twenty-four (24) inch and 250 psi working pressure for sizes thirty (30) inch and thirty-six (36) inch. Restrained joint pipe and fittings shall be of the same manufacturer.

Manufactured restraint systems for mechanical joints shall be wedge type or wedge collar and rod type. Wedge type restraint systems shall use twist off bolts to ensure proper gripping pressure. Systems that rely on set screws only will not be acceptable.

4.3.2.A.2 Fittings for DIP

All fittings used with DIP shall be ductile iron and conform to AWWA C110 and AWWA C153 with flanged and/or mechanical joints as required.

Flange gaskets shall be one-eighth (1/8) inch thick, either ring type or full face, conforming to AWWA C115.

4.3.2.A.3 Lining and Coating for DIP and Fittings

DIP shall have a cement lining in accordance with AWWA C104 and have an asphaltic coating in conformance with AWWA C151.

4.3.2.A.4 Approved Manufacturers and Products

1. Piping
    a. American Cast Iron Pipe Company
    b. McWane Ductile
    c. US Pipe
2. Mechanical Joint Restraints
    a. EBAA Iron Series 1100 Megalug
    b. Star Pipe Products Stargrip Series 3000
    c. Tyler Union TUFGRIP Series 1000
3. Push-On Joint Restraints
    a. FIELD LOK350®
    b. TR FLEX® with TR FLEX Gripper Ring®
4. Fittings
    a. Tyler Union
    b. Star Pipe Products
    c. SIGMA

4.3.2.B Polyvinyl Chloride Pressure Pipe

All PVC water pipes shall conform to the requirements as specified in AWWA C900. PVC pipe shall be DR 14, Pressure Class 305and manufactured within eighteen (18) months prior to installation.

The standard length of PVC pipe shall be twenty (20) feet with cast iron outside diameters.

4.3.2.B.1 Joints for PVC Pipe

PVC pipe joints shall be made with elastomeric gasket bell ends, which shall be integral and thickened, conforming to AWWA C900 standards. Gaskets shall conform to the requirements of ASTM F477.

Manufactured restraint systems for mechanical joints shall be wedge type or wedge collar and rod type. Wedge type restraint systems shall use twist-off bolts to ensure proper

gripping pressure. Systems that rely solely on set screws are not acceptable. Mechanical restrained joints used on PVC pipe shall be specifically designed and rated for PVC use.

4.3.2.B.2 Fittings for PVC Pipe

All fittings for PVC pipe shall be in accordance with Section 4.3.2.A.2 of these Standards.

4.3.2.B.3 Lining and Coating for PVC

No lining or coating is required for PVC pipe.

4.3.2.B.4 Approved Manufacturers and Products

1. Piping
    a. Diamond Plastics
    b. JM Eagle
    c. North American Pipe Corporation
    d. Northern Pipe Products
    e. Vinyltech
2. Mechanical Joint Restraints
    a. EBAA Iron Series 2000PV Megalug
    b. Star Pipe Products Stargrip Series 4000
    c. Tyler Union TUFGRIP Series 2000
3. Fittings
    a. Tyler Union
    b. Star Pipe Products
    c. SIGMA

4.3.3 Valves and Valve Boxes

All main valves and fire hydrant valves shall be provided with traffic-rated valve boxes and cast iron lid, marked with the word “WATER.”

All AWWA key-operated valves, twelve (12) inch and smaller, shall be resilient wedge gate valves unless otherwise specified.

Valves fourteen (14) inch and larger shall be butterfly valves unless otherwise specified.

All valves shall be flanged to fittings unless otherwise noted.

4.3.3.A Gate Valves

Gate valves shall be ductile iron with fusion-bonded epoxy coating and conform to AWWA C509. These valves shall be resilient wedge type valves with non-rising stems and have “O” ring stuffing boxes. Stuffing boxes shall be bolted and designed for easy repair. Valves shall open counterclockwise and have a two (2) inch square operating nut. Valves twelve (12) inches and smaller shall be hydrostatically tested and drop-tight at a pressure of not less than 500 psi and rated for 250 psi working pressure.

4.3.3.A.1 Approved Manufacturers and Products

1. Clow, Model 2639
2. Kennedy Valve, Model KS-RW
3. Mueller, 2360 Series

4. American, Series 2500

4.3.3.B Butterfly Valves

Butterfly valves, fourteen (14) inches and larger, shall be rubber-seated conforming to AWWA C504 Class 250B. Valves shall open counterclockwise and have a two (2) inch square operating nut. Each butterfly valve shall be provided with a manual gear actuator, with stops in the full open and full closed positions, designed for buried service.

4.3.3.B.1 Approved Manufacturers and Products

1. Mueller / Pratt HP250™
2. Clow, Style 4500 (14”–24”) and Style 1450 (30”–54”)

4.3.3.C Air Release and Vacuum Relief Valves

Air release and vacuum relief valves shall be single-body, combination air release valves conforming to AWWA C512. The valves shall be sized according to the line size and pipe length they are designed to protect.

The valve body shall be rated for a working pressure of at least 200 psi, coated with fusion-bonded epoxy, and constructed with stainless steel floats corrosion-resistant components, such as brass, bronze, or stainless steel. Air release and vacuum relief valves shall be assembled and installed in accordance with Detail Drawings in the Air/Vacuum Valves (AV) series, as required.

4.3.3.C.1.Approved Manufacturers and Products

1. Crispin, UL Series

4.3.3.D Tapping Sleeves and Tapping Valves

Tapping sleeves conforming to this specification and conforming to AWWA C223 shall be used for all wet tapped connections larger than two (2) inches onto an existing water main. The tapping sleeve for wet tapping of PVC, ductile iron, or ACP water mains shall be a stainless steel (Type 304) tapping sleeve assembly, complete with gaskets and bolts. Each tapping sleeve shall include a tapping valve of the same size as the branch tallowing attachment of a drilling machine for tapping the main. The tapping sleeve and valve shall have a minimum rating of 250 psi working pressure. Tapping valves shall have a two (2) inch square nut operating nut.

Tapping sleeves shall be fully constructed of stainless steel. Tapping valves shall comply with gate valve requirements as outlined in Section 4.3.3.A.

4.3.3.D.1 Approved Manufacturers and Products

1. Tapping Sleeves
    a. JCM, 432 All Stainless Steel Tapping Sleeves

4.3.3.E Blowoffs

Blowoffs shall be installed in accordance with Detail Drawings in the Blow-off Valves (BO_500) series, as required. The installation shall ensure adequate drainage and accessibility for maintenance.

4.3.3.E.1 Approved Manufacturers and Products

1. Nibco, T-113-LF

4.3.3.F Corporation and Curb Stops

All corporation stops and curb stops shall be ball valves made of lead-free brass.

4.3.3.F.1 Approved Manufacturers and Products

1. Corporation Stops
    a. Mueller 300 Series Ball Type
    b. Ford FB Series with MNPT Inlet
2. Straight Curb Stops
    a. Mueller 300 Series
    b. Ford
    c. Jones

4.3.3.G Valve Boxes, Risers, and Enclosures

Valve boxes and risers shall be installed for all main line valves and fire hydrant valves and shall be traffic rated. Enclosures for air/vacuum valves shall be appropriately selected based on their location.

Valve risers shall consist of a single section of 8-inch SDR 35 PVC pipe.

4.3.3.G.1 Approved Manufacturers and Products

1. Blow Off Valves
    a. Carson 1220-12 with Carson 1220-4B lid (Landscape Area)
    b. Christy FL30TBOX12 with Christy FL30T lid (Sidewalk/Driveway)
    c. Christy B1324BOX with Christy B1324-61JH lid (Street)
2. Main line Valves and Fire Hydrant Valves
    a. Oldcastle Precast No. G04 Box with Oldcastle Precast G04C Lid
    b. B & T Mark VII CUL12RHVYF Box and GRE12LHVYWLS Lid (Arterial Streets)
3. Air/Vacuum Valve Enclosure, Above Ground
    a. Placer Waterworks Model PW/SJARV2 Insulated (1-inch)
    b. Placer Waterworks Model PW/SJARV-3 Insulated (2-inch)
4. Air/Vacuum Valve Enclosure, Below Ground
    a. Quazite B30 (1-inch)
    b. Quazite B36 (2-inch)
5. Air/Vacuum Valve Lid and Housing, Below Ground
    a. Placer Waterworks Model PW/AE3018-M (1-inch)
    b. JTS Manufacturing JS30-ARVT-N (1-inch)
    c. Placer Waterworks Model PW/AE3618-MC (2-inch)
    d. JTS Manufacturing JS36-ARV10T-N (2-inch)

4.3.4 Fire Hydrants

Fire hydrants shall be installed in accordance with the requirements of the Fire Authority having jurisdiction and in conformance with the appropriate Detail Drawing from the Fire Hydrants & Protection Barricades (FH_600) series. Prior to installation, Contractor shall confirm requirements with the Fire

Authority. The Fire Authority requirements, where more stringent, supersede the general requirements provided in this section or in the Detail Drawings.

All fire hydrants shall conform to the requirements of AWWA C502 or C503. Hydrant buries shall have mechanical or flanged joints.

4.3.4.A Approved Manufacturers and Products

1. City of Roseville
    a. Clow, 2060 Series
    b. James Jones, Model J3762-Z13
2. Sacramento Metropolitan Fire District
    a. American Darling, Model B84B
    b. Mueller, Model A-423
3. South Placer Fire Protection District
    a. Clow 960

4.3.5 Service Lines and Fittings

Water service line shall be sized per Section 3.7.3 of these Standards and the Detail Drawings in the Water Services (WS) Series, unless otherwise specified in the approved project plans.

Embedment material for service lines shall be installed in conformance with requirements in Section 4.4.5 of these Standards and Detail Drawings in the Trenches (TREN) series.

4.3.5.A Service Line Material and Installation

Service lines up to and including two (2) inches in diameter shall be polyethylene tubing in conformance with AWWA C901 and shall conform with Detail Drawings in the WS Series (3/4 inch to 2 inch). Service lines larger than two (2) inches in diameter shall be DIP in accordance with the Detail Drawings in the WS Series (3-inch and larger).

#10 insulated copper locator wire shall be placed on the polyethylene line and extend into the meter box.

4.3.5.A.1 Approved Manufacturers and Products

1. CTS, EndoPure PE 4710 SODR 9
2. ADS, Polyflex Series

4.3.5.B Service Taps and Connections

Service saddles shall be used for all pipe connections up to two (2) inches on water mains. Service valves and fittings shall conform to AWWA C800. Saddles shall be designed and rated for the specific pipe diameter and material being tapped. Saddles shall be shaped to accurately fit the contour of the main.

Saddles for ductile iron pipe and asbestos cement pipe shall be silicon bronze double straps and constructed from bronze or brass. Straps shall have a flattened design to provide large bearing surfaces for a secure installation. Saddles for PVC pipes shall be made of bronze with neoprene gaskets wedged in place at the tapping boss to provide a tight seal at the main. “Eared” saddles are not permitted.

All service valves shall be full-port ball valves with stainless steel inserts.

Connections for fire sprinkler systems shall be approved by the Fire Authority and the District Engineer.

Service connections shall be as shown in Detail Drawings in the WS series.

4.3.5.B.1 Approved Manufacturers and Products

1. Mueller
2. McDonald
3. Ford
4. Jones

4.3.6 Meters and Meter Boxes

4.3.6.A Meters and Meter Equipment

All water services shall be equipped with meters, consistent with the required meter sizes in Section 3.7.3 of these Standards. The District will provide and install new meters for sizes up to two (2) inches. Meters larger than two (2) inches shall be supplied and installed by the Contractor, with the meter type and model obtained from the District.

4.3.6.A.1 Approved Manufacturers and Products

1. Combined Fire Service Meter
    a. Neptune Protectus III
    b. Neptune Mach 10
2. Detector Check RadioRead Monitor for Fire Lines
    a. Neptune Mach 10 with ProCoder R900I Register
3. AMR Meter Interface Units for Fire Lines
    a. Datamatic Innov8 Smart Reader Register

4.3.6.B Meter Boxes

Meter boxes shall be provided for all service meters up to six (6) inches and installed as indicated on Detail Drawings in the WS series. Unless otherwise specified by the District Engineer, meter boxes shall be selected according to the Meter Box Schedule provided in Table 4-1.

Table 4-1. Meter Box Schedule			
Meter Box Location	Meter Size, inches		
	¾ – 1	1 ½ – 2	3 – 6 (compound)
Street			
Model No.	Christy BXB1324-H/20 Lid 1324-61JH	Christy BXB1730-61JH	Christy B3048BOX with B3048-63JH Lid
Inside Width, inches	14	17-7/8	30-1/4
Inside Length, inches	24-5/8	30-5/8	48-1/4
Sidewalk or Driveway			
Model No.	Quazite B30 Box PD1324B5507 with Quazite B30 Lid PG1324W54150 or Christy FL30T Series with Christy FL30P Lid	Quazite B36 Box PD1730B510 with Quazite Lid PG1730W4250 or Christy FL36TBOX12 with FL36P Lid	N/A
Inside Width, inches	13-1/4	17-1/8	-
Inside Length, inches	24-1/4	30-1/4	-
Landscape			
Model No.	Carson 1220-12 with 1220-4B Lid	Carson 1730-15 with 1730-4B Lid	Christy B48 BOX with B48-62J Lid
Inside Width, inches	17-3/8	17	30-1/4
Inside Length, inches	23-7/8	30	48-1/4

Meter boxes and lids in traffic areas shall be H-20 load rated reinforced concrete boxes with steel or cast iron lids. Meter boxes in all other areas shall be concrete or polymer composite boxes with lids of matching material. Each meter box lid shall have a recessed hole for a meter reading probe.

4.3.6.C Meter Vaults

Meters greater than six (6) inches in size shall be housed in meter vaults and shall be installed as indicated on Detail Drawings in the WS series.

4.3.6.C.1 Approved Manufacturers and Products

1. Meter Vaults: Teichert Precast 510 Series

4.3.6.D Meter Accessories

Meter accessories shall conform to the requirements specified in these Standards and Detail Drawings. Approved products for meter accessories are listed in Table 4-2.

Table 4-2. Approved Manufacturers and Products for Meter Accessories	
Item Description	Approved Materials/Manufacturers
Strainer for Meters 3” and Larger	Neptune 53107-000
Meter (3” and Larger) to Customer Pipe Connection Flange Adaptor	Romac RFCA Star Pipe Products StarFlange RAFC
Bronze Flanges for Meters 2” and Smaller	Ford #7F Ford #6F

4.3.7 Flexible and Transition Couplings and Mechanical Joint Sleeves

Flexible couplings shall be bolted, sleeve-type steel or ductile iron couplings conforming to AWWA C219. These couplings shall be designed and rated for use on the intended pipe materials and sizes. Insulating couplings shall be used for insulated connections. The minimum body length for transition couplings shall be twelve (12) inches. Any new style transition coupling must be approved by the District prior to installation.

4.3.7.A Approved Manufacturers and Products

1. Ford, Model FC2W-L12
2. ROMAC Industries, Inc., Model XR501

4.3.8 Flange Gaskets

Gaskets shall be one-sixteenth (1/16) inch thick or greater, full-faced type, made of styrene butadiene rubber.

Where required to connect two different pipe metals, a pipe joint insulation kit shall be installed, including isolating Type ‘E’ full-face gasket, bolt sleeves and double washers. The insulation kit shall be NSF61 compliant.

4.3.8.A Approved Manufacturers and Products

1. Ford, Rubber Gasket Model GT141

4.3.9 Bolts and Hardware

All bolts, including T-Bolts, nuts, All-Thread rod, etc., shall be hot-dip galvanized after fabrication. Substituting stainless steel fasteners for galvanized fasteners is not permitted. Bolts for flanged curb stops and flanged meters shall be fifteen sixteenths (15/16) inch. Anti-seize lubricant shall be applied on bolt threads. All bolts shall be torqued to manufacturer’s specifications.

Approved products for additional hardware are provided in Table 4-3.

Table 4-3. Approved Manufacturers and Products for Hardware	
Item Description	Approved Materials/Manufacturers
Valve Extension	Placer Waterworks Model PW/ACWD STD
Pipe Joint Isolation Kit	Advance Product Systems (APS) Voltacept™ G-10 Type 'E' Gasket Kit with Trojan Gasket GPT Linebacker® 61™ G-10 Type 'E' Flange Isolation Kit
Threaded Air Vent Cap with Stainless Steel Screen	T Christy's Air Vent Cap, Model VC1 or VCM1 (1") T Christy's Air Vent Cap, Model VC2 or VCM2 (2")

4.3.10 Backflow Prevention Devices

Backflow prevention devices shall be of the type approved on the plans and consistent with Section 3.7.6 for the appropriate service and situation. All backflow devices shall comply with California Department of Health Services Title 22 requirements and the standards established in the most recent edition of the State Water Resources Control Board Cross-Connection Control Policy Handbook. In accordance with Appendix D, backflow devices shall be approved by the DDW and be on the most recent List of Approved Backflow Prevention Assemblies published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research. Devices must be protected by an insulated enclosure as specified in Detail Drawings in the Reduced Pressure Backflow Prevention Assemblies (RP) series.

4.3.10.A Approved Manufacturers and Products

1. Backflow Prevention Devices
    a. Zurn/Wilkins
    b. Febco
    c. Watts
2. Backflow enclosure:
    a. Placer Waterworks Models PW/E1A-W(S) or PW/E1A-W(M)
    b. Weather freeze bag (Green)

4.3.11 Locator Wire and Warning Tape

Locator wire shall be copper wire, Type TW, size AWG No. 10 with a minimum insulation thickness of 0.045mm.

Warning tape shall be acid and alkali resistant polyethylene or polyolefin film, with a width of three (3) inches and a thickness of four (4) mils. The tape shall be blue for potable water, continuously printed with the words "Warning Water Line Below" or equivalent.

4.3.12 Pipe Embedment

Pipe embedment material shall be No. 2 washed sand, free from organic materials, recycled materials, including recycled aggregate base, and other deleterious substances. Pipe embedment material shall be compacted to form a firm, stable base. Embedment material shall be installed in conformance with requirements outlined in Section 4.4.5 of these Standards and Detail Drawings in the TREN series.

4.3.13 Thrust Blocks

Thrust blocks shall be constructed using Class B Type II six-sack Portland cement. The dimensions of the thrust blocks shall be in accordance with Detail Drawing TB_001A.

4.3.14 Restrained Joints

Pipes shall be restrained to the length specified in the approved Project plans.

4.3.15 Concrete

Concrete for thrust blocks, encasements, filling, blocking, piers, and other applications shall be transit-mixed from a supervised batch plant. Each load must include a certified delivery ticket showing the mix proportions, mixing time, true departure time and water added. Certified tickets shall be presented to the Inspector at the time of delivery. Ready-mixed concrete shall be batched and handled in accordance with ASTM C94, while job-mixed concrete is limited to minor non-structural uses requiring one sack or less of cement. In such cases, materials and workmanship shall meet the same standards as transit-mixed concrete.

Approved concrete material shall be Portland Cement concrete as specified in Section 90 of the California Department of Transportation (Caltrans) Standard Specifications and shall be chosen according to Table 4-4.

Table 4-4. Concrete Material

Class	Application	Min. Weight of Portland Cement, lbs/cy	Maximum Aggregate Size, Inches	Slump Inches Min	Slump Inches Max
A	Walls, drop structures, slabs, and reinforced structural encasement	564 (6 sack)	1-1/2	3	6
B	Thrust blocks, drop pipe encasement, pipe bedding, nonstructural use	470 (5 sack)	1-1/2	2	6
C	Pump mix for abandoning lines	376 (4 sack)	3/8	--	--

The 28-day compressive design strength of concrete shall be chosen according to its intended use as outlined above.

4.3.16 Mortar

Mortar used for construction shall be a commercial-grade non-shrink grout.

4.3.17 Reinforcing Steel

Reinforcing bars shall be Grade 40 minimum, deformed, and conform to ASTM A615.

Wire mesh reinforcement shall conform to the requirements of ASTM A185, with wire gauge and mesh dimensions as shown on the Improvement Plans.

4.4 Installation and Construction

The location of water facilities shall be established and staked by a licensed civil engineer or land surveyor. Finished grade locations shall be staked for fire hydrants, main valves, tees, crosses, angle points, water services, and related appurtenances. The Contractor shall remove and reconstruct any work that is improperly located.

All pipe, fittings, and appurtenances shall be loaded for delivery and unloaded in such a manner as to avoid damage to the pipe or appurtenance. All fittings, hardware, and installation methods shall be appropriate for the type of material being installed.

Delivery of pipe and appurtenances to the site of the Work shall not take place until immediately prior to the installation thereof.

All pipe and appurtenances shall be handled with care to avoid damage. Whether moved by hand, skidways, or hoists, the pipe shall not be dropped or bumped against other pipe, accessories, or other projects.

4.4.1 Control of Site Conditions

Contractor shall be responsible for controlling all site conditions including noise, dust, drainage, erosion, and pollution, in accordance with all local ordinances and regulations involving the control of site conditions. The requirements that follow are intended to supplement those governing local ordinances and regulations. Where a conflict arises, the local ordinances and regulations shall prevail.

4.4.1.A Control of Water

The Contractor shall provide and maintain temporary drainage of groundwater from all excavations related to construction of water facilities. The Contractor shall remove all water that may accumulate in the excavation during the progress of the Work so that all Work can be done under dry conditions. Trenches and other excavations shall be kept free from water while the pipe or structures are installed, while concrete is setting, and until backfill has progressed to a sufficient height to anchor the Work against possible flotation or leakage. The laying of pipe or the placing of concrete will not be allowed under circumstances where there is standing water in the excavation. Failure by the Contractor to dewater the excavation area may result in an order to halt progress of the Work until compliance has been achieved.

4.4.2 Water Used in Construction

If water use is needed at the construction site, the Applicant or Contractor shall complete a Hydrant Meter Permit and obtain a construction water meter from the District. An appropriate billing address for water use during construction must also be provided. No construction water shall be taken from an unmetered source unless specifically approved by the District Engineer.

Construction water for residential development projects shall be available in accordance with the fees and conditions in the District Policies. Water meter idlers may be installed in place of water meters for lots in single-family developments in accordance with Detail Drawings in the WS series after payment of fees and at District inspection. The water meter idler may be used to reserve space for the water meter while installing the domestic water line to the home . No water use is permitted through the idler.

Water services may be shut down if any District personnel observe unauthorized water use.

The Applicant and Contractor are jointly and severally responsible for paying for water consumption during construction, including, but not limited to, water used for grading, pipeline flushing, and testing. The project will not be accepted until the account is paid in full.

4.4.3 Coordination of Work with Street Development

Street development activities, such as grading and laying of base rock and asphalt, must be coordinated with water facilities installation to ensure the integrity of installed pipes and connecting joints. If, in the Inspector's opinion, street development work compromises the water installation after a passing test, the

Contractor may be required to conduct additional pressure tests. Any damage identified must be repaired at the Contractor's expense, including reimbursing the District for the cost of extra tests.

4.4.4 Existing Pavement Removal

Existing pavement removal shall be removed according to the standards set by the authority having jurisdiction. The pavement must be cut on straight, neat lines prior to excavation, parallel and equidistant from the trench centerline. The width of the removed pavement shall conform to the specifications of the authority having jurisdiction or the Detail Drawings from the TREN series, whichever is more stringent. Pavement between these lines shall be broken and removed just ahead of trenching operations. Any pavement damaged outside these lines shall be restored at the Contractor's expense.

4.4.5 Trench Excavation and Backfilling

Prior to excavation, the Contractor shall verify requirements with the authority having jurisdiction. Excavation and trenching in public streets and highways shall comply with the standards of the authority having jurisdiction. In the pipe zone, from the trench bottom up to twelve (12) inches above the pipe, District requirements shall take precedence. In all other cases, the following standards apply.

Trench excavation involves all digging necessary for grading and constructing the water line as shown on the Improvement Plans and in accordance with the Detail Drawings in the TREN series. The Contractor shall excavate to the specified depths indicated on the Improvement Plans, regardless of the materials encountered, unless otherwise specified or required. Excavation shall be by open cut unless short trench sections can be safely tunneled and properly compacted.

Excavation should only occur after the necessary pipes and materials are delivered to the site.

Holes for bells or couplings shall be excavated after the trench bottom has been graded and embedment material placed. These holes should be only as large as necessary to properly make the joint. Any over-excavation areas shall be backfilled with the same bedding material.

The trench bottom shall be evenly graded to ensure uniform bearing and support for each pipe section, free of clods, rocks, and excess spoil material. Grades must be transferred from the ground surface to the trench bottom by experienced workers using lesson fewer than three (3) consecutive grade points to ensure accurate alignment.

4.4.5.A Trench Width

The width of unsheathed trenches shall be sufficient to provide adequate working space and sidewall clearances for proper pipe installation, jointing, and embedment. Trenches shall be constructed following the applicable Detail Drawings in the TREN series.

The area above the pipe zone must meet the requirements of the authority having jurisdiction. In cases of conflict between the TREN series details and the requirements of the authority having jurisdiction, the latter shall prevail.

4.4.5.B Pipe Cover

Unless specifically authorized by the District Engineer, the minimum cover for water mains shall be thirty-six (36) inches below finished grade. If the cover is less than this minimum, DIP shall be used, subject to prior District Engineer approval. In such cases, the DIP must have a minimum cover of twenty-four (24) inches below finished grade and a slurry cap.

4.4.5.C Shoring

The Contractor shall provide, install, and maintain sheeting or shoring, and bracing as needed to support excavation sides and prevent any soil movement that could damage structures or utilities. All excavations must adhere to the rules, orders, and regulations set forth by the California Division of Occupational Safety and Health (Cal/OSHA). All shoring practices shall comply with Cal/OSHA standards.

The Contractor is responsible for any injury or damage resulting from inadequate sheeting, shoring, or their removal.

4.4.5.D Placement of Pipe Embedment

Embedment material shall be placed in conformance with these Standards and Detail Drawings in the TREN series. Prior to embedment placement, the trench shall be cleared of debris, leveled, and inspected for the specified cut. Bottom embedment material shall be compacted and leveled before pipe placement.

Once the pipe is properly laid and inspected, embedment material shall be hand-shoveled uniformly on both sides of the pipe to anchor it securely. Care must be taken not to drop embedment material directly onto the pipe. During backfilling, all shoring materials shall be removed carefully to minimize movement or collapse.

Soil compaction shall be conducted in conformance with Section 4.4.10.B of these Standards.

4.4.5.E Maximum Length of Open Trench

Unless otherwise specified by the District Engineer, the maximum open trench length shall be one block, 400 feet, or the distance necessary for one day's pipe installation, whichever is shorter. No trenches shall be left open overnight unless covered with steel plates capable of bearing expected wheel loads.

4.4.5.F Unsuitable Material on Bottom of Trench

The Contractor shall excavate at least six inches below the pipe's bottom grade. If the excavation bottom does not provide a firm and uniform bearing for the pipe due to rock, hardpan, shale, or other non-excavatable material, the Contractor shall overexcavate an additional six inches. The trench shall then be refilled with the specified pipe embedment material, consolidated, and reshaped to the required section and grade as specified in Section 4.3.12.

4.4.5.G Over Excavation or Inaccurate Trimming

If over excavation or inaccurate trimming occurs due to the Contractor's operations or other reasons, resulting in inadequate trench shaping, the Contractor shall refill the trench with the specified backfill material at their own expense. The trench bottom shall then be consolidated and reshaped to meet the required specifications.

4.4.6 Pipe and Fitting Installation

Pipe shall be laid and installed in accordance with this section. Alignment and elevation of piping runs shown on the Improvement Plans shall be followed as closely as possible, with minor adjustments made to avoid obstructions. Any major relocations due to unforeseen obstructions require approval from the District Engineer.

4.4.6.A General Pipe Installation

The Contractor shall properly assemble all pipe and ensure an installation that is true to line and grade, free from leaks, cracks, and obstructions.

Each pipe length shall be laid on compacted, approved bedding material as specified in Section 4.3.12 ensuring full bearing along its length. Adjustments to line and grade shall be made by scraping or filling and tamping the bedding material under the pipe body. Wedging or blocking with wood or soil to support the pipe is prohibited.

Pipe sections and fittings must be cleaned before installation. Pipes shall be installed with the manufacturer's markings on top and visible. All pipe, fittings, valves, and appurtenances shall be lowered carefully into the trench using suitable tools or equipment to prevent damage. Damaged linings or coatings shall be repaired before installation or backfilling.

Pipes shall be laid true to line, with no visible misalignment at any joint unless a curved alignment is specified on the Improvement Plans. The maximum joint deflection shall not exceed 50% of the value recommended by the pipe manufacturer or as per AWWA standards, whichever is more stringent.

Joints shall only be made with the couplings and rubber rings provided with the pipe. The use of techniques like "Stabbing," "swinging in," or "popping on" spigot ends of pipe into bell ends is not permitted.

Pipe shall not be laid when trench or weather conditions are deemed unsuitable by the District Engineer. The interior of the pipe shall be cleared of any dirt or debris during construction. At the end of each workday, or during breaks, the pipe ends shall be securely covered to prevent contamination.

4.4.6.B. Minimum Pipe Length Segment

Water main layouts shall be designed using full pipe segments. At valve or water service tie-ins, pipe segments shall be at least three feet in length.

4.4.6.C PVC Pipe

PVC pipe installation shall conform to AWWA C605 and AWWA Manual No. 23, PVC Pipe - Design and Installation. Proper tools and equipment must be used to place the pipe in the trench without causing damage. Fittings, valves, and other components must not be supported or carried by the PVC pipe itself. When soil conditions or excavations do not provide adequate support, concrete pads or drain rock shall be used for fittings, valves, and appurtenances.

Field-cut PVC pipe must have burrs removed, ends beveled, and marked for proper insertion depth. Horizontal and vertical curves shall be formed by joint deflection not exceeding 50% of the manufacturer's recommendation or AWWA standards, whichever is more stricter. PVC pipe shall not be bent. Pipe must be laid with bell ends facing the direction of installation unless reverse laying is specifically approved by the District Engineer.

4.4.6.D Ductile Iron Pipe

Ductile Iron Pipes (DIP) shall be installed in accordance with AWWA C600, Installation of Ductile Iron Water Mains and their Appurtenances.

Pipes shall be laid in alignment and grade as indicated in the Improvement Plans. For curve alignments, pipe joints may be deflected to accommodate the curve using either shorter pipe sections or fittings, as required. Joints shall be deflected after the joint is properly assembled. For mechanical joints, the joints shall be deflected before tightening of bolts.

Pipe cutting shall be done in a neat manner, without damage to the pipe, coating, or the lining. Cuts should be smooth, straight, and perpendicular to the pipe axis. After cutting, the pipe end should be dressed with a file or power grinder to eliminate all roughness or sharp edges. The cut ends of push-on joint pipe shall be suitably beveled.

Mechanical joints should be assembled with care, in accordance with the manufacturer's recommendations. Bolts must be uniformly tightened to the torque values specified in Appendix A of AWWA C111. Over-tightening of bolts as a compensation for improper installation practice is not allowed.

Push-on joints, where approved, must be assembled in accordance with the pipe manufacturer's instructions. To ensure proper jointing, all surfaces should be lubricated with a heavy vegetable soap solution immediately before joint completion. The lubricant used should be water-compatible, stored in closed containers, and kept clean. Each spigot end must be appropriately beveled to facilitate assembly.

If the joint fails to seal effectively, it should be repaired or replaced, as necessary.

Corrosion protection may be required depending on specific soil conditions.

4.4.6.E Thrust Blocks

Thrust blocks shall be constructed of Class B concrete as specified in Section 4.3.15 and constructed in accordance with Detail Drawings in the Concrete Thrust Blocks (TB) series. They shall be poured against undisturbed earth. If the District Engineer determines that the soil is unsuitable to support the imposed load, the Contractor must provide additional anchorages as designed by the Applicant's Engineer and approved by the District Engineer. Ground surfaces where concrete will be placed should be moistened prior to pouring to prevent excessive moisture absorption. If forms are needed, they must be smooth, mortar- tight, and strong enough to maintain shape during concrete placement. Placing methods should ensure that the concrete reaches its final position without segregation. All concrete should be placed and compacted to create smooth surfaces along form lines and eliminate air pockets. Thrust blocks should be positioned so that pipe and fitting joints remain accessible for repair. The concrete used for thrust blocks must contact fittings, not the pipe.

Thrust blocks must cure for at least twenty-four (24) hours before backfilling or pressurizing the main.

4.4.6.F Mechanical Restraints

Manufactured restraint devices, where approved for use by the District Engineer, shall be designed to secure the pipeline at fittings and transfer thrust forces to the adjacent soil through friction and soil bearing. To obtain approval for manufactured restraint devices, the following information must be submitted to the District Engineer:

1. Details of the restraint system.

2. Site-specific or assumed worst case soil characteristics relevant to thrust resistance, referencing "Thrust Restraint Design Equations and Tables for Ductile Iron and PVC Pipe" (PD-6 (5-95) published by EBAA Iron).
3. Pipe and encasement specifications that influence soil friction.
4. Trench, pipe bedding, and cover depth specifications.
5. Test pressure (per Section 4.6.1 of these Standards).
6. Safety Factor (1.50 minimum).
7. Calculated length of restrained pipe for each condition, using the Ductile Iron Pipe Research Association (DIPRA) method where applicable.

Manufactured restraint devices must be installed per manufacturer's recommendations.

4.4.6.G Trenchless Construction

Placement of pipe using boring and jacking methods requires District approval for each occurrence. The following general guidelines apply, along with Section 3.8.5 of these Standards and Detail Drawings in the BORE series:

1. The size and thickness of the casing shall be per the District standard detail, unless otherwise specified in the plans.
2. Except for using air or water, the methods and equipment used in boring and jacking shall be chosen by the Contractor, provided that the District reviews and approves them prior to any work.
3. Pipe placement within casings must be supported with HDPE, polyethylene, or acetal skids to the lines and grades shown on the Improvement Plans.
4. The boring machine must create a circular bore that maintains the required lines and grades indicated in the Improvement Plans. The bored tunnel should not exceed 0.1 ft greater than the casing's maximum outside diameter.
5. Steel casing field joints must be welded with a continuous circumferential weld.
6. End seals must be installed at both ends of the cased section.

4.4.6.H Service Line Installation

Service lines shall be installed in accordance with Detail Drawings in the WS series.

Service lines must be installed by open-cut method unless horizontal directional drilling (HDD) is pre-approved by the District Engineer.

Service lines shall be placed on undisturbed earth at the bottom of the trench, maintaining a minimum cover of twenty-four (24) inches between the service line and gutter flow line. Embedment material shall meet the requirements outlined in Section 4.3.12 of these standards and Detail Drawings in the TREN series.

Polyethylene lines shall be snaked within the trench as recommended by the material manufacturer, from the corporation stop to the angle curb stop. Polyethylene lines must be continuous from the corporation stop to the angle curb stop, without mechanical couplings. All plastic service piping shall include an insulated ten (10) gauge copper wire installed along the service line and extended into the meter box.

Polyethylene tubing shall be cut with a clean square cut, ensuring it is not crimped. The minimum bend radius for polyethylene tube must be thirty (30) times the nominal tube diameter. No bends shall be constructed within ten (10) times the nominal tube diameter from a fitting.

Compression fittings with insert stiffeners, when required by Detail Drawings in the WS series, shall not be installed with the insert stiffeners protruding beyond the opening of the waterworks brass coupling nut. Protruding stiffeners must be trimmed to ensure a flush fit.

Service connections that are improperly installed must be removed and replaced at the water main tap, ensuring compliance with District standards. Any adjustments to customer water services shall be coordinated with the District to minimize water supply interruptions.

4.4.6.I Water Meter Installation

Water meters shall be installed in accordance with Detail Drawings in the WS series. Meters up to two (2) inches in size will be provided and installed by the District.

For meters larger than two (2) inches, the Applicant or the Contractor is responsible for providing and installing the meter. The meter type and model must be obtained from the District to ensure compatibility.

For fire service lines, a backflow prevention device supplied by the manufacturer shall be installed with the meter. After the approved inspection of the backflow prevention device, the District will replace the manufacturer-supplied meter with the appropriate meter. The Applicant is responsible for all costs associated with acquiring and replacing meter.

Meter boxes, spuds or tail piece, and backflow prevention devices shall be supplied and installed by the Contractor at a location approved by the District prior to meter installation and service connection.

For customer connections to meters three (3) inches and larger, the Contractor shall provide a flange adaptor to ensure proper fitting.

4.4.6.J Meter Boxes

Meter boxes shall be securely supported and centered over the meter assembly. The box must be placed on a stable foundation, such as pea gravel or drain rock, to ensure proper drainage and to keep the meter dry. The meter box cover shall be installed flush with the finished curb, sidewalk, or grade, or as indicated on the Improvement Plans. Installation of meter boxes shall be in accordance with the applicable Detail Drawings in the WS Series. The installation must ensure that the box remains level and free from movement after final placement.

4.4.6.K Common Trench and Manifold

For commercial establishments, domestic, irrigation, and fire services shall be provided by separate service lines. Domestic and irrigation service lines under single ownership may be allowed in a common trench if approved by the District Engineer. The minimum separation between service lines within the trench shall be twelve (12) inches, and between taps at the main shall be eighteen (18) inches, unless otherwise approved by the District Engineer.

For commercial projects with existing service lines requesting increased water demand, additional metered service lines may be manifolded to the existing service, providing the existing service line can accommodate the increased demand. A maximum of three (3) separate meters may be

manifolded on a single existing service line. All manifolded installations must receive prior approval from the District Engineer.

Meter clusters require brass tags to indicate the address or unit number served by each meter.

4.4.6.L Threaded Joints

All threaded joints shall be assembled using an appropriate thread sealant to ensure a leak-free connection.

4.4.7 Appurtenances

All water facility appurtenances must be installed in accordance with this section. Each fixture or appurtenance shall be thoroughly cleaned before installation to remove any debris or contaminants.

4.4.7.A Valves, Valve Boxes, and Valve Box Risers

Valves shall be set plumb, supported against settlement, and securely fitted to adjacent main sections. A valve box and riser pipe shall be installed over each valve, ensuring that neither the box nor the riser pipe bears directly on the valve or main, to avoid transferring surface traffic loads to the water pipe. Riser pipe shall ideally be one continuous piece. If not feasible, they may be joined using a coupling or bell end piece of the same material.

Valves buried more than five (5) feet from finished grade shall include extension stems and stabilizers, if necessary, to position the valve operating nut within twenty-four (24) inches of the finished grade. The extension stem and stabilizers shall be housed in a valve box riser, which must extend into the valve box and be flush with the finished grade. The valve box shall include a cover, designed for traffic type when placed on street or roadways.

Valve boxes shall be securely supported, concrete encased, and aligned plumb over the valve wrench nut, with the box cover flush with the pavement or grade as indicated on the Improvement Plans. The valve riser interior must be kept clean and debris-, with the wrench nut readily accessible for operation.

The triangular lid of the valve box shall be oriented to point toward the water main isolation valve. The valve operating nut should remain fully accessible and centered in the riser. Main valves, service valves, and blow-off valve boxes shall be positioned to avoid conflicts with curbs, gutters, sidewalks, and driveways unless specifically approved by the District. They should be visible and accessible after yard grading or landscaping by the Applicant's Contractor.

Installation of air release and vacuum relief valves shall be in accordance with applicable Detail Drawings in the AV and BO series. Installation of valve boxes shall be in accordance with applicable Detail Drawings in the Valve Boxes (VB) series.

4.4.7.B Tapping Sleeves and Tapping Valves

Tapping sleeves and tapping valves shall be installed in accordance with the manufacturer's instructions. The section of the main where the tapping sleeve will be installed shall be thoroughly cleaned. The outside diameter of the main shall be measured to ensure the correct size tapping sleeve and tapping valve is installed on the main. These components shall be independently supported and must not be supported or carried by the main itself. The entire assembly shall be equipped with thrust blocking per Section 4.3.13, and bedding and backfilling per Section 4.4.10. Tapping sleeves shall be subject to testing and disinfection, as specified in Section 4.6.

4.4.7.C Hydrants

All fire hydrants shall be installed in accordance with Detail Drawings in the FH series and at the location indicated on the Improvement Plans. A minimum clearance of three (3) feet shall be maintained around the fire hydrant. In parking lots or low-speed areas, barricades may be required for hydrant protection as determined by the District Engineer.

Improperly installed hydrants must be removed and correctly reinstalled at no cost to the District. The installation process for hydrants shall conform to the following sections.

4.4.7.C.1 Position of Outlets

All hydrants shall be positioned upright (plumb) with the lowest outlet situated between eighteen (18) inches and twenty (20) inches above ground level, as specified in the FH Series Detail Drawings. The outlet must face the street or the point of access for the Fire Authority's engine, as determined by the Fire Authority.

4.4.7.C.2 Painting

Hydrants shall be painted from the top to ground level with a primer coat that meets AWWA C503 standards, following the manufacturer's recommendations. Surfaces shall be cleaned using soap, water, and an abrasive pad prior to painting. A minimum of two coats of rust-preventative gloss white enamel paint shall be applied for the final finish.

4.4.7.C.3 Approved Manufacturers and Products

1. Hydrant Paint and Rust Preventative Enamel: Rustoleum Gloss White Enamel

4.4.7.D Backflow Prevention Devices

Backflow prevention devices shall be installed above ground and protected against damage and vandalism. Devices measuring two (2) inches and smaller shall be enclosed in an insulated bag or an insulated metal enclosure, in accordance with Detail Drawings in the RP series. In areas subject to traffic, the devices shall be shielded using traffic posts or enclosed for added protection.

Backflow prevention devices shall be installed before requesting the installation of water meters. All installations shall be in accordance with Detail Drawings in the RP series as applicable.

4.4.7.E Sampling Stations

Where specified by the District, water quality sampling stations shall be installed in accordance with Detail Drawing WS_079.

4.4.8 Locator Wire and Markers

A No. 10 insulated copper locator wire shall be affixed to water mains, fire hydrants, main and hydrant valves, water services, and appurtenances. The wire shall be affixed to the top of pipe with ten (10) mil vinyl tape every five (5) feet. The Contractor shall perform a continuity test on all locator wire splices to ensure connectivity.

For pipes twelve (12) inches and smaller, a minimum of two (2) strands of blue locator tape shall be placed twelve (12) inches above main and service piping, near the trench edges. For pipes fourteen (14) inches

and larger, three (3) strands of blue locator tape shall be placed twelve (12) inches above the pipe in accordance with Detail Drawings in the TREN series.

In unpaved areas, water mains shall be marked every one hundred and fifty (150) feet with a blue composite utility marker having a decal labeled "Caution Water Pipeline." Appurtenances (such as valves, test stations, and angle points) shall also be marked for visibility and maintenance.

4.4.9 Water Facilities Corrosion Protection

All tees, elbows, valves, and special fittings shall be wrapped in eight (8) mil minimum polyethylene wrap encasement before any concrete pouring or backfilling.

4.4.10 Backfill and Compaction

4.4.10.A Backfill

All water mains within the pipe zone shall be backfilled with No. 2 washed sand, compacted to a relative compaction of not less than ninety (90) percent. The compacted sand should extend at least six (6) inches below and twelve (12) inches above the pipe. Backfill material must be free from debris, concrete fragments, pavement, stones, or soil chunks exceeding three (3) inches in any dimension. For existing roadways and traffic areas, trench backfill above the sand layer shall consist of three-quarters (3/4) inch Class 2 aggregate base, compacted mechanically in six (6) inch lifts to a compaction level of ninety-five (95) percent.

Open-cut service line trenches shall be backfilled per the Detail Drawings in the WS series.

4.4.10.B Compaction

Compaction methods within the trench shall be as specified by the most current editions of the Standard Specifications for Public Works Construction ("Greenbook") and the County of Sacramento Public Works Standard Construction Specifications. The Contractor shall perform compaction tests using a Nuclear Density Meter operated by a licensed geotechnical engineer, in accordance with ASTM standards for in-place soil density.

In the pipe zone, the Contractor shall select a compaction device capable of achieving a minimum of ninety (90) percent relative compaction as defined by AASHTO Test No. T180 (Standard Proctor). Compaction equipment may be manual, mechanical, or pneumatic, provided it does not cause displacement, instability, or damage to the pipe. If pipe damage occurs, the Contractor shall promptly perform necessary repairs.

Except for directly above the pipe, compaction lifts shall be limited to six (6) inches within the pipe zone. For embedment material placed directly above the pipe, the compaction lift shall be of sufficient depth to achieve required compaction and protect the pipe. All compaction layers shall be compacted as required before the next layer is deposited.

The Inspector shall verify uniform compaction of the embedment material to ensure the absence of voids. If the required compaction is not met, the trench shall be recompacted and retested at the Contractor's expense.

4.4.10.C Bracing and Shoring

When bracing and shoring are used in an excavation (such as trench or bore pit), the backfill shall be placed to a height sufficient to prevent surrounding soil from cracking or caving into the

excavation. This backfill must be installed before removing the bracing or shoring to maintain stability. The Contractor may be required to submit bracing or shoring plans and obtain permits before construction.

4.4.10.D Public Streets and Highways

For trench backfill and compaction performed in public streets and highways, the Contractor shall adhere to all regulations specified by the authority having jurisdiction. The pipe embedment zone, up to one (1) foot above the pipe, must comply with the District's standards as provided in these standards.

4.4.10.E Unimproved Rights-of-way

Trench backfill above the pipe embedment zone within unimproved rights-of-way shall consist of selected material excavated from the site, as approved by the District Engineer. This material shall be free of organic debris and other unsuitable materials such as rocks, boulders, or soil masses larger than four (4) inches in diameter.

The trench backfill must be compacted to a relative density of ninety (90) percent using AASHTO Test No. T180 (Standard Proctor). If the required compaction cannot be achieved, imported backfill material meeting the specifications must be used.

4.4.11 Resurfacing and Restoration

4.4.11.A General

When an unimproved surface is disrupted, the trench must be restored to its original condition unless otherwise indicated on the Improvement Plans.

Damaged private streets, driveways, or other improved surfaces affected by the work must be removed and restored to the original condition, including the reconstruction of the subgrade when disturbed.

Temporary paving, barricades, or special provisions mandated by the authority having jurisdiction must be supplied by the Contractor.

4.4.11.B Other Governing Agency Requirements

If the work is within existing public roadways or city streets, the resurfacing process shall be in accordance with the requirements of the authority having jurisdiction.

If the trench is located in areas without existing paving, the Contractor shall ensure the trench is suitably compacted for future grading and surfacing.

4.4.11.C District Requirements

If no specific requirements are outlined by a city or governing agency, the District's standards shall apply. All resurfacing materials and methods shall adhere to the latest edition of the Caltrans Standard Specifications. Resurfacing roadways or gravel areas shall be done in accordance with Detail Drawings in the TREN series.

For asphalt concrete surfaces, temporary paving shall be provided before final resurfacing. The existing asphalt shall be neatly cut to a depth of two (2) inches, with an additional six (6) inch

width on either side of the trench for proper keying. The cut edges must be straight, vertical, and free from irregularities.

The base course for the final surface shall be Class 2 aggregate, compacted to match the existing pavement thickness, with a minimum depth of sixteen (16) inches. Asphalt concrete shall be Type B, as specified in Section 39 of the Caltrans Standard Specifications, with a minimum thickness of three (3) inches.

4.4.11.D Temporary Paving

Temporary paving must meet the requirements of the governing authority. In areas outside city or county jurisdiction, temporary surfacing shall consist of a minimum of one and one-half (1-1/2) inches of premixed asphaltic paving material. Temporary paving must be installed at the end of each workday to maintain safety and usability.

Before reopening the street to traffic, all debris, rocks, and loose materials must be removed, and the surface swept clean. Temporary paving shall be continuously maintained to prevent the formation of potholes or surface deformation, keeping the surface level with the existing pavement.

4.4.11.E Permanent Paving

Permanent paving shall not commence until the compaction requirements specified by the governing authority or District are fulfilled. Permanent paving shall follow the applicable guidelines, including cutting the existing pavement to a uniform depth of two (2) inches and extending the cuts six (6) inches on either side of the trench for a secure joint.

The final wearing surface shall be asphalt concrete with a minimum depth of three (3) inches, following the requirements for Type B Asphalt Concrete as outlined in Section 39 of the Caltrans Standard Specifications.

4.4.12 Location Marking

All valves, blow-offs, air valves, services, and similar components shall be permanently marked on the closest curb face or sidewalk. A “V” shall be inscribed or stamped on the top of the curb or sidewalk if a valve is located behind it. For water meters positioned behind a curb or sidewalk, a “W” shall be marked in the curb or walkway. The lettering size shall be at least two (2) inches high to ensure visibility.

4.4.13 Concrete

4.4.13.A Placement

Concrete shall be placed into clean, properly prepared forms before the initial set begins, using the minimum amount of mixing water required for adequate workability. The concrete shall be thoroughly compacted by rodding or vibrating to achieve a dense and uniform mass, free from voids and rock pockets. All concrete must be vibrated unless specifically directed otherwise by the Inspector.

4.4.13.B Reinforcement

Reinforcement bars shall be accurately positioned and securely fastened according to the improvement plans. When splicing bars, the overlap shall be a minimum of twenty (20) diameters or butt-welded, unless specified differently in the plans.

4.4.13.C Finish

Exposed concrete surfaces shall have a uniform comparable to that achieved with new plywood forms. Slabs, pads, and walkways shall be finished with a neat broom texture unless an alternative finish is specified in the plans. All corners and edges shall be beveled, and surface imperfections repaired to blend with the surrounding concrete.

4.4.13.D Accelerated Curing

When circumstances warrant, calcium chloride admixture (not exceeding two (2) percent volume) may be used to accelerate curing, subject to the District Engineer's approval. The use of calcium chloride may be restricted at the District's discretion.

4.5 Water Facility Abandonment

4.5.1 Abandonment of Water Mains

Water mains designated for abandonment shall be emptied and deactivated as follows:

1. Drain the water mains completely.
2. Close all valves in place.
3. Remove all above-ground appurtenances (e.g., valve boxes and risers, fire hydrants) to a minimum depth of three (3) feet below grade, backfill, compact, and restore the surface as required by the authority having jurisdiction.
4. For water mains twelve (12) inches and smaller, cut and cap or plug the ends, enclosing them entirely in concrete.
5. For water mains larger than twelve (12) inches, fill with sand or cement slurry mixture and cap the ends with concrete.
6. If a tee or cross remains in service, it shall be blind flanged and restrained with a thrust block.

4.5.2 Abandonment of Water Service Lines

4.5.2.A Water Main to be Abandoned

Abandonment of water service lines connected to water mains to be abandoned shall be in accordance with the requirements provided below.

1. Remove the meter, meter box, setter, wood supports, curb stop, and all brass piping and fittings.
2. Plug the water service and crimp the end a minimum of two (2) feet below grade. Close the valve at the main.
3. Backfill and compact the excavated area and restore the surface to match existing conditions and as required by the authority having jurisdiction.

4.5.2.B Water Main to Remain in Service

Existing water service lines to be abandoned on mains that will remain in service shall comply with the above. In addition, the service saddle shall be removed, and a minimum twelve (12) inch wide full circle stainless steel repair band shall be installed on the main. The water service at the main shall be also plugged or crimped.

4.6 Testing and Disinfection

All water mains and appurtenances to be dedicated to the District shall be subject to hydrostatic pressure testing, disinfection, and bacteriological testing. All labor, equipment, and material, including water necessary for the testing and disinfection of these facilities, shall be provided by the Contractor at no cost to the District. Testing shall include corrections, repairs, and retesting until all facilities pass the required test.

Prior to testing, the Contractor shall provide access to all main valves, curb stops, hydrants, and blow offs. All testing shall be conducted in the presence of an Inspector, who shall be responsible for determining when the facilities are protected from damage and ready to be tested.

Prior to District provision of water for testing, the Contractor shall submit a disinfection and flushing plan conforming to the latest revision of AWWA C651 and these Standards. The plan shall address the items listed in the procedure in Appendix E.

All facilities to be connected to the water system shall pass the required testing prior to connection to the existing system.

4.6.1 Hydrostatic Tests

New water mains and associated facilities shall be temporarily connected to the District's water system using a construction jumper that includes a meter and a District-approved reduced pressure backflow prevention assembly. The assembly size shall conform to Table 4-5 specifications. The backflow prevention assembly must be tested and certified in accordance with Section 4.6.5 prior to usage.

Table 4-5. Backflow Assembly Size for Testing

Pipeline Diameter	Assembly Size
Less than or equal to 12 inches	2 inches
14 inches and greater	6 inches

The system shall be slowly filled and purged of air, with all valves opened. Independent pressurization from the existing system must be performed according to the latest AWWA C600 (DIP) or C605 (PVC) standards.

The system shall be pressurized to a minimum of 150 psi for two (2) hours. Any pressure loss greater than 5 psi during testing will result in a failure. Additionally, any loss exceeding the allowable threshold calculated per AWWA C600 or C605 shall constitute a failure. Upon successful testing, the temporary connection shall be replaced by a permanent connection.

4.6.2 Tapping Sleeve Leakage and Pressure Test

After assembling the tapping sleeve and valve, but before drilling, the tapping sleeve shall be tested for leakage. Testing shall be conducted using pressurized air at 100 psi for thirty (30) minutes. Any pressure

loss during this period will result in a failure. Care must be taken to avoid damaging the main during testing, with any resulting damages repaired by the Contractor.

4.6.3 Disinfection and Flushing of Water Lines

Disinfection of water lines shall not commence until the hydrostatic pressure test has been satisfactorily completed. Disinfection shall be performed by a licensed Chlorination Specialist holding active C36 (Plumbing) and C55 (Water Conditioning) licenses, as issued by the California Contractors State License Board.

Disinfection and sampling shall be conducted according to the District's Disinfection/Sampling Procedure outlined in Appendix E. Water samples from disinfected pipelines shall be collected by District personnel, in coordination with the Contractor, and tested at the Contractor's expense. Should bacteriological samples fail to meet minimum standards, additional chlorination will be required at the Contractor's expense until satisfactory results are obtained.

Sample points shall be designated by the District. If there are insufficient sample points, the Contractor must provide temporary outlets for sampling at their own cost.

Newly installed and disinfected pipelines must pass two consecutive rounds of bacteriological testing before being connected to the District's active water distribution system.

4.6.3.A Method of Disinfection

Water mains and service lines shall be chlorinated following the Continuous Feed Method as specified in the latest AWWA C651. Chlorine concentration shall be maintained between 50 and 100 ppm for a minimum of twenty-four (24) hours. At the end of this period, the chlorine residual throughout the pipeline shall not be less than 25 ppm.

4.6.3.B Cleaning and Disinfection of Tie-ins

All materials used for tie-ins shall be thoroughly cleaned to remove dust, dirt, and other contaminants, including residues from cutting operations. The piping materials used for tie-ins shall be disinfected by swabbing or spraying with a one (1) percent chlorine solution.

Before assembling tapping sleeves, the main's exterior surface and the interior of the sleeve shall be disinfected by swabbing or spraying with chlorine to minimize contamination risks.

4.6.3.C Flushing

Upon completion of disinfection, the pipeline shall be thoroughly flushed with fresh water from the existing system to replace the chlorinated water. Flushing shall continue until chlorine residual levels at all outlets match those of the active system. Proper disposal of flush water shall comply with AWWA C655 and relevant local and state regulations. Dechlorination procedures must be followed to prevent environmental harm, and the Contractor shall provide verification of uniform dechlorination at ten-minute intervals during disposal.

4.6.4 Locator Wire Continuity Test

Before final paving, the Contractor shall perform continuity testing on all locator wires installed on water lines. Testing shall be carried out using a direct connection adjustable frequency utility locating

system. All testing must be conducted in the presence of a District Inspector to ensure accuracy and compliance.

4.6.5 Backflow Testing

All newly installed backflow prevention devices must undergo testing by the District prior to activating the protected water line. Testing shall be performed according to District standards, and any deficiencies identified during testing must be addressed before the device is placed into service.

4.6.6 Cathodic Protection

Cathodic protection test stations shall be evaluated by an independent testing service. The Contractor must submit the test results to the District for review and approval prior to final acceptance of the pipeline. These tests are essential to verify the effectiveness of corrosion protection measures.

Appendix A

Standard Detail Drawings

Table A-1. Citrus Heights Water District – List of Standard Detail Drawings

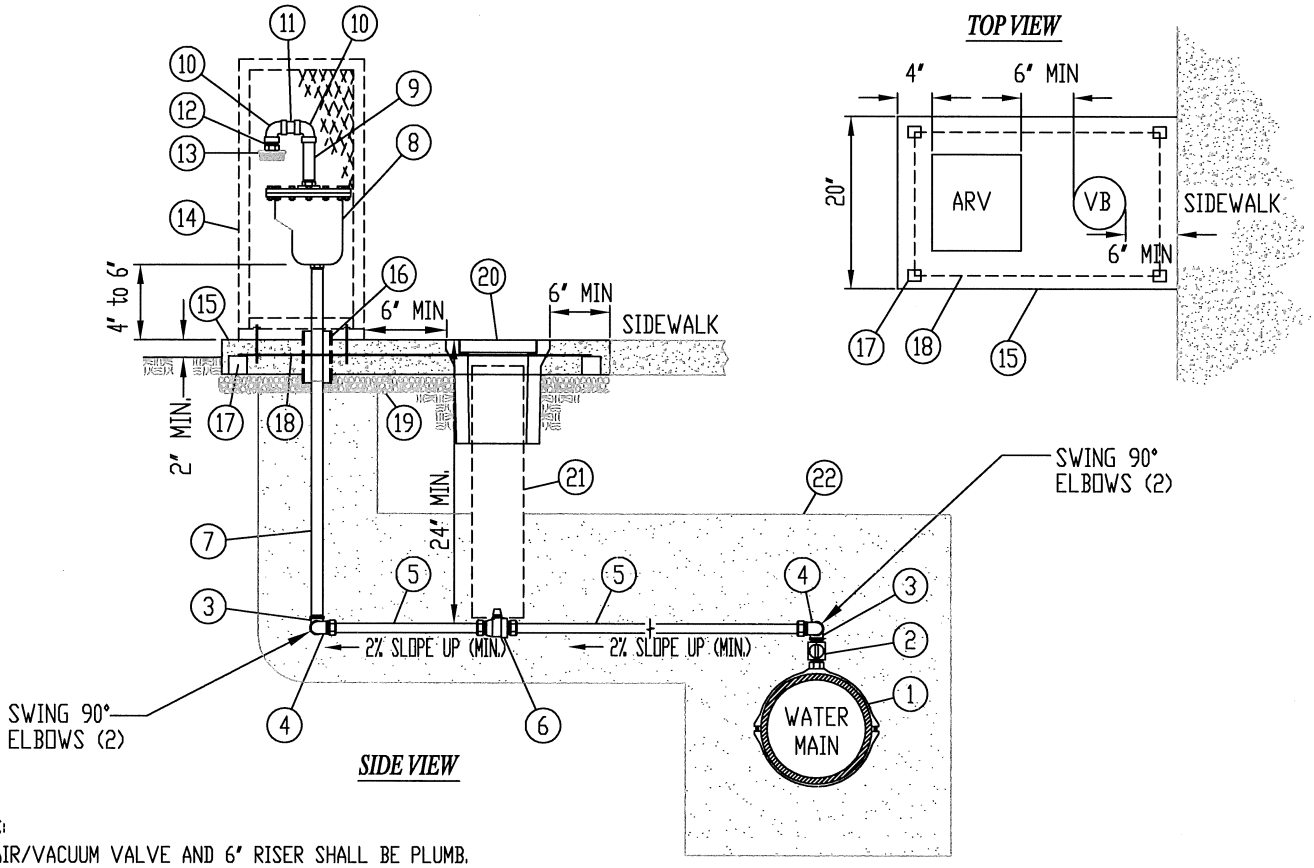
Number	Name
Air/Vacuum Valves	
AV_411	1" AIR VACUUM VALVE – ABOVE GROUND
AV_412	1" AIR VACUUM VALVE – BELOW GROUND
AV_421	2" AIR VACUUM VALVE – ABOVE GROUND
AV_422	2" AIR VACUUM VALVE – BELOW GROUND
Blow-Off Valves	
BO_511	2" BLOW-OFF VALVE
BO_512	2" BLOW-OFF VALVE – IN LINE
Boring	
BORE_008	8" WATER MAIN DRY BORE
Fire Hydrants & Protective Barricades	
FH_611	FIRE HYDRANT – 6" CONNECTION (SHORT SIDE) – SAC METRO FIRE
FH_612	FIRE HYDRANT – 6" CONNECTION (STREET SIDE) – SAC METRO FIRE
FH_613R	FIRE HYDRANT – 6" CONNECTION (STREET SIDE) – ROSEVILLE FIRE
FH_613SP	FIRE HYDRANT – 6" CONNECTION (STREET SIDE) – SOUTH PLACER FIRE
FH_615	FIRE HYDRANT – 8" CONNECTION (STREET SIDE) – SAC METRO FIRE
FH_617	FIRE HYDRANT – 6" CONNECTION (PLANTER AREA) – SAC METRO FIRE
FH_620	FIRE HYDRANT – 6" CONNECTION (BLOW-OFF) – SAC METRO FIRE
FH_683	FIRE HYDRANT ACCESS PAD
FH_684	FIRE HYDRANT ACCESS PAD WITH BARRICADES
FH_685	PROTECTION BARRICADES
Fire Sprinkler Connections	
FP_650_1	FIRE SPRINKLER CONNECTION ABUTTED TO RPDA
FP_650_2	FIRE SPRINKLER CONNECTION ABUTTED TO RPDA
FP_651_1	FIRE SPRINKLER CONNECTION APART FROM RPDA
FP_651_2	FIRE SPRINKLER CONNECTION APART FROM RPDA
Hydrostatic Pressure Testing	
HP_001	HYDROSTATIC PRESSURE TESTING
Reduced Pressure Backflow Prevention Assemblies	
RP_311	BACKFLOW PREVENTION ASSEMBLY WITH FREEZE BAG
RP_312	BACKFLOW PREVENTION ASSEMBLY WITH ENCLOSURE
RP_320	3" AND LARGER BACKFLOW PREVENTION ASSEMBLY
Storm Water Protection	
SWPPP_100	STORM DRAIN INLET PROTECTION – FILTER BAG INSTALLATION
SWPPP_101	STORM DRAIN INLET PROTECTION – CURB INLET INSTALLATION
SWPPP_102	STORM DRAIN INLET PROTECTION – SEDIMENT TRAP
SWPPP_103	STORM DRAIN INLET PROTECTION – AREA INLET INSTALLATION
SWPPP_110	TEMPORARY FIBER ROLL

Table A-1. Citrus Heights Water District – List of Standard Detail Drawings

Number	Name
SWPPP_111	TEMPORARY COVER – STOCKPILE INSTALLATION
SWPPP_115	TEMPORARY SILT FENCE
SWPPP_120	TEMPORARY CONSTRUCTION ENTRANCE
SWPPP_125	CONCRETE WASHOUT FACILITY SIGN
Concrete Thrust Blocks	
TB_001	CONCRETE THRUST BLOCKS DETAILS
Trenches	
TREN_711	4" THROUGH 12" TRENCH DETAIL – NATIVE
TREN_712	4" THROUGH 12" TRENCH DETAIL – SHOULDER
TREN_713CH	4" THROUGH 12" TRENCH DETAIL – PAVEMENT – CITY OF CITRUS HEIGHTS
TREN_713PC	4" THROUGH 12" TRENCH DETAIL – PAVEMENT – PLACER COUNTY
TREN_713SC	4" THROUGH 12" TRENCH DETAIL – PAVEMENT – SACRAMENTO COUNTY
TREN_715	14" THROUGH 24" TRENCH DETAIL – NATIVE
TREN_716	14" THROUGH 24" TRENCH DETAIL – SHOULDER
TREN_717CH	14" THROUGH 24" TRENCH DETAIL – PAVEMENT – CITY OF CITRUS HEIGHTS
TREN_717PC	14" THROUGH 24" TRENCH DETAIL – PAVEMENT – PLACER COUNTY
TREN_717SC	14" THROUGH 24" TRENCH DETAIL – PAVEMENT – SACRAMENTO COUNTY
TREN_721	SERVICE LINE TRENCH DETAIL – NATIVE
TREN_722	SERVICE LINE TRENCH DETAIL – SHOULDER
TREN_723CH	SERVICE LINE TRENCH DETAIL – PAVEMENT – CITY OF CITRUS HEIGHTS
TREN_723PC	SERVICE LINE TRENCH DETAIL – PAVEMENT – PLACER COUNTY
TREN_723SC	SERVICE LINE TRENCH DETAIL – PAVEMENT – SACRAMENTO COUNTY
TREN_782	SEWER-STORM CROSSING DETAIL
TREN_783	SEWER-STORM PARALLEL DETAIL
Utility Crossings	
UC_001	UTILITY CROSSING
Valve Boxes	
VB_810	WATER MAIN VALVE BOX – LANDSCAPE
VB_811	WATER MAIN VALVE BOX – STREET-DRIVEWAY
VB_812_1	WATER MAIN VALVE BOX – EXTENSION OPTIONS
VB_812_2	WATER MAIN VALVE BOX – EXTENSION OPTIONS
VB_815	BLOW-OFF VALVE BOX – STREET-DRIVEWAY
Water Services	
WS_063CU	3/4" COPPER WATER SERVICE – 5/8" WATER METER – NEW CONSTRUCTION
WS_063PE	3/4" POLYETHYLENE WATER SERVICE – 5/8" WATER METER – NEW CONSTRUCTION
WS_075CU	3/4" COPPER WATER SERVICE – 3/4" WATER METER – NEW CONSTRUCTION
WS_075PE	3/4" POLYETHYLENE WATER SERVICE – 3/4" WATER METER – NEW CONSTRUCTION
WS_076CU	1" COPPER WATER SERVICE – 3/4" WATER METER – NEW CONSTRUCTION

Table A-1. Citrus Heights Water District – List of Standard Detail Drawings

Number	Name
WS_076PE	1" POLYETHYLENE WATER SERVICE – 3/4" WATER METER – NEW CONSTRUCTION
WS_078CU	3/4" COPPER WATER SERVICE
WS_078PE	3/4" POLYETHYLENE WATER SERVICE
WS_079	WATER SAMPLING STATION
WS_100CU	1" COPPER WATER SERVICE – 1" WATER METER – NEW CONSTRUCTION
WS_100PE	1" POLYETHYLENE WATER SERVICE – 1" WATER METER – NEW CONSTRUCTION
WS_102CU	1" COPPER WATER SERVICE – 1" WATER METER – INCL LINE TO DWELLING
WS_102PE	1" POLYETHYLENE WATER SERVICE – 1" WATER METER – INCL LINE TO DWELLING
WS_103	1" WATER SERVICE – 1" WATER METER RETROFIT
WS_108CU	1" COPPER WATER SERVICE
WS_108PE	1" POLYETHYLENE WATER SERVICE
WS_109CU	1" COPPER WATER SERVICE SADDLE REPLACEMENT
WS_109PE	1" POLYETHYLENE WATER SERVICE SADDLE REPLACEMENT
WS_125CU	1-1/4" COPPER WATER SERVICE – 1" WATER METER – NEW CONSTRUCTION
WS_125PE	1-1/4" POLYETHYLENE WATER SERVICE – 1" WATER METER – NEW CONSTRUCTION
WS_128CU	1-1/4" COPPER WATER SERVICE
WS_128PE	1-1/4" POLYETHYLENE WATER SERVICE
WS_150CU	1-1/2" COPPER WATER SERVICE – 1-1/2" WATER METER – NEW CONSTRUCTION
WS_150PE	1-1/2" POLYETHYLENE WATER SERVICE – 1-1/2" WATER METER – NEW CONSTRUCTION
WS_158CU	1-1/2" COPPER WATER SERVICE
WS_158PE	1-1/2" POLYETHYLENE WATER SERVICE
WS_200CU	2" COPPER WATER SERVICE – 2" WATER METER – NEW CONSTRUCTION
WS_200PE	2" POLYETHYLENE WATER SERVICE – 2" WATER METER – NEW CONSTRUCTION
WS_202CU	2" COPPER WATER SERVICE – 2" COMPOUND WATER METER – NEW CONSTRUCTION
WS_202PE	2" POLYETHYLENE WATER SERVICE – 2" COMPOUND WATER METER – NEW CONSTRUCTION
WS_208CU	2" COPPER WATER SERVICE
WS_208PE	2" POLYETHYLENE WATER SERVICE
WS_290	2" CONSTRUCTION WATER SERVICE
WS_300	3" WATER SERVICE – 3" COMPOUND WATER METER – NEW CONSTRUCTION
WS_400	4" WATER SERVICE – 4" COMPOUND WATER METER – NEW CONSTRUCTION
WS_600	6" WATER SERVICE – 6" COMPOUND WATER METER – NEW CONSTRUCTION
WS_610	6" WATER SERVICE – 6" COMBINATION WATER METER – NEW CONSTRUCTION
WS_810	8" WATER SERVICE – 8" COMBINATION WATER METER – NEW CONSTRUCTION
WS_1010	10" WATER SERVICE – 10" COMBINATION WATER METER – NEW CONSTRUCTION



NOTES:

- AIR/VACUUM VALVE AND 6' RISER SHALL BE PLUMB.
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR INSPECTION OF PAD FORMS PRIOR TO POURING CONCRETE. (916) 725-6873
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- COLOR OF INSULATED ENCLOSURE SHALL BE DETERMINED BY DISTRICT INSPECTOR.

1	1" BRONZE SADDLE - IPT	14	INSULATED ENCLOSURE - 12"x12", PLACER WATERWORKS OR EQUAL - PW/SJARV-2 INSULATED - SECURED TO PAD WITH 1/2" x 4" SLEEVE ANCHORS - RED HEAD OR EQUAL
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x MIP		
3	1" BRASS ELBOW		
4	1" BRASS STREET ELBOW - CTS COMP x MIP	15	REINFORCED CONCRETE PAD - 4" THICK, TYPE II SIX-SACK PORTLAND CEMENT
5	1" COPPER TUBING - TYPE K HARD		
6	1" VALVE - FULL-PORT BALL, CTS COMP x CTS COMP	16	3" PVC SLEEVE - SAND FILLED
7	1" BRASS NIPPLE - LENGTH AS NEEDED	17	CONCRETE DOBIE w/WIRE
8	1" AIR/VACUUM VALVE - CRISPIN UL-10 OR EQUAL	18	3/8" (#3) REBAR - 2" INSIDE PERIMETER.
9	1" x 6" SCH 80 PVC NIPPLE - MIP x SLIP	19	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
10	1" SCH 80 PVC 90° ELBOW - SLIP x SLIP		
11	1" x 3" SCH 80 PVC NIPPLE - SLIP x SLIP	20	CONCRETE VALVE BOX/LID - MARKED "WATER", CHRISTY F-8
12	1" x 2" SCH 80 PVC NIPPLE - SLIP x MIP	21	6" RISER - SDR35 ONLY, CONTINUOUS SECTION
13	SCREEN - CHRISTY VC1	22	#2 WASHED SAND - COMPACTED TO 90%

CITRUS HEIGHTS WATER DISTRICT

1" AIR/VACUUM VALVE - ABOVE GROUND

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

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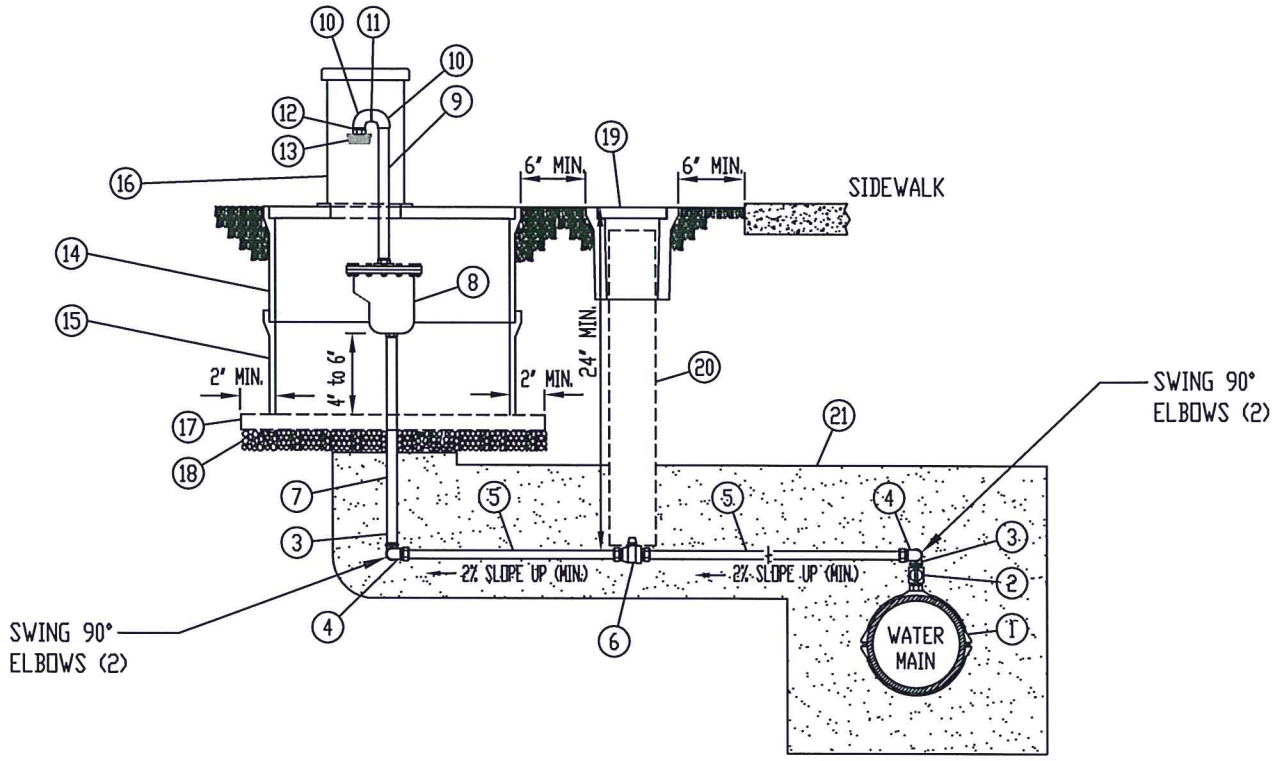
PAGE: AV_411



NOTES:

- AIR/VACUUM VALVE AND 6" RISER SHALL BE PLUMB.
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.

1	1" BRONZE SADDLE - IPT	13	SCREEN - CHRISTY VC1
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x MIP	14	CONCRETE BOX - CHRISTY 1324-H/20
3	1" BRASS ELBOW	15	CONCRETE BOX EXTENSION - CHRISTY B1324x12
4	1" BRASS STREET ELBOW - CTS COMP x MIP	16	LID AND HOUSING - PLACER WATERWORKS PW/AE118-M OR EQUAL
5	1" COPPER TUBING - TYPE K HARD	17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
6	1" VALVE - FULL-PORT BALL, CTS COMP x CTS COMP	18	3/4" CLEAN CRUSHED ROCK
7	1" BRASS NIPPLE - LENGTH AS NEEDED	19	CONCRETE VALVE BOX/LID - MARKED "WATER", CHRISTY F-8
8	1" AIR/VACUUM VALVE - CRISPIN UL-10 OR EQUAL	20	6" RISER - SDR35 ONLY, CONTINUOUS SECTION
9	1" SCH 80 PVC PIPE - MIP x SLIP	21	#2 WASHED SAND - COMPACTED TO 90%
10	1" SCH 80 PVC ELBOW - SLIP x SLIP		
11	1" x 2" SCH 80 NIPPLE - SLIP x SLIP		
12	1" x 2" SCH 80 NIPPLE - SLIP x MIP		

CITRUS HEIGHTS WATER DISTRICT

1" AIR/VACUUM VALVE - BELOW GROUND

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 23 AUG 2016

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

SCALE: N.T.S.

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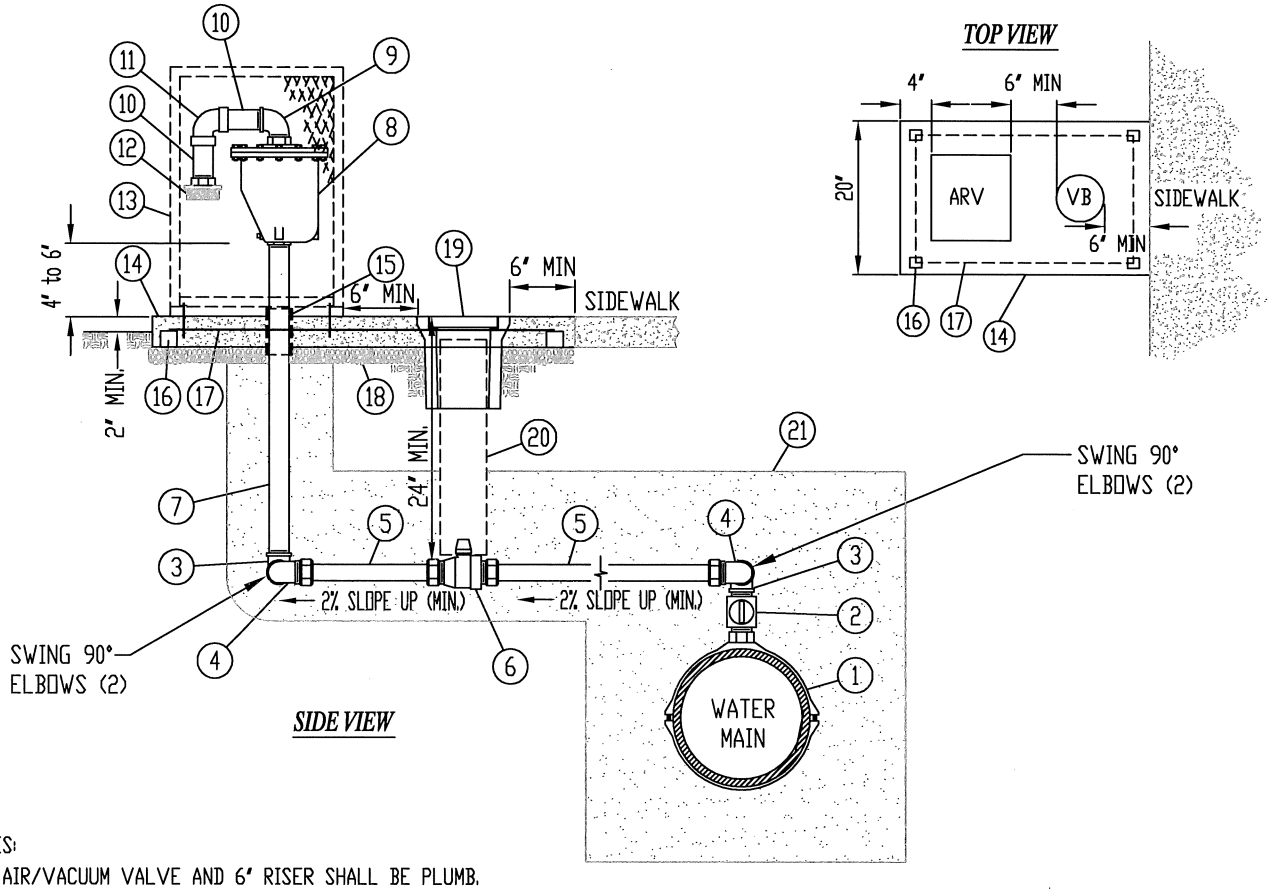

NOTES:

- AIR/VACUUM VALVE AND 6" RISER SHALL BE PLUMB.
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR INSPECTION OF PAD FORMS PRIOR TO POURING CONCRETE. (916) 725-6873.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- COLOR OF INSULATED ENCLOSURE SHALL BE DETERMINED BY DISTRICT INSPECTOR.

1	2" BRONZE SADDLE - IPT	13	INSULATED ENCLOSURE - 20"x20", PLACER WATERWORKS OR EQUAL - PW/SJARV-3 INSULATED - SECURED TO PAD WITH 1/2" x 4" SLEEVE ANCHORS - RED HEAD OR EQUAL
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x MIP		
3	2" BRASS ELBOW		
4	2" BRASS STREET ELBOW - CTS COMP x MIP	14	REINFORCED CONCRETE PAD - 4" THICK, TYPE II SIX-SACK PORTLAND CEMENT
5	2" COPPER TUBING - TYPE K HARD		
6	2" VALVE - FULL-PORT BALL, CTS COMP x CTS COMP	15	4" PVC SLEEVE - SAND FILLED
7	2" BRASS NIPPLE - LENGTH AS NEEDED	16	CONCRETE DOBIE w/WIRE
8	2" AIR/VACUUM VALVE - CRISPIN UL-20 OR EQUAL	17	3/8" (#3) REBAR - 2" INSIDE PERIMETER.
9	2" GALV STREET ELBOW	18	3/4" CLASS II AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
10	2" x 6" SCH 80 PVC NIPPLE - MIP x SLIP		
11	2" SCH 80 PVC ELBOW - SLIP x SLIP	19	CONCRETE VALVE BOX/LID - MARKED "WATER", CHRISTY F-8
12	SCREEN - CHRISTY VC2	20	6" RISER - SDR35 ONLY, CONTINUOUS SECTION
		21	#2 WASHED SAND - COMPACTED TO 90%

CITRUS HEIGHTS WATER DISTRICT

2" AIR/VACUUM VALVE - ABOVE GROUND

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

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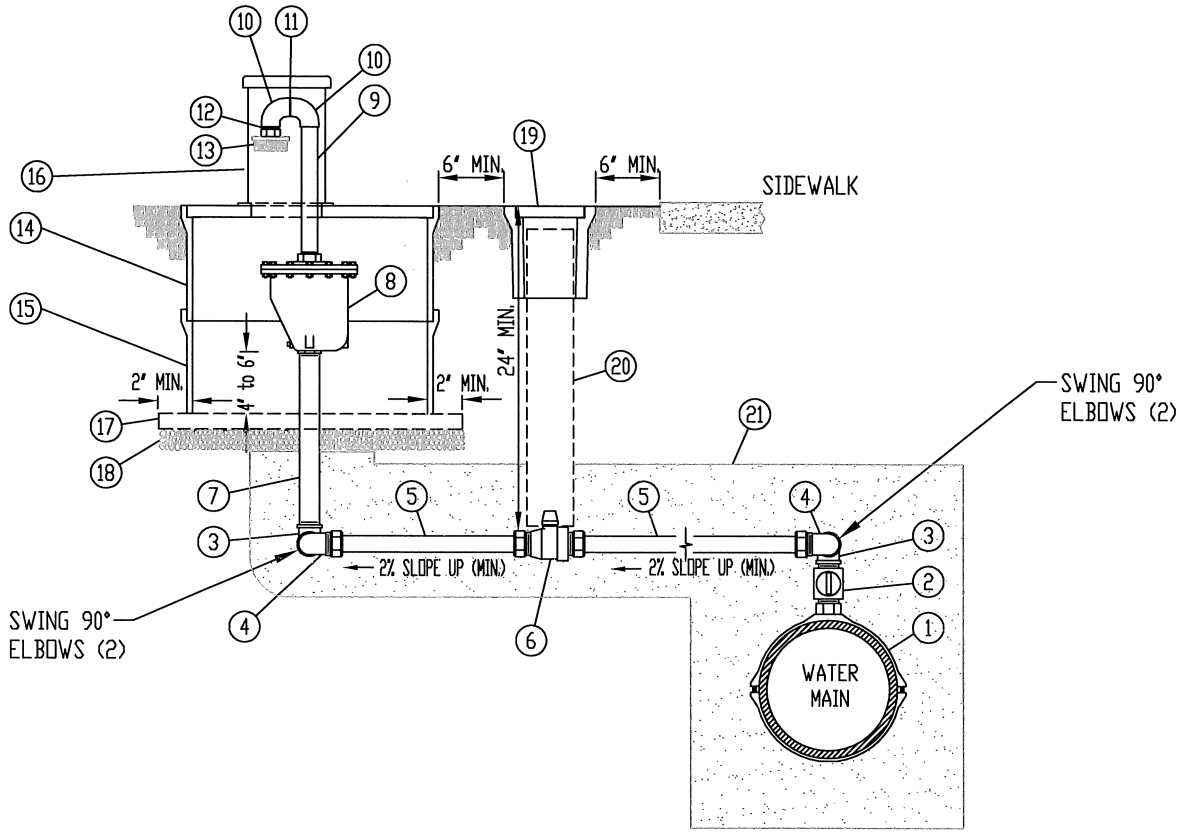

NOTES:

- AIR/VACUUM VALVE AND 6" RISER SHALL BE PLUMB.
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.

1	2" BRONZE SADDLE - IPT	13	SCREEN - CHRISTY VC2
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x MIP	14	CONCRETE BOX - CHRISTY 1730-H/20
3	2" BRASS ELBOW	15	CONCRETE BOX EXTENSION - CHRISTY B30x12
4	2" BRASS STREET ELBOW - CTS COMP x MIP	16	LID AND HOUSING - PLACER WATERWORKS PW/AE3618MC OR EQUAL
5	2" COPPER TUBING - TYPE K HARD	17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
6	2" VALVE - FULL-PORT BALL, CTS COMP x CTS COMP	18	3/4" CLEAN CRUSHED ROCK
7	2" BRASS NIPPLE - LENGTH AS NEEDED	19	CONCRETE VALVE BOX/LID - MARKED "WATER", CHRISTY F-8
8	2" AIR/VACUUM VALVE - CRISPIN UL-20 OR EQUAL	20	6" RISER - SDR35 ONLY, CONTINUOUS SECTION
9	2" SCH 80 PVC PIPE - MIP x SLIP	21	#2 WASHED SAND - COMPACTED TO 90%
10	2" SCH 80 PVC ELBOW - SLIP x SLIP		
11	2" X 2" SCH 80 PVC NIPPLE - SLIP x SLIP		
12	2" X 2" SCH 80 PVC NIPPLE - SLIP x MIP		

CITRUS HEIGHTS WATER DISTRICT

2" AIR/VACUUM VALVE - BELOW GROUND

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

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SCALE: N.T.S.

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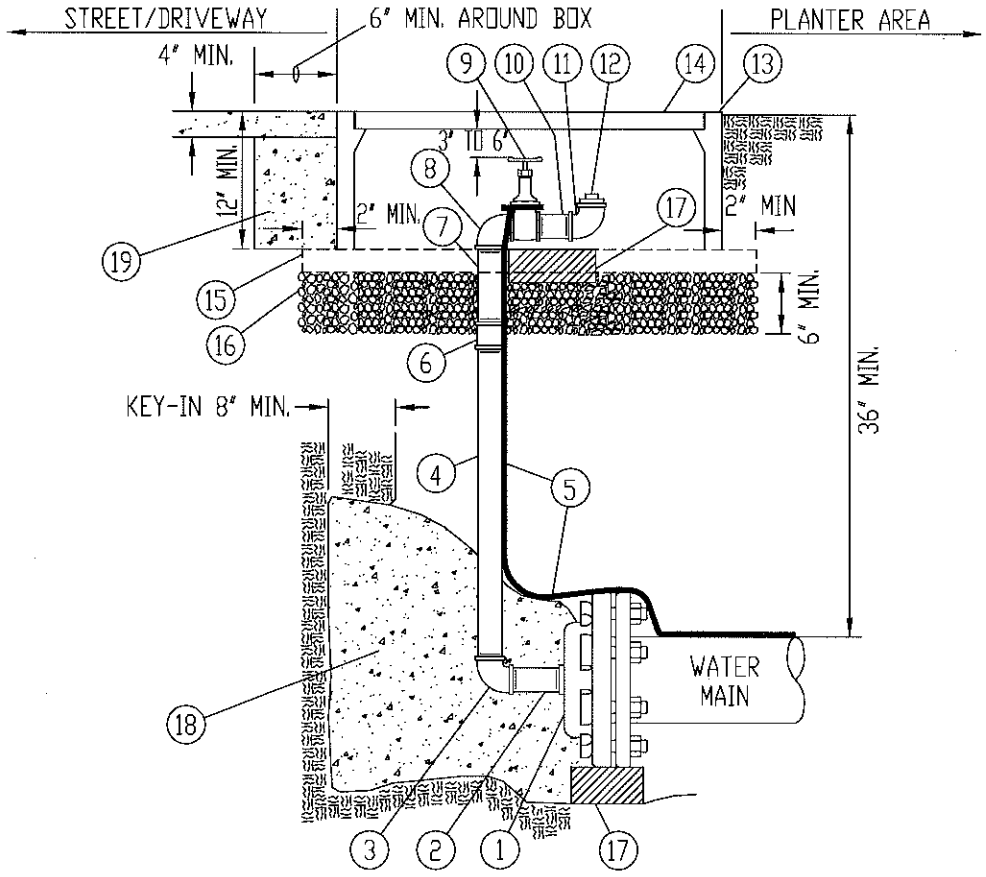

NOTES:

- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- MATERIAL BELOW CRUSHED ROCK SHALL BE COMPACTED TO 95% MINIMUM.
- LID SHALL BE MARKED "WATER"
- VALVE OPERATING HANDLE SHALL BE CENTERED IN BOX AND FULLY ACCESSIBLE.
- CONCRETE ENCASEMENT SHALL BE ALLOWED TO CURE 24 HOURS MINIMUM PRIOR TO FINISH PAVING.

1	MJ CAP W/ 2" FIP OUTLET	11	2" BRASS 90° ELBOW
2	2" x 6" BRASS NIPPLE	12	2" BRASS PLUG, FINGER TIGHT
3	2" BRASS 90° ELBOW		NON-TRAFFIC AREA / SIDEWALK/DW / STREET
4	2" x 24" BRASS NIPPLE	13	BOX: CARSON 1220-12 / CHRISTY FL30TBOX12 / CHRISTY B1324BOX
5	#10 INSULATED COPPER LOCATOR WIRE	14	LID: CARSON 1220-4B / CHRISTY FL30T / CHRISTY B1324-61JH
6	2" BRASS COUPLING - ONE ONLY	15	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
7	2" BRASS NIPPLE - ONE ONLY, LENGTH AS NECESSARY TO ADJUST TO PROPER GRADE	16	3/4" CLEAN CRUSHED ROCK
		17	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
8	2" BRASS STREET ELBOW	18	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
9	2" BRASS GATE VALVE-NIBCO T-113LF OR EQUAL w/ 4" BRASS HANDWHEEL	19	CONCRETE ENCASEMENT AROUND VALVE BOX- TYPE II SIX-SACK PORTLAND CEMENT
10	2" x 3" BRASS NIPPLE		

CITRUS HEIGHTS WATER DISTRICT

2" BLOW-OFF VALVE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 7/31/15

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 29 JULY 2015
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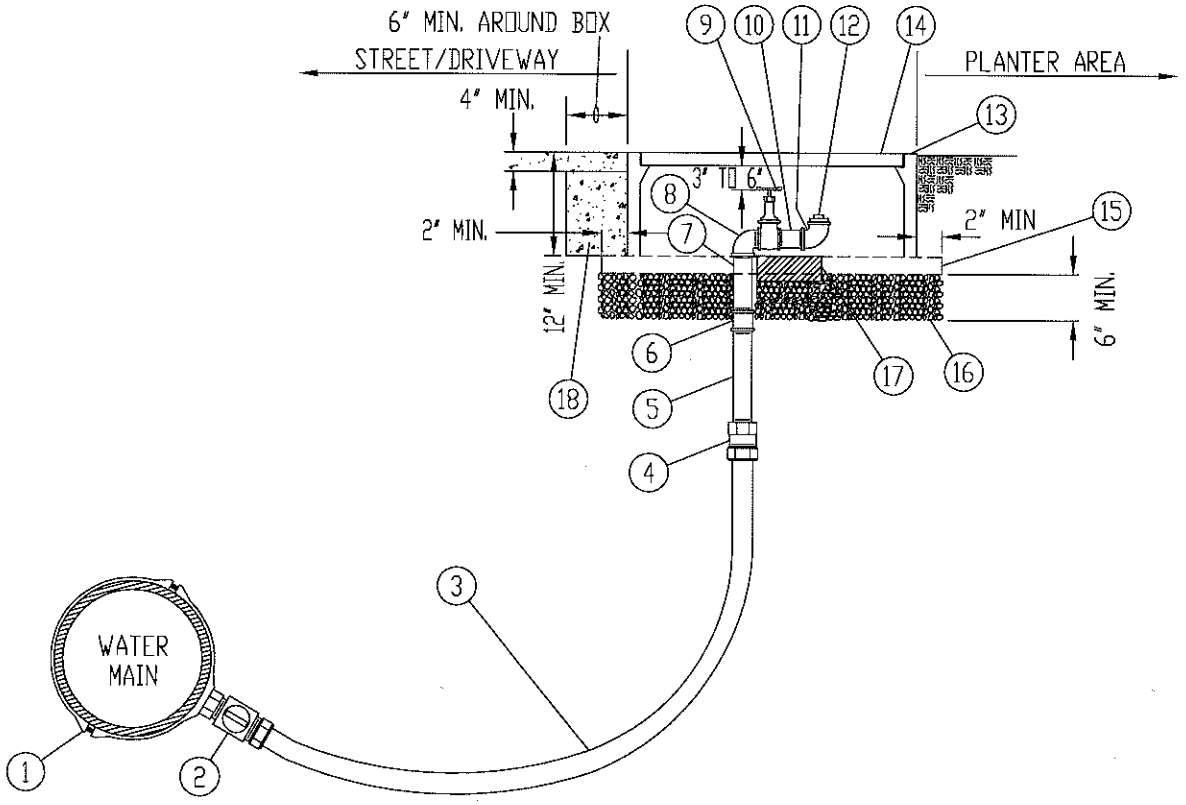


NOTES:

- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- MATERIAL BELOW CRUSHED ROCK SHALL BE COMPACTED TO 95% MINIMUM.
- LID SHALL BE MARKED "WATER"
- VALVE OPERATING HANDLE SHALL BE CENTERED IN BOX AND FULLY ACCESSIBLE.
- CONCRETE ENCASEMENT SHALL BE ALLOWED TO CURE 24 HOURS MINIMUM PRIOR TO FINISH PAVING.

1	2" BRONZE SADDLE - IPT	11	2" BRASS 90° ELBOW			
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	12	2" BRASS PLUG, FINGER TIGHT			
3	2" COPPER TUBING - TYPE K SOFT			NON-TRAFFIC AREA	SIDEWALK/DW	STREET
4	2" BRASS ADAPTER - CTS COMP X FIP	13	BOX	CARSON 1220-12	CHRISTY FL30TBOX12	CHRISTY B1324BOX
5	2" X 24" BRASS NIPPLE	14	LID	CARSON 1220-4B	CHRISTY FL30T	CHRISTY B1324-61JH
6	2" BRASS COUPLING - ONE ONLY	15	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)			
7	2" BRASS NIPPLE - ONE ONLY, LENGTH AS NECESSARY TO ADJUST TO PROPER GRADE	16	3/4" CLEAN CRUSHED ROCK			
		17	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"			
8	2" BRASS STREET ELBOW	18	CONCRETE ENCASEMENT AROUND VALVE BOX-TYPE II SIX-SACK PORTLAND CEMENT			
9	2" BRASS GATE VALVE-NIBCO T-113LF OR EQUAL w/ 4" BRASS HANDWHEEL					
10	2" X 3" BRASS NIPPLE					

CITRUS HEIGHTS WATER DISTRICT

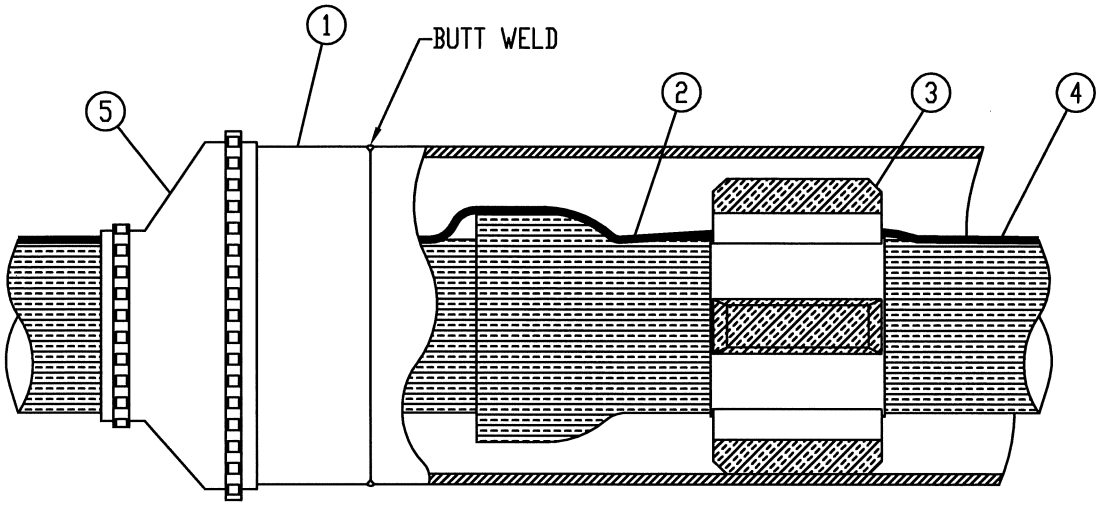
2" BLOW-OFF VALVE - IN-LINE

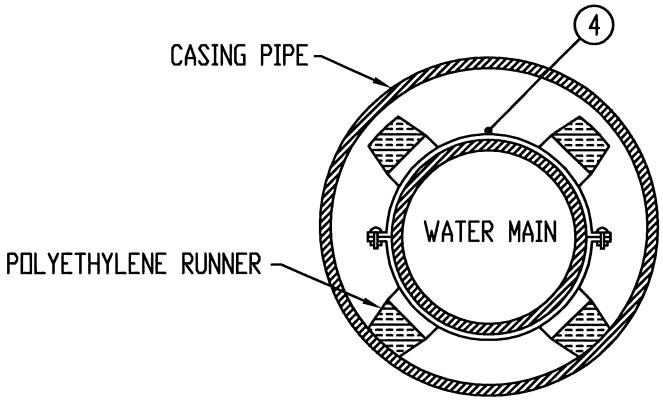
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill
CITRUS HEIGHTS WATER DISTRICT

DATE: 7/31/15

DRAWN: 29 JULY 2015
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: BO_512.DWG
PAGE: BO_512





NOTES:

- TYPICAL SPACING: EACH 18'-20' SECTION OF WATER MAIN REQUIRES A MINIMUM OF THREE (3) CASING INSULATORS. INSULATORS SHALL BE LOCATED 1.5' FROM EACH END OF THE WATER MAIN SECTION WITH THE REMAINING INSULATOR POSITIONED AT THE CENTER OF THE WATER MAIN SECTION.
- PUSH-ON JOINT SPIGOT ENDS REQUIRE U.S. PIPE FIELD-LOK 350 GASKET OR EQUAL.

1	CASING PIPE - 16" DIAMETER, SCH 40, 0.500 NOMINAL WALL THICKNESS w/CIRCUMFERENTIAL EXTERIOR BUTT WELD	4	#10 INSULATED COPPER LOCATOR WIRE
2	WATER MAIN - 8" DUCTILE IRON PIPE (DIP), PC350, CEMENT MORTAR LINED	5	END SEAL - CALPICO MODEL W WRAP AROUND END SEAL, SHALL BE 1/8" THICK. MATERIAL SHALL BE EITHER FLEXIBLE COAL-TAR REINFORCED WITH FIBERGLASS, SPLIT WRAP-AROUND STYLE, OR SYNTHETIC NEOPRENE RUBBER w/ 1/2" TYPE 304 STAINLESS STEEL STRAPS w/WORM GEAR MECHANISM FOR TIGHTENING
3	CASING INSULATOR - STAINLESS STEEL, CALPICO MODEL M-8-SS w/8" WIDE BAND AND 2" WIDE HDPE RUNNERS - CENTERED/RESTRAINED TYPE		

CITRUS HEIGHTS WATER DISTRICT

8" WATER MAIN DRY BORE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

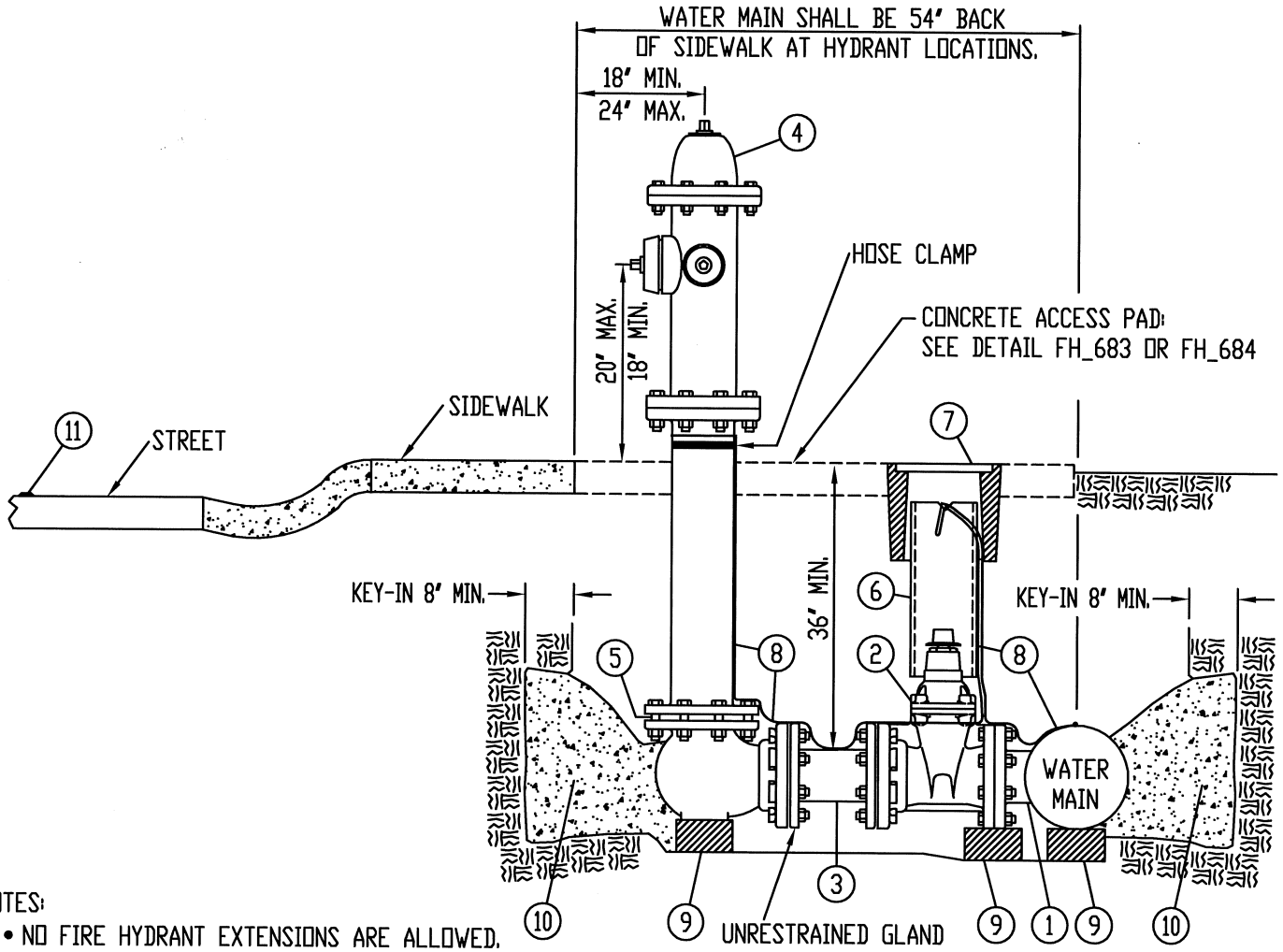
REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: BORE_008.DWG

PAGE: BORE_008



NOTES:

- NO FIRE HYDRANT EXTENSIONS ARE ALLOWED.
- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- AREA AROUND FIRE HYDRANT SHALL BE COMPACTED TO 90% MINIMUM.
- PAINT HYDRANT BURY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

1	TEE - DUCTILE IRON - FLANGED OUTLET	6	8" RISER - SDR35 ONLY, CONTINUOUS SECTION
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	7	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
3	6" DUCTILE IRON PIPE PUP - PC350, 12" LENGTH	8	#10 INSULATED COPPER LOCATOR WIRE
4	STEAMER FIRE HYDRANT - MUELLER A-423 OR AMERICAN DARLING B84B - MINIMUM 48" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	9	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
		10	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
5	BRASS PLUGS SHALL BE INSTALLED IN DRAIN HOLES IN SHOE.	11	BLUE REFLECTIVE MARKER - INSTALLED PER SACRAMENTO METROPOLITAN FIRE DISTRICT SPECIFICATIONS

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 6" CONNECTION (SHORT SIDE)

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DETAIL FOR CONSTRUCTION IN:
SACRAMENTO METRO FIRE DISTRICT

DRAWN: 8 MAY 2013
REVISED:
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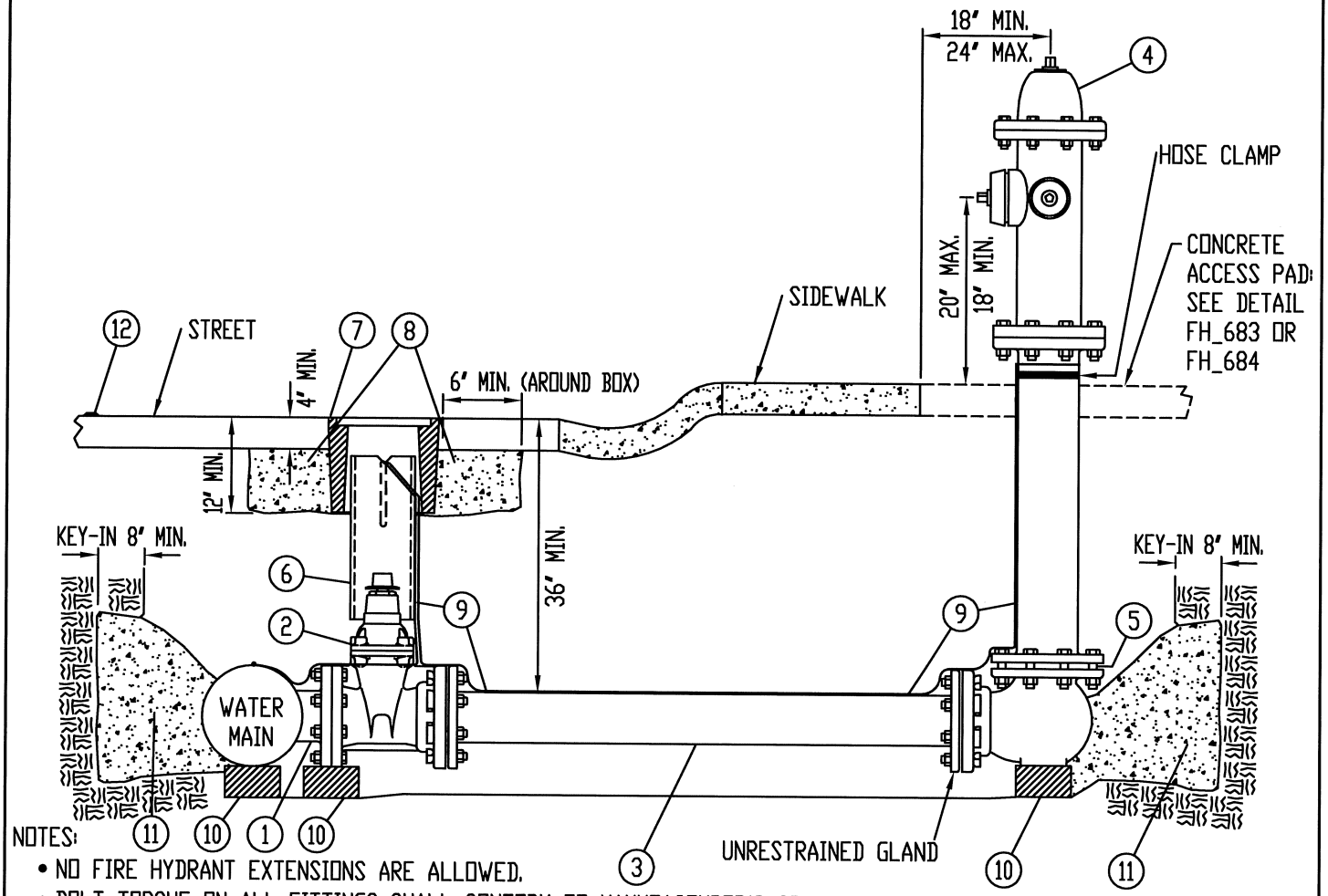

NOTES:

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- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- AREA AROUND FIRE HYDRANT SHALL BE COMPACTED TO 90% MINIMUM.
- PAINT HYDRANT BURY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

1	TEE - DUCTILE IRON - FLANGED OUTLET	7	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	8	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT - SEE DETAIL VB_811
3	6" DUCTILE IRON PIPE - PC350	9	#10 INSULATED COPPER LOCATOR WIRE
4	STEAMER FIRE HYDRANT - MUELLER A-423 OR AMERICAN DARLING B84B - MINIMUM 48" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	10	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
		11	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
5	BRASS PLUGS SHALL BE INSTALLED IN DRAIN HOLES IN SHOE.	12	BLUE REFLECTIVE MARKER - INSTALLED PER SACRAMENTO METROPOLITAN FIRE DISTRICT SPECIFICATIONS
6	8" RISER - SDR35 ONLY, CONTINUOUS SECTION		

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 6" CONNECTION (STREET SIDE)

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

SCALE: N.T.S.

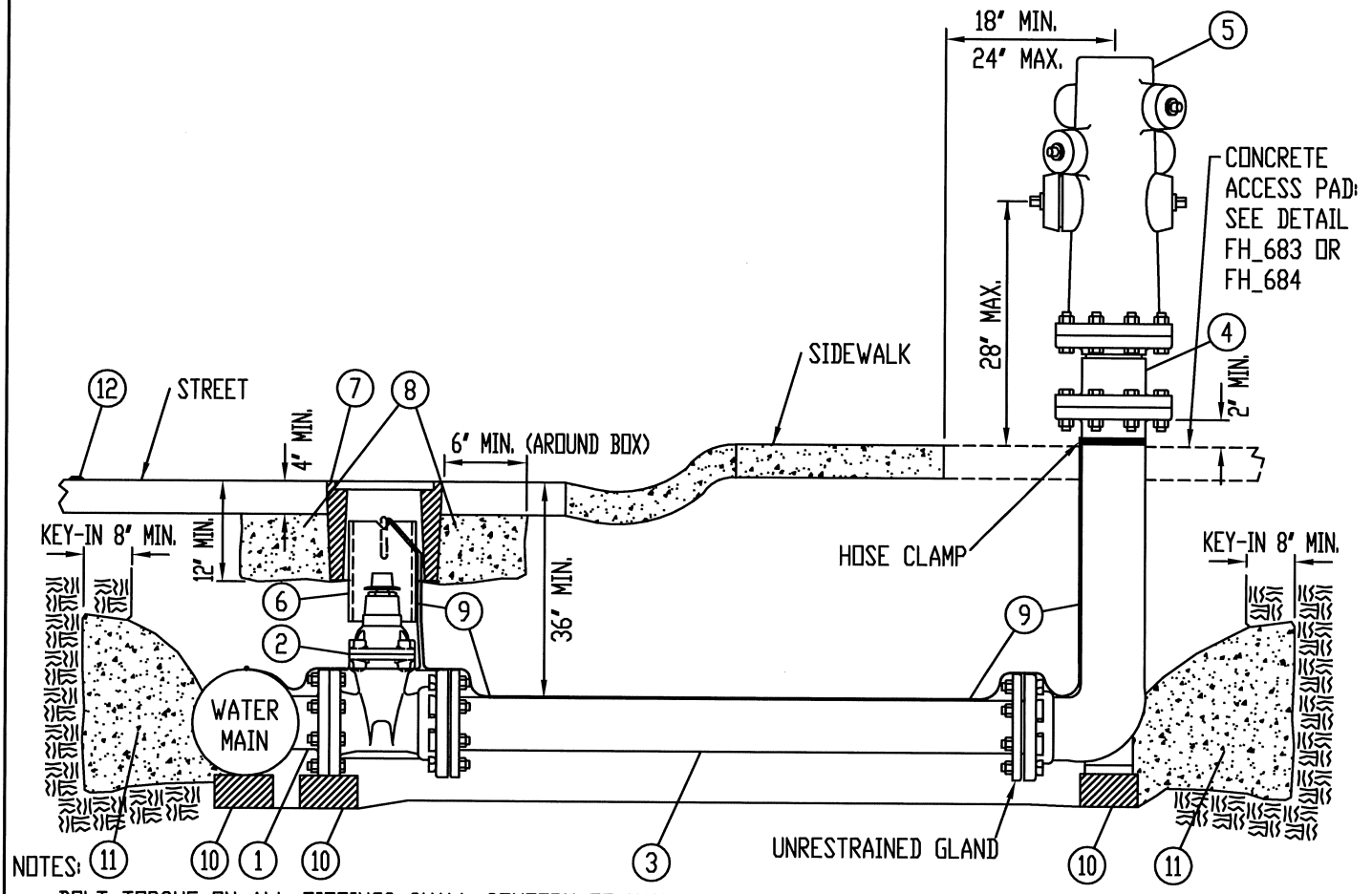
DESIGN: P.A.D.

CAD FILE: FH_612.DWG

DETAIL FOR CONSTRUCTION IN:

SACRAMENTO METRO FIRE DISTRICT

PAGE: FH_612



- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- AREA AROUND FIRE HYDRANT SHALL BE COMPACTED TO 90% MINIMUM.
- PAINT HYDRANT BURY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.
- HYDRANT BOLTS SHALL BE BREAK AWAY TYPE INSTALLED NUT SIDE UP AND FILLED WITH 25 YEAR CLEAR SILICONE CAULK.

1	TEE - DUCTILE IRON - FLANGED OUTLET	7	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	8	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT - SEE DETAIL VB_811
3	6" DUCTILE IRON PIPE - PC350	9	#10 INSULATED COPPER LOCATOR WIRE
4	BREAK AWAY SPOOL WITH BREAK AWAY BOLTS ON HYDRANT FLANGE ONLY	10	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
5	WET BARREL FIRE HYDRANT - CLOW 2060 OR JAMES JONES J3762-Z31 - MINIMUM 48" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	11	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
6	8" RISER - SDR35 ONLY, CONTINUOUS SECTION	12	BLUE REFLECTIVE MARKER - INSTALLED PER CITY OF ROSEVILLE SPECIFICATIONS

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 6" CONNECTION (STREET SIDE)

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DETAIL FOR CONSTRUCTION IN:
CITY OF ROSEVILLE

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CAD FILE: FH_613R.DWG
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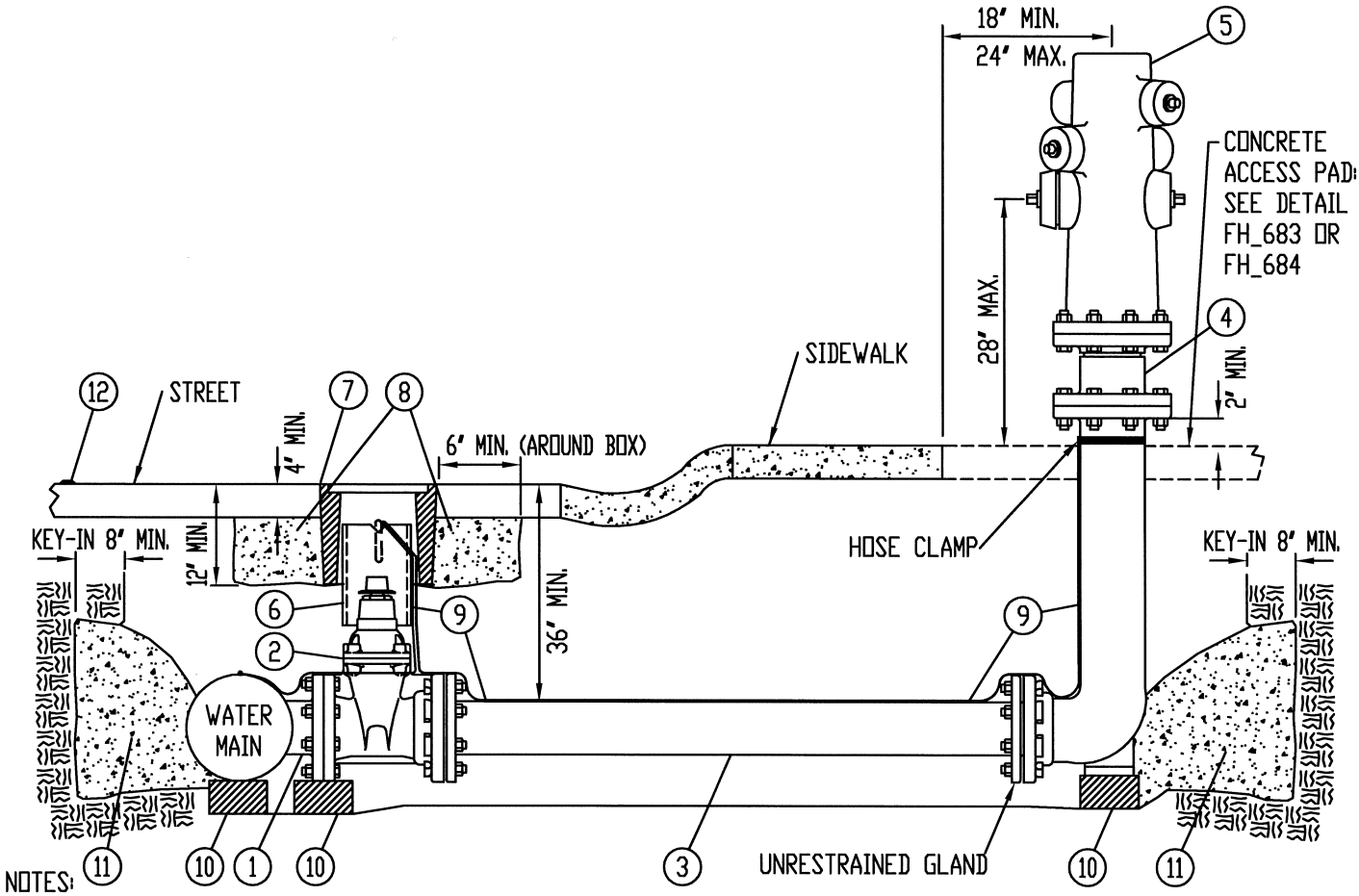

NOTES:

- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- AREA AROUND FIRE HYDRANT SHALL BE COMPACTED TO 90% MINIMUM.
- PAINT HYDRANT BURY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.
- HYDRANT BOLTS SHALL BE BREAK AWAY TYPE INSTALLED NUT SIDE UP AND FILLED WITH 25 YEAR CLEAR SILICONE CAULK.

1	TEE - DUCTILE IRON - FLANGED OUTLET	7	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	8	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT - SEE DETAIL VB_811
3	6" DUCTILE IRON PIPE - PC350		
4	BREAK AWAY SPOOL WITH BREAK AWAY BOLTS ON HYDRANT FLANGE ONLY	9	#10 INSULATED COPPER LOCATOR WIRE
		10	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
5	WET BARREL FIRE HYDRANT - CLOW 960, MINIMUM 48" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	11	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
		12	BLUE REFLECTIVE MARKER - INSTALLED PER SOUTH PLACER FIRE PROTECTION DISTRICT SPECIFICATIONS
6	8" RISER - SDR35 ONLY, CONTINUOUS SECTION		

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 6" CONNECTION (STREET SIDE)

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DETAIL FOR CONSTRUCTION IN:
SOUTH PLACER FIRE PROTECTION DISTRICT

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SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: FH_613SP.DWG
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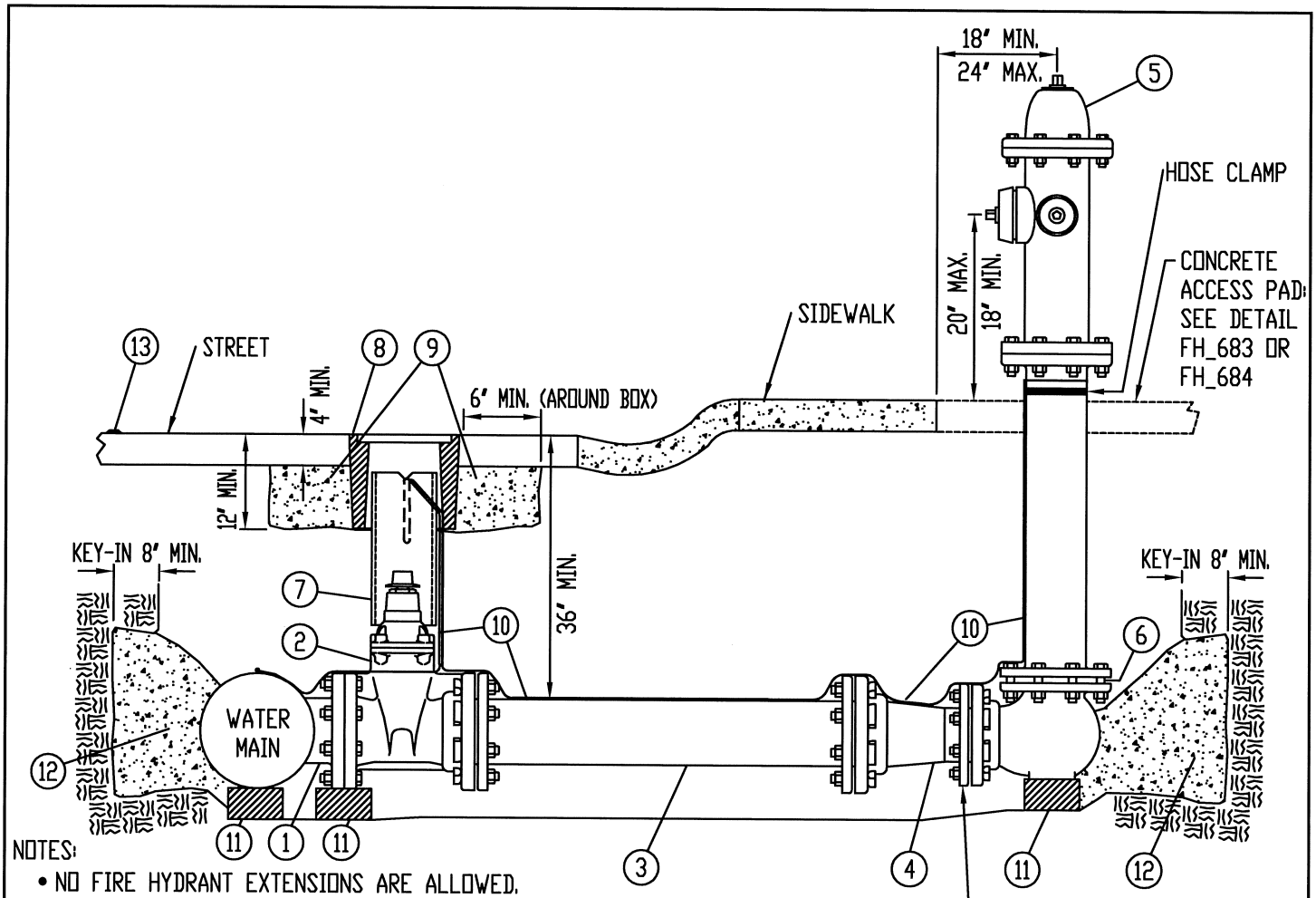


NOTES:

- NO FIRE HYDRANT EXTENSIONS ARE ALLOWED.
- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- AREA AROUND FIRE HYDRANT SHALL BE COMPACTED TO 90% MINIMUM.
- PAINT HYDRANT BURY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

1	TEE - DUCTILE IRON - FLANGED OUTLET	7	8" RISER - SDR35 ONLY - CONTINUOUS SECTION
2	8" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	8	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
3	8" DUCTILE IRON PIPE - PC350	9	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT - SEE DETAIL VB_811
4	8" x 6" MJ X PE (LARGE END MJ) REDUCER		
5	STEAMER FIRE HYDRANT - MUELLER A-423 OR AMERICAN DARLING B84B - MINIMUM 48" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	10	#10 INSULATED COPPER LOCATOR WIRE
		11	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
		12	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
6	BRASS PLUGS SHALL BE INSTALLED IN DRAIN HOLES IN SHOE.	13	BLUE REFLECTIVE MARKER - INSTALLED PER SACRAMENTO METROPOLITAN FIRE SPECIFICATIONS

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 8" CONNECTION (STREET SIDE)

CITRUS HEIGHTS WATER DISTRICT

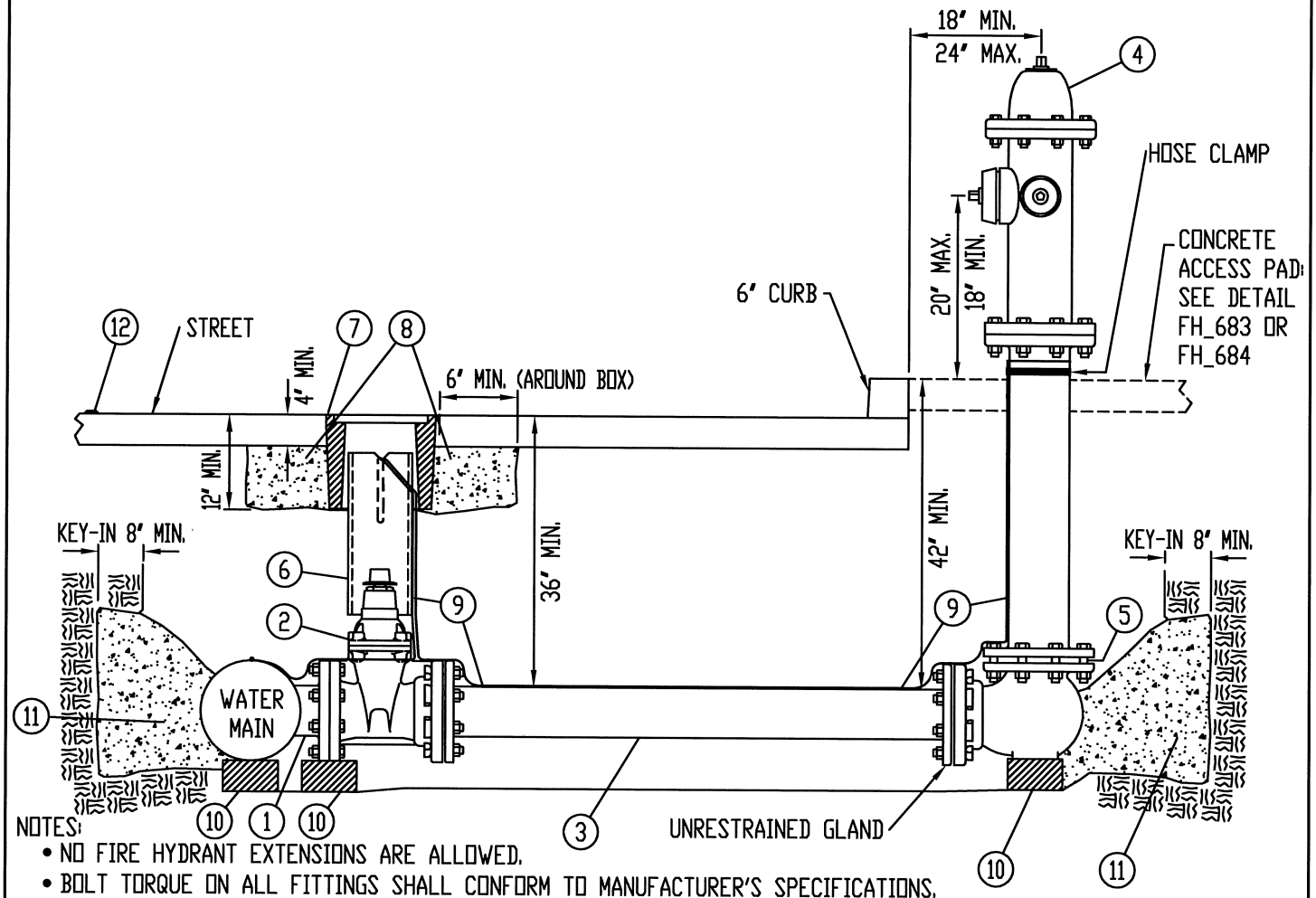
APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: FH_615.DWG

DETAIL FOR CONSTRUCTION IN:
SACRAMENTO METRO FIRE DISTRICT

PAGE: FH_615



NOTES:

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1	TEE - DUCTILE IRON - FLANGED OUTLET	7	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	8	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT - SEE DETAIL VB_811
3	6" DUCTILE IRON PIPE - PC350		
4	STEAMER FIRE HYDRANT - MUELLER A-423 OR AMERICAN DARLING B84B - MINIMUM 54" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	9	#10 INSULATED COPPER LOCATOR WIRE
		10	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
		11	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
5	BRASS PLUGS SHALL BE INSTALLED IN DRAIN HOLES IN SHOE.	12	BLUE REFLECTIVE MARKER - INSTALLED PER SACRAMENTO METROPOLITAN FIRE DISTRICT SPECIFICATIONS
6	8" RISER - SDR35 ONLY, CONTINUOUS SECTION		

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 6" CONNECTION (PLANTER AREA)

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DETAIL FOR CONSTRUCTION IN:

SACRAMENTO METRO FIRE DISTRICT

DRAWN: 8 MAY 2013

REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

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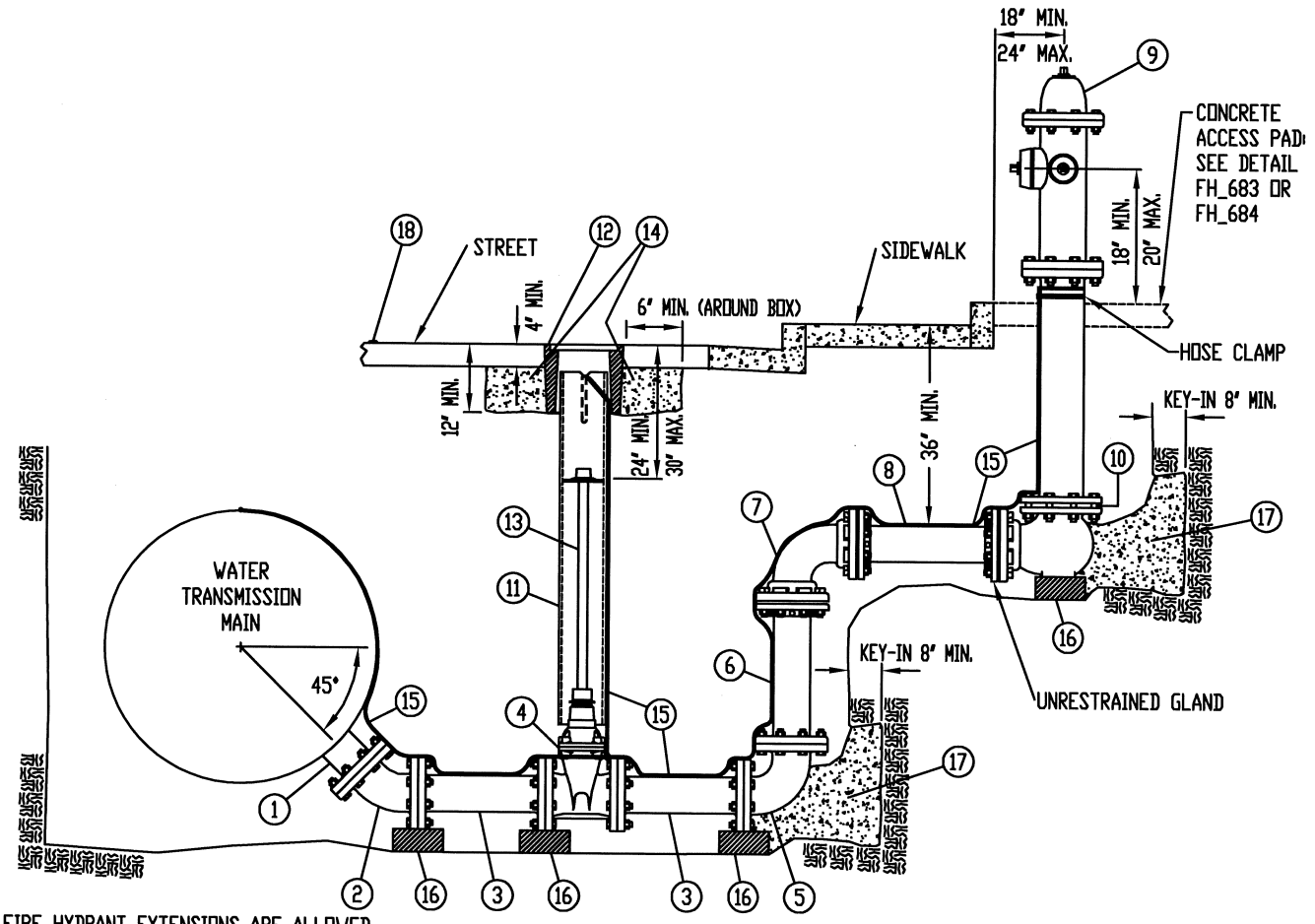

NOTES:

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- PAINT HYDRANT BURY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

1	6" FLANGED OUTLET	11	8" RISER - SDR35 ONLY, CONTINUOUS SECTION
2	6" 45° ELBOW - FL x FL	12	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID.
3	6" x 24" DUCTILE IRON PIPE SPOOL - FL x FL, CL53		
4	6" GATE VALVE - RESILIENT WEDGE - FLANGED BETWEEN SPOOLS	13	VALVE OPERATOR EXTENSION - LENGTH AS REQUIRED
5	6" 90° ELBOW - FL x FL, ELBOW CONFIGURATIONS MAY VARY	14	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT - SEE DETAIL VB_810 OR VB_811
6	6" DUCTILE IRON PIPE - FL x PLAIN END, CL53		
7	6" 90° ELBOW - MJ x MJ w/ MEGA-LUG GLANDS ON BOTH ENDS, ELBOW CONFIGURATIONS MAY VARY	15	#10 INSULATED COPPER LOCATOR WIRE
		16	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
8	6" DUCTILE IRON PIPE - PC350	17	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
9	STEAMER FIRE HYDRANT - MUELLER A-423 OR AMERICAN DARLING B84B, MINIMUM 48" BURY, MECHANICAL JOINT INLET. SHALL BE FACTORY WHITE.	18	BLUE REFLECTIVE MARKER - INSTALLED PER SACRAMENTO METROPOLITAN FIRE DISTRICT SPECIFICATIONS
10	BRASS PLUGS SHALL BE INSTALLED IN DRAIN HOLES IN SHOE.		

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT - 6" CONNECTION (BLOW-OFF)

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

SCALE: N.T.S.

DESIGN: P.A.D.

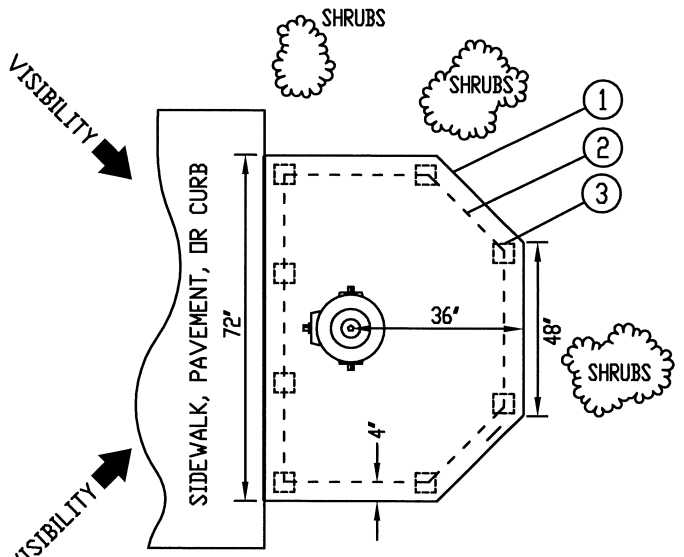
CAD FILE: FH_620.DWG

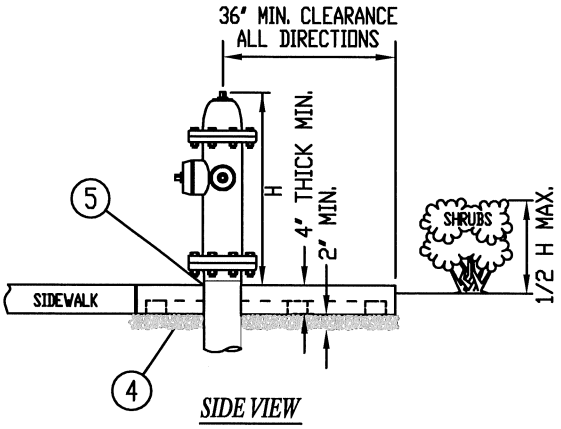
DETAIL FOR CONSTRUCTION IN:

SACRAMENTO METRO FIRE DISTRICT

PAGE: FH_620

TOP VIEW





SIDE VIEW

NOTES:

- CONCRETE PAD TO BE POURED INDEPENDENT OF OTHER CONCRETE WORK.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- PAINT FIRE HYDRANT USING A RUSTOLEUM RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

1	REINFORCED CONCRETE PAD - TYPE II SIX-SACK PORTLAND CEMENT	4	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
2	3/8" (#3) REBAR - 2" INSIDE PERIMETER		
3	CONCRETE DOBIE w/ WIRE	5	ASPHALT SATURATED ORGANIC FELT (ROOFING PAPER) - ASTM 30, 2 LAYERS AROUND FIRE HYDRANT

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT ACCESS PAD

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

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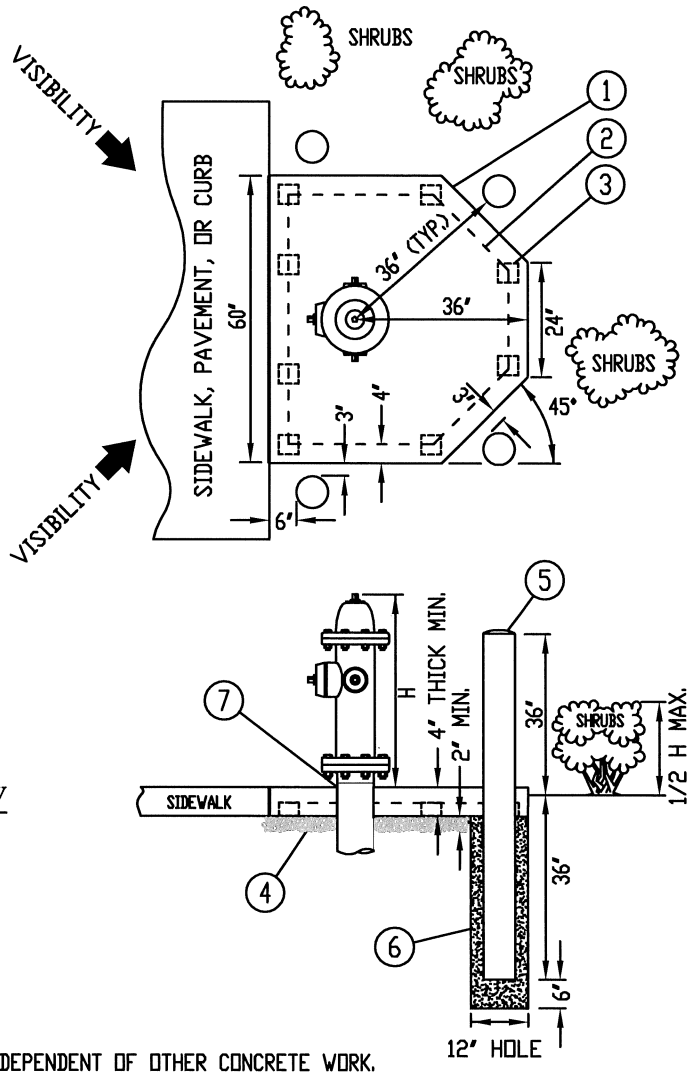

NOTES:

- CONCRETE PAD TO BE POURED INDEPENDENT OF OTHER CONCRETE WORK.
- CONTACT UNDERGROUND SERVICE ALERT 48 HOURS PRIOR TO INSTALLING BARRICADES. 1 (800) 642-2444 OR 811
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE AND PRIOR TO INSTALLING BARRICADES. (916) 725-6873
- MATERIALS BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- PAINT FIRE HYDRANT AND BARRICADES USING A RUSTOLEUM RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

1	REINFORCED CONCRETE PAD - TYPE II SIX-SACK PORTLAND CEMENT	5	72" x 6" SCH 40 STEEL PIPE FILLED WITH CONCRETE, TYPE II SIX-SACK PORTLAND CEMENT
2	3/8" (#3) REBAR - 2" INSIDE PERIMETER		
3	CONCRETE DOBIE w/ WIRE	6	12" DIAMETER HOLE FILLED w/ CONCRETE, TYPE II SIX-SACK PORTLAND CEMENT
4	3/4" CLASS II AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%	7	ASPHALT SATURATED ORGANIC FELT (ROOFING PAPER) - ASTM 30, 2 LAYERS AROUND FIRE HYDRANT

CITRUS HEIGHTS WATER DISTRICT

FIRE HYDRANT ACCESS PAD w/ BARRICADES

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

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SCALE: N.T.S.

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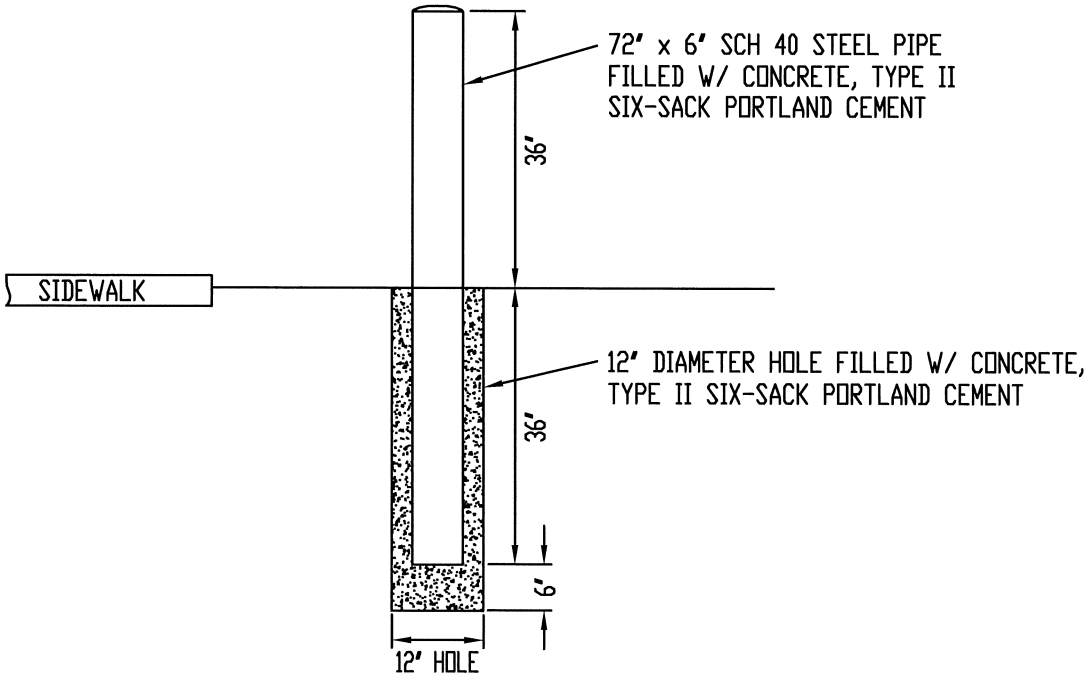
CAD FILE: FH_684.DWG

PAGE: FH_684



NOTES:

- CONTACT UNDERGROUND SERVICE ALERT 48 HOURS PRIOR TO INSTALLING BARRICADES. 1 (800) 642-2444 OR 811
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR INSPECTION PRIOR TO INSTALLING BARRICADES. (916) 725-6873
- PAINT BARRICADES USING A RUSTOLEUM RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.

CITRUS HEIGHTS WATER DISTRICT

PROTECTION BARRICADES

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	8 MAY 2013
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	FH_685.DWG
PAGE:	FH_685

VALVE AND FDC ABUTTED TO RPDA

NOTES:

- VALVE BOX AND LID SHALL BE PER CHWD DETAIL VB_811.
- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- INSTALL TAMPER SWITCHES ON BOTH OS&Y VALVES WITH CONDUIT THROUGH CONCRETE PAD PER SACRAMENTO METRO FIRE DISTRICT STANDARDS.
- PAINT FIRE SPRINKLER CONNECTION USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.
- RPDA SHALL BE TESTED BY A CHWD CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER PRIOR TO DISTRICT ACCEPTANCE OF FACILITIES.
- RPDA SHALL BE APPROVED BY THE FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

1	FLANGE x MECHANICAL JOINT RESILIENT WEDGE GATE VALVE, VALVE RISER, AND VALVE BOX WITH LID	18	4" x 2 @ 2 1/2" FIRE DEPARTMENT CONNECTION (FDC) W/ METALLIC BREAKABLE CAPS. PAINT WHITE.
2	TAMPER SWITCH AND CONDUIT - OWNED AND MAINTAINED BY CUSTOMER	19	4" x 18" GALVANIZED NIPPLE
3	6" LONG FLANGED SPOOL	20	4" GALVANIZED CAP
4	90° ELBOW - DUCTILE IRON, FLANGE x MECHANICAL JOINT	21	REINFORCED CONCRETE PAD - 4" THICK x 36" WIDE, TYPE II SIX-SACK PORTLAND CEMENT
5	DUCTILE IRON PIPE - FLANGE x PLAIN END, CL53		
6	90° ELBOW - DUCTILE IRON, FLANGE x FLANGE	22	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
7	REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) WITH BRASS PLUGS INSTALLED IN ALL TEST COCKS - SHALL INCLUDE 3/4" BYPASS LESS METER (5/8" x 3/4" NEPTUNE WATER METER BY DISTRICT). WILKINS 375ADA w/OS&Y VALVES OR EQUAL.	23	CONCRETE DOBIE w/ WIRE
		24	3/8" (#3) REBAR - 2" INSIDE PERIMETER
		25	ASPHALT SATURATED ORGANIC FELT - (ROOFING PAPER) ASTM 30, 2 LAYERS AROUND PIPE
8	TEE - DUCTILE IRON, ALL FLANGED		
9	90° ELBOW - DUCTILE IRON, MECHANICAL JOINT x MECHANICAL JOINT	26	SUPPORT STAND - PLACER WATER WORKS OR EQUAL, STANDARD SADDLE HEIGHT DETERMINED IN FIELD
10	COMPANION FLANGE - DUCTILE IRON, FLANGE x 4" FIP		
11	4" GALVANIZED NIPPLE (ADJUST LENGTH TO ACHIEVE 36" HEIGHT)	27	WEATHER FREEZE BAG w/ LOCK - POLAR BAG w/ CALLIOPE FABRIC (8-YEAR WARRANTY). CONTACT ROSEVILLE AUTO UPHOLSTERY.
12	4" QUICK CHECK VALVE - FM-UL APPROVED	28	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
13	4" GALVANIZED 90° ELBOW	29	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
14	4" x 4" GALVANIZED NIPPLE	30	#10 INSULATED COPPER LOCATOR WIRE w/ HOSE CLAMP 6" ABOVE CONCRETE PAD
15	4" GALVANIZED TEE	31	3/8" NON-CASE HARDENED CHAIN AND BREAKABLE SHACKLE LOCK
16	4" x CLOSE GALVANIZED NIPPLE		
17	4" GALVANIZED 45° ELBOW		

CITRUS HEIGHTS WATER DISTRICT

4", 6", 8" FIRE SPRINKLER CONNECTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Pieri DATE: 07/22/2020

CITRUS HEIGHTS WATER DISTRICT

DETAIL FOR CONSTRUCTION IN:

SACRAMENTO METRO FIRE DISTRICT

DRAWN: 15 JUL 2020

REVISED:

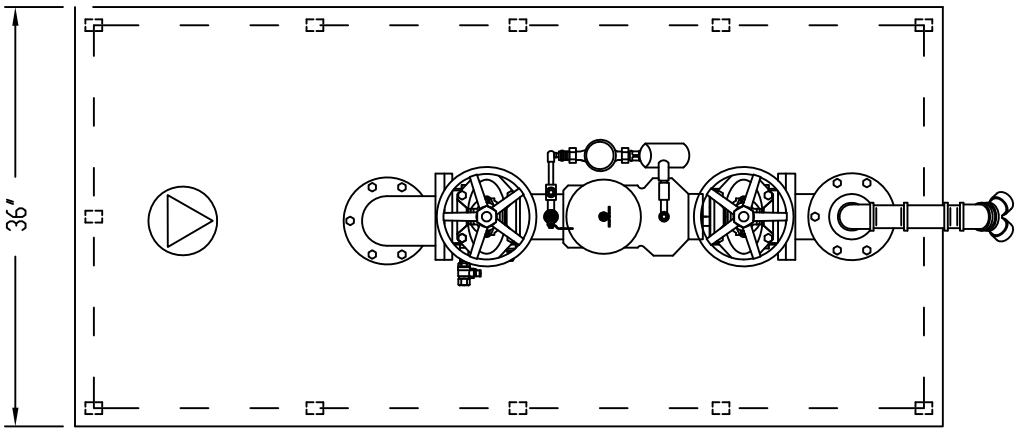
SCALE: N.T.S.

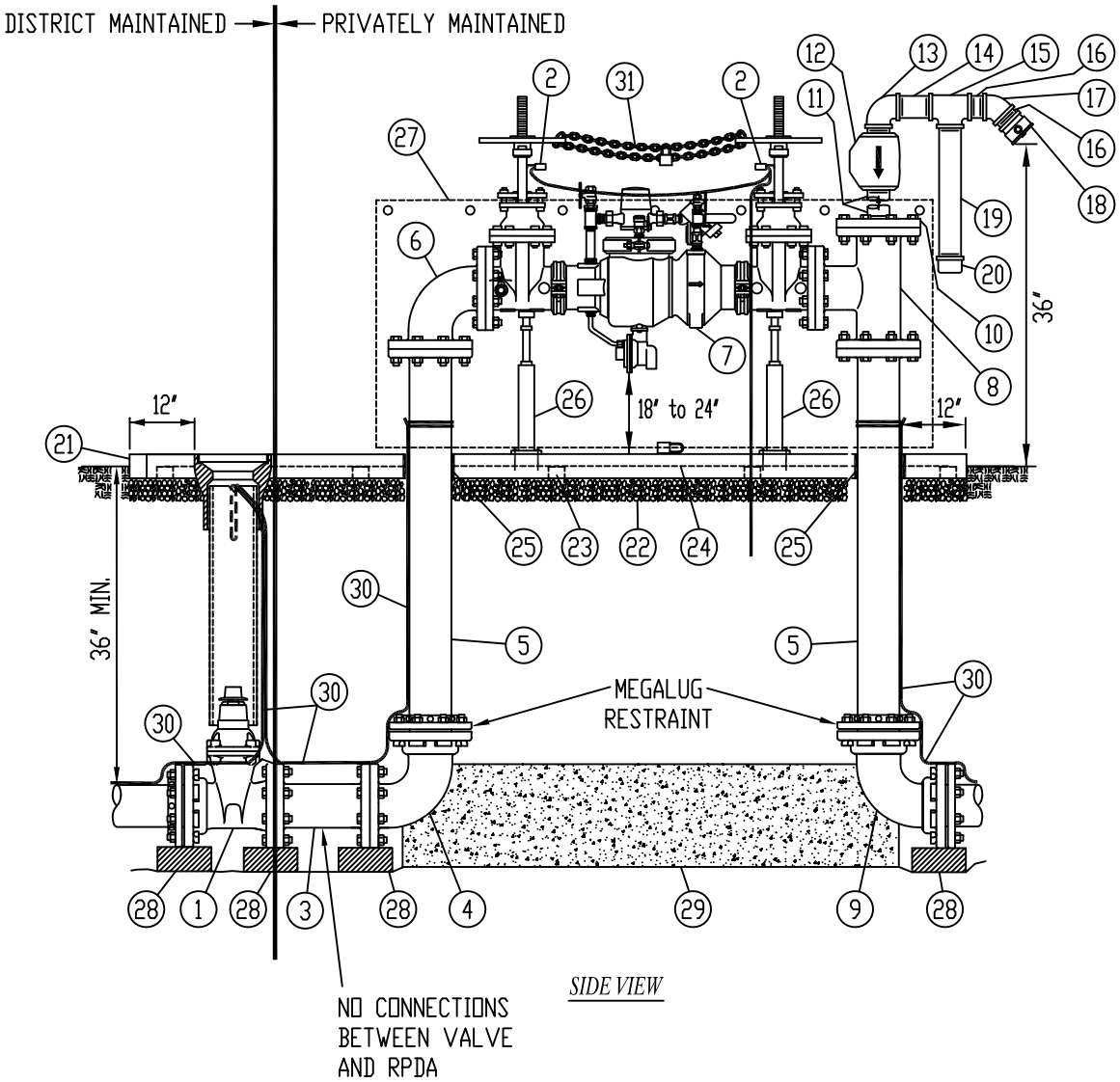
DESIGN: T.A.D.

CAD FILE: FP_650_1.DWG

PAGE: FP_650_1

TOP VIEW





SIDE VIEW

PAGE: FP_650_2

SHEET 2 OF 2

VALVE AND/OR FDC APART FROM RPDA

NOTES:

- VALVE BOX AND LID SHALL BE PER CHWD DETAIL VB_810.
- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- INSTALL TAMPER SWITCHES ON BOTH OS&Y VALVES WITH CONDUIT THROUGH CONCRETE PAD PER SACRAMENTO METRO FIRE DISTRICT STANDARD.
- PAINT FIRE SPRINKLER CONNECTION USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.
- RPDA SHALL BE TESTED BY A CHWD CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER PRIOR TO DISTRICT ACCEPTANCE OF FACILITIES.
- RPDA SHALL BE APPROVED BY THE FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

1	FLANGE x MECHANICAL JOINT RESILIENT WEDGE GATE VALVE, VALVE RISER, AND VALVE BOX WITH LID	17	4" x 18" GALVANIZED NIPPLE
		18	4" GALVANIZED CAP
2	TAMPER SWITCH AND CONDUIT - OWNED AND MAINTAINED BY CUSTOMER	19	REINFORCED CONCRETE PAD - 4" THICK x 36" WIDE, TYPE II SIX-SACK PORTLAND CEMENT
3	90° ELBOW - DUCTILE IRON, MECHANICAL JOINT x MECHANICAL JOINT		
4	DUCTILE IRON PIPE - FLANGE x PLAIN END, CL53	20	3/4" CLASS II AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
5	90° ELBOW - DUCTILE IRON, FLANGE x FLANGE		
6	REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) WITH BRASS PLUGS INSTALLED IN ALL TEST COCKS - SHALL INCLUDE 3/4" BYPASS LESS METER (5/8" x 3/4" NEPTUNE WATER METER BY DISTRICT). WILKINS 375ADA w/OS&Y VALVES OR EQUAL.	21	CONCRETE DOBIE w/ WIRE
		22	3/8" (#3) REBAR - 2" INSIDE PERIMETER
		23	ASPHALT SATURATED ORGANIC FELT - (ROOFING PAPER) ASTM 30, 2 LAYERS AROUND PIPE
7	TEE OR 90° ELBOW - DUCTILE IRON, MECHANICAL JOINT x MECHANICAL JOINT	24	SUPPORT STAND - PLACER WATER WORKS OR EQUAL, STANDARD SADDLE HEIGHT DETERMINED IN FIELD
8	COMPANION FLANGE - FLANGE x 4" FIP		
9	4" GALVANIZED NIPPLE (ADJUST LENGTH TO ACHIEVE 36" HEIGHT)	25	WEATHER FREEZE BAG w/ LOCK - POLAR BAG w/ CALLIOPE FABRIC (8-YEAR WARRANTY). CONTACT ROSEVILLE AUTO UPHOLSTERY.
10	4" QUICK CHECK VALVE - FM-UL APPROVED	26	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
11	4" x 4" GALVANIZED NIPPLE	27	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
12	4" GALVANIZED 90° ELBOW	28	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
13	4" GALVANIZED TEE	29	#10 INSULATED COPPER LOCATOR WIRE w/ HOSE CLAMP 6" ABOVE CONCRETE PAD
14	4" x CLOSE GALVANIZED NIPPLE	30	3/8" NON-CASE HARDENED CHAIN AND BREAKABLE SHACKLE LOCK
15	4" GALVANIZED 45° ELBOW		
16	4" x 2 @ 2 1/2" FIRE DEPARTMENT CONNECTION (FDC) W/ METALLIC BREAKABLE CAPS. PAINT WHITE.		

CITRUS HEIGHTS WATER DISTRICT

4", 6", 8" FIRE SPRINKLER CONNECTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Pieri DATE: 07/22/2020

CITRUS HEIGHTS WATER DISTRICT

DETAIL FOR CONSTRUCTION IN:

SACRAMENTO METRO FIRE DISTRICT

DRAWN: 21 JUL 2020

REVISED:

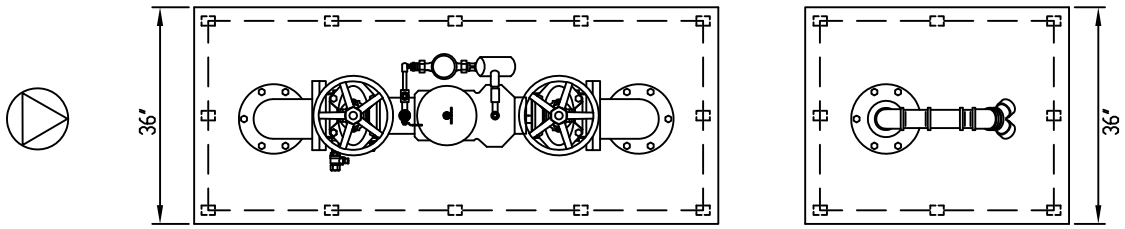
SCALE: N.T.S.

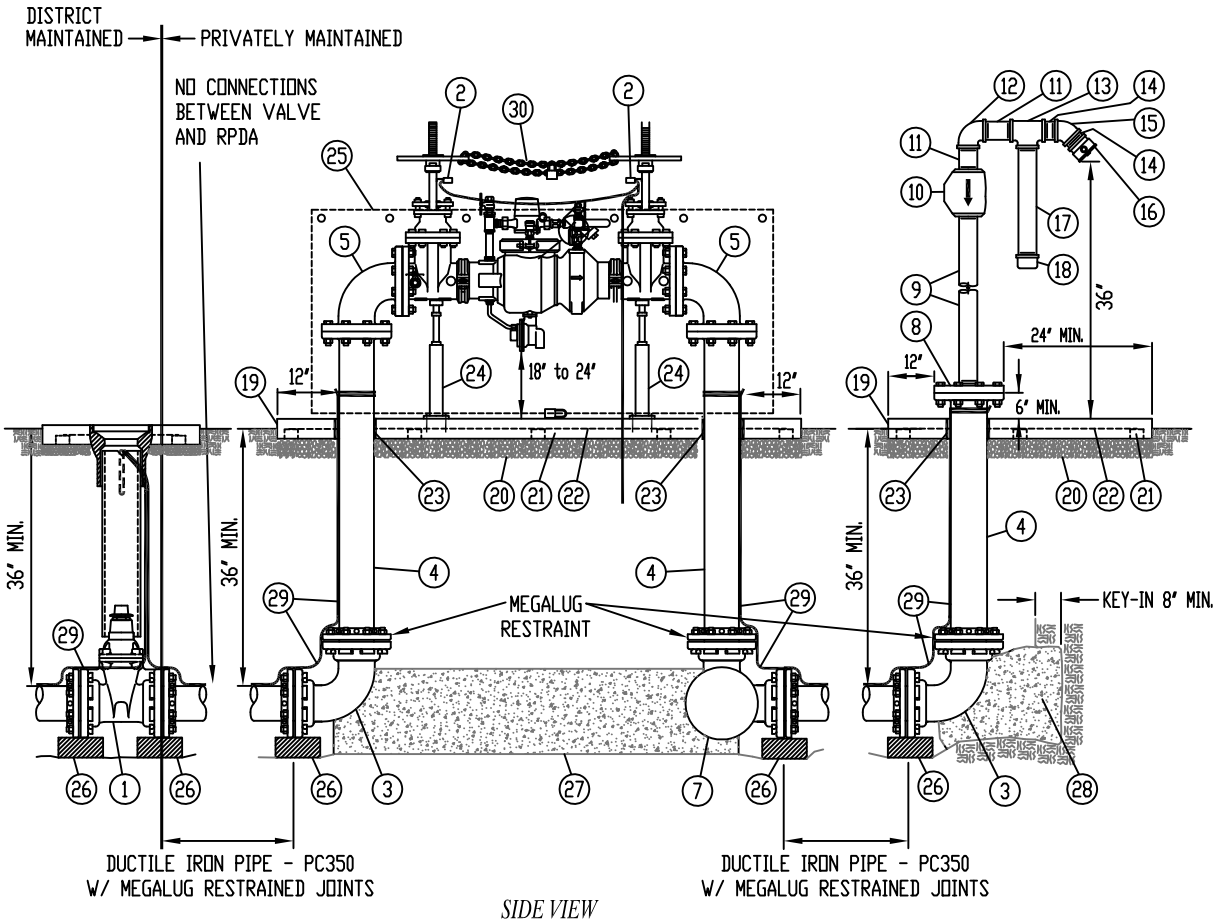
DESIGN: T.A.D.

CAD FILE: FP_651_1.DWG

PAGE: FP_651_1

TOP VIEW





SIDE VIEW

PAGE: *FP_651_2*

SHEET 2 OF 2

MAKEUP WATER ALLOWANCES
(GALLONS PER HOUR PER 1000')

PVC		DIP	
SIZE OF PIPE	LEAKAGE ALLOWANCE	SIZE OF PIPE	LEAKAGE ALLOWANCE
4"	0.33	4"	0.33
6"	0.50	6"	0.50
8"	0.66	8"	0.66
10"	0.83	10"	0.83
12"	0.99	12"	0.99
		14"	1.16
		16"	1.32
		18"	1.49
		24"	1.99

NOTES:

1. THE CONTRACTOR SHALL PRESSURIZE ALL NEW FACILITIES INDEPENDENT OF THE EXISTING SYSTEM. CITRUS HEIGHTS WATER DISTRICT ASSUMES NO LIABILITY FOR THE SAFETY OF CONTRACTOR PERSONNEL.
2. THE CONTRACTOR IS RESPONSIBLE FOR A SUCCESSFUL PRE-TEST OF THE FACILITIES.
3. THE DISTRICT INSPECTOR SHALL WITNESS THE HYDROSTATIC PRESSURE TEST UPON REQUEST OF THE CONTRACTOR.
4. PRESSURE SHALL BE REDUCED TO 60 PSI MAXIMUM AND RAISED TO TEST PRESSURE IN THE PRESENCE OF THE DISTRICT INSPECTOR.
5. HYDROSTATIC TEST PRESSURE SHALL BE 150 PSI. A DROP IN PRESSURE OF GREATER THAN 5 PSI AND/OR EXCEEDING THE MAKEUP WATER ALLOWANCE SHALL VOID THE TEST.
6. THE HYDROSTATIC PRESSURE TEST SHALL BE 2-HOURS IN DURATION.

MAKEUP WATER ALLOWANCE TABLE REFERENCES:
PVC: ANSI/AWWA C605-17, PG 30, TABLE 4A.
DIP: ANSI/AWWA C600-17, PG 27, TABLE 5A.

CITRUS HEIGHTS WATER DISTRICT

HYDROSTATIC PRESSURE TESTING

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri DATE: 08/12/2020

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 12 AUG 2020
REVISED:
SCALE: N.T.S.
DESIGN: T.A.D.
CAD FILE: HP_001.DWG
PAGE: HP_001

CONCRETE PAD SIZE:

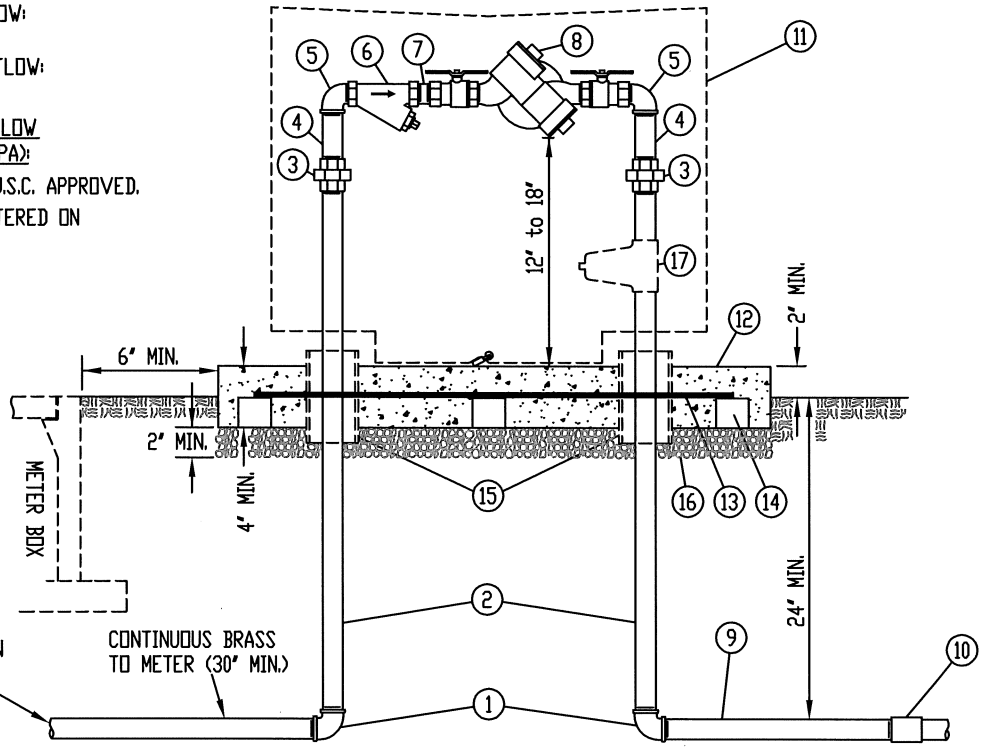
- 3/4" to 1" BACKFLOW: (29"x43")
- 1 1/2" to 2" BACKFLOW: (29"x55")

REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (RPA):

- FEBCO, WILKINS- U.S.C. APPROVED.
- PIPING TO BE CENTERED ON CONCRETE PAD

PADLOCK:

- BY CHWD



NOTES:

- REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE PLUMB.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAFFIC.
- RPA SHALL BE TESTED BY A CHWD CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER PRIOR TO DISTRICT ACCEPTANCE OF FACILITIES.
- COLOR OF WEATHER FREEZE BAG TO BE DETERMINED BY DISTRICT INSPECTOR.

1	BRASS ELBOW	11	WEATHER FREEZE BAG - POLAR BAG w/ CALLIOPE FABRIC (8-YEAR WARRANTY). CONTACT ROSEVILLE AUTO UPHOLSTERY.
2	BRASS NIPPLE - CONTINUOUS		
3	BRASS UNION	12	REINFORCED CONCRETE PAD - TYPE II SIX-SACK PORTLAND CEMENT - SEE ABOVE NOTE FOR PAD SIZE
4	3" OR 4" BRASS NIPPLE		
5	BRASS STREET ELBOW	13	3/8" (#3) REBAR - 2" INSIDE PERIMETER
6	WYE STRAINER - BRONZE W/ PLUG	14	CONCRETE DOBIE w/WIRE
7	CLOSE BRASS NIPPLE	15	3" PVC SLEEVES - SAND FILLED
8	REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY w/ BALL VALVES and TEST COCKS w/ BRASS PLUGS (4) - SEE ABOVE NOTE FOR FURTHER INFORMATION	16	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
		17	PRESSURE REGULATOR - AS DETERMINED BY THE APPROPRIATE GOVERNING AUTHORITY
9	24" BRASS NIPPLE		
10	PVC COUPLING - SCH 80, THREADED		

CITRUS HEIGHTS WATER DISTRICT

3/4" TO 2" REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY w/ WEATHER FREEZE BAG

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

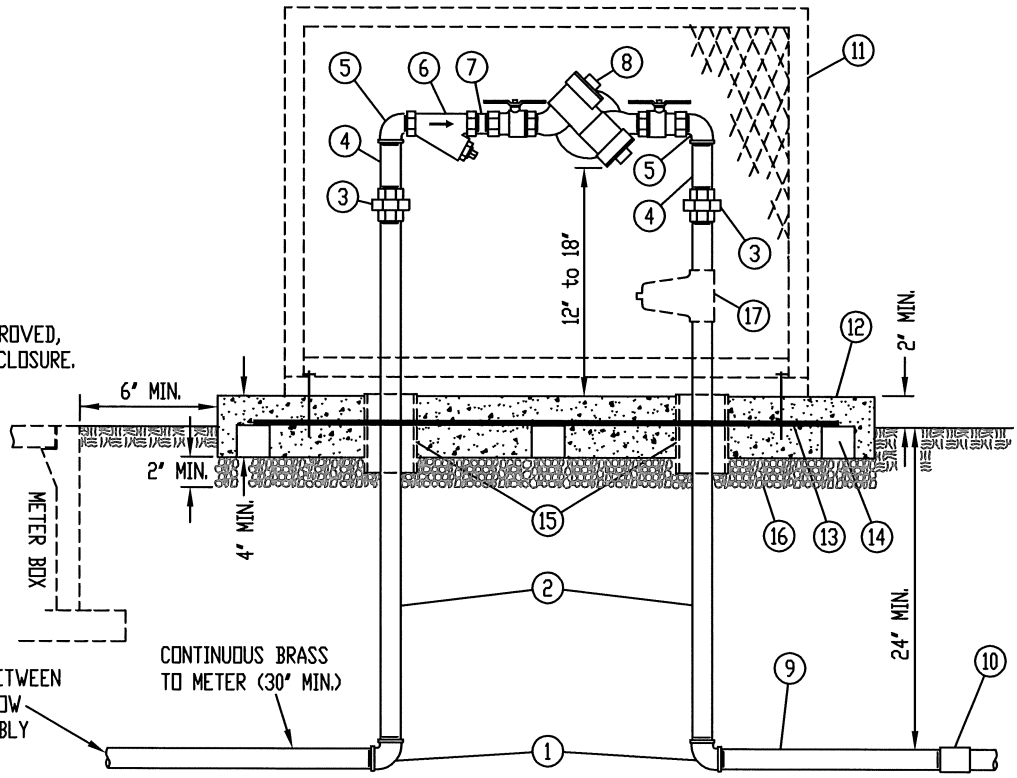
DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: RP_311.DWG
PAGE: RP_311

INSULATED BACKFLOW ENCLOSURE:
PLACER WATERWORKS
- 3/4" to 1" BACKFLOW: MODEL PW/E1A-W(S)
- 1 1/2" to 2" BACKFLOW: MODEL PW/E1A-W(M)

CONCRETE PAD SIZE:
- 3/4" to 1" BACKFLOW: (29"x43")
- 1 1/2" to 2" BACKFLOW: (29"x55")

REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (RPA):
- FEBCO, WILKINS- U.S.C. APPROVED, CENTERED IN BACKFLOW ENCLOSURE.
- PIPING TO BE CENTERED ON CONCRETE PAD AND BACKFLOW ENCLOSURE

PADLOCK:
- BY CHWD



NOTES:
- REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE PLUMB.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAFFIC.
- RPA SHALL BE TESTED BY A CHWD CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER PRIOR TO DISTRICT ACCEPTANCE OF FACILITIES.
- COLOR OF ENCLOSURE TO BE DETERMINED BY DISTRICT INSPECTOR.

1	BRASS ELBOW	11	INSULATED BACKFLOW ENCLOSURE - SECURED TO PAD w/ 1/2" x 4" SLEEVE ANCHORS (RED HEAD OR EQUAL) - SEE ABOVE NOTE
2	BRASS NIPPLE - CONTINUOUS		
3	BRASS UNION	12	REINFORCED CONCRETE PAD - TYPE II SIX-SACK PORTLAND CEMENT - SEE ABOVE NOTE FOR SIZE
4	3" OR 4" BRASS NIPPLE		
5	BRASS STREET ELBOW	13	CONCRETE DOBIE w/WIRE
6	WYE STRAINER - BRONZE W/ PLUG	14	3/8" (#3) REBAR - 2" INSIDE PERIMETER
7	CLOSE BRASS NIPPLE	15	3" PVC SLEEVES - SAND FILLED
8	REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY w/ BALL VALVES and TEST COCKS w/ BRASS PLUGS (4) - SEE ABOVE NOTE FOR FURTHER INFORMATION	16	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
		17	PRESSURE REGULATOR - AS DETERMINED BY THE APPROPRIATE GOVERNING AUTHORITY
9	24" BRASS NIPPLE		
10	PVC COUPLING - SCH 80, THREADED		

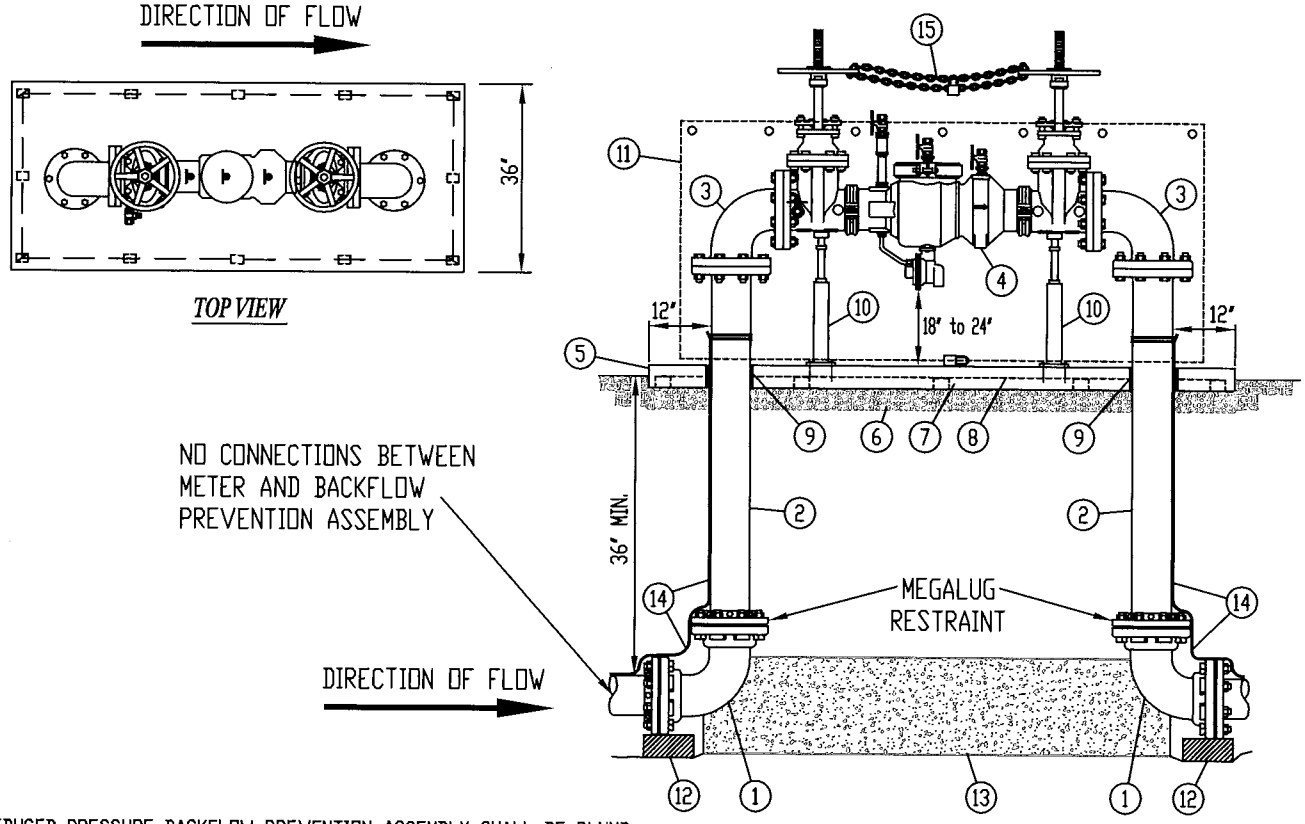
CITRUS HEIGHTS WATER DISTRICT

3/4" TO 2" REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY w/ BACKFLOW ENCLOSURE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: RP_312.DWG
PAGE: RP_312



NOTES:

- REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE PLUMB.
- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
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- PAINT REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY USING A MANUFACTURER'S RECOMMENDED PRIMER, FINISH WITH RUSTOLEUM GLOSS WHITE, TWO COATS MINIMUM. PRIOR TO PAINTING, CLEAN ALL SURFACES WITH SOAP AND WATER USING AN ABRASIVE PAD.
- RPA SHALL BE TESTED BY A CHWD CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER PRIOR TO DISTRICT ACCEPTANCE OF FACILITIES.
- RPDA SHALL BE APPROVED BY THE FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

1	90° ELBOW - DUCTILE IRON, MECHANICAL JOINT x MECHANICAL JOINT	8	3/8" (#3) REBAR - 2" INSIDE PERIMETER
2	DUCTILE IRON PIPE - FLANGE x PLAIN END, CL53	9	ASPHALT SATURATED ORGANIC FELT - (ROOFING PAPER) ASTM 30, 2 LAYERS AROUND PIPE
3	90° ELBOW - DUCTILE IRON, FLANGE x FLANGE		
4	REDUCED PRESSURE ASSEMBLY (RPA) WITH BRASS PLUGS INSTALLED IN ALL TEST COCKS. - WILKINS 375A w/OS&Y OR EQUAL.	10	SUPPORT STAND - PLACER WATER WORKS OR EQUAL, STANDARD SADDLE HEIGHT DETERMINED IN FIELD
		11	WEATHER FREEZE BAG - POLAR BAG w/ CALLIOPE FABRIC (8-YEAR WARRANTY). CONTACT ROSEVILLE AUTO UPHOLSTERY. PADLOCK BY CHWD.
5	REINFORCED CONCRETE PAD - 4" THICK x 36" WIDE, TYPE II SIX-SACK PORTLAND CEMENT	12	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
6	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%	13	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
		14	#10 INSULATED COPPER LOCATOR WIRE w/ HOSE CLAMP 6' ABOVE CONCRETE PAD
7	CONCRETE DOBIE w/ WIRE	15	3/8" NON-CASE HARDENED CHAIN AND BREAKABLE SHACKLE LOCK

CITRUS HEIGHTS WATER DISTRICT

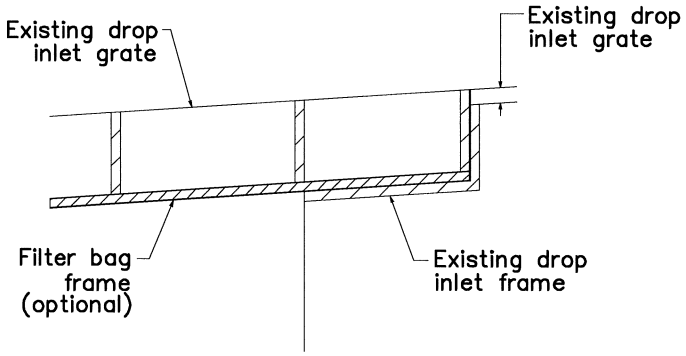
3" AND LARGER REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY

CITRUS HEIGHTS WATER DISTRICT

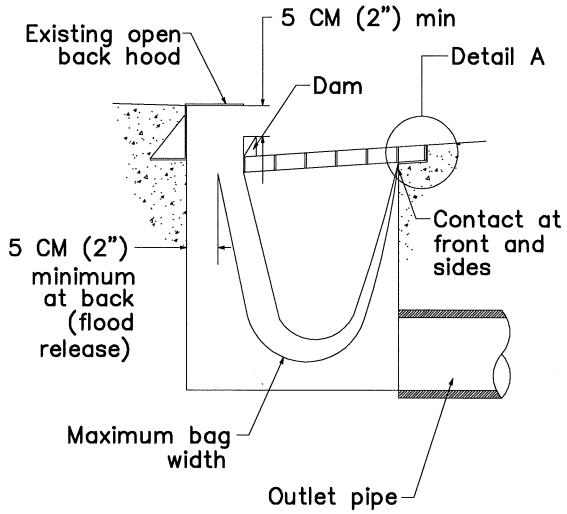
APPROVED BY: Robert A. Churchill DATE: 12/4/14

CITRUS HEIGHTS WATER DISTRICT

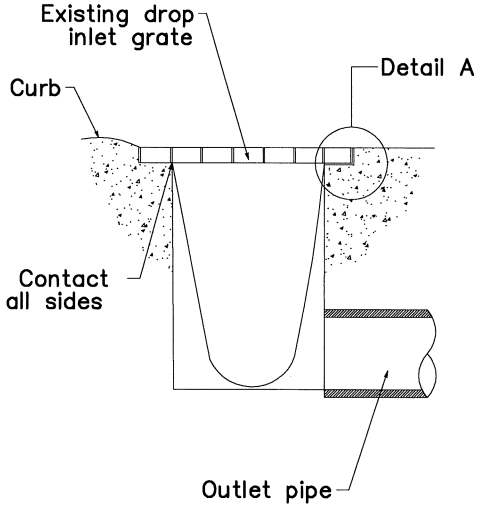
DRAWN: 3 DEC 2014
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: RP_320.DWG
PAGE: RP_320



DETAIL A



PLACEMENT AT CURB INLETS



PLACEMENT AT AREA INLETS

CITRUS HEIGHTS WATER DISTRICT

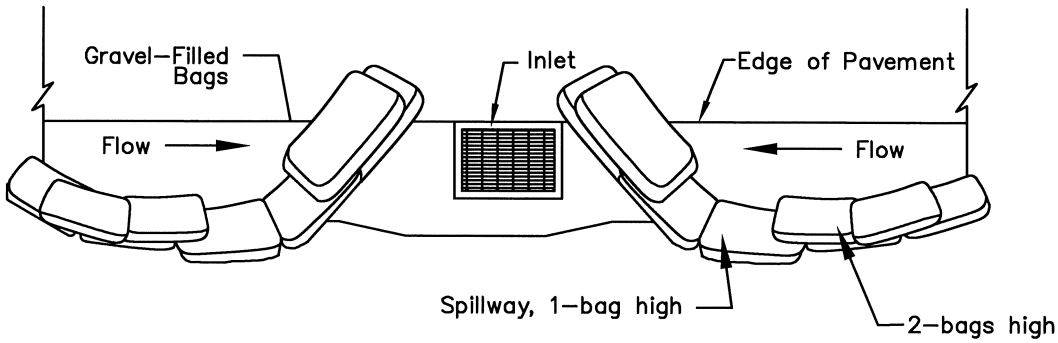
STORM DRAIN INLET PROTECTION FILTER BAG INSTALLATION

CITRUS HEIGHTS WATER DISTRICT

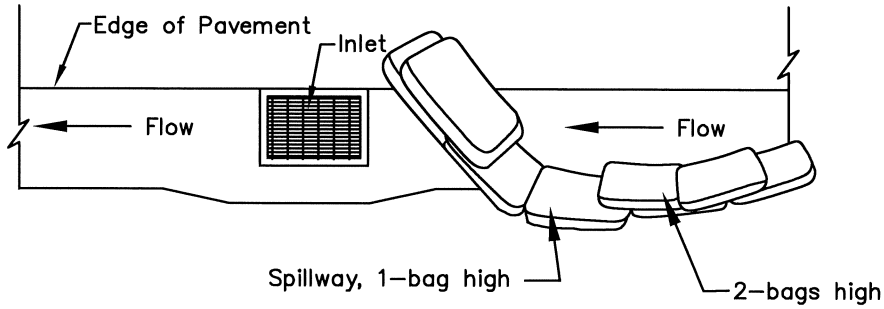
APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED: NONE
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: SWPPP_100.DWG
PAGE: SWPPP_100



TYPICAL PROTECTION FOR INLET ON SUMP



TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:

1. Intended for short–term use.
2. Use to inhibit non–storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable without filter fabric in areas with high silts and clays.

CITRUS HEIGHTS WATER DISTRICT

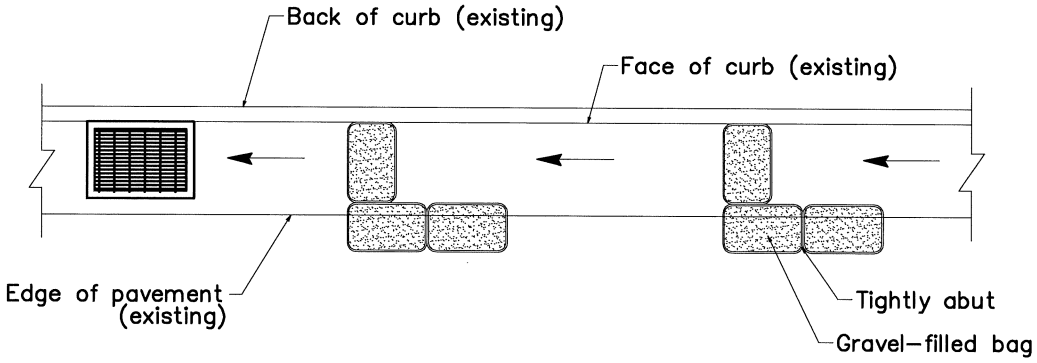
STORM DRAIN INLET PROTECTION CURB INLET INSTALLATION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED: NONE
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: SWPPP_101.DWG
PAGE: *SWPPP_101*



EXISTING CURB DRAIN SEDIMENT TRAP

CITRUS HEIGHTS WATER DISTRICT

STORM DRAIN INLET PROTECTION SEDIMENT TRAP

CITRUS HEIGHTS WATER DISTRICT

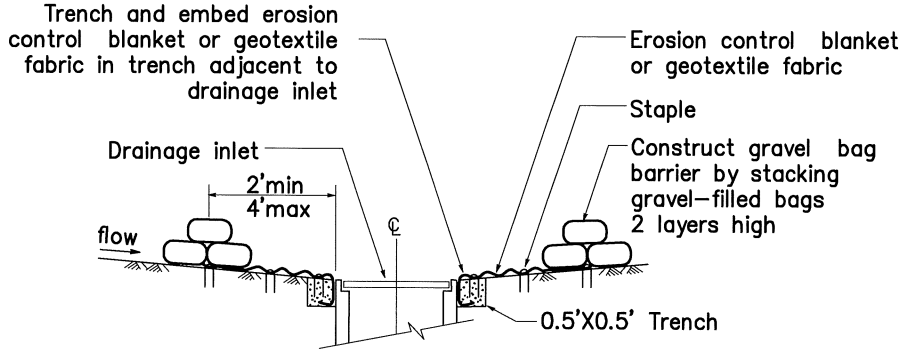
APPROVED BY: Robert A. Lundquist DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

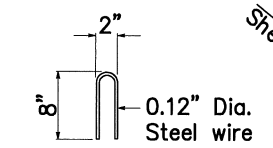
DRAWN:	8 MAY 2013
REVISED:	NONE
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	SWPPP_102.DWG
PAGE:	*SWPPP_102*

NOTES:

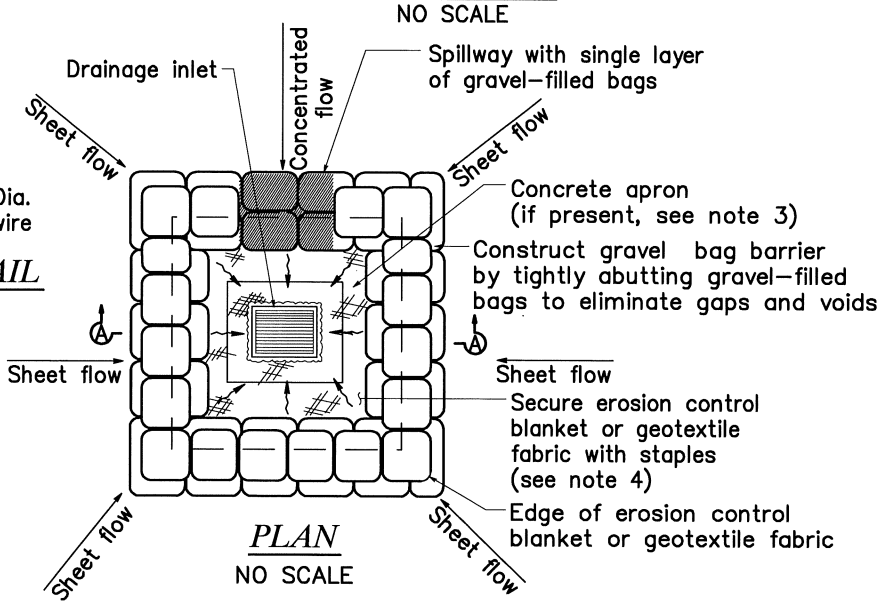
1. Dimensions may vary to fit field conditions.
2. Install a minimum of 3 gravel bag barriers upstream of each drainage inlet to be protected.
3. Position erosion control blanket or geotextile fabric at edge of concrete apron and secure in trench.
4. Erosion control blanket/geotextile fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.



SECTION A-A
NO SCALE



STAPLE DETAIL
NO SCALE



PLAN
NO SCALE

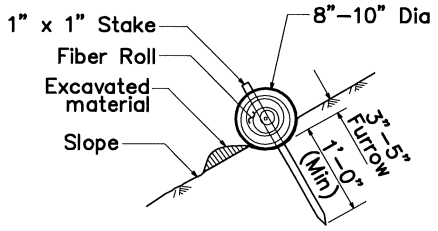
CITRUS HEIGHTS WATER DISTRICT

STORM DRAIN INLET PROTECTION
AREA INLET INSTALLATION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

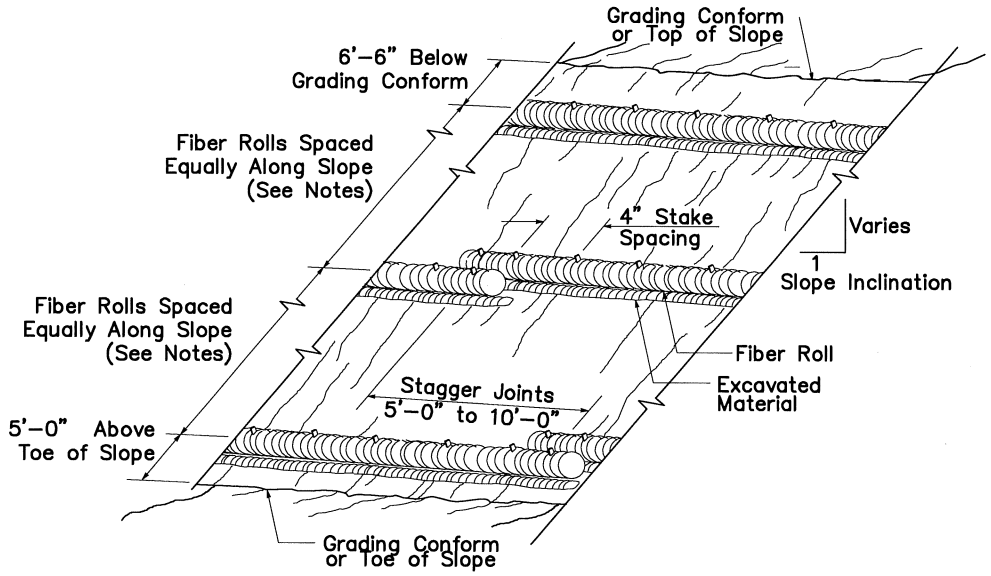
DRAWN:	8 MAY 2013
REVISED:	NONE
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	SWPPP_103.DWG
PAGE:	*SWPPP_103*



SECTION
TEMPORARY FIBER ROLL

NOTES:

1. Prepare the slope before the wattling procedure is started.
2. Dig small trenches across the slope on contour, to place rolls. The trench should be deep enough to accommodate half the thickness of the roll, when the soil is loose and uncompacted, the trench should be deep enough to bury the roll 2/3 of its thickness because the ground will settle.
3. Install rolls perpendicular to water movement.
4. Start at the bottom of the slope and work up.
5. Construct trench at contour intervals of 12 feet apart.
6. Use straight bar to drive holes through the wattle and into the soil.
7. Make sure no gaps exist between the soil and the straw wattle.
8. Drive the stake through the prepared hole into the soil. Leave only 1 or 2 inches of stake exposed above roll install stake every 4 feet apart through the wattle. Additional stakes may be driven on the downslope side of the trenches on highly erosive or very steep slopes.
9. Runoff must not be allowed to run under or around roll.



PERSPECTIVE
TEMPORARY FIBER ROLL

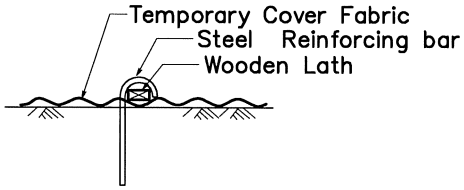
CITRUS HEIGHTS WATER DISTRICT

TEMPORARY FIBER ROLL

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

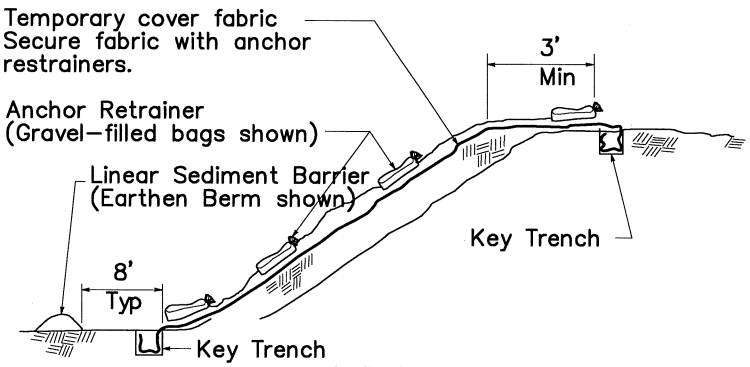
DRAWN:	8 MAY 2013
REVISED:	NONE
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	SWPPP_110.DWG
PAGE:	SWPPP_110



SECTION

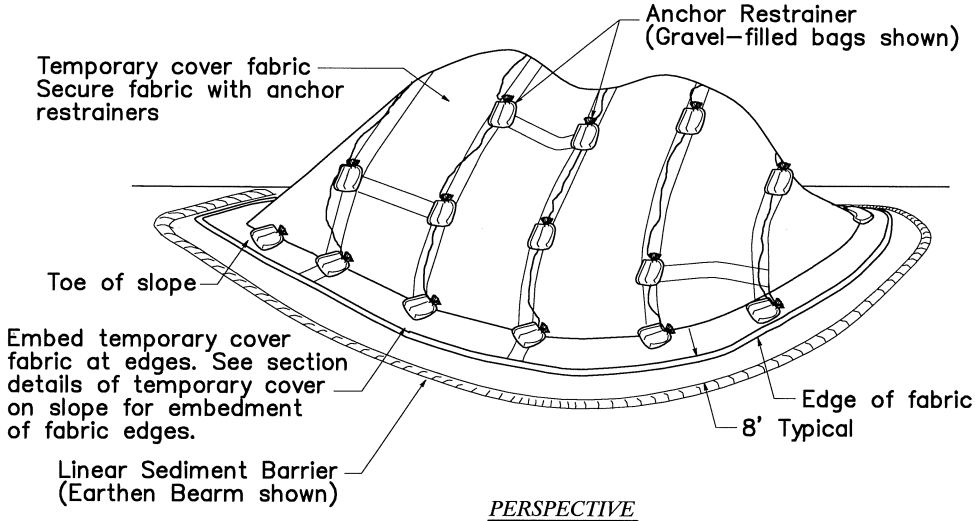
ANCHOR RESTRAINER

(Steel bar and wooden lath)



SECTION

TEMPORARY COVER ON SLOPE



PERSPECTIVE

TEMPORARY COVER ON STOCKPILE

CITRUS HEIGHTS WATER DISTRICT

TEMPORARY COVER STOCKPILE INSTALLATION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

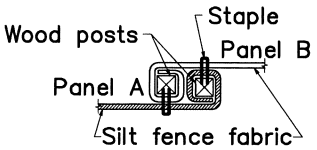
REVISED: NONE

SCALE: N.T.S.

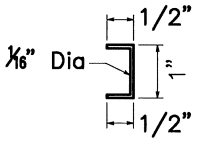
DESIGN: P.A.D.

CAD FILE: SWPPP_111.DWG

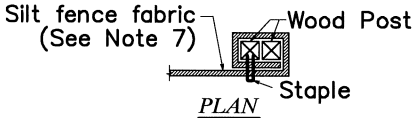
PAGE: *SWPPP_111*



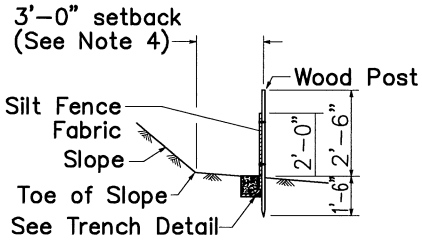
PLAN
POST AT JOINTS



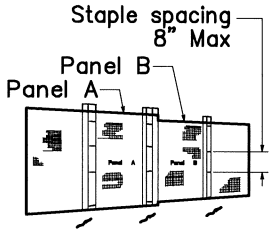
STAPLE DETAIL
(See Note 8)



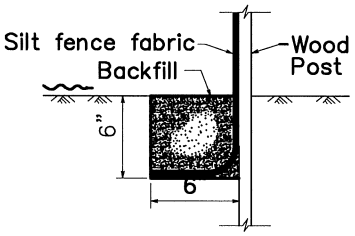
PLAN
END POST DETAIL



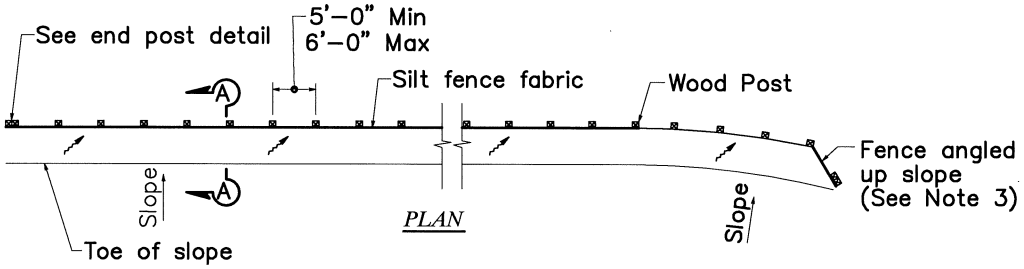
SECTION A-A
TEMPORARY SILT FENCE



PERSPECTIVE
SILT FENCE PANELS AT JOINTS



SECTION
TRENCH DETAIL



PLAN

NOTES:

1. Install Temporary Silt Fence by first digging trench, driving posts, placing and securing fabric. Then backfill and tamp.
2. Reach length not to exceed 500 feet.
3. The down stream end of the Temporary Silt Fence shall have the last 8' angled up slope.
4. Setback dimensions may vary to fit field conditions.
5. Posts to overlap and fence fabric to fold around each post one full turn. Secure fabric with 4 staples for each post.
6. Posts shall be driven tightly together to prevent potential flow–through of sediment at the joint. The tops of the posts shall be secured to each other with wire.
7. For each end post, fence fabric shall be folded around two posts one full turn and secured with 4 staples.
8. Minimum of 4 staples shall be installed per post. Dimensions shown are typical.
9. Maintenance openings shall be constructed in a manner to ensure that sediment is retained by the temporary silt fence.
10. Joint sections shall not be placed at sump locations.

LEGEND

- Tamped backfill
- Slope direction
- Direction of flow

CITRUS HEIGHTS WATER DISTRICT

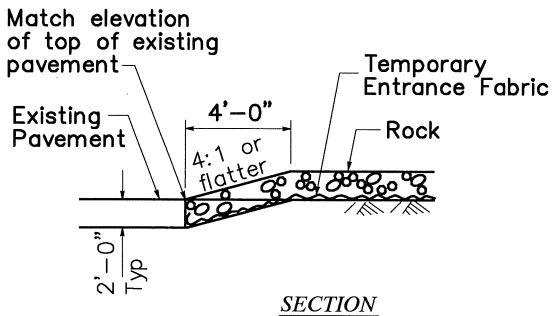
TEMPORARY SILT FENCE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

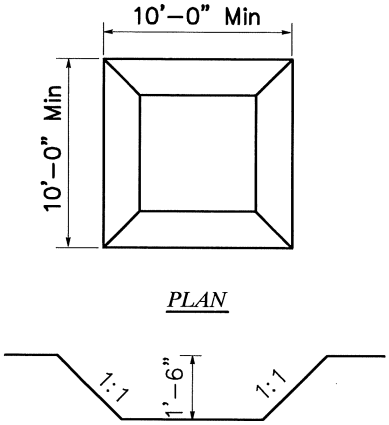
CITRUS HEIGHTS WATER DISTRICT

DRAWN:	8 MAY 2013
REVISED:	NONE
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	SWPPP_115.DWG
PAGE:	SWPPP_115



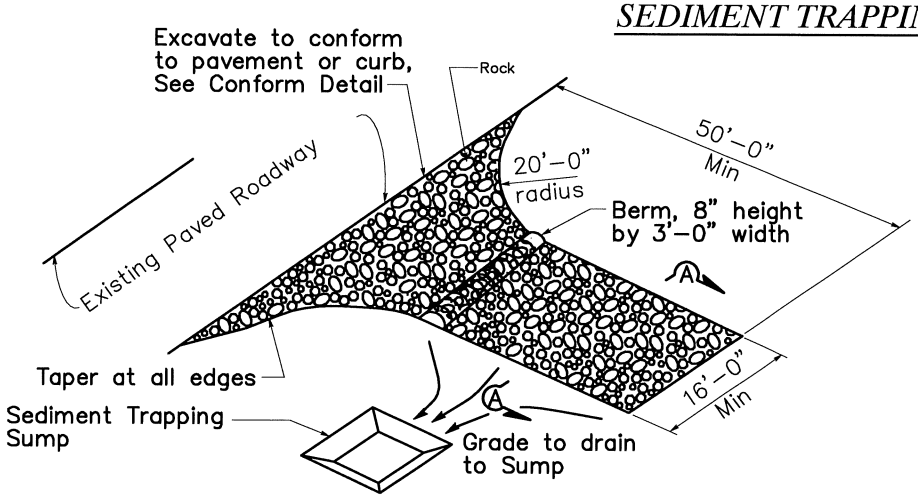
SECTION

CONFORM DETAIL



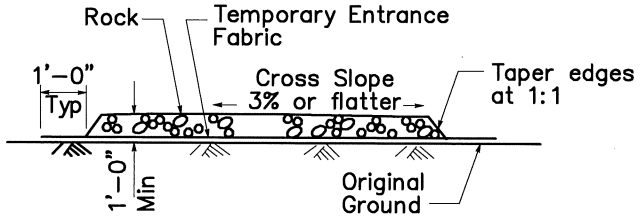
ELEVATION

SEDIMENT TRAPPING SUMP



PERSPECTIVE

TEMPORARY CONSTRUCTION ENTRANCE



SECTION A-A

CITRUS HEIGHTS WATER DISTRICT

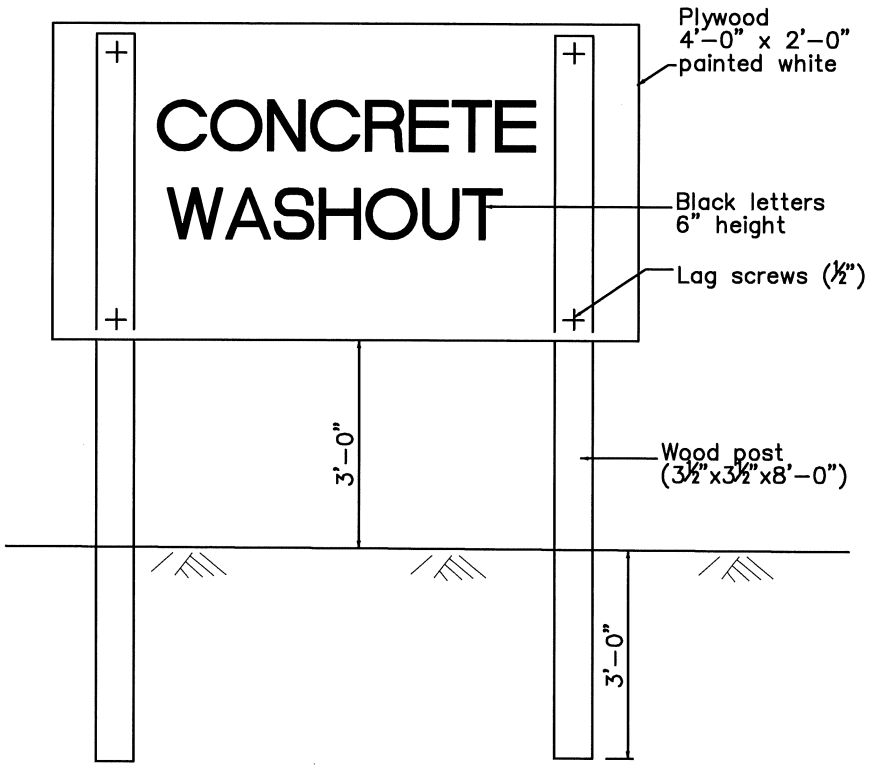
TEMPORARY CONSTRUCTION ENTRANCE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert a. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	8 MAY 2013
REVISED:	NONE
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	SWPPP_120.DWG
PAGE:	SWPPP_120



CONCRETE WASHOUT SIGN DETAIL

NOTES:

1. The concrete washout sign shall be installed within 32'-10" of the portable concrete washout container.

CITRUS HEIGHTS WATER DISTRICT

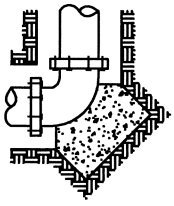
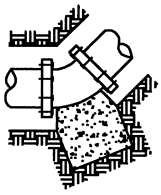
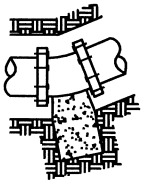
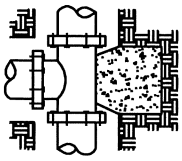
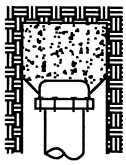
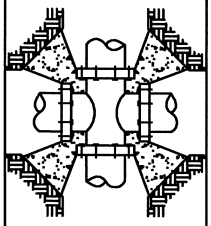
CONCRETE WASHOUT FACILITY-SIGN

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	8 MAY 2013
REVISED:	NONE
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	SWPPP_125.DWG
PAGE:	SWPPP_125

MINIMUM REQUIRED BEARING AREA - TOTAL SQUARE FEET							
TYPE OF FITTING		90° BEND	45° BEND	11 1/4° OR 22 1/2° BEND	TEE OR DEAD END	END OF LINE	CROSS
TYPICAL INSTALLATION							
SIZE OF PIPE	4″	4	2	1	2	3	4
	6″	4	2	1	3	3	4
	8″	7	4	2	5	5	7
	10″	12	6	3	8	8	12
	12″	16	10	5	12	11	16

NOTES:

1. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED OF TYPE II SIX-SACK PORTLAND CEMENT.
2. AREAS GIVEN ARE FOR CL235 DR 18 AWWA C900-07 PVC, CL305 DR 14 AWWA C900-07 PVC, AND PC350 DIP AT TEST PRESSURE OF 150 P.S.I. IN SOIL WITH MINIMUM 2,000 P.S.F. BEARING CAPACITY. INSTALLATIONS USING DIFFERENT PIPE, TEST PRESSURES, AND/OR SOIL TYPES REQUIRE ADJUSTMENT OF BEARING AREAS ACCORDINGLY.
3. CONCRETE THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL.
4. PIPE, JOINTS, AND BOLTS SHALL BE KEPT CLEAR OF CEMENTITIOUS MATERIALS.
5. TRANSPORTING OR USE OF CONCRETE FOR THRUST BLOCKS IN NON-MIXING TRUCKS OR TRAILERS (BUGGIES) IS NOT PERMITTED.
6. THRUST BLOCKS ARE REQUIRED AT EVERY BEND, TEE, END, AND CROSS ON PIPELINES AND AS DEEMED NECESSARY BY THE DISTRICT INSPECTOR.
7. KEY-IN FROM THE VERTICAL WALL OF TRENCH SHALL BE A MINIMUM OF 8″ INTO UNDISTURBED SOIL AND SHALL BE INSPECTED BY CHWD PRIOR TO POURING CONCRETE.
8. CONCRETE THRUST BLOCKS SHALL BE ALLOWED TO CURE FOR A MINIMUM OF 24-HOURS PRIOR TO ANY PRESSURE LOADING OR TRENCH BACKFILLING.

CITRUS HEIGHTS WATER DISTRICT

CONCRETE THRUST BLOCK DETAILS

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

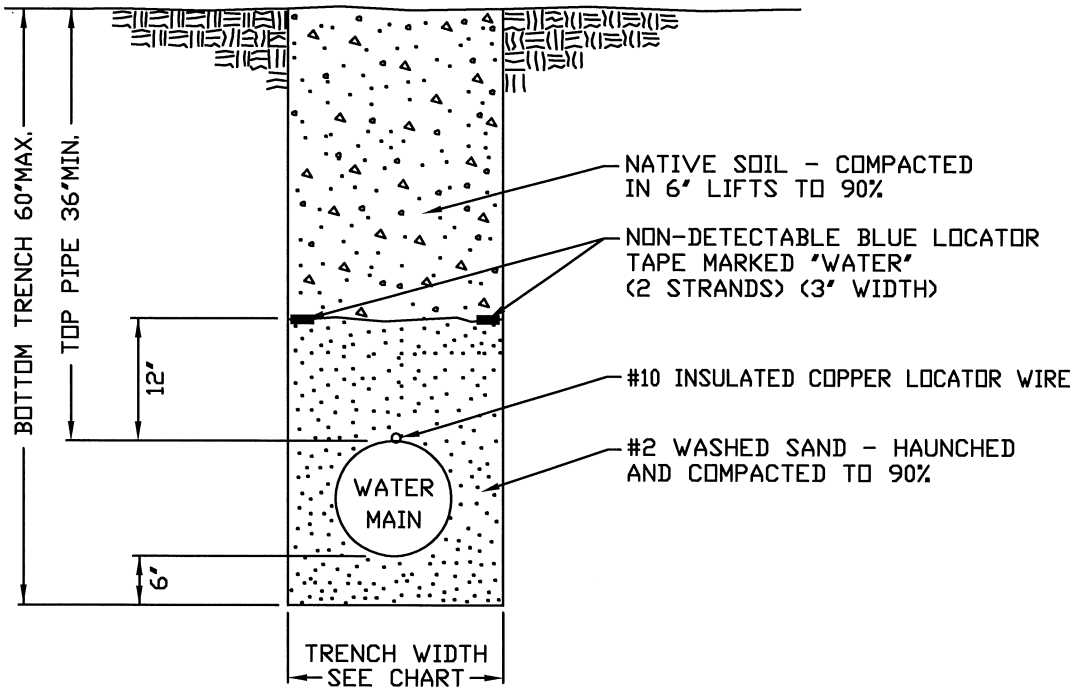
REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: TB_001.DWG

PAGE: TB_001



MAIN DIAMETER	MINIMUM TRENCH WIDTH
4"	18"
6"	24"
8"	24"
10"	30"
12"	30"

CITRUS HEIGHTS WATER DISTRICT

4" THROUGH 12" TRENCH DETAIL - NATIVE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

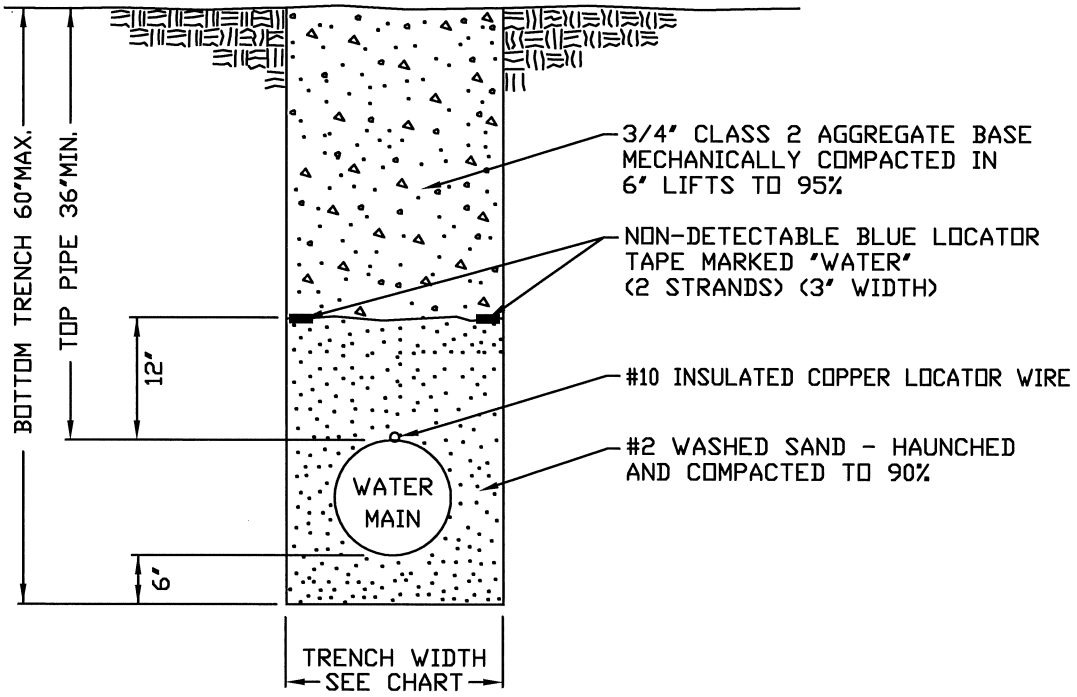
REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: TREN_711.DWG

PAGE: TREN_711



MAIN DIAMETER	MINIMUM TRENCH WIDTH
4"	18"
6"	24"
8"	24"
10"	30"
12"	30"

CITRUS HEIGHTS WATER DISTRICT

4" THROUGH 12" TRENCH DETAIL - SHOULDER

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

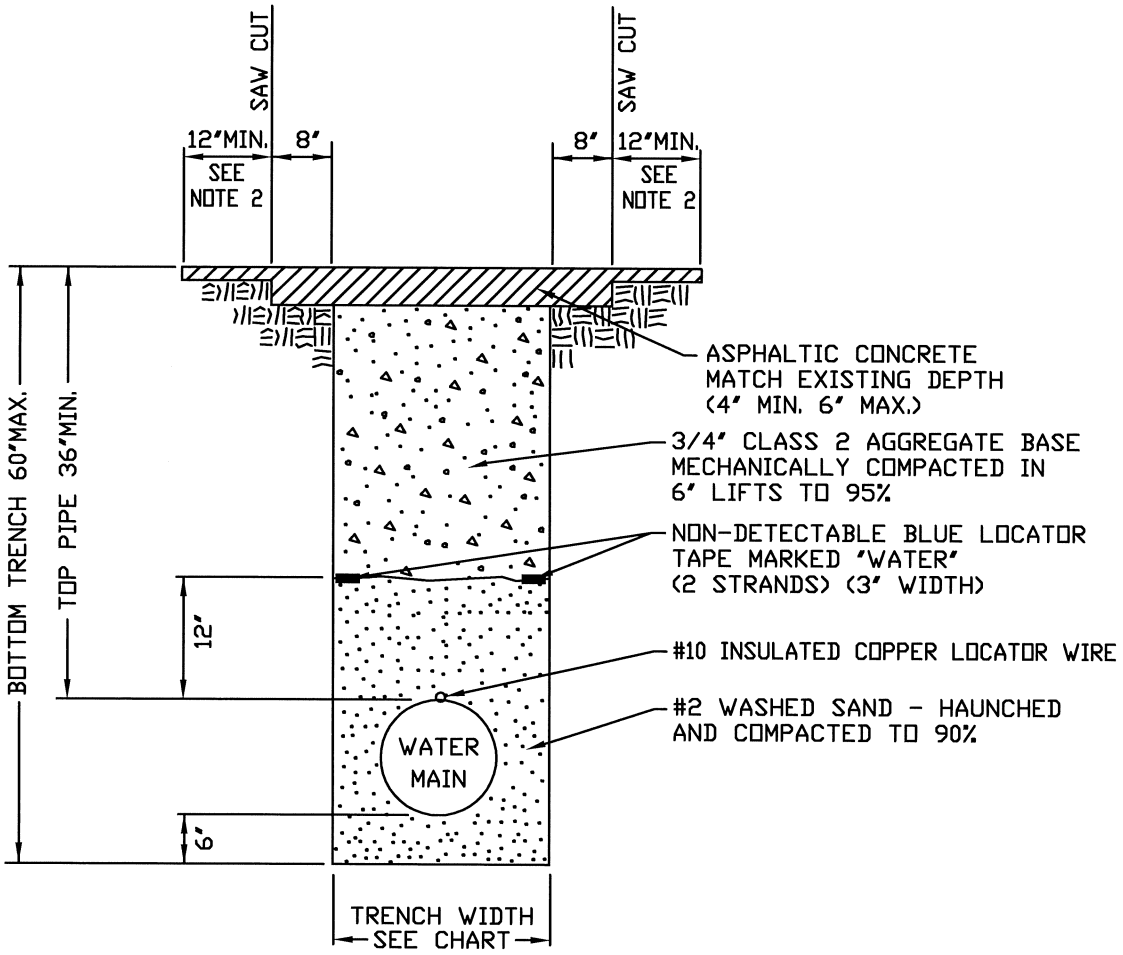
REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: TREN_712.DWG

PAGE: TREN_712



NOTES:

1. NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD, UNLESS APPROVED BY THE CITY OF CITRUS HEIGHTS.
2. 1 1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER, LANE LINE, OR CENTER OF TRAFFIC LANE, BUT 12" MINIMUM WIDTH.
3. SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS SPECIFIED, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CITY OF CITRUS HEIGHTS.

MAIN DIAMETER	MINIMUM TRENCH WIDTH
4"	18"
6"	24"
8"	24"
10"	30"
12"	30"

CITRUS HEIGHTS WATER DISTRICT

4" THROUGH 12" TRENCH DETAIL - PAVEMENT

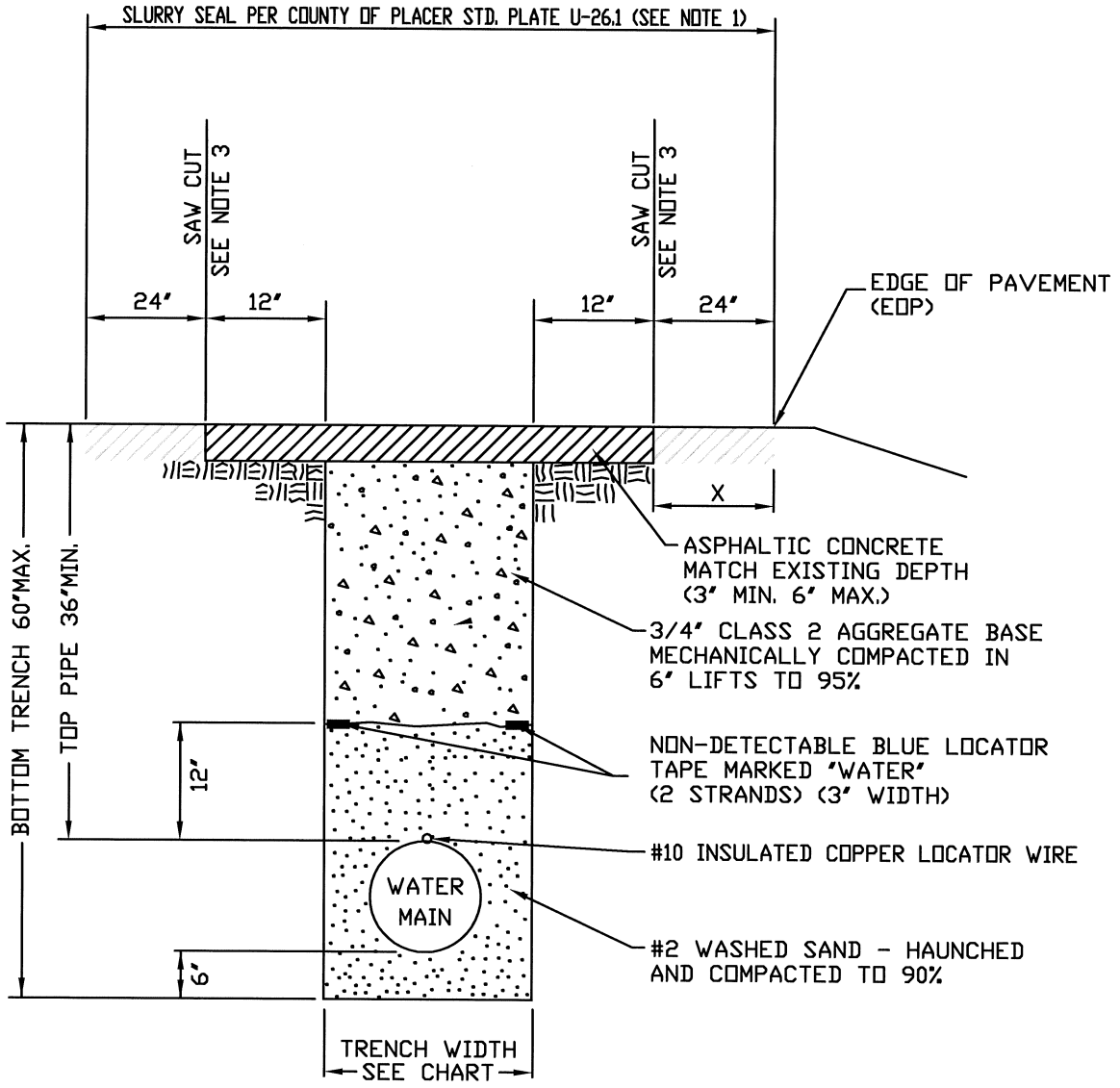
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert a. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE CITY OF CITRUS HEIGHTS

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: TREN_713CH.DWG
PAGE: TREN_713CH



NOTES:

1. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS WITHIN COUNTY OF PLACER RIGHT-OF-WAY ONLY.
2. IF X < 3 FT. FOR ALL TRENCHES REPAVE TO EDGE OF PAVEMENT. IF X < 5 FT. SEAL TO EDGE OF PAVEMENT.
3. PAVEMENT SAWCUT SHALL BE LOCATED OUTSIDE OF VEHICLE WHEEL PATH.

MAIN DIAMETER	MINIMUM TRENCH WIDTH
4"	18"
6"	24"
8"	24"
10"	30"
12"	30"

CITRUS HEIGHTS WATER DISTRICT

4" THROUGH 12" TRENCH DETAIL - PAVEMENT

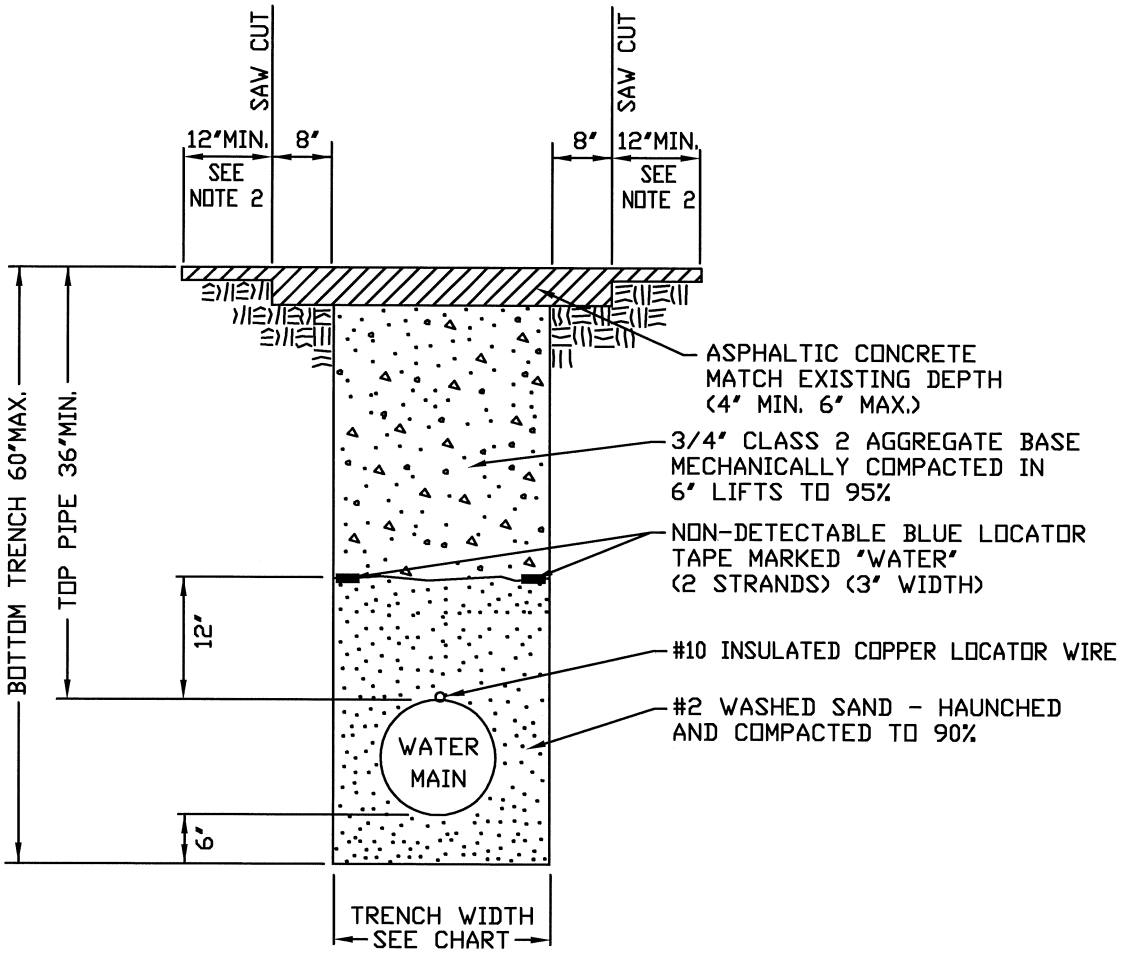
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE COUNTY OF PLACER

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: TREN_713PC.DWG
PAGE: TREN_713PC



NOTES:

1. NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD, UNLESS APPROVED BY THE COUNTY OF SACRAMENTO.
2. 1 1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER, LANE LINE, OR CENTER OF TRAFFIC LANE, BUT 12" MINIMUM WIDTH.
3. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS SPECIFIED, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE COUNTY OF SACRAMENTO.
4. STREET STRUCTURAL SECTION PER COUNTY OF SACRAMENTO STANDARDS.

MAIN DIAMETER	MINIMUM TRENCH WIDTH
4"	18"
6"	24"
8"	24"
10"	30"
12"	30"

CITRUS HEIGHTS WATER DISTRICT

4" THROUGH 12" TRENCH DETAIL - PAVEMENT

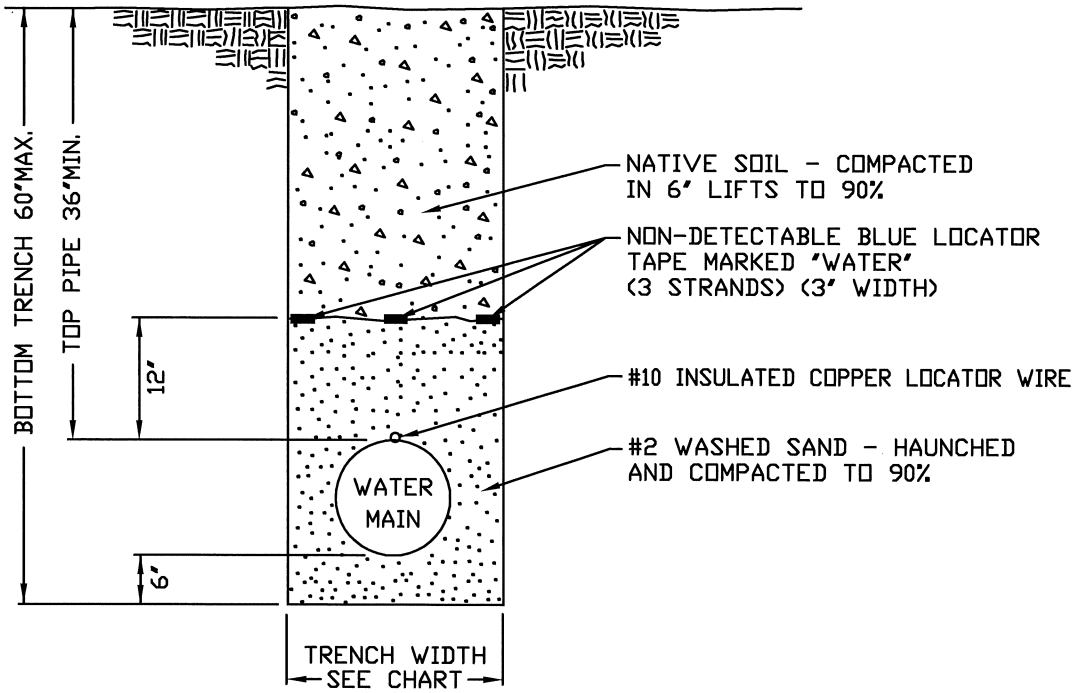
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE COUNTY OF SACRAMENTO

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: TREN_713SC.DWG
PAGE: TREN_713SC



MAIN DIAMETER	MINIMUM TRENCH WIDTH
14"	30"
16"	30"
18"	36"
24"	36"

CITRUS HEIGHTS WATER DISTRICT

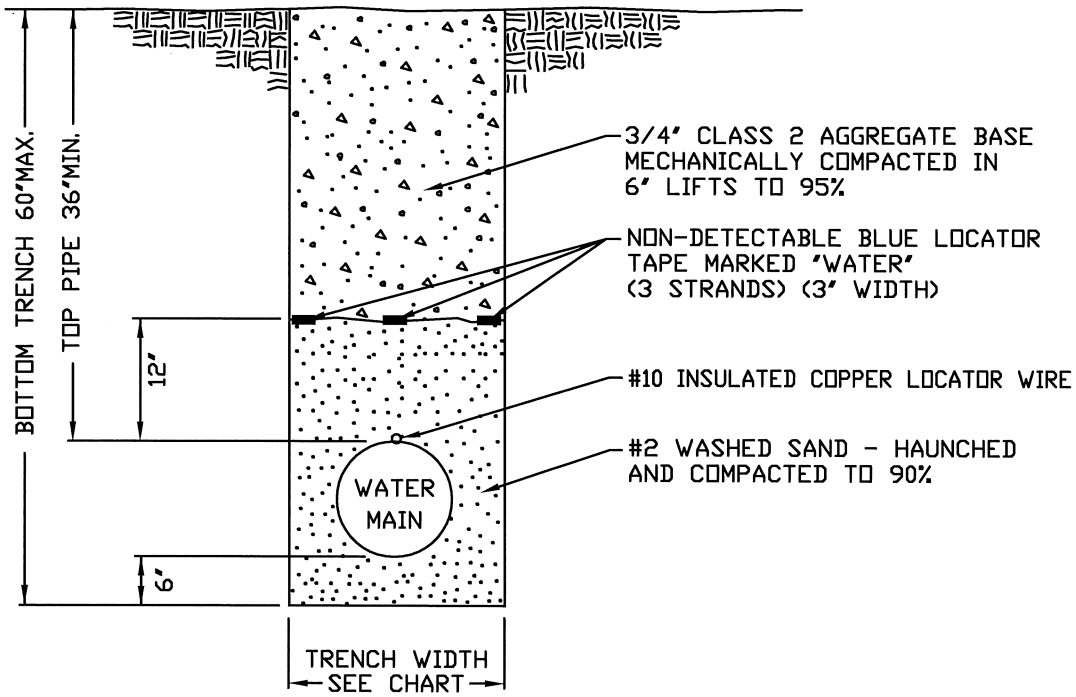
14" THROUGH 24" TRENCH DETAIL - NATIVE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: TREN_715.DWG
PAGE: TREN_715



MAIN DIAMETER	MINIMUM TRENCH WIDTH
14"	30"
16"	30"
18"	36"
24"	36"

CITRUS HEIGHTS WATER DISTRICT

14" THROUGH 24" TRENCH DETAIL - SHOULDER

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: TREN_716.DWG

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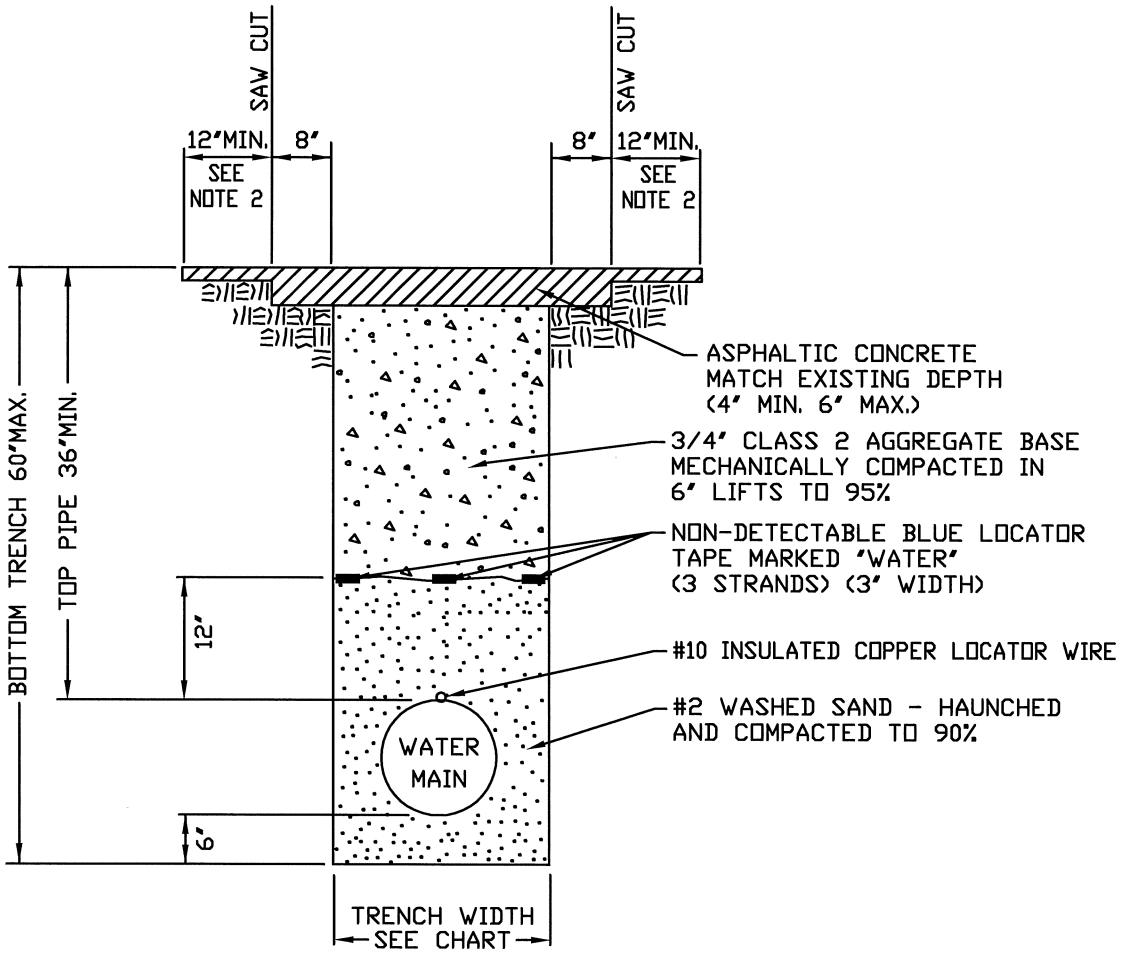


NOTES:

1. NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD, UNLESS APPROVED BY THE CITY OF CITRUS HEIGHTS.
2. REQUIRED ONLY FOR PAVEMENT BETWEEN THREE AND FIVE YEARS OLD: 1 1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER, LANE LINE, OR CENTER OF TRAFFIC LANE, BUT 12" MINIMUM WIDTH.
3. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS SPECIFIED, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CITY OF CITRUS HEIGHTS.

MAIN DIAMETER	MINIMUM TRENCH WIDTH
14"	30"
16"	30"
18"	36"
24"	36"

CITRUS HEIGHTS WATER DISTRICT

14" THROUGH 24" TRENCH DETAIL - PAVEMENT

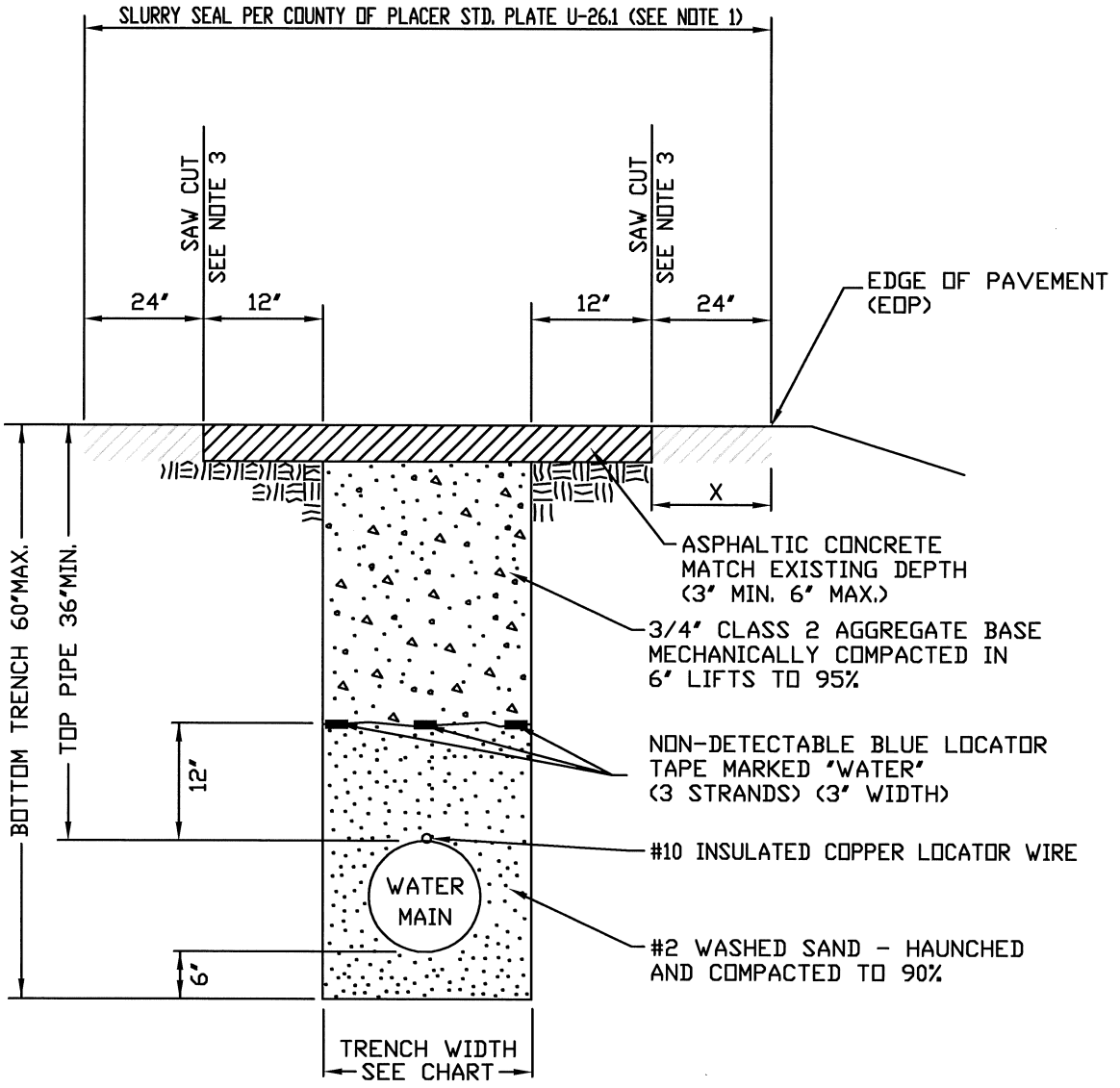
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE CITY OF CITRUS HEIGHTS

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: TREN_717CH.DWG
PAGE: TREN_717CH



NOTES:

1. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS WITHIN COUNTY OF PLACER RIGHT-OF-WAY ONLY.
2. IF X < 3FT. FOR ALL TRENCHES REPAVE TO EDGE OF PAVEMENT. IF X < 5FT. SEAL TO EDGE OF PAVEMENT.
3. PAVEMENT SAWCUT SHALL BE LOCATED OUTSIDE OF VEHICLE WHEEL PATH.

MAIN DIAMETER	MINIMUM TRENCH WIDTH
14"	30"
16"	30"
18"	36"
24"	36"

CITRUS HEIGHTS WATER DISTRICT

14" THROUGH 24" TRENCH DETAIL - PAVEMENT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE COUNTY OF PLACER

DRAWN: 8 MAY 2013
REVISED:
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DESIGN: P.A.D.
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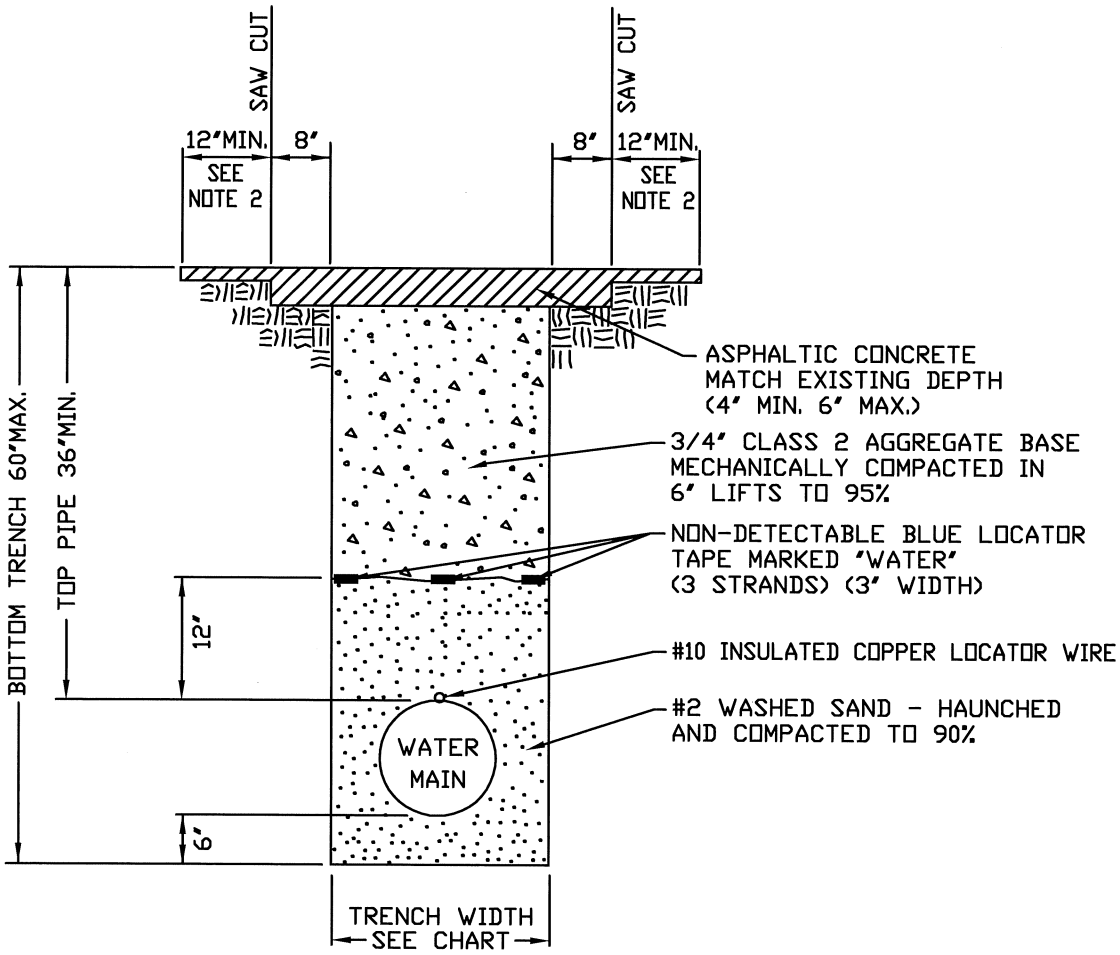

NOTES:

1. NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD, UNLESS APPROVED BY THE COUNTY OF SACRAMENTO.
2. REQUIRED ONLY FOR PAVEMENT BETWEEN THREE AND FIVE YEARS OLD: 1 1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER, LANE LINE, OR CENTER OF TRAFFIC LANE, BUT 12" MINIMUM WIDTH.
3. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS SPECIFIED, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE COUNTY OF SACRAMENTO.
4. STREET STRUCTURAL SECTION PER COUNTY OF SACRAMENTO STANDARDS.

MAIN DIAMETER	MINIMUM TRENCH WIDTH
14"	30"
16"	30"
18"	36"
24"	36"

CITRUS HEIGHTS WATER DISTRICT

14" THROUGH 24" TRENCH DETAIL - PAVEMENT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE COUNTY OF SACRAMENTO

DRAWN: 8 MAY 2013
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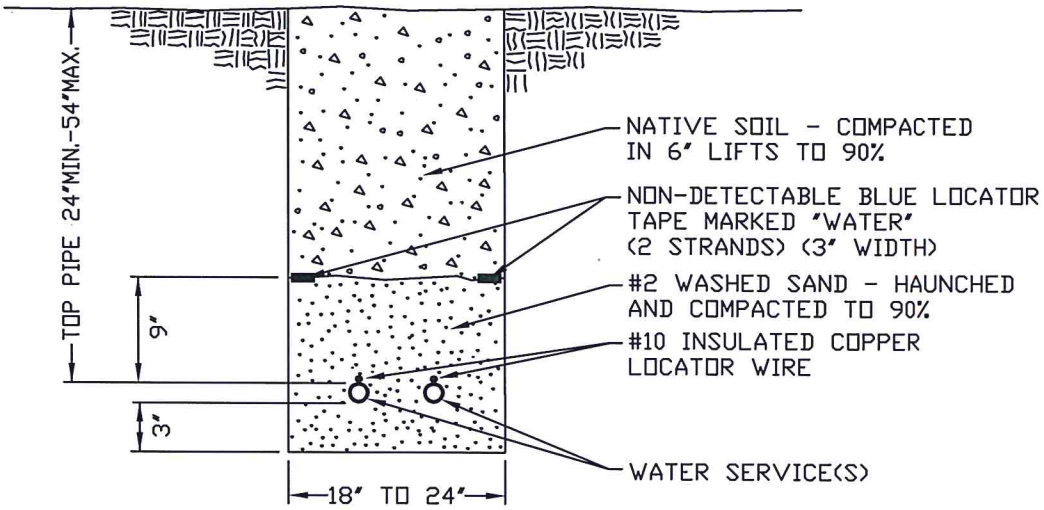
DESIGN: P.A.D.
CAD FILE: TREN_717SC.DWG
PAGE: TREN_717SC



CITRUS HEIGHTS WATER DISTRICT

SERVICE LINE TRENCH DETAIL - NATIVE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Pieri DATE: 4/19/17

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	19 APRIL 2017
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
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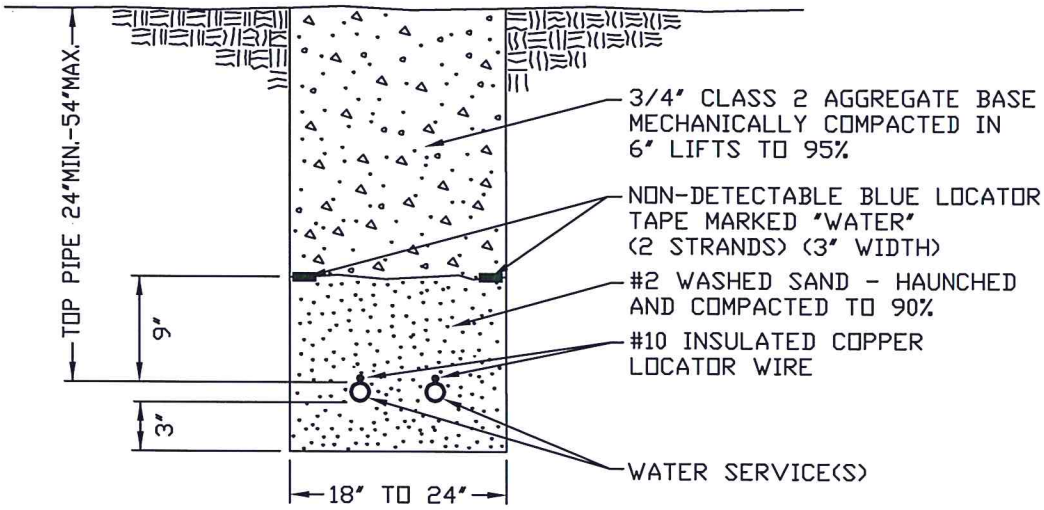
PAGE:	TREN_721



CITRUS HEIGHTS WATER DISTRICT

SERVICE LINE TRENCH DETAIL - SHOULDER

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melina Pieri DATE: 4/19/17

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	19 APRIL 2017
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	TREN_722.DWG
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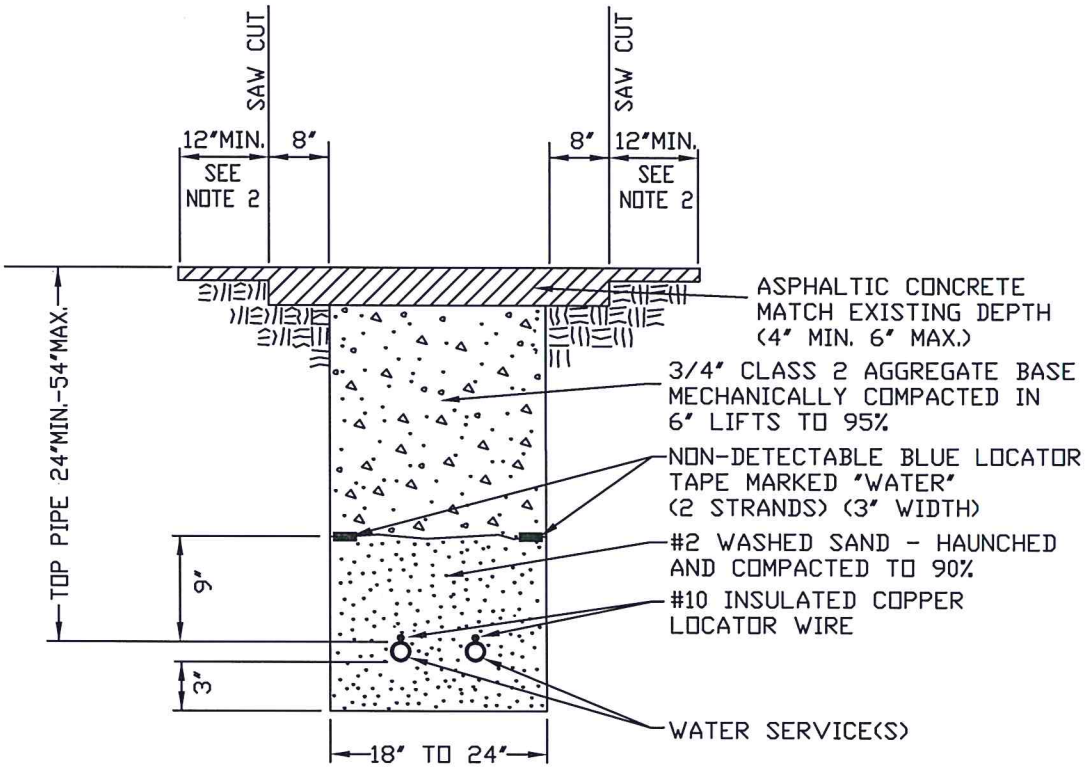


NOTES:

1. NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD, UNLESS APPROVED BY THE CITY OF CITRUS HEIGHTS.

2. 1 1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER, LANE LINE, OR CENTER OF TRAFFIC LANE, BUT 12" MINIMUM WIDTH.

3. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS SPECIFIED, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CITY OF CITRUS HEIGHTS.

CITRUS HEIGHTS WATER DISTRICT

SERVICE LINE TRENCH DETAIL - PAVEMENT

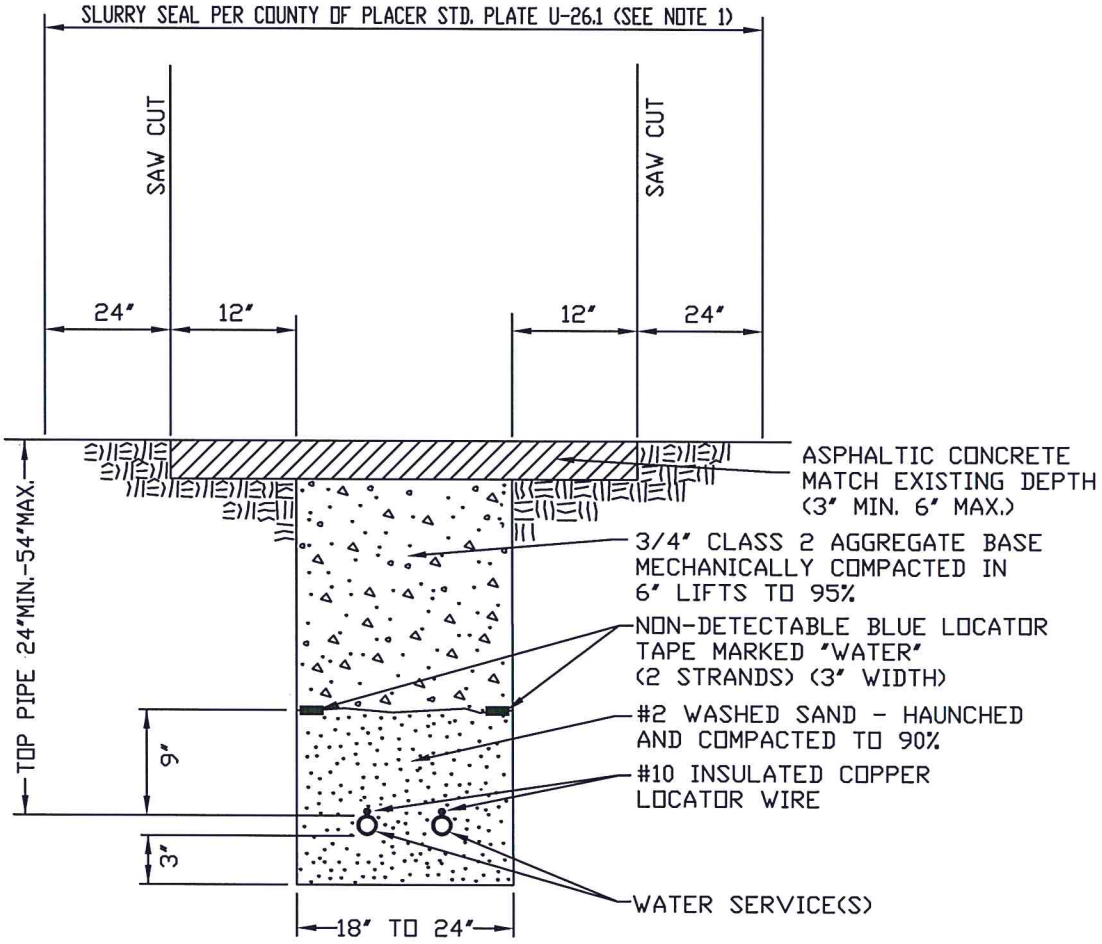
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Pieri DATE: 4/19/17

CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE CITY OF CITRUS HEIGHTS

DRAWN:	19 APRIL 2017
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	TREN_723CH.DWG
PAGE:	TREN_723CH



NOTES:

1. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS WITHIN COUNTY OF PLACER RIGHT-OF-WAY ONLY.

CITRUS HEIGHTS WATER DISTRICT

SERVICE LINE TRENCH DETAIL - PAVEMENT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melina Pieri DATE: 4/19/17
CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE COUNTY OF PLACER

DRAWN:	19 APRIL 2017
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	TREN_723PC.DWG
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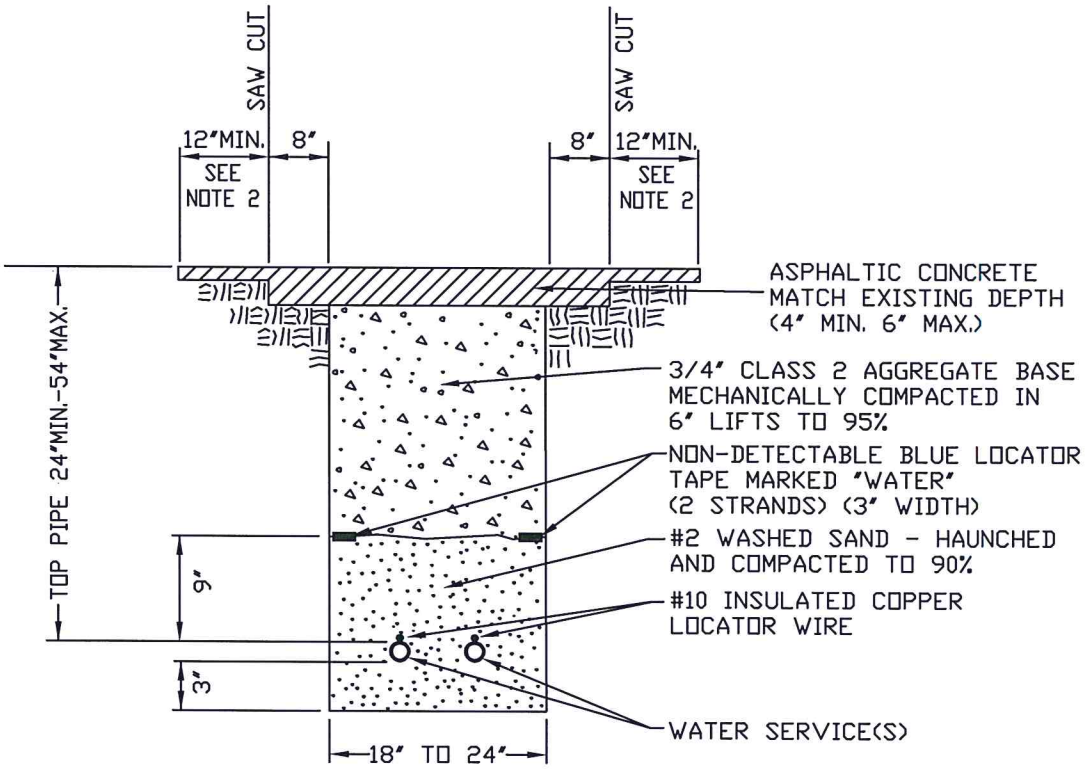

NOTES:

1. NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD, UNLESS APPROVED BY THE COUNTY OF SACRAMENTO.
2. 1 1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER, LANE LINE, OR CENTER OF TRAFFIC LANE, BUT 12" MINIMUM WIDTH.
3. SLURRY SEAL COAT TREATMENT SHALL BE APPLIED AT LOCATIONS SPECIFIED, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE COUNTY OF SACRAMENTO.
4. STREET STRUCTURAL SECTION PER COUNTY OF SACRAMENTO STANDARDS.

CITRUS HEIGHTS WATER DISTRICT

SERVICE LINE TRENCH DETAIL - PAVEMENT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melina Piri DATE: 4/19/17
CITRUS HEIGHTS WATER DISTRICT

FOR CONSTRUCTION IN THE COUNTY OF SACRAMENTO

DRAWN:	19 APRIL 2017
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	TREN_723SC.DWG
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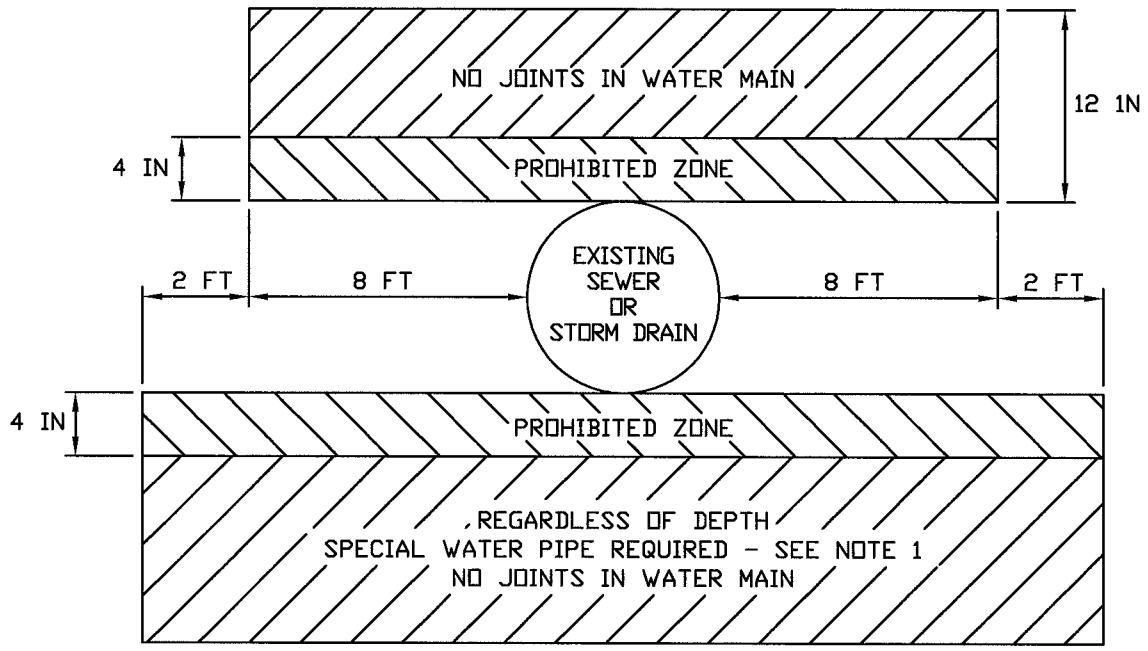


NOTE:

1. AN 18 FOOT LENGTH OF PC350 DUCTILE IRON PIPE (DIP) OR A 20 FOOT LENGTH OF CL305 DR 14 AWWA C900-07 POLYVINYLCHLORIDE (PVC) WATER MAIN TO BE CENTERED BELOW SEWER OR STORM DRAIN CROSSINGS.

CITRUS HEIGHTS WATER DISTRICT

SEWER/STORM CROSSING DETAIL

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

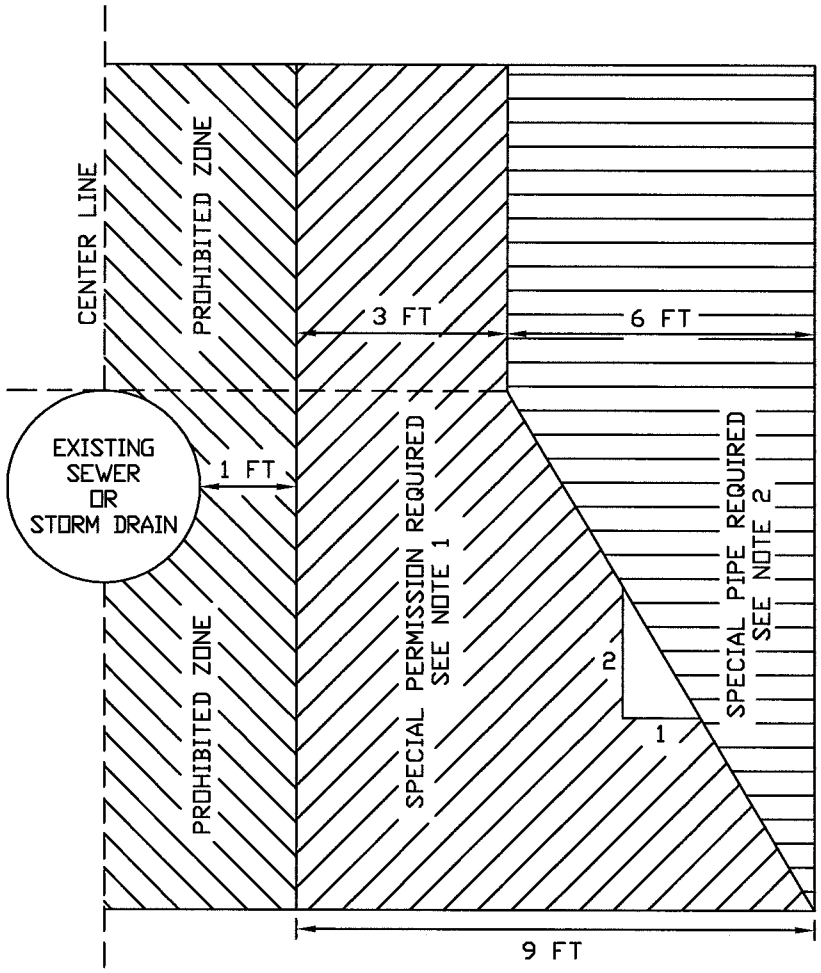
REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: TREN_782.DWG

PAGE: TREN_782



NOTES:

1. NO WATER MAINS PARALLEL TO SEWERS OR STORM DRAINS SHALL BE CONSTRUCTED IN THIS ZONE WITHOUT PRIOR WRITTEN APPROVAL FROM THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH.

2. WATER MAINS IN THIS ZONE SHALL BE CONSTRUCTED OF PC350 DUCTILE IRON PIPE (DIP) OR CL305 DR 14 AWWA C900-07 POLYVINYLCHLORIDE (PVC).

CITRUS HEIGHTS WATER DISTRICT

SEWER/STORM PARALLEL DETAIL

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: TREN_783.DWG
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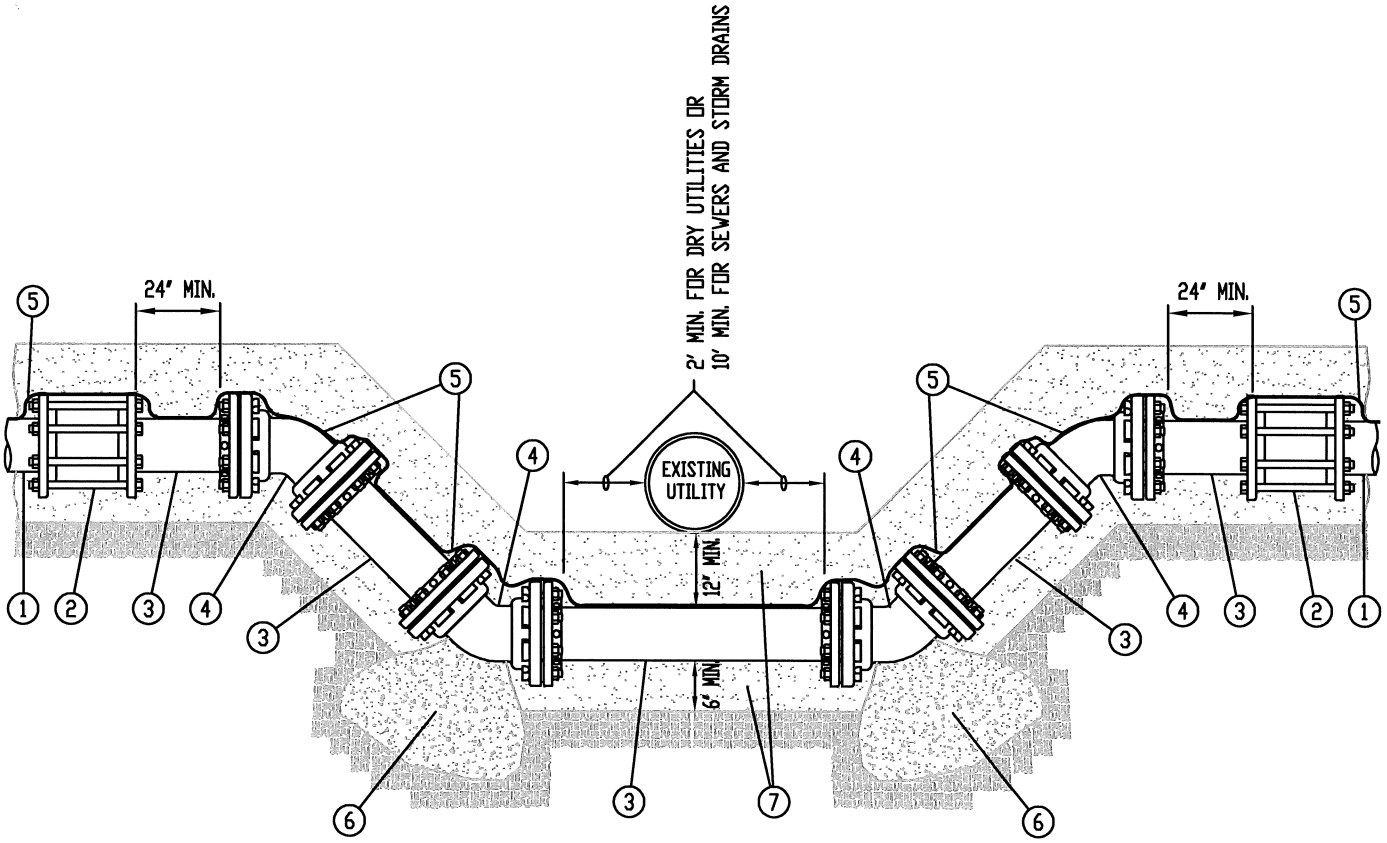

NOTE:

- BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

1	EXISTING WATER MAIN	5	#10 INSULATED COPPER LOCATOR WIRE
2	FLEXIBLE COUPLING w/ 12" BARREL	6	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
3	DUCTILE IRON PIPE - PC350, CONTINUOUS SECTION	7	#2 WASHED SAND - COMPACTED TO 90%
4	45° ELBOW - MECHANICAL JOINT W/ MEGA-LUG RESTRAINT GLANDS		

CITRUS HEIGHTS WATER DISTRICT

UTILITY CROSSING

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: UC_001.DWG

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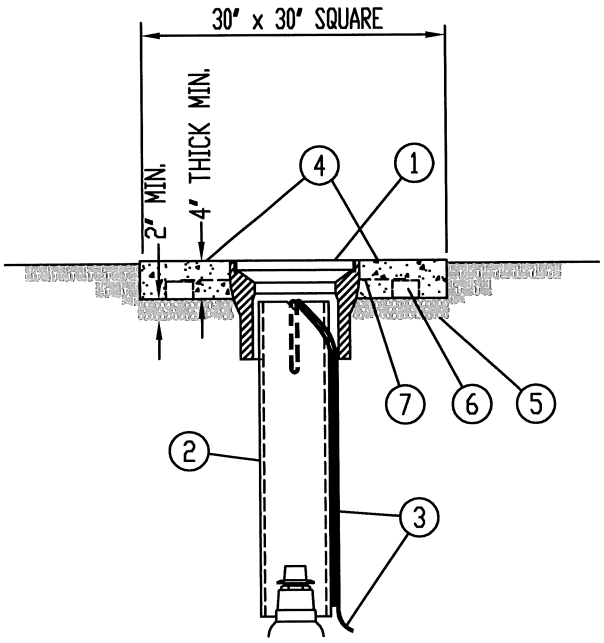


NOTES:

- RISER SHALL BE PLUMB.
- VALVE OPERATING NUT SHALL BE CENTERED IN THE RISER AND FULLY ACCESSIBLE.
- MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
- CONTACT CITRUS HEIGHTS WATER DISTRICT FOR REBAR INSPECTION PRIOR TO POURING CONCRETE. (916) 725-6873
- REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.
- TRIANGULAR LID SHALL POINT IN THE DIRECTION OF THE MAIN WHICH IS ISOLATED BY THE VALVE.

1	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID	5	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
2	8" RISER - SDR35 ONLY, CONTINUOUS SECTION	6	CONCRETE DOBIE w/ WIRE
3	#10 INSULATED COPPER LOCATOR WIRE	7	3/8" (#3) REBAR - 2" INSIDE PERIMETER
4	REINFORCED CONCRETE PAD - 4" THICK x 30" SQUARE, TYPE II SIX-SACK PORTLAND CEMENT		

CITRUS HEIGHTS WATER DISTRICT

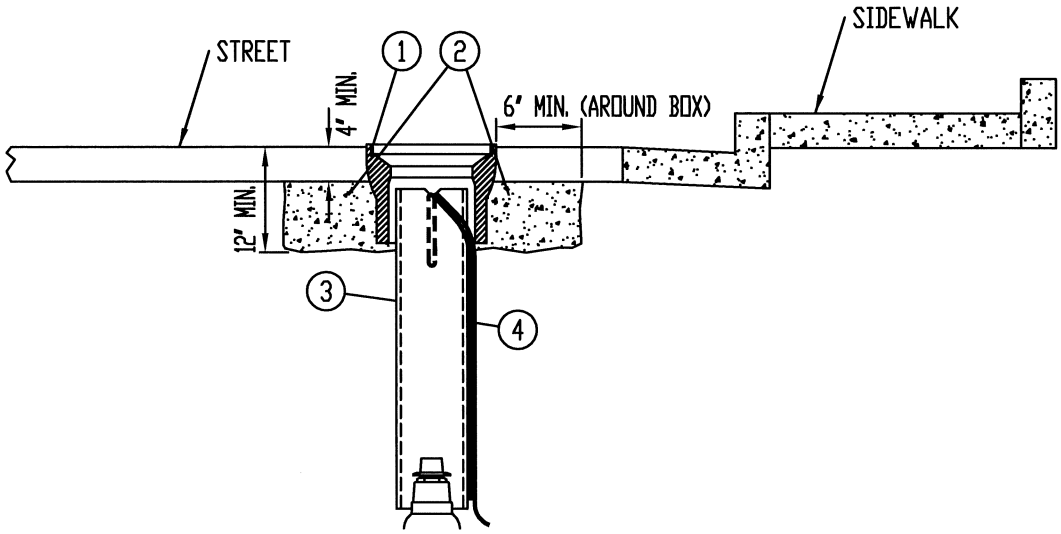
WATER MAIN VALVE BOX - LANDSCAPE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert a. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: VB_810.DWG
PAGE: VB_810



NOTES:

- RISER SHALL BE PLUMB.
- VALVE OPERATING NUT SHALL BE CENTERED IN THE RISER AND FULLY ACCESSIBLE.
- MATERIAL BELOW CONCRETE ENCASEMENT SHALL BE COMPACTED TO 95% MINIMUM.
- CONCRETE ENCASEMENT SHALL BE ALLOWED TO CURE 24 HOURS MINIMUM PRIOR TO FINISH PAVING.
- TRIANGULAR LID SHALL POINT IN THE DIRECTION OF THE MAIN WHICH IS ISOLATED BY THE VALVE.

1	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID
2	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT
3	8" RISER - SDR35 ONLY, CONTINUOUS SECTION
4	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

WATER MAIN VALVE BOX - STREET/DRIVEWAY

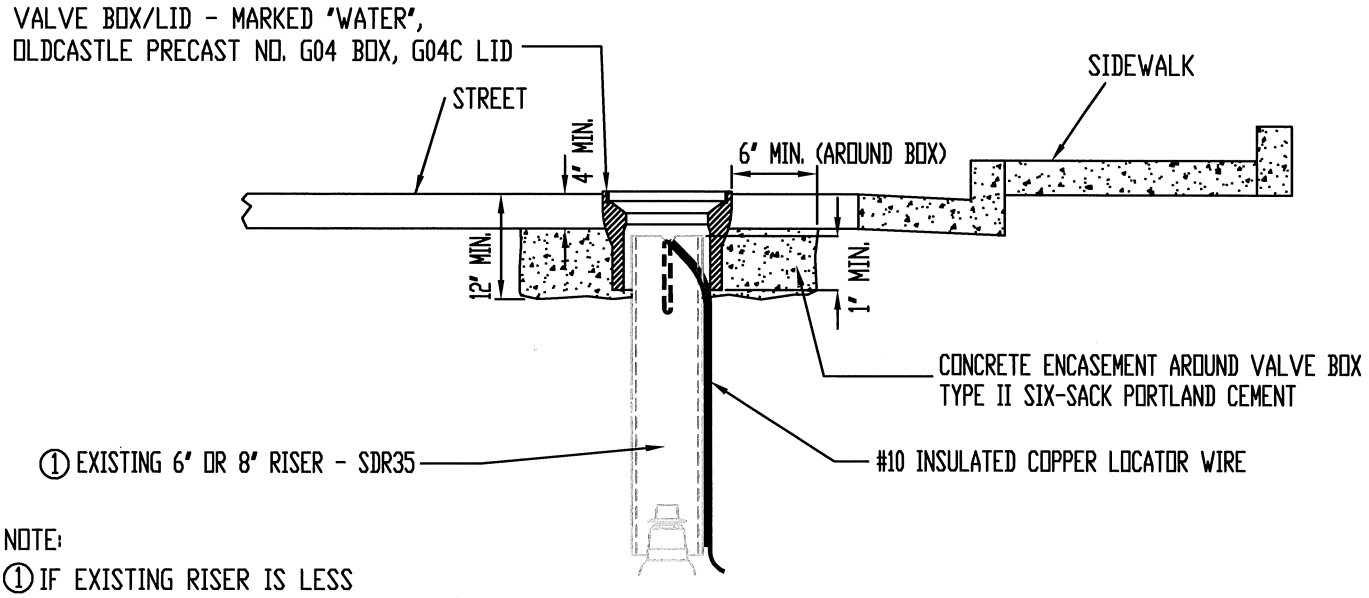
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert a. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: VB_811.DWG
PAGE: VB_811

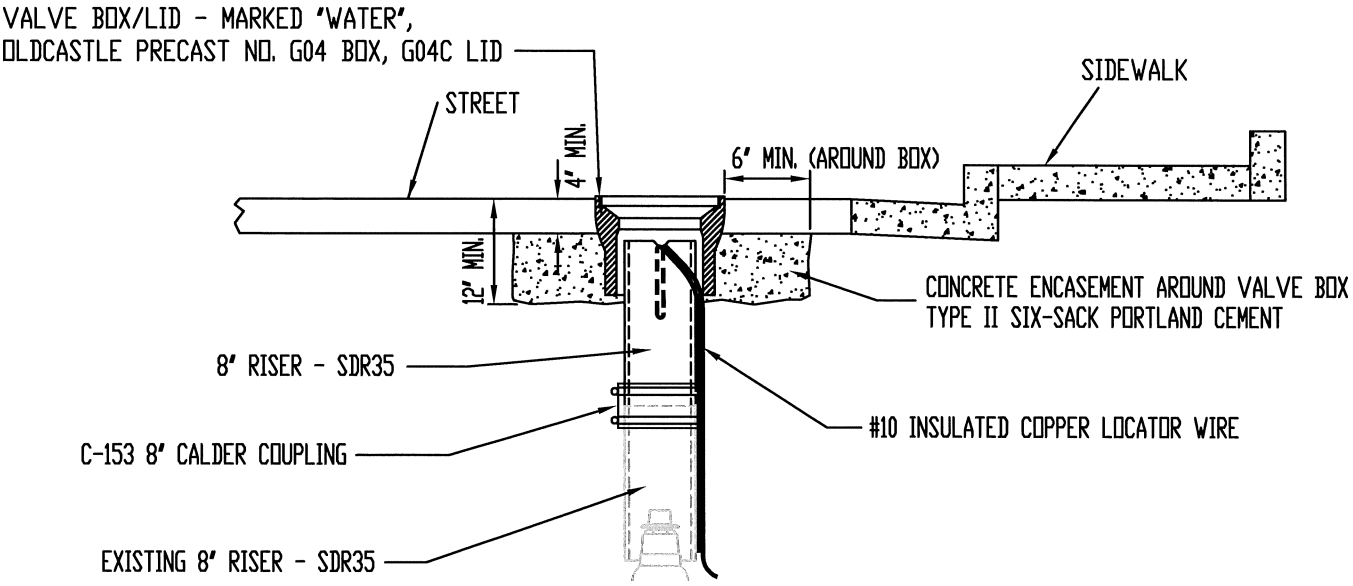
OPTION 1 - BOX ADJUSTMENT



NOTE:

① IF EXISTING RISER IS LESS THAN 6" IN DIAMETER, A NEW 8" RISER SHALL BE INSTALLED

OPTION 2 - 8" X 8" RISER LENGTHEN



CITRUS HEIGHTS WATER DISTRICT

WATER MAIN VALVE BOX - EXTENSION OPTIONS

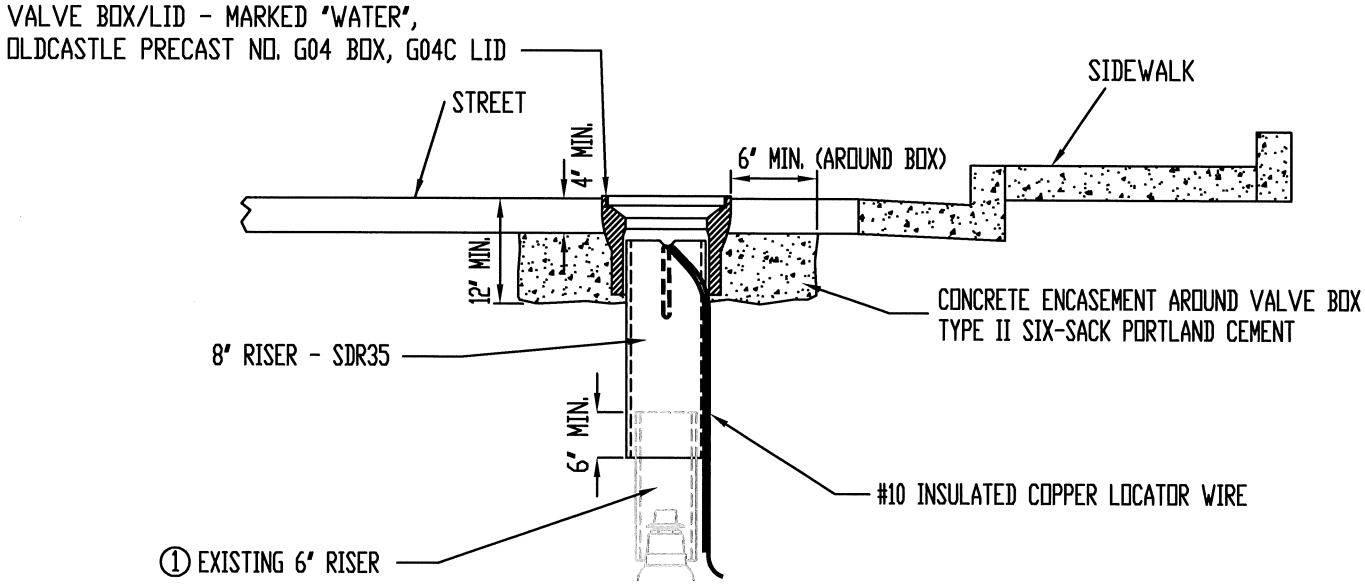
CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Lundie DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	8 MAY 2013
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
CAD FILE:	VB_812_1.DWG
PAGE:	VB_812_1

OPTION 3 - 6" X 8" RISER LENGTHEN



NOTE:

① IF EXISTING RISER IS LESS THAN 6" IN DIAMETER, A NEW 8" RISER SHALL BE INSTALLED

CITRUS HEIGHTS WATER DISTRICT

WATER MAIN VALVE BOX - EXTENSION OPTIONS

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN:	8 MAY 2013
REVISED:	
SCALE:	N.T.S.
DESIGN:	P.A.D.
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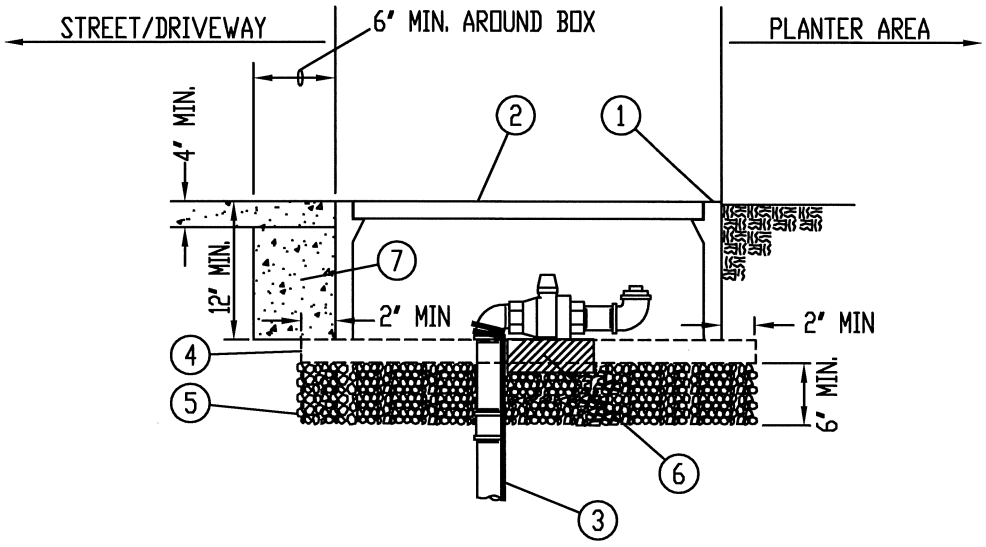

NOTES:

- VALVE OPERATING HANDLE SHALL BE CENTERED IN BOX AND FULLY ACCESSIBLE.
- MATERIAL BELOW CRUSHED ROCK SHALL BE COMPACTED TO 95% MINIMUM.
- CONCRETE ENCASEMENT SHALL BE ALLOWED TO CURE 24 HOURS MINIMUM PRIOR TO FINISH PAVING.
- LID SHALL BE MARKED "WATER"

		NON-TRAFFIC AREA	SIDEWALK/DW	STREET	5	3/4" CLEAN CRUSHED ROCK.
1	BOX	CARSON 1220-12	CHRISTY FL30TBOX12	CHRISTY B1324BOX	6	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"
2	LID	CARSON 1220-4B	CHRISTY FL30T	CHRISTY B1324-61JH	7	CONCRETE ENCASEMENT AROUND VALVE BOX - TYPE II SIX-SACK PORTLAND CEMENT
3	#10 INSULTED COPPER LOCATOR WIRE					
4	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)					

CITRUS HEIGHTS WATER DISTRICT

BLOW-OFF VALVE BOX

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013

REVISED:

SCALE: N.T.S.

DESIGN: P.A.D.

CAD FILE: VB_815.DWG

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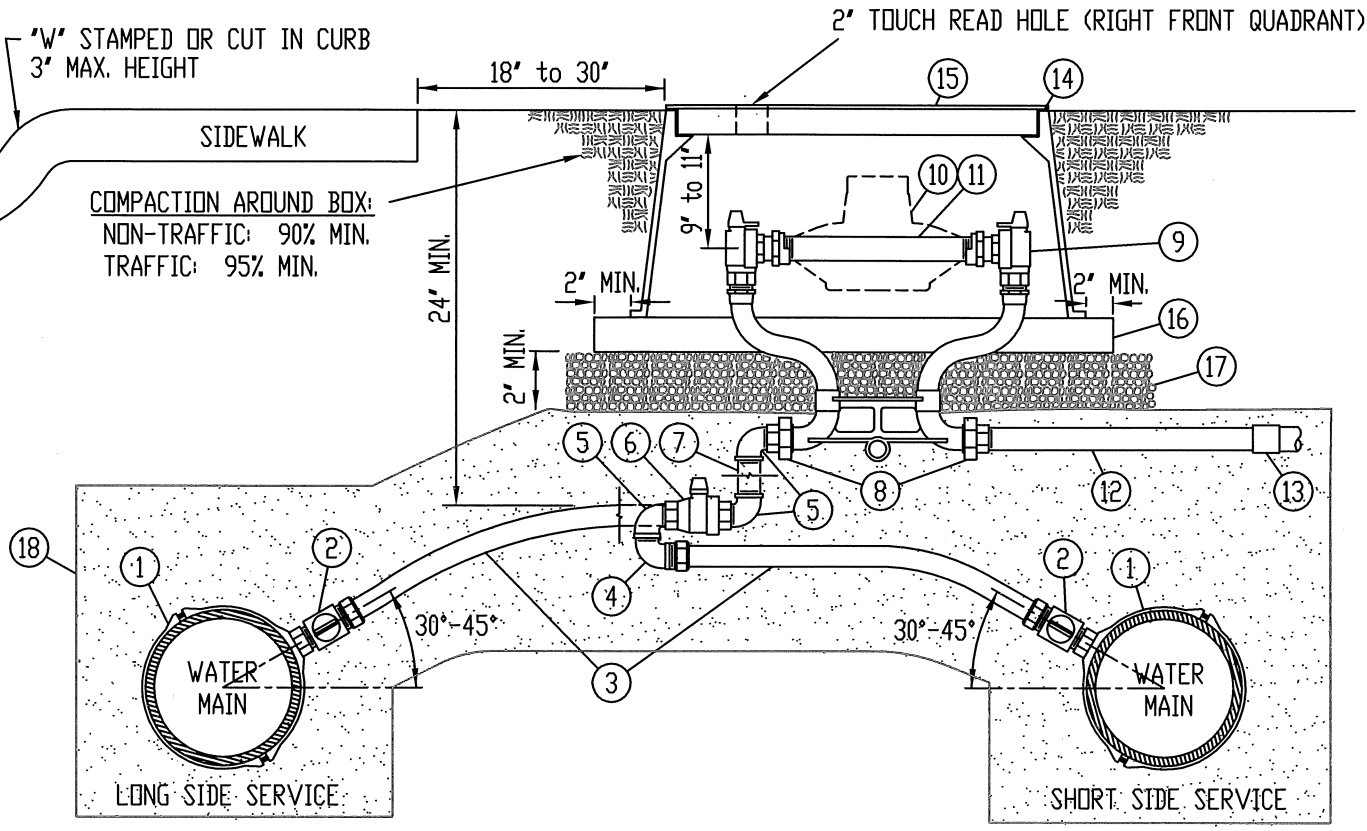

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	3/4" BRONZE SADDLE - IPT	10	5/8" X 3/4" WATER METER (BY DISTRICT)		
2	3/4" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	11	PVC METER IDLER - 1" x 7 1/2", SCH 80 (BY CONTRACTOR)		
3	3/4" COPPER TUBING - TYPE K SOFT	12	3/4" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
4	3/4" BRASS STREET ELBOW - CTS COMP x MIP	13	3/4" PVC COUPLING - SCH 80		
5	3/4" BRASS STREET ELBOW			NON-TRAFFIC AREAS	TRAFFIC AREAS
6	3/4" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	14	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
7	3/4" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	15	LID	CARSON 1220-4B	CHRISTY FL30T
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
8	3/4" DUAL PURPOSE CONNECTION	17	3/4" CLEAN CRUSHED ROCK		
9	3/4" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	18	#2 WASHED SAND COMPACTED TO 90%		

CITRUS HEIGHTS WATER DISTRICT

3/4" COPPER WATER SERVICE - 5/8" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill
CITRUS HEIGHTS WATER DISTRICT
DATE: 9/25/14

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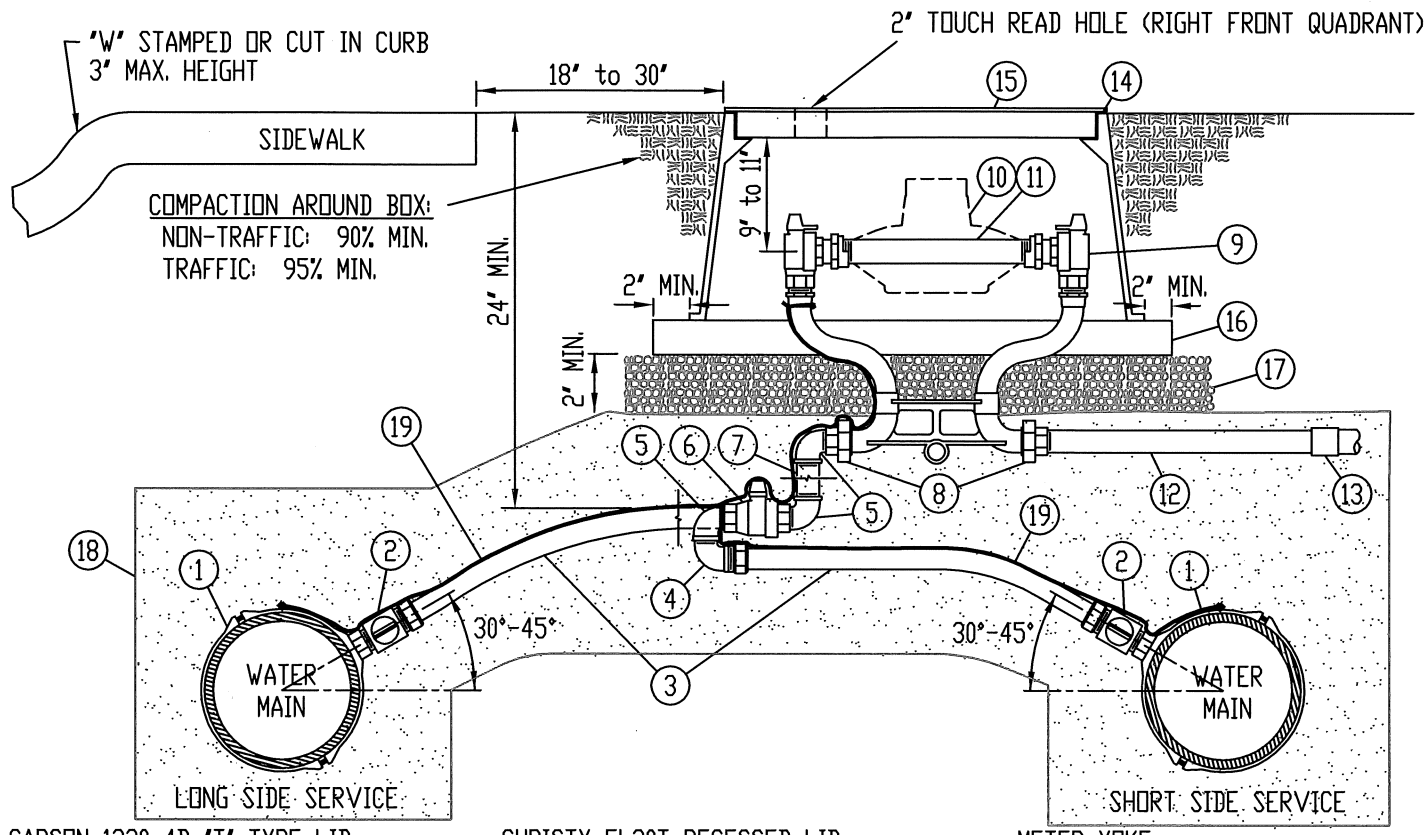

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	3/4" BRONZE SADDLE - IPT	9	3/4" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET
2	3/4" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)		
3	3/4" POLYETHYLENE TUBING - CTS ENDOPORE PE-4710 SDDR 9 (250 PSI) OR EQUAL	10	5/8" X 3/4" WATER METER (BY DISTRICT)
		11	PVC METER IDLER - 1" x 7 1/2", SCH 80 (BY CONTRACTOR)
4	3/4" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)	12	3/4" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
		13	3/4" PVC COUPLING - SCH 80
5	3/4" BRASS STREET ELBOW		NON-TRAFFIC AREAS / TRAFFIC AREAS
6	3/4" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)	14	METER BOX: CARSON 1220-12 / CHRISTY FL30TBOX12
		15	LID: CARSON 1220-4B / CHRISTY FL30T
7	3/4" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
		17	3/4" CLEAN CRUSHED ROCK
8	3/4" DUAL PURPOSE CONNECTION	18	#2 WASHED SAND COMPACTED TO 90%
		19	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

3/4" POLYETHYLENE WATER SERVICE - 5/8" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill
CITRUS HEIGHTS WATER DISTRICT
DATE: 9/25/14

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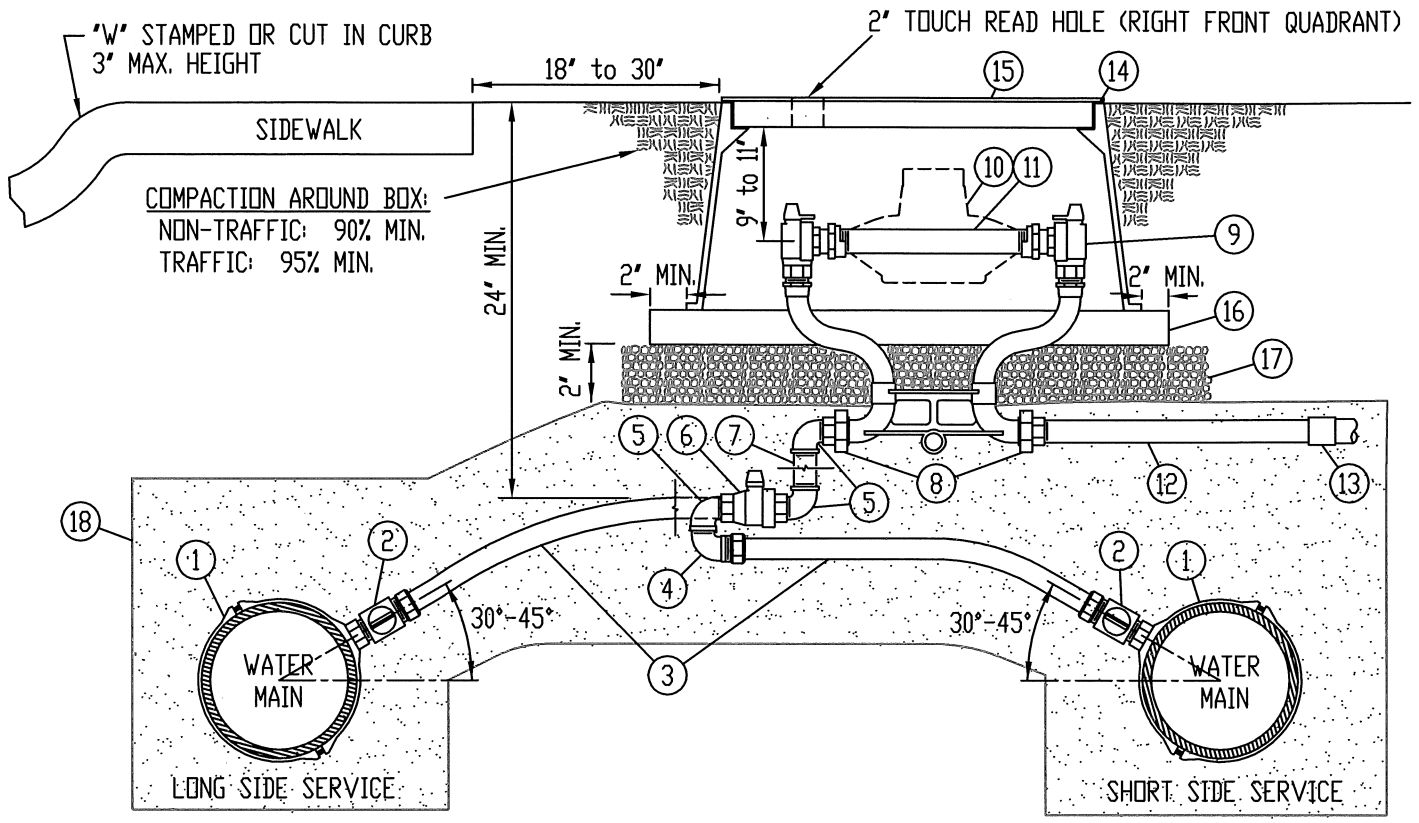

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	3/4" BRONZE SADDLE - IPT	10	3/4" WATER METER (BY DISTRICT)			
2	3/4" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	11	PVC METER IDLER - 1" x 7 1/2", SCH 80 (BY CONTRACTOR)			
3	3/4" COPPER TUBING - TYPE K SOFT	12	3/4" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)			
4	3/4" BRASS STREET ELBOW - CTS COMP x MIP	13	3/4" PVC COUPLING - SCH 80			
5	3/4" BRASS STREET ELBOW			NON-TRAFFIC AREAS	TRAFFIC AREAS	
6	3/4" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	14	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12	
7	3/4" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	15	LID	CARSON 1220-4B	CHRISTY FL30T	
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)			
8	3/4" DUAL PURPOSE CONNECTION	17	3/4" CLEAN CRUSHED ROCK			
9	3/4" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	18	#2 WASHED SAND COMPACTED TO 90%			

CITRUS HEIGHTS WATER DISTRICT

3/4" COPPER WATER SERVICE - 3/4" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14
CITRUS HEIGHTS WATER DISTRICT

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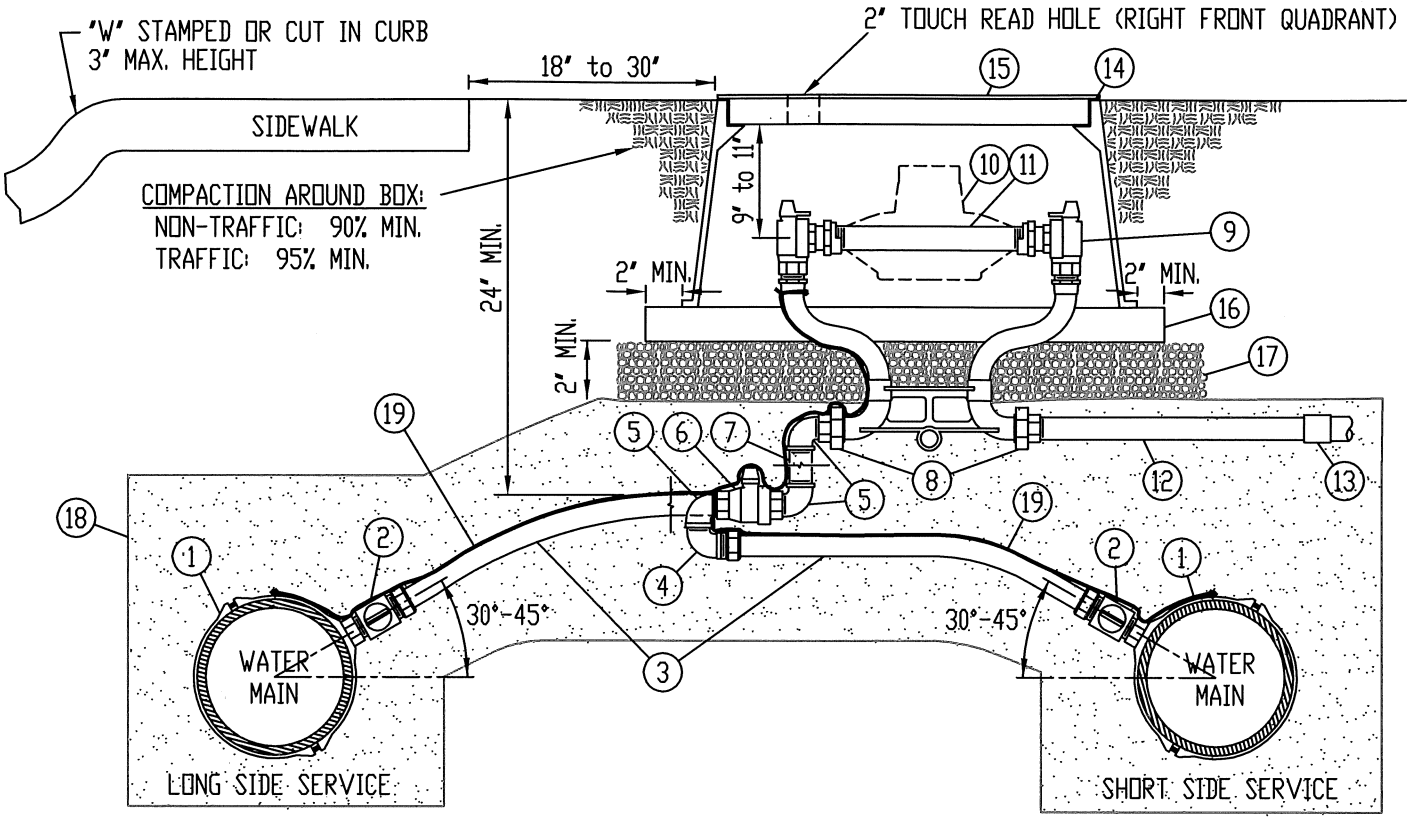

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	3/4" BRONZE SADDLE - IPT	9	3/4" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET
2	3/4" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSTERT (3/4" CTS INSERT-51)		
3	3/4" POLYETHYLENE TUBING - CTS ENDOPORE PE-4710 SDDR 9 (250 PSI) OR EQUAL	10	3/4" WATER METER (BY DISTRICT)
		11	PVC METER IDLER - 1" x 7 1/2", SCH 80 (BY CONTRACTOR)
4	3/4" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)	12	3/4" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
		13	3/4" PVC COUPLING - SCH 80
5	3/4" BRASS STREET ELBOW		NON-TRAFFIC AREAS / TRAFFIC AREAS
6	3/4" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)	14	METER BOX: CARSON 1220-12 / CHRISTY FL30TBOX12
		15	LID: CARSON 1220-4B / CHRISTY FL30T
7	3/4" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
		17	3/4" CLEAN CRUSHED ROCK
8	3/4" DUAL PURPOSE CONNECTION	18	#2 WASHED SAND COMPACTED TO 90%
		19	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

3/4" POLYETHYLENE WATER SERVICE - 3/4" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14
CITRUS HEIGHTS WATER DISTRICT

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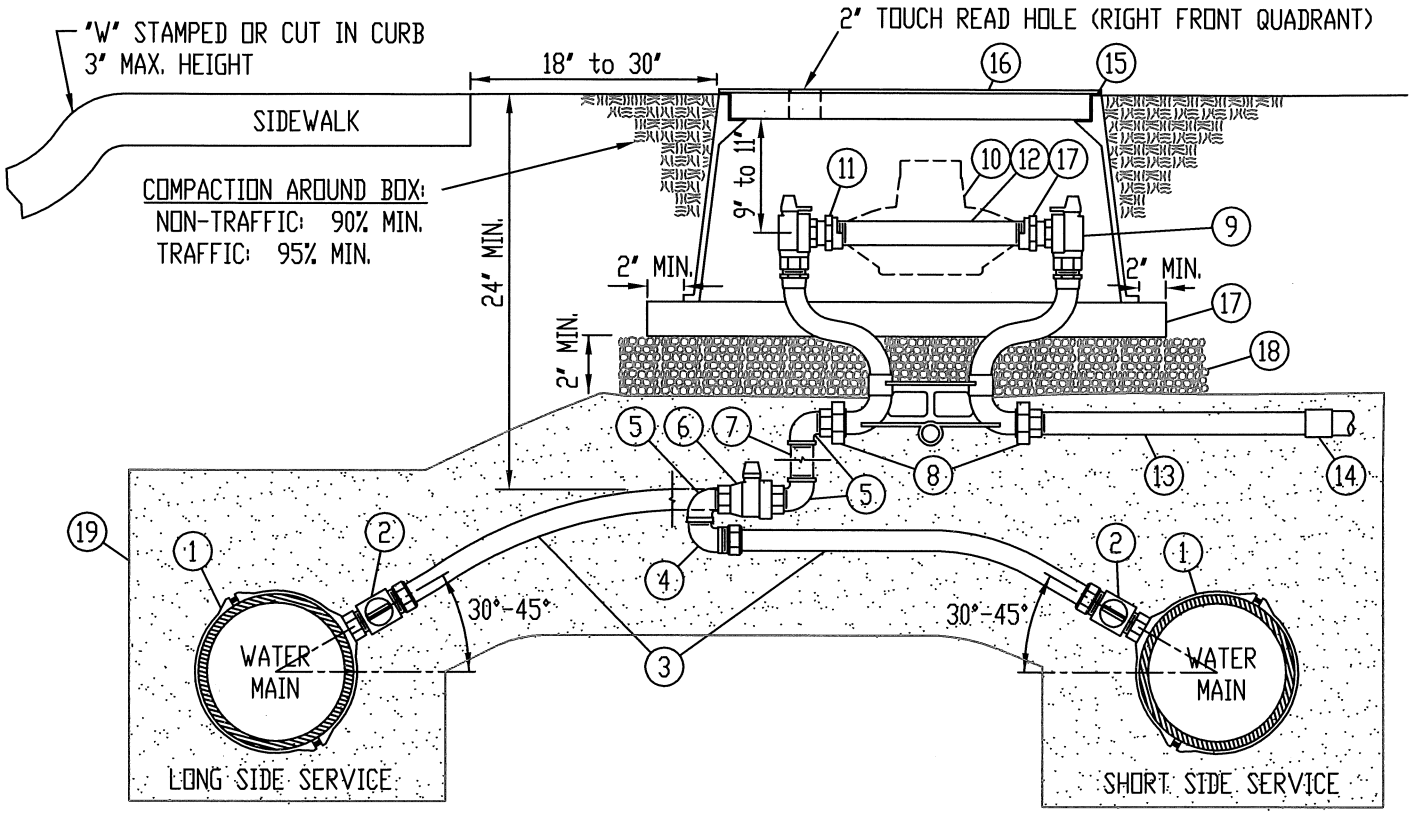

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	10	3/4" WATER METER (BY DISTRICT)		
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	11	1" x 3/4" METER ADAPTORS (BY DISTRICT)		
3	1" COPPER TUBING - TYPE K SOFT	12	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)		
4	1" BRASS STREET ELBOW - CTS COMP x MIP	13	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
5	1" BRASS STREET ELBOW	14	1" PVC COUPLING - SCH 80		
6	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP			NON-TRAFFIC AREAS	TRAFFIC AREAS
7	1" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	15	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
		16	LID	CARSON 1220-4B	CHRISTY FL30T
8	1" DUAL PURPOSE CONNECTION	17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	18	3/4" CLEAN CRUSHED ROCK		
		19	#2 WASHED SAND COMPACTED TO 90%		

CITRUS HEIGHTS WATER DISTRICT

1" COPPER WATER SERVICE - 3/4" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14
CITRUS HEIGHTS WATER DISTRICT

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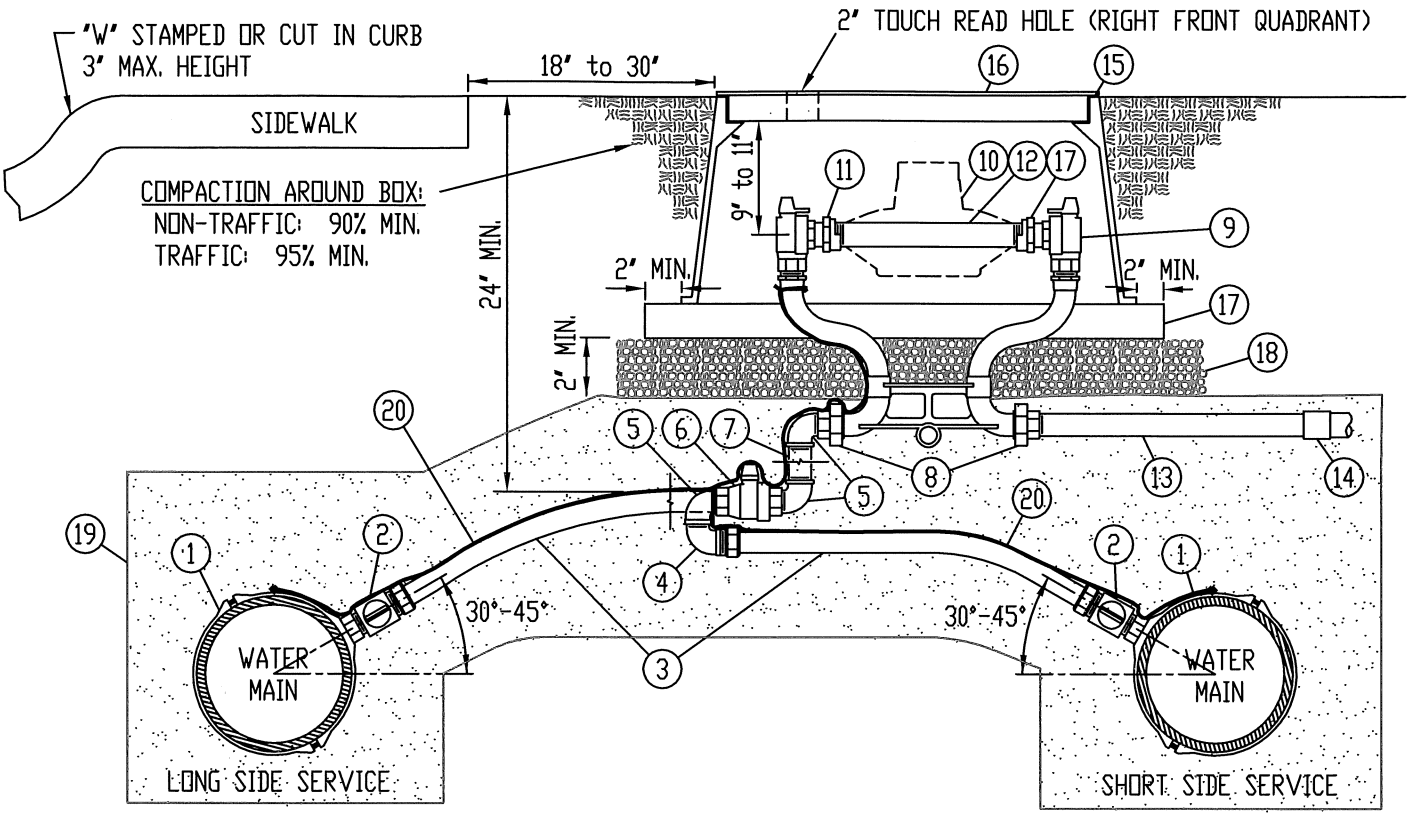

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	10	3/4" WATER METER (BY DISTRICT)
3	1" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	11	1" x 3/4" METER ADAPTORS (BY DISTRICT)
		12	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)
4	1" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	13	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
		14	1" PVC COUPLING - SCH 80
5	1" BRASS STREET ELBOW		NON-TRAFFIC AREAS / TRAFFIC AREAS
6	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	15	METER BOX: CARSON 1220-12 / CHRISTY FL30TBOX12
		16	LID: CARSON 1220-4B / CHRISTY FL30T
7	1" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
		18	3/4" CLEAN CRUSHED ROCK
8	1" DUAL PURPOSE CONNECTION	19	#2 WASHED SAND COMPACTED TO 90%
		20	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

1" POLYETHYLENE WATER SERVICE - 3/4" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 25 SEP 2014
REVISED:
SCALE: N.T.S.
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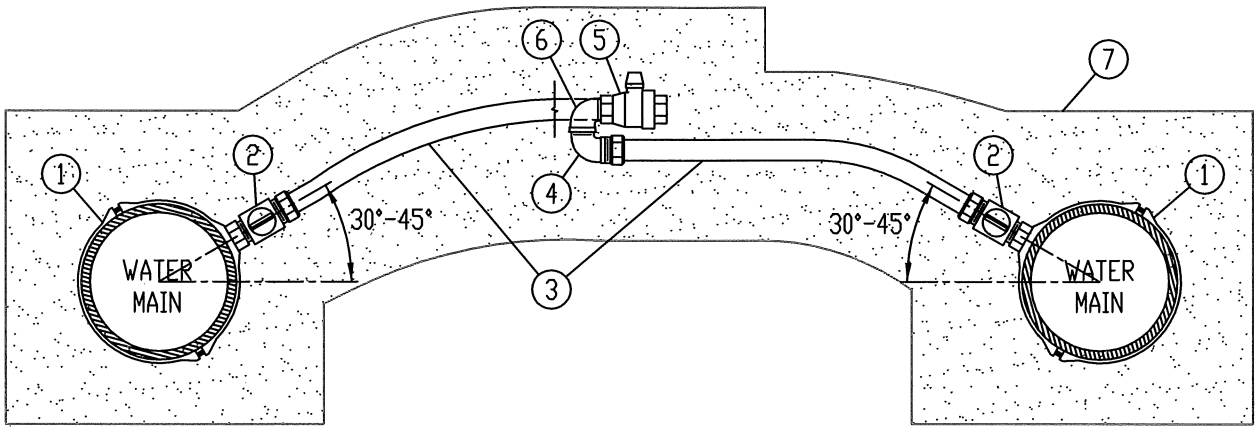

1	3/4" BRONZE SADDLE - IPT	5	3/4" VALVE - FULL-PORT BALL, FIP x FIP or CTS x FIP
2	3/4" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	6	3/4" BRASS STREET ELBOW
3	3/4" COPPER TUBING - TYPE K SOFT	7	#2 WASHED SAND COMPACTED TO 90%
4	3/4" BRASS STREET ELBOW - CTS COMP x MIP		

CITRUS HEIGHTS WATER DISTRICT

3/4" COPPER WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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SCALE: N.T.S.

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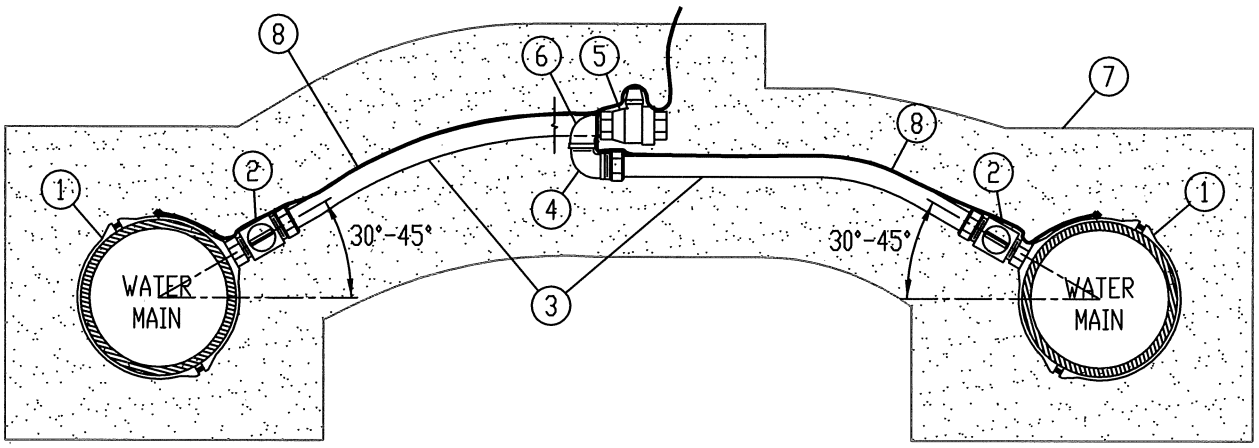

1	3/4" BRONZE SADDLE - IPT	5	3/4" VALVE - FULL-PORT BALL, FIP x FIP or CTS x FIP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)
2	3/4" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)	6	3/4" BRASS STREET ELBOW
3	3/4" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	7	#2 WASHED SAND COMPACTED TO 90%
4	3/4" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (3/4" CTS INSERT-51)	8	#10 INSULATED COPPER LOCATOR WIRE (INSTALL INTO EXISTING METER BOX)

CITRUS HEIGHTS WATER DISTRICT

3/4" POLYETHYLENE WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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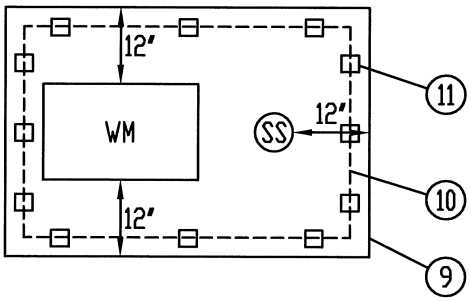
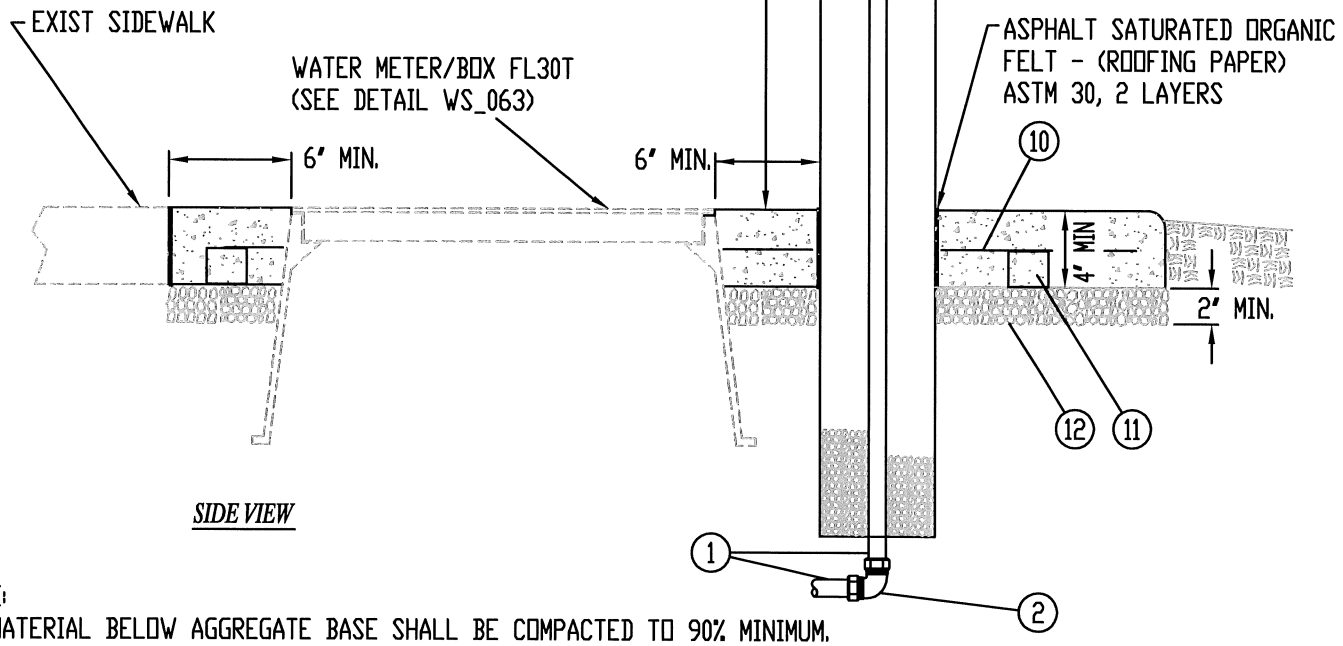


TOP VIEW



SIDE VIEW

NOTE:
1. MATERIAL BELOW AGGREGATE BASE SHALL BE COMPACTED TO 90% MINIMUM.
2. REINFORCED CONCRETE PAD SHALL BE FINISHED WITH AN EDGING TOOL AROUND THE ENTIRE PERIMETER AND BROOMED AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL.

1	3/4" COPPER TUBING - TYPE K HARD	8	PEA GRAVEL - ENTIRE LENGTH OF ENCLOSURE
2	3/4" BRASS ELBOW - CTS COMP	9	REINFORCED CONCRETE PAD - TYPE II SIX-SACK PORTLAND CEMENT
3	3/4" SWEAT x MIP ADAPTOR		
4	3/4" x 1/2" BRASS BELL REDUCER	10	3/8" (#3) REBAR - 2" INSIDE PERIMETER
5	1/2" x 3" BRASS NIPPLE	11	CONCRETE DOBIE w/ WIRE
6	1/2" x 3/8" WATER QUALITY SAMPLE VALVE (INCLUDED w/#7)	12	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM MECHANICALLY COMPACTED TO 90%
7	PROTECTIVE ENCLOSURE - KORALEEN STATION GUARD XLT #0001-3		

CITRUS HEIGHTS WATER DISTRICT

WATER SAMPLING STATION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
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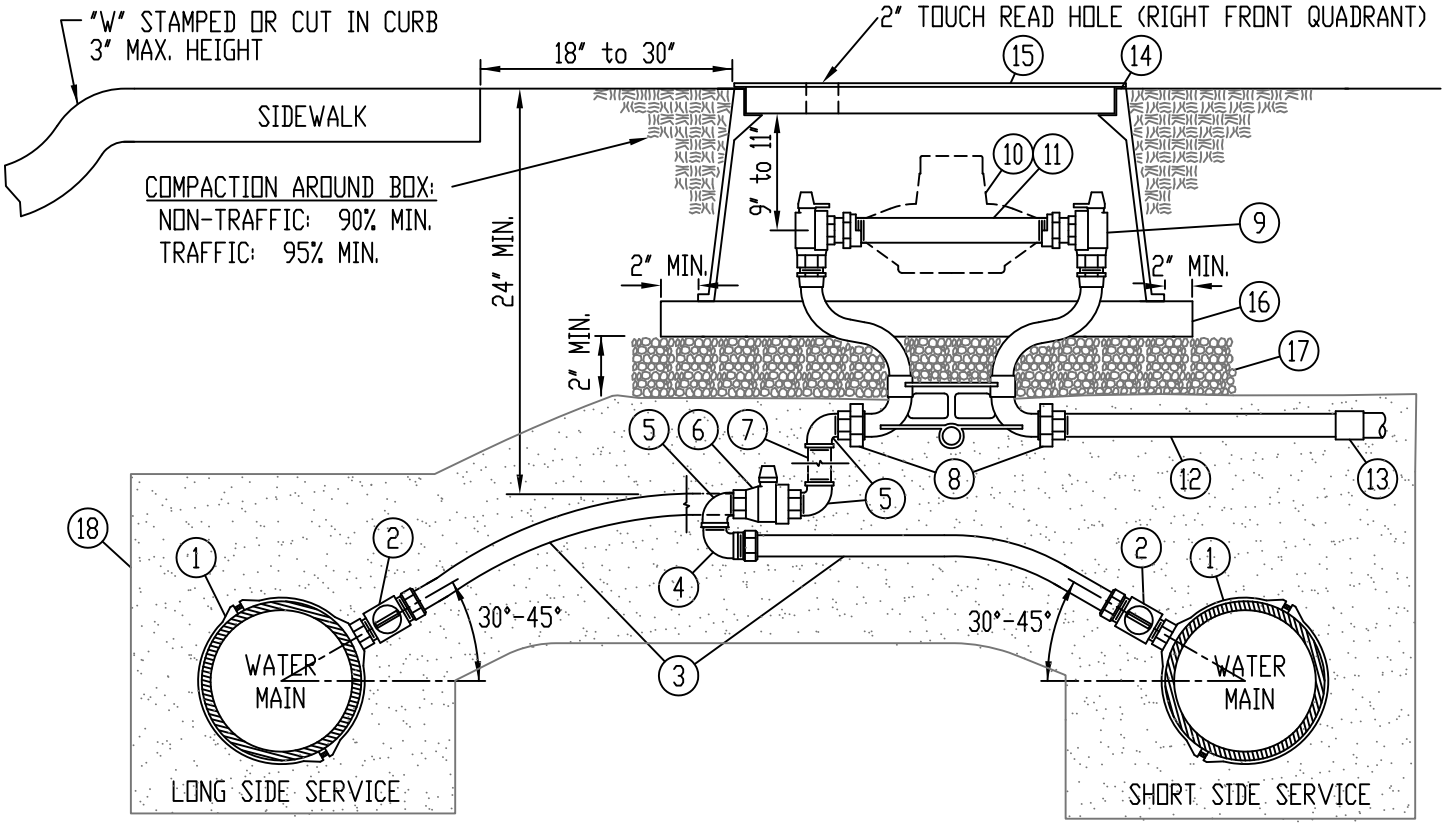

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	10	1" WATER METER (BY DISTRICT)		
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	11	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)		
3	1" COPPER TUBING - TYPE K SOFT	12	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
4	1" BRASS STREET ELBOW - CTS COMP x MIP	13	1" PVC COUPLING - SCH 80		
5	1" BRASS STREET ELBOW			NON-TRAFFIC AREAS	TRAFFIC AREAS
6	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	14	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
7	1" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	15	LID	CARSON 1220-4B	CHRISTY FL30P
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
8	1" DUAL PURPOSE CONNECTION	17	3/4" CLEAN CRUSHED ROCK		
9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	18	#2 WASHED SAND COMPACTED TO 90%		

CITRUS HEIGHTS WATER DISTRICT

1" COPPER WATER SERVICE - 1" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Peri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

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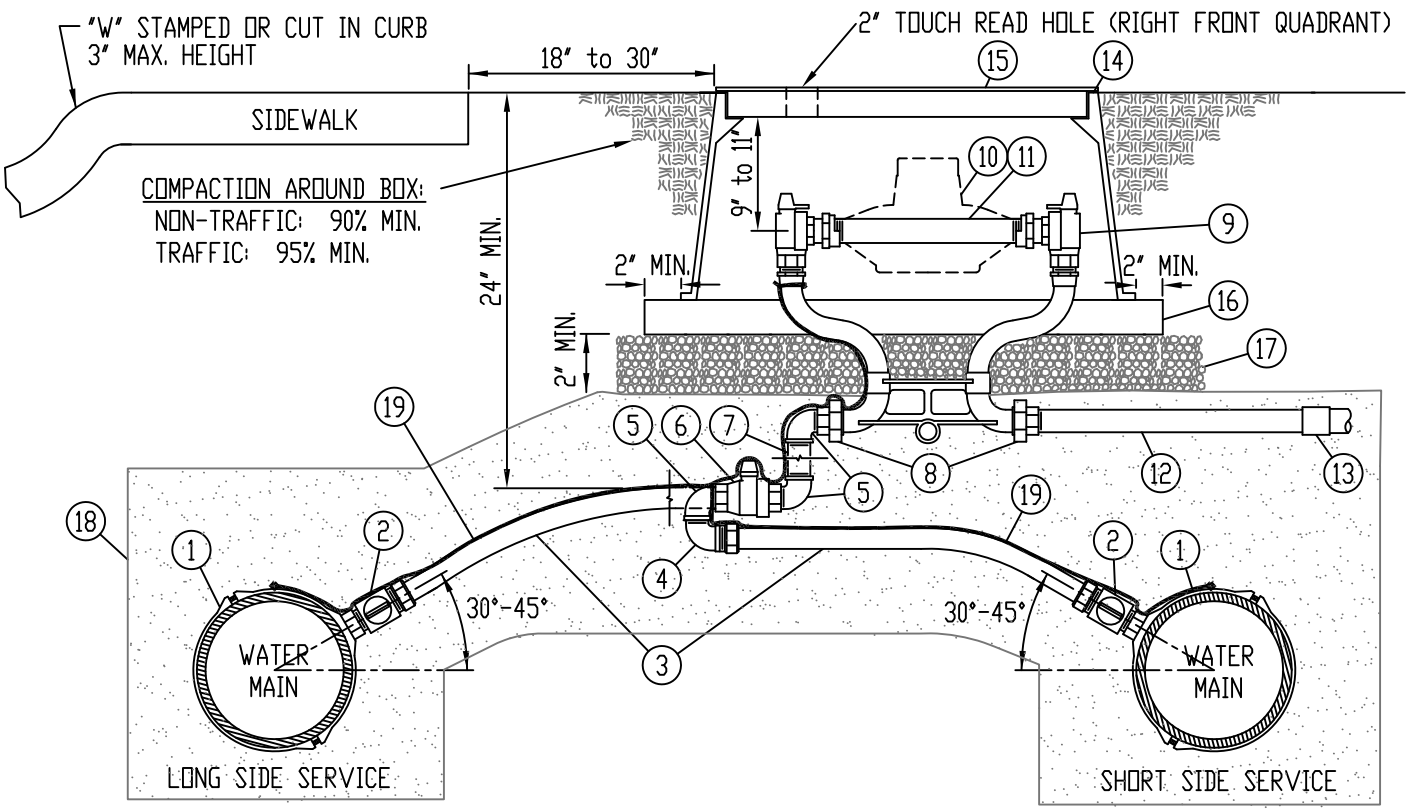

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	10	1" WATER METER (BY DISTRICT)
3	1" POLYETHYLENE TUBING - CTS ENDOPORE PE-4710 SDDR 9 (250 PSI) OR EQUAL	11	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)
		12	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
4	1" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	13	1" PVC COUPLING - SCH 80
			NON-TRAFFIC AREAS / TRAFFIC AREAS
5	1" BRASS STREET ELBOW	14	METER BOX: CARSON 1220-12 / CHRISTY FL30TBOX12
6	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	15	LID: CARSON 1220-4B / CHRISTY FL30P
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
7	1" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	17	3/4" CLEAN CRUSHED ROCK
		18	#2 WASHED SAND COMPACTED TO 90%
8	1" DUAL PURPOSE CONNECTION	19	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

1" POLYETHYLENE WATER SERVICE - 1" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

DRAWN: 25 SEP 2014
REVISED: 15 APR 2021
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DESIGN: P.A.D.
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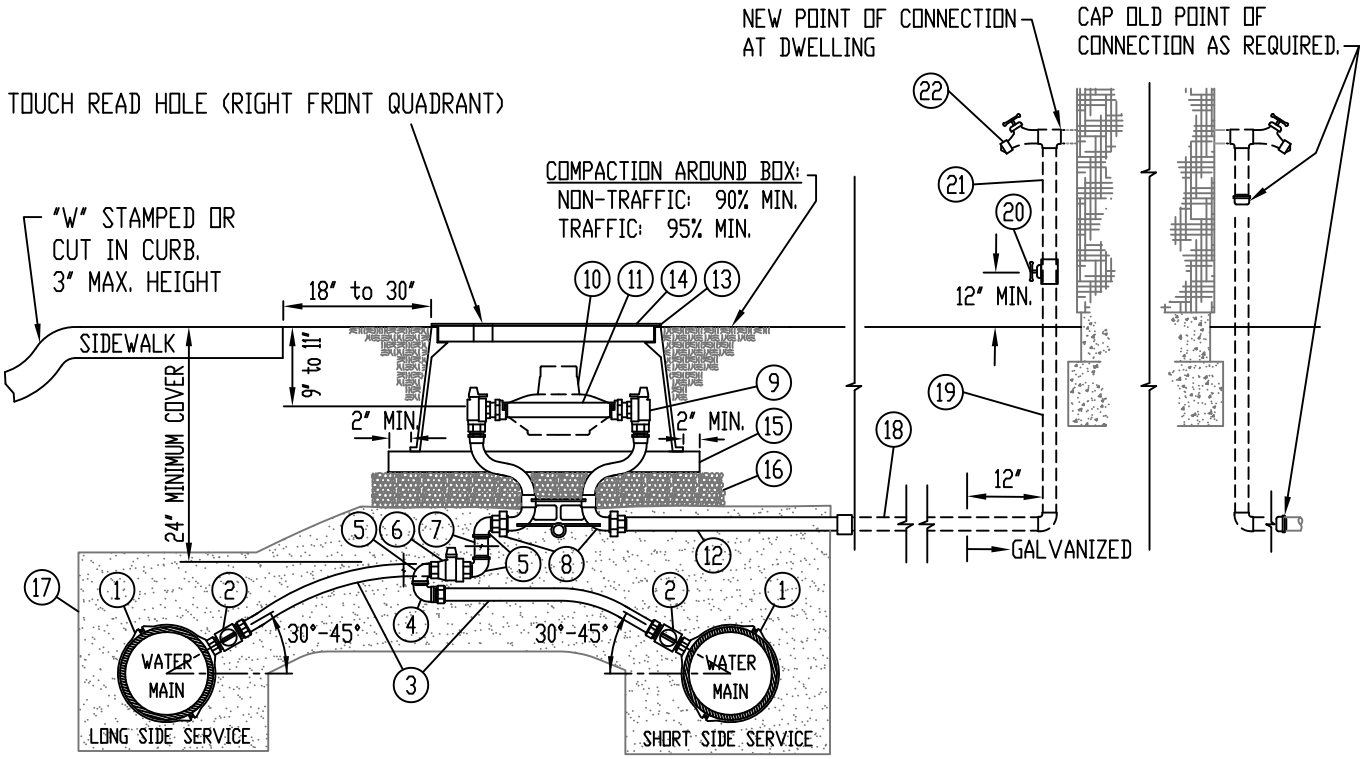

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	11	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	12	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
3	1" COPPER TUBING - TYPE K SOFT		NON-TRAFFIC AREAS / TRAFFIC AREAS
4	1" BRASS STREET ELBOW - CTS COMP x MIP	13	METER BOX: CARSON 1220-12 / CHRISTY FL30TBOX12
5	1" BRASS STREET ELBOW	14	LID: CARSON 1220-4B / CHRISTY FL30P
6	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	15	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
7	1" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	16	3/4" CLEAN CRUSHED ROCK
		17	#2 WASHED SAND COMPACTED TO 90%
8	1" DUAL PURPOSE CONNECTION	18	1 1/4" PVC SCH 40 w/ SCH 80 FITTINGS
9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	19	1 1/4" GALVANIZED PIPE
		20	1 1/4" GATE VALVE
		21	GALVANIZED PIPE AND FITTINGS - SIZE TO MATCH EXISTING
10	1" WATER METER (BY DISTRICT)	22	HOSE BIB - SIZE TO MATCH EXISTING

CITRUS HEIGHTS WATER DISTRICT

1" COPPER WATER SERVICE - 1" WATER METER INCLUDING SERVICE LINE TO DWELLING

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri
CITRUS HEIGHTS WATER DISTRICT
DATE: APRIL 15, 2021

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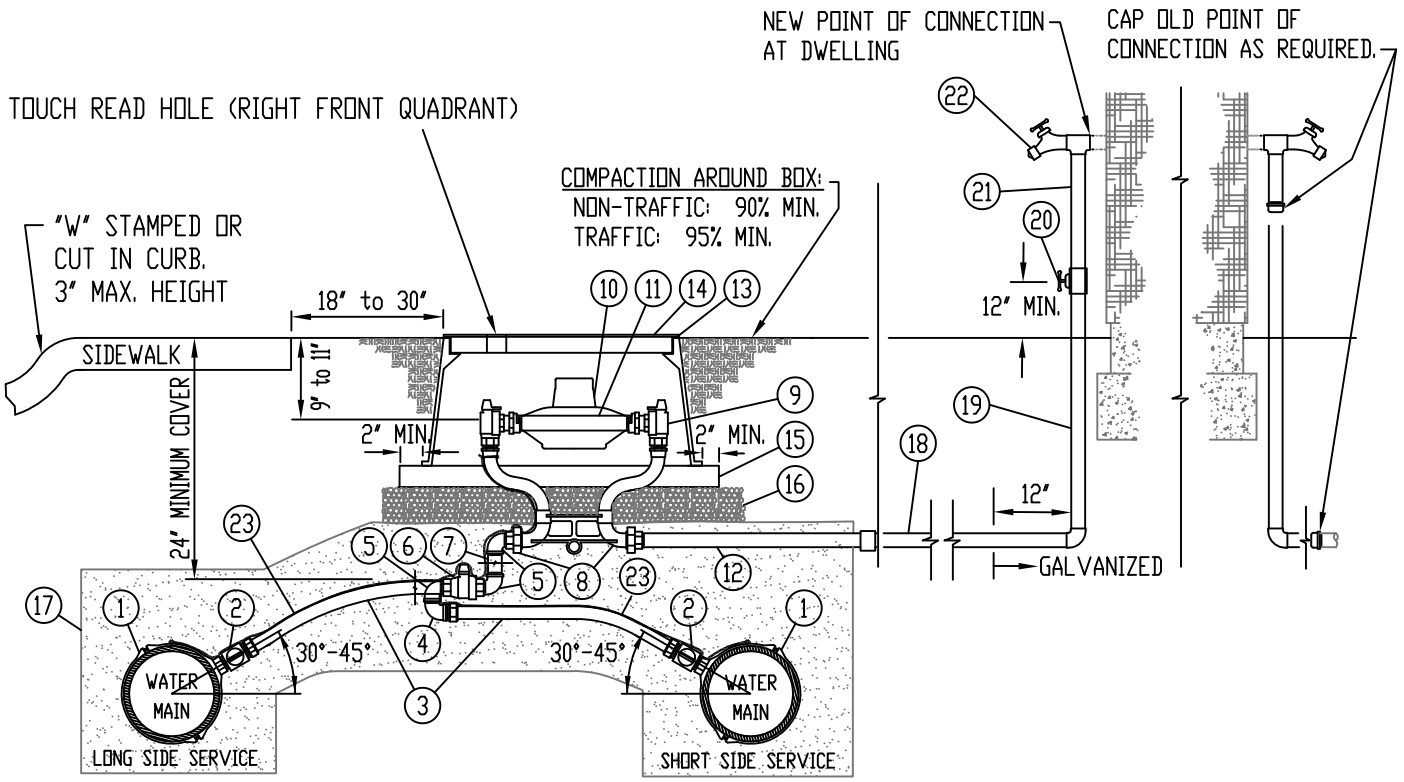

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	10	1" WATER METER (BY DISTRICT)		
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	11	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)		
		12	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
3	1" POLYETHELENE TUBING - CTS ENDOPORE PE-4710 SDDR 9 (250 PSI) OR EQUAL			NON-TRAFFIC AREAS	TRAFFIC AREAS
		13	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
4	1" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	14	LID	CARSON 1220-4B	CHRISTY FL30P
		15	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
5	1" BRASS STREET ELBOW	16	3/4" CLEAN CRUSHED ROCK		
6	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	17	#2 WASHED SAND COMPACTED TO 90%		
		18	1 1/4" PVC SCH 40 w/ SCH 80 FITTINGS		
7	1" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	19	1 1/4" GALVANIZED PIPE		
		20	1 1/4" GATE VALVE		
8	1" DUAL PURPOSE CONNECTION	21	GALVANIZED PIPE AND FITTINGS - SIZE TO MATCH EXISTING		
9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	22	HOSE BIB - SIZE TO MATCH EXISTING		
		23	#10 INSULATED COPPER LOCATING WIRE		

CITRUS HEIGHTS WATER DISTRICT

1" POLYETHYLENE WATER SERVICE - 1" WATER METER INCLUDING SERVICE LINE TO DWELLING

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Pieri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

DRAWN: 25 SEP 2014
REVISED: 15 APR 2021
SCALE: N.T.S.
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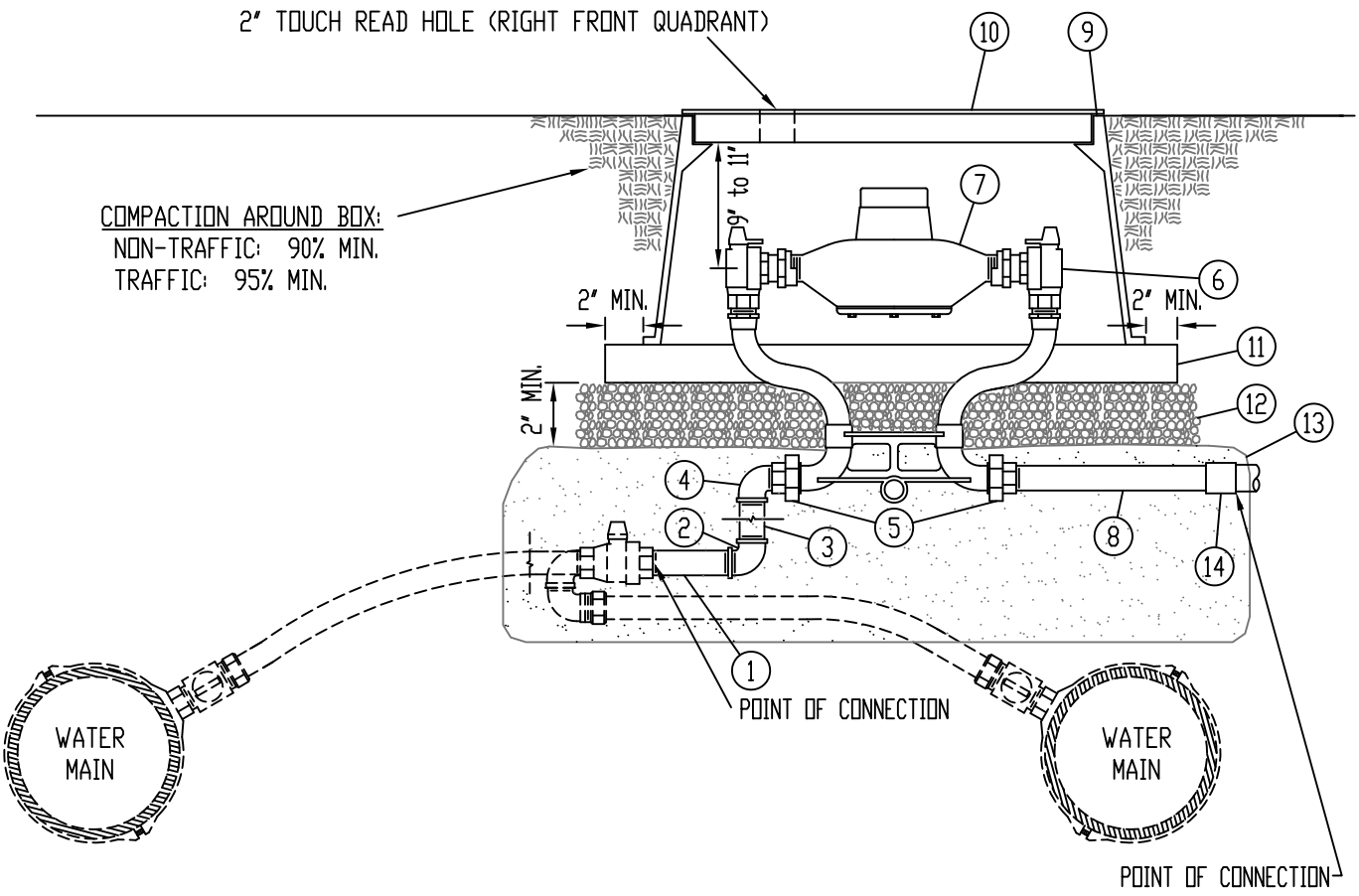

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" x 3" BRASS OR COPPER NIPPLE	7	1" WATER METER (BY DISTRICT)		
2	1" BRASS ELBOW	8	1" x 18" PVC NIPPLE - SCH 80		
3	1" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)			NON-TRAFFIC AREAS	TRAFFIC AREAS
		9	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
4	1" BRASS STREET ELBOW	10	LID	CARSON 1220-4B	CHRISTY FL30P
5	1" DUAL PURPOSE CONNECTION	11	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
6	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	12	3/4" CLEAN CRUSHED ROCK		
		13	#2 WASHED SAND COMPACTED TO 90%		
		14	1" PVC COUPLING - SCH 80		

CITRUS HEIGHTS WATER DISTRICT

1" WATER SERVICE - 1" WATER METER RETROFIT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

DRAWN: 8 MAY 2013
REVISED: 15 APR 2021
SCALE: N.T.S.
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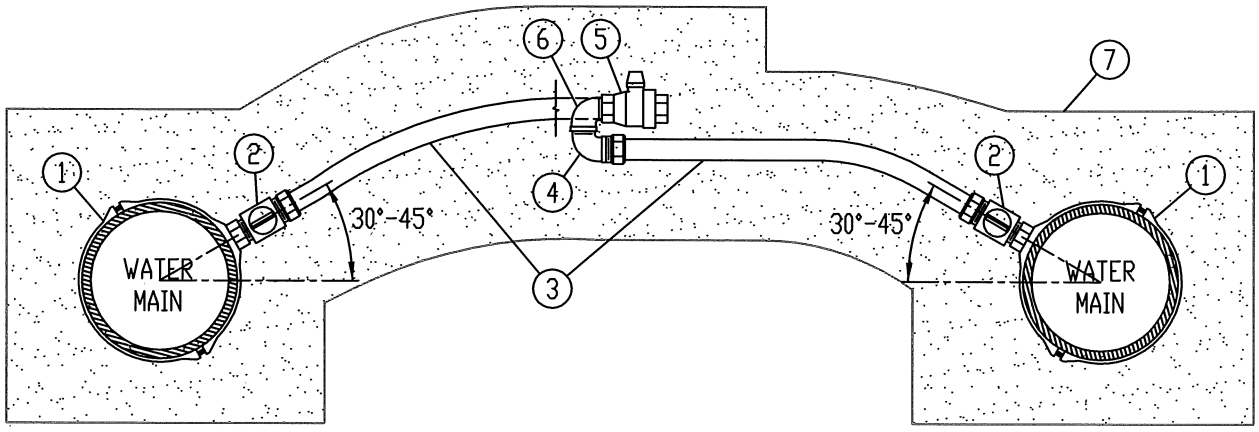

1	1" BRONZE SADDLE - IPT	5	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	6	1" BRASS STREET ELBOW
3	1" COPPER TUBING - TYPE K SOFT	7	#2 WASHED SAND COMPACTED TO 90%
4	1" BRASS STREET ELBOW - CTS COMP x MIP		

CITRUS HEIGHTS WATER DISTRICT

1" COPPER WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 25 SEP 2014
REVISED:
SCALE: N.T.S.
DESIGN: P.A.D.
CAD FILE: WS_108CU.DWG
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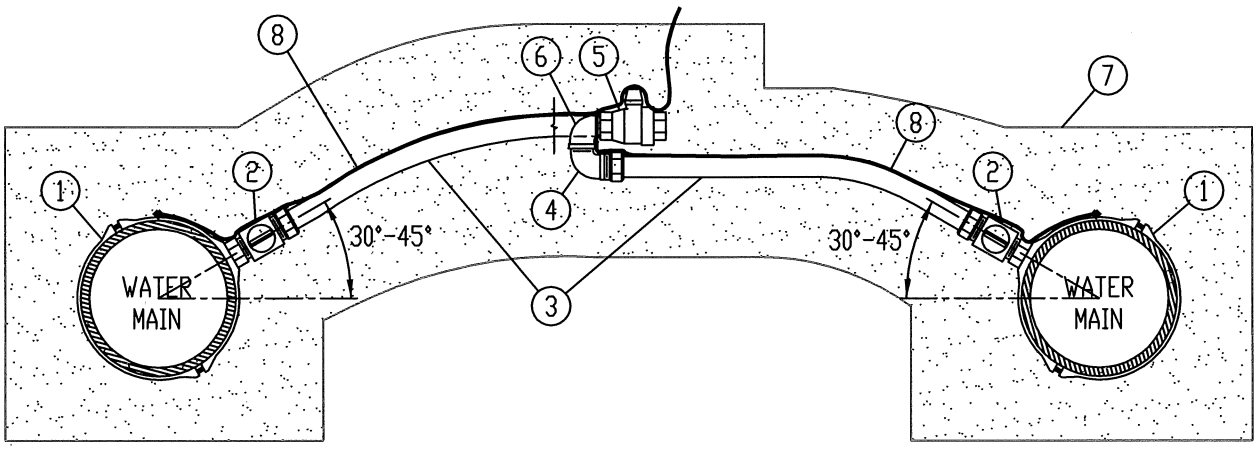

1	1" BRONZE SADDLE - IPT	5	1" VALVE - FULL-PORT BALL, FIP x FIP or CTS x FIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	6	1" BRASS STREET ELBOW
3	1" POLYETHYLENE TUBING - CTS ENDOPORE PE-4710 SDDR 9 (250 PSI) OR EQUAL	7	#2 WASHED SAND COMPACTED TO 90%
4	1" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	8	#10 INSULATED COPPER LOCATOR WIRE (INSTALL INTO EXISTING METER BOX)

CITRUS HEIGHTS WATER DISTRICT

1" POLYETHYLENE WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert a. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 25 SEP 2014
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SCALE: N.T.S.
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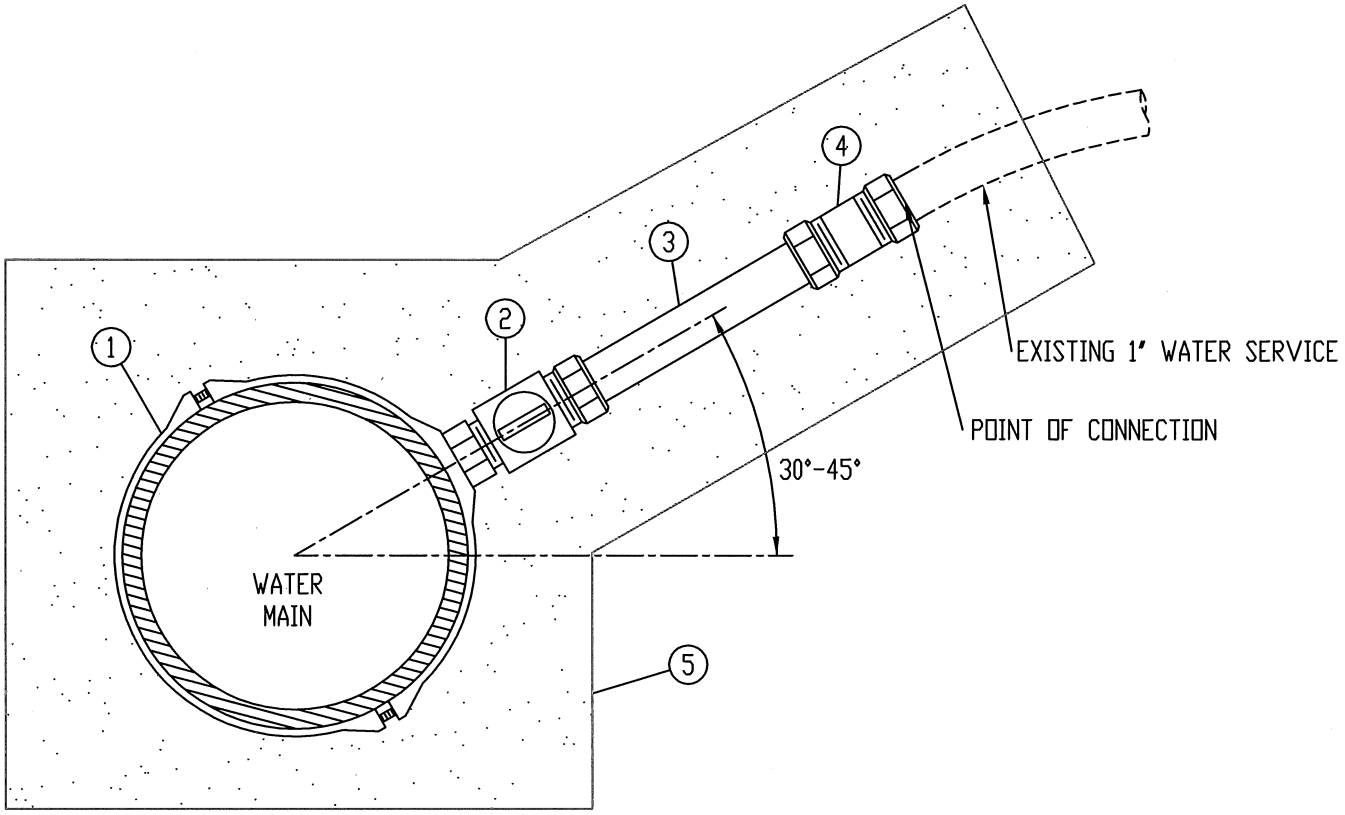

1	1" BRONZE SADDLE - IPT	4	1" BRASS COUPLING AS REQUIRED TO CONNECT TO EXISTING 1" WATER SERVICE
2	1" CORPORATION STOP - FULL-PORT BALL, MIP xCTS COMP		
3	1" COPPER TUBING - TYPE K SOFT	5	#2 WASHED SAND COMPACTED TO 90%

CITRUS HEIGHTS WATER DISTRICT

1" COPPER WATER SERVICE SADDLE REPLACEMENT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 25 SEP 2014
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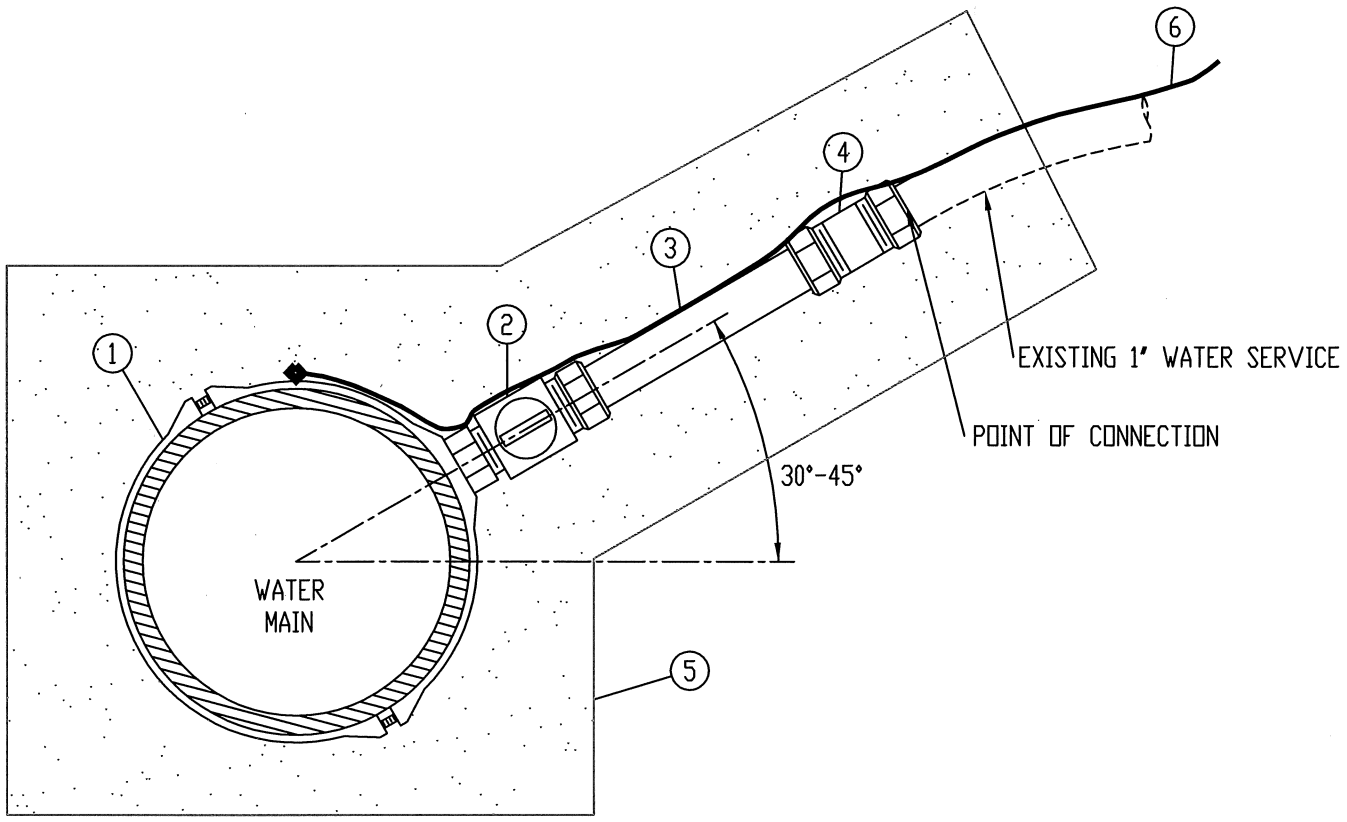

1	1" BRONZE SADDLE - IPT	4	1" BRASS COUPLING AS REQUIRED TO CONNECT TO EXISTING 1" WATER SERVICE w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)
2	1" CORPORATION STOP - FULL-PORT BALL, MIP xCTS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	5	#2 WASHED SAND COMPACTED TO 90%
3	1" POLYETHELENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	6	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

1" POLYETHYLENE WATER SERVICE SADDLE REPLACEMENT

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 25 SEP 2014

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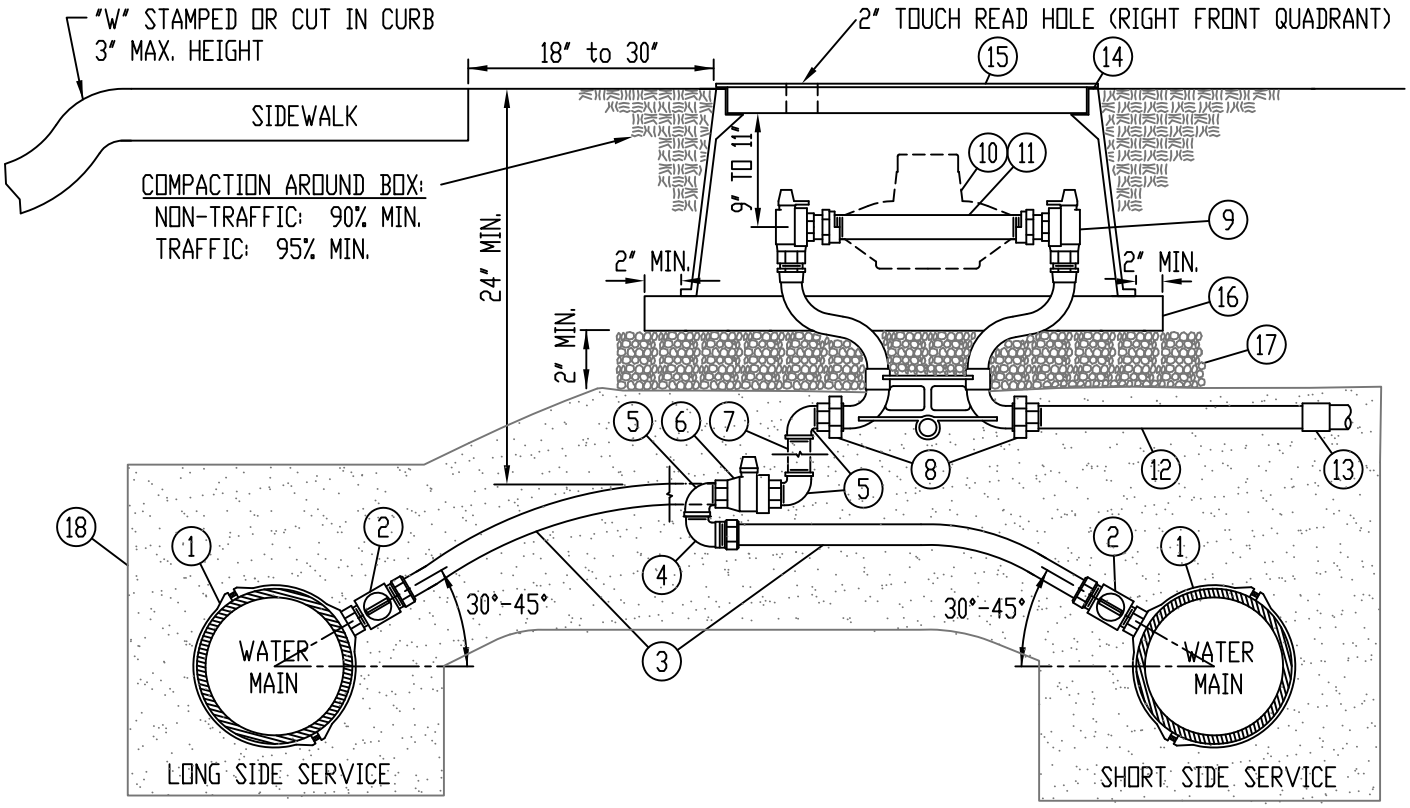

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	10	1" WATER METER (BY DISTRICT)		
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x IPS COMP	11	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)		
3	1 1/4" COPPER TUBING - TYPE K SOFT	12	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
4	1" BRASS STREET ELBOW - IPS COMP x MIP	13	1" PVC COUPLING - SCH80		
5	1" BRASS STREET ELBOW			NON-TRAFFIC AREAS	TRAFFIC AREAS
6	1" VALVE - FULL-PORT BALL, FIP x FIP or IPS COMP x FIP	14	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
7	1" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	15	LID	CARSON 1220-4B	CHRISTY FL30P
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
8	1" DUAL PURPOSE CONNECTION	17	3/4" CLEAN CRUSHED ROCK		
9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET	18	#2 WASHED SAND COMPACTED TO 90%		

CITRUS HEIGHTS WATER DISTRICT

1 1/4" COPPER WATER SERVICE - 1" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Pieri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

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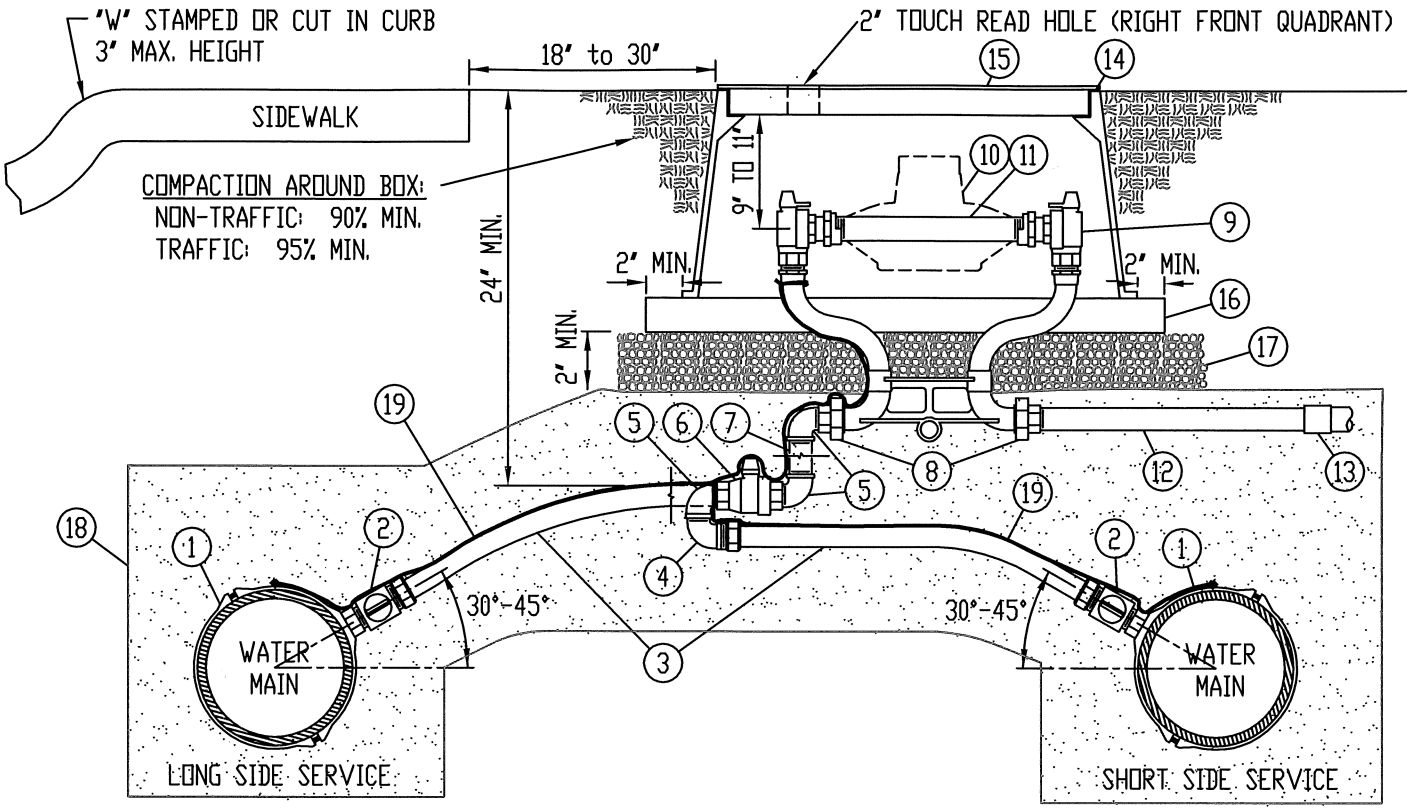

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL30T RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1" BRONZE SADDLE - IPT	9	1" COPPER/BRASS METER YOKE - 12" HEIGHT w/2 FULL PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET		
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x IPS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	10	1" WATER METER (BY DISTRICT)		
3	1 1/4" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	11	PVC METER IDLER - 1 1/4" x 10 3/4", SCH 80 (BY CONTRACTOR)		
		12	1" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
4	1" BRASS STREET ELBOW - IPS COMP x MIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	13	1" PVC COUPLING - SCH80		
				NON-TRAFFIC AREAS	TRAFFIC AREAS
5	1" BRASS STREET ELBOW	14	METER BOX	CARSON 1220-12	CHRISTY FL30TBOX12
6	1" VALVE - FULL-PORT BALL, FIP x FIP or IPS COMP x FIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	15	LID	CARSON 1220-4B	CHRISTY FL30T
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
7	1" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	17	3/4" CLEAN CRUSHED ROCK		
		18	#2 WASHED SAND COMPACTED TO 90%		
8	1" DUAL PURPOSE CONNECTION	19	#10 INSULATED COPPER LOCATOR WIRE		

CITRUS HEIGHTS WATER DISTRICT

1 1/4" POLYETHYLENE WATER SERVICE - 1" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill
CITRUS HEIGHTS WATER DISTRICT
DATE: 9/25/14

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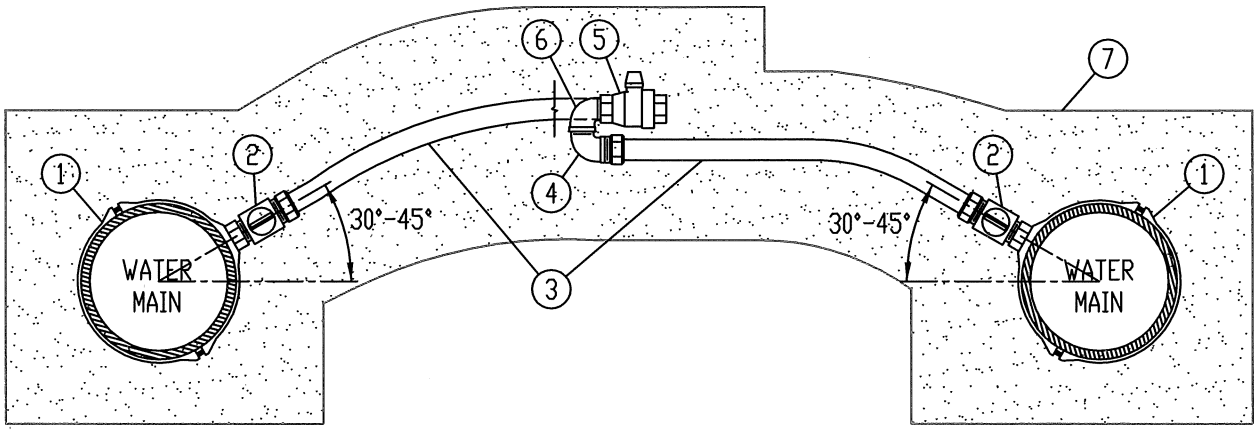

1	1" BRONZE SADDLE - IPT	5	1" VALVE - FULL-PORT BALL, FIP x FIP or IPS COMP x FIP
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x IPS COMP	6	1" BRASS STREET ELBOW
3	1 1/4" COPPER TUBING - TYPE K SOFT	7	#2 WASHED SAND COMPACTED TO 90%
4	1" BRASS STREET ELBOW - IPS COMP x MIP		

CITRUS HEIGHTS WATER DISTRICT

1 1/4" COPPER WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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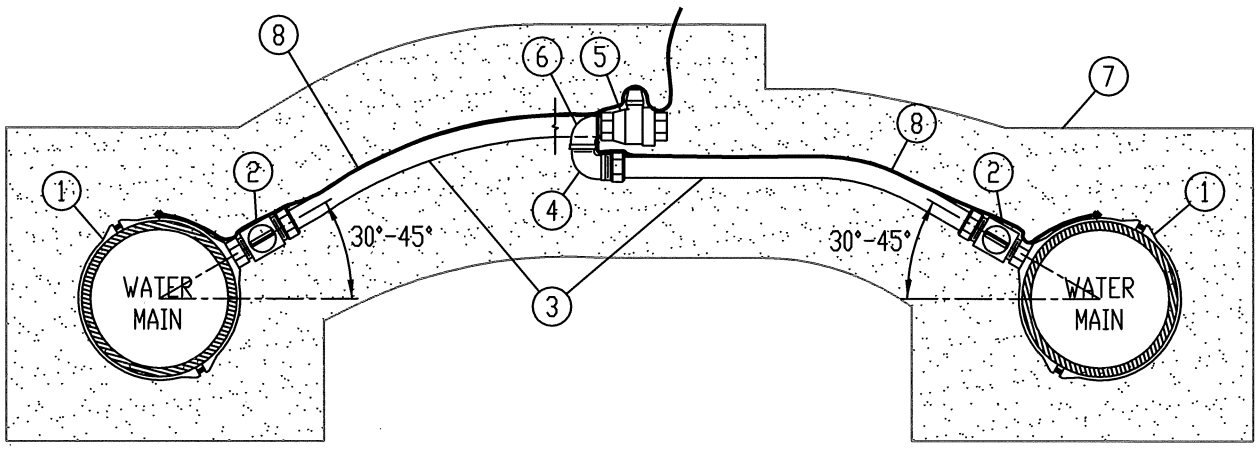

1	1" BRONZE SADDLE - IPT	5	1" VALVE - FULL-PORT BALL, FIP x FIP or IPS COMP x FIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)
2	1" CORPORATION STOP - FULL-PORT BALL, MIP x IPS COMP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	6	1" BRASS STREET ELBOW
3	1 1/4" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	7	#2 WASHED SAND COMPACTED TO 90%
4	1" BRASS STREET ELBOW - IPS COMP x MIP w/ STAINLESS STEEL INSERT (1" CTS INSERT-52)	8	#10 INSULATED COPPER LOCATOR WIRE (INSTALL INTO EXISTING METER BOX)

CITRUS HEIGHTS WATER DISTRICT

1 1/4" POLYETHYLENE WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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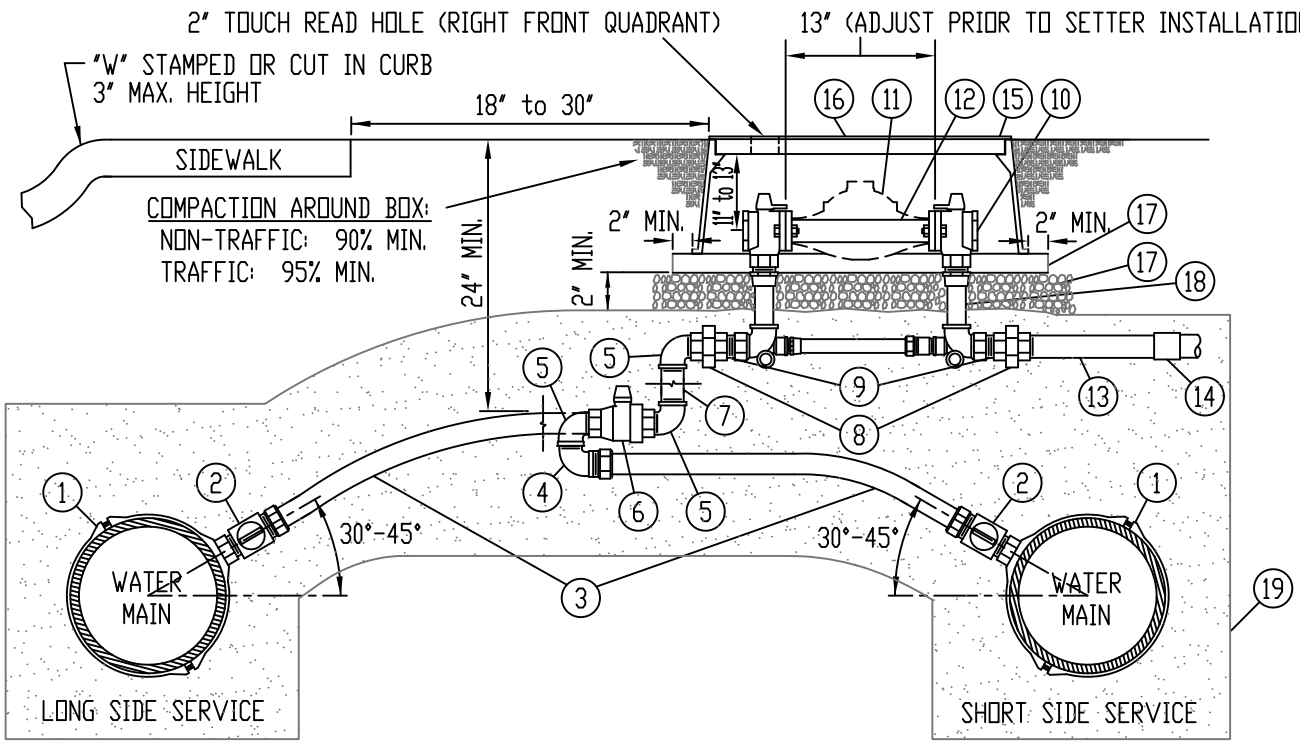

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL36P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1 1/2" BRONZE SADDLE - IPT	11	1 1/2" WATER METER (BY DISTRICT)		
2	1 1/2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	12	1 1/2" METER FLANGES AND IDLER (BY CONTRACTOR)		
3	1 1/2" COPPER TUBING - TYPE K SOFT	13	1 1/2" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
4	1 1/2" BRASS STREET ELBOW - CTS COMP x MIP	14	1 1/2" PVC COUPLING - SCH 80		
5	1 1/2" BRASS STREET ELBOW			NON-TRAFFIC AREAS	TRAFFIC AREAS
6	1 1/2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	15	METER BOX	CARSON 1730-15	CHRISTY FL36TBOX12
7	1 1/2" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	16	LID	CARSON 1730-4B	CHRISTY FL36P
		17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
8	1 1/2" BRASS UNION	18	3/4" CLEAN CRUSHED ROCK		
9	1 1/2" x CLOSE BRASS NIPPLE	19	#2 WASHED SAND COMPACTED TO 90%		
10	1 1/2" COPPER/BRASS METER YOKE - 12" w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET				

CITRUS HEIGHTS WATER DISTRICT

1 1/2" COPPER WATER SERVICE - 1 1/2" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

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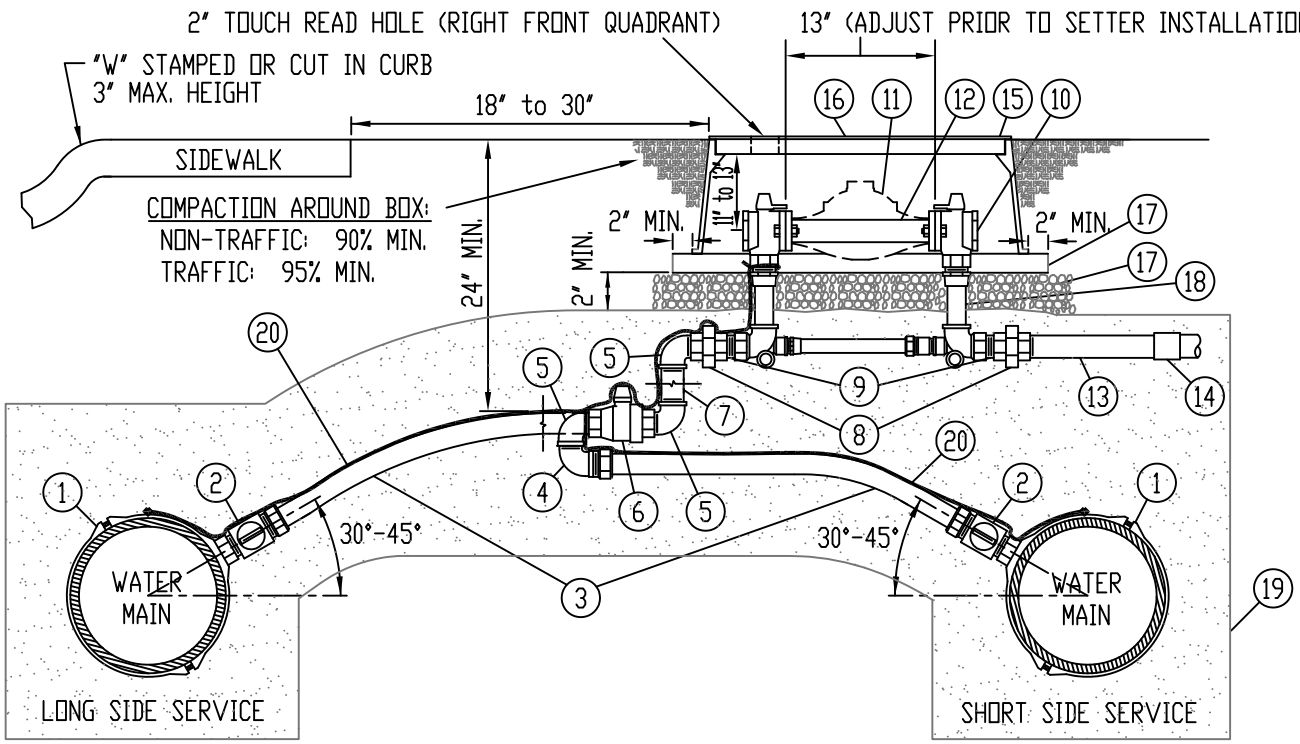

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL36P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	1 1/2" BRONZE SADDLE - IPT	10	1 1/2" COPPER/BRASS METER YOKE - 12" w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET
2	1 1/2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (1 1/2" CTS INSERT-54-Q)		
3	1 1/2" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	11	1 1/2" WATER METER (BY DISTRICT)
		12	1 1/2" METER FLANGES AND IDLER (BY CONTRACTOR)
4	1 1/2" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (1 1/2" CTS INSERT-54-Q)	13	1 1/2" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
		14	1 1/2" PVC COUPLING - SCH 80
5	1 1/2" BRASS STREET ELBOW		NON-TRAFFIC AREAS / TRAFFIC AREAS
6	1 1/2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (1 1/2" CTS INSERT-54-Q)	15	METER BOX: CARSON 1730-15 / CHRISTY FL36TBOX12
		16	LID: CARSON 1730-4B / CHRISTY FL36P
7	1 1/2" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
		18	3/4" CLEAN CRUSHED ROCK
8	1 1/2" BRASS UNION	19	#2 WASHED SAND COMPACTED TO 90%
9	1 1/2" x CLOSE BRASS NIPPLE	20	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

1 1/2" POLYETHYLENE WATER SERVICE - 1 1/2" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri
CITRUS HEIGHTS WATER DISTRICT

DATE: APRIL 15, 2021

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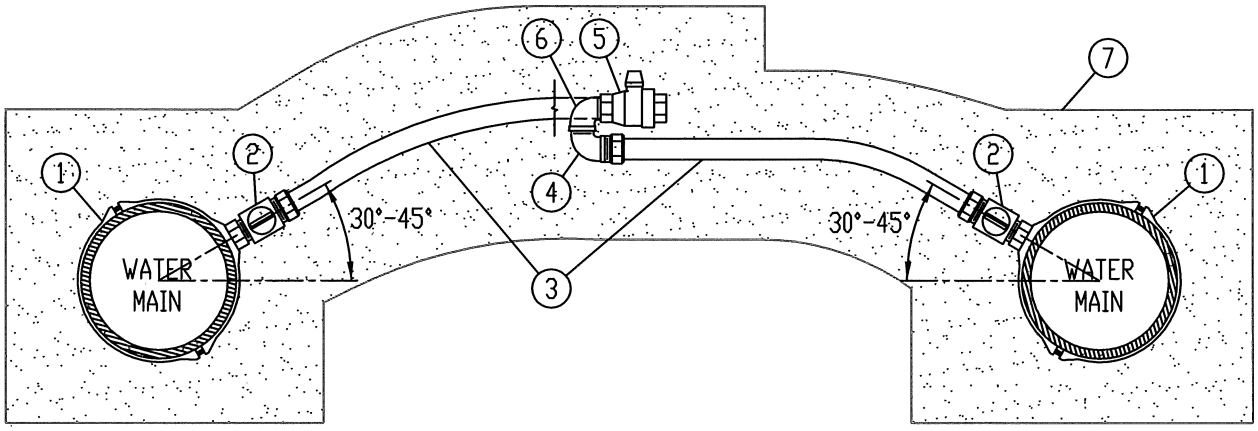

1	1 1/2" BRONZE SADDLE - IPT	5	1 1/2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP
2	1 1/2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	6	1 1/2" BRASS STREET ELBOW
3	1 1/2" COPPER TUBING - TYPE K SOFT	7	#2 WASHED SAND COMPACTED TO 90%
4	1 1/2" BRASS STREET ELBOW - CTS COMP x MIP		

CITRUS HEIGHTS WATER DISTRICT

1 1/2" COPPER WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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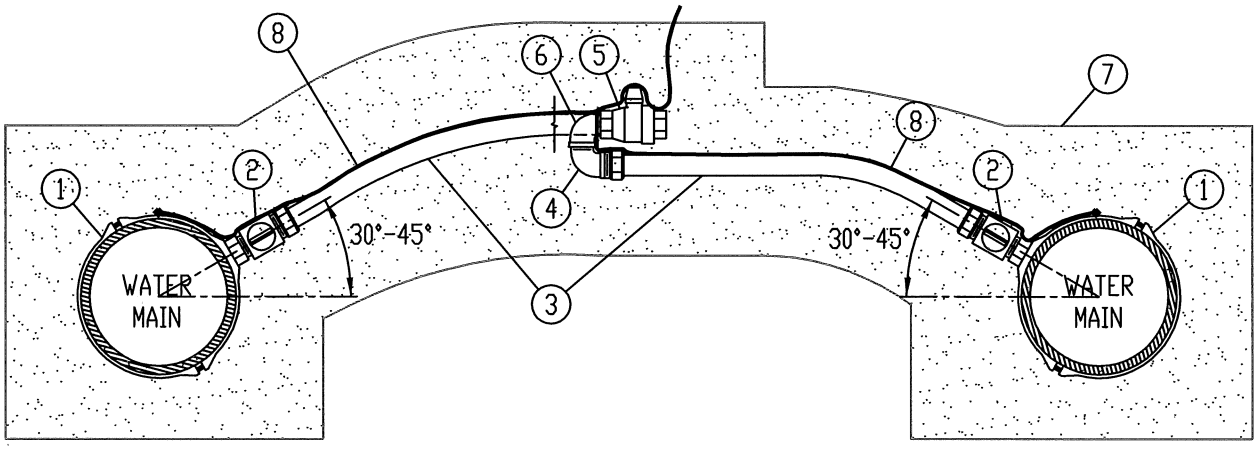

1	1 1/2" BRONZE SADDLE - IPT	5	1 1/2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (1 1/2" CTS INSERT-54-Q)
2	1 1/2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (1 1/2" CTS INSERT-54-Q)	6	1 1/2" BRASS STREET ELBOW
3	1 1/2" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	7	#2 WASHED SAND COMPACTED TO 90%
4	1 1/2" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (1 1/2" CTS INSERT-54-Q)	8	#10 INSULATED COPPER LOCATOR WIRE (INSTALL INTO EXISTING METER BOX)

CITRUS HEIGHTS WATER DISTRICT

1 1/2" POLYETHYLENE WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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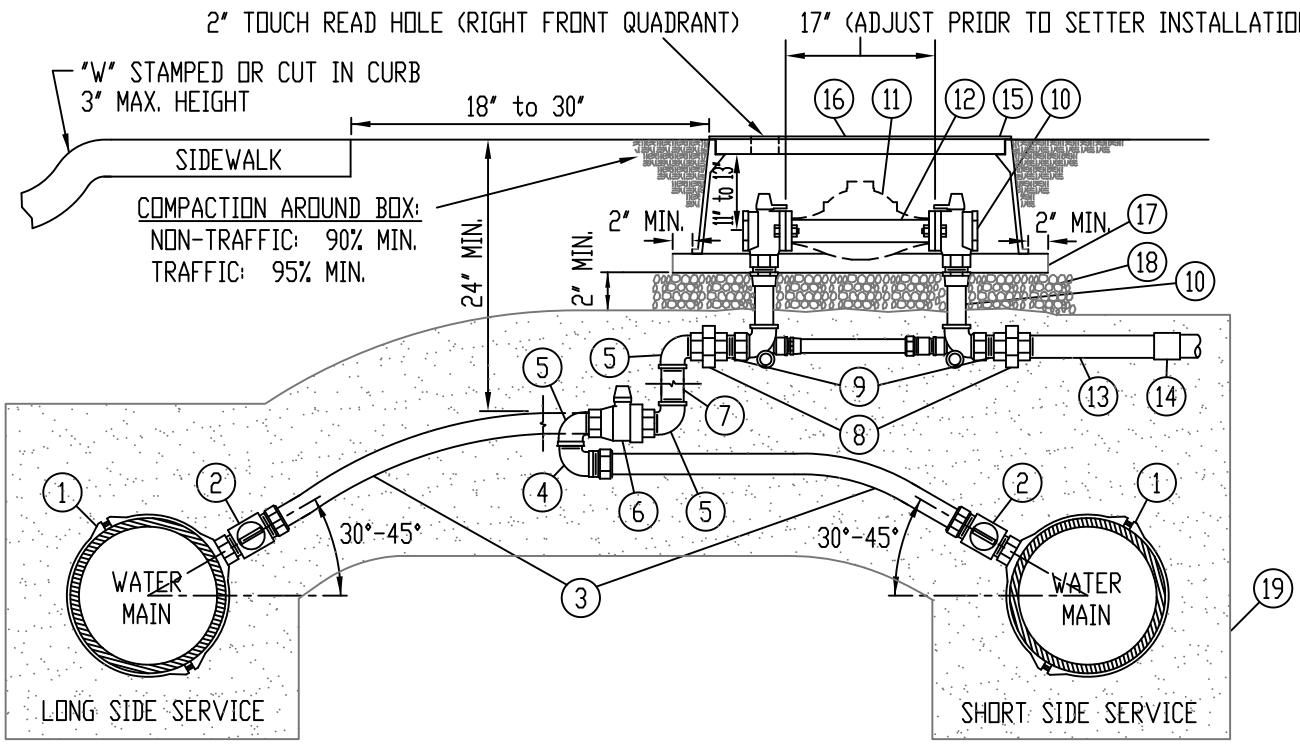

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL36P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	2" BRONZE SADDLE - IPT	11	2" WATER METER (BY DISTRICT)		
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	12	2" METER FLANGES AND IDLER (BY CONTRACTOR)		
3	2" COPPER TUBING - TYPE K SOFT	13	2" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)		
4	2" BRASS STREET ELBOW - CTS COMP x MIP	14	2" PVC COUPLING - SCH 80		
5	2" BRASS STREET ELBOW			NON-TRAFFIC AREAS	TRAFFIC AREAS
6	2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	15	METER BOX	CARSON 1730-15	CHRISTY FL36TBOX12
7	2" BRASS or COPPER (AS NECESSARY TO ADJUST TO PROPER GRADE)	16	LID	CARSON 1730-4B	CHRISTY FL36P
		17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
8	2" BRASS UNION	18	3/4" CLEAN CRUSHED ROCK		
9	2" x CLOSE BRASS NIPPLE	19	#2 WASHED SAND COMPACTED TO 90%		
10	2" COPPER/BRASS METER YOKE - 12" w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET				

CITRUS HEIGHTS WATER DISTRICT

2" COPPER WATER SERVICE - 2" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri DATE: APRIL 15, 2021

CITRUS HEIGHTS WATER DISTRICT

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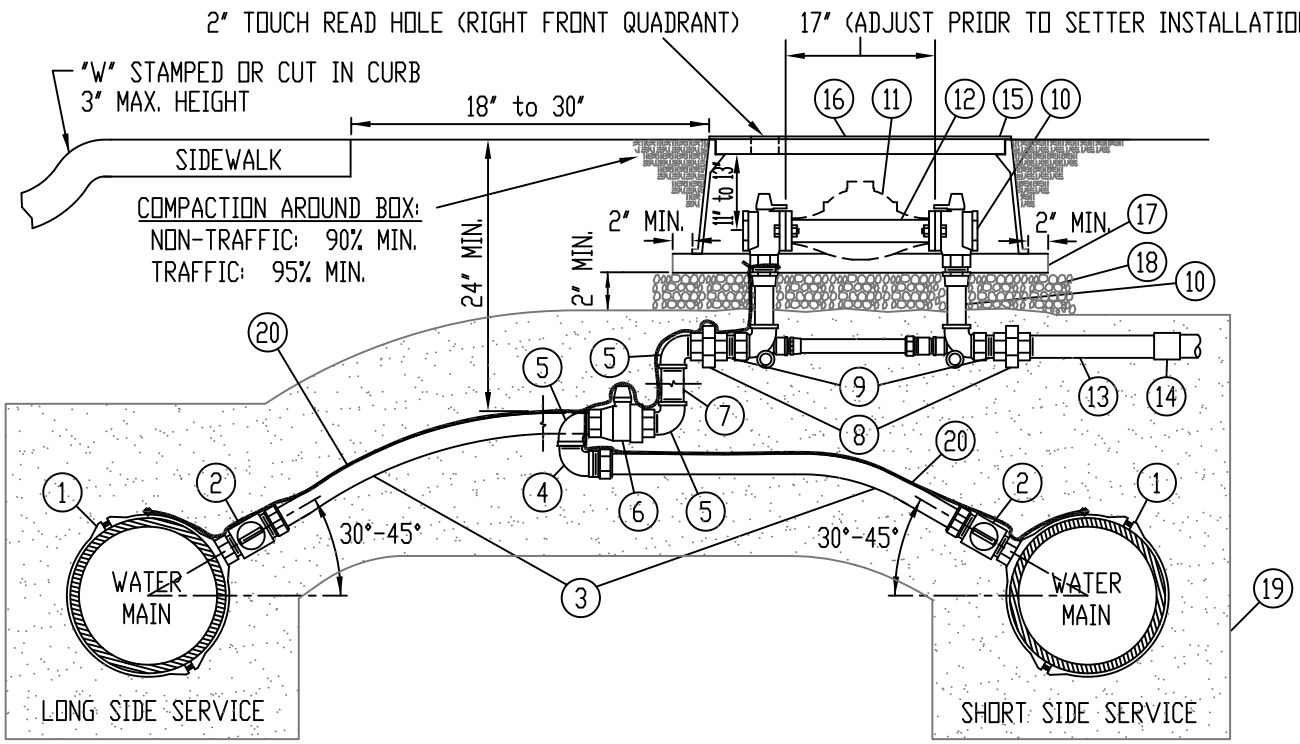

CARSON 1220-4B "T" TYPE LID:
SHALL INCLUDE STRAIGHT TYPE HEXAGON LOCK-DOWN BOLT (1) AND TOUCH READ HOLE. SHALL BE MARKED "WATER"

CHRISTY FL36P RECESSED LID:
SHALL INCLUDE STRAIGHT TYPE PENTAHEAD LOCK-DOWN BOLTS (2) AND NEPTUNE OFFSET AMR HOLE, SHALL BE MARKED "WATER"

METER YOKE:
FORD, JONES, MUELLER, McDONALD

1	2" BRONZE SADDLE - IPT	10	2" COPPER/BRASS METER YOKE - 12" w/2 FULL-PORT ANGLE BALL VALVES INCLUDING PADLOCK WINGS ON INLET AND OUTLET
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)		
3	2" POLYETHYLENE TUBING - CTS ENDOPORE PE-4710 SDDR 9 (250 PSI) OR EQUAL	11	2" WATER METER (BY DISTRICT)
		12	2" METER FLANGES AND IDLER (BY CONTRACTOR)
4	2" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)	13	2" x 18" PVC NIPPLE - SCH 80 (BRASS IF BACKFLOW)
		14	2" PVC COUPLING - SCH 80
5	2" BRASS STREET ELBOW		NON-TRAFFIC AREAS / TRAFFIC AREAS
6	2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)	15	METER BOX: CARSON 1730-15 / CHRISTY FL36TBOX12
		16	LID: CARSON 1730-4B / CHRISTY FL36P
7	2" BRASS NIPPLE (AS NECESSARY TO ADJUST TO PROPER GRADE)	17	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)
		18	3/4" CLEAN CRUSHED ROCK
8	2" BRASS UNION	19	#2 WASHED SAND COMPACTED TO 90%
9	2" x CLOSE BRASS NIPPLE	20	#10 INSULATED COPPER LOCATOR WIRE

CITRUS HEIGHTS WATER DISTRICT

2" POLYETHYLENE WATER SERVICE - 2" WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Melissa Rieri
CITRUS HEIGHTS WATER DISTRICT
DATE: APRIL 15, 2021

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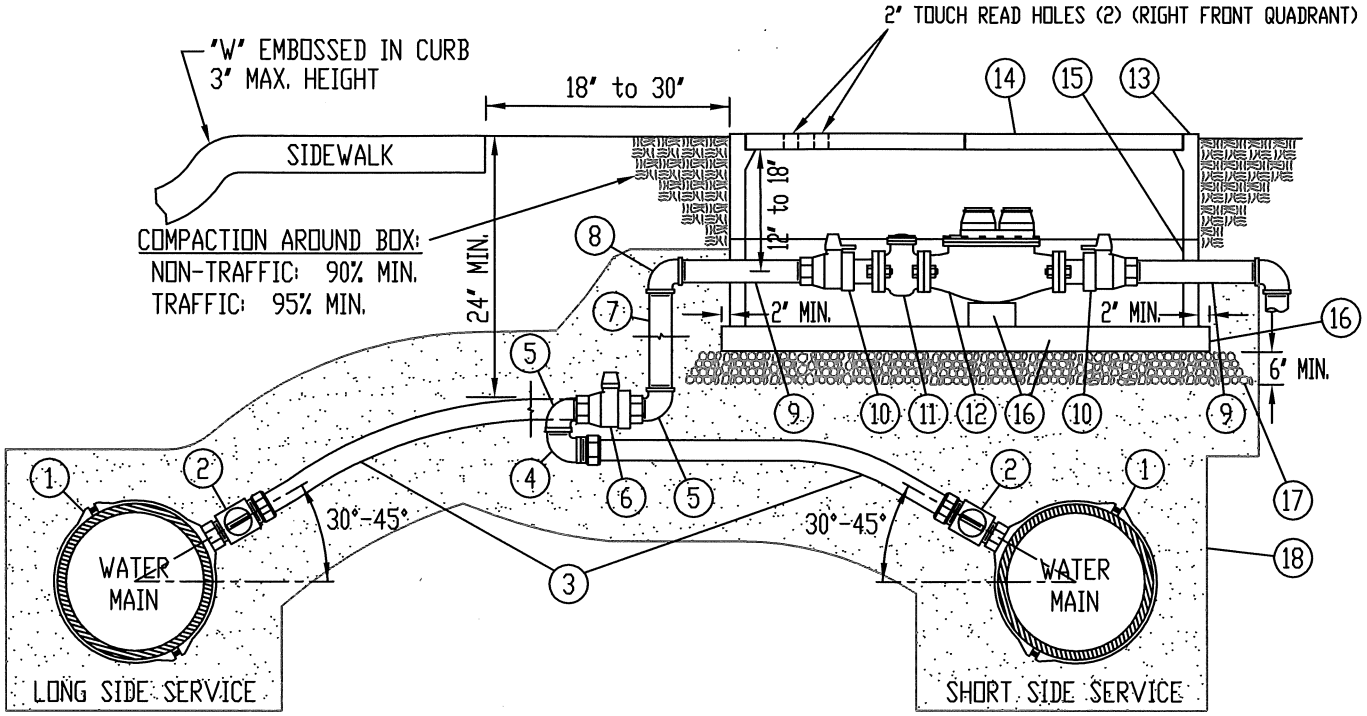

NOTES:

1. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER BOX SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
2. LID SHALL BE MARKED "WATER"

1	2" BRONZE SADDLE - IPT	11	2" STRAINER - NEPTUNE 53107-000 (BY CONTRACTOR)		
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	12	2" COMPOUND WATER METER, NEPTUNE TRU/FLO, 100 cu. ft., (BY CONTRACTOR)		
3	2" COPPER TUBING - TYPE K SOFT				
4	2" BRASS STREET ELBOW - CTS COMP x MIP			NON-TRAFFIC AREAS	TRAFFIC AREAS
5	2" BRASS STREET ELBOW	13	METER BOX	CHRISTY B48BOX	CHRISTY B3048BOX
6	2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP	14	COVER	CHRISTY B48-62J	CHRISTY B3048-63JH
7	2" BRASS (AS NECESSARY TO ADJUST TO PROPER GRADE)	15	BOX EXTENSION	CHRISTY B48x10	CHRISTY B3048X12
8	2" BRASS ELBOW	16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
9	2" x 12" BRASS NIPPLE	17	3/4" CLEAN CRUSHED ROCK		
10	2" BALL VALVE - FIP x METER FLANGE INCLUDING PADLOCK WINGS	18	#2 WASHED SAND COMPACTED TO 90%		

CITRUS HEIGHTS WATER DISTRICT

2" COPPER WATER SERVICE - 2" COMPOUND WATER METER
NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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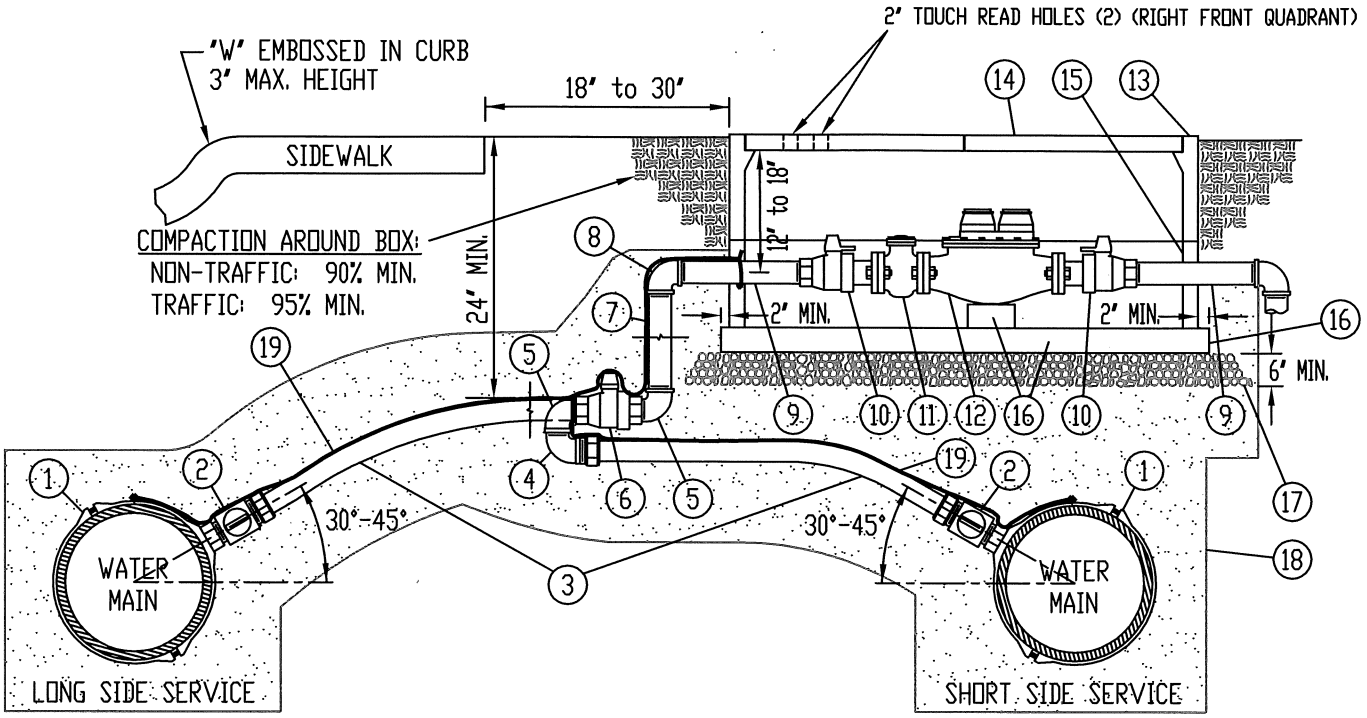

NOTES:

1. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER BOX SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
2. LID SHALL BE MARKED "WATER"

1	2" BRONZE SADDLE - IPT	10	2" BALL VALVE - FIP x METER FLANGE INCLUDING PADLOCK WINGS		
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)	11	2" STRAINER - NEPTUNE 53107-000 (BY CONTRACTOR)		
3	2" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	12	2" COMPOUND WATER METER, NEPTUNE TRU/FLO, 100 cu. ft., (BY CONTRACTOR)		
4	2" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)			NON-TRAFFIC AREAS	TRAFFIC AREAS
5	2" BRASS STREET ELBOW	13	METER BOX	CHRISTY B48BOX	CHRISTY B3048BOX
6	2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)	14	COVER	CHRISTY B48-62J	CHRISTY B3048-63JH
		15	BOX EXTENSION	CHRISTY B48x10	CHRISTY B3048X12
		16	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
7	2" BRASS (AS NECESSARY TO ADJUST TO PROPER GRADE)	17	3/4" CLEAN CRUSHED ROCK		
8	2" BRASS ELBOW	18	#2 WASHED SAND COMPACTED TO 90%		
9	2" x 12" BRASS NIPPLE	19	#10 INSULATED COPPER LOCATOR WIRE		

CITRUS HEIGHTS WATER DISTRICT

2" POLYETHYLENE WATER SERVICE - 2" COMPOUND WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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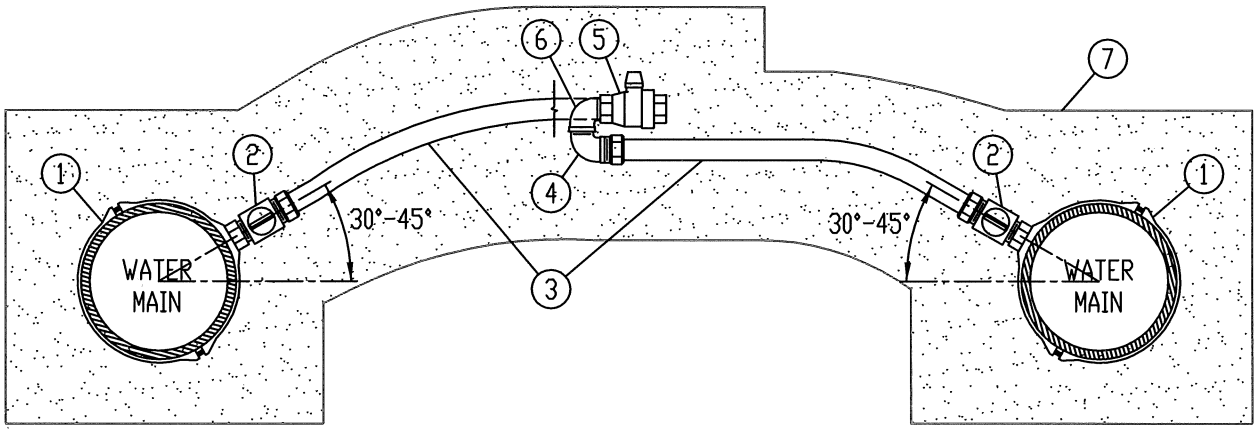

1	2" BRONZE SADDLE - IPT	5	2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP	6	2" BRASS STREET ELBOW
3	2" COPPER TUBING - TYPE K SOFT	7	#2 WASHED SAND COMPACTED TO 90%
4	2" BRASS STREET ELBOW - CTS COMP x MIP		

CITRUS HEIGHTS WATER DISTRICT

2" COPPER WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert a. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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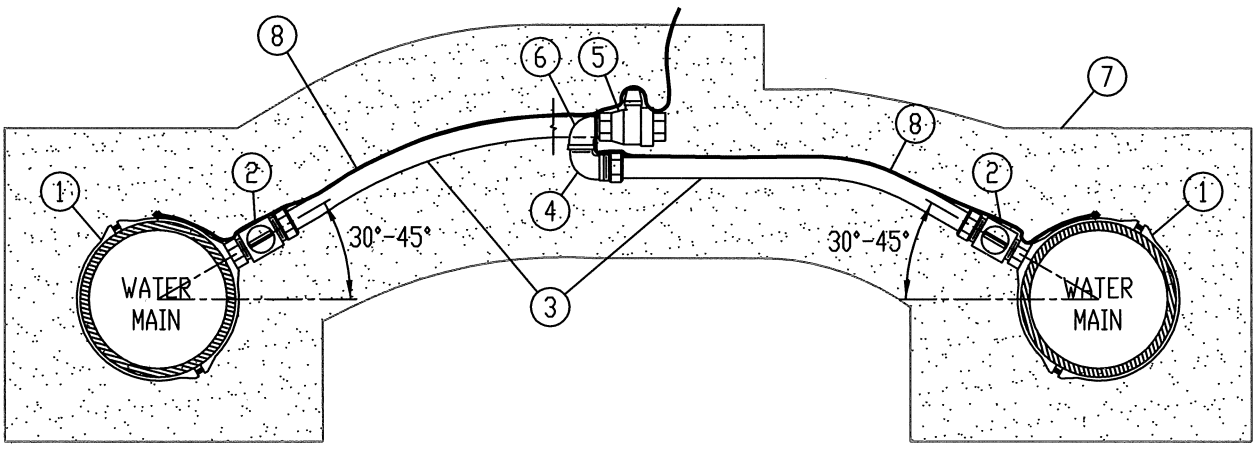

1	2" BRONZE SADDLE - IPT	5	2" VALVE - FULL-PORT BALL, FIP x FIP or CTS COMP x FIP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)
2	2" CORPORATION STOP - FULL-PORT BALL, MIP x CTS COMP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)	6	2" BRASS STREET ELBOW
3	2" POLYETHYLENE TUBING - CTS ENDOPURE PE-4710 SDDR 9 (250 PSI) OR EQUAL	7	#2 WASHED SAND COMPACTED TO 90%
4	2" BRASS STREET ELBOW - CTS COMP x MIP w/ STAINLESS STEEL INSERT (2" CTS INSERT-55-Q)	8	#10 INSULATED COPPER LOCATOR WIRE (INSTALL INTO EXISTING METER BOX)

CITRUS HEIGHTS WATER DISTRICT

2" POLYETHYLENE WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 9/25/14

CITRUS HEIGHTS WATER DISTRICT

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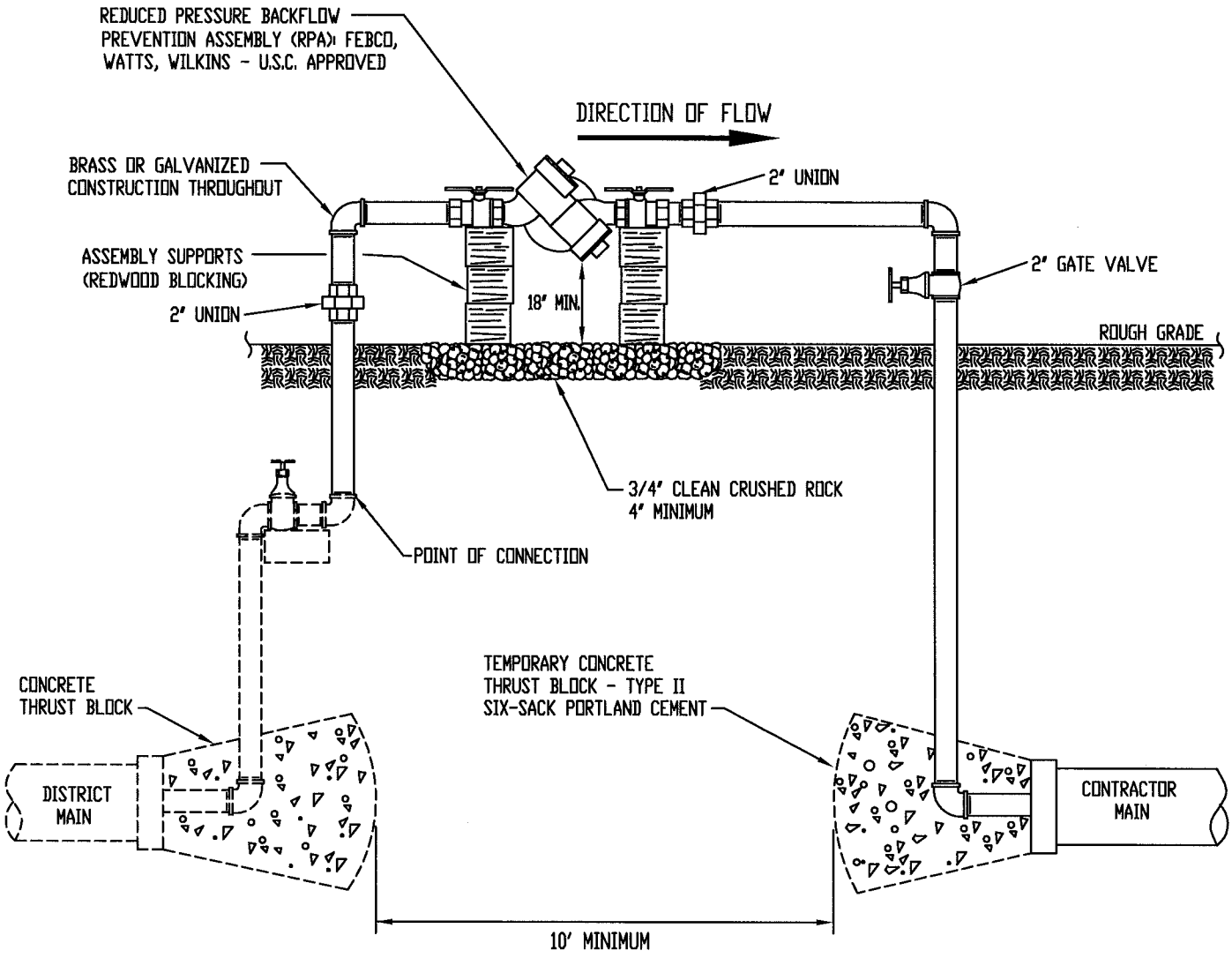

NOTES:

1. WATER SHALL ONLY BE DRAWN INTO THE CONTRACTOR'S MAIN THROUGH A DISTRICT-APPROVED RPA TYPE BACKFLOW PREVENTION ASSEMBLY. PRIOR TO CONNECTION TO THE DISTRICT WATER MAIN, THE ASSEMBLY MUST BE TESTED BY A SACRAMENTO COUNTY CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER AND WRITTEN TEST RESULTS PROVIDED TO THE DISTRICT.
2. FINAL COMPONENTS NECESSARY FOR THE TIE-IN SHALL BE PRE-CHLORINATED AND FLUSHED IN THE PRESENCE OF A DISTRICT INSPECTOR.
3. ABOVE-GROUND CONSTRUCTION WATER SERVICE SHALL BE SAFE-GUARDED WITH BARRICADES.
4. THE CONTRACTOR MAY CONNECT TO A DISTRICT FIRE HYDRANT INSTEAD OF A DISTRICT WATER MAIN AT THE SOLE DISCRETION OF THE INSPECTOR.

CITRUS HEIGHTS WATER DISTRICT

2" CONSTRUCTION WATER SERVICE

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
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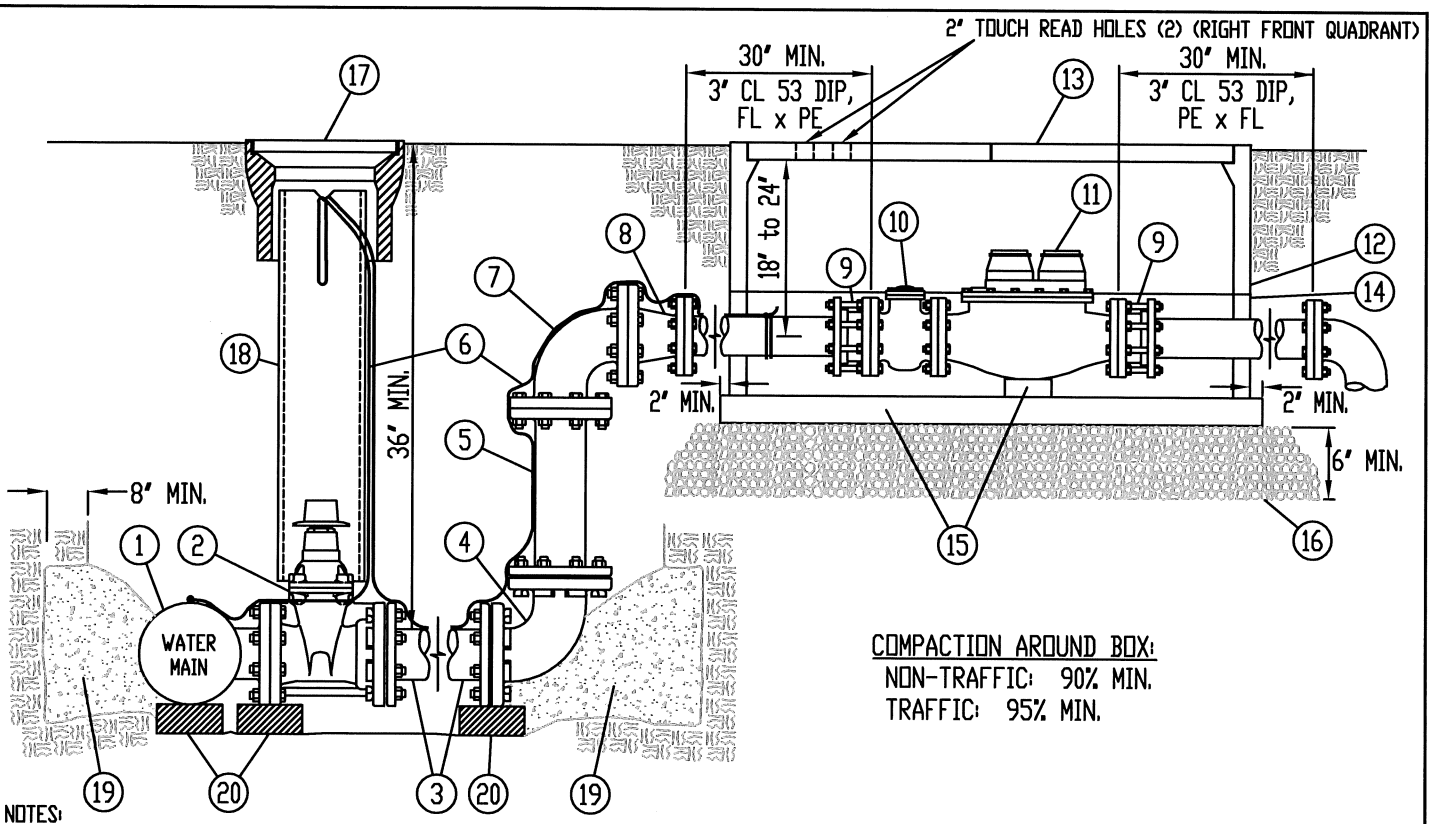

COMPACTION AROUND BOX:
NON-TRAFFIC: 90% MIN.
TRAFFIC: 95% MIN.

NOTES:

1. ALL MECHANICAL JOINT FITTINGS SHALL BE INSTALLED WITH MEGA-LUG RESTRAINT GLANDS.
2. BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
3. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER BOX SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
4. LIDS SHALL BE MARKED "WATER".
5. METER SHALL BE TOUCH READ OR RADIO READ PER CHWD.
6. NO CONNECTIONS BETWEEN GATE VALVE AND WATER METER.

1	TEE W/ 4" FLANGED OUTLET			NON-TRAFFIC AREAS	TRAFFIC AREAS
2	4" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	12	METER BOX	CHRISTY B48BOX	CHRISTY B3048BOX
		13	COVER	CHRISTY B48-62J	CHRISTY B3048-63JH
3	4" DUCTILE IRON PIPE - PC350	14	BOX EXTENSION	CHRISTY B48X10	CHRISTY B3048X12
4	4" 90° ELBOW - MJ x MJ	15	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
5	4" DUCTILE IRON SPOOL - FL x PLAIN END, CL53	16	3/4" CLEAN CRUSHED ROCK		
6	#10 INSULATED COPPER LOCATOR WIRE	17	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID. SEE VB DETAIL VB_810 OR VB_811.		
7	4" 90° ELBOW - FL x FL				
8	4" x 3" REDUCER - FL x FL				
9	3" FLANGED COUPLING ADAPTOR - ROMAC OR EQUAL	18	8" RISER - SDR35 ONLY, CONTINUOUS SECTION		
10	3" STRAINER - NEPTUNE 53107-000 (BY CONTRACTOR)	19	CONCRETE THRUST BLOCK - SEE DETAIL TB_001		
11	3" COMPOUND WATER METER - NEPTUNE TRU/FLO, 100 cu. ft., (BY CONTRACTOR)	20	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"		

CITRUS HEIGHTS WATER DISTRICT

3" WATER SERVICE - 3" COMPOUND WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

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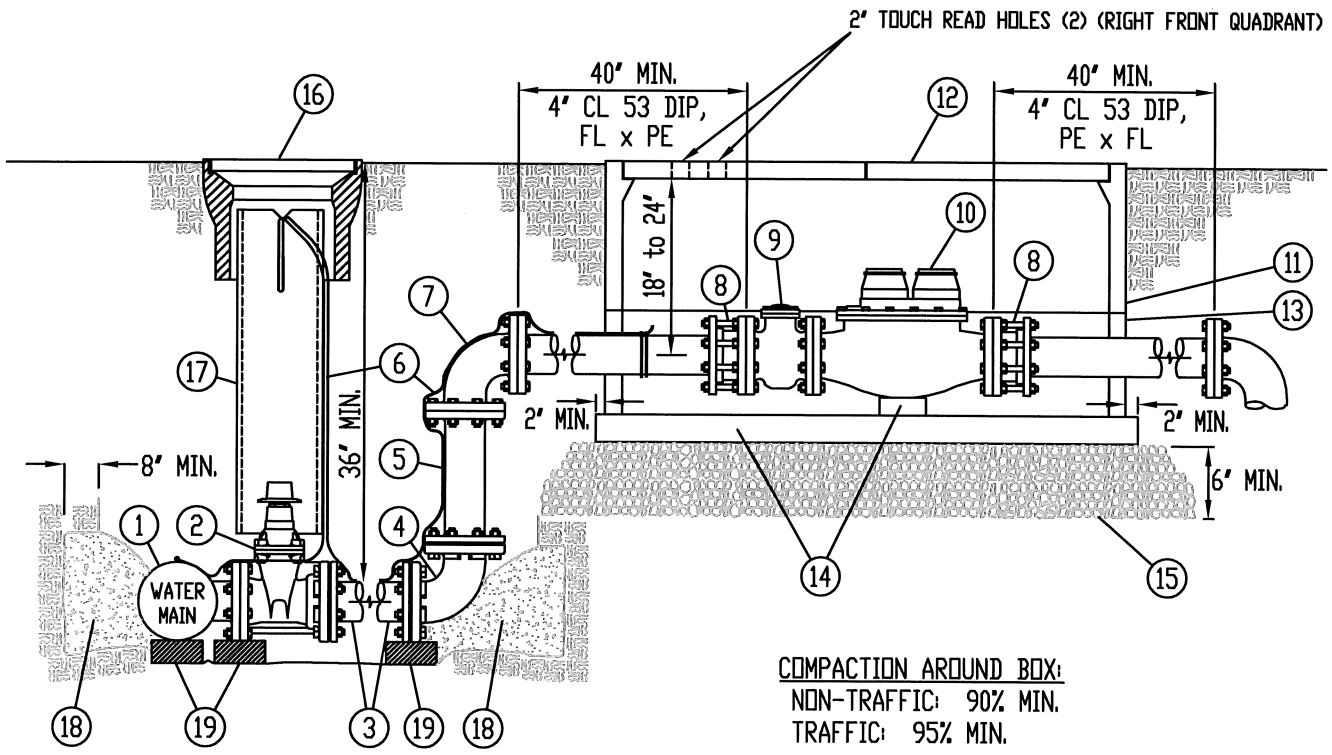

COMPACTION AROUND BOX:
NON-TRAFFIC: 90% MIN.
TRAFFIC: 95% MIN.

NOTES:

1. ALL MECHANICAL JOINT FITTINGS SHALL BE INSTALLED WITH MEGA-LUG RESTRAINT GLANDS.
2. BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
3. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER BOX SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
4. LIDS SHALL BE MARKED "WATER".
5. METER SHALL BE TOUCH READ OR RADIO READ PER CHWD.
6. NO CONNECTIONS BETWEEN GATE VALVE AND WATER METER.

				NON-TRAFFIC AREAS	TRAFFIC AREAS
1	TEE W/ 4" FLANGED OUTLET	11	METER BOX	CHRISTY B48BOX	CHRISTY B3048BOX
2	4" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	12	COVER	CHRISTY B48-62J	CHRISTY B3048-63JH
3	4" DUCTILE IRON PIPE - PC350	13	BOX EXTENSION	CHRISTY B48X10	CHRISTY B3048X12
4	4" 90° ELBOW - MJ x MJ	14	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
5	4" DUCTILE IRON SPOOL - FL x PLAIN END, CL53	15	3/4" CLEAN CRUSHED ROCK		
6	#10 INSULATED COPPER LOCATOR WIRE	16	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID. SEE VB DETAIL VB_810 OR VB_811.		
7	4" 90° ELBOW FL x FL				
8	4" FLANGED COUPLING ADAPTOR - ROMAC OR EQUAL				
9	4" STRAINER - NEPTUNE 53107-000 (BY CONTRACTOR)	17	8" RISER - SDR35 ONLY, CONTINUOUS SECTION		
10	4" COMPOUND WATER METER - NEPTUNE TRU/FLO, 100 cu. ft., (BY CONTRACTOR)	18	CONCRETE THRUST BLOCK - SEE DETAIL TB_001		
		19	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"		

CITRUS HEIGHTS WATER DISTRICT

4" WATER SERVICE - 4" COMPOUND WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
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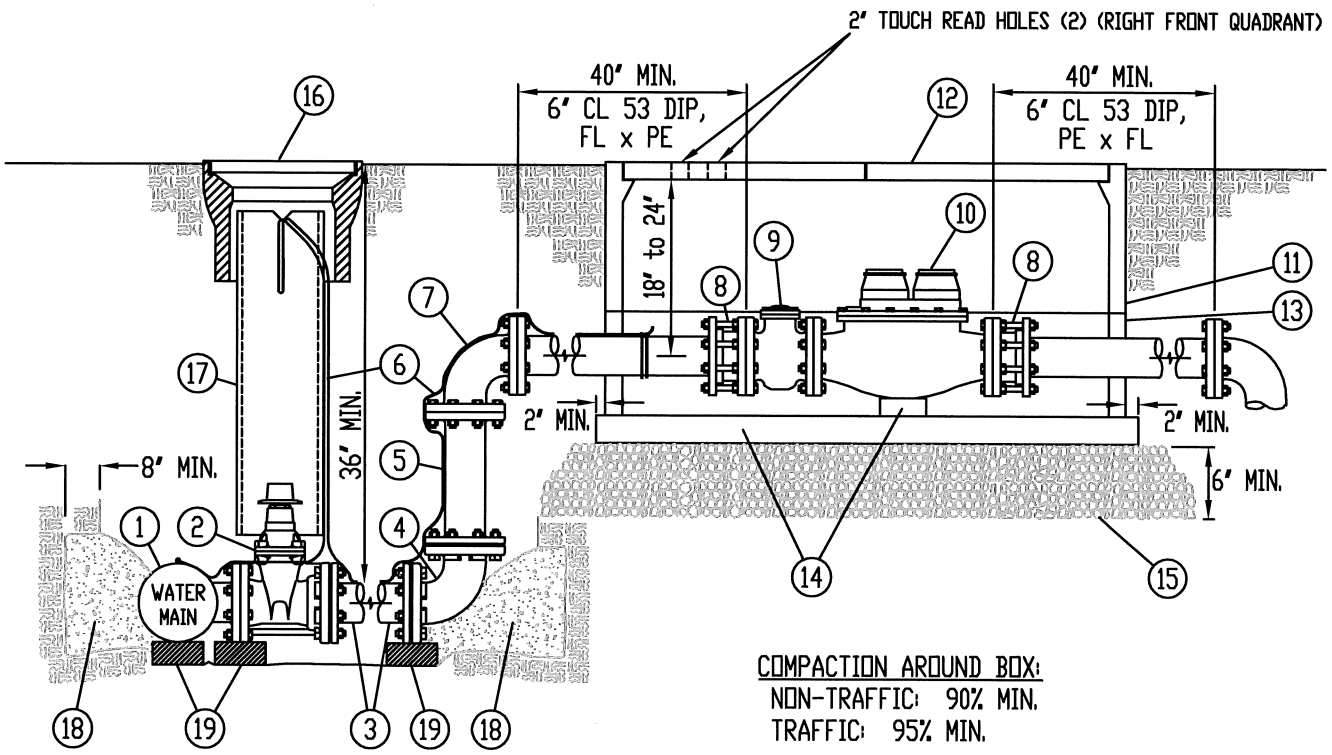

COMPACTION AROUND BOX:
NON-TRAFFIC: 90% MIN.
TRAFFIC: 95% MIN.

NOTES:

1. ALL MECHANICAL JOINT FITTINGS SHALL BE INSTALLED WITH MEGA-LUG RESTRAINT GLANDS.
2. BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
3. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER BOX SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
4. LIDS SHALL BE MARKED "WATER".
5. METER SHALL BE TOUCH READ OR RADIO READ PER CHWD.
6. NO CONNECTIONS BETWEEN GATE VALVE AND WATER METER.

1	TEE W/ 6" FLANGED OUTLET			NON-TRAFFIC AREAS	TRAFFIC AREAS
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT	11	METER BOX	CHRISTY B48BOX	CHRISTY B3048BOX
		12	COVER	CHRISTY B48-62J	CHRISTY B3048-63JH
3	6" DUCTILE IRON PIPE - PC350	13	BOX EXTENSION	CHRISTY B48X10	CHRISTY B3048X12
4	6" 90° ELBOW - MJ x MJ	14	2" x 6" PRESSURE TREATED DOUGLAS FIR SUPPORTS (2)		
5	6" DUCTILE IRON SPOOL - FL x PLAIN END, CL53	15	3/4" CLEAN CRUSHED ROCK		
6	#10 INSULATED COPPER LOCATOR WIRE	16	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID. SEE VB DETAIL VB_810 OR VB_811.		
7	6" 90° ELBOW - FL x FL				
8	6" FLANGED COUPLING ADAPTOR - ROMAC OR EQUAL				
9	6" STRAINER - NEPTUNE 53107-000 (BY CONTRACTOR)	17	8" RISER - SDR35 ONLY, CONTINUOUS SECTION		
10	6" COMPOUND WATER METER - NEPTUNE TRU/FLO, 100 cu. ft., (BY CONTRACTOR)	18	CONCRETE THRUST BLOCK - SEE DETAIL TB_001		
		19	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"		

CITRUS HEIGHTS WATER DISTRICT

6" WATER SERVICE - 6" COMPOUND WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Lundeen DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
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SCALE: N.T.S.
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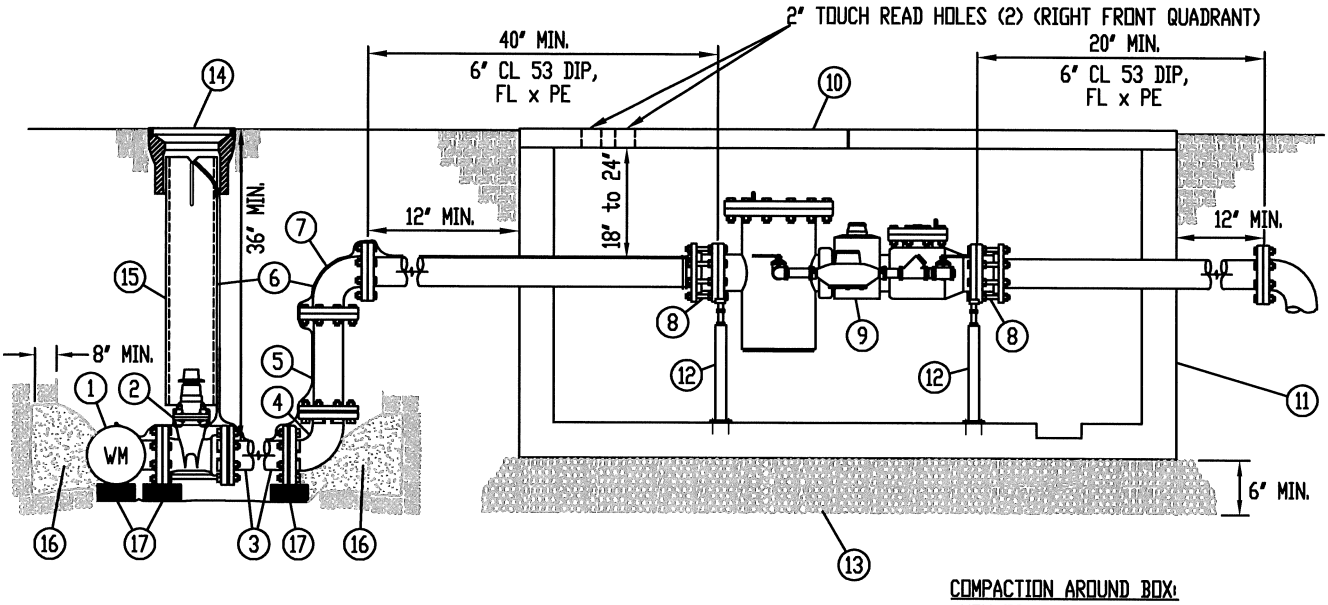

COMPACTION AROUND BOX:
NON-TRAFFIC: 90% MIN.
TRAFFIC: 95% MIN.

NOTES:

1. ALL MECHANICAL JOINT FITTINGS SHALL BE INSTALLED WITH MEGA-LUG RESTRAINT GLANDS.
2. BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
3. WATER MAIN ENTRY AND EXIT POINTS FROM THE METER VAULT SHALL BE CORE DRILLED ON SITE.
4. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER VAULT SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
5. METER SHALL BE TOUCH READ OR RADIO READ PER CHWD.
6. NO CONNECTIONS BETWEEN GATE VALVE AND WATER METER.

LID SPECIFICATIONS

54" X 102" TWO DOOR ALUMINUM, HINGED, TORSION ASSIST, VAULT ACCESS DOORS, BOLT DOWN SECURITY, STAINLESS STEEL SELF LOCKING SAFETY ARMS, NON-SKID AND GALVANIZED STEEL FRAME WITH (4) INTERIOR LEVELING BOLTS AND (4) CORNER LOCKING BOLTS. NON-SKID SURFACE TO BE ACHIEVED BY GARNET BLAST TO A 2-3 MILS ANCHOR PROFILE BEFORE APPLYING 25 WET MILS OF SONOGUARD BASE COAT, ALLOW TO CURE OVERNIGHT BEFORE APPLYING 20 WET MILS OF SONOGUARD TOP COAT AND WHILE STILL WET BROADCAST 16/30 SILICA AGGREGATE APPLIED AT 0.25 - 0.50 # PER SQ. FT. LIDS SHALL BE MARKED "WATER".

1	TEE W/ 6" FLANGED OUTLET			11	VAULT - RATED FOR H-20 CONTINOUS TRAFFIC, 4'-0" x 8'-6" x 4'-0" REINFORCED CONCRETE VAULT. SHALL INCLUDE SUMP HOLE. TEICHERT PRECAST 510 SERIES OR EQUAL.
2	6" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT				
3	6" DUCTILE IRON PIPE - PC350			12	SUPPORT STAND - PLACER WATER WORKS OR EQUAL, BOLT TO FLANGE SADDLE, HEIGHT DETERMINED IN FIELD
4	6" 90° ELBOW - MJ x MJ				
5	6" DUCTILE IRON SPOOL - FL x PLAIN END, CL53			13	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
6	#10 INSULATED COPPER LOCATOR WIRE				
7	6" 90° ELBOW - FL x FL			14	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID. SEE VB DETAIL VB_810 OR VB_811.
8	6" FLANGED COUPLING ADAPTOR - ROMAC OR EQUAL				
9	6" FIRE SERVICE WATER METER - NEPTUNE PROTECTUS III, 100 cu. ft., (BY CONTRACTOR)				
10		NON-TRAFFIC AREAS	DRIVEWAY/SIDEWALK AREAS	15	8" RISER - SDR35 ONLY, CONTINUOUS SECTION
	LID	H10 INCIDENTAL TRAFFIC	H20 OCCASIONAL TRAFFIC	16	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
				17	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"

CITRUS HEIGHTS WATER DISTRICT

6" WATER SERVICE - 6" COMBINATION WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

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REVISED:
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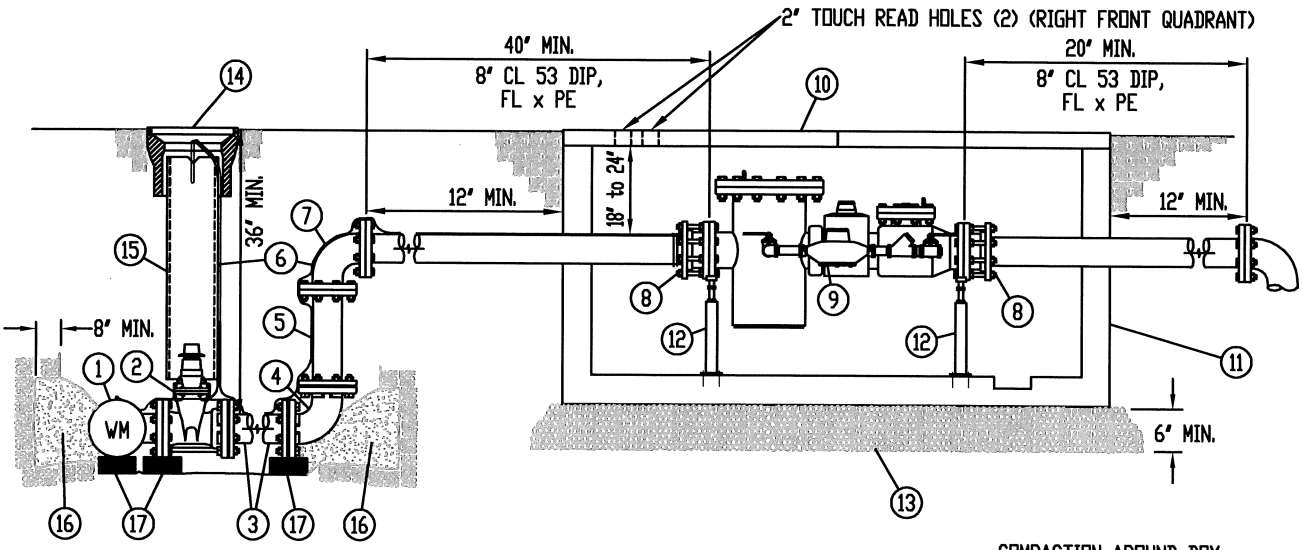

COMPACTION AROUND BOX:
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TRAFFIC: 95% MIN.

NOTES:

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3. WATER MAIN ENTRY AND EXIT POINTS FROM THE METER VAULT SHALL BE CORE DRILLED ON SITE.
4. VOIDS AROUND THE WATER MAIN AT THE ENTRY AND EXIT POINTS FROM THE METER VAULT SHALL BE COMPLETELY GROUTED WITH MORTAR MIX.
5. METER SHALL BE TOUCH READ OR RADIO READ PER CHWD.
6. NO CONNECTIONS BETWEEN GATE VALVE AND WATER METER.

LID SPECIFICATIONS

54" X 102" TWO DOOR ALUMINUM, HINGED, TORSION ASSIST, VAULT ACCESS DOORS, BOLT DOWN SECURITY, STAINLESS STEEL SELF LOCKING SAFETY ARMS, NON-SKID AND GALVANIZED STEEL FRAME WITH (4) INTERIOR LEVELING BOLTS AND (4) CORNER LOCKING BOLTS. NON-SKID SURFACE TO BE ACHIEVED BY GARNET BLAST TO A 2-3 MILS ANCHOR PROFILE BEFORE APPLYING 25 WET MILS OF SONOGUARD BASE COAT, ALLOW TO CURE OVERNIGHT BEFORE APPLYING 20 WET MILS OF SONOGUARD TOP COAT AND WHILE STILL WET BROADCAST 16/30 SILICA AGGREGATE APPLIED AT 0.25 - 0.50 # PER SQ. FT. LIDS SHALL BE MARKED "WATER".

1	TEE W/ 8" FLANGED OUTLET			11	VAULT - RATED FOR H-20 CONTINOUS TRAFFIC, 4'-0" x 8'-6" x 4'-0" REINFORCED CONCRETE VAULT. SHALL INCLUDE SUMP HOLE. TEICHERT PRECAST 510 SERIES OR EQUAL.
2	8" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT				
3	8" DUCTILE IRON PIPE - PC350			12	SUPPORT STAND - PLACER WATER WORKS OR EQUAL, BOLT TO FLANGE SADDLE, HEIGHT DETERMINED IN FIELD
4	8" 90° ELBOW - MJ x MJ				
5	8" DUCTILE IRON SPOOL - FL x PLAIN END, CL53			13	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
6	#10 INSULATED COPPER LOCATOR WIRE				
7	8" 90° ELBOW - FL x FL			14	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID. SEE VB DETAIL VB_810 OR VB_811.
8	8" FLANGED COUPLING ADAPTOR - ROMAC OR EQUAL				
9	8" FIRE SERVICE WATER METER - NEPTUNE PROTECTUS III, 100 cu. ft., (BY CONTRACTOR)			15	8" RISER - SDR35 ONLY, CONTINUOUS SECTION
10		NON-TRAFFIC AREAS	DRIVEWAY/SIDEWALK AREAS	16	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
	LID	H10 INCIDENTAL TRAFFIC	H20 OCCASIONAL TRAFFIC	17	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"

CITRUS HEIGHTS WATER DISTRICT

8" WATER SERVICE - 8" COMBINATION WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13
CITRUS HEIGHTS WATER DISTRICT

DRAWN: 8 MAY 2013
REVISED:
SCALE: N.T.S.
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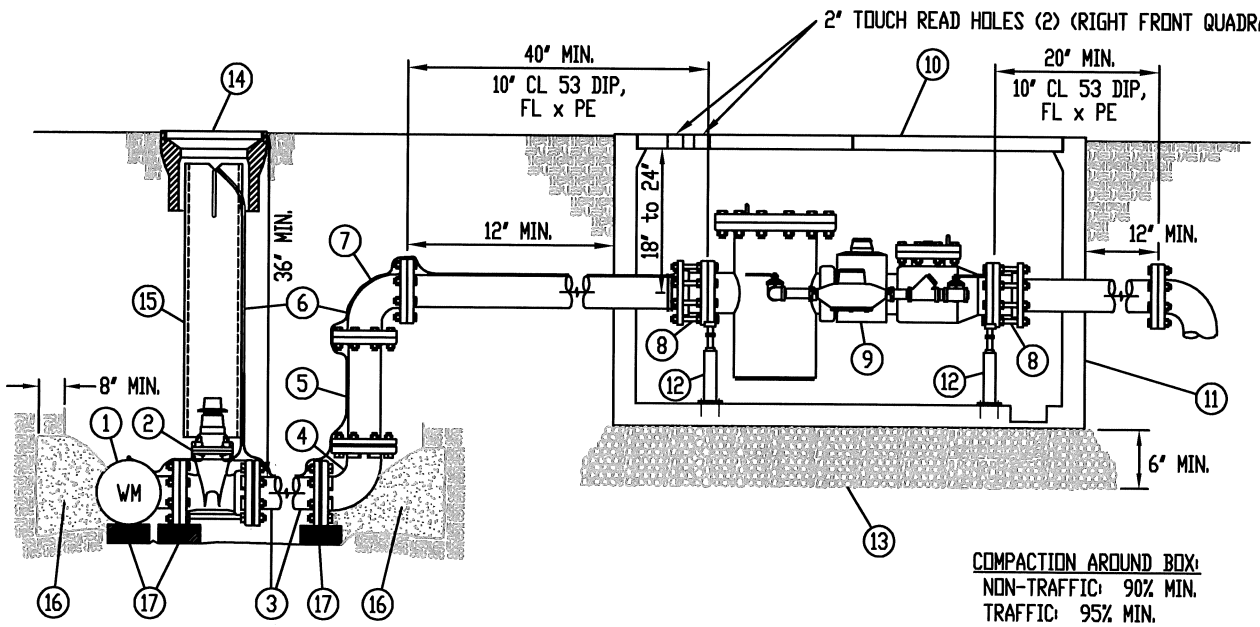
PAGE: WS_810



NOTES:

1. ALL MECHANICAL JOINT FITTINGS SHALL BE INSTALLED WITH MEGA-LUG RESTRAINT GLANDS.
2. BOLT TORQUE ON ALL FITTINGS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.
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5. METER SHALL BE TOUCH READ OR RADIO PER CHWD.
6. NO CONNECTIONS BETWEEN GATE VALVE AND WATER METER.

LID SPECIFICATIONS

54" X 102" TWO DOOR ALUMINUM, HINGED, TORSION ASSIST, VAULT ACCESS DOORS, BOLT DOWN SECURITY, STAINLESS STEEL SELF LOCKING SAFETY ARMS, NON-SKID AND GALVANIZED STEEL FRAME WITH (4) INTERIOR LEVELING BOLTS AND (4) CORNER LOCKING BOLTS. NON-SKID SURFACE TO BE ACHIEVED BY GARNET BLAST TO A 2-3 MILS ANCHOR PROFILE BEFORE APPLYING 25 WET MILS OF SONOGUARD BASE COAT, ALLOW TO CURE OVERNIGHT BEFORE APPLYING 20 WET MILS OF SONOGUARD TOP COAT AND WHILE STILL WET BROADCAST 16/30 SILICA AGGREGATE APPLIED AT 0.25 - 0.50 # PER SQ. FT. LIDS SHALL BE MARKED "WATER".

1	TEE W/ 10" FLANGED OUTLET			11	VAULT - RATED FOR H-20 CONTINOUS TRAFFIC, 4'-6" x 8'-6" x 4'-0" REINFORCED CONCRETE VAULT. SHALL INCLUDE SUMP HOLE. TEICHERT PRECAST 510 SERIES OR EQUAL.
2	10" GATE VALVE - RESILIENT WEDGE - FLANGED TO TEE x MECHANICAL JOINT				
3	10" DUCTILE IRON PIPE - PC350			12	SUPPORT STAND - PLACER WATER WORKS OR EQUAL, WITH A BOLT-TO-FLANGE SADDLE, HEIGHT DETERMINED IN FIELD
4	10" 90° ELBOW - MJ x MJ				
5	10" DUCTILE IRON SPOOL - FL x PLAIN END, CL53			13	3/4" CLASS 2 AGGREGATE BASE - 2" MINIMUM, MECHANICALLY COMPACTED TO 90%
6	#10 INSULATED COPPER LOCATOR WIRE				
7	10" 90° ELBOW - FL x FL			14	VALVE BOX/LID - MARKED "WATER", OLDCASTLE PRECAST NO. G04 BOX, G04C LID. SEE VB DETAIL VB_810 OR VB_811.
8	10" FLANGED COUPLING ADAPTOR - ROMAC OR EQUAL				
9	10" FIRE SERVICE WATER METER - NEPTUNE PROTECTUS III, 100 cu. ft., (BY CONTRACTOR)				
10		NON-TRAFFIC AREAS	DRIVEWAY/SIDEWALK AREAS	15	8" RISER - SDR35 ONLY, CONTINUOUS SECTION
	LID	H10 INCIDENTAL TRAFFIC	H20 OCCASIONAL TRAFFIC	16	CONCRETE THRUST BLOCK - SEE DETAIL TB_001
				17	CONCRETE BRICK - 2 1/4" x 3 3/4" x 7 1/2"

CITRUS HEIGHTS WATER DISTRICT

10" WATER SERVICE - 10" COMBINATION WATER METER NEW CONSTRUCTION

CITRUS HEIGHTS WATER DISTRICT

APPROVED BY: Robert A. Churchill DATE: 5/8/13

CITRUS HEIGHTS WATER DISTRICT

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PAGE: WS_1010

Appendix B

Project Checklist

6230 Sylvan Rd
Citrus Heights, CA 95610
Phone: (916) 725-6873
www.chwd.org

PROJECT CHECKLIST

To initiate a project, please review this checklist to ensure that plans are submitted in accordance with the latest Citrus Heights Water District (CHWD) Construction Specifications.

CHWD Submittal Requirements

- [ ] Completed Plan Submittal Form
- [ ] One full size set of plans in hard copy
- [ ] Plans in PDF format

Plans-Cover/General Sheets

- [ ] Contact information for project developer
- [ ] Index of Sheets
- [ ] Vicinity Map
- [ ] APN Numbers
- [ ] Fire Department Approval Signature Block
- [ ] CHWD Approval Signature Block
- [ ] Legend of Symbols
- [ ] USA Contact Number - Call 48 hours prior to dig
- [ ] CHWD General Notes
- [ ] CHWD Standard Details

Water/Utility Plan Sheet

- [ ] North arrow
- [ ] Scale of plan (1"=20' or 1"=40' with Scale Bar)
- [ ] Street names and widths
- [ ] Engineer's stamp, signature and license number (for final approval)
- [ ] Entire project, subdivision or parcel
- [ ] Adjacent subdivisions with lot lines and lot numbers
- [ ] Right-of-Way with lines properly dimensioned
- [ ] Topography with all pertinent topographic features
- [ ] Bench marks and datum with location, description and elevation
- [ ] Existing utilities
- [ ] Utility horizontal/vertical clearance information
- [ ] Existing easements with recordation information
- [ ] Proposed easements
- [ ] Construction notes referencing CHWD Standard Details
- [ ] Domestic, irrigation, and fire service connections
- [ ] Appropriate offset of services from property lines
- [ ] Adequate separation from other utilities
- [ ] Adequate connection details
- [ ] Appropriate pipe cover
- [ ] All fire services shall have reduced pressure detector assembly (RPDA) per CHWD standards
- [ ] All commercial and irrigation water services shall have a reduced pressure backflow per CHWD standards

Easements/Quitclaims (If necessary)

- [ ] Grant of Easement (From CHWD Template)
- [ ] Legal Description and Plat Exhibits

(Rev. 12/30/2019)

Appendix C

Project Acceptance Summary/ Value of Facilities Form

CITRUS HEIGHTS WATER DISTRICT
PROJECT ACCEPTANCE SUMMARY

PROJECT: Project Name with Address (Project Number)

DATE OF ACCEPTANCE: _____ *(To be completed by District)*

CHWD SIGNATURE: _____

CONTRACTOR: Name, Company Name

FACILITIES BEING ACCEPTED:

Quantity	Facility Description
l.f.	Pipe with largest diameter first. DIP and PVC shown on separate lines.
count	Valves with largest diameter first.
count	PIVs with largest diameter first.
count	Fire Hydrants
count	Metered Services
count	Air/Vacuum Relief Valves

VALUE OF FACILITIES BEING ACCEPTED: $ _____

Contractor's Authorized Signature: _____

Appendix D

District Cross-Connection and Backflow Prevention Regulation

CITRUS HEIGHTS WATER DISTRICT
RESOLUTION 10-2017

A RESOLUTION ADOPTING RULES AND REGULATIONS RELATING TO PROTECTION OF DRINKING WATER
FROM CROSS-CONNECTION AND BACKFLOW

WHEREAS, the Citrus Heights Water District ("District") is responsible for providing its customers with water including, most importantly, water for human consumption, sanitation and fire protection; and

WHEREAS, Title 17, Section 7584 of the California Code of Regulations requires the District to protect the public water supply from contamination by implementation of a cross-connection control and backflow prevention program; and

WHEREAS, the District previously adopted Ordinance No. 3-88, implementing a cross-connection control and backflow prevention program; and

WHEREAS, the District wishes to revise and update its cross-connection control and backflow prevention program as set forth in this Resolution.

NOW, THEREFORE, be it resolved by the Board of Directors of the Citrus Heights Water District as follows:

1. The above recitals are true and correct and are incorporated in this Resolution by reference.

2. The Rules and Regulations set forth in Exhibit A, attached and incorporated by this reference are hereby adopted.

3. If any provision of this resolution is found to be illegal, unconstitutional or unenforceable for any reason whatsoever, that provision shall be severed from the remaining provisions of this resolution, which shall remain in full force and effect.

4. The President of the Board of Directors shall sign this Resolution and the Secretary shall attest thereto, and this Resolution shall be effective immediately upon its adoption.

PASSED and **ADOPTED** this _____ day of _____, 2017 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

APPROVED:

_____
Caryl F. Sheehan, President

ATTEST:

_____
Hilary M. Straus, Secretary / General Manager

EXHIBIT A

RULES AND REGULATIONS RELATING TO PROTECTION OF DRINKING WATER FROM CROSS-CONNECTION AND BACKFLOW

SECTION I – PURPOSE

(1) To adopt rules and regulations as authorized by Water Code, § 22257 to protect the public water system of Citrus Heights Water District ("District") against actual or potential cross-connections or backflow by isolating within premises, contamination or pollution that may occur because of undiscovered or unauthorized cross-connections on said premises.
(2) To eliminate existing connections between the public water system of District and other sources that are not approved as safe and potable for human consumption.
(3) To encourage the exclusive use of the public water system of District as source of water supply.
(4) To comply with the California Administration Code Title 17, Sections 7583 through 7605, inclusive.
(5) To update and supersede the District's existing backflow protection Ordinance No. 3-88.

SECTION II – DEFINITIONS

The meanings of terms used in this Resolution—whether or not such terms are capitalized in the text of the Resolution--are as follows:

Air-Gap Separation – (AG) shall mean a physical separation between the supply line and a receiving vessel. "An approved air gap shall be double the diameter of the supply and no less than 1 inch".

Approved – as herein used in reference to a public water system, shall mean a water supply that has been approved by the health agency having jurisdiction; or, as herein used in reference to backflow prevention assemblies, shall mean approval by the District.

Approved Testing Laboratory – shall mean a person or entity that is competent and possesses the necessary facilities, as determined by the District, to investigate and evaluate backflow prevention assemblies and is independent of backflow prevention assembly manufacturers.

Atmospheric Vacuum Breaker (non-pressure) – (AVB) shall mean a backflow prevention device that contains a shutoff valve, air inlet valve, a check seat, and 1 or more air inlet ports in which:

1. The flow of water causes the air inlet valve to close the air inlet ports; and
2. When the flow of water stops:

(a) The air inlet falls and forms a check valve against back-siphonage; and
(b) The air inlet ports open to allow air to enter and satisfy the vacuum.

Auxiliary Water Supply – shall mean any water supply on or available to a customer's premises other than water supplied by the District.

Backflow – shall mean the undesirable reversal of flow of water or any mixture of water and other liquid, gas, or substance due to backpressure or back-siphonage from any source or sources on the customer's premises into the public water system of the District.

Certified Backflow Prevention Assembly Tester- shall mean a person who has been certified by the District as having the necessary training and competence to test backflow assemblies.

Contamination – shall mean an impairment of the quality of the water which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, or waste.

Cross-Connection – shall mean an unprotected connection or structural arrangement, whether actual or potential, between a public water system and any other source or system, through which it is possible to introduce into any part of the public water system any used water, industrial fluid, gas, or substance other than potable water intended to supply the system.

Customer – shall mean any person or entity to whom water is furnished or sold from the District.

Department – shall mean the Department of Health for the County of Sacramento or the Department of Health for the County of Placer, depending upon the location of the customer or facility in question, and the authorized representatives of the Department.

District – shall mean the Citrus Heights Water District and the authorized representatives of the District.

Double Check Valve Backflow Prevention Assembly – (DC) shall mean a backflow prevention assembly incorporating two independently acting check valves, a shut-off valve at each end of the assembly, and necessary appurtenances for testing as required by the District.

Premises – shall mean any real property or real property interest together with such buildings and appurtenances located thereon.

Pressure Vacuum Breaker Assembly – (PVB) shall mean

1. A backflow prevention assembly incorporating an independently operating, internally loaded approved check valve and an independently operating, loaded air inlet valve located on the discharge side of the approved check valve; and
2. Is equipped with properly located, resilient seated test cocks and tightly closing, resilient seated shutoff valves which are attached to each end of the assembly.

Pollution – shall mean an impairment of the quality of the water to a degree which does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such waters for domestic use.

Protection – shall, subject to District approval, mean an approved backflow prevention assembly.

Public Water System – shall mean the potable water supply system of the District approved by or under the public health supervision of the Division of Drinking Water of the California State Water Resources Control Board.

Recycled Water – shall mean wastewater which as a result of treatment is suitable for uses other than potable water (as in CCR Title 22).

Reduced Pressure Principle Backflow Prevention Assembly – (RP) shall mean a backflow prevention assembly incorporating two independently acting check valves, a hydraulically operating, mechanically independent differential pressure relief valve, a shut-off valve at each end of the assembly and necessary appurtenances for testing as required by the District.

Service Connection – shall mean the point at which the public water system piping of the District ends and the water system piping of the customer begins.

Specialist – shall mean a person certified by AWWA as a cross-connection specialist.

SECTION III – PROTECTION OF THE PUBLIC WATER SYSTEM AT WATER SERVICE CONNECTION

It is unlawful for any person, firm, or corporation at any time to make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time a cross-connection between plumbing pipes or water fixtures being served by the District, any other water supply source or to maintain any sanitary fixture or other appurtenances or fixtures which, by reason of their construction, may cause or allow backflow of water or other substances into the water supply system of the District and/or the service connections or fixtures of any customer of the District.

A. Where Protection Is Required:

1. Protection shall be required at or as close as possible to each service connection from the public water system that supplies water to premises having an auxiliary water supply.

2. Protection shall be required at or as close as possible to each service connection from the public water system that supplies water to premises on which any substance is or may be handled in such a manner as to permit entry into the public water system, including water originating from the public water system which is or may be subjected to deterioration in sanitary quality.

3. Protection shall be required at or as close as possible to each service connection to any premises that has cross-connections unless such cross-connections are abated to the satisfaction of the District.

B. Type of protection:

The type of protection required shall be commensurate with the degree of hazard. In determining the degree of hazard and the type of protection required, the following criteria shall be used:

1. At or as close as possible to each service connection to any premises where there exists an auxiliary water system with no known cross-connections, the public water system shall be protected by an approved (RP) reduced pressure principle backflow assembly.

2. At or as close as possible to each service connection to any premises on which there is an auxiliary water system with actual or potential cross-connections, the public water system shall be protected by an approved (RP) reduced pressure principle backflow assembly.

3. At or as close as possible to each service connection to any premises on which an objectionable but non-hazardous substance is, or may be, handled in such manner as to permit entry into the public water system, the public water system shall be protected by a (RP) reduced pressure principle backflow assembly.

4. At or as close as possible to each service connection to any sewage treatment plant, sewage pump station, or any premises on which any hazardous substance is or may be handled in such a manner as to permit entry into a public water system. This does not include a single-family residence that has a sewage lift pump. The public water system shall be protected by an approved (AG) air gap separation. All piping between the service cock and any receiving vessel shall be visible. If these conditions cannot reasonably be met, the public water system shall be protected by an approved (RP) reduced pressure principle backflow prevention assembly, provided that this alternative is in compliance with the provisions of this Resolution and approved by the Division of Drinking Water of the California State Water Resources Control Board.

SECTION IV – REQUIRED SERVICE CONNECTION PROTECTION

The type of protection that shall be provided to prevent backflow into the public water system shall be commensurate with the degree of hazard that exists on the customer's premises. The customer may choose a higher level of protection. The type of backflow devices that may be required (listed in an increasing level of protection) include:

1. Double Check Valve Backflow Prevention Assembly - **(DC)**

2. Reduced Pressure Principle Backflow Prevention Assembly – **(RP)**

3. Air Gap Separation – **(AG)**

Plants, facilities, or situations which are not listed in this section shall be evaluated on a case by case basis and the appropriate type of protection shall be as determined by the District and the Department.

The required minimum level of service connection protection at specific plants and facilities shall include the following:

1. Automotive Plants – **RP**

2. Autopsy Facilities – **RP** or **AG**

3. Auxiliary Water Supply – **RP**

4. Beverage Bottling Plants – **RP**

5. Boilers – **RP**

6. Breweries – **RP**

7. Buildings:

    a. Hotels, apartment houses, public and private buildings, or other structures, where sewage pumps and/or sewage ejectors have been installed. This does not include a single family residence that has a sewage lift pump. – **RP**

    b. Any commercial structure in which the specific business activity cannot be ascertained. – **RP**

    c. All new commercial construction – **RP**

    d. Multi-storied buildings that use booster pumps or elevated storage tanks to distribute potable water within the premises. – **RP**

    e. Any buildings that exceed eighty feet (80') in height as measured from the service connection to the highest water outlet. – **RP**

8. Canneries, Packing Houses, and Reduction Plants – **RP** or **AG**

9. Chemical Plants – Any premises served from the District where there is a facility requiring the use of water in the industrial process of manufacturing, storing, compounding or processing chemicals. This will also include facilities where chemicals are used as additives to the water supply or in the processing of products. – **RP - AG**

10. Chemically Contaminated Water Systems – Any premises, served from the District where chemicals are used as to the water supply, or where the water supply is used for transmission or distribution of chemicals, or where in the compounding or processing of products. – **RP**

11. Cold Storage Plants – **RP**

12. Convalescent Homes – **RP**

13. Dairy Processing Plants – **RP**

14. Dental Clinics – **RP**

15. Dry Cleaning Facilities – **RP**

16. Dye Works – **RP**

17. Film Processing Facilities or Film Manufacturing Plants – **RP**

18. Fire Protection Systems that are supplied from a Public Water System:

    a. Premises where the fire protection system is directly supplied from the District and there is an auxiliary water supply on or to the premises (not interconnected) – **RP**

    b. Premises where the fire protection system is supplied from the District and where either elevated storage tanks or fire pumps which take suction from private reservoirs or tanks are used – **RP**

    c. Premises where the fire protection system is directly supplied from the District and interconnected with another public water system – **RP**

    d. Premises where the fire protection system is supplied from the District and interconnected with an auxiliary water supply – **RP**

    e. Premises where the fire protection system is supplied from the District and contains any hazardous substance, including but not limited to anti-freeze and wetting or foaming agents – **RP**

    f. Premises where the fire protection is supplied from the District and where recycled water is used in a separate piping system within the same building – **RP**

19. Hospitals - **RP**

20. Ice Manufacturing Plants – **RP**

21. Irrigation Systems:

    a. Premises or locations where facilities are installed for pumping, injecting, or spreading fertilizers, pesticides, or other hazardous substances – **RP**

    b. Irrigation systems subject to contamination from submerged inlets, auxiliary water supplies, ponds, reservoirs, swimming pools, and other sources of stagnant, polluted, or contaminated water – **RP**

    c. Premises or locations having a separate service connection for irrigation purposes – **RP**

    d. Residences using recycled water for landscape irrigation as part of a dual plumbed use area – **RP**

22. Laboratories including, but not limited to, teaching institutions, biological and analytical facilities - **RP**

23. Laundries (commercial) – **RP**

24. Medical Buildings and Clinics – **RP**

25. Metal Manufacturing, Cleaning, Processing, or Fabricating Plants – **RP**

26. Morgues – **RP**

27. Mortuaries – **RP**

28. Multiple Services includes two or more interconnected services provided to a single customer complex - **RP** at or as close as possible to each service connection

29. Nursing Homes and Clinics - **RP**

30. Oil/Gas Production, Storage, or Transmission Facilities - **RP**

31. Ornamental Fountains and Ponds with recirculating pumps – **RP**

32. Paper and Paper Products Manufacturing Plants – **RP**

33. Plastic Manufacturing, Extruding, and Injection Molding – **RP** (see Chemical Plants)

34. Plating Plants – **RP**

35. Portable Chemical Spray or Cleaning Equipment which can be connected to the potable water system – **AG**

36. Private Wells – **RP**

37. Radioactive Materials or Substances (Plants or Facilities that Process, Handle, or Store) – **RP**

38. Recirculating Pumps – **RP**

39. Recirculating Hot Water Systems – **RP**

40. Recycled Water Distribution Systems:

    a. Premises where the public water system of the District is used to supplement the recycled water system – **AG**

    b. Premises where recycled water is used and there is no interconnection with the District public water system – **RP**

41. Restricted, Classified or Other Closed Facilities – **RP**

42. Rubber Manufacturing Plants (natural or synthetic) – **RP**

43. Sand and Gravel Plants - **RP**

44. Sanitariums – **RP**

45. Schools, Colleges, and Universities (when actual or potential health hazards exists on the premises) – **RP**

46. Sewage and storm Drain Facilities – **RP**

47. Sewer Flushing through Manhole or Clean-out – **AG**

48. Solar Heating Systems:

a. Solar collector system which contains any hazardous substance and where there is a direct make-up connection to the public water system – **RP**

b. Service connection protection is not required for a "once through" solar heating system including, but not limited to, domestic hot water systems. - **RP**

49. Steam Generating Facilities/Steam Boiler Plants - **RP**

50. Vehicle Washing Facilities - **RP**

51. Veterinary Clinics - **RP**

52. Water Tanks Trucks - **RP**

SECTION V – INSTALLATION OF BACKFLOW PREVENTION ASSEMBLY

A. NEW COMMERCIAL SERVICE CONNECTIONS – It shall be the customer's responsibility, and expense, to provide for the installation of the backflow prevention assembly in accordance with District requirements and at a location approved by the District by one of the following methods. **Installation of a backflow prevention assembly where required by the District shall be a condition of water service.**

1. INSTALLATION BY THE CUSTOMER – A backflow prevention assembly may be installed by the customer. Installation is subject to inspection by the District to determine that all requirements have been met before being put into service.

2. INSTALLATION BY THE DISTRICT – A backflow prevention assembly may be installed by the District at the customer's expense. The customer shall deposit, in advance, the estimated cost of the assembly and the installation. The final billing from the District to the customer shall be the actual cost of the work.

B. EXISTING COMMERCIAL SERVICE CONNECTIONS WITHOUT BACKFLOW PREVENTION ASSEMBLIES – Whenever the District determines that an approved backflow prevention assembly is required (at the customer's water service connection) under this Resolution, for the safety of the water system, the District or its designated agent shall give notice in writing to the customer. The customer shall install an approved backflow prevention assembly(s), in accordance with current District installation specifications and guidelines, at the customer's own expense; and, failure, refusal or inability on the part of the customer to install and maintain the assembly(s), shall constitute grounds for discontinuing water service to the premises until all requirements have been satisfactorily met. The approved assembly(s) must be installed and tested within sixty (60) calendar days for all assemblies measuring less than or equal to 2.5" in size, and within ninety (90) calendar days for all assemblies measuring 3" or larger in size.

C. EXISTING BACKFLOW PREVENTION ASSEMBLIES –

1. Backflow prevention assemblies in service at the time of adoption of Ordinance No. 3-88 or this Resolution, which do not comply with the provisions of this Resolution, may continue to remain in use until such time as the assembly is determined to be defective and necessitating repair, or until such time as the premises facilities are changed thereby dictating a higher degree of required protection.

2. Any such assembly that is determined to be defective shall be repaired or replaced by an assembly, within the time period described in paragraph "B" above, that is approved by the District and complies with the provisions of this Resolution.

SECTION VI – INSTALLATION REQUIREMENTS FOR BACKFLOW PREVENTION ASSEMBLIES

A. Air-Gap Separation (**AG):**

1. An air-gap separation shall be located on the customer's side of, and as close as possible to, the service connection as approved by the District.

2. All piping from the service connection to the receiving tank shall be above grade and visible unless otherwise approved by the District.

3. There shall be no outlet, tee, tap, take-off, or connection of any sort, to or from the supply pipe line, between the service connection and the air-gap separation.

B. Reduced Pressure Principle Backflow Prevention Assembly (**RP)**

1. RP to be installed above ground, in a horizontal and level position, on the customer's side of, and as close as possible to, the service connection as approved by the District.

2. RP to be installed a minimum of twelve inches (12") above, and a maximum of thirty six inches (36") above, finished grade as measured from the bottom of the assembly, and shall be readily accessible for maintenance and testing.

3. There shall be no outlet, tee, take-off, or connection of any sort, to or from the supply pipe line, between the service connection and the backflow prevention assembly.

4. RP shall be installed such that no part of the assembly will be submerged during normal operating and weather conditions.

5. Installation of assembly, approved by the District, to be elevated five feet (5') above grade shall be provided with a permanent platform capable of supporting a tester or maintenance person.

C. Double Check Valve Backflow Prevention Assembly (**DC**)

1. DC to be installed above ground, in a horizontal and level position, on the customer's side of, and as close as possible to, the service connection as approved by the District.

2. DC to be installed a minimum of twelve inches (12") above, and a maximum of thirty six inches (36") above, finished grade as measured from the bottom of the assembly, and shall be readily accessible for maintenance and testing.

3. There shall be no outlet, tee, tap, take-off, or connection of any sort, to or from the supply pipe line, between the service connection and the backflow prevention assembly.

4. Installation of assembly, approved by the District, to be elevated five feet (5') above grade shall be provided with a permanent platform capable of supporting a tester or maintenance person.

SECTION VII APPROVAL OF BACKFLOW PREVENTION ASSEMBLIES

The District LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES is limited to those assemblies manufactured by Wilkins, Febco, or Watts which appear on the current "List of Approved Backflow Prevention Assemblies" as published by the Approved Testing Laboratory, the University of Southern California, Foundation for Cross-Connection and Hydraulic Research.

Investigation and evaluation of backflow prevention assemblies shall include design and material specifications, laboratory testing and field evaluation, as delineated in the current edition of the "Manual of Cross-Connection Control", published by the University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research.

SECTION VIII – CUSTOMER RESPONSIBILITY

It shall be the responsibility of the customer to furnish, install in a manner approved by the District, keep in good working order and safe condition, any and all backflow prevention assemblies as required by this Resolution. The District shall not be responsible for any loss or damage directly or indirectly resulting from or caused by any improper or negligent installation, operation, use, repair or maintenance of, or interfering with, any backflow prevention assembly, required by this Resolution, by any customer, or any other person.

If a backflow prevention assembly is removed for repair, the customer shall provide that an approved backflow prevention assembly be temporarily installed in its place and tested by a District authorized tester before water service is resumed.

SECTION IX – TESTING AND REPORTS

A. Any customer at whose premises any backflow prevention assemblies are installed, shall have each such assembly tested at the time of installation and annually thereafter or more often as required by the District. All such tests shall be conducted at the expense of the customer by a District authorized tester. Backflow prevention assemblies shall be repaired or replaced at the expense of the customer whenever they are found to be defective.

B. Reports of tests of backflow prevention assemblies shall be filed with the District and be kept for a minimum of three (3) years.

SECTION X – AUTHORITY TO INSPECT

The customer's premises shall be available for inspection at all reasonable times to authorized representatives of the District to determine if protection of the public water system is required, and shall be a condition for continued water service.

SECTION XI – ENFORCEMENT

The District, and its authorized representatives, shall have the authority to enforce this Resolution.

Any customer who violates any of the provisions of this Resolution, or later bypasses or renders inoperative any backflow prevention assembly installed under the provisions of this Resolution may be subject to discontinuance of water service as set forth in this section. Water service shall not again be rendered until such violations have been corrected as determined by the District. Prior to discontinue water service, District shall provide notice of the violation, which shall include a general description of the violation and the procedures for appealing the notice. Anyone seeking to dispute the violation may request a hearing before the General Manager by filing a request within ten (10) days of the notice. If requested, the General Manager shall conduct a hearing to determine the existence of the violation and his or her decision shall be final.

Notwithstanding the foregoing, in the event that the violation presents an immediate threat to health and safety, the District may terminate water service without providing advance notice or the opportunity for a hearing. In such event, the affected person shall receive notice as soon as possible and may request and receive a hearing in the manner otherwise set forth in this section.

SECTION XII—SEVERABILITY

If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or any part thereof, is for any reason held to be invalid, such decision shall not affect the validity of the remaining portions of this Ordinance or any part thereof.

Appendix E

CHWD Disinfection/Sampling Procedure

CITRUS HEIGHTS WATER DISTRICT

Disinfection/Sampling Procedure

Adopted: October 28, 2014
Revised: April 30, 2018

General:

The Contractor shall use a licensed Chlorination Specialist for the process of introducing a chlorine solution into the new water system. Said specialist shall maintain an Active C36 (Plumbing) and C55 (Water Conditioning) license with the California State Licensing Board.

Chlorine shall be introduced into the system at a minimum of 50 PPM and a maximum of 100 PPM. The Inspector shall be provided with proof of uniform chlorination throughout the system within the stated range using an approved test procedure. All requirements of the current American Water Works Association standard C651-XX (Disinfecting Water Mains) shall be followed.

Chlorinated water shall be properly disposed of using dechlorination procedures outlined in the current American Water Works Association standard C651-XX (Disinfecting Water Mains) and shall comply with all regulations including the District's Storm Water Discharge Permit. The Inspector shall be provided with proof of uniform dechlorination at a minimum of 10 minute intervals during disposal using an approved test procedure. Dechlorination shall be maintained at 0.0 PPM at all times during any disposal of any water into a drainage system.

Before project construction begins:

1. CHWD Water Quality personnel shall sample for both Coliform (Presence/Absence) and Heterotrophic Plate Count (HPC) on mains adjacent to the project. (SimPlate may be substituted for HPC)

During project:

2. CHWD Project Management personnel will provide a 24-hour notice to the Regional Water Quality Control Board for all flushing events.

3. The newly constructed mains shall be filled by the contractor and purged to remove any trapped air using the District-approved and tested backflow prevention device specification. All best management practices shall be followed to insure no sediment or chlorine reaches any drain inlet or creek.

4. The newly constructed mains shall pass the District pressure check requirements.

5. The mains shall be chlorinated between 50-100 ppm for a minimum of 24 hours by the contractor using an approved chlorination specialist.

6. The chlorine concentration shall be checked after 24 hours and a minimum residual of 25 ppm must be present throughout the new mains.

7. The mains shall be flushed by the contractor until the chlorine concentration matches the normal system residual. All best management practices shall be followed to insure no sediment or chlorine reaches any drain inlet or creek.

8. CHWD Project Management personnel shall submit a sampling plan to the Operations Manager for approval.

9. CHWD Water Quality personnel, when practical, will collect Coliform and HPC samples according to the approved sampling plan. The sampling schedule will be submitted to the Operations Manager and the Water Quality Supervisor with at least a 24-hour notice.

10. Samples shall be taken for both Coliform and Heterotrophic Plate Count (HPC) at 24 and 48 hour intervals after completion of flushing.

11. CHWD Project Management personnel shall submit negative sample documentation to Operations Manager for acceptance prior to the any connections to the CHWD distribution system. Sample result documentation generally takes 3-5 business days after samples are delivered to lab.

12. CHWD Water Quality personnel will sample mains downstream of project for Coliform and HPC after the new main is connected to the CHWD distribution system.

CITRUS HEIGHTS WATER DISTRICT

Timetable for Disinfection/Sampling Procedure

Adopted: October 28, 2014

The Contractor shall allow 8-10 business days for the Disinfection/Sampling Procedure prior to any connection to the District's distribution system. Larger systems will require additional time for chlorination and flushing. Bacteriological samples shall only be collected between 8:00am and 2:00pm Monday through Thursday. Any positive results on any sample taken shall require a repeat of the Disinfection/Sampling Procedure until all samples test negative. HPC samples require a plate count of less than 500 on any sample taken.

1. DAY 1 - Chlorinate new mains to 100 PPM and complete to allow flushing time on following day.

   ---24-hour chlorine detention period---

2. DAY 2 - Flush new mains to normal residual and complete before 2:00pm. (Similar to system residual)

   ---24-hour sampling detention period---

3. DAY 3 - Obtain first Coliform and HPC samples before 2:00pm.

   ---24-hour sampling detention Period---

4. DAY 4 - Obtain second Coliform and HPC samples before 2:00pm.

   ---3 to 5 business days for laboratory testing and review---

5. DAY 7-9 - Sample documentation provided to Operations Manager and customer notification of shut-down

   ---24-hour notification period---

6. DAY 8-10 - Connection to CHWD distribution system only after clearance from Operations Manager is received.

ATTACHMENT 2

District Policies (5000, 7000, 8000, and 9000 series) as Listed in Table 2 of B-1 Staff Report

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : OPERATIONS
POLICY TITLE : MAINTENANCE OF WATER METERS AND DISTRICT-OWNED WATER SERVICES, OWNER RESPONSIBILITY FOR EQUIPMENT AND APPLIANCES FROM POINT OF CONNECTION TO WATER METER
POLICY NUMBER : 5300
DATE ADOPTED : MAY 8, 2007
DATES AMENDED : JUNE 17, 2020, NOVEMBER 15, 2023, JUNE 24, 2025

5300.00 MAINTENANCE OF WATER METERS AND DISTRICT-OWNED WATER SERVICES, OWNER RESPONSIBILITY FOR EQUIPMENT AND APPLIANCES FROM POINT OF CONNECTION TO WATER METER

5300.10 Responsibility for Maintenance of Water Meters

Water meters are the property of the District and a part of the District's water distribution system. All maintenance and repair work on water meters and related equipment and facilities shall be performed by the District or its authorized representatives.

5300.15 Responsibility for Maintenance of Water Services

Water services are the water system components from the water main to the water meter, including meter and meter box. Unless otherwise specified on the District's Facilities Map, water services served by public mains are owned by the District. Water services served by private mains are owned by the property owner, except for the meter, which is owned and maintained by the District.

All components downstream from the water meter are owned by the property owner. Property owner is solely responsible for installation, operation, maintenance, and replacement of all components downstream of District facilities, including backflow prevention assemblies.

5300.20 Repairs to Water Meters and District-Owned Water Services

The District shall repair or replace water meters and District-owned water services at its sole discretion. When a water meter is determined to be non-operational or is removed for repair, property owners may be billed for water consumption using an estimate based on previous consumption history at the discretion of the Assessor/Collector or his or her designee.

5300.30 Access to Water Meters and District-Owned Water Services

Property owners are responsible for maintaining unrestricted and unobstructed access at all times to District water meters and other District equipment and facilities located on their property. Access shall be maintained in a manner that allows the District at all times to read, inspect, maintain, repair or replace the water meter and water system components. Access that is restricted by vegetation, landscaping materials or features, fencing, parking of vehicles or other obstructions shall be remedied by the property owner at the property owner's sole expense. Any restriction or obstruction not remedied by the property owner within 30 calendar days of written notification from the District may be remedied by the District. The District shall hold the property owner or the owner's legally-authorized representative responsible for any costs incurred by the District in remedying the restriction or obstruction.

Water meters and District-owned water services are generally located within a right-of-way, public utility easement, or dedicated easement to the District. For facilities that are not located within the above and are located on the property owner's private land, each property owner irrevocably licenses the District and its authorized employees and representatives to enter upon the property owner's land at all reasonable times for the purpose of reading, inspecting, testing, checking, repairing, maintaining, or replacing the District's facilities as a condition of receiving water service from the District.

5300.35 Access to Backflow Prevention Assemblies

Property owners are responsible for maintaining unrestricted and unobstructed access at all reasonable times to backflow prevention assemblies. Access shall be maintained in a manner that allows the District to inspect and/or test backflow prevention assemblies to ensure protection of the water system.

5300.40 Damage to Water Meters and District-Owned Water Services

Damage to water meters, District-owned water services, and other District-owned equipment and facilities such as water meter boxes, valves, water meter setters, or curb stops, shall be repaired or replaced by the District and may be billed to the property owner at the sole discretion of the Assessor/Collector or his or her designee. Property owners shall be notified of damage in writing by the District. Tampering with water meters or other District facilities is a punishable offense under Section 498 of the Penal Code of the State of California.

5300.50 Responsibility for Backflow Prevention Assemblies

Property owners are responsible for keeping all backflow prevention assemblies required by the District in good working order and safe condition. The District is not responsible for any loss or damage directly or indirectly resulting from or caused by any improper or negligent installation, operation, use, repair, or maintenance of, or interfering with, any backflow prevention assembly by any property owner, customer, or any other person.

5300.60 Responsibility for Equipment Downstream of District Facilities

Property owners are responsible for damages to any and all plumbing, equipment, appliances, and/or facilities downstream of District facilities. Damages shall be repaired or replaced by the property owner at the property owner's sole expense.

For private water services, the property owner is responsible for all the water service components except for the water meter and meter box.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES

POLICY TYPE : OPERATIONS
POLICY TITLE : RELOCATION OF WATER METERS
POLICY NUMBER : 5310
DATE ADOPTED : MAY 8, 2007
DATE AMENDED : JUNE 24, 2025
AMENDMENTS :

5310.00 RELOCATION OF WATER METERS

5310.10 Property Owner Request for Water Meter Relocation

Relocation of a water meter from an existing location to another location shall be permitted at the sole discretion of the District. All property-owner-requested relocations shall require a written authorization and agreement signed by the property owner or the owner's authorized representative which shall include the following items prepared by the District:

A. A written estimate of the costs for performing the relocation work;
B. The District's estimated schedule for performing the work; and
C. A site map showing the proposed relocation.

5310.20 Payment Requirement

The District shall require payment in full of the estimated cost of the relocation work at the time that the property owner's written authorization is submitted.

5310.30 Performance of Water Meter Relocation Work

Work to relocate water meters and related equipment shall be performed only by the District or its authorized representatives, unless specific authorization is given to a property owner requesting water meter relocation.

The property owner or its private contractor may relocate water meters only under written authorization by the District. The property owner shall submit required plans and pay associated District Engineering Fees. The property owner shall further require the contractor to assign all warranties to the District, and take other actions or requirements as deemed necessary by the District.

Work may commence only upon approval of plans by the District Engineer or authorized representative. Private contractors shall have a Class A Contractor's License, and the work shall be conducted under the supervision of authorized District personnel.

5310.40 District-Initiated Water Meter Relocation

Relocation of water meters may be performed by the District at the District's expense when it is determined that the relocation is in the best interest of the District.

POLICY TYPE : OPERATIONS
POLICY TITLE : FIRE HYDRANT OPERATION AND MAINTENANCE
POLICY NUMBER : 5930
DATE ADOPTED : MARCH 18, 1997
DATE AMENDED : NOVEMBER 16, 2022, JUNE 24, 2025

5930.00 FIRE HYDRANT OPERATION AND MAINTENANCE

The purpose of this Policy is to ensure regular and consistent execution of the preventive maintenance, inspection, and testing of hydrants throughout the distribution system. The hydrant maintenance program shall be conducted in accordance with the American Water Works Association (AWWA) Manual M17 Fire Hydrants: Installation, Field Testing, and Maintenance.

5930.01 Public Fire Hydrants

Public fire hydrants shall generally be defined as those fire hydrants located immediately adjacent to a public street or right-of-way or within a public utility easement or easement granted to Citrus Heights Water District. Said public fire hydrants shall typically be in unsecured locations and immediately accessible for public fire protection purposes by the fire protection agency.

5930.02 Private Fire Hydrants

Private fire hydrants shall generally be defined as those fire hydrants not defined in Section 5930.01 above, being served by a private water system, or where identified on the District's water facility map. Maintenance of private fire hydrants is the responsibility of the property owner.

5930.03 Contents of the Program

The Fire Hydrant Operation and Maintenance Program shall identify and outline the steps for operating and maintaining the public fire hydrants, including, but not limited to, the following:

a. Frequency of periodic inspection and maintenance checks
b. Maintenance items to be performed
c. Procedures for inspecting and testing fire hydrants
d. Procedures for placing inoperable or damaged fire hydrants out of service and facilitation of restoration of service
e. Methodology (routing and sequence) for performing bi-annual maintenance
f. Minimum access clearances to be maintained around fire hydrants
g. Steps needed to protect hydrants from damage
h. Records to be maintained, including installation, inspection, and repair reports
i. Specifications on each type of hydrant in the District's system, including

assembly diagrams and parts lists.

j. Coordination with Water Distribution System Flushing Program
k. Coordination with the fire protection agency having jurisdiction

5930.04 Preparation, Review and Amendment of the Program

The Fire Hydrant Operation and Maintenance Program shall be prepared under the direction of the General Manager or designee. The Program shall be reviewed every two years or more often as necessary to ensure the accuracy of the information and effectiveness of the procedures outlined therein. Revision or amendment of the Program shall typically be performed before beginning a new inspection, testing and maintenance cycle.

5930.05 Implementation of the Program

The General Manager or designee is responsible for implementing and maintaining the Program.

7500.00 CAPACITY FEES

Assessment and collection of Capacity Fees are approved as an equitable method for assessing new connections, reconnections or enlarged connections an appropriate share of capacity in existing District facilities and assets. This method of assessing capacity fees is typically referred to as the "System Buy-In Methodology".

7500.01 Method of Determination

The District shall identify and quantify the replacement cost less depreciation value of the District's assets including transmission and distribution pipelines and infrastructure, groundwater production or injection wells, buildings and improvements, machinery and equipment, real property, easements and rights-of-way, and capacity entitlements in the San Juan Water District Cooperative Transmission Pipeline.

The District will evaluate the total number of metered water service connections to the water system and, utilizing the capacity indices provided below; determine the total number of current equivalent one-inch connections.

The value of an equivalent one-inch connection to the water system is determined as the "replacement cost less depreciation value of the District's assets" divided by the "number of current equivalent one-inch connections".

The values for differing sizes of metered water service connections are determined as the "value of an equivalent one-inch connection" multiplied by the "capacity index" based on meter size as provided in Section 7500.02.

7500.02 Method of Assessment

Assessments, unless otherwise specified, shall be based upon water meter size with capacity indices determined by the American Water Works Association (AWWA) maximum meter flow rates per AWWA Manual M22 Sizing Water Service Lines and Meters (Fourth Edition), Table 6-1 as follows:

Meter Size	Capacity Index
0.625"	0.40
0.75"	0.60
1.00"	1.000
1.50"	2.00
2.00"	3.20
3.00"	7.00
4.00"	12.60
6.00"	26.00
8.00"	56.00
10.00"	84.00
12.00"	105.17

The capacity indices of meter sizes 0.625" through 2.00" are based upon displacement type meters. The capacity indices of meter sizes 3.00" and 4.00" are based upon compound type meters. The capacity indices of meter sizes 6.00" through 12.00" are based upon turbine type meters.

Capacity Charges shall not be assessed for connections associated with fire protection facilities.

7500.03 Adoption of and Amendments to Capacity Charge Schedule

A Capacity Charge Schedule and revisions or amendments thereto shall be adopted by Resolution of the Board of Directors after conducting a duly noticed public hearing to receive comments on the Schedule.

The Capacity Charge Schedule shall typically be reviewed in conjunction with evaluation, establishment and adoption of other District water rates, charges and fees.

7500.04 Payment of Capacity Fees

Capacity Charges for commercial projects shall be paid in full prior to water facilities construction.

Capacity Charges for a "designated qualifying residential development project" as that term is defined in Government Code Section 66007 (projects with less than 10 units) shall be paid in full upon final inspection or issuance of certificate of occupancy, whichever comes first. The collection of Capacity Fees for a "designated residential development project" shall comply with all requirements set forth in Section 66007. Capacity Fees for a "designated residential development project" will be calculated using the fee rate in effect at the time the District receives the application for service.

Capacity Fees for any other residential project not classified under Section 66007 as a "designated residential development project" shall be paid in full prior to water facilities construction.

7500.05 Refund of Capacity Charges

Capacity Charges collected by the District for which no water distribution system or water service(s) construction has taken place for a period of twelve (12) months from the date of payment shall be refunded without interest to the payee upon their written request. Refund of Capacity Charges which were paid by a credit card or other means for which the District is subject to processing fees shall have the refund amount reduced by the amount of said fees. The current Capacity Charge Schedule will then apply for future assessments.

7500.06 Credit for Existing Service(s)

Re-development of properties for which service has previously been provided will be given credit for the capacity index of the existing service or services to the property even if proposed for abandonment as part of the development. Credits shall not exceed capacity index of the new service or services to be provided.

7600.00 DEVELOPMENT FEES

Assessment and collection of Development Fees may be established by the Board for new or modified service connections. Such fees may be set in any lawful method, including, but not limited to, a time and materials basis with a deposit account, standard fee based on the estimated reasonable cost, or a standard fee with a time and materials surcharge for unusual effort. Such fees are necessary and appropriate to reimburse the District for costs of services performed, or to be performed by the District. Costs for other District efforts associated with development projects, not provided by these development fees, shall be charged based on District staff, equipment, and material costs, including administrative costs. Charges shall be paid prior to plan approval or project acceptance, as determined by the District Engineer or designee.

Any and all fees and deposits paid to the District shall be in United States funds, cash, check, or electronic transfers.

7600.01 Method of Determination

Development Fees shall be in the amounts established by separate ordinance or resolution of the Board for services including but not limited to the following:

1. Plan Check
2. Inspection
3. Meter Sets

7600.02 Adoption of and Amendments to Fee Schedule

A Fee Schedule and revisions or amendments thereto shall be adopted by Resolution of the Board of Directors after conducting a duly noticed public hearing to receive comments on the Schedule.

The Fee Schedule shall typically be reviewed in conjunction with evaluation, establishment and adoption of other District charges and fees.

7600.03 Payment of Development Fees

Plan Check: Development Fees associated with project plan check shall be paid by the project applicant (Applicant) in full prior to plan approval. Project plan check fees assume review of three (3) iterations of improvement plans for which the fees are charged; review of additional iterations is beyond typical services and will require additional charges. Payment for additional plan check services beyond typical services shall be made prior to approval of plans.

Inspection: Development Fees associated with project inspection (submittal reviews, meetings, inspection, and testing of water system improvements) shall be paid in full prior to commencement of any water facilities construction related activities.

Meter Set: Development Charges associated with meter sets (meter and meter installation

by District) shall be paid in full prior to commencement of any water facilities construction related activities.

Other fees and charges established by the Board shall be due and payable as specified in the ordinance or resolution establishing such fees or charges.

Fees associated with work that is outside the scope of the approved plans or that will be performed outside the District's normal business hours shall be paid in a timely manner and prior to project acceptance.

7600.04 Failure to Timely Pay Fees and Charges

Failure to pay fees or charges incurred during construction and prior to project acceptance may result in halt in construction inspection, provision of services that the District provides, or project acceptance by the District/notice of completion, until such fees or charges are paid in full.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : WATER SERVICE
POLICY TITLE : BASIS OF SERVICE
POLICY NUMBER : 8200
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED :

8200.00 BASIS OF SERVICE

The District may provide water service to a customer, or an applicant or developer requesting service from the District for its property, providing the following conditions are met.

8200.01 Service Area Requirement

No connection shall be made and no service shall be provided to a customer and/or property outside of the District's service area without the approval of the District Board of Directors and the Local Agency Formation Commission (LAFCo).

8200.02 Requirement of Supply Capacity

The District must possess adequate water supply to serve the requested water demands.

8200.03 Adequate Infrastructure – Existing Adjacent Mains

No connection for service provided by the District shall be made if sufficient capacity is not available in the District's water system, as determined by the District's Board of Directors. District water mains of adequate capacity must exist in public right(s)-of-way adjacent to the applicant's parcel.

8200.04 Adequate Infrastructure – No Existing Adjacent Mains

If an existing main of adequate capacity does not exist, the applicant shall provide a main at their own expense, which shall be constructed in the public right(s)-of-way adjacent to the entire frontage of the parcel and/or in an approved easement. All main extensions shall be designed and constructed in accordance with all applicable District Standards, Policies, and Master Plan.

If extending the main along the entire frontage of the parcel is deemed not economical by the District Engineer, the District may allow a water meter to be set at the nearest water main. The applicant shall then install a service line at their own expense from the water meter to the property and shall be responsible for obtaining

appropriate property rights required for installation and maintenance of the water service line.

8200.05 Application for Water Service

A new connection for water service will be considered only after an application for water service has been filed with the District in compliance with Policy 8300.

8200.10 WATER USE

Water from the District shall be used for all domestic and irrigation purposes within the District's water service area, provided that the following conditions are met:

A. Water Use Prioritization
   1. There is not an alternative higher or better use for the water.
   2. The proposed water use is economically justified, financially viable, and technically feasible.

B. Compliance and Sustainability
   1. Water use complies with state law and regulatory requirements.
   2. Water use preserves public health, safety, and welfare.
   3. Water use aligns with environmental protection standards.

8200.11 New Development – Water Service Required

Unless otherwise provided under this policy, all new development within the District's water service area may only use water from the District for domestic and irrigation uses. New development shall install water facilities in conformance with the District's Standards, as amended from time to time. Subject to requirements or decisions issued by applicable land use authorities within the District's service area, such water facilities shall be connected to and use District water services.

8200.12 New Development – Water Service Exemption

New development within the District's water service area shall be exempt from the requirements of this section if the District Engineer makes any of the following determinations:

A. Water service is not economical because of its distance from available or planned water sources. The determination that water service is not economical shall be determined by the District Engineer using studies as deemed appropriate. Nothing shall require that the District Engineer hold a hearing or take any evidence.
B. Demands within the development are very slight relative to overall water demands.
C. Inadequate water supply is available to serve the demand.
D. The requirements set forth in this section conflict with requirements or decisions issued by local land use authorities.

Applicants who drill their own wells are not subject to this section, with the exception that a backflow prevention device shall be installed if the applicant's property is also connected to the District's water system as required under Policy 8400.31.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : WATER SERVICE
POLICY TITLE : APPLICATION FOR WATER SERVICE
POLICY NUMBER : 8300
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED :

8300.00 APPLICATION FOR WATER SERVICE

Each potential customer desiring water service from the District shall file an application for water service with the District.

The District will not provide water service to any parcel unless an application for water service has been filed with the District. Receipt of the application shall not obligate the District to provide water service until the application has been approved by the District Engineer.

8300.01 Application For Service – New Service

An applicant requesting water service shall file a completed application with the District, as provided in the District Standards.

8300.02 Application For Service – Change In Service

An applicant shall complete an application with the District as provided in the District Standards, for the following services.

A. Request modifications to water facilities due to different anticipated or current water demands placed on District services previously approved.
B. Requesting service where all service lines are already in place and improvements are required to connect to the service line.

8300.10 REFUSAL OF SERVICE

The District shall have the right to refuse to furnish water or to discontinue water service to any premises for the following reasons:

A. To protect the District and/or the water system from fraud and abuse;
B. The requested water service demand may be detrimental or harmful to the water system, other existing customers, or harmful to the environment or public health;
C. The water service does not meet the requirements of Policy 8200, Basis of Service.
D. Non-payment of District fees and charges.

8300.20 REQUIREMENT OF PAYMENT OF FEES

Service to a customer and/or to property will be granted only if the fees due at time of connection and any bills and penalties to or against the property by the District are paid.

8300.30 NON-APPLICABILITY TO DISTRICT

The provisions of this policy do not apply to the District when it is obtaining District services for its own use or for use on real property owned by the District.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : WATER SERVICE
POLICY TITLE : SERVICE REQUIREMENTS
POLICY NUMBER : 8400
DATE ADOPTED : JANUARY 21, 1997
DATE AMENDED : FEBRUARY 6, 2001, JUNE 24, 2025

8400.00 REQUIREMENT OF SEPARATE SERVICE CONNECTIONS

8400.01 Separate Service Connection for Each Building

Each building shall have a separate water meter, except for an accessory dwelling unit contained within the existing space of a single-family residence. The District Engineer may allow a single meter and service to serve multiple buildings on the same property, provided that the buildings have substantially similar use, or are common spaces such as pools, community buildings, or laundry facilities.

Multi-family residential communities, consisting of one or more residential buildings, to accommodate three (3) or more households living independently of each other in separate dwelling units, and mobile home communities, consisting of any site on which two or more residential mobile home lots are located, may be served by a common meter or by separate meters, as determined by the District Engineer.

8400.02 Separate Service Connection for Service Types

With the exception of single-family residences, fire services and other service types shall have a separate meter and water service connection to the District water system, unless otherwise approved by the District Engineer.

8400.03 Separate Service Connection for Each Property

Each parcel of land shall be served by a separate water service, except for irrigation water meters serving multiple parcels under common ownership, unless otherwise approved by the District Engineer.

8400.10 REQUIREMENT OF APPROVAL OF SERVICE CONNECTION

Service connections to the mains (private or public) shall be made only with approval of the District Engineer, at points and in a manner approved by the District Engineer.

Connection of a water service, or any portion thereof, to the District's systems shall be made

by the applicant and at the applicant's expense. Construction of any water service must be completed in accordance with the applicant's approved plans and in compliance with the District's Standards, to the satisfaction of the District Engineer. Once approved by the District, the applicant may begin use of the water service.

8400.20 SIZE AND LOCATION OF SERVICE CONNECTIONS

The District shall regulate the size and location of each water meter and service.

Water service size shall be in accordance with Section 8400.21, and no less than the size of the water meter. Water meter size shall be in accordance with Policy 8404.

Water service line and meter locations shall be in accordance with the District Standards, as amended from time to time.

8400.21 Water Service Size

For single-family residential parcels, the water service line size shall be equivalent to the water meter size, except for three-quarters (3/4) inch meters which shall require a water service line one (1) inch in diameter. Residential parcels requesting water service line greater than the minimum will be evaluated on a case-by-case basis.

For multi-family residential and non-residential parcels, service line sizes shall be as determined by the Applicant's engineer and approved by the District Engineer.

8400.30 PROHIBITION OF CROSS-CONNECTIONS

No person, firm, or corporation may make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time, a cross-connection between plumbing pipes or water fixtures being served by the District and any other water supply source. No sanitary sewer fixture or other appurtenances or fixtures may be maintained which, by reason of their construction, may cause or allow backflow of water or other substances into the District water supply system and/or the service connections or fixtures of any customer of the District.

To obtain water service, a customer or applicant shall install a backflow prevention assembly where required by the District.

8400.31 Where Protection Is Required

A. Protection shall be required at or as close as possible to each service connection from the public water system that supplies water to premises having an auxiliary water supply.

B. Protection shall be required at or as close as possible to each service connection from the public water system that supplies water to premises on which any substance is or may be handled in such a manner as to permit

entry into the public water system, including water originating from the public water system which is or may be subjected to deterioration in sanitary quality.

C. Protection shall be required at or as close as possible to each service connection to any premises that has cross-connections unless such cross-connections are abated to the satisfaction of the District.

8400.32 Installation of Backflow Prevention Assemblies

Where protection is required in Section 8400.31, the customer shall install a backflow prevention device as required in the District Standards and under Resolution 10-2017. The approved backflow prevention device shall be installed in conformance with the installation requirements contained in the District's most current Standards.

8400.33 Maintenance and Inspection of Backflow Prevention Assemblies

The costs of the approved backflow prevention device, its replacement, maintenance and inspection are the responsibility of the customer. Testing of the device must be performed by the District or an approved backflow prevention device tester, who is on the District's current list of approved testers. The customer shall submit an annual backflow prevention device test report to the District.

8400.34 Upgrade of Backflow Prevention Assemblies to Current Standards

A previously installed device which does not conform to current standards may remain in operation until such time as it requires replacement, any incidents of backflow have occurred, any changes are to be made to the premises it serves, any change in use of the premises occurs, or any updates to local or State regulations require replacement. Should any one of the aforementioned events occur, the previously installed device shall be replaced with a current approved device.

8400.40 RESTRICTIONS ON USE OF SERVICE

The use of a service connection is limited to the specific use for which the application for service is filed. If any development occurs that is different from the original project, then the District may have additional requirements or require additional fees.

All of the land covered by the approved application for service must remain owned by a single property owner. If any part of the land is transferred into separate ownership, additional capacity fees and service charges may apply.

The District may periodically inspect the premises. If a violation of this policy is found, a charge for service shall be made to cover the period during which unauthorized service was obtained, as determined by the District Engineer and approved by the Board. Nothing in this policy shall be construed to limit the availability of any other remedies provided herein or otherwise, including termination of service.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE	: WATER SERVICE
POLICY TITLE	: METERING OF WATER SERVICES
POLICY NUMBER	: 8404
DATE ADOPTED	: JANUARY 21, 1997
DATE AMENDED	: APRIL 1, 2003; JUNE 24, 2025
AUTHORITY	: SB 229

8404.00 METERING OF WATER SERVICES

District requires meters for all water services. Meters shall be installed per the District Standards at the point of connection to the District's water main, unless otherwise authorized by the District Engineer.

Water meters shall read on a frequency of not less than bi-monthly.

8404.10 METERING REQUIREMENTS

New services, including conversions of existing services to alternate use types, shall be metered at the expense of the property owner, developer, or governmental agency. All services equipped with meters will be billed immediately upon meter installation, unless the property owner requests the meter to be locked or turned off.

Parcels shall have a separate irrigation meter when the parcel includes more than the prescribed square footage of irrigable landscape area per the authority having jurisdiction. The irrigation meter shall be either part of a dedicated metered irrigation service from the District or a privately owned submeter.

8404.20 BILLING

Billing shall be on a bimonthly basis pursuant to Accounts Receivable Policy 7170.

8404.30 WATER METER SIZES

Meters shall be sized by the project engineer to sufficiently serve the water demands of the property or project.

All other water meter sizes shall be as identified in the following sections.

8404.31 Single Family Residential

A. Single Dwelling – Detached: Single parcel with one (1) detached dwelling unit; minimum one (1) inch meter.
B. Single Dwellings – Detached: Single parcel with two (2) detached dwelling units, one of which is an accessory dwelling unit; minimum one (1) inch meter. An additional service line and minimum three-quarters (3/4) inch meter may be allowed for the accessory dwelling unit.
C. Halfplex Dwelling – Attached: Common wall halfplex designed for occupancy by two households, each side being its own parcel; minimum three-quarters (3/4) inch meter per parcel.
D. Duplex Dwelling – One side: Common wall duplex designed for occupancy by two households living independently of each other, on a single parcel; one (1) service line supplying each side, minimum three-quarters (3/4) inch meters.
E. Condominium/Townhome: Multiple (3 or more) attached dwellings, where each unit has its own front access at the ground floor, each having its own service; minimum three-quarters (3/4) inch meter.

Residential parcels requesting water meter size greater than the minimum will be evaluated on a case-by-case basis.

8404.32 Multi-Family Residential

For multi-family residential communities, consisting of one or more residential buildings, each divided to accommodate three (3) or more households living independently of each other in separate dwelling units, and mobile home communities, consisting of any site on which two or more residential mobile home lots are located, meter sizes shall be as determined by the Applicant's engineer based on maximum continuous demand and approved by the District Engineer.

8404.33 Non-Residential

For non-residential parcels, including but not limited to parcels designated for any commercial, institutional, or industrial uses, meter sizes shall be as determined by the Applicant's engineer and approved by the District Engineer, but no less than 1-inch.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : INFRASTRUCTURE
POLICY TITLE : WATER SYSTEM MASTER PLAN
POLICY NUMBER : 9000
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED :

9000.00 MASTER PLAN

The Water System Master Plan (WSMP) is the primary long-term planning document for the Capital Improvement Plan. The WSMP shall have up to a 25-year planning horizon and identify projects and their planning-level funding requirements. The WSMP shall be updated periodically. The purpose of the WSMP is to provide a sound basis for establishing goals and making decisions concerning current and future District operations.

9000.01 Contents of the WSMP

Elements covered with the WSMP may include, but are not limited to, areas such as water supply, water demand, finances, capital improvements, environmental impacts, and organizational issues pertinent to the mission of the District. Any elements that will serve to support future planning and decision making may be incorporated as part of the WSMP.

9000.02 Preparation of the WSMP

The WSMP and revisions or amendments thereto shall be prepared under the direction of the District Engineer and presented to the Board of Directors for review and consideration for adoption.

9000.03 Adoption of the WSMP

The Master Plan and revisions or amendments thereto shall be adopted by Resolution of the Board of Directors.

9000.04 Review and Amendment of the WSMP

The District shall review the WSMP every five years following its initial adoption, or more often as necessary, to determine if an amendment of the WSMP is required.

9000.05 Administration of the WSMP

The General Manager shall administer and implement the WSMP at their discretion. The administration and implementation of the WSMP is subject to direction from the Board of Directors. The Board of Directors retains the authority to consider and separately authorize all matters contained in the WSMP.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : INFRASTRUCTURE
POLICY TITLE : CAPITAL IMPROVEMENT PLAN
POLICY NUMBER : 9010
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED :

9010.00 CAPITAL IMPROVEMENT PLAN

A Capital Improvement Plan (CIP) shall be prepared, implemented, and maintained to be used as a planning tool to assist the District in construction and replacement of capital facilities required to provide water service to current and future customers.

9010.01 Contents of the CIP

The CIP shall incorporate projects identified in the most recently adopted WSMP. The CIP shall identify and quantify potential capital improvement projects. The CIP shall also include estimated construction costs and project schedule.

9010.02 Preparation of CIP

The CIP shall be prepared under the direction of the General Manager and presented to the Board of Directors for review and consideration.

9010.03 Adoption of the CIP

The CIP shall be adopted by Resolution of the Board of Directors. Revisions and amendments thereto shall be at the discretion of the General Manager.

9010.04 Review and Amendment of the CIP

The CIP shall be reviewed annually. Adoption of a revised or amended CIP shall be conducted each year prior to establishing the budget for the following year.

9010.05 Administration of the CIP

The General Manager shall select and schedule the replacement of District facilities at their discretion, subject to sufficient funding availability. The Board of Directors retains the authority to consider and separately approve all capital improvement projects contained in the CIP.

Estimated construction or replacement dates contained in the CIP are planning estimates only and shall not be considered as a commitment to construct or replace said facilities.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : INFRASTRUCTURE
POLICY TITLE : ENGINEERING STANDARDS
POLICY NUMBER : 9100
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED :

9100.00 PURPOSE

The purpose of this policy is to establish Engineering Standards for the design and construction of improvements to the District's water system. Engineering Standards are necessary to require minimum acceptable quality of design and construction of water infrastructure improvements. All improvements, modifications, and repairs to the District's water system will be planned, designed, and constructed in conformance with these Engineering Standards, any applicable District Regulations, and with any applicable special conditions that have been approved by the District.

9100.10 AUTHORITY

In conformance with the California Water Code, Division 12, County Water Districts, the General Manager has the full responsibility and authority to set standards for the planning, design, construction, modification or repair of the District's water system. The Board of Directors recognizes this authority and through this document, acknowledges this as the policy of the District.

9100.20 RESPONSIBILITY

The primary responsibility for enforcement of the policies in Series 9000 is vested in the District Engineer. The District Engineer or General Manager may authorize a field inspector or other employee of the District to act as an agent of the District on behalf of the District Engineer, with the power to inspect and issue notices of violations of this policy.

9100.30 GUIDELINES

9100.31 Design

All design work for water facilities, including the preparation of design plans, specifications, reports, and other associated documentation, shall be conducted in strict compliance with the District Engineering Standards, or variance thereof, as

approved by the District Engineer. All design plans, specifications, reports, and other associated documents shall be prepared by a professional civil engineer registered in the State of California.

9100.32 Construction and Inspection

All water facility construction work in the District shall be done in strict compliance with the Applicant's improvement plans and the Engineering Standards, as each is approved by the District Engineer.

9100.33 Right of Inspection and Access

The General Manager and the officers and agents of the District shall have unrestricted access at reasonable hours to all premises to which the District provides services to inspect the water facilities, meter, or other measuring apparatus and to see that the Engineering Standards regarding the installation of water facilities, and taking, use, or waste of water are being observed.

9100.14 Adoption of the Engineering Standards

The Board of Directors shall adopt the District Engineering Standards by resolution.

9100.15 Review and Amendment of the Engineering Standards

District Engineer shall have authority to update technical engineering details, drawings, and standards. Substantive changes to administrative requirements shall be presented to the Board of Directors for adoption.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : INFRASTRUCTURE
POLICY TITLE : DEVELOPMENT INFRASTRUCTURE EXPANSION
POLICY NUMBER : 9200
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED :

9200.00 PURPOSE

The purpose of this policy is to establish clear guidelines and responsibilities for the planning, design, construction, funding, operation and maintenance of the District water system expansion. This policy provides framework for decision-making related to infrastructure expansion by development, including the roles of the District and Applicants (the owner of property being developed, the property developer, or their agent or representative) in funding and constructing facilities, the criteria for property dedication, and the process for asset acceptance.

9200.10 MAJOR INFRASTRUCTURE

For the purposes of this policy, major infrastructure includes, but is not limited to, all wells, , pump stations, storage tanks, chemical addition, and other similar facilities which provide for water distribution and/or production, as well as the primary interconnecting pipeline loop between facilities and all pipelines with a diameter equal to or greater than 14 inches. The District retains the right to define specific major infrastructure on a “case by case” basis.

9200.11 Major Infrastructure Planning, Design, and Construction

The District shall be directly responsible for the planning, design, and construction of major infrastructure directly through the District's organization. This policy applies to major infrastructure regardless of its location or portion of the District’s service area benefitted thereby.

At its option, the District may assign by written agreement the design and construction responsibilities for such major infrastructure to an Applicant to minimize construction conflict or to serve development areas in a timely manner. The agreement assigning the design and construction responsibilities to an Applicant shall specify terms of reimbursement for design and construction of major infrastructure and include terms requiring the Applicant to strictly comply with any District Standard, as approved by the District Engineer. Such agreement shall conform to the requirements of Policy

9200.12 District Maintenance Responsibility

The District shall maintain major infrastructure that is sized to meet future demands in suitable operating condition to provide service to future customers using the excess capacity built into major infrastructure.

A buy-in component shall be incorporated into Capacity Fees related to the portion of the capacity of the major infrastructure that is reserved for future growth within all or a portion of the District's service area.

9200.13 District Funding Responsibility

The District shall fund planning, design, construction, and renewal and replacement costs of major infrastructure from capacity fees or other special financing arrangements paid by those within the District's service area, or portion thereof, that receive the benefit of the major infrastructure.

9200.20 MINOR INFRASTRUCTURE

For the purposes of this policy, minor infrastructure includes all water system infrastructure that is not defined as major infrastructure in Section 9200.00.

9200.21 Minor Infrastructure Planning, Design, and Construction

The Applicant shall be directly responsible for the planning, design, and construction of all minor infrastructure, and associated costs thereof, to extend water service and distribute water within its project area. All minor infrastructure shall be in full compliance with the requirements of District's most recent Water System Master Plan, Policies, Standards, and such other pertinent requirements specified by the District.

The Applicant shall donate minor infrastructure to the District in accordance with District Standards after completion of installation of minor infrastructure.

9200.22 Applicant Funding Responsibility

The Applicant shall plan, design, and construct all minor infrastructure at the Applicant's sole expense.

For minor infrastructure upsized to provide water service to extended areas in addition to the Applicant's project area, the design and construction responsibilities may be revised, at the sole discretion and approval of the District Engineer. The terms of such revision shall be included in a written agreement between the District and the Applicant and conform with Policy 9300.

9200.23 Operation and Maintenance of Facilities

Minor facilities constructed by the Applicant shall be maintained by the Applicant, and at the Applicant's sole expense, until the facilities have been accepted by the District.

9200.30 PROPERTY DEDICATION

The District requires dedication of sufficient and necessary real property interests to the District for all infrastructure.

For all items of major infrastructure, excluding pipelines, such real property interest shall be fee title. For pipelines, such real property interests may be an easement interest that provides the District with the perpetual right to operate, maintain, repair and replace the facilities, or an alternative property right determined by the District to be sufficient for its purposes, such as use of a public right-of-way.

9200.40 ACCEPTANCE OF DONATED ASSETS

Upon the completion of the facilities constructed by the Applicant in accordance with the plans and specifications and to the satisfaction of the District Engineer, and upon dedication of easement(s) or fee interest in land associated with the work, the District shall accept the work of improvement.

The Applicant shall warranty all donated facilities for one year. The warranty period shall begin on the date of final acceptance by the District.

9200.50 DISTRICT DISCRETION

The District shall determine, from time to time, at the sole discretion of the District, the size and location of all major and minor infrastructure, and the portion of the District's service area benefited thereby.

CITRUS HEIGHTS WATER DISTRICT
POLICIES AND PROCEDURES MANUAL

POLICY TYPE : INFRASTRUCTURE
POLICY TITLE : REIMBURSEMENT
POLICY NUMBER : 9300
DATE ADOPTED : JUNE 24, 2025
DATE AMENDED

9300.00 REIMBURSEMENT POLICY

Whenever the Applicant is required in accordance with Policy 9200, Development Infrastructure Expansion, to install or upsize infrastructure to benefit properties beyond its own properties planned to be developed, the Applicant may apply for reimbursement for all or portion of such installation, under this policy.

9300.10 APPLICATION

An Applicant who is required by the District to provide infrastructure improvements for dedication to public use, may apply for a reimbursement agreement prior to design approval. Infrastructure improvements eligible for reimbursement consideration include facilities which:

A. Include increased size and capacity, numbers, length, or configuration, beyond minimum required by the District Standards to support the Applicant's proposed service demands; and
B. Specially benefit parcels of property for which the Applicant does not have interest or property ownership.

Under the reimbursement agreement, the infrastructure improvements shall be designed and constructed, and the costs shall be reimbursed to the Applicant as provided in the reimbursement agreement.

9300.20 REIMBURSEMENT AGREEMENTS

9300.21 Minimum Provisions

Any reimbursement agreement shall include, but not be limited to:

A. Description of facilities subject to reimbursement
B. Provisions associated with the amount of reimbursable costs
C. Provisions relating to the design of the improvements
D. Provisions relating to construction of the improvements

E. Payment of all District fees and costs
F. Indemnification of the District
G. The term of the agreement which shall not exceed ten (10) years
H. Collection and payment of the reimbursement charge
I. Requirements for paid invoices for all work to be reimbursed
J. Requirements for bonding and adequate insurance coverage
K. Such other provisions as the Board of Directors deems appropriate
L. Requirements for bidding

Each agreement is subject to approval as to form by counsel for the District. The District shall reimburse the Applicant based on the actual construction cost of the facilities, as documented by paid invoices.

9300.23 Agreement Required Prior to Commencing Work

A reimbursement agreement shall be executed prior to the work described in the agreement. The District will not recognize any reimbursement request unless a reimbursement agreement between the District and the Applicant has been executed.

9300.30 CONSTRUCTION OF INFRASTRUCTURE UNDER REIMBURSEMENT AGREEMENTS

9300.31 Bid Requirement

The Applicant shall solicit no fewer than three competitive bids for the construction of the infrastructure improvements and shall award the contract to the lowest responsive bid from a responsible bidder. However, if the Applicant is licensed by the state to conduct the business of contracting which includes construction of improvements of the kind and nature described in the reimbursement agreement, the Applicant may construct the improvements.

9300.32 Standards

Infrastructure improvements shall be constructed in strict compliance with the plans and specifications approved, or other requirements established, by the General Manager. Construction of the improvements shall not commence until the District has approved the plans and specifications and established such requirements.

9300.40 OWNERSHIP OF IMPROVEMENTS

Upon completion of construction of the infrastructure improvements and acceptance thereof by the District, title to the improvements shall vest in the District.

9300.50 ACCEPTANCE AND REIMBURSEMENT

Reimbursement according to the terms of the reimbursement agreement shall not be provided until construction of infrastructure improvements is complete and the District has issued final

written acceptance of all improvements as installed per the approved plans. Reimbursement will not be provided if any of the conditions of this Policy or of the reimbursement agreement are not satisfied.

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**ANNUAL COMPREHENSIVE FINANCIAL REPORT (ACFR) FOR YEAR ENDED DECEMBER 31, 2024**
Status:	Action Item
Report Date:	June 16, 2025
Prepared By:	Annie Liu, Director of Administrative Services

OBJECTIVE:

Consider a motion to receive and file the following:

- Citrus Heights Water District's (District) Annual Comprehensive Financial Report for the Year Ended December 31, 2024 (Attachment 1); and
- Report on Internal Controls and Required Communications (Attachment 2).

BACKGROUND AND ANALYSIS:

Accompanying this report for the Board's review is the District's Annual Comprehensive Financial Report (ACFR) for the year ended December 31, 2024.

In prior years, the District had issued Basic Financial Statements (BFS), which include the Independent Auditor's Report, the Management's Discussion and Analysis, and the District's financial statements. For the fifth year, District staff, with the assistance of the District's auditors, Lance, Soll & Lunghard, LLP (LSL), prepared the District's ACFR in accordance with guidelines established by the Government Finance Officers Association (GFOA). The ACFR includes information for a two fiscal period but is only dated for the audited fiscal period. The focus of the ACFR is the audited fiscal year. The immediately preceding year information is

included for comparative purposes. Nick Parkins, CPA, of LSL, will be available at the June Board meeting to present and answer questions related to the District's financial records and reporting.

The GFOA established the Certificate of Achievement for Excellence in Financial Reporting Program (COA Program) in 1945 to encourage and assist state and local governments to go beyond the minimum requirements of generally accepted accounting principles and to prepare annual comprehensive financial reports in the interest of providing greater transparency and disclosure. Staff submitted its 2023 ACFR for consideration for the Certificate of Achievement and received the award in December 2024. Staff intends to submit the District's 2024 ACFR to the GFOA Certificate of Achievement (COA) Program for consideration for a COA. The additional effort required to prepare an ACFR helps to raise the District's financial statements to the next level in terms of financial reporting, transparency, and accountability.

An ACFR presentation differs from the previous financial statement reports in that it includes the following sections, in addition to the financial section:

- Introductory Section – introduces the basic financial statements and provides an analytical overview of the District's activities. This expanded analysis is useful in assessing regional economic and social conditions that may impact the District's financial outlook.
- Statistical Section – comprises ten years of comparative statistical data that includes information on financial trends, revenue capacity, debt capacity, socioeconomic factors, and water system resources.

Some key highlights from the 2024 ACFR and related work include:

- Unqualified audit opinion – the District's auditors, LSL issued an unqualified, or clean, opinion on the District's financial statements.
- Ending net position of $99,956,688 – the District's net position increased by $6.6 million or 6.5% over 2023.

Upon the Board's receipt and file of this ACFR, Finance Staff will submit the ACFR to the State Controller's Office, Sacramento County, Placer County, State Water Resources Control Board, Association of California Water Agencies (ACWA, and Debt Counsel in compliance with statute.

RECOMMENDATION:
Receive and File the District's Annual Comprehensive Financial Statements for the Year Ended December 31, 2024.

ATTACHMENTS:

1) Annual Comprehensive Financial Report for the Year Ended December 31, 2024.
2) Report on Internal Controls and Required Communications for the Year Ended December 31, 2024.

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

ATTACHMENT 1

Annual Comprehensive Financial Report for the Year Ended December 31, 2024

CITRUS HEIGHTS WATER DISTRICT

ANNUAL COMPREHENSIVE FINANCIAL REPORT

FISCAL YEAR ENDING
DECEMBER 31, 2024

ANNUAL COMPREHENSIVE FINANCIAL REPORT

Fiscal years ending December 31, 2023 and 2024

Citrus Heights Water District

Citrus Heights, CA

Prepared by:
Citrus Heights Water District
Administrative Services Department

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Citrus Heights, CA 95610
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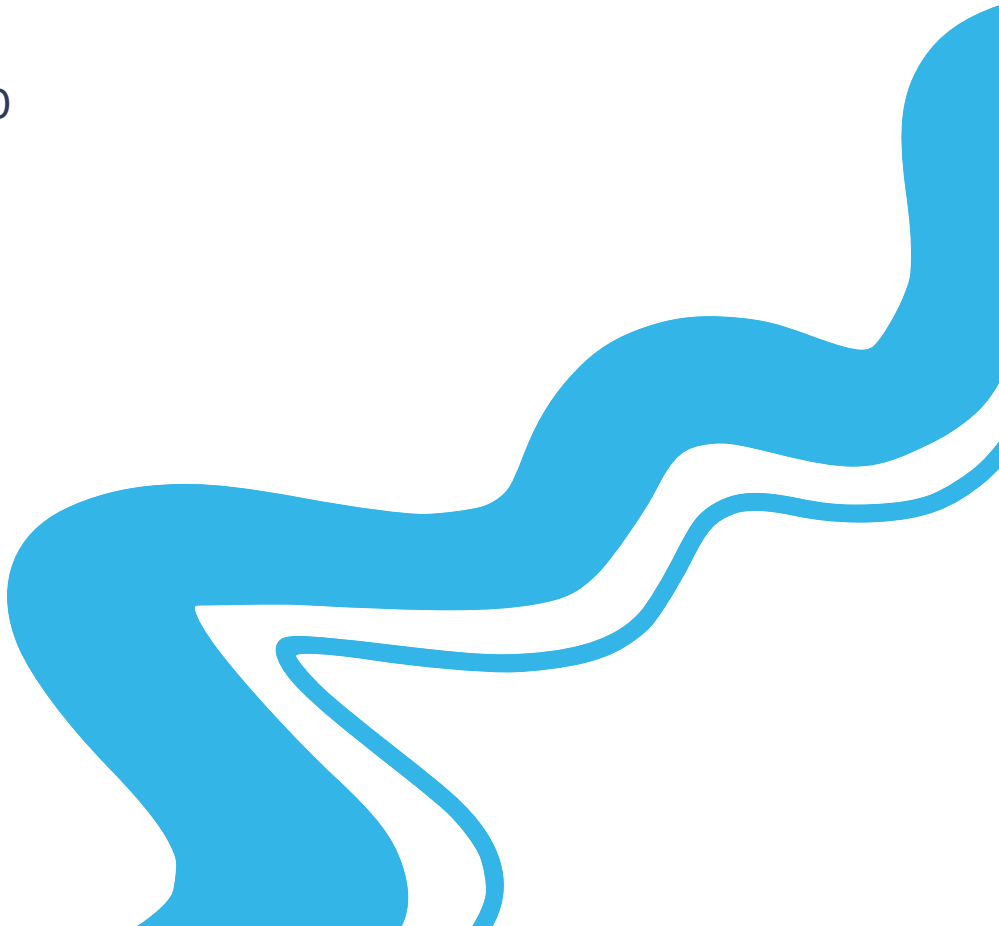

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CITRUS HEIGHTS WATER DISTRICT

Annual Comprehensive Financial Report

For The Years Ended December 31, 2024

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INTRODUCTORY SECTION

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Board of Directors
Raymond A. Riehle, President
Caryl F. Sheehan, Vice President
David Wheaton, Director

Hilary M. Straus, General Manager/Secretary
Annie Liu, Director of Administrative Services/Treasurer

June 16, 2025

Honorable Members of the Board of Directors:

We are pleased to present the Citrus Heights Water District's ("District" or "CHWD") eighth Annual Comprehensive Financial Report ("ACFR") for the fiscal year ending December 31, 2024. This report was prepared by District staff in conformity with Generally Accepted Accounting Principles ("GAAP") and audited in accordance with generally accepted auditing standards by a firm of certified public accountants.

The ACFR provides an assessment of the District's financial condition, informs readers about District services, includes information about capital improvement projects, and discusses current initiatives within the District's Basic Financial Statements. Financial and demographic trend information is provided within the statistical section located at the end of the report. District Management is responsible for the accuracy of the data presented and the completeness and fairness of the presentation, including all disclosures. As management, we assert that, to the best of our knowledge and belief, the information and data, as presented, is accurate in all material respects and it is presented in a manner that provides a fair representation of the financial position and operations of the District. Furthermore, all disclosures that are necessary to enhance the Board's understanding of the financial condition of the District have been included.

The District's financial statements have been audited by LSL, LLP(LSL), a firm of independent certified public accountants. The goal of the independent audit is to provide reasonable assurance that the financial statements of the District for the fiscal year ending December 31, 2024 are free of material misstatements. The independent audit involved examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements; assessing the accounting principles used and significant estimates made by management; and evaluating the overall financial statement presentation. The independent auditor concluded, based upon the audit, that there was a reasonable basis for rendering an unmodified opinion that the District's financial statements for the fiscal year ending December 31, 2024, were fairly presented in conformity with GAAP. The Independent Auditors' Report is presented as the first component of the financial section of this report.

GAAP requires that management provide a narrative introduction, overview and analysis to accompany the financial statements in the form of the Management's Discussion and Analysis (MD&A) Section. This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. The MD&A can be found immediately after the Independent Auditors' Report.

Profile of Citrus Heights Water District

The District was established in 1920 as the Citrus Heights Irrigation District, encompassing slightly more than 4.7 square miles and serving approximately 225 farms. CHWD currently

serves water to a population of approximately 67,000 people within an approximate 13-square-mile service area.

The District carries out its mission with a highly motivated and competent staff that is empowered to conduct the District's business by placing the customers' needs and welfare first. Each day, the District's employees strive to carry out their work, mindful of the District's mission, "to furnish a dependable supply of safe, quality water delivered to its customers in an efficient, responsive, and affordable manner."

Governance and Organizational Structure

CHWD is a special district established by the State of California. The District is governed by a three-member Board of Directors elected to a four-year term by voters who reside in the District's service area. Since 2020, CHWD Board elections are "By-District," whereby only those customers who reside in the same CHWD District that a Board Member lives in will vote for that Board position. In 2024, The District was staffed by 38 full-time equivalent employees assigned to four departments: Administrative Services, Public Affairs, Engineering, and Operations. The General Manager and District General Counsel are appointed by, and report directly to, the Board of Directors. All other staff members report to the General Manager or designee.

Water Supply

In 2024, the District purchased 94% of its water from San Juan Water District (SJWD) and delivered it to more than 20,000 residential and commercial service connections. Additionally, the District maintains six groundwater wells and approximately 253 miles of pipeline. CHWD has delivered groundwater to customers since 1943.

Accounting and Budget Structure

CHWD operates as an enterprise fund with a fiscal year that begins January 1 and ends on December 31. GAAP requires local governments to use a proprietary-type fund, such as an enterprise fund, to account for business-type activities similar to those found in the private sector. An enterprise fund is one in which the expenditures are supported by fees collected primarily through charging users in exchange for services. CHWD operations are supported entirely by fees collected from customers in exchange for providing water service and managing the groundwater basin.

CHWD's management is responsible for the establishment and maintenance of the internal control structure that ensures the assets of the District are protected from loss, theft or misuse. The internal control structure ensures that adequate accounting data is compiled to allow for the preparation of financial statements in conformity with GAAP. CHWD's internal control structure is designed to provide reasonable assurance that these objectives are met. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived, and the valuation of costs and benefits requires estimates and judgments by management.

CHWD's Board adopts a budget prior to each fiscal year. The budget authorizes and provides the basis for reporting and control of financial operations, accountability for CHWD's

enterprise operations, and capital projects. The budget is presented on the accrual basis of accounting and is consistent with the presentation of CHWD's ACFR. As part of the budget process, a Financial Model is updated annually to analyze revenue and expenses along with capital improvements. Also, beginning in FY2018, CHWD's Board adopted an accelerated payoff schedule to reduce the District's unfunded actuarial liability to the following: 20 years (other post-employment benefits) and 15 years (pension) amortizations. This accelerated payoff will result in savings to the District's customers versus the previous, longer amortization.

Financial Policies

The CHWD financial policies include many of the District's financial management practices that are used for operational and strategic decision making. These policies also allow the Board of Directors and community stakeholders to monitor how effectively the District is managing its financial responsibilities, as well as providing a means for holding the District fiscally accountable. These policies are reviewed annually to incorporate minor changes to existing policy, or major shifts in financial priorities at the discretion of the Board of Directors.

- Investment Policy – The Board has adopted an investment policy that conforms to state law, CHWD's ordinances and resolutions, prudent money management, and the "prudent person" standards. The objectives of the Investment Policy are safety, liquidity, and then yield. Since 2022, funds have been invested in various securities as authorized by CHWD's Investment Policy, with part of the District's funds invested in California Asset Management Program (CAMP) and California's Local Agency Investment Fund (LAIF).

- Reserve Policies – During 2024, the District has 10 Reserve accounts with supported policies to balance ongoing operations to capital improvement programs. These funds are allocated to the maintenance, repair, replacement, or improvement of water system infrastructure. Adequate reserves, along with sound financial policies, provide financial flexibility to counter unanticipated expenditures or revenue fluctuations.

Audit and Financial Reporting

State Law and bond covenants require CHWD to obtain an annual audit of its financial statements by an independent Certified Public Accountant. The accounting firm of LSL conducted the audit of CHWD's financial statements. Their unmodified Independent Auditor's Report appears in the Financial Section.

Risk Management

CHWD participates in the Association of California Water Agencies Joint Powers Insurance Authority (ACWA/JPIA) for the purchase of workers' compensation, liability, property, automobile, and fidelity insurance. The typical liability limits are $5 million per incident / occurrence.

Economic Condition, Outlook and Major Initiatives

CHWD is primarily in a residential community, with some commercial enterprises within its boundaries. The District's service area is largely built out; therefore, the District does not anticipate a significant growth in revenue based upon substantial new development. The District is forecasting a slow but steady revenue increase based on 0.5% growth per year from the demand in small in-fill of housing or commercial development within District boundaries.

CHWD operates as an enterprise fund, meaning the costs of providing water service and protecting groundwater resources are financed by rates and fees charged to District customers. Since the District does not receive tax revenue, operating revenues consist primarily of water sales and bi-monthly service charges. Water use has stayed relatively consistent with the decrease in usage from state-wide drought mandates enacted in 2013. The District expects consumption to continue decreasing in the next few years. This drop in demand created a gap between the amount of water customers were projected to use, and the amount they used, and contributed to the need for a new rate study and Financial Model rebuild.

CHWD and its wholesale water supplier, San Juan Water District (SJWD), continue to encounter changes in operations due to new regulations. The impact of current and future regulations, and the resulting cost impact on water supply operations, are an ongoing challenge for the District. The District will continue seeing wholesale water cost increase in 2025, per the Wholesale Water Rate Study Report issued by SJWD in January 2024.

As of January 1, 2025, CHWD charges a uniform commodity rate of $1.35 per unit of water and a bi-monthly fixed charge of $137.30 for a 1-inch water meter. The average CHWD customer rate bill remains below the regional Sacramento average cost. The District continues to repair and replace aging infrastructure throughout its system. In 2024, the Operations Department completed 353 service repairs/replacements, 20 valve replacements, and 16 hydrant installments / replacements. The Engineering Department also completed the design, installation, and inspection of 4,200 linear feet of water mains ranging in size from 6-inch to 18-inch, 24 valves and 90 water services.

Capital projects scheduled for 2024 total $13.8 million, which include the construction of the District's seventh well, and the design and commencement of construction of the District's eighth well. In the last few years, the District has secured approximately $6.6 million in grant funding for the construction of the District's two new wells. However, due to delays in the grant process, the District has not yet received the grant funding as of May 2025.

Long-Term Financial Planning

Citrus Heights Water District utilizes several planning strategies when considering long-term financial forecasts.

- **Strategic Plan** – Strategic planning involves establishing a vision for the future and a clear mission statement to provide direction and define what the organization stands for and what it has pledged to accomplish. Since 2016, CHWD has held an annual strategic planning workshop for the Board of Directors, management, and at-large customers. The purpose of the workshop has been to review the District's mission statement and values, and to implement the District's mission and values through an

- Annual Work Program. The Work Program includes three-year goals and one-year objectives, which emphasize the District's commitment to promoting the efficient use of water, managing CHWD's water supply, completing capital improvements, and optimizing organizational efficiency. The Strategic Plan and its accompanying Annual Work Program form the basis for the District's priority-based budgeting efforts.

- **Project 2030 Water Main Replacement Plan** – This plan was identified during the strategic planning process as a key strategy for engaging customers in long-range water main replacement planning and funding efforts. The purpose of this plan is to inform customers about challenges and opportunities, and the current actions being undertaken to ensure water supply reliability, and prepare for the replacement of aging infrastructure.

- **Capital Improvement Plan** – The Strategic Plan lays the groundwork for the Capital Improvement Plan, which includes project schedules and projected costs for production and water supply facilities identified in a 1999 Facilities Master Plan. The Capital Improvement Plan is a ten-year forecast and a capital reinvestment plan.

- **10-Year Financial Planning Model** – The District analyzes 10-year financial projections to assist with long term operational and capital planning, and funding, including Prop 218 rates and wheeling rates.

- **Annual Budget** – A key component of financial planning is the budget, which is prepared, reviewed and adopted annually. During the 2nd and 3rd quarter each year, District Finance staff prepares a draft budget, based upon an analysis of the Financial Planning Model and revenue/expenditure submissions from CHWD's departments. The budget is presented to the Board of Directors for approval prior to the beginning of the next fiscal year. The annual budget includes forecasts for revenues, operating expenditures, and capital expenditures, and is formulated using a priority-based budgeting approach.

- **Water Meter Replacement Program**– As CHWD's first generation of meters age-out, the District, along with a consortium of 11 agencies, completed a Meter Replacement Program Study to identify opportunities for partnership and strategies for each agency in the short and long-term to optimally manage meter replacements. Currently, the District is working with the Regional Water Authority to develop a potential regional purchasing program to achieve economies of scale when purchasing meters or other parts and materials.

Awards and Acknowledgements

Government Finance Officers Association (GFOA) of the United States and Canada awarded a Certificate of Achievement for Excellence in Financial Reporting to the Citrus Heights Water District for its ACFR for the fiscal year ending December 31, 2023. This was the seventh consecutive year that the District achieved this prestigious award. To be awarded a Certificate of Achievement, a governmental agency must publish an easily readable and efficiently organized ACFR. The report must satisfy both GAAP and applicable legal requirements.

A Certificate of Achievement is valid for a one-year period. CHWD believes that this ACFR continues to meet the Certificate of Achievement Program's requirements and is submitting it to the GFOA to determine its eligibility for another certificate.

Preparation of this report was accomplished through the combined efforts of the District Finance staff along with support from the various departmental directors, managers, and supervisors. CHWD staff's dedicated efforts, professionalism, and contributions to CHWD's ACFR is greatly appreciated. We would also like to thank the CHWD Board of Directors for their continued support in planning and implementing the District's fiscal policies.

Respectfully submitted,

Hilary M. Straus
General Manager/Secretary

Annie Y. Liu
Director of Administrative Services/
Treasurer

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Citrus Heights Water District
California

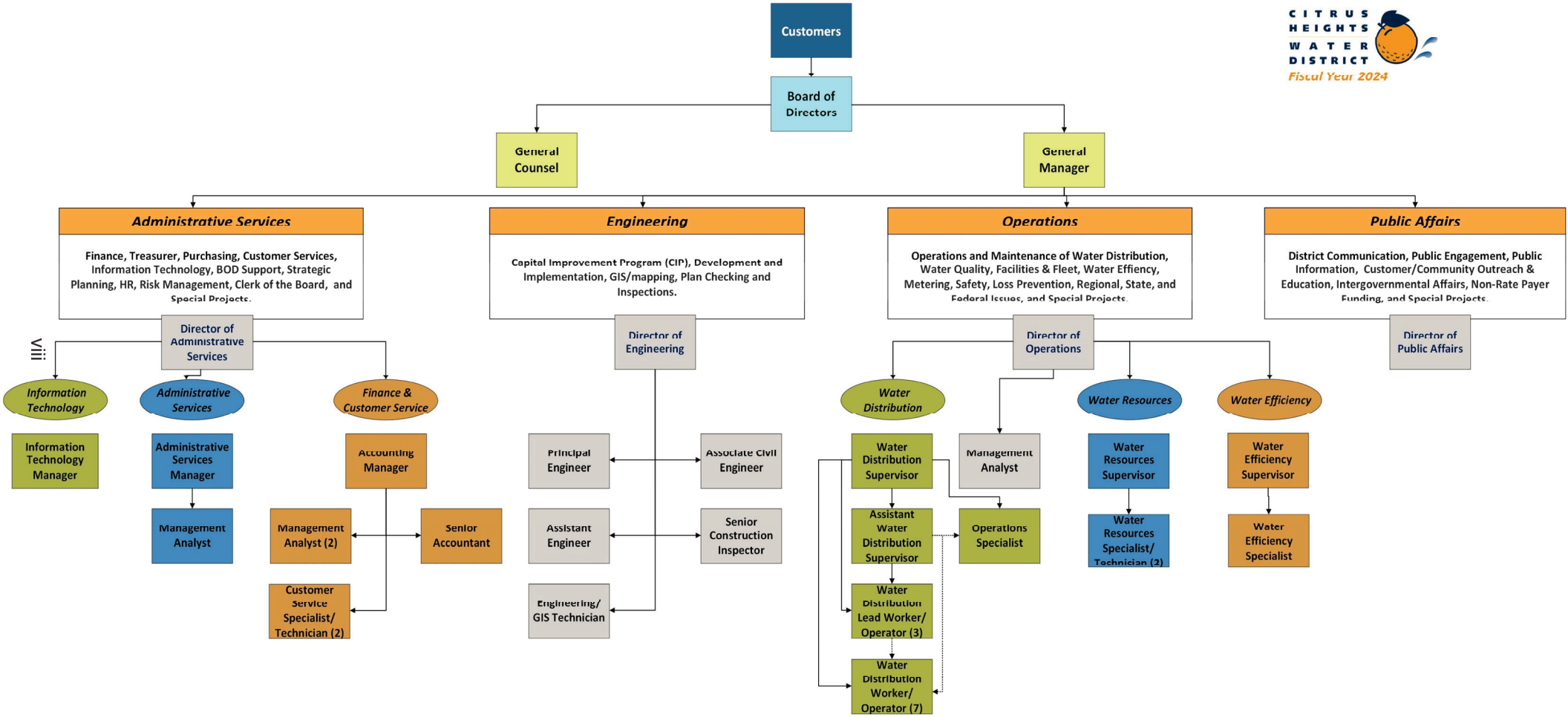
For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

December 31, 2023

Christopher P. Morrill

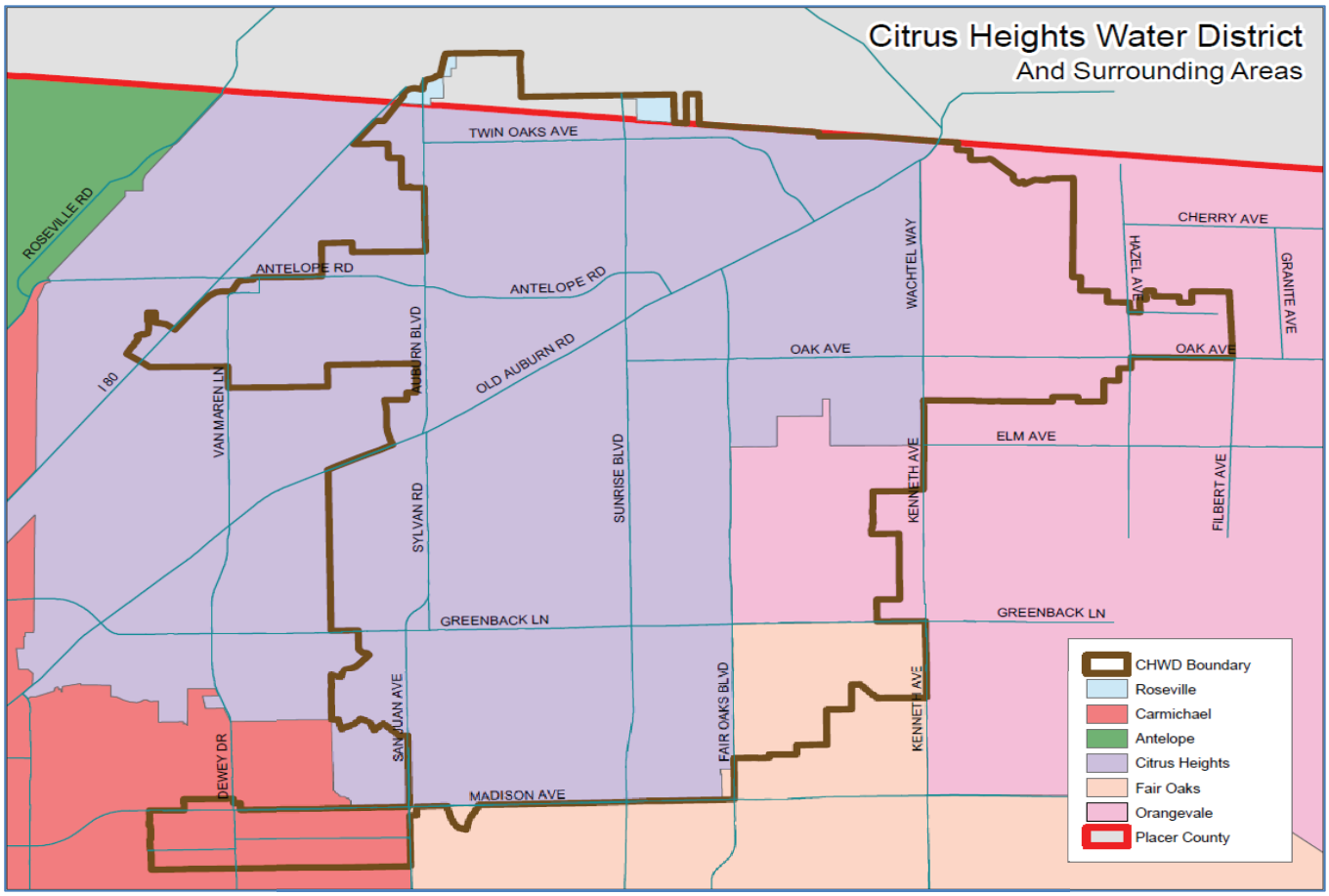
Executive Director/CEO

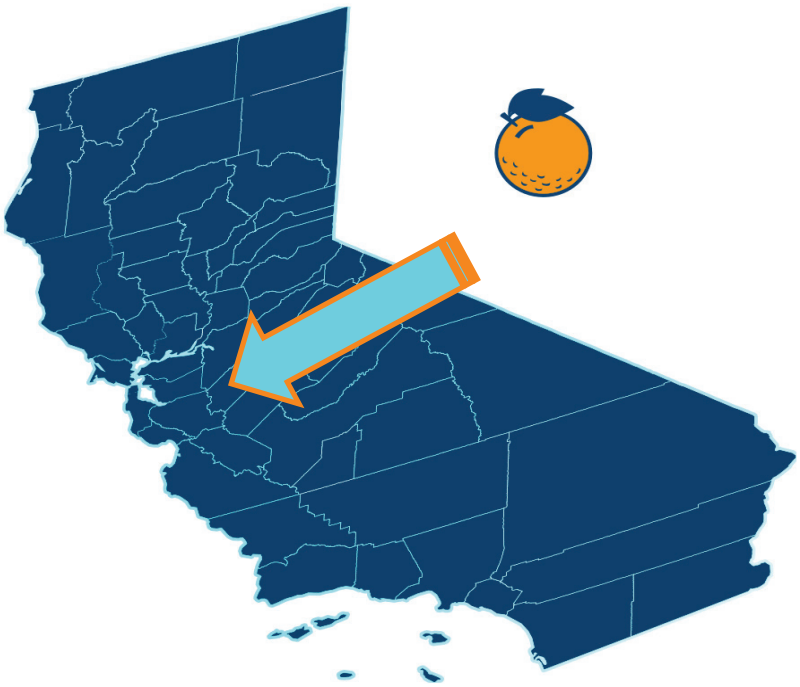
CITRUS HEIGHTS WATER DISTRICT
Fiscal Year 2024



CITRUS HEIGHTS WATER DISTRICT

Service Area Map with Cities Served





CITRUS HEIGHTS WATER DISTRICT

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website
www.chwd.org

Board of Directors

Caryl F. Sheehan
David C. Wheaton
Raymond A. Riehle

General Manager/ Secretary
Hilary M. Straus

Director of Administrative Services/Treasurer
Annie Liu

Principal Officials

Executive Staff

General Manager/Secretary: Hilary M. Straus

Director of Administrative Services/Treasurer: Annie Liu

Board of Directors

District 1: Caryl F. Sheehan, Vice President

Term Expiration: December 2028

District 2: Raymond A. Riehle, President

Term Expiration: December 2026

District 3: David C. Wheaton, Director

Term Expiration: December 2026

FINANCIAL SECTION

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INDEPENDENT AUDITORS' REPORT

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INDEPENDENT AUDITORS' REPORT

To the Honorable Members of the Board of Directors
Citrus Heights Water District
Citrus Heights, California

Report on the Audit of the Financial Statements

Opinions

We have audited the accompanying financial statements of the Citrus Heights Water District (the "District"), as of and for the years ended December 31, 2024, and 2023, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the District, as of December 31, 2024 and 2023, and the changes in financial position, and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and the State Controller's Minimum Audit Standards for California Special Districts. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the District and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Emphasis of Matter

As discussed in Note 1 to the financial statements, the District implemented Governmental Accounting Standards Board (GASB) Statement No. 101, Compensated Absences, effective for the fiscal year ended December 31, 2024. This standard establishes recognition and measurement guidance for all types of compensated absences, including vacation, sick leave, and sabbatical leave. The implementation of this standard required the District to revise its accounting policies and restate beginning balances where applicable. Our opinion is not modified with respect to this matter.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards, *Government Auditing Standards*, and the State Controller's Minimum Audit Standards for California Special Districts will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards and *Government Auditing Standards*, and the State Controller's Minimum Audit Standards for California Special Districts, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and required pension and other postemployment benefits schedules, as listed on the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

To the Honorable Members of the Board of Directors
Citrus Heights Water District
Citrus Heights, California

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated June 16, 2025, on our consideration of the District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the District's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the District's internal control over financial reporting and compliance.

LSL, LLP

Sacramento, California
June 16, 2025

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MANAGEMENT'S DISCUSSION AND ANALYSIS

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CITRUS HEIGHTS WATER DISTRICT
Management's Discussion and Analysis
Fiscal Year Ending December 31, 2024

The following Management's Discussion and Analysis (MD&A) provides users of the Citrus Heights Water District (District) an analytical overview of the District's financial position for the fiscal year ending December 31, 2024. The readers are encouraged to consider the information presented here in conjunction with the additional information furnished in the introductory section, financial statements, and related notes, which follow this section.

FINANCIAL HIGHLIGHTS

- The District's assets and deferred outflows of resources exceeded its liabilities and deferred inflows of resources at the end of year 2024 by $99,956,688. About 68 percent of the District's net position, $68,125,815, is composed of the capital assets of the District – the water transmission and distribution system, water production facilities, land, buildings, and equipment. Unrestricted net position totaled $31,830,873, up from $27,124,117 at the end of year 2023. The continued administration of the water main replacement charge to fund water main improvements and a notable increase in interest income contributed to the surplus.

- Capital improvement spending in the year 2024 increased by $504,703 compared with 2023. The increase was mainly due to replacements and new purchases of operational vehicles and machinery. The majority of replacements and purchases were budgeted in prior years. However, due to inventory shortage, the purchases were not completed until 2024. The replacement of aging pipelines and water service connections throughout the District's system continued to account for the majority of the $4.3 million additions to the District's capital assets in 2024.

- The District's operating revenues for 2024 were $22,334,518, which is 10.9% higher than the prior year of $20,132,024. This higher revenue is attributable to the increase of water rates as well as the increase of water consumption in 2024. About 97 percent of the 2024 operating revenues, $21,621,835, came from water sales to customers.

- The District's total net long-term liabilities at the end of 2024, including the 2012 Revenue Refunding bonds, pension liability, SBITA liability, liability for other postemployment benefits (OPEB), and compensated absences is $9,001,315. GASB Statement No. 68 required the recording of pension liability amounting to $6,077,953. GASB Statement No. 75 required the recording of OPEB liability in the amount of $1,268,135. Liabilities from Bond debt decreased by $174,088 due to continued principal payments during 2024.

OVERVIEW OF THE FINANCIAL STATEMENTS

This annual report consists of a series of basic financial statements including the Statement of Net Position, Statement of Revenues, Expenses, and Changes in Net Position, Statement of Cash Flows and Notes to the Basic Financial Statements. In addition to the Basic Financial Statements, other supplementary information is provided for further information and analysis.

The financial statements provide both long-term and short-term information about the District's overall financial status. The Notes to the financial statements explain some of the information in the financial statements and provide more detailed data. The required supplementary information, although not part of the basic financial statements, is required by the Governmental Accounting Standards Board (GASB) to provide more context regarding the financial statements from an appropriate operational, economic, or historical perspective.

The District's financial statements are prepared in conformity with accounting principles generally accepted in the United States of America (GAAP) as applied to government units on an accrual basis. Under this basis, revenues are recognized in the period in which they are earned, expenses are recognized in the period in which they are incurred, and depreciation of assets is recognized in the Statement of Revenues, Expenses, and Changes in Net Position. All assets and liabilities associated with the operation of the District are included in the statement of net position. The statement of net position presents the financial position of the District on a full accrual historical cost basis and provides information about the nature and amount of resources and obligations at year-end.

FINANCIAL ANALYSIS OF THE DISTRICT

Balance Sheet

The following table summarizes assets, deferred outflows, liabilities, deferred inflows, and net position on December 31, 2024, 2023, and 2022:

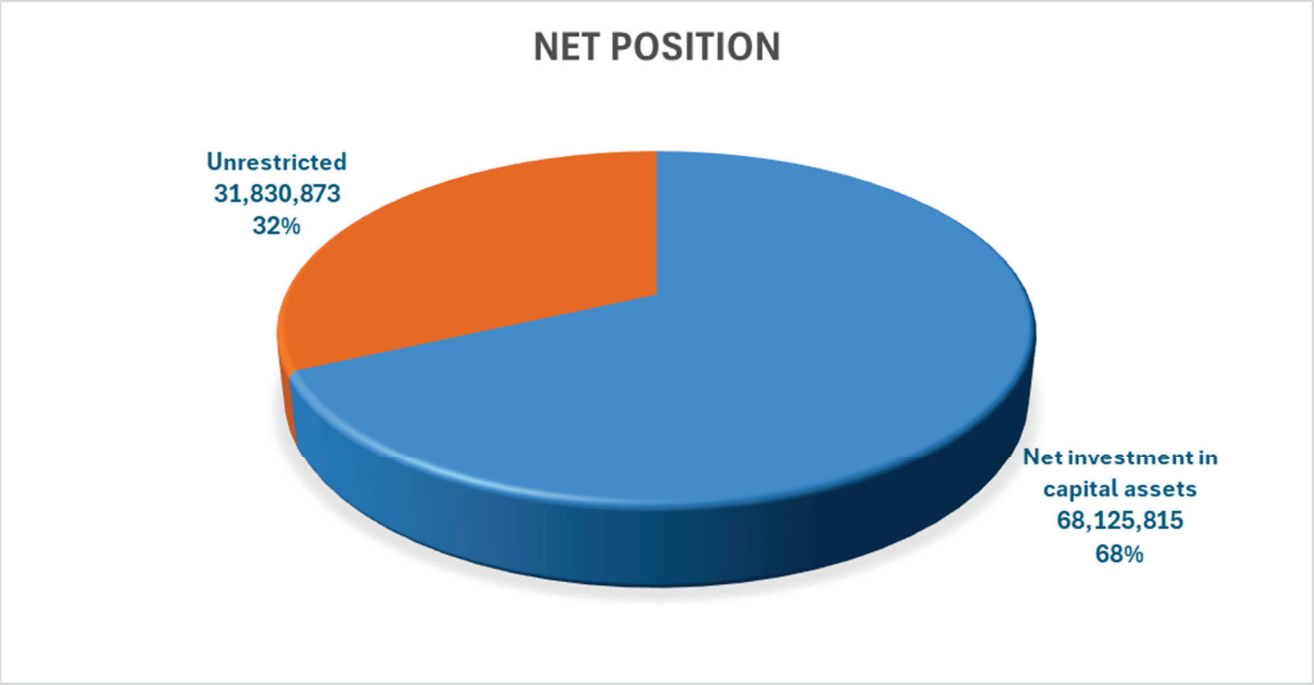
				% Increase (Decrease)	
				FY 2023 vs	**FY 2022 vs**
	FY 2024	**FY 2023**	**FY 2022**	**FY 2024**	**FY 2023**
Current assets	$ 39,167,650	$ 34,242,135	$ 28,593,899	14.4%	19.8%
Capital assets, net	69,491,913	67,806,524	66,619,236	2.5%	1.8%
Total Assets	**108,659,563**	**102,048,659**	**95,213,135**	**6.5%**	**7.2%**
Deferred Outflows	**2,327,611**	**3,044,829**	**3,056,673**	**-23.6%**	**-0.4%**
Current liabilities	1,568,386	1,638,707	1,506,167	-4.3%	8.8%
Non-current liabilities	9,001,315	9,230,514	9,060,929	-2.5%	1.9%
Total Liabilities	**10,569,701**	**10,869,221**	**10,567,096**	**-2.8%**	**2.9%**
Deferred Inflows	**460,785**	**857,276**	**483,907**	**-46.3%**	**77.2%**
Net Position					
Net investment in capital assets	68,125,815	66,242,874	65,042,165	2.9%	1.8%
Unrestricted	31,830,873	27,124,117	22,091,261	17.3%	22.8%
Total Net Position	**$ 99,956,688**	**$ 93,366,991**	**$ 87,133,426**	**7.1%**	**7.2%**

The total net position of the District increased from $87.13 million in 2022 to $93.37 million in 2023 and increased to $99.96 million in 2024. The District's total assets increased by $6.61 million, or 6.5%, in 2024 compared to 2023, and $6.84 million, or 7.2%, in 2023 compared to 2022.

Deferred outflows decreased by approximately $0.72 million and deferred inflows decreased by approximately $0.40 million, in 2024 compared to 2023, respectively. The decreases are due to changes in actuarial assumptions, including return on pension plan investments affecting the calculation of the pension liability.

In 2024, total liabilities decreased by $0.30 million, or 2.8%, compared to 2023. This is a relatively minor change. Total non-current liabilities decreased by approximately $0.23 million, or 2.5%, compared to 2023. The changes in 2023 and 2024 are negligible in comparison with 2021 and 2022, indicating a period of relative stability.

The increase in net position over the three-year period totals $12.82 million, or 14.7%, reflecting a combination of net income and capital contributions.



Changes in Net Position

Net position increased by $6.59 million, or 7.1%, from the prior year. Operating revenues exceeded operating expenses by $5.30 million, which accounts for 80.4% of the increase in net position. Additionally, the receipt of $1.26 million in nonoperating investment income accounted for about 19.1% of the overall growth in net position.

Total operating revenues increased in 2024 by $2.20 million, or 10.9%, from 2023. The factors that contributed to this increase include approximately $1.71 million increase of water sales due to water rates and water consumptions increase, $188,432 increase from charges for penalties & costs, and $240,166 increase of connection fees. Although nonoperating investment income continues to significantly enhance the overall growth in net position for 2024, it declined by $178,437 compared to the prior year, primarily due to a net decrease in the fair value of investments.

In 2024, operating expenses increased by $1.46 million, or 9.4%, from 2023. There are three main factors that contribute to this increase. First, approximately 40% of the overall increase was attributable to higher salaries and wages, along with a rise in pension expenses resulting from CalPERS' recognition of an increase in the net pension liability during the measurement period. Second, in prior years, the District recorded equipment rental costs to capital projects based on CalTrans standard rates, consistent with past practices. However, this year, equipment depreciation and maintenance expenses were instead charged directly to operating expenses. This change led to a $437,126 increase in operating expenses, accounting for 30% of the total increase. In addition, the District allocated additional resources toward professional support services in anticipation of the 2030 Water Main Replacement Project, resulting in higher operating expenses.

The following table summarizes the changes in net position for the fiscal years ended December 31, 2024, 2023, and 2022:

				% Increase (Decrease)	
	2024	2023	2022	FY 2023 vs FY 2024	FY 2022 vs FY 2023
Operating Revenues:					
Water Sales	$ 21,621,835	$ 19,915,090	$ 18,934,457	8.6%	5.2%
Connection and Other Fees	712,683	216,934	499,297	228.5%	(56.6%)
Total Operating Revenues	**22,334,518**	**20,132,024**	**19,433,754**	**10.9%**	**3.6%**
Operating Expenses:					
Customer service admin/general	6,248,835	5,706,961	4,470,788	9.5%	27.7%
Water purchases	2,982,507	2,858,841	2,785,929	4.3%	2.6%
Transmission and distribution	3,896,342	2,796,502	2,637,991	39.4%	6.0%
Pumping & well maintenance	742,415	842,529	996,949	(11.9%)	(15.5%)
Water efficiency (conservation)	487,975	697,684	696,635	(30.0%)	0.2%
Depreciation & amortization	2,676,870	2,668,321	2,606,180	0.3%	2.4%
Total Operating Expenses	**17,034,944**	**15,570,838**	**14,194,472**	**9.4%**	**9.7%**
Operating income	**5,299,574**	**4,561,186**	**5,239,282**	**16.2%**	**(12.9%)**
Nonoperating Revenues (Expenses)					
Investment Income	1,260,199	1,438,634	-30,997	(12.4%)	(4741.2%)
Miscellaneous income	3,273	19,395	34,240	(83.1%)	(43.4%)
Interest Expense	(39,106)	(50,767)	(55,981)	(22.9%)	(9.3%)
Gain (loss) on disposal of capital assets	2,603	21,674	(39,333)	(88.0%)	(155.1%)
(Expenses)	**1,226,969**	**1,428,936**	**(92,071)**	**(14.2%)**	**(-1652.0%)**
Contributions	**6,526,543**	**5,990,122**	**5,147,211**	**9.0%**	**16.4%**
Capital Contributions					
Contributed Assets	63,154	243,443	440,679	(74.1%)	(44.8%)
Total Capital Contributions	**63,154**	**243,443**	**440,679**	**(74.1%)**	**(44.8%)**
Change in Net Position	6,589,697	6,233,564	5,587,890	5.7%	11.6%
Net position, beginning of year	93,366,991	87,133,426	81,545,536	7.2%	6.9%
Net Position, End of Year	**$ 99,956,688**	**$ 93,366,991**	**$ 87,133,426**	**7.1%**	**7.2%**

Capital Assets

As of December 31, 2024, 2023, and 2022, the District's investment in capital assets, net of related debt, was $68.12 million, $66.24 million, and $65.04 million, respectively. This includes the water transmission and distribution system (underground pipelines, water services, water meters, fire hydrants, and other components), water production facilities (groundwater wells), land, buildings, and both mobile and fixed equipment.

The replacement of aging pipelines and water service connections throughout the District's system continued to represent the majority of the $4.38 million additions to the District's capital assets in 2024, the $3.88 million additions in 2023, and the $4.99 million additions in 2022.

Additional information on the District's capital assets can be found in Note 3, Capital Assets, of the notes to the basic financial statements.

Debt Administration

The District continues to meet its debt obligations under its 2012 Revenue Refunding bonds. Through scheduled debt service payments, the principal on its collective debt was reduced by $110,000 during 2024, by $105,000 during 2023, and by $100,000 during 2022. The District's total debt from its bond issuances now stands at $1.21 million.

Subscription Liabilities were introduced in 2023 related to implementation of GASB 96. An initial liability was recorded related to subscriptions in the amount of $106,700. As of December 31, 2024, the total combined value of the subscription liability is $86,617.

Total compensated absences (long-term liability and current portion combined) are composed of leave hours earned by employees that are payable upon termination or retirement and are valued at $0.56 million at the end of 2024, remaining mostly unchanged from prior years balance.

The net liability for other post-employment benefits (OPEB) increased slightly in 2024 compared to 2023, as a result of the annual cost of these benefits exceeding the amounts paid for premiums, and changes in actuarial assumptions. Additional information on the District's changes in net OPEB liability can be found in Note 9, Postemployment Health Care Benefits, of the notes to the basic financial statements.

ECONOMIC FACTORS AND FUTURE BUDGET CONSIDERATIONS

Focus on Long-Range Planning

CHWD has a long-standing tradition of planning and managing its long-term capital and operational needs and accompanying financial planning. CHWD's focus on long-range planning is exemplified by its water main master planning, 1999 Master Plan that focused on water main replacement, Project 2030-Water Main Replacement Program; Water Meter Replacement Study and Consortium-based Meter Replacement Asset Management Program; maintaining a 10-year financial forecast as a driver for annual budgeting; and the use of Strategic Planning, focusing on three-year goals and one-year objectives as a driver for annual budgeting.

Implementation of an Annual Budget Based on a 10-Year Budget Forecast

Given the significant capital and asset management-related one-time and ongoing expenses projected, CHWD has developed and maintained a 10-year budget forecast or Financial Model. The Financial Model is updated regularly with actual revenues and expenses, and serves as a key policy, operational capital and financial planning tool as the District considers policy, operational, capital and budget options.

Reserve Policies and Special Funding

Each year, CHWD endeavors to transfer a portion of net revenue to both designated and undesignated reserves. Placing ratepayer dollars in reserves ensures that CHWD can smooth-out its expenses and minimize its use of debt financing, which can add significant expense, cause delays and complications, and reduce local control to CHWD as it implements its Capital Improvement Program.

2025 Adopted Budget

The District continued to exercise fiscal restraint in spending for District operations. However, the adopted 2025 budget projected an overall increase of $2.5 million or 14.5% for the operations and maintenance expenses. The 2025 budget includes:

- Maintaining the current level of services and programs for District customers.
- Updating the Water Master Plan (last update was in 1999).
- Funding the implementation of strategic planning items and special projects identified by the Board as priorities for 2025.
- Increasing work/cost related to the preparation for the Project 2030 Water Main Replacement Plan
- Contributing to reserves including an additional transfer of $1.0 million to the Water Main Replacement Reserve in preparation for the implementation of the Project 2030 Water Main Replacement Plan, which will substantially increase the amount of annual infrastructure replacement completed by the District.

A FY2025 Operating Budget Summary is included at the conclusion of this Management's Discussion and Analysis to provide an overview of the District's operating budget.

Total capital improvement expenditures budgeted for FY2025 are $18.3 million compared with $13.8 million in FY2024. This amount includes $7.4 million in carry-over projects from prior years. The budget includes approximately $8.2 million for completing construction of the District's seventh groundwater well (well #7) and design and construction of the District's eighth groundwater well (Well #8).

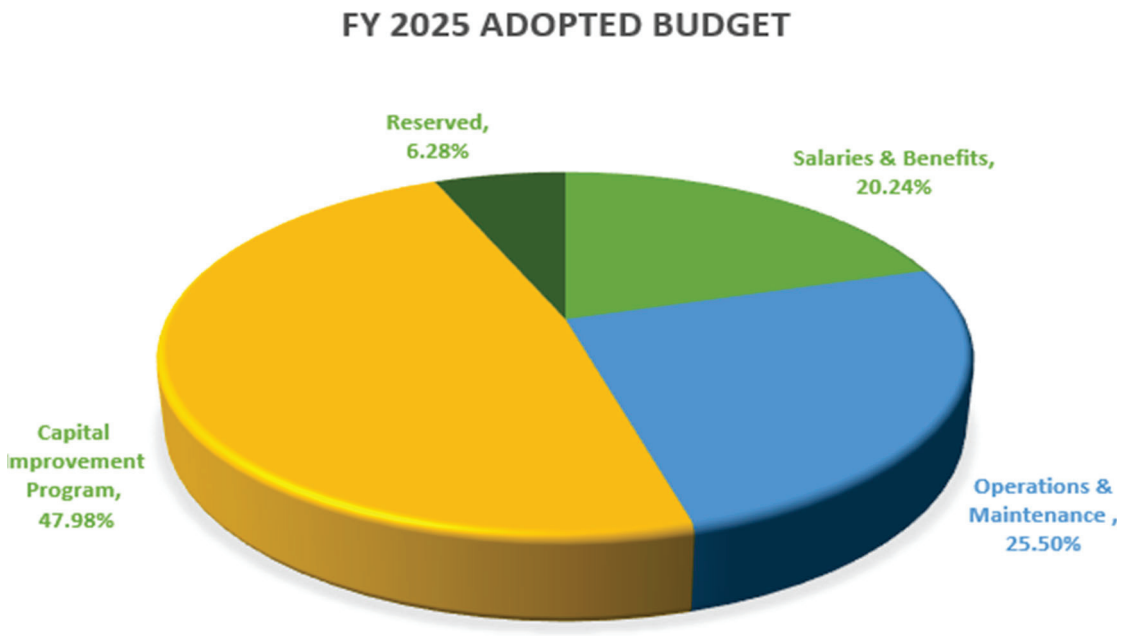
The District has been awarded $6.6 million in State and Federal grant funds towards the construction of Wells #7 and #8; however, as of the date this financial report is completed, the District hasn't received any of the grant funds yet. Though there are very few opportunities for non-ratepayer funding, the District continues to look for outside funding opportunities whenever possible.

A 2025 Capital Improvement Budget Summary is included at the conclusion of this Management's Discussion and Analysis to provide an overview of the District's capital improvement budget.

A portion of the District's budget continues to be the repayment of long-term debt financing in the form of Certificates of Participation originally issued in 2003 (refunded as Revenue Refunding Bonds in 2012). The annual debt service for the 2012 Revenue Refunding Bonds is budgeted at $170,788 for the bond principal and interest payments for FY2025.

CITRUS HEIGHTS WATER DISTRICT 2025 ADOPTED BUDGET

	2023 Actual	2024 Projected	2025 Adopted
Revenues			
Water Sales	$18,583,311	$20,718,816	$18,248,406
Connection and Other Fees	236,324	413,140	213,400
Project 2030 Designated Charge	1,331,779	1,388,039	2,257,294
Grant Revenue	-	-	5,137,000
Investment and Other Income	586,228	485,113	447,213
Total Revenues	**20,737,643**	**23,005,107**	**26,303,313**
Expenses			
Salaries and Benefits	6,395,696	6,494,857	7,737,430
Water Purchases	2,845,767	2,637,464	3,127,035
Other Operating Costs & Maintenance Costs	3,603,266	4,233,589	6,618,309
Debt Service	61,786	174,338	170,788
Transfers to Reserves	1,731,779	1,788,039	2,400,000
Total Expenses and Transfers	**14,638,294**	**15,328,288**	**20,053,562**
Operating Income before Capital Outlay	6,099,349	7,676,820	6,249,751
Capital Outlay	$2,288,321	$6,251,130	$18,339,387



CITRUS HEIGHTS WATER DISTRICT ADOPTED CAPITAL PROJECTS BUDGET

Project #	Project Title	2024 Adopted Budget	2025 Adopted Budget
C15-104B	Document Management System	$ 64,639	
C16-134	Auburn Blvd-Rusch Park Placer	538,021	$ 900,285
C20-107	Well #7 Design & Construction (Ella)	4,442,536	2,942,536
C22-040D	SACOG AC Overlay Phase 1		55,000
C23-003	Fleet/Field Operations Equip	300,727	
	Facilities Improvements	9,548	
C23-020	Groundwater Well Improvements	100,000	
C23-040	Other City Parnerships	100,000	
C23-041	Misc Infrastructure Projects	100,000	
C23-103	Well #8 Highland Well	1,900,000	5,300,000
C23-104	Patton/Pardal/AlonDra/Perdez	1,010,000	
C23-106	Admiral & Anchor 8-Inch	897,819	
C24-003	Fleet & Field Operations Eqpm	330,000	40,000
C24-004	Technology Hardware & Software	55,000	
C24-005	Facilities Improvements	108,000	
C24-010	Annual Water Main Pipeline Rep	51,500	31,500
C24-011	Valve Replacement	120,000	
C24-012	Water Service Connections	1,507,000	407,000
C24-013	Water Meter Replacement	125,000	
C24-014	Fire Hydrants-Repl, Upgrades,	175,000	
C24-020	Groundwater Well Improvement	200,000	
C24-101	Minnesota Drive	727,000	670,066
C24-102	Fair Oaks Blvd at Leafcrest Wy	344,000	715,000
C24-103	Menke Way	103,000	103,000
Total	**Ongoing Projects**	**$ 13,308,790**	**$ 11,164,387**
C25-003	Annual Fleet & Field Operations		40,000
C25-004	Annual Technology Hardware &		100,000
C25-005	Annual Facilities Improvements		112,000
C25-010	Annual Water Main Pipeline Replacement (Small)		53,000
C25-011	Annual Valve Replacements		35,000
C25-012	Annual Water Service connections		1,510,000
C25-013	Annual Water Meter Replacement		130,000
C25-014	Annual Fire Hydrants - Repl, Upgrades, Lnfill, New		175,000
C25-020	Annual Groundwater well Improvements		200,000
C25-040	Other City Partnerships		100,000
C25-041	Misc Infrastructure Projects		100,000
Total	**New Annual Projects**	**$**	**$ 2,655,000**
C25-XXX	Greenback Lane from Birdcage to		900,000
C25-XXX	Donnawood		100,000
C25-XXX	Corporation Yard and Administration Facility Improvements (Plans, Specifications, and Estimate)		3,000,000
C25-XXX	ERP System		400,000
C25-XXX	SCADA Upgrade		120,000
Total	**New Projects**	**$**	**$ 4,520,000**
FY2025	**Totals**	**$ 13,308,790**	**$ 18,339,387**

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BASIC FINANCIAL STATEMENTS

CITRUS HEIGHTS WATER DISTRICT
Statements of Net Position
December 31, 2024 and 2023

	2024	2023
ASSETS		
Current assets:		
Cash and investments (Note 2)	$ 33,780,703	$ 29,435,050
Receivables:		
Accounts receivable, net	3,566,811	3,294,746
Accrued interest receivable	281,188	267,094
Inventories	803,134	666,341
Prepaid expenses and other deposits	735,814	578,904
Total Current Assets	**39,167,650**	**34,242,135**
Noncurrent:		
Non-depreciable/amortizable capital assets (Note 3)	7,122,794	4,890,653
Depreciable/amortizable capital assets, net (Note 3)	62,369,119	62,915,871
Total Noncurrent Assets	**69,491,913**	**67,806,524**
Total Assets	**108,659,563**	**102,048,659**
Deferred Outflows of Resources:		
Pension related (Noted 9)	1,918,709	2,537,266
OPEB related (Note 10)	408,902	507,563
Total Deferred Outflows of Resources	**2,327,611**	**3,044,829**
Liabilities:		
Current:		
Accounts payable	576,761	668,345
Retentions payable	-	31,058
Accrued payroll	234,701	207,375
Accrued interest payable	28,057	29,671
Deposits payable	431,877	368,074
Due to other governments	740	-
Compensated absences (Note 8)	174,273	213,910
Long-term debt (Note 5)	121,977	120,274
Total Current Liabilities	**1,568,386**	**1,638,707**
Noncurrent:		
Compensated absences (Note 8)	385,316	424,953
Long-term debt (Note 5)	1,269,911	1,393,746
Net pension liability (Note 9)	6,077,953	6,173,494
Net OPEB liability (Note 10)	1,268,135	1,238,321
Total Noncurrent Liabilities	**9,001,315**	**9,230,514**
Total Liabilities	**10,569,701**	**10,869,221**
Deferred Inflows of Resources:		
Deferred amount from refunding debt	9,936	18,572
Pension related (Note 9)	73,188	402,283
OPEB related (Note 10)	377,661	436,421
Total Deferred Inflows of Resources	**460,785**	**857,276**
Net Position:		
Net investment in capital assets	68,125,815	66,242,874
Unrestricted	31,830,873	27,124,117
Total Net Position	**$ 99,956,688**	**$ 93,366,991**

See accompanying notes to financial statements.

CITRUS HEIGHTS WATER DISTRICT
Statements of Revenues, Expenses and Changes in Net Position
For the Years Ended December 31, 2024 and 2023

	2024	2023
Operating Revenues:		
Water sales	$ 21,621,835	$ 19,915,090
Connection and other fees	712,683	216,934
Total Operating Revenues	**22,334,518**	**20,132,024**
Operating Expenses:		
Customer service, administration and general	6,248,835	5,706,961
Water purchases	2,982,507	2,858,841
Transmission and distribution	3,896,342	2,796,502
Pumping and well maintenance	742,415	842,529
Conservation	487,975	697,684
Depreciation and amortization	2,676,870	2,668,321
Total Operating Expenses	17,034,944	15,570,838
Operating Income (Loss)	5,299,574	4,561,186
Nonoperating Revenues (Expenses):		
Investment income	1,260,199	1,438,634
Miscellaneous income	3,273	19,395
Interest expense	(39,106)	(50,767)
Gain (loss) on disposal of capital assets	2,603	21,674
Total Nonoperating Revenues (Expenses)	1,226,969	1,428,936
Income (Loss) Before Capital Contributions	6,526,543	5,990,122
Contributions	63,154	243,443
Changes in Net Position	6,589,697	6,233,565
Net Position:		
Beginning of Fiscal Year	93,366,991	87,133,426
End of Fiscal Year	$ 99,956,688	$ 93,366,991

See accompanying notes to financial statements.

CITRUS HEIGHTS WATER DISTRICT
Statements of Cash Flows
For the Years Ended December 31, 2024 and 2023

Cash Flows from Operating Activities	**2024**	**2023**
Cash receipts from customers	$ 22,095,198	$ 20,371,555
Cash paid to suppliers for goods and services	(14,255,386)	(12,265,832)
Cash paid to employees for services	(276,286)	(24,921)
Receipts from miscellaneous operating income	740	18,070
Net Cash Provided (Used) by Operating Activities	**7,564,266**	**8,098,872**
Cash Flows from Non-Capital and Related Financing Activities		
Receipts from miscellaneous non operating income	3,273	-
Net Cash Provided (Used) by Non-Capital Financing Activities:	**3,273**	**-**
Cash Flows from Capital and Related Financing Activities		
Acquisition and construction of capital assets	(4,319,985)	(3,634,992)
Cash receipts from sales of capital assets	23,482	44,500
Proceeds from issuance of capital debt	11,977	-
Principal payments on long-term debt	(129,375)	(115,163)
Interest payments on long-term debt	(54,091)	(66,892)
Net Cash Provided (Used) by Capital Financing Activities:	**(4,467,992)**	**(3,772,547)**
Cash Flows from Investing Activities:		
Interest earnings	1,246,106	1,252,844
Net cash provided by (Used) by Investing Activities	**1,246,106**	**1,252,844**
Net Cash Flows	4,345,653	5,579,169
Cash, beginning of year	29,435,050	23,855,881
Cash, end of year	**$ 33,780,703**	**$ 29,435,050**

See accompanying notes to financial statements.

CITRUS HEIGHTS WATER DISTRICT
Statements of Cash Flows
For the Years Ended December 31, 2024 and 2023

	2024	2023
Reconciliation of Operating Income to Net Cash Provided (Used) by Operating Activities:		
Operating income (loss)	$ 5,299,574	$ 4,561,186
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation and amortization	2,676,870	2,668,321
Miscellaneous income	-	18,070
Change in assets and liabilities:		
(Increase) decrease in assets and deferred outflows of resources:		
Accounts Receivable	(272,065)	228,271
Inventory	(136,792)	(120,104)
Prepaid expenses and other assets	(156,910)	8,556
Increase (decrease) in liabilities and deferred inflows of resources:		
Accounts payable	(90,845)	50,549
Accrued payroll	27,326	54,043
Deposits payable	63,803	(6,420)
Retentions payable	(31,058)	17,680
Compensated absences	(79,273)	80,662
Deferred amount from refunding of debt		
Net pension liability and related deferred inflows and outflows	193,921	560,630
Net OPEB liability and related deferred inflows and outflows	69,715	(22,572)
Net Cash Provided (Used) by Operating Activities	$ 7,564,266	$ 8,098,872
Supplemental Disclosure of Non-Cash Activities		
Receipt of contributed assets	$ 63,154	$ 243,443
Amortization of bond premiums	8,636	1,325
Amortization of deferred charges on refundings	13,371	13,370

See accompanying notes to financial statements.

NOTES TO THE BASIC FINANCIAL STATEMENTS

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NOTE 1: REPORTING ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting Entity: The District was established on October 25, 1920 as an irrigation district under Division 11 of the Act of Legislature of the State of California. The District constructs and maintains waterworks and supplies domestic water in an area of approximately 12 square miles to over 20,000 connections in Sacramento and Placer counties with an estimated population of 66,000. The District is governed by a Board of Directors consisting of three directors elected by residents of the District. The accompanying basic financial statements present the District and its component unit. The component unit discussed below is included in the District's reporting entity because of the significance of its operational and financial relationship with the District.

The District has created the Citrus Heights Water District Financing Corporation (the Corporation) to provide assistance to the District in the issuance of debt. Although legally separate from the District, the Corporation is reported as if it were part of the primary government because it shares a common Board of Directors with the District and its sole purpose is to provide financing to the District under the debt issuance documents of the District. Debt issued by the Corporation is reflected as debt of the District in these financial statements. The Corporation has no other transactions and does not issue separate financial statements.

Basis of Presentation – Fund Accounting: The basic financial statements of the Citrus Heights Water District (District) have been prepared in conformity with generally accepted accounting principles as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles. The District is accounted for as an enterprise fund and applies all applicable GASB pronouncements in its accounting and reporting. The more significant of the District's accounting policies are described below.

The District's resources are allocated to and accounted for in these basic financial statements as an enterprise fund type of the proprietary fund group. The enterprise fund is used to account for operations that are financed and operated in a manner similar to private business enterprises, where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges, or where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other policies. Net position for the enterprise fund represents the amount available for future operations.

Basis of Accounting: The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. The enterprise fund type is accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets, deferred outflows, liabilities, and deferred inflows associated with the operation of this fund are included on the balance sheet. Net position is segregated into net investment in capital assets, amounts restricted and amounts unrestricted. Enterprise fund type operating statements present increases (i.e., revenues) and decreases (i.e., expenses) in net total position.

The District uses the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred. When such funds are received they are recorded as unearned revenue until earned. Earned but unbilled water services are accrued as revenue.

Water lines are constructed by private developers and then dedicated to the District, which is then responsible for their future maintenance. These lines are recorded as capital contributions when they pass inspection by the District, and the estimated costs are capitalized as donated pipelines.

Operating revenues and expenses consist of those revenues and expenses that result from the ongoing principal operations of the District. Operating revenues consist primarily of charges for services. Nonoperating revenues and expenses consist of those revenues and expenses that are related to financing and investing types of activities and result from nonexchange transactions or ancillary activities.

When both restricted and unrestricted resources are available for use, it is the District's policy to use restricted resources first, then unrestricted resources as they are needed.

NOTE 1: REPORTING ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Use of Estimates: The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Fair Value Measurements: Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The District categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels based on the extent to which inputs used in measuring fair value are observable in the market.

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 inputs are inputs – other than quoted prices included within level 1 – that are observable for an asset or liability, either directly or indirectly.

Level 3 inputs are unobservable inputs for an asset or liability.

If the fair value of an asset or liability is measured using inputs from more than one level of the fair value hierarchy, the measurement is considered to be based on the lowest priority level input that is significant to the entire measurement.

Cash and Cash Equivalents: For purposes of the statement of cash flows, the District considers all highly liquid debt instruments purchased with a maturity of three months or less to be cash equivalents. Cash and cash equivalents held include bank deposits and restricted and unrestricted investments in money market mutual funds and LAIF.

Restricted Assets: Certain proceeds of the District's long-term debt are classified as restricted investments on the balance sheet because their use is limited by applicable debt covenants.

Investments: Investments are stated at their fair value, which represents the quoted or stated market value. Investments that are not traded on a market, such as investments in external pools, are valued based on the stated fair value as represented by the external pool.

Inventory: Inventory consists primarily of materials used in the construction and maintenance of the water distribution facilities and is valued on a first-in, first-out basis.

Prepaids: Prepaids consist primarily of insurance, maintenance agreements and other prepaid assets.

Capital Assets: Capital assets are recorded at historical cost. Donated capital assets, works of art and similar items, and capital assets received in a service concession arrangement are reported at acquisition value rather than fair value. Self-constructed assets are recorded based on the amount of direct labor, material, and certain overhead charged to the asset construction. Depreciation and amortization are calculated using the straight-line method over the following estimated useful lives:

Description	Useful Life
Pipeline and infrastructure	20-40 years
Equipment and machinery	5-10 years
Subscriptions	10 years
Buildings	15-40 years
Well improvements	40 years
Donated pipelines	40 years
Improvements	40 years

NOTE 1: REPORTING ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Depreciation and amortization expense aggregated to $2,676,870 and $2,668,321 for the years ended December 31, 2024 and 2023, respectively, and is included with depreciation and amortization expense.

Maintenance and repairs are charged to operations when incurred. It is the District's policy to capitalize all capital assets with a cost of more than $5,000 for tangible personal property and $15,000 for infrastructure, building or improvements. Costs of assets sold or retired (and the related amounts of accumulated depreciation) are eliminated from the balance sheet in the year of sale or retirement, and the resulting gain or loss is recognized in operations.

Subscription-Based Information Technology Arrangements:

The District is a subscriber for a noncancellable subscription of information technology services. The District recognizes subscription liability and an intangible right-to-use subscription asset (subscription asset) in the financial statements. The District recognizes subscription liabilities with an initial, individual value of $5,000 or more.

At the commencement of a subscription, the District initially measures the subscription liability at the present value of payments expected to be made during the subscription term. Subsequently, the subscription liability is reduced by the principal portion of subscription payments made. The subscription asset is initially measured as the initial amount of the subscription liability, adjusted for subscription payments made at or before the subscription commencement date, plus certain initial direct costs. Subsequently, the subscription asset is amortized on a straight-line basis over its useful life. Key estimates and judgments related to subscriptions include how the District determines (1) the discount rate it uses to discount the expected subscription payments to present value, (2) subscription term, and (3) subscription payments.

- The District uses the interest rate charged by the vendor as the discount rate. When the interest rate charged by the vendor is not provided, the District generally uses its estimated incremental borrowing rate as the discount rate for subscriptions.

- The subscription term includes the noncancellable period of the subscription. Subscription payments included in the measurement of the subscription liability are composed of fixed payments that the District is reasonably certain to exercise.

The District monitors changes in circumstances that would require a remeasurement of its subscriptions and will remeasure the subscription asset and liability if certain changes occur that are expected to significantly affect the amount of the subscription liability.

Subscription assets are reported with other capital assets and subscription liabilities are reported with long-term debt on the statement of net position.

Bond Premiums and Bond Issuance Costs: Bond premiums are deferred and amortized over the lives of the bonds. Long-term liabilities are reported net of the applicable bond premiums. Bond issuance costs are recognized as an expense in the period incurred.

Deferred Amount from Refunding Debt: The difference between the reacquisition price of refunded debt and the net carrying amount of the previously outstanding debt is deferred and reported as either a deferred outflow or deferred inflow on the balance sheet. These amounts are amortized over the shorter of the term of the old debt or the new debt.

Deferred Outflows: In addition to assets, the balance sheet reports a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources,* represents a consumption of net assets that applies to a future period(s) and so will *not* be recognized as an outflow of resources (expense) until then.

NOTE 1: REPORTING ENTITY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Deferred Inflows: In addition to liabilities, the balance sheet reports a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net assets that applies to a future period(s) and so will *not* be recognized as an inflow of resources (revenue) until that time.

Compensated Absences: The District's policy allows employees to accumulate earned but unused annual leave, management leave and compensatory time-off which will be paid to employees upon separation from service to the District. The cost of annual leave, management leave and compensatory time-off is recognized in the period earned.

Upon death while employed by the District or retirement from the District, employees are paid one-third of their accumulated sick leave time. This amount is also recognized in the period earned.

New GASB Pronouncements Effective during Fiscal Year

The following Government Accounting Standards Board (GASB) pronouncements were effective for the fiscal year ended December 30, 2024:

1. GASB Statement No. 101, Compensated Absences

The Statement amends the existing requirement to disclose the gross increases and decreases in liability for compensated absences to allow governments to disclose only the net change in liability (as long as they identify it as a net change). In addition, governments are no longer required to disclose which governmental funds typically have been used to liquidate the liability for compensated absences

NOTE 2: CASH AND INVESTMENTS

Cash and investments as of December 31 are classified in the accompanying financial statements as follows:

	2024	2023
Cash and investments	$ 33,780,703	$ 29,435,050

Cash and investments as of December 31 consisted of the following:

	2024	2023
Cash on Hand	$ 850	$ 850
Deposits with financial institutions	4,432,414	3,672,554
Investments	29,347,439	25,761,646
Total cash and investments	$ 33,780,703	$ 29,435,050

NOTE 2: CASH AND INVESTMENTS (CONTINUED)

Investment Policy: California statutes authorize districts to invest idle, surplus, or reserve funds in a variety of credit instruments as provided for in the California Government Code, Section 53600. The table below identifies the investment types that are authorized for the District by the California Government Code (or the District's investment policy, where more restrictive) that address interest rate risk, credit risk, and concentration of credit risk. This table does not address investments of debt proceeds held by the bond trustee that are governed by the provisions of debt agreements of the District, rather than the general provisions of the California Government Code or the District's investment policy. During the year ended December 31, 2024, the District's permissible investments included the following instruments:

Authorized Investment Type	Maximum Maturity	Maximum Percentage of Portfolio*	Maximum Investment in One Issuer
Securities of the U.S. Government	5 Years	100%	100%
Registered State Warrants, Treasury Notes, or Bonds of the State of California or other states in the United States	5 Years	25%	10%
Bonds, Notes, Warrants, or Other Evidences of Indebtedness of any Local Agency within the State of California	5 Years	25%	10%
Securities of U.S. Government Agencies and Instruments	5 Years	100%	35%
Commercial Paper	270 Days	25%	5%
Corporate or Medium-Term Notes	5 Years	30%	5%
Bonds of Supranationals (IBRD, IFC, IADB)	5 Years	30%	5%
Mortgage pass-Through and Asset-Backed Securities	5 Years	20%	5%
Non-Negotiable Certificates of Deposit	1 Year	10%	5%
Negotiable Certificates of Deposit	1 Year	10%	5%
Money Marktet Mutual Funds	2(A) 7 Eligible	20%	20%
LAIF	N/A	Max Permitted by State Treasurer	Max Permitted by State Treasurer
Collateralized Bank Deposits	N/A	100%	50%
Bankers' Acceptances	180 Days	25%	5%
Joint Powers Authority Pool	N/A	N/A	N/A

* Excluding amounts held by the bond trustee that are not subject to California Government Code restrictions

The District complied with the provisions of the California Government Code (or the District's investment policy, where more restrictive) pertaining to the types of investments held, the institutions in which deposits were made, and the security requirements. The District will continue to monitor compliance with applicable statutes pertaining to public deposits and investments.

Investments Authorized by Debt Agreements: Investment of debt proceeds held by the bond trustee are governed by provisions of the debt agreements, rather than the general provisions of the California Government Code or the District's investment policy. The Certificates of Participation debt agreements contain certain provisions that address interest rate risk and credit risk, but not concentration of credit risk.

Authorized Investment Type	Maximum Maturity	Maximum Percentage of Portfolio	Maximum Investment in One Issuer
Local Agency Investment Program	None	None	None
U.S. Treasury Obligations	None	None	None
U.S. Agency Securities	None	None	None
Bankers' Acceptance	1 Year	None	None
Commercial Paper	None	None	None
Negotiable Certificates of Deposit	None	None	None
Investment Agreements	None	None	None
Repurchase Agreements	None	None	None
Money Market Mutual Funds	N/A	None	None
LAIF	N/A	None	None

NOTE 2: CASH AND INVESTMENTS (CONTINUED)

Fair Value Hierarchy: The District categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure fair value of the assets. Level 1 inputs are quoted prices in an active market for identical assets; Level 2 inputs are significant other observable inputs; and Level 3 inputs are significant unobservable inputs.

The following is a summary of the fair value hierarchy of the fair value of investments of the District as of December 31, 2024:

	Total
Investments Measured at Amortized Cost:	
Cash on Hand	$ 850
Deposits with financial institutions	4,209,133
Money Market Mutual Fund	223,281
Cash in banks and on hand	4,433,264
Investments held at Fair Value	
U.S. Treasury obligations	6,563,873
U.S. agency securities	9,076,355
Asset backed securities	1,308,201
Commercial paper	2,753,014
Municipal investments	1,286,504
Non-US government securities	2,136,096
Currency	428
Investments not subject to Fair Value Hierarchy	
California Local Agency Investment Fund (LAIF)	55,918
California Asset Management Program (CAMP)	5,943,769
Total Cash and Investments	**$ 33,780,703**

The following is a summary of the fair value hierarchy of the fair value of investments of the District as of December 31, 2023:

	Total
Investments Measured at Amortized Cost:	
Cash on Hand	$ 850
Deposits with financial institutions	3,573,192
Money Market Mutual Fund	99,362
Cash in banks and on hand	3,673,404
Investments held at Fair Value	
U.S. Treasury obligations	4,609,822
U.S. agency securities	6,974,239
Asset backed securities	1,647,117
Commercial paper	3,115,220
Municipal investments	1,256,217
Non-US government securities	255,575
Currency	14,262
Investments not subject to Fair Value Hierarchy	
California Local Agency Investment Fund (LAIF)	2,152,135
California Asset Management Program (CAMP)	5,637,697
Total Cash and Investments	**$ 29,435,050**

NOTE 2: CASH AND INVESTMENTS (CONTINUED)

Interest Rate Risk: Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. One of the ways the District manages its exposure to interest rate risk is by purchasing a combination of shorter term and longer term investments, and by timing cash flows from maturities so that a portion of the portfolio is maturing, or coming close to maturity, evenly over time, as necessary to provide the cash flow and liquidity needed for operations. Information about the sensitivity of the fair values of the District's investments to market interest rate fluctuations is provided by the following table that shows the distribution of the District's investments by maturity for fiscal year ended December 31, 2024:

		Remaining Maturity (in Months)		
Investment Type	Total	12 Months or Less	13 to 36 Months	37 to 60 Months
U.S. Treasury obligations	$ 6,563,873	$ 1,094,812	$ 2,292,911	$ 3,176,150
U.S. agency securities	9,076,355	1,947,883	5,090,614	2,037,858
Asset backed securities	1,308,201	598,918	508,381	200,902
Commercial paper	2,753,014	704,982	1,601,790	446,242
Municipal investments	1,286,504	-	1,108,446	178,058
Money market mutual funds	223,281	223,281	-	-
Non-US government securities	2,136,096	-	-	2,136,096
Currency	428	428	-	-
Local Agency Investment Fund	55,918	55,918	-	-
California Asset Management Program	5,943,769	5,943,769	-	-
Total	$ 29,347,439	$ 10,569,991	$ 10,602,142	$ 8,175,306

The following is a summary of the District's investments by maturity as of December 31, 2023:

		Remaining Maturity (in Months)		
Investment Type	Total	12 Months or Less	13 to 36 Months	37 to 60 Months
U.S. Treasury obligations	$ 4,609,822	$ 1,982,131	$ 1,416,537	$ 1,211,154
U.S. agency securities	6,974,239	1,525,462	4,204,857	1,243,920
Asset backed securities	1,647,117	-	621,135	1,025,982
Commercial paper	3,115,220	-	2,204,526	910,694
Municipal investments	1,256,217	-	283,607	972,610
Money market mutual funds	99,362	99,362	-	-
Non-US government securities	255,575	-	-	255,575
Currency	14,262	14,262	-	-
Local Agency Investment Fund	2,152,135	2,152,135	-	-
California Asset Management Program	5,637,697	5,637,697	-	-
Total	$ 25,761,646	$ 11,411,049	$ 8,730,662	$ 5,619,935

NOTE 2: CASH AND INVESTMENTS (CONTINUED)

Credit Risk: Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. This is measured by the assignment of a rating by a nationally recognized statistical rating organization. Presented below is the minimum rating required by (where applicable) the California Government Code, the District's investment policy, or debt agreements, and the actual rating as of year-end for each investment type for the year ended December 31, 2024.

			Moody's Rating as of Fiscal Year End			
Investment Type	Total	Minimum Legal Rating	Aaa	Aa	A	Exempt or Not Rated
U.S. Treasury obligations	$ 6,563,873	N/A	$ -	$ -	$ -	$ 6,563,873
U.S. agency securities	9,076,355	N/A	-	-	-	9,076,355
Asset backed securities	1,308,201	A	1,308,201	-	-	-
Commercial paper	2,753,014	A	251,358	551,133	1,144,391	806,132
Municipal investments	1,286,504	Aa	496,904	603,306	186,294	-
Money market mutual funds	223,281	Aaa	223,281	-	-	-
Non-US government securities	2,136,096	N/A	-	-	-	2,136,096
Currency	428	N/A	-	-	-	428
Local Agency Investment Fund	55,918	N/A	-	-	-	55,918
California Asset Management Program	5,943,769	N/A	-	-	-	5,943,769
Total	$ 29,347,439		$ 2,279,744	$ 1,154,439	$ 1,330,685	$ 24,582,571

The following is a summary of the minimum rating required by (where applicable) the California Government Code, the District's investment policy, or debt agreements, and the actual rating as of year-end for each investment type for the year ended December 31, 2023.

			Moody's Rating as of Fiscal Year End			
Investment Type	Total	Minimum Legal Rating	Aaa	Aa	A	Exempt or Not Rated
U.S. Treasury obligations	$ 4,609,822	Exempt	$ -	$ -	$ -	$ 4,609,822
U.S. agency securities	6,974,239	Exempt	-	-	-	6,974,239
Asset backed securities	1,647,117	A	1,050,397	-	-	596,720
Commercial paper	3,115,220	A	-	1,164,155	1,951,065	-
Certificates of deposit (nonnegotiable)	-	Not Rated	-	-	-	-
Certificates of deposit (negotiable)	-	Not Rated	-	-	-	-
Repurchase agreements	-	A	-	-	-	-
Medium-term notes	-	A	-	-	-	-
Municipal investments	1,256,217	Aa	198,517	1,057,700	-	-
Money market mutual funds	99,362	Aaa	-	-	-	99,362
Mortgage pass-through securities	-	A	-	-	-	-
Non-US government securities	255,575	Exempt	-	-	-	255,575
Currency	14,262	Exempt	-	-	-	14,262
Local Agency Investment Fund	2,152,135	Not Rated	-	-	-	2,152,135
California Asset Management Program	5,637,697	Not Rated	-	-	-	5,637,697
Total	$ 25,761,646		$ 1,248,914	$ 2,221,855	$ 1,951,065	$ 20,339,812

Concentration of Credit Risk: The investment policy of the District limits the amount that can be invested in any one issuer to the lesser of the amount stipulated by the California Government Code or 5% of total investments, with the exception of U.S. Treasury obligations, U.S. Agency Securities, and LAIF. There are no investments in any one issuer (other than mutual funds and external investment pools) that represent 5% or more of total District investments.

NOTE 2: CASH AND INVESTMENTS (CONTINUED)

Custodial Credit Risk: Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the District will not be able to recover its deposits or will not be able to recover collateral securities that are in the possession of an outside party. Under California Government Code Section 53651, depending on specific types of eligible securities, a bank must deposit eligible securities posted as collateral with its Agent having a fair value of 105% to 150% of the District's cash on deposit. All of the District's deposits are either insured by the Federal Depository Insurance Corporation (FDIC) or collateralized with pledged securities held in the trust department of the financial institutions in the District's name.

Investment in LAIF: The District is a voluntary participant in the Local Agency Investment Fund (LAIF) that is regulated by California Government Code Section 16429 under the oversight of the Treasurer of the State of California. The District reports its investment in LAIF at the fair value amount provided by LAIF. The balance available for withdrawal is based on the accounting records maintained by LAIF, which are recorded on an amortized cost basis. Included in LAIF's investment portfolio are collateralized mortgage obligations, mortgage-backed securities, other asset-backed securities, loans to certain state funds, and floating rate securities issued by federal agencies, government-sponsored enterprises, and corporations. At December 31, 2024 and 2023, these investments matured in an average of 217 and 230 days, respectively.

NOTE 3: CAPITAL ASSETS

Capital asset activity for the years ended December 31, 2024 and 2023 are as follows:

	Balance December 31, 2023	Adjustments	Adjusted Beginning Balance	Additions	Deletions	Transfers	Balance December 31, 2024
Business-Type Activities:							
Capital assets not being depreciated:							
Land	$ 2,309,097	$ -	$ 2,309,097	$ -	$ -	$ -	$ 2,309,097
Right of ways	26,080	-	26,080	-	-	-	26,080
Construction in Progress	2,555,476	-	2,555,476	4,248,543		(2,016,402)	4,787,617
Total capital assets not being depreciated	4,890,653	-	4,890,653	4,248,543	-	(2,016,402)	7,122,794
Capital assets being depreciated:							
Improvements	1,378,114	-	1,378,114	114,910	-	-	1,493,024
Pipelines and infrastructure	71,654,756	-	71,654,756		(14,345)	1,224,247	72,864,658
Equipment and machinery	4,929,201	-	4,929,201	6,743	(178,005)	792,155	5,550,094
Buildings and improvements	4,281,371	-	4,281,371	-	-	-	4,281,371
Well improvements	8,062,746	-	8,062,746	-	-	-	8,062,746
Donated Pipelines	21,834,152	-	21,834,152		-	-	21,834,152
Subscriptions	106,700		106,700	12,942	-	-	119,642
Total capital assets, being depreciated	112,247,040	-	112,247,040	134,595	(192,350)	2,016,402	114,205,687
Less accumulated depreciation for:							
Improvements	(192,881)	-	(192,881)	(34,079)	-	-	(226,960)
Pipelines and infrastructure	(28,756,998)	-	(28,756,998)	(1,671,249)	10,408	-	(30,417,839)
Equipment and machinery	(3,700,835)	-	(3,700,835)	(237,517)	161,063	-	(3,777,289)
Buildings and improvements	(1,447,340)	-	(1,447,340)	(102,578)	-	-	(1,549,918)
Well improvements	(2,786,098)	-	(2,786,098)	(201,195)	-	-	(2,987,293)
Donated Pipelines	(12,425,825)	-	(12,425,825)	(415,718)	-	-	(12,841,543)
Subscriptions	(21,192)	-	(21,192)	(14,534)	-	-	(35,726)
Total accumulated depreciation	(49,331,169)	-	(49,331,169)	(2,676,870)	171,471	-	(51,836,568)
Total capital assets being depreciated, net	62,915,871	-	62,915,871	(2,542,275)	(20,879)	2,016,402	62,369,119
Capital assets, net	$ 67,806,524	$ -	$ 67,806,524	$ 1,706,268	$ (20,879)	$ -	$ 69,491,913

	Balance December 31, 2022	Adjustments	Adjusted Beginning Balance	Additions	Deletions	Transfers	Balance December 31, 2023
Business-Type Activities:							
Capital assets not being depreciated:							
Land	$ 2,309,097	$ -	$ 2,309,097	$ -	$ -	$ -	$ 2,309,097
Right of ways	26,080	-	26,080	-	-	-	26,080
Construction in Progress	1,255,221	-	1,255,221	3,634,992	-	(2,334,737)	2,555,476
Total capital assets not being depreciated/amortized	3,590,398	-	3,590,398	3,634,992	-	(2,334,737)	4,890,653
Capital assets being depreciated/amortized:							
Improvements	1,275,136	-	1,275,136	-	-	102,978	1,378,114
Pipelines and infrastructure	69,906,810	-	69,906,810	-	(150,113)	1,898,059	71,654,756
Equipment and machinery	4,803,910	-	4,803,910	-	(93,409)	218,700	4,929,201
Buildings and improvements	4,281,371	-	4,281,371	-	-	-	4,281,371
Well improvements	7,947,746	-	7,947,746	-	-	115,000	8,062,746
Donated Pipelines	21,637,046	-	21,637,046	243,443	(46,337)	-	21,834,152
Subscription	-	106,700 *	106,700	-	-	-	106,700
Total capital assets, being depreciated/amortized	109,852,019	106,700	109,958,719	243,443	(289,859)	2,334,737	112,247,040
Less accumulated depreciation/amortization for:							
Improvements	(161,402)	-	(161,402)	(31,479)	-	-	(192,881)
Pipelines and infrastructure	(27,247,327)	-	(27,247,327)	(1,637,627)	127,956	-	(28,756,998)
Equipment and machinery	(3,526,614)	-	(3,526,614)	(267,630)	93,409	-	(3,700,835)
Buildings and improvements	(1,344,761)	-	(1,344,761)	(102,579)	-	-	(1,447,340)
Well improvements	(2,587,538)	-	(2,587,538)	(198,560)	-	-	(2,786,098)
Donated Pipelines	(12,051,717)	-	(12,051,717)	(419,776)	45,668	-	(12,425,825)
Subscription	-	(10,522) *	(10,522)	(10,670)	-	-	(21,192)
Total accumulated depreciation/amortization	(46,919,359)	(10,522)	(46,929,881)	(2,668,321)	267,033	-	(49,331,169)
Total capital assets being depreciated/amortized, net	62,932,660	96,178	63,028,838	(2,424,878)	(22,826)	2,334,737	62,915,871
Capital assets, net	$ 66,523,058	$ 96,178	$ 66,619,236	$ 1,210,114	$ (22,826)	$ -	$ 67,806,524

*Implementation of GASB Statement No. 96, *Subscription-Based Information Technology Arrangements*

Capacity Entitlements: From 1993 through 1998, the District participated with four other water agencies in a cooperative transmission pipeline project for the construction of additional transmission pipeline facilities. The District's share of these pipeline costs totaled $5,636,711. The Capacity Entitlements asset represents the capacity rights the District has purchased in the cooperative transmission pipeline project owned by San Juan Water District. The asset is being amortized over the pipeline's estimated useful life of forty years.

NOTE 4: SUBSCRIPTION-BASED INFORMATION TECHNOLOGY ARRANGEMENTS

The District implemented GASB Statement No. 96 in the fiscal year ended December 31, 2023. The primary objective of this statement is to enhance the relevance and consistency of information about governments' subscription based-information technology arrangement (SBITA) activities. This statement establishes a single model for SBITA accounting based on the principle that SBITAs are financings of the right to use an underlying asset. Under this Statement, a subscriber is required to recognize a subscription liability and an intangible right-to-use subscription asset. For additional information, refer to the disclosures below.

As of December 31, 2024 and 2023, Citrus Heights Water District, CA had 1 active subscription. The subscription has payments that range from $12,917 to $12,917 and interest rates that range from 1.0850% to 1.0850%. As of December 31, 2024 and 2023, the total combined value of the subscription liability is $86,617 and $85,379, respectively. The combined value of the right to use asset, as of December 31, 2024 and 2023 of $119,642 and $106,700, respectively with accumulated amortization of $35,726 and $21,192 respectively is included within the Subscription Class activities table found below. The subscriptions had no Variable Payments and no Other Payments, not included in the Subscription Liability, within the Fiscal Year.

Amount of subscription asset by subscription type for the years ended December 31, 2024 and 2023:

Subscription Type	Amount of SBITA Capital Assets	2024 Accumulated Amortization	2023 Accumulated Amortization
Software as a service	$ 119,642	$ 35,726	$ 21,192

Subscription principal and interest requirements to maturity:

Fiscal Year Ending December 31,	Principal	Interest
2025	$ 11,977	$ 940
2026	12,107	810
2027	12,238	678
2028	12,371	546
2029	12,505	411
2030-2032	25,419	414
Total	$ 86,617	$ 3,799

NOTE 5: LONG-TERM LIABILITIES

Long-term liabilities consist of the following:

2012 Revenue Refunding Bonds: In April 2012, the District issued $2,275,000 of Revenue Refunding Bonds with interest rates ranging from 3.00% to 5.25%. These 2012 Revenue Refunding Bonds were issued to retire the 2003 Certificates of Participation, which were issued to finance the cost of certain capital improvements to the District's water system. The District is required to collect rates and charges from its water system that will be sufficient to yield net revenues equal to 110% of debt service payments on any future debt issued, and to deposit the net revenues in a revenue fund pledged for such future debt service payments. Annual principal payments, ranging from $70,000 to $160,000 are due on February 1 through February 1, 2033, and semi-annual interest payments, ranging from $4,200 to $48,600 are due on February 1 and August 1, through February 1, 2033.

NOTE 5: LONG-TERM LIABILITIES (CONTINUED)

Changes in the District's long-term liabilities during the years ended December 31, 2024 and 2023 was as follows:

	Balance December 31, 2023	Adjustments	Adjusted Beginning Balance	Additions	Retirements	Balance December 31, 2024	Current Portion
2012 Revenue Refunding Bonds							
3-5.25% due 2-1-33	$ 1,315,000	-	$ 1,315,000	-	$ 110,000	$ 1,205,000	$ 110,000
Unamortized premium on 2012 Bonds	113,641	-	113,641	-	13,370	100,271	-
Deferred amount on refunding of 2012 Bonds	18,572	-	18,572	-	8,636	9,936	-
Subscription	85,379	-	85,379	11,977	10,739	86,617	11,977
Total Long-Term Liabilities	1,532,592	-	1,532,592	11,977	142,745	1,401,824	121,977

	Balance December 31, 2022	Adjustments	Adjusted Beginning Balance	Additions	Retirements	Balance December 31, 2023	Current Portion
2012 Revenue Refunding Bonds							
3-5.25% due 2-1-33	$ 1,420,000	-	$ 1,420,000	-	$ 105,000	$ 1,315,000	$ 110,000
Unamortized premium on 2012 Bonds	127,011	-	127,011	-	13,370	113,641	-
Deferred amount on refunding of 2012 Bonds	19,987	-	19,987	-	1,415	18,572	-
Subscription *	-	95,542	95,542	-	10,163	85,379	10,274
Total Long-Term Liabilities	1,566,998	95,542	1,662,540	-	129,948	1,532,592	120,274

*Implementation of GASB Statement No. 96, Subscription-Based Information Technology Arrangements

The annual requirements to amortize the outstanding debt related to the 2012 Revenue Refunding Bonds as of December 31, 2024 are as follows:

Fiscal Year Ending December 31,	2012 Revenue Refunding Bonds		
	Principal	Interest	Total
2025	$ 110,000	$ 60,788	$ 170,788
2026	115,000	57,488	172,488
2027	120,000	54,188	174,188
2028	130,000	45,150	175,150
2029-2033	730,000	118,912	848,912
Total	$ 1,205,000	$ 336,526	$ 1,541,526

Pledged Revenue: The District pledged future water system revenues, net of specified expenses, to repay the 2012 Revenue Refunding Bonds in an original amount of $2,275,000. Proceeds of the Revenue Refunding Bonds were used to refund the 2003 Certificates of Participation to finance capital improvements to the District's water system. The Revenue Refunding Bonds are payable solely from water customer net revenues and are payable through February 2033. Annual principal and interest payments on the Bonds are expected to require less than 80% of net revenues. Total principal and interest remaining to be paid on the Revenue Refunding Bonds was $1,541,526 and $1,715,614 at December 31, 2024 and 2023, respectively.

Total principal and interest paid on all debt payable from net revenues was $174,088 and $174,338 and the total water system net revenues were $7,605,419 and $6,162,409 for the years ended December 31, 2024 and 2023, respectively. At December 31, 2024 and 2023, the District's net revenues were 5,600% and 3,540% of debt service payments, respectively.

Events of Default: The 2012 Revenue Refunding Bonds from direct borrowings related to business-type activities, contain events of default that declare the principal of all of the 2012 bonds then outstanding and the interest accrued thereon to be due and payable immediately as specified in the terms of the agreement if any of the following conditions occur: default on debt service payments; the failure of the District to observe or perform the conditions, covenants, or agreement terms of the debt; bankruptcy filing by the District; or if any court or competent jurisdiction shall assume custody or control of the District. There were no such events occurred during the fiscal year ended December 31, 2024.

NOTE 6: ARBITRAGE REBATE LIABILITY

Section 148(f) of the Internal Revenue Code requires issuers of tax-exempt state and local bonds to remit to the federal government amounts equal to (a) the excess of the actual amounts earned on all "Nonpurpose Investments" allocable to "Gross Proceeds" of an issue of municipal obligations less the amount that would have been earned if the investments bore a rate equal to the amount that would have been earned if the investments bore a rate equal to the yield on the issue, plus (b) all income attributable to the excess. Issuers must make rebate payments at least once every five years and upon final retirement or redemption of the bonds. There was no arbitrage liability at December 31, 2024 and 2023.

NOTE 7: NET POSITION

Designations: Designations of unrestricted net position may be imposed by the Board of Directors to reflect future spending plans or concerns about the availability of future resources. Designations may be modified, amended or removed by Board action.

The designations are for the following:

Designated for rate stabilization represents the amount to be used to ensure financial and customer rate stability in responding to certain conditions.

Designated for operating reserve is maintained for operating funds collected in advance for the following year, accrued leave reserve, self-insurance reserve, unanticipated operating expenses, unanticipated economic shortfall, and unallocated funds.

Designated for debt services reserve represents amounts set aside for use in maintaining debt coverage ratios in accordance with bond covenants or other agreements or requirements associated with the issuance of debt by the District.

Designated for capital improvement reserve represents amounts set aside for use in evaluating and constructing new capital facilities to benefit existing District customers. This reserve had a negative balance in past years due to large capital expenditures, including the meter retrofit program and well construction.

Designated for fleet equipment reserve represents amounts set aside to replace fleet equipment at the end of its useful life.

Designated for employment-related benefits reserve represents amounts set aside to pay the costs of employment-related benefits for existing and retired District employees.

Designated for water meter replacement reserve represents amounts set aside for use in evaluating, designing, and replacing or rehabilitating capital facilities pertaining to water meters to benefit existing District customers.

Designated for water supply reserve represents amounts set aside for evaluating, acquiring, and constructing capital facilities related to water supply, such as groundwater production wells, aquifer storage and recovery wells, surface water projects, recycled/reclaimed water projects, and land and right-of-way acquisition.

Designated for water main replacement reserve represents amounts set aside for evaluating, planning, designing, constructing, replacing or rehabilitating capital facilities to benefit District customers.

Designated for water efficiency reserve represents amounts set aside for use in a water supply shortage, water supply interruption, Federal/State/Regional/Local mandates, or other programmatic needs.

NOTE 8: COMPENSATED ABSENCES

The following is a summary of changes in the District's compensated absences for the year ended December 31, 2024 and 2023:

	December 31, 2024	Net Change	December 31, 2024	Current Portion
District Total	$ 638,863	$ (79,274)	$ 559,589	$ 174,273

	December 31, 2023	Net Change	December 31, 2024	Current Portion
District Total	$ 558,201	$ 80,662	$ 638,863	$ 213,910

NOTE 9: DEFINED BENEFIT PENSION PLAN

For purposes of measuring the net pension liability and deferred outflows/inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the Plans and additions to/deductions from the Plans' fiduciary net position have been determined on the same basis as they are reported by the CalPERS Financial Office. For this purpose, benefit payments (including refunds of employee contributions) are recognized when currently due and payable in accordance with the benefit terms. Investments are reported at fair value.

A. General Information about the Pension Plans

Plan Description and Summary of Balances by Plan – All qualified permanent and probationary employees are eligible to participate in the District's Miscellaneous (all other) Employee Pension Rate Plan. The District's Miscellaneous Rate Plan is part of the public agency cost-sharing multiple-employer defined benefit pension plan (PERF C), which is administered by the California Public Employees' Retirement System (CalPERS). PERF C consists of a miscellaneous pool and a safety pool (also referred to as "risk pools"), which are comprised of individual employer miscellaneous and safety rate plans, respectively. Individual employers may sponsor more than one miscellaneous and safety rate plan. The employer participates in one cost-sharing multiple-employer defined benefit pension plan regardless of the number of rate plans the employer sponsors. The District sponsors one rate plan (miscellaneous).

Benefit provisions under the Plan are established by State statute and District resolution. CalPERS issues publicly available reports that include a full description of the pension plan regarding benefit provisions, assumptions and membership information that can be found on the CalPERS website.

Below is a summary of the deferred outflows of resources, net pension liabilities, and deferred inflows of resources by Plan for the year ended December 31, 2024 and 2023:

As of December 31, 2024	Deferred Outflows of Resources	Net Pension Liability/ Propotionate Share of Net Pension Liability	Deferred Inflows of Resources
Miscellaneous	$ 1,918,709	$ (6,077,953)	$ (73,188)

As of December 31, 2023	Deferred Outflows of Resources	Net Pension Liability/ Propotionate Share of Net Pension Liability	Deferred Inflows of Resources
Miscellaneous	$ 2,537,266	$ (6,173,494)	$ (402,283)

NOTE 9: DEFINED BENEFIT PENSION PLAN (CONTINUED)

Benefits Provided – CalPERS provides service retirement and disability benefits, annual cost of living adjustments and death benefits to plan members, who must be public employees and beneficiaries. Benefits are based on years of credited service, equal to one year of full time employment. All members are eligible for non-duty disability benefits after 10 years of service. The death benefit is one of the following: the Basic Death Benefit, the 1957 Survivor Benefit, or the Optional Settlement 2W Death Benefit. The cost of living adjustments for each plan are applied as specified by the Public Employees' Retirement Law. The Pension Reform Act of 2013 (PEPRA), Assembly Bill 340, is applicable to employees new to CalPERS and hired after December 31, 2012.

The Plans' provisions and benefits in effect at December 31, 2024, are summarized as follows:

	Miscellaneous Tier 1	**Miscellaneous Tier 2**	**Miscellaneous PEPRA**
Hire date	Prior to January 1, 2013	Prior to January 1, 2013	On or after January 1, 2013
Benefit formula	2.0% @ 55	2.0% @ 55	2.0% @ 62
Benefit vesting schedule	5 years service	5 years service	5 years service
Benefit payments	monthly for life	monthly for life	monthly for life
Retirement age	50 - 63	50 - 63	52 - 67
Monthly benefits, as a % of eligible compensation	1.43% to 2.42%	1.43% to 2.42%	1.0% to 2.5%
Required employee contribution rates	6.9%	6.9%	7.8%
Required employer contribution rates	12.5%	11.8%	7.7%

Beginning in fiscal year 2017, CalPERS collects employer contributions for the cost-sharing plan as a percentage of payroll for the normal cost portion as noted in the rates above and as a dollar amount for contributions toward the unfunded liability and side fund. The dollar amounts are billed on a monthly basis. The District's required contribution for the unfunded liability was $662,667 in fiscal year 2024.

Contributions – Section 20814(c) of the California Public Employees' Retirement Law requires that the employer contribution rates for all public employers be determined on an annual basis by the actuary and shall be effective on the July 1 following notice of a change in the rate. Funding contributions for the Plan are determined annually on an actuarial basis as of June 30 by CalPERS. The actuarially determined rate is the estimated amount necessary to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. The District is required to contribute the difference between the actuarially determined rate and the contribution rate of employees.

For the year ended December 31, 2024 and 2023 the District's contributions to the Plan were as follows:

	Miscellaneous		
As of December 31, 2024	Tier 1	Tier 2	PEPRA
Contributions - employer	$ 524,378	$ 8,065	$ 2,706

	Miscellaneous		
As of December 31, 2023	Tier 1	Tier 2	PEPRA
Contributions - employer	$ 470,187	$ 6,175	$ 4,097

NOTE 9: DEFINED BENEFIT PENSION PLAN (CONTINUED)

B. Pension Liabilities, Pension Expenses and Deferred Outflows/Inflows of Resources Related to Pensions

As of December 31, 2024, the District reported $6,077,953 in net pension liabilities for its proportionate shares of the net pension liability of the Plan.

The District's net pension liability for the Plan is measured as the proportionate share of the net pension liability. The net pension liability of the Plan is measured as of June 30, 2024, and the total pension liability for the Plan used to calculate the net pension liability was determined by an actuarial valuation as of June 30, 2023 rolled forward to June 30, 2024 using standard update procedures. The District's proportion of the net pension liability was based on a projection of the District's long-term share of contributions to the pension plan relative to the projected contributions of all participating employers, actuarially determined. The District's proportionate share of the net pension liability for the Plan as of June 30, 2024 and 2023 was as follows:

As of December 31, 2024	Miscellaneous
Proportion - June 30, 2023	0.12346%
Proportion - June 30, 2024	0.12567%
Change - Increase (Decrease)	-0.00221%

As of December 31, 2023	Miscellaneous
Proportion - June 30, 2022	0.12247%
Proportion - June 30, 2023	0.12346%
Change - Increase (Decrease)	-0.00099%

For the year ended December 31, 2024 and 2023, the District recognized pension expense of $277,926 and $1,098,770, respectively. At December 31, 2024 and 2023, the District reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

As of December 31, 2024	Deferred Outflows of Resources	Deferred Inflows of Resources
Pension contributions subsequent to measurement date	$ 770,256	$ -
Differences between actual and expected experience	525,495	(20,504)
Changes in assumptions	156,216	-
Changes in employer's proportion and differences between the employer's contributions and the employer's proportionate share of contributions	46,482	(52,684)
Net differences between projected and actual earnings on plan investments	349,900	-
Total	$ 1,918,709	$ (73,188)

NOTE 9: DEFINED BENEFIT PENSION PLAN (CONTINUED)

As of December 31, 2023	Deferred Outflows of Resources	Deferred Inflows of Resources
Pension contributions subsequent to measurement date	$ 662,667	$ -
Differences between actual and expected experience	315,375	(48,922)
Changes in assumptions	372,722	-
Changes in employer's proportion and differences between the employer's contributions and the employer's proportionate share of contributions	186,958	(353,361)
Net differences between projected and actual earnings on plan investments	999,544	-
Total	$ 2,537,266	$ (402,283)

The $770,256 reported as deferred outflows of resources related to contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended December 31, 2024. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized as pension expense as follows:

Fiscal year ended December 30,	Deferred Outflows/(Inflows) of Resources
2025	$ 373,623
2026	797,675
2027	23,874
2028	(119,907)
Total	$ 1,075,265

Sensitivity of the Proportionate Share of the Net Pension Liability to Changes in the Discount Rate – The following presents the District's proportionate share of the net pension liability for the Plan, calculated using the discount rate for the Plan, as well as what the District's proportionate share of the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1- percentage point higher than the current rate:

For December 31, 2024	Miscellaneous
1% Decrease	5.90%
Net Pension Liability	$ (9,837,787)
Current Discount Rate	6.90%
Net Pension Liability/(Asset)	$ (6,077,953)
1% Increase	7.90%
Net Pension Liability/(Asset)	$ (2,983,056)

For December 31, 2023	Miscellaneous
1% Decrease	5.90%
Net Pension Liability	$ (9,708,569)
Current Discount Rate	6.90%
Net Pension Liability/(Asset)	$ (6,173,494)
1% Increase	7.90%
Net Pension Liability/(Asset)	$ (3,263,824)

NOTE 9: DEFINED BENEFIT PENSION PLAN (CONTINUED)

Actuarial Assumptions – For the measurement period ended June 30, 2024, the total pension liabilities were determined by rolling forward the June 30, 2023 total pension liability based on the following actuarial methods and assumptions:

	Miscellaneous
Valuation Date	June 30, 2023
Measurement Date	June 30, 2024
Actuarial Cost Method	Entry-Age Normal Cost Method
Actuarial Amortization	
Discount Rate	6.90%
Inflation	2.30%
Projected Salary Increase	Varies by Entry Age and Service
Mortality(1)	Derived using CalPers Membership Data for all Funds
The above actuarial assumptions were based upon the following experience study periods:	2021
Investment Rate of Return	6.90%
Post Retirement Benefit Increase	Contract COLA up to 2.30% until PPPA(2) floor on purchasing power applies, 2.30% thereafter

[1] CalPERS developed the mortality table used based on CalPERS' specific data. The table includes 15 years of mortality improvements using Society of Actuaries Scale MP–2016. For more details on this table, please refer to the 2021 experience study report.
[2] Purchasing Power Protection Allowance (PPPA) is a benefit designed to restore the original purchasing power of CalPERS retirees to a predetermined limit.

All other actuarial assumptions used in the June 30, 2023 valuation were based on the results of a December 2021 actuarial experience study. Further details of the Experience Study can be found on the CalPERS website.

NOTE 9: DEFINED BENEFIT PENSION PLAN (CONTINUED)

Discount Rate – The discount rate used to measure the total pension liability for the Plan was 6.90%. The projection of cash flows used to determine the discount rate for the Plan assumed that contributions from all plan members in the Public Employees Retirement Fund (PERF) will be made at the current member contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based on those assumptions, the Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long- term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class.

In determining the long-term expected rate of return, CalPERS took into account both short-term and long-term market return expectations as well as the expected pension fund cash flows. Such cash flows were developed assuming that both members and employers will make their required contributions on time and as scheduled in all future years. Using historical returns of all the funds' asset classes, expected compound (geometric) returns were calculated over the short-term (first 10 years) and the long-term (11- 60 years) using a building-block approach. Using the expected nominal returns for both short-term and long-term, the present value of benefits was calculated for each fund. The expected rate of return was set by calculating the rounded single equivalent expected return that arrived at the same present value of benefits for cash flows as the one calculated using both short-term and long-term returns. The expected rate of return was then set equal to the single equivalent rate calculated above and rounded down to the nearest one quarter of one percent.

The table below reflects the expected real rate of return by asset class.

Asset Class	Assumed Asset Allocation	Real Return [1, 2]
Global equity-cap-weighted	30.00%	4.54%
Global equity-non-cap-weighted	12.00%	3.84%
Private equity	13.00%	7.28%
Treasury	5.00%	0.27%
Mortgage-backed securities	5.00%	0.50%
Investment grade corporates	10.00%	1.56%
High yield	5.00%	2.27%
Emerging market debt	5.00%	2.48%
Private debt	5.00%	3.57%
Real assets	15.00%	3.21%
Leverage	-5.00%	-0.59%

[1] An expected inflation of 2.30% used for this period.

[2] Figures are based on the 2021-22 Asset Liability Management stud

Pension Plan Fiduciary Net Position – Detailed information about each pension plan's fiduciary net position is available in the separately issued CalPERS financial reports.

NOTE 10: POSTEMPLOYMENT HEALTH CARE BENEFITS

A. General Information about the District's Other Postemployment Benefit (OPEB) Plan

Plan Description – The District provides post-employment healthcare benefits for certain groups of employees that retire from the District, under the Retiree Healthcare Plan (OPEB Plan), an agent multiple-employer plan administered by the District. The OPEB Plan provides benefits for all permanent, full-time employees of the District. The OPEB Plan's assets are held in trust with the California Employers' Retiree Benefit Trust Fund (CERBT), an agent multiple-employer Section 115 trust fund plan administered by California Public Employees' Retirement System (CalPERS), which acts as a common investment and administrative agent for participating public employers within the State of California. Benefit provisions are established through District policy and may be amended through action of the District's Board of Directors. In order to qualify for participation in the OPEB Plan, employees must meet three conditions: (1) completion of 20 years of service with the District; (2) retirement from the District; and (3) employed with the District by January 30, 2019.

Benefits Provided – The following is a summary of Plan benefits by employee group as of December 31, 2023:

	Hired before January 31, 2019		
	Retired from District between June 3, 1992 and March 19, 1996	Retired from District after March 19, 1996	Hired After January 30, 2019
20+ Years of Service	Health insurance provided to employee at District expense	Maximum monthly reimbursement of $377.00 to retiree, spouse/dependents.	
25+ Years of Service	Health insurance provided to retiree, and spouse/dependents at the time of retirement. If no spouse/dependents, or if retiree does not wish to cover spouse/dependents, retiree may select benefit of 30+ years of service.	Maximum monthly reimbursement of $422.00 to retiree, spouse/dependents.	Employees hired after January 30, 2019 are not eligible to receive any benefit under the OPEB plan.
30+ Years of Service	Health, dental, vision insurance provided at District expense for retiree. Health and dental insurance provided at District expense for spouse/dependents at time of	Maximum monthly reimbursement of $472.00 to retiree, spouse/dependents.	

For the year ended December 31, 2024, the District's contributions to the OPEB Plan were $170,520

Employees Covered by Benefit Terms – Membership in the OPEB Plan consisted of the following at the census date of December 31, 2022:

Inactive Employees or Beneficiaries Currently Receiving Benefits	19
Inactive Employees Entitled to but not yet Receiving Benefits	-
Active Employees	22
Total	41

NOTE 10: POSTEMPLOYMENT HEALTH CARE BENEFITS (CONTINUED)

B. Net OPEB Liability

Actuarial Methods and Assumptions – The District's net OPEB liability was measured as of December 31, 2023, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation dated December 31, 2022 to determine the total OPEB liability as of December 31, 2024, based on the following actuarial methods and assumptions:

	Actuarial Assumptions
Valuation Date	December 31, 2022
Measurement Date	December 31, 2023
Actuarial Cost Method	Entry - Age Normal Cost Method
Actuarial Assumptions:	
Discount Rate	5.87%
Inflation	2.30%
Payroll Growth	2.80%
Healthcare Trend	6.80%, trending down to 4.14%
Mortality Rate	CalPers OPEB Assumption Model, dated November 17, 2021

The underlying mortality assumptions were based on the CalPERS OPEB Assumption Model, dated November 17, 2021, and all other actuarial assumptions used in the December 31, 2022 valuation were based on the results of a December 31, 2022 actuarial experience study for the period January 1, 2022 to December 31, 2022.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return Year
Global Equity	49.00%	6.80%
Fixed Income	23.00%	3.70%
TIPS	5.00%	2.80%
Commodities	3.00%	3.40%
REITs	20.00%	6.00%
Total	100.00%	

Discount Rate – The discount rate used to measure the total OPEB liability was 5.87%. The projection of cash flows used to determine the discount rate assumed that District contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected OPEB payments for current active and inactive employees and beneficiaries. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

NOTE 10: POSTEMPLOYMENT HEALTH CARE BENEFITS (CONTINUED)

C. Changes in Net OPEB Liability

The changes in the net OPEB liability are as follows:

	Increase (Decrease)		
	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability/(Asset) (a) - (b)
Balance at December 31, 2023	$ 1,809,212	$ 570,891	$ 1,238,321
Changes Recognized for the Measurement Period:			
Service Cost	42,248	-	42,248
Interest on the total OPEB liability	107,097	-	107,097
Changes in benefit terms	-	-	-
Difference between expected and actual experience	1,027	-	1,027
Changes in assumptions	-	-	-
Contributions from the employer*	-	53,972	(53,972)
Net investment income	-	66,878	(66,878)
Administrative Expenses	-	(292)	292
Benefit payments and refunds	(53,972)	(53,972)	-
Other changes	-	-	-
Net changes	96,400	66,586	29,814
Balance at December 31, 2024	$ 1,905,612	$ 637,477	$ 1,268,135

	Increase (Decrease)		
	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability/(Asset) (a) - (b)
Balance at December 31, 2022	$ 2,062,623	$ 532,965	$ 1,529,658
Changes Recognized for the Measurement Period:			
Service Cost	44,622	-	44,622
Interest on the total OPEB liability	122,099	-	122,099
Changes in benefit terms	-	-	-
Difference between expected and actual experience	(207,360)	-	(207,360)
Changes in assumptions	(158,406)	-	(158,406)
Contributions from the employer*	-	(97,111)	97,111
Net investment income	-	189,666	(189,666)
Administrative Expenses	-	(263)	263
Benefit payments and refunds	(54,366)	(54,366)	-
Other changes	-	-	-
Net changes	(253,411)	37,926	(291,337)
Balance at December 31, 2023	$ 1,809,212	$ 570,891	$ 1,238,321

NOTE 10: POSTEMPLOYMENT HEALTH CARE BENEFITS (CONTINUED)

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Healthcare Cost Trend Rates – The following presents the net OPEB liability of the District, as well as what the District's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower (4.87%) or 1- percentage-point higher (6.87%) than the current discount rate:

Plan's Net OPEB Liability - 2024		
Discount Rate -1% (4.87%)	Current Discount Rate (5.87%)	Discount Rate1% (6.87%)
$ 1,578,301	$ 1,268,135	$ 1,015,997

Plan's Net OPEB Liability - 2023		
Discount Rate -1% (4.87%)	Current Discount Rate (5.87%)	Discount Rate1% (6.87%)
$ 1,537,747	$ 1,238,321	$ 995,480

The following presents the net OPEB liability of the District, as well as what the District's net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower (6.0% to 4.0%) or 1-percentage-point higher (8.0% to 6.0%) than the current healthcare cost trend rates:

Plan's Net OPEB Liability - 2024		
Health Care Cost Trend Rate -1%	Health Care Cost Trend Rates	Health Care Cost Trend Rate +1%
$ 970,153	$ 1,268,135	$ 1,647,269

Plan's Net OPEB Liability - 2023		
Health Care Cost Trend Rate -1%	Health Care Cost Trend Rates	Health Care Cost Trend Rate +1%
$ 966,191	$ 1,238,321	$ 1,583,884

D. OPEB Expense and Deferred Outflows/Inflows of Resources Related to OPEB

For the year ended December 31, 2024 and 2023, the District recognized OPEB expense of $123,283 and $148,355, respectively. At December 31, 2024 and 2023, the District reported deferred outflows and inflows of resources related to OPEB from the following sources:

As of December 31, 2024	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 16,138	$ (171,710)
Changes in assumptions	195,423	(205,951)
Net difference between projected and actual earnings on OPEB plan investments	26,821	-
Employer contributions made subsequent to the measurement date	170,520	-
Total	$ 408,902	$ (377,661)

NOTE 10: POSTEMPLOYMENT HEALTH CARE BENEFITS (CONTINUED)

As of December 31, 2023	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 19,578	$ (197,047)
Changes in assumptions	242,363	(239,374)
Net difference between projected and actual earnings on OPEB plan investments	74,698	-
Employer contributions made subsequent to the measurement date	170,924	-
Total	$ 507,563	$ (436,421)

$170,520 reported as deferred outflows of resources related to contributions subsequent to the measurement date will be recognized as a reduction of the OPEB liability in the year ended December 31, 2024. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized as pension expense as follows:

Year Ended December 31,	Annual Amortization
2025	$ 240
2026	4,696
2027	8,450
2028	(19,390)
2029	(48,644)
Thereafter	(84,631)

E. Payable to the OPEB Plan

At December 31, 2024 and 2023, the District reported a payable of $0 for the outstanding amount of contributions to the OPEB plan required for the year ended December 31, 2024 and 2023.

NOTE 11: COMMITMENTS AND CONTINGENCIES

Various claims have been filed against the District. In the opinion of the District's management and legal counsel, the claims will not have a material impact on the basic financial statements.

The District has no capital project commitments as of December 31, 2024 and 2023.

NOTE 12: ECONOMIC DEPENDENCY

During 2024 and 2023, the District purchased 94.01% and 84.89%, respectively, of its water supply from the San Juan Water District (SJWD). Total purchases for the year ended December 31, 2024 and 2023 was $2,982,507 and $2,858,841, respectively. In addition, the District owns water transmission capacity entitlements through the cooperative transmission pipeline project owned and operated by SJWD.

NOTE 13: INSURANCE

The District participates in the Association of California Water Agencies Joint Powers Insurance Authority (ACWA/JPIA) a public entity risk pool of California water agencies, for general and auto liability, public officials liability, property damage, fidelity insurance and workers compensation liability. ACWA/JPIA provides insurance through the pool up to a certain level, beyond which group purchased commercial excess insurance is obtained.

NOTE 13: INSURANCE (CONTINUED)

The District pays an annual premium to ACWA/JPIA that includes its pro-rata share of excess insurance premiums, charges for the pooled risk, claims adjusting and legal costs, and administrative and other costs to operate the ACWA/JPIA. The District's deductibles and maximum coverage are as follows:

Type of Coverage (Deductible)	ACWA/JIPA	Deductible
General and Auto Liability		
(Includes Public Officials Liability)	$55,000,000	None
Cyber Liability	3,000,000	None
Property Damage*	150,000,000	$2,500-$100,000
Crime	100,000	1,000
Workers Comensation Liability	2,000,000	None

* The District has additional $500,000,000 in property damage coverage via ACWA/JPIA through the commercial insurance policy

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REQUIRED SUPPLEMENTARY INFORMATION

CITRUS HEIGHTS WATER DISTRICT
Cost Sharing Multiple-Employer Plan
Schedule of Proportionate Share of the Net Pension Liability
As of December 31, for the Last Ten Years

Measurement Date	**6/30/2015**	**6/30/2016**	**6/30/2017**	**6/30/2018**
Plan Proportion of the Net Pension Liability	0.12216%	0.11962%	0.11866%	0.11673%
Plan Proportionate Share of the Net Pension Liability	$ 3,351,422	$ 4,155,588	$ 4,677,711	$ 4,399,273
Plan Covered Payroll	$ 2,289,027	$ 2,270,540	$ 2,606,536	$ 2,941,557
Plan Proportionate Share of the Net Pension Liability as Percentage of Covered Payroll	146.41%	183.02%	179.46%	149.56%
The Pension Plan's (PERF-C) Fiduciary Net Position as a Percentage of the Total Pension Liability	78.40%	74.06%	73.31%	75.26%

Notes to Schedule:

Benefit Changes: There were no changes to the benefit terms that applied to all members of the Public Agency Pool. However, individual employers in the Plan may have provided a benefit improvement to their employees by granting Two Years Additional Service Credit to members retiring during a specified period (also known as “Golden Handshakes”).

Changes of Assumptions: There were no assumption changes in 2024. Effective with the June 30, 2023 valuation date

6/30/2019	6/30/2020	6/30/2021	6/30/2022	6/30/2023	6/30/2024
0.04500%	0.04483%	0.04318%	0.12247%	0.12381%	0.12567%
$ 4,611,042	$ 4,877,315	$ 2,335,284	$ 5,730,637	$ 6,173,494	$ 6,077,953
$ 3,442,952	$ 3,399,842	$ 3,513,707	$ 1,605,786	$ 1,776,124	$ 4,355,031
133.93%	143.46%	66.46%	356.87%	347.58%	139.56%
75.26%	75.10%	88.29%	76.90%	76.90%	76.90%

CITRUS HEIGHTS WATER DISTRICT
Cost Sharing Multiple-Employer Plan
Schedule of Plan Contributions
As of December 31, for the Last Ten Years (1)

	2016	2017	2018	2019
Actuarially Determined Contribution	$ 504,996	$ 584,230	$ 650,169	$ 649,707
Contribution in Relation to the Actuarially Determined Contribution	(505,031)	(584,230)	(650,169)	(699,672)
Contribution Deficiency (Excess)	$ (35)	$ -	$ -	$ (49,965)
Covered Payroll	$ 2,362,614	$ 1,303,268	$ 1,470,779	$ 1,721,476
Contributions as a Percentage of Covered Payroll	21.38%	44.83%	44.21%	40.64%

(1) Historical information is required only for measurement for which GASB 68 is applicable. Fiscal Year 2015 was the first year of implementation, therefore only nine years are shown.

Note to Schedule:

Valuation Date: June 30, 2023

Methods and assumptions used to determine contribution rates:

Actuarial Cost Method: Entry Age Normal Cost Method

Amortization method: Level percentage of pay, a summary of the current policy is provided in the table below:

	Source				
	(Gain)/Loss		Assumption/ Method Change	Benefit Change	Golden Handshake
	Investment	Non-investment			
Amortization Period	20 Years	20 Years	20 Years	20 Years	5 Years
Escalation Rate	0%	0%	0%	0%	0%
Ramp Up	5	0	0	0	0
Ramp Down	0	0	0	0	0

Asset valuation method: The Actuarial Value of Assets is set equal to the Market Value of Assets. Asset values include accounts receivable.

Inflation: 2.30%

Payroll Growth: 2.75%

Projected Salary Increases: Varies by Entry Age and Service

Investment Rate of Return: 6.90% (net of pension plan investment and administrative expenses, includes

Retirement Age: All other actuarial assumptions used in the June 30, 2023 valuation use the results of the 2021 CalPERS Experience Study and Review of Actuarial Assumptions, including updates to salary increases, mortality, and retirement rates, as a basis. Employers should refer to CalPERS' Annual Comprehensive Financial Report for the fiscal year ended June 30, 2024, to obtain the required supplementary information for proper financial reporting.

Mortality: CalPERS developed the mortality table used based on CalPERS' specific data. The table includes 15 years of mortality improvements using Society of Actuaries Scale MP–2016. For more details on this table, please refer to the 2021 experience study report.

2020	2021	2022	2023	2024
$ 695,780	$ 909,262	$ 816,336	$ 815,884	$ 770,256
(695,780)	(909,262)	(816,336)	(815,884)	(770,256)
$ -	$ -	$ -	$ -	$ -
$ 3,399,842	$ 3,237,486	$ 1,605,786	$ 1,776,124	$ 4,355,031
20.47%	28.09%	50.84%	45.94%	17.69%

CITRUS HEIGHTS WATER DISTRICT
Schedule of Changes in the Net OPEB liability and Related Ratios
As of December 31, For the Last Ten Years (1)

Measurement Date	12/31/2017	12/31/2018	12/31/2019
Total OPEB Liability			
Service cost	$ 25,905	$ 26,682	$ 37,106
Interest on the total OPEB liability	83,640	87,918	96,977
Change in benefit terms	-	-	-
Differences between expected and actual experiences	-	41,338	(17,427)
Changes in assumptions	-	23,239	-
Benefit payments	(41,228)	(42,527)	(46,768)
Net change in total OPEB liability	**68,317**	**136,650**	**69,888**
Total OPEB liability - beginning	**1,332,951**	**1,401,268**	**1,537,918**
Total OPEB liability - ending (a)	**1,401,268**	**1,537,918**	**1,607,806**
Plan Fiduciary Net Position			
Contribution - employer	41,228	122,527	128,540
Net investment income	-	(1,658)	24,089
Benefit payments	(41,228)	(42,527)	(46,768)
Other miscellaneous income/(expense)	-	-	-
Administrative expense	-	(6)	(83)
Net change in plan fiduciary net position	**-**	**78,336**	**105,778**
Plan fiduciary net position - beginning	**-**	**-**	**78,336**
Plan fiduciary net position - ending (b)	**-**	**78,336**	**184,114**
Net OPEB Liability - ending (a) - (b)	**$ 1,401,268**	**$ 1,459,582**	**$ 1,423,692**
Plan fiduciary net position as a percentage of the total OPEB liability	0.00%	5.09%	11.45%
Covered Payroll	$ 2,915,351	$ 3,278,242	$ 3,658,217
Net OPEB liability as a percentage of covered-employee payroll	48.07%	44.52%	38.92%

(1) Historical information is required only for the measurement periods for which GASB 75 is applicable. Fiscal Year 2018 was the first year of implementation. Future years' information will be displayed up to 10 years as information becomes available.

12/31/2020	12/31/2021	12/31/2022	12/31/2023
$ 47,435	$ 50,011	$ 44,622	$ 42,248
102,103	114,224	122,099	107,097
(572)	-	-	-
(1,841)	(1,948)	(207,360)	1,027
364,838	(130,213)	(158,406)	-
(43,184)	(46,036)	(54,366)	(53,972)
468,779	**(13,962)**	**(253,411)**	**96,400**
1,607,806	**2,076,585**	**2,062,623**	**1,809,212**
2,076,585	**2,062,623**	**1,809,212**	**1,905,612**
145,837	189,734	189,666	53,972
39,073	40,575	(97,111)	66,878
(43,184)	(46,036)	(54,366)	(53,972)
23,195	-	-	-
(127)	(216)	(263)	(292)
164,794	**184,057**	**37,926**	**66,586**
184,114	**348,908**	**532,965**	**570,891**
348,908	**532,965**	**570,891**	**637,477**
$ 1,727,677	**$ 1,529,658**	**$ 1,238,321**	**$ 1,268,135**
16.80%	25.84%	31.55%	33.45%
$ 3,677,546	$ 3,946,896	$ 2,740,450	$ 2,740,450
46.98%	38.76%	45.19%	46.27%

CITRUS HEIGHTS WATER DISTRICT
Schedule of OPEB Contributions
As of December 31, for the Last Ten Years (1)

	2018	2019	2020
Actuarially Determined Contribution	$ 122,000	$ 130,652	$ 170,121
Contribution in Relation to the Actuarially Determined Contributions	(122,527)	(128,530)	(146,814)
Contribution Deficiency (Excess)	$ (527)	$ 2,122	$ 23,307
Covered Payroll	$ 3,278,242	$ 3,658,217	$ 3,677,546
Contributions as a percentage of covered-employee payroll	3.74%	3.51%	3.99%

(1) Historical information is required only for the measurement periods for which GASB 75 is applicable. Fiscal Year 2018 was the first year of implementation. Future years' information will be displayed up to 10 years as information becomes available.

Notes to Schedule:

Methods and assumptions used to determine contribution rates:

Valuation Date	December 31. 2022
Actuarial Cost Method	Entry Age Normal, Level Percentage of Salary
Amortization Method	Level percent of pay
Amortization Period	22 years
Asset Valuation Method	n/a
Discount Rate	5.87%
General Inflation	2.30%
Salary Increases	2.80%
Medical Trend	6.8% for 2024, decreasing to an ultimate rate of 4.14% in 2078
Mortality	Based on CalPERS Tables
Mortality Improvement	Mortality projected fully generational with Scale MP-18

2021	2022	2023	2024
$ 158,425	$ 189,666	$ 170,924	$ 170,520
(189,734)	(140,592)	(175,938)	(191,619)
$ (31,309)	$ 49,074	$ (5,014)	$ (21,099)
$ 3,689,171	$ 3,946,896	$ 2,740,450	$ 2,740,450
5.14%	3.56%	6.42%	6.99%

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STATISTICAL SECTION

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CITRUS HEIGHTS WATER DISTRICT

Statistical Section

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This section of the Citrus Heights Water District's (District) comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary infirmation says about the government's overall financial health.

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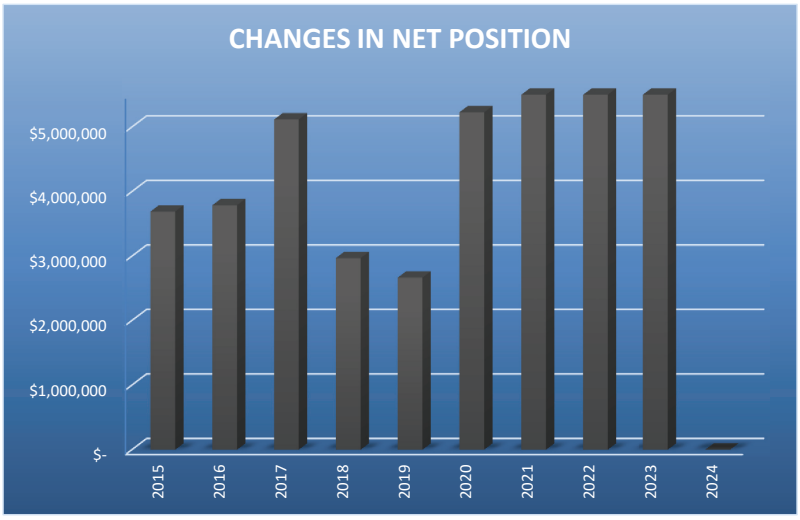
FINANCIAL TRENDS

CITRUS HEIGHTS WATER DISTRICT
Changes in Net Position and Net Position by Component

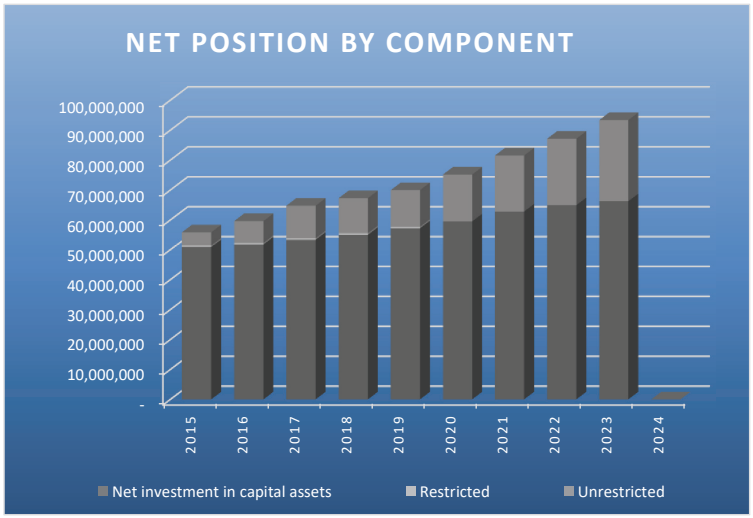
Last Ten Fiscal Years
Schedule 1

	2015	2016	2017	2018	2019
Changes in net position:					
Operating revenues (see Schedule 2)	$ 10,884,550	$ 12,325,057	$ 14,043,049	$ 14,375,044	$ 15,340,476
Operating expenses (see Schedule 3)	(6,023,057)	(7,043,963)	(7,534,381)	(9,531,439)	(11,230,314)
Depreciation and amortization	(2,098,944)	(2,203,170)	(2,345,281)	(2,388,634)	(2,435,900)
Operating income(loss)	**2,762,549**	**3,077,924**	**4,163,387**	**2,454,971**	**1,674,262**
Non-operating revenues(expenses)					
Investment income	19,093	38,313	63,531	159,437	214,962
Miscellaneous income	28,606	68,203	77,074	107,546	69,322
Groundwater transfers and sales	-	-	1,058,793	347,583	38,316
Interest expense	(173,462)	(155,214)	(145,911)	(147,540)	(124,346)
(Loss) gain on disposal of capital assets	4,834	(137,567)	(155,343)	(164,842)	(105,755)
Total non-operating revenues(expenses), net	**(120,929)**	**(186,265)**	**898,144**	**302,184**	**92,499**
Net income before capital contributions	**2,641,620**	**2,891,659**	**5,061,531**	**2,757,155**	**1,766,761**
Capital Contributions					
Grant Revenues	610,431	715	-	-	-
Capital contributions	438,567	896,688	55,813	213,121	898,084
Changes in net position	**$ 3,690,618**	**$ 3,789,062**	**$ $ 5,117,344**	**$ 2,970,276**	**$ 2,664,845**
Net position by component:					
Prior Year adjustment	$ (3,728,767)	$ -	$ -	$ -	$ -
Net investment in capital assets	50,895,005	51,801,433	53,350,420	55,029,058	57,193,152
Restricted	533,350	533,796	535,733	541,475	542,660
Unrestricted	4,434,324	7,316,512	10,882,932	11,717,632	12,217,198
Total net position	**$ 52,133,912**	**$ 59,651,741**	**$ $ 64,769,085**	**$ 67,288,165**	**$ 69,953,010**



Source: District Administrative Services Department

2020	2021	2022	2023	2024	
					Changes in net position:
$ 19,203,757	$ 17,517,961	$ 19,433,754	$ 20,132,024	$ -	Operating revenues (see Schedule 2)
(11,787,520)	(10,994,641)	(11,599,450)	(12,902,517)		Operating expenses (see Schedule 3)
(2,469,339)	(2,485,902)	(2,594,333)	(2,668,321)	-	Depreciation and amortization
4,946,898	**4,037,418**	**5,239,971**	**4,561,186**	**-**	**Operating income(loss)**
					Non-operating revenues(expenses)
116,981	(343)	(30,997)	1,438,634		Investment income
42,989	42,759	47,610	19,395		Miscellaneous income
-	-	-	-		Groundwater transfers and sales
(95,741)	(74,734)	(69,691)	(50,767)		Interest expense
(73,310)	(115,032)	(39,333)	21,674	-	(Loss) gain on disposal of capital assets
(9,081)	**(147,350)**	**(92,411)**	**1,428,936**	**-**	**Total non-operating revenues(expenses), net**
4,937,817	**3,890,068**	**5,147,560**	**5,990,122**	**-**	**Net income before capital contributions**
					Capital Contributions
-	-	-	-	-	Grant Revenues
290,182	2,474,459	440,679	243,443	-	Capital contributions
$ 5,227,999	**$ 6,364,527**	**$ 5,588,239**	**$ 6,233,565**	**$ -**	**Changes in net position**
					Net position by component:
$ -	$ -	$ -	$ -	$ -	Prior Year adjustment
59,531,355	62,822,494	64,942,772	66,242,874	-	Net investment in capital assets
-	-	-	-	-	Restricted
15,649,654	18,723,042	22,191,003	27,124,117	-	Unrestricted
$ 75,181,009	**$ 81,545,536**	**$ 87,133,775**	**$ 93,366,991**	**$ -**	**Total net position**

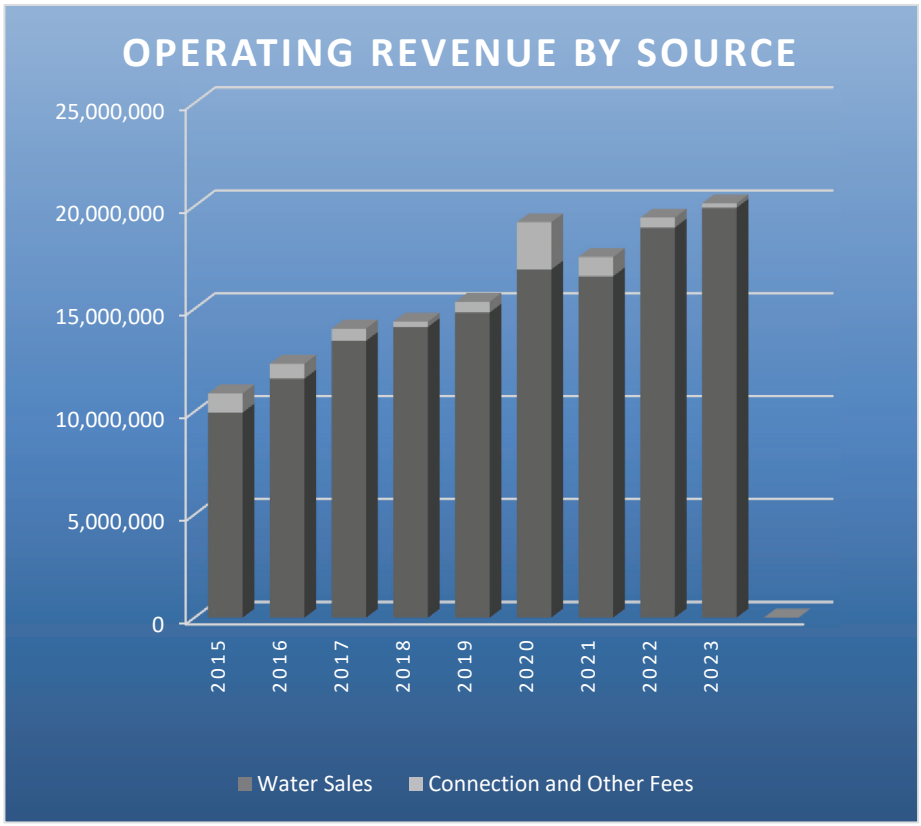


CITRUS HEIGHTS WATER DISTRICT

Operating Revenue By Source

Last Ten Fiscal Years
Schedule 2

Fiscal Year	Water Sales	Connection and Other Fees	Total Operating Revenue
2015	$ 9,953,864	$ 930,686	$ 10,884,550
2016	11,602,622	722,435	12,325,057
2017	13,448,691	594,358	14,043,049
2018	14,119,865	255,179	14,375,044
2019	14,823,207	517,269	15,340,476
2020	16,908,986	2,294,771	19,203,757
2021	16,579,945	938,016	17,517,961
2022	18,934,457	499,297	19,433,754
2023	19,915,090	216,934	20,132,024
2024	-	-	-



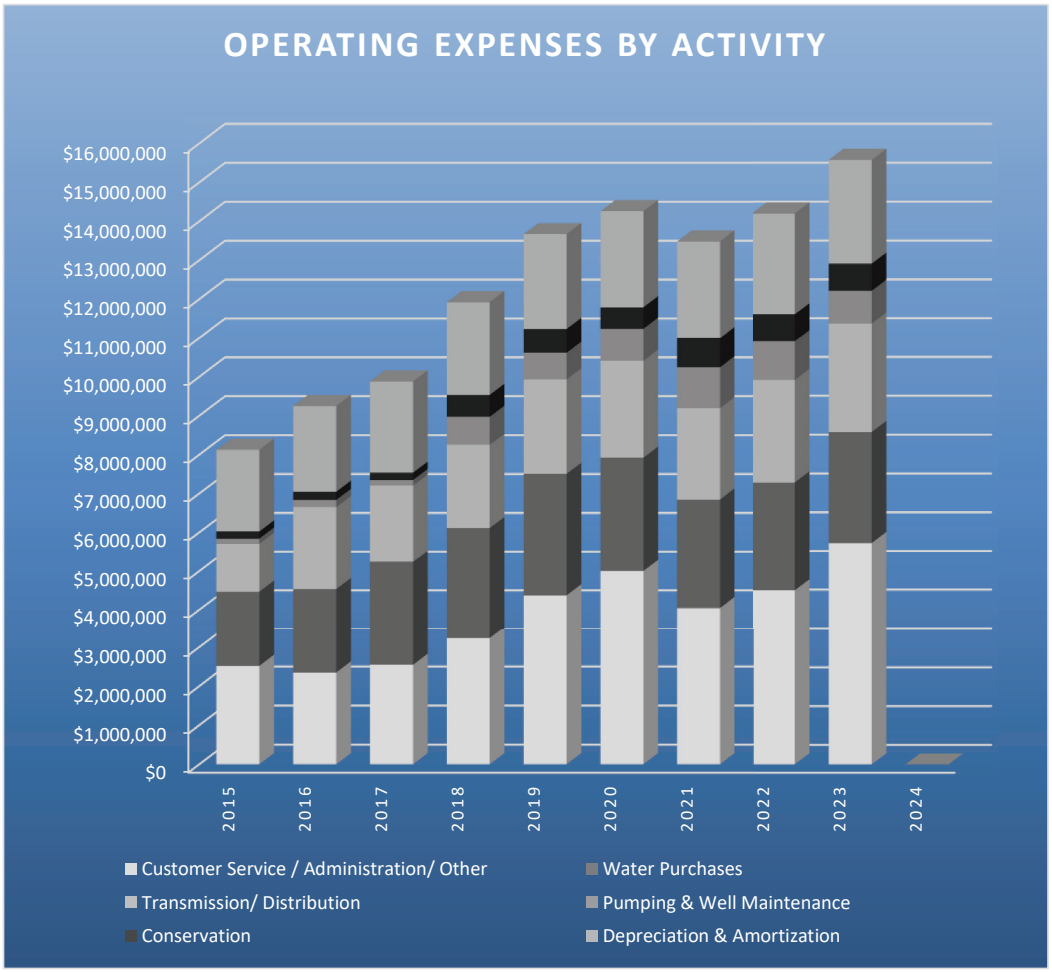
Source: District Administrative Services Department

CITRUS HEIGHTS WATER DISTRICT

Operating Expenses by Activity

Last Ten Fiscal Years
Schedule 3

Fiscal Year	Customer Service / Administration / Other	Water Purchases	Transmission/ Distribution	Pumping & Well Maintenance	Conservation	Depreciation & Amortization	Total Operating Expenses
2015	$ 2,514,087	$ 1,950,627	$ 1,239,387	$ 132,842	$ 186,114	$ 2,098,944	$ 8,122,001
2016	2,342,957	2,190,061	2,114,019	184,776	212,150	2,203,170	9,247,133
2017	2,543,736	2,692,482	1,963,750	145,077	189,336	2,345,281	9,879,662
2018	3,228,919	2,878,799	2,142,451	717,562	563,708	2,388,634	11,920,073
2019	4,371,420	3,131,903	2,425,827	683,432	617,732	2,435,900	13,666,214
2020	4,999,639	2,917,535	2,490,474	826,804	553,068	2,469,339	14,256,859
2021	4,044,426	2,798,201	2,350,969	1,047,987	753,058	2,485,902	13,480,543
2022	4,481,946	2,785,929	2,637,991	996,949	696,635	2,594,333	14,193,783
2023	5,706,961	2,858,841	2,796,502	842,529	697,684	2,668,321	15,570,838
2024	-	-	-	-	-	-	-



Source: District Administrative Services Department

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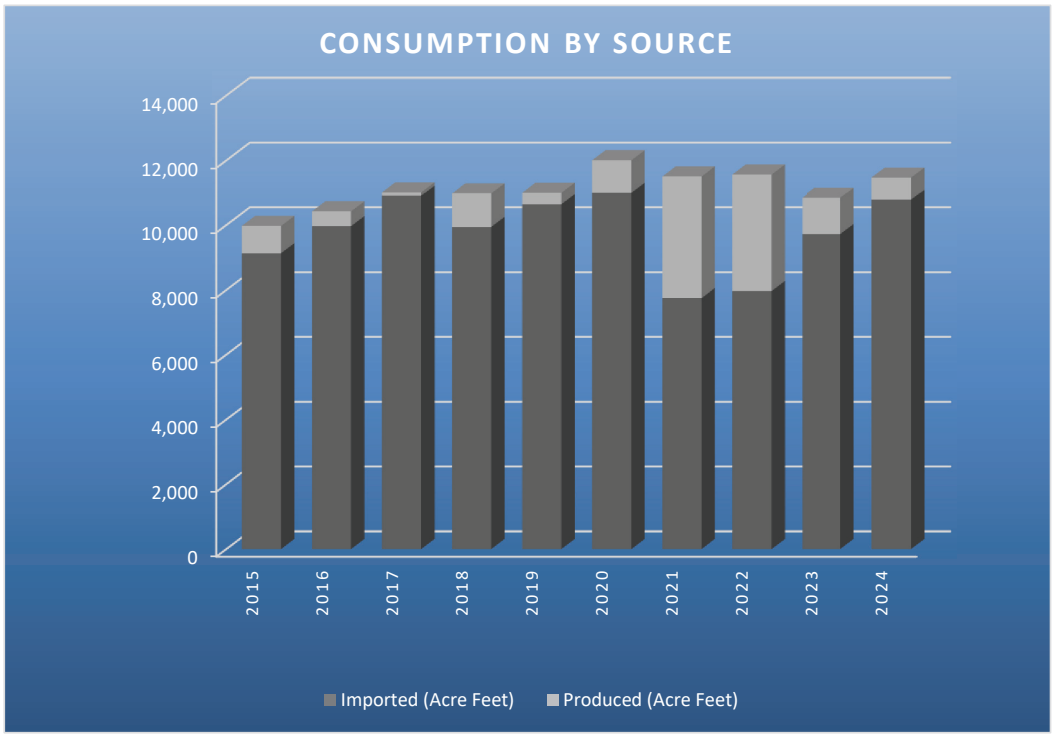
REVENUE CAPACITY

CITRUS HEIGHTS WATER DISTRICT

Revenue Base

Last Ten Fiscal Years
Schedule 4

Fiscal Year	Consumption (Acre Feet)	Water Supply		% Water Imported
		Imported (Acre Feet)	Produced (Acre Feet)	
2015	9,973.47	9,132.60	840.87	91.57%
2016	10,422.44	9,964.89	457.55	95.61%
2017	11,014.52	10,909.88	104.64	99.05%
2018	10,981.66	9,940.53	1,041.13	90.52%
2019	11,001.23	10,642.14	359.09	96.74%
2020	12,003.53	11,001.81	1,001.72	91.65%
2021	11,505.25	7,749.12	3,756.13	67.35%
2022	11,565.65	7,968.36	3,597.29	68.90%
2023	10,843.34	9,718.92	1,124.42	89.63%
2024	11,470.19	10,783.46	686.73	94.01%



Source: District Operations Department

CITRUS HEIGHTS WATER DISTRICT
Water Rates

Last Ten Fiscal Years
Schedule 5

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Flat Rate Accounts (Bimonthly) [1]										
Single Dwelling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Duplex Dwelling (per duplex side)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Condominium Dwelling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Apartments/Mobile Homes	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Irrigation Rate	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Metered Accounts [2]										
Consumption (per unit ccf)										
Tier 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Per Unit CCF (No tiers)	$ 0.7663	$ 0.8735	$ 0.9871	$ 1.0167	$ 1.0674	$ 1.1800	$ 1.1800	$ 1.1900	$ 1.4300	$ 1.6000
Service Charge (bimonthly)										
Commercial/Domestic 3/4"	$ 36.89	$ 42.05	$ 47.52	$ 48.94	$ 51.38	$ 57.54	$ 57.54	$ 56.08	$ 60.35	$ 55.71
Commercial/Domestic 1"	56.13	63.98	72.30	74.46	78.18	87.29	87.29	91.33	94.69	101.28
Commercial/Domestic 1-1/2"	68.95	78.60	88.82	91.48	96.05	136.86	136.86	150.08	151.92	177.23
Commercial/Domestic 2"	133.07	151.69	171.41	176.55	185.37	196.35	196.35	220.58	220.60	293.41
Commercial/Domestic 3"	210.02	239.42	270.54	278.65	292.58	384.74	384.74	443.82	438.07	592.85
Commercial/Domestic 4"	415.22	473.35	534.89	550.93	578.47	662.36	662.36	773.14	758.81	1,034.13
Irrigation 3/4"	36.89	42.05	47.52	48.94	51.38	57.54	57.54	56.08	60.35	$ 55.71
Irrigation 1"	56.13	63.98	72.30	74.46	78.18	87.29	87.29	91.33	94.69	101.28
Irrigation 1-1/2"	68.95	78.60	88.82	91.48	96.05	136.86	136.86	150.08	151.92	177.23
Irrigation 2"	133.07	151.69	171.41	176.55	185.37	196.35	196.35	220.58	220.60	293.41
Irrigation 3"	210.02	239.42	270.54	278.65	292.58	384.74	384.74	443.82	438.07	592.85
Irrigation 4"	415.22	473.35	534.89	550.93	578.47	662.36	662.36	773.14	758.81	1,034.13

Notes:

(1) The District completed the migration of Flat-Rate customers to meters in Fiscal Year 2012, and the Flat-Rate was eliminated for Fiscal Year 2013.

(2) The District abolished its tiered consumption charge beginning in 2014.

Source:

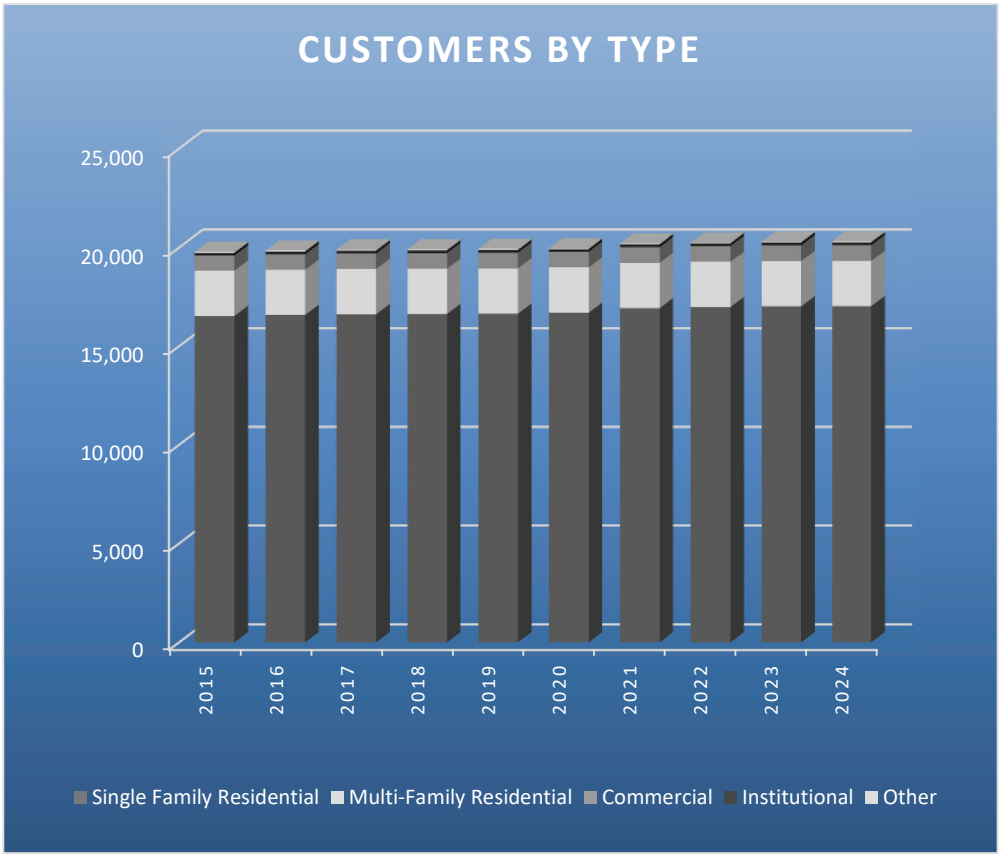
District Administrative Services Department

CITRUS HEIGHTS WATER DISTRICT

Customers by Type

Last Ten Fiscal Years
Schedule 6

Fiscal Year	Single Family Residential	Multi-Family Residential	Commercial	Institutional	Other	Total
2015	16,527	2,285	785	130	58	19,785
2016	16,576	2,283	802	131	59	19,851
2017	16,615	2,284	807	132	64	19,902
2018	16,627	2,284	807	132	61	19,911
2019	16,645	2,286	810	132	64	19,937
2020	16,691	2,288	809	132	38	19,958
2021	16,922	2,289	812	133	45	20,201
2022	16,978	2,289	807	133	44	20,251
2023	17,013	2,291	809	133	43	20,289
2024	17,023	2,291	809	133	45	20,301



Source: District Administrative Services Department
District Water Efficiency Department

CITRUS HEIGHTS WATER DISTRICT

Principal Customers

Current Fiscal Year and Ten Years Ago

Schedule 7

Customer	2024 Billed Units (ccf's)	2024 Percentage of Total
San Juan Unified School Distri	117,610	2.44%
Sunrise Recreation Park Dist	91,807	1.90%
JMK Investments	80,619	1.67%
JRK Investors	50,395	1.04%
Mt Vernon Memorial Park	45,540	0.94%
Conference Claimants Endowment	31,533	0.65%
Wedgewood Commons Apts LLC	28,607	0.59%
Salishan Apartments	26,424	0.55%
City of Citrus Heights	25,424	0.53%
Vertus Properties Inc.	22,314	0.46%
Total Billed Units: Principal customers	520,273	10.79%
Total Billed Units	4,823,733	100.00%

Customer	2014 Billed Units (ccf's)	2014 Percentage of Total
Sunrise Recreation Park Dist	85,089	1.74%
JMK Investments	77,652	1.59%
San Juan Unified School Distri	74,649	1.53%
JRK Investors	48,533	0.99%
Conference Claimants Endowment	33,899	0.69%
Mt Vernon Memorial Park	31,339	0.64%
City of Citrus Heights	30,280	0.62%
Salishan Apartments	28,994	0.59%
Wedgewood Commons Apts LLC	25,337	0.52%
Vertus Properties Inc.	24,564	0.50%
Total Billed Units: Principal customers	460,336	9.43%
Total Billed Units	4,882,661	100.00%

Source:
District Administrative Services Department

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DEBT CAPACITY

CITRUS HEIGHTS WATER DISTRICT

Ratios of Outstanding Debt by Type

Last Ten Fiscal Years

Schedule 8

Fiscal Year	Certificates of Participation 2000 [1]	Certificates of Participation 2003 [2]	Certificates of Participation 2010 [3]	Refunding Revenue Bonds 2012 [4]	Unamortized Premiums	Total Debt	Total No. of Connections [5]	Total Debt Per Capita (Rounded) [5]
2015	-	-	2,530,000	2,025,000	322,486	4,877,486	19,785	246.52
2016	-	-	2,060,000	1,950,000	287,666	4,297,666	19,851	216.50
2017	-	-	1,575,000	1,870,000	252,847	3,697,847	19,902	185.80
2018	-	-	1,070,000	1,790,000	218,027	3,078,027	19,911	154.59
2019	-	-	545,000	1,705,000	183,208	2,433,208	19,937	122.04
2020	-	-	-	1,615,000	153,751	1,768,751	19,958	88.62
2021	-	-	-	1,520,000	140,381	1,660,381	20,201	82.19
2022	-	-	-	1,420,000	127,011	1,547,011	20,251	76.39
2023	-	-	-	1,315,000	113,641	1,428,641	20,289	70.41
2024	-	-	-	-	-	-	20,301	-

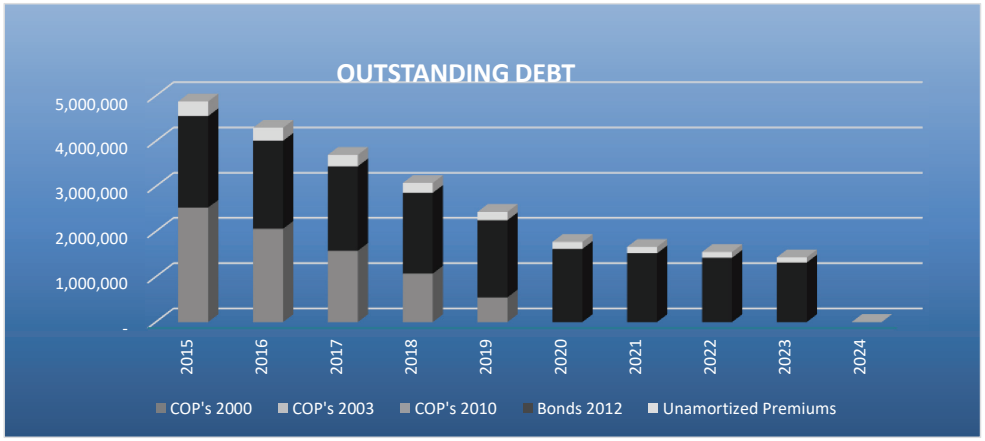
Notes:

(1) In October 2000, the District issued $7,900,000 of Certificates of Participation, Series 2000 to finance the cost of capital improvement projects.

(2) In December 2003, the District issued $2,915,000 of Certificates of Participation, Series 2003 to finance the cost of capital improvement projects.

(3) In September 2010, the District issued $5,155,000 of Revenue Certificates of Participation, Series 2010 to retire the outstanding 2000 Certificates of Participation.

(4) In April 2012, the District issued $2,275,000 of Revenue Refunding Bonds, Series 2012 to retire the outstanding 2003 Certificates of Participation.



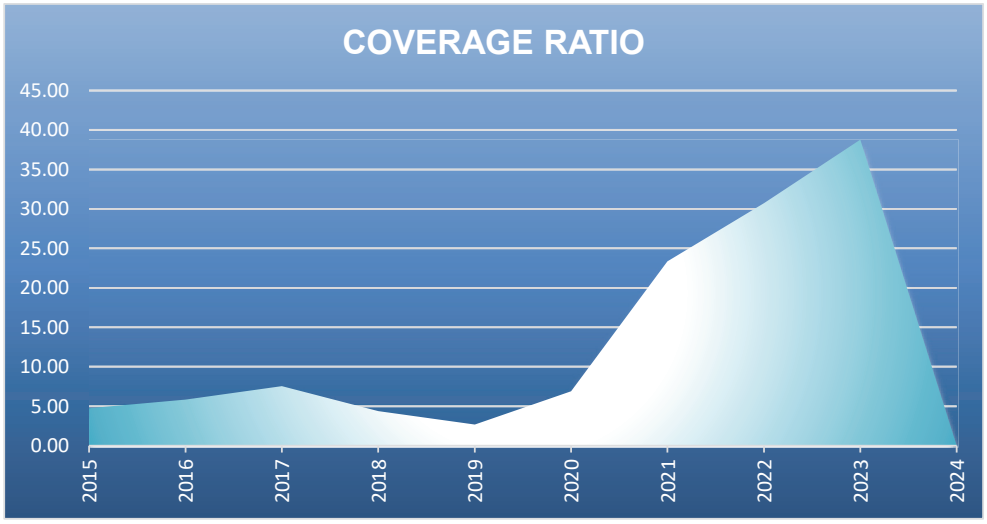
Source: District Administrative Services Department

CITRUS HEIGHTS WATER DISTRICT

Debt Coverage

Last Ten Fiscal Years
Schedule 9

Fiscal Year	Net Revenues	Operating Expenses	Net Available Revenues	Debt Service			Coverage Ratio
				Principal	Interest	Total	
2015	11,357,402	(8,122,001)	3,235,401	510,000	173,462	683,462	4.73
2016	13,190,694	(9,247,133)	3,943,561	520,000	155,214	675,214	5.84
2017	15,087,104	(9,879,662)	5,207,442	545,000	145,911	690,911	7.54
2018	15,037,889	(11,920,073)	3,117,816	565,000	147,540	712,540	4.38
2019	15,557,321	(13,666,214)	1,891,107	585,000	124,346	709,346	2.67
2020	19,290,417	(14,256,859)	5,033,558	635,000	95,741	730,741	6.89
2021	17,445,345	(13,480,543)	3,964,802	95,000	74,734	169,734	23.36
2022	19,411,034	(14,193,783)	5,217,251	100,000	69,691	169,691	30.75
2023	21,611,727	(15,570,838)	6,040,889	105,000	50,767	155,767	38.78
2024	-	-	-	-	-	-	-



Source: District Administrative Services Department

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DEMOGRAPHIC AND ECONOMIC INFORMATION

CITRUS HEIGHTS WATER DISTRICT

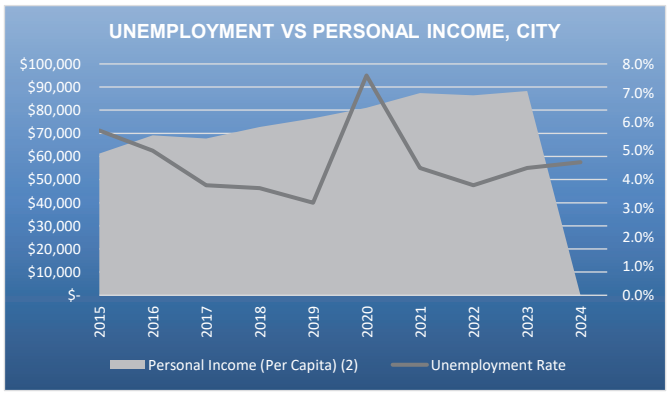
Demographics and Economic Statistics

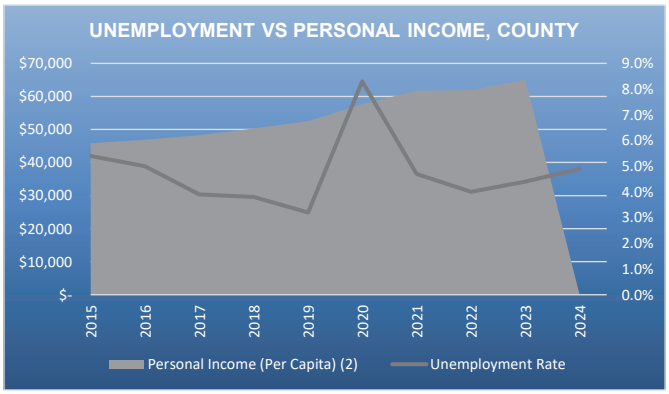
Last Ten Calendar Years
Schedule 10

Fiscal Year	Total Number of Connections	City of Citrus Heights [1]				County of Sacramento[1]			
		Population [3]	Unemployment Rate	Personal Income (thousands of dollars) [2]	Personal Income (Per Capita) [2]	Population [3]	Unemployment Rate	Personal Income (thousands of dollars) [2]	Personal Income (Per Capita) [2]
2015	19,785	86,759	5.7%	5,308,263	61,184	1,507,458	5.4%	69,100,516	45,839
2016	19,851	87,380	5.0%	6,043,288	69,161	1,527,967	5.0%	71,627,441	46,878
2017	19,902	87,931	3.8%	5,952,753	67,698	1,547,198	3.9%	74,690,008	48,274
2018	19,911	87,910	3.7%	6,388,859	72,675	1,561,413	3.8%	78,526,608	50,292
2019	19,937	87,796	3.2%	6,710,775	76,436	1,576,171	3.2%	82,829,648	52,551
2020	19,958	87,583	7.6%	7,102,719	81,097	1,586,566	8.3%	91,419,845	57,621
2021	20,201	87,404	4.4%	7,640,071	87,411	1,588,810	4.7%	98,112,318	61,752
2022	20,251	87,708	3.8%	7,581,480	86,440	1,584,380	4.0%	98,175,817	61,965
2023	20,289	86,239	4.4%	$7,614,214	88,292	1,584,288	4.4%	103,143,749	65,104
2024	20,301	-	4.6%	-	-	1,611,231	4.9%	-	-

Notes: (1) Demographic and economic statistics are provided for the City of Citrus Heights (City) and the County of Sacramento (County) because these statistics are not separatemly available for the District's service area. As the District is primarily comprised of some areas of the City, and unincorporated areas of the County, the District believes that data from the City and the County is representative of the conditions and experience of

(3) Population data is not yet available for Fiscal Year 2024.





Sources:
U.S. Bureau of Economic Analysis
U.S. Bureau of Labor Statistics
U.S. Census Bureau
State of California Employment Development Department

CITRUS HEIGHTS WATER DISTRICT

Principal Employers [1]

Current Fiscal Year and Ten Years Ago

Schedule 12

2024			
Employer	Employees	Rank	Percentage of Employment
State of California	118,130	1	16.82%
UC Davis Health	16,617	2	1.94%
County of Sacramento	13,653	3	1.80%
Kaiser Permanente	12,624	4	2.37%
United States Government	10,699	5	1.05%
Sutter Health	10,129	6	1.52%
Dignity Health	7,353	7	1.44%
San Juan Unified School District	5,499	8	0.72%
City of Sacramento	5,029	9	0.71%
Apple	5,000	10	0.78%
Total	204,733		29.15%
Total County Employment	702,500		100.00%

2014 [2]			
Employer	Employees	Rank	Percentage of Employment
State of California	72,220	1	10.72%
County of Sacramento	10,700	2	1.59%
United States Government	9,906	3	1.47%
UC Davis Health	9,905	4	1.47%
Sutter Health	7,352	5	1.09%
Dignity Health	6,212	4	0.92%
Intel Corporation	6,000	6	0.89%
Kaiser Permanente	5,421	5	0.80%
Elk Grove Unified School District	5,410	9	0.80%
Sacramento City Unified School Distr	4,200	10	0.62%
Total	137,326		20.37%
Total County Employment	673,727		100.00%

Notes:

(1) Data is not separately available for the District's service area. As the District serves an area comprising, in large part, the City

Source:

Sacramento Business Journal
U.S. Bureau of Labor Statistics

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OPERATING INFORMATION

CITRUS HEIGHTS WATER DISTRICT

District Employees by Department

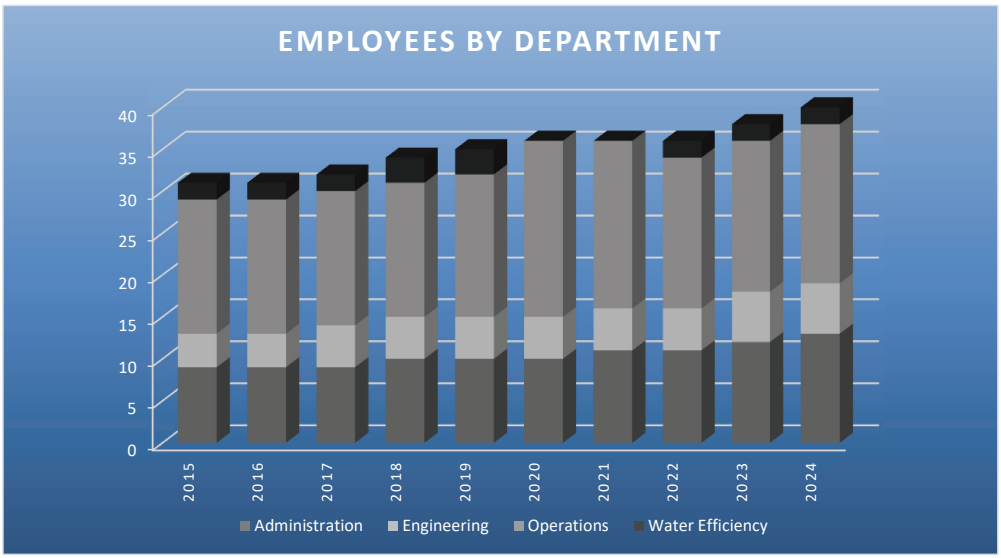
Last Ten Fiscal Years

Schedule 11

Department	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Administration	9	9	9	10	10	10	11	11	12	13
Engineering	4	4	5	5	5	5	5	5	6	6
Operations	16	16	16	16	17	21	20	18	18	19
Water Efficiency	2	2	2	3	3	0	0	2	2	2
Total	31	31	32	34	35	36	36	36	38	40

Notes:

(1) The Water Efficiency department was reorganized as part of the Operations department in 2020.



Source: District Administrative Services Department

CITRUS HEIGHTS WATER DISTRICT

Other Operating and Capacity Indicators

Last Ten Fiscal Years
Schedule 13

Fiscal Year	Total Connections	Total Annual Demand (Acre Feet)	Pipeline (mi)	Wells	Meters	Hydrants
2015	19,785	9,973.47	245.56	4	19,594	2,087
2016	19,851	10,422.44	248.19	5	19,789	2,133
2017	19,902	11,014.52	249.31	6	19,912	2,160
2018	19,911	10,981.66	249.97	6	20,007	2,181
2019	19,937	11,001.23	250.26	6	20,043	2,368
2020	19,958	12,003.53	251.97	6	20,060	2,373
2021	20,201	11,505.25	252.57	6	20,282	2,367
2022	20,251	11,565.65	253.74	6	20,300	2,170
2023	20,289	10,843.34	254.91	6	20,329	2,190
2024	20,301	11,470.19	253.65	6	20,361	2,176

Source: District Administrative Services Department
District Engineering Department
District Water Efficiency Department

CITRUS HEIGHTS WATER DISTRICT

Citrus Heights Water District
6230 Sylvan Road
Citrus Heights, CA 95610 916-725-6873 www.chwd.org

ATTACHMENT 2

Report on Internal Control and Required Communications for the Year Ended December 31, 2024

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

To the Honorable Members of the Board of Directors
Citrus Heights Water District
District of Citrus Heights, California

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of Citrus Heights Water District (the "District"), as of and for the year ended December 31, 2024, and 2023 the related notes to the financial statements, which collectively comprise the District's basic financial statements, and have issued our report thereon dated June 16, 2025.

Report on Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the District's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, we do not express an opinion on the effectiveness of the District's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements, on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or, significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether District's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

To the Honorable Members of the Board of Directors
Citrus Heights Water District
District of Citrus Heights, California

Purpose of This Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the District's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the District's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

LSL, LLP

Sacramento, California
June 16, 2025

June 16, 2025

To the Honorable Members of the Board of Directors
Citrus Heights Water District
District of Citrus Heights, California

We have audited the financial statements of the Citrus Heights Water District, (the "District") for the year ended December 30, 2024, and 2023. Professional standards require that we provide you with information about our responsibilities under generally accepted auditing standards and *Government Auditing Standards*, as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our letter to you dated March 19, 2025. Professional standards also require that we communicate to you the following information related to our audit.

Significant Audit Matters

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by Citrus Heights Water District are described in Note 1 to the financial statements. As described in Note 1 to the financial statements, the District changed accounting policies related to compensated absences by adopting Statement of Governmental Accounting Standards (GASB Statement) No. 101, in fiscal year 2023-2024. Accordingly, the cumulative effect of the accounting change as of the beginning of the year is reported in the basic financial statements. We noted no transactions entered into by the District during the year for which there is a lack of authoritative guidance or consensus. All significant transactions have been recognized in the financial statements in the proper period.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. The most sensitive estimates affecting the District's financial statements were:

> Management's estimates of the net pension liability and other postemployment benefits liability are based on actuarial valuations. We evaluated the methods, assumptions, and data used to develop the actuarial valuation estimates in determining that it is reasonable in relation to the financial statements taken as a whole.

The financial statement disclosures are neutral, consistent, and clear.

Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing and completing our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are clearly trivial, and communicate them to the appropriate level of management. Management has corrected all such misstatements. In addition, none of the misstatements detected as a result of audit procedures and corrected by management were material, either individually or in the aggregate, to each opinion unit's financial statements taken as a whole.

To the Honorable Members of the Board of Directors
Citrus Heights Water District
District of Citrus Heights, California

Disagreements with Management

For purposes of this letter, a disagreement with management is a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated June 16, 2025.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the District's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the District's auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

It was noted during the audit that the turnover and recently cleared vacancies in the finance team resulted in delayed reconciliation information. This did not result in any misstatements but delayed the issuance of the financial statements.

Other Matters

We applied certain limited procedures to management's discussion and analysis and the required pension and other postemployment benefits schedules, which are required supplementary information ("RSI") that supplements the basic financial statements. Our procedures consisted of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We did not audit the RSI and do not express an opinion or provide any assurance on the RSI.

We were not engaged to report on the introductory and statistical sections of the Annual Comprehensive Financial Report, which accompany the financial statements but are not RSI. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

To the Honorable Members of the Board of Directors
Citrus Heights Water District
District of Citrus Heights, California

Future GASB Pronouncements

The following Government Accounting Standards Board (GASB) pronouncements will be effective for the following fiscal years' audits and should be reviewed for proper implementation by management:

Fiscal Year 2025

GASB Statement No. 102, *Certain Risk Disclosures.*

Fiscal Year 2026

GASB Statement No. 103, *Financial Reporting Model Improvements.*
GASB Statement No. 104, *Disclosure of Certain Capital Assets*

Future Projects

Comprehensive Project, *Revenue and Expense Recognition.*

Major Project, *Going Concern Uncertainties and Severe Financial Stress.*

Major Project, *Infrastructure Assets.*

Practice Issue, *Classification of Nonfinancial Assets.*

Practice Issue, *Risks and Uncertainties Disclosures.*

Practice Issue, *Subsequent Events .*

Restriction on Use

This information is intended solely for the information and use of the Board of Directors and management of the District and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,

LSL, LLP

LSL, LLP

CITRUS HEIGHTS WATER DISTRICT

DISTRICT STAFF REPORT TO BOARD OF DIRECTORS
JUNE 24, 2025 REGULAR MEETING

Subject:	**DISCUSSION AND POSSIBLE ACTION TO DESIGNATE THE DISTRICT'S REPRESENTATIVE FOR THE 2023-2025 REGIONAL WATER AUTHORITY/SACRAMENTO GROUNDWATER AUTHORITY EXECUTIVE DIRECTOR PERFORMANCE REVIEW**
Status:	Action Item
Report Date:	June 17, 2025
Prepared By:	Brittney Moore, Administrative Services Manager/Chief Board Clerk

OBJECTIVE:
Consider designating a CHWD representative to complete the Regional Water Authority (RWA) and Sacramento Groundwater Authority's (SGA) Executive Director, Jim Peifer's Performance Review. This representative will electronically submit the District's sole evaluation on behalf of the agency in accordance with RWA's new evaluation procedure.

BACKGROUND AND ANALYSIS:
CHWD currently holds two seats on the RWA Board of Directors, as allotted to all member agencies. Director Wheaton is the current Board-appointed representative and holds one RWA Board seat. Board President Riehle serves as the alternate. Hilary Straus, General Manager, serves as CHWD's staff representative and holds the District's second RWA Board seat. This dual-representation structure aligns with RWA's guidance encouraging member agencies to appoint one elected official and one executive staff member.

Historically, Board Vice President Sheehan represented CHWD on the RWA Board prior to 2025 and currently serves as the District's representative on the SGA Board.

On June 11, 2025, CHWD received correspondence on behalf of RWA Chair Brett Ewart soliciting member input for the 2023–2025 RWA/SGA Executive Director performance evaluation. Each agency may submit only one completed evaluation form, with submissions due by June 24, 2025. To allow the CHWD Board time to discuss and decide on its designated evaluator at its regular meeting scheduled for June 24, staff has requested and received tentative approval to submit the District's evaluation by June 25, 2025.

Director Wheaton recommended to staff that either Director Sheehan or Director Riehle be designated to complete the evaluation, citing his limited tenure on the RWA Board. Alternatively,

the Board may consider designating the General Manager, who also holds a current RWA Board seat.

Staff requests Board direction to designate a representative to provide CHWD's input to the RWA review committee. Upon designation, staff will send the designee a link to the electronic feedback form. The form must be completed and submitted by end of day Wednesday, June 25, 2025.

Alternatively, the designee may complete their responses separately, typed or handwritten, using the prompts from the attached copy of the Performance Feedback Request Form. If this option is chosen, the District's Chief or Deputy Board Clerk will transcribe and submit the responses electronically on the designee's behalf by the same deadline.

RECOMMENDATION:
Designate the District's Representative for the 2023-2025 Regional Water Authority (RWA)/Sacramento Groundwater Authority (SGA) Executive Director Performance Review.

ATTACHMENT:
Copy of Performance Feedback Request Form

ACTION:

Moved by Director _____, Seconded by Director _____, Carried _____

2023-2025 RWA/SGA Executive Director Performance Feedback Request

Only one evaluation form should be entered per agency. All evaluations returned will require appropriate identification for consideration as valid input. Anonymous submissions will not be included in the process. **Please complete by June 24th, 2025. Earlier responses would be appreciated.**

moorebc32@gmail.com Switch account

Not shared

* Indicates required question

Name of Agency *

Your answer

Name of person completing the evaluation *

Your answer

How is Mr. Peifer in supporting a successful relationship with the RWA and/or SGA Board of Directors? Responses could consider (though not limited to) performance in communicating necessary information to the membership, receiving policy direction, facilitating successful Board meetings, and striving to understand the needs of the membership.

Your answer

How is Mr. Peifer in supporting external activities and relationships to advance the mission of both SGA and RWA? Responses might cover engagement with other organizations (e.g. ACWA, Water Forum, NGO's, State/Feds), organizational transparency, or advancing organizational reputation.

Your answer

In evaluating performance around the creation and implementation of policies, strategic plans, or mandates, how is Mr. Peifer in planning towards successful implementation, elevating matters of importance to SGA/RWA boards, facilitation of strategies, influencing legislative and regulatory outcomes, or directly/indirectly supporting mandates affecting the membership (e.g. Groundwater Sustainability Plans, and water use efficiency)?

Your answer

In evaluating core competencies, how is Mr. Peifer in managing the RWA and SGA organizations? Suggested areas of interest could include (but are not limited to) creating a positive and respectful culture with board members and staff, adequate budget control, appropriate delegation of tasks and focus on SGA/RWA priorities, or facilitating regional committee engagement (e.g. Water Quality, Water Efficiency, General Managers meetings).

Your answer

Is there any other feedback you feel is important to share on the performance of the SGA/RWA Executive Director?

Your answer

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