

RECORD OF PROCEEDINGS

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MINUTES OF A REGULAR  
MEETING OF THE BOARD OF DIRECTORS OF  
THE FOREST VIEW ACRES WATER DISTRICT  
AND THE BOARD OF DIRECTORS OF THE  
WATER ACTIVITY ENTERPRISE  
HELD  
MAY 22, 2019

**ATTENDANCE**

In attendance were Directors:

Brad Hogan  
Hans Zimmermann  
Eckehart Zimmermann  
Nancy Wilkins

Also in attendance were:

Lisa Jacoby; Community Resource Services, LLC (“CRS”)  
Clyde Penn; ORC, LLC (for a portion of the meeting)  
John McGinn; JDS-Hydro Consultants, Inc. (“JDS”) (for a portion of the meeting)  
Jim and Angela Warner; Residents (for a portion of the meeting)

**ADMINISTRATIVE  
ITEMS**

The meeting was called to order at 6:00 p.m.

Agenda – Ms. Jacoby distributed for the Board’s approval the proposed Agenda. Following discussion, upon motion duly made by Director Hans Zimmermann, seconded by Director Eckehart Zimmermann and, upon vote, unanimously carried, the Agenda was approved, as amended.

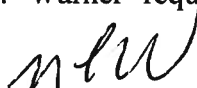
Minutes - The Board reviewed the Minutes of the April 24, 2019 Regular board meeting. Following discussion, upon motion duly made by Director Eckehart Zimmerman, seconded by Director Wilkins and, upon vote, unanimously carried, the Minutes of the April 24, 2019 Board Meeting were approved, as amended.

**Resignation of Martin Taylor and Board Candidate Solicitation** -

Following discussion, upon motion duly made by Director Wilkins, seconded by Director Eckehart Zimmermann and, upon vote, unanimously carried, the resignation of Mr. Taylor was ratified and the Board Candidate Solicitation was approved as amended for inclusion with the next billing and on the District’s website.

**PUBLIC  
COMMENT**

Jim and Angela Warner presented to the Board a letter regarding their concern of potential microwave exposure from the installation of a new remote read Beacon Meter in their home and further, requested the Board consider a fee lesser than the proposed \$50.00 for manual meter reading. Mr. Warner requested further technical information be



## RECORD OF PROCEEDINGS

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provided and discussion ensued. Following discussion, Ms. Jacoby was directed to put Mr. Warner in touch with Jon Watson of National Meter for more detailed information as to the functionality of, and the science behind the remote read meters, as well as publish additional information on the District's website.

### **OPERATIONS AND MAINTENANCE ITEMS**

#### **Status of Installation of 10 Remaining Remote Read Beacon Meters**

Mr. Penn reported that currently there are 6 outstanding electronic meters to be installed, with 2 scheduled for installation, 1 to be scheduled for a mutually convenient time and 3 customers having not responded to the request for scheduling an appointment for installation.

#### **Public Hearing to Consider Imposition of a Fee for Manual Meter**

**Reading** - Following discussion, upon motion duly made by Director Hans Zimmermann, seconded by Director Eckehart Zimmermann and, upon vote, unanimously carried, the Public Hearing to consider imposition of a Fee for Manual Meter Reading for those customers who elect to stay with the manual meters in lieu of the new remote meters, was opened.

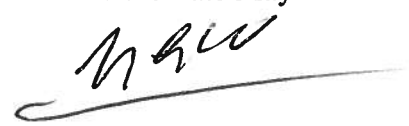
Following discussion, the Board determined to continue the Public Hearing to the June 26, 2019 Board Meeting to consider the Manual Meter Reading Fee and Resolution.

**ORC, LLC April/May 2019 Operation Report** - Mr. Penn presented his report to the Board. A copy of the report is attached hereto and incorporated herein.

**Repair of Broken Fire Hydrant** - Mr. Penn reported that he would continue to follow-up with J&K Excavating regarding either a new hydrant or a rebuild of the fire hydrant, as determined necessary.

**Hydrant Water Use Fee** - Discussion ensued regarding consideration of a rate increase to the current Hydrant Use Fee presently \$8 per 1,000 gallons used. Following discussion, upon motion duly made by Director Eckehart Zimmermann, seconded by Director Hans Zimmermann and, upon vote, unanimously carried the Board determined to provide Notice of the intent to consider a rate increase of \$20.00 per 1,000 gallons used for Hydrant Use Fee, at the June 26, 2019 Board meeting.

**Cleaning of Back-Wash Pond at SWT** - Mr. Penn reported that the cleaning of the back-wash pond was scheduled to occur either late May or in June, 2019.



## RECORD OF PROCEEDINGS

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### CAPITAL/ ENGINEERING ITEMS

**Posting of No Trespassing Sign at SWT** - Mr. Penn noted that a “Danger Keep Out” sign was located and would be posted.

**JSD-Hydro Consultants, Inc. (“JDS”) Monthly Report** - Mr. McGinn presented his report. A copy of the report is attached hereto and incorporated herein.

**Status of Disinfection Outreach Verification Effort (“DOVE”) Project** - Mr. McGinn reported on the status of the DOVE project.

Reference JDS report for further information - a copy of the report is attached hereto and incorporated herein.

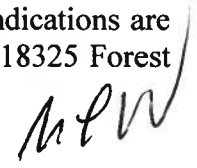
**Dawson Well Rehabilitation** - Mr. McGinn reported that access from Vista View Drive is required to be improved before the drilling rig can access the well head. Permanent access to the site would require that a driveway access permit be submitted through El Paso County Planning and Community Development for open-ditch driveway primary access along with the \$207 Fee.

Reference JDS report for further information - a copy of the report is attached hereto and incorporated herein.

**Look Ahead Report Item “Research Condition of Interior of Pipes (Sampling)”** - Mr. McGinn discussed the status of this matter noting that it was no longer a concern. The Board directed Ms. Jacoby to remove this line item from the Look Ahead Report.

**3890 Range View Road; 18365 & 18325 Forest View Road** – Ms. Jacoby report that Mr. John Cuvala had contacted the District to request an informal letter indicating that if 3890 Range View Road be subdivided, that the District would have the ability to provide 2 water taps. And further, as it relates to 18365 and 18325 Forest View Road, Mr. Cuvala inquired if water mains exist in the street that are accessible to these 2 lots. It was noted by Mr. Penn and Mr. McGinn that all indications are that a water main exists and is accessible for 18365 and 18325 Forest View Road.

Following discussion, the Board directed Mr. McGinn provide an informal letter to Mr. Cuvala indicating that if 3890 Range View Road was to be subdivided, that the District would have the ability to provide 2 water taps. And further, as it relates to 18365 and 18325 Forest View Road, that Mr. McGinn respond to Mr. Cuvala that all indications are that a water main exists and is accessible for 18365 and 18325 Forest View Road.



## RECORD OF PROCEEDINGS

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Mr. Penn and Mr. McGinn left the meeting at this point.

### FINANCIAL ITEMS

**Treasurers Report / Bank Balances / Transactions** - Director Wilkins reported that the Financial Statement cash balances and transactions reconciled with the bank statements.

**Wells Fargo Account** – Ms. Jacoby reported that due to outstanding uncashed checks that the Wells Fargo Account had not yet been closed. Discussion ensued. Following discussion, the Board determined to close the Wells Fargo account irrespective of outstanding uncashed checks.

**April 30, 2019 Adjusted as of May 14, 2019 Cash Position and Unaudited Financial Statements for the period ending April 30, 2019** - Director Wilkins and Director Eckehart Zimmermann requested Ms. Jacoby request the Accountant update the Debt Schedule along with separating out debt line items.

**Claims** – The Board reviewed the claims totaling \$14,400.75 represented by check numbers 04722 – 04731, plus auto payments totaling \$3,016.71 for a grand total of \$17,417.46.

Following review and discussion, upon motion duly made by Director Eckehart Zimmermann, seconded by Director Hans Zimmermann and, upon vote, unanimously carried, the claims were approved, as presented.

**Certification of Delinquent Accounts** – The process for certification of delinquent accounts was noted and Director Wilkins requested Ms. Jacoby inquire with the Accountant to provide a breakdown of Late Fees and Penalties as presented in the Operations Fund.

**USDA/AWWA Workshop** – Director Wilkins provided an overview regarding attending the USDA/AWWA workshop noting that there may be a possibility that the District be eligible for a grants, subject to median house-hold income qualifications. Following discussion, the Board authorized Director Wilkins to pursue further gathering of further information to determine if the District could qualify for a grant(s).

### DIRECTORS ITEMS

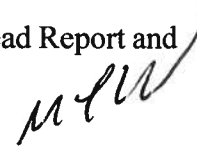
**Higgins Inclusions (all 3 lots)** - There was no update.

### OTHER BUSINESS

**Look Ahead Report** - The Board discussed the Look Ahead Report and as noted earlier in the meeting, revisions to same.

### LEGAL ITEMS

The Board did not enter into Executive Session.



**RECORD OF PROCEEDINGS**

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**CONTINUATION**

Following discussion, upon motion duly made by Director Hans Zimmermann, seconded by Director Eckehart Zimmermann and, upon vote, unanimously carried, the Board determined to continue the Board Meeting to the Regular meeting date of June 26, 2019.

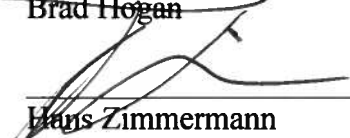
Respectfully submitted,

  
Secretary for the Meeting

THESE MINUTES ARE APPROVED AS THE OFFICIAL MAY 22, 2019 MINUTES OF THE FOREST VIEW ACRES WATER DISTRICT BY THE BOARD OF DIRECTORS SIGNING BELOW:

  
Eckehart Zimmermann

  
Brad Hogan

  
Hans Zimmermann

  
Nancy Wilkins

# Forest View Acres Water District

Operations Report –April / May 2019

Prepared by Clyde Penn ORC Water Professionals

## Arapahoe Water Plant

- The plant produced 104% of demand for March, (Because of SWTP Backwashes)
- Purged Chlorine Analyzer as Needed
- Plant Checks, Mixed Chemicals
- Replaced the Stenner Pump Tube – Leaking
- Replaced Chlorine Feed Injector – Slightly Clogged causing Low Chlorine
- Replaced Chlorine Analyzer Solenoid Valve – Sticking causing Low Chlorine

## Booster Pump Station

- Checked Booster Station

## Distribution

- Meters were Read on 29 April 2019 and will be read on 28 May 2019
- Monthly BACTI's, Quarterly - HAA5 / TTHM
  - o Upcoming samples include SOC's, Nitrates and Lead & Copper

## Surface Water Plant

- The plant produced -4% of demand for February
- Plant Started on 16 April 2019
  - o Running plant as often as possible, but still excessive High Turbidity causing multiple backwashes
- Completed monthly MOR report for state – No Violations
- Plant Checks

## Locates

- Completed Locates for the Month
  - o Locating all Houses and Water Mains along Lake Meadow and Oxbridge Rd for Electrical Main Replacement

## Production for the Month of April 2019

Year	Month	SWTP Production - BW	% of Total	AWP Production	% of Total	Total Production	Total Water Sold	Percentage Discrepancy
2019	Jan	152,587	8%	1,680,427	92%	1,833,014	1,277,263	30.32%
	Feb	0	0%	1,335,096	100%	1,335,096	1,031,991	22.70%
	Mar	0	0%	1,533,895	100%	1,533,895	1,183,118	22.87%
	Apr	-63,912	-4%	1,748,857	104%	1,684,945	1,183,142	29.78%
	May							
	Jun							
	Jul							
	Aug							
	Sep							
	Oct							
	Nov							
	Dec							
<b>Total</b>		<b>88,675</b>	<b>1%</b>	<b>6,298,275</b>	<b>99%</b>	<b>6,386,950</b>	<b>4,675,514</b>	<b>26.80%</b>

**SWTP Offline JAN/FEB/MAR because of Frozen Supply Line**

**May meter reads will be on the 28<sup>th</sup>**

### 2018 Water Leaks:

11 February 2018 – Forest View and Red Forest: Repaired by J&K; Flowed Hydrants after Repairs

27 August 2018 – Sandstone and Pixie Park PRV – Leaking; Parts (SS) on order – Setting up a date for Repair/Training to install parts

27 August 2018 – 4315 Sandstone service line leak – Isolated/Repaired

29 October 2018 Sandstone and Pixie Park PRV – Leaking at outlet pressure gauge – Repaired

08 December 2018 Main Leak Red Forest Rd. – Repaired by Global

23 December 2018 Service Line Leak – 3765 Sierra Vista – Repaired by Homeowner

### 2019 Water Leaks:

13 March 2019 Service Line Leak – 3830 Range View – Being repaired by homeowner

**Hydrant** – Been in contact with J&K, they are wanting to replace the entire hydrant after talking with the hydrant rep

### Meters

**Total of 326 Meters in District of which 320 are Remote Reading currently**

- Have two more scheduled to change out old meters with new remote read
  - o 3 have not been in contact, 1 is an MT house waiting on the owners to come back to install – have been in contact with them

### 2019 New Meter Installations / Water Taps:

4660 Red Stone Ridge Rd

4640 Red Stone Ridge Rd

Date: May 18, 2018  
To: Forest View Acres Water District  
Re: **Project Updates**

This letter is to provide a monthly update to the water district on engineering work completed by JDS.

**Rockwood Minor Subdivision New Taps**

The tank overflow line has been repaired. Photos of the repair were sent to JDS and ORC. JDS would recommend that the district pay for compaction testing for areas disturbed by the new lines and then bill the homeowners to make sure the testing is completed properly. At this time, JDS has directed by email the following notes on the service taps:

- The service line can be installed on the northeast side of the tank as long as a distance of 20 feet is maintained from the tank at all locations. The 20 feet of clearance assumes a maximum pipeline burial of 6 feet.
- The preference would be to stay off of the tank easement as much as possible. Any equipment that will be installed on the FVAWD easement needs to be drawn on a map clearly showing the planned location and approved prior to installation.
- A detailed design drawing of the proposed piping tap and vault and associated equipment needs to be submitted to the district engineer prior to installation for review.
- Compaction testing is needed for the service line installed near the tank.
- Any disturbed areas on the FVAWD tank site will need to be stabilized and revegetated, especially on the southeast side of the tank.
- Any future digs within 50 feet of the tank foundation need to be submitted and reviewed by the district prior to installation to confirm the foundation of the tank will not be compromised.

JDS would also recommend that the District require residents on pressure boosting systems to sign a waiver letter noting that they understand that the District is not providing adequate water pressure and requiring the resident to maintain a pressure boosting system that meets the requirements outlined in the current State of Colorado Design Criteria for Potable Water Systems (Section 6.4.1) as noted below. John will bring an example waiver letter to the board meeting.

**Individual Residential Booster Pumps Requirements:**

1. They will not produce negative pressure in their suction lines.
2. Pumps installed in the distribution system must maintain a normal working pressure of 35 psi under all operating conditions. A normal working pressure of 60 to 80 psi is recommended.
3. Systems designed to operate in an automatic mode must have automatic shutoff or a low pressure controller as recommended by the pump manufacturer to maintain at least 20 psi in the suction line under all operating conditions.
4. Automatic control devices must have a range between the start and cutoff pressure which will prevent excessive cycling.



**Construction Standards**

The construction standard drawings were made final and the draft stamp removed.

Attachments:

- Water System Standard Specification Drawings
- Spreadsheet of Water System Standard Approved Manufacturers and Specifications

**CIP Review**

JDS revised the exhibit for the CIP to include total length of line replaced and updated the colors to make them easier to read. It was emailed to Anne and Eck and is also posted on the Dropbox with the system maps. Please let us know if further revisions are needed.

**System Maps**

JDS updated the system maps to include the new easements and updated and included the detail drawings for the Surface Water Treatment to the set. Details for the Arapahoe Water Treatment Plant and the Tank Site are not included. The revised maps and updated easement spreadsheet is posted at the following DropBox link. Four printed and bound sets of the system maps will be brought to the board meeting. [https://www.dropbox.com/sh/sqwr8fmf5dirnu3/AADlRn3m\\_oNAwbjWFdvTwBia?ref=e](https://www.dropbox.com/sh/sqwr8fmf5dirnu3/AADlRn3m_oNAwbjWFdvTwBia?ref=e)

**Water Supply Reliability Study Follow-up**

23 lots near Rockbrook Road are within the FVAWD boundaries and have septic service from Palmer Lake Sanitation. Of these lots, 2 are vacant land. The Arapahoe Water Treatment Plant is also tied into the Palmer Lake Sanitation District and the FVAWD vacant tank lot is within the Palmer Lake Sanitation District boundaries. JDS sent this information to Leonard Rice.

Attachment:

- Palmer Lake Sanitation District Boundary Map with shared areas noted.

Please feel free to call me directly if you have any questions or if any additional information is requested.

Sincerely,

Gwen Dall

**JDS-Hydro Consultants, Inc.**

## Forest View Acres Water District CONSTRUCTION STANDARDS

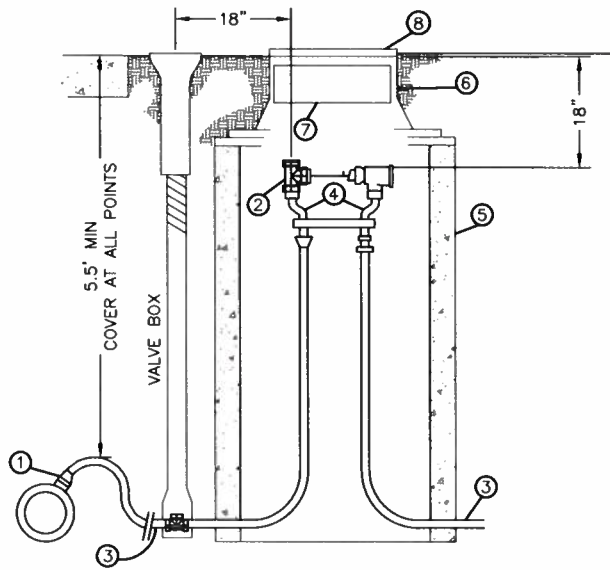
The following approved manufacturers and standard drawings are to be used in conjunction with the latest edition of the Forest View Acres Water District (FVAWD) Rules and Regulations. FVAWD retains the power to impose additional and/or more stringent requirements on all or part of any project as necessary to insure reliability and quality of the FVAWD water system. Prior to construction involving the FVAWD water system or for variance requests contact Community Resource Services (303) 381-4960 or (719) 488-2110. A minimum of 48 hours notice is required prior to any work involving the existing water system.

### Water System Standard Approved Manufacturers and Specifications

COMPONENT	APPROVED MANUFACTURERS	MODEL	SPECIFICATIONS
PVC Tapping Saddle	A.Y. McDonald	4855A	Two stainless steel straps, ductile iron body, shop coat finish, designed for use on PVC or C-900.
	Mueller	BR2S	
Service Line Pipe	Cresline	CE Blue Flexible Pipe	DR9, NSF-61, 200 PSI with Stainless Steel Stiffeners
	ADS	Potable Water Service Tubing	
Corporation Stop	Mueller	300 Ball	AWWA C-800, NSF-61, Ground Key??
	A.Y. McDonald	NL Ball Style Corporation Stop - 74701B	
Meter Setter	A.Y. McDonald	NL Meter Setter - 737-2--WDCC 33	Copper Flare x Copper Flare, NSF-61
Curb Stop	A.Y. McDonald	NL Ball Style Curb Stop - 76100Q	AWWA C800, NSF-61
Meters	Badger	Model 25 LL 5/8" x 3/4" - 3/4 Bore (3/4 x 7 1/2)	AMR and ERT compatible, NSF 61
Fire Hydrants	AVK	Nostalgic	Straight line opening mechanism, self draining, AWWA C502, NSF-61
	Kennedy	Guardian	
	Clow Valve Co.	Medallion	
Gate Valves 3" and Larger	Mueller	A-2361 or A-2362	Non-rising, 2 inch operating nut, open left, with o-ring stem seal. FBE coated interior and exterior. AWWA C-515 or C509, C550, NSF61
	M&H Valve Company	4067 or 7000	
	American	Series 2500	
	Kennedy	KS-RW or KS-FW	
PVC Main Line Pipe	Clow Valve Co.	2638 or 2639	AWWA C-900, ASTM D1784, ASTM D3139, NSF 61, DR18 (235 PSI rating), Bell ends with elastometric gaskets.
	JM Eagle	Blue Brute, C-900	
	Diamond Plastics	Diamond C-900	
	Vinyl Tech	C900-07 PVC	
Mechanical Joint Restraints for PVC Pipe	North American Pipe Corporation	C900-07 PVC	AWWA C-900, ASTM D1784, ASTM D3139, NSF 61, DR18 (235 PSI rating)
	EBAA Iron Inc.	Series 2000PV	
Mechanical Joint Fittings	Star Pipe Products	MJ Fittings	AWWA 153, Ductile Iron ASTM A536, Gaskets ANSI A21.11/AWWA 111
Ductile Iron Flanged Fittings	Star Pipe Products	Flanged Fittings	AWWA C110, Ductile Iron ASTM A536, Class 125, Flange Drilling ANSI B16.1

### Water System Standard Specification Drawings

W-1	Curb Stop and Meter Pit Installation
W-2	Service Tapping Detail - 3/4" thru 2"
W-3	Fire Hydrant Installation
W-4	Air/Vacuum Relief Valve Vault
W-5	Pressure Reducing Vault
W-6	Pressure Reducing Vault with Meter
W-7	Typical Trench Cross Section
W-8	Thrust Block Data
W-9	Typical Inline Gate Valve Assembly
W-10	Applications for Mechanical Joint Restraints
W-11	Restrained MJ Pipe Length Data



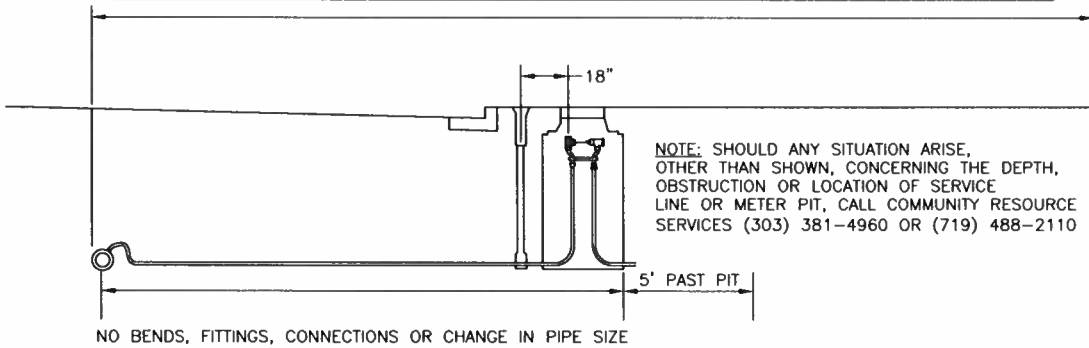
**LEGEND**

- ① SADDLE, CORPORATION STOP AND INSULATOR
- ② LOCKING SHUT OFF VALVE
- ③ SERVICE LINE – COPPER (TYPE K) OR PE, DR9, 200 PSI CRESTLINE CE BLUE WITH STAINLESS STEEL STIFFENERS
- ④ 3/4" METER YOKE WITH CHECK VALVE, VARIANCE REQUIRED FOR OTHER SERVICE LINE SIZES
- ⑤ METER PIT: 24" DIAMETER, 4' MINIMUM DEPTH
- ⑥ METER PIT BELL AND LID
- ⑦ PLASTIC RECESSED FROST LID
- ⑧ 2" HOLE IN METER LID

**NOTES:**

1. WATER METER AND REMOTE READ DEVICE FURNISHED AND INSTALLED BY FOREST VIEW ACRES WATER DISTRICT PERSONNEL.
2. SERVICE LINE MUST HAVE A MINIMUM COVER OF 5.5 FEET.
3. WATER DISTRICT PERSONNEL SHALL INSPECT THE SERVICE LINE FROM THE MAIN TO THE METER PRIOR TO BACKFILLING.
4. INSIDE METER SETTINGS WILL NOT BE PERMITTED.
5. OUTBUILDINGS SUPPLIED WITH WATER SHOULD BE CONNECTED TO PROPERTY OWNER'S SERVICE LINE NO LESS THAN FIVE (5) FEET AFTER THE METER PIT.
6. METER PITS AND CURB STOPS SHALL BE LOCATED IN GRASSY, LANDSCAPED AREAS, UNLESS OTHERWISE APPROVED BY THE BOARD OF DIRECTORS PRIOR TO INSTALLATION. METER PITS CANNOT BE PLACED IN DRIVEWAYS, SIDEWALKS OR UNDER PARKING AREAS.
7. ALL METER SETTINGS MUST BE INSPECTED BY FOREST VIEW ACRES WATER DISTRICT PERSONNEL BEFORE BEING BACKFILLED. METERS WILL NOT BE SET/APPROVED UNLESS METER SETTING AND SERVICE LINE ARE IN FULL COMPLIANCE WITH THE RULES AND REGULATIONS, STANDARD DRAWINGS AND APPROVED PROJECT DRAWINGS AS APPLICABLE.
8. DOMESTIC WATER SERVICES SHALL RUN AT A NINETY (90) DEGREE ANGLE FROM WATER MAIN WITH NO BENDS, NO CHANGES IN PIPE SIZE OR MATERIAL, AND NO CONNECTIONS UNTIL FIVE (5) FEET PAST THE METER PIT. NO JOINTS ARE PERMITTED WITHIN THE METER PIT EXCEPT THOSE SHOWN ON THE STANDARD DRAWINGS.

PROPERTY OWNER IS RESPONSIBLE FOR ENTIRE SERVICE LINE FROM CURB STOP TO HOME



**PIPING NOTES:**

1. ALL NEW 3/4" SERVICES TO CONSIST OF PIPE TAPPING SADDLE, SOFT COPPER TUBING TYPE K PIPING OF SPECIFIED SIZE ON DRAWINGS, CORPORATION STOPS, AND ANGLE-HEAD VALVE IN PIT.
2. SERVICE TAPS – SERVICE TAPS TO BE WET TAPPED AND COMPLETED AFTER WATER MAIN HAS BEEN PRESSURE-TESTED, DISINFECTED, AND CHARGED. EXISTING TAPS ARE TO BE LEFT OPERATIONAL UNTIL NEW SERVICE LINES ARE READY TO BE "PULLED" OR OPEN CUT INTO EXISTING METER PITS AND WET TAPPED INTO THE NEW WATER MAIN. AFTER NEW SERVICES ARE COMPLETE, ALL EXISTING TAPS ARE TO BE ABANDONED. COORDINATE ALL NEW TAPS WITH THE FOREST VIEW ACRES WATER DISTRICT TO RESPECTIVE WATER USERS CAN BE NOTIFIED FOR TEMPORARY WATER SERVICE SHUTDOWNS.
3. ALL NEW PIPING SHALL BE PRESSURE TESTED AND DISINFECTED/FLUSHED ACCORDING TO DISTRICT PROVIDED SPECIFICATIONS PRIOR TO CONNECTION TO ANY EXISTING WATER MAINS OR COMPLETING ANY DOMESTIC/COMMERCIAL WATER TAPS.

## CURB STOP AND METER PIT INSTALLATION

Drawn: JDS-HYDRO CONSULTANTS, INC.  
 Date: MARCH 2018  
 Scale: N.T.S.

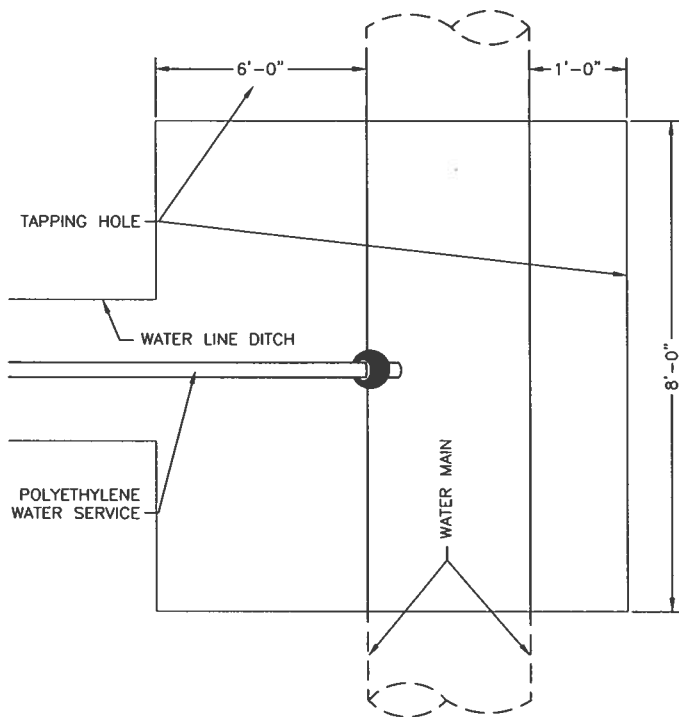
Revised:  
 Revised:  
 Revised:

WATER SYSTEM  
 STANDARD SPECIFICATIONS

Forest View Acres  
 WATER DISTRICT

**SERVICE TAPS 1-1/2" & 2" TAPPING SADDLE**

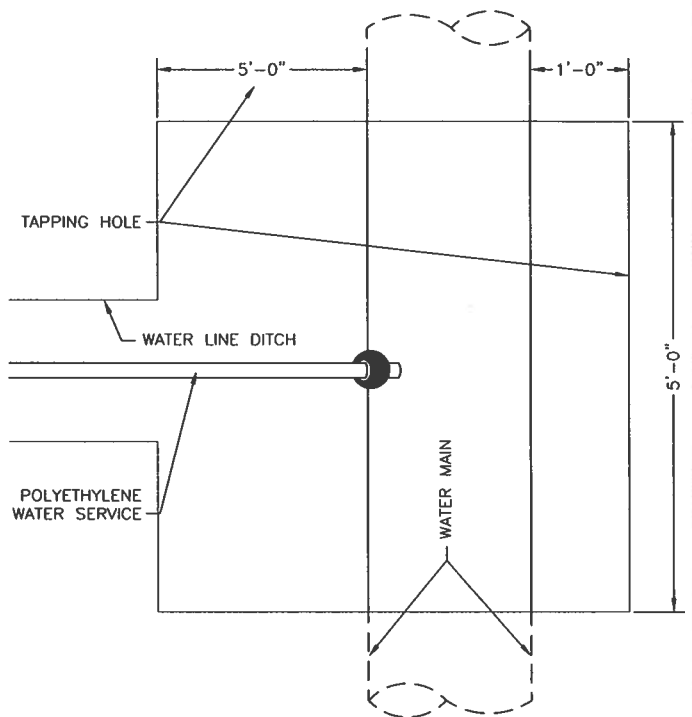
VARIANCE REQUIRED



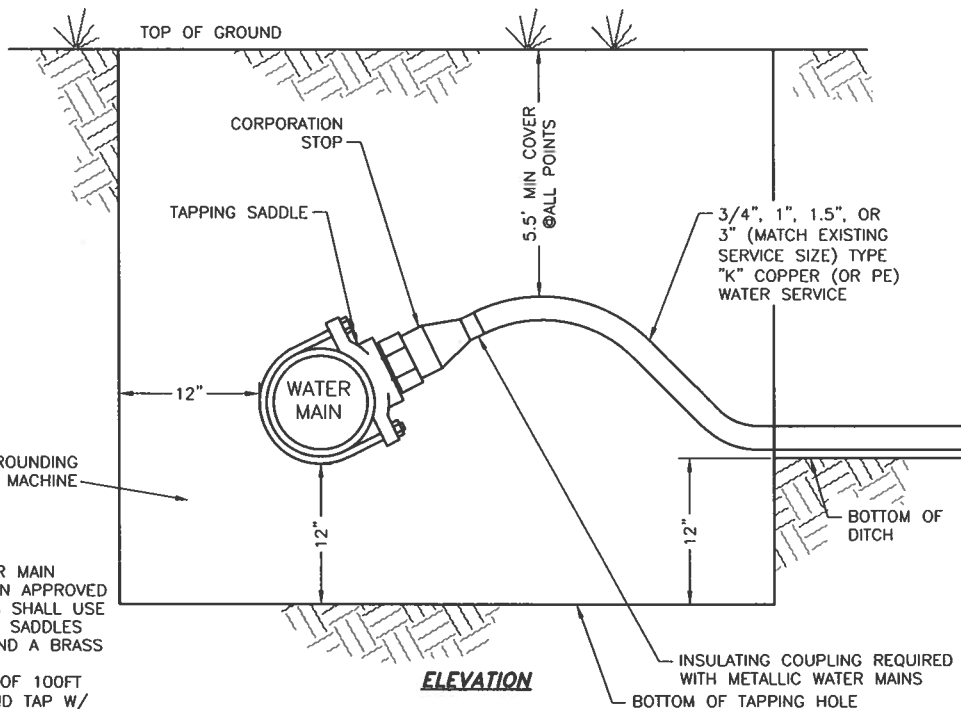
**PLAN**

**SERVICE TAPS 3/4" & 1" CORPORATION ONLY**

VARIANCE REQUIRED FOR 1" TAP



**PLAN**



**ELEVATION**

**NOTE:**

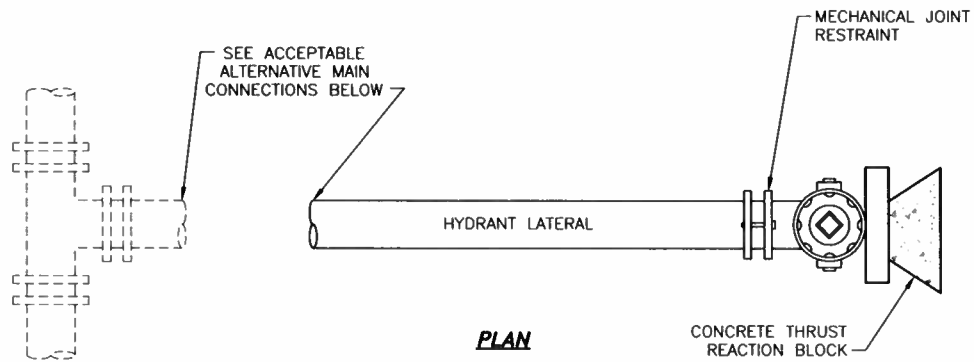
1. DIRECT TAPS TO THE WATER MAIN SHALL BE MADE ONLY WHEN APPROVED BY THE DISTRICT. ALL TAPS SHALL USE TAPPING SADDLES. TAPPING SADDLES SHALL HAVE TWO BANDS AND A BRASS CORPORATION CONNECTION.
2. SERVICE LINES IN EXCESS OF 100FT SHOULD BE 1" SERVICE AND TAP W/ 3/4" METER.

**SERVICE TAPPING DETAIL - 3/4" THROUGH 2"**

Drawn: JDS-HYDRO CONSULTANTS, INC.	Revised:
Date: APRIL 2018	Revised:
Scale: N.T.S.	Revised:

**WATER SYSTEM  
STANDARD SPECIFICATIONS**

Forest View Acres  
WATER DISTRICT

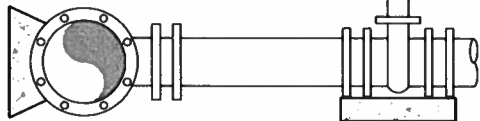


**PLAN**

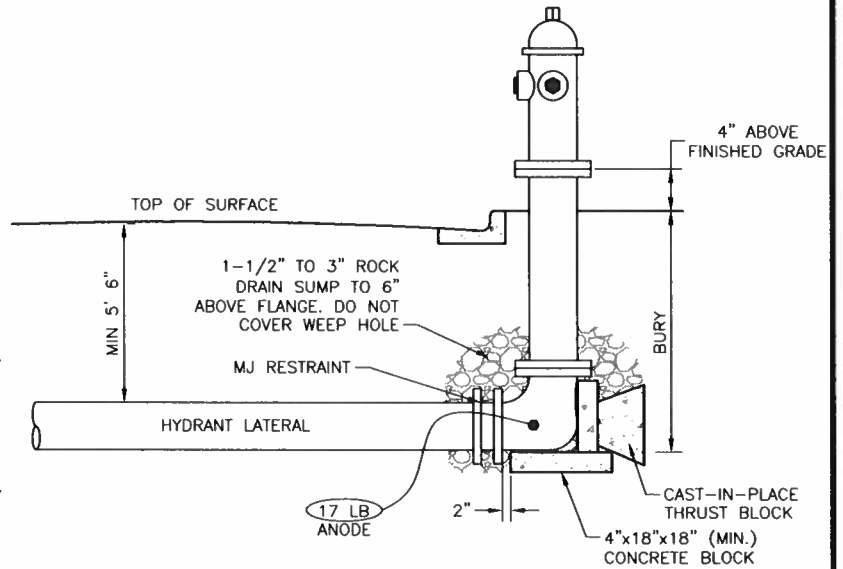
CONCRETE THRUST BLOCK (TYP.) SEE DWG W-8

TAPPING SLEEVE WITH VALVE

ANCHOR HYD. TEE AND VALVE



MJ HYD. TEE WITH 30" (MIN.) SPACER PIPE AND VALVE. USE MECHANICAL JOINT RESTRAINT AT EACH MECHANICAL JOINT



**PROFILE**

**NOTES:**

1. ALL JOINTS BETWEEN HYDRANT AND TEE MUST BE RESTRAINED.
2. WHEN LATERAL IS GREATER THAN ONE PIPE LENGTH, RESTRAINT IS REQUIRED AT EACH COUPLING.

## FIRE HYDRANT INSTALLATION

Drawn: JDS-HYDRO CONSULTANTS, INC.  
 Date: MARCH 2018  
 Scale: N.T.S.

Revised:  
 Revised:  
 Revised:

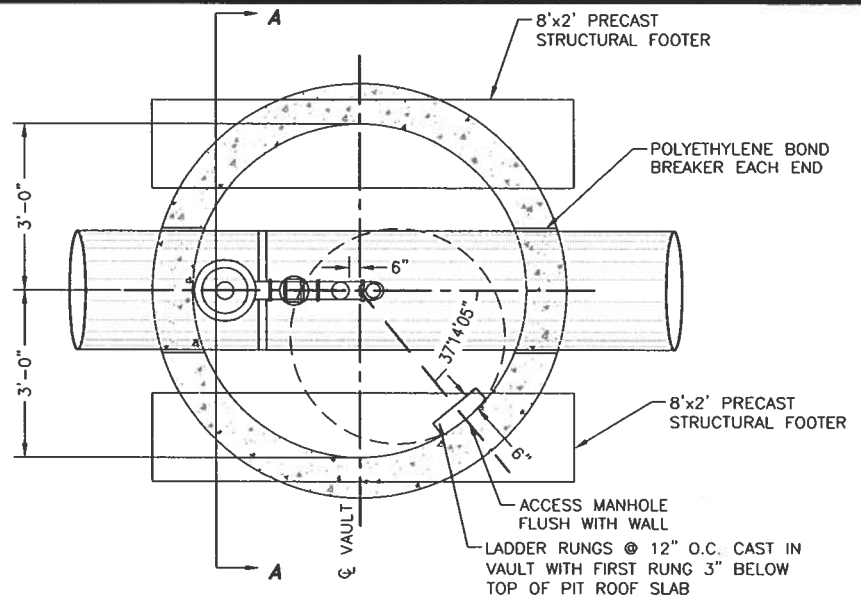
WATER SYSTEM  
 STANDARD SPECIFICATIONS

Forest View Acres  
 WATER DISTRICT

**W-3**

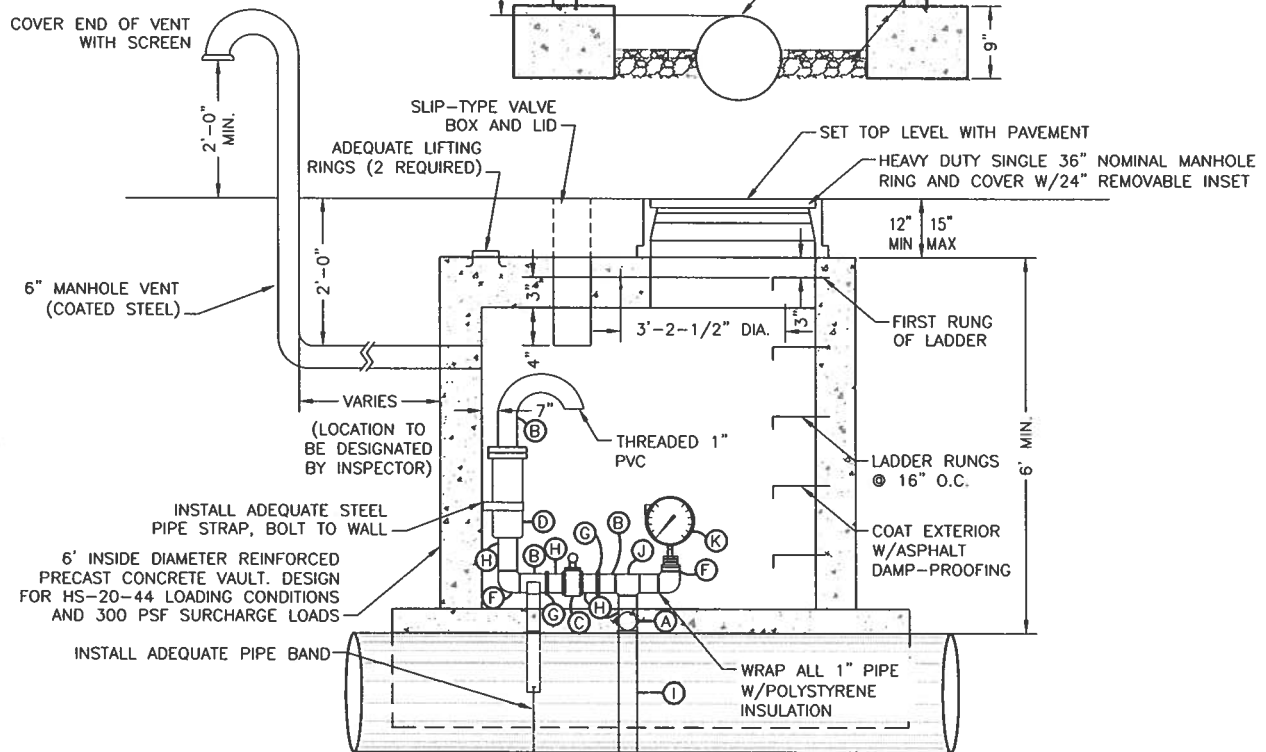
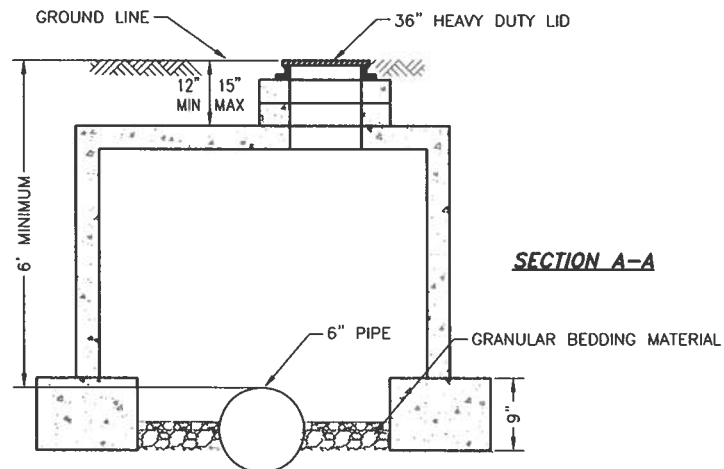
**LEGEND**

- (A) 1" CORPORATION TAPERED THREADS INLET WITH 1" FEMALE IRON PIPE OUTLET (MUELLER OR FORD)
- (B) 1" CLOSE THREADED BRASS NIPPLE
- (C) 1" THREADED GATE VALVE WITH STANDARD OPENING NUT
- (D) 1" THREADED INLET VAL-MATIC AIR/VACUUM COMBINATION AIR VALVE, MODEL 201C
- (E) 1"x90° PLASTIC ELBOW
- (F) 1"x90° BRASS THREADED ELBOW
- (G) 1" QUICK COUPLER
- (H) 1" THREADED BRASS NIPPLE
- (I) 1" ROMAC MODEL 202BS TAPPING SADDLE OR APPROVED EQUAL
- (J) 1"x1" TEE
- (K) PRESSURE GAUGE 4" FACE (MIN.), 0-150 P.S.I. (MIN.) NOT LESS THAN 150% OF DESIGN PRESSURE "WEKSLER # EA 14 D" OR NON-CORROSIVE BODY EQUAL, GLYCERIN FILLED MAX. 2 P.S.I. INCREMENTS



**NOTES:**

1. ALL CONCRETE WORK SHALL COMPLY WITH LATEST ACI-318 SPECIFICATIONS.
2. ALL SUPPORT MATERIALS SHALL BE GIVEN 2 COATS OF RUST INHIBITIVE PAINT.
3. ALL LADDER RUNGS MUST LINE UP BOTH HORIZONTALLY AND VERTICALLY.
4. ALL SMALL DIAMETER PIPE AND AIR RELEASE VALVE SHALL BE WRAPPED WITH INSULATION AND TAPED.



**AIR/VACUUM RELIEF VALVE VAULT**

Drawn: JDS-HYDRO CONSULTANTS, INC.  
 Date: MARCH 2018  
 Scale: N.T.S.

Revised:  
 Revised:  
 Revised:

WATER SYSTEM  
 STANDARD SPECIFICATIONS

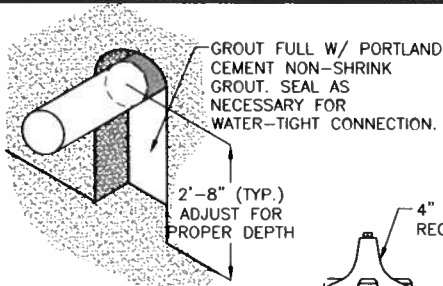
Forest View Acres  
 WATER DISTRICT

W-4



**LEGEND**

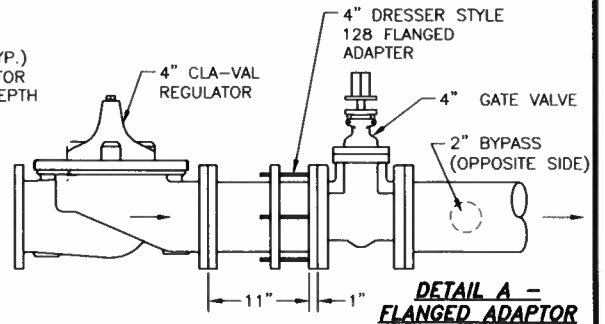
- (A) 4" STYLE 39 DRESSER COUPLING, OR EQUAL
- (B) 150-LB. FLANGES
- (C) 2" GATE VALVE, CW-CLOSE
- (D) 2" CLA-VAL PRESSURE REDUCING VALVE, MODEL 90-0, SS W/ INLET/OUTLET PRESSURE GAUGES
- (E) 4" CLA-VAL PRESSURE REDUCING VALVE, MODEL 90-01, SS W/ INLET/OUTLET PRESSURE GAUGES
- (F) 2" STEEL FITTING, 150-LB. FLANGE ONE END, SPIGOT ONE END, 1'-3" LONG
- (G) 2" DRESSER STYLE 128 FLANGED ADAPTER OR EQUAL. TIE BACK TO REGULATOR W/ TWO 3/4" RODS. (SEE DETAIL 'A' THIS SHEET)
- (H) 4" GATE VALVE, CW-CLOSE
- (I) CLASS 'E' FLANGES
- (J) 4" FLANGED BADGER METER MODEL RECORDALL
- (K) 4" H STYLE CLA-VAL STRAINER MODEL X43H
- (L) THREADED TAP W/ PRESSURE GAUGE



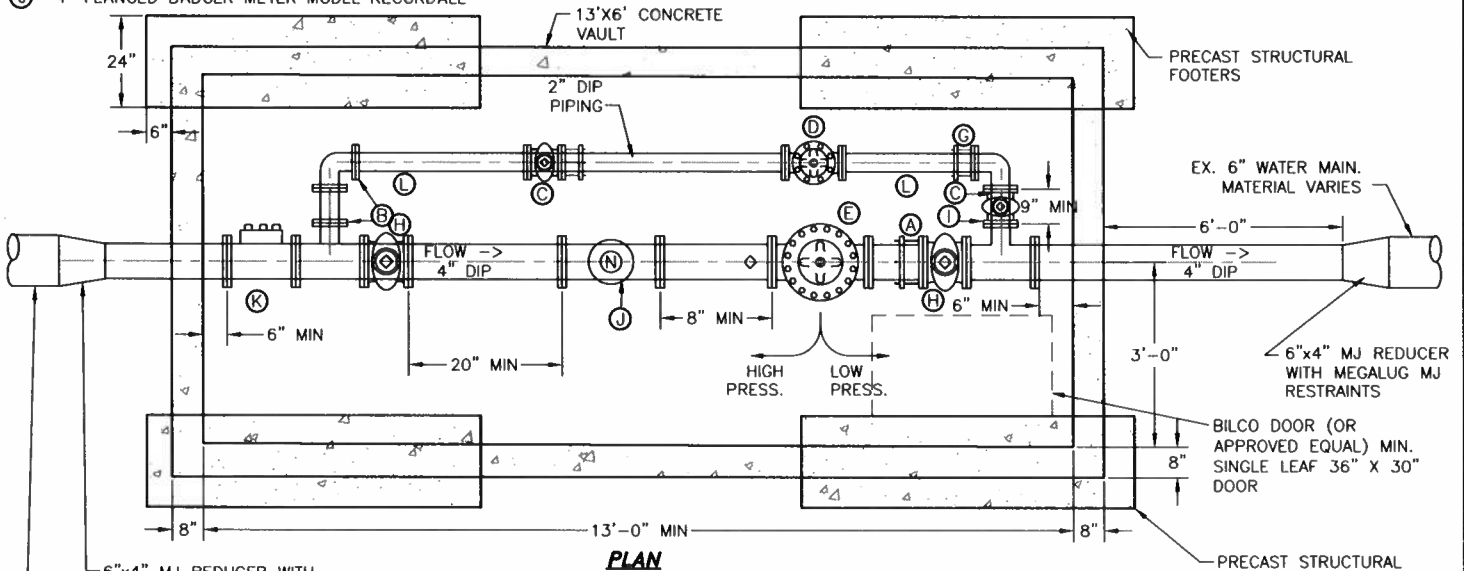
**DETAIL B - PIPE ARCH**

**GENERAL NOTES:**

1. CONCRETE VAULTS SHALL MEET ALL CRITERIA AS OUTLINED IN PROJECT SPECIFIC SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR PRV OPERATION.



**DETAIL A - FLANGED ADAPTOR**

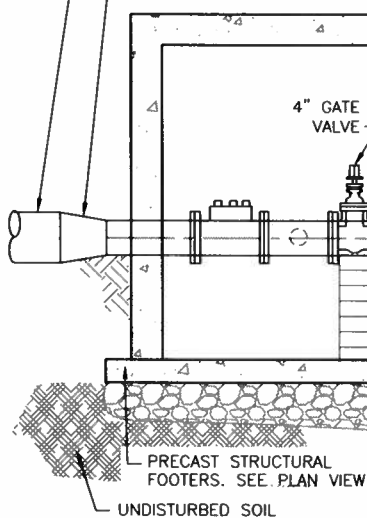


**PLAN**

ADD RISERS TO MATCH STREET GRADE AS NECESSARY. WHERE DETERMINED NECESSARY, A CONCRETE RISER SHALL BE FORMED ON THE ROOF OF THE BOX TO MATCH THE SLOPE OF THE STREET SURFACE. THE RISER SHALL BE 6" THICK AND A MINIMUM OF 3" HIGH

6"x4" MJ REDUCER WITH MEGALUG MJ RESTRAINTS  
EX. 6" WATER MAIN. MATERIAL VARIES

6"x4" MJ REDUCER WITH MEGALUG MJ RESTRAINTS  
EX. 6" WATER MAIN. MATERIAL VARIES



**PROFILE**

**PRESSURE REDUCING VALVE VAULT WITH METER**

Drawn: JDS-HYDRO CONSULTANTS, INC.  
Date: APRIL 2018  
Scale: N.T.S.

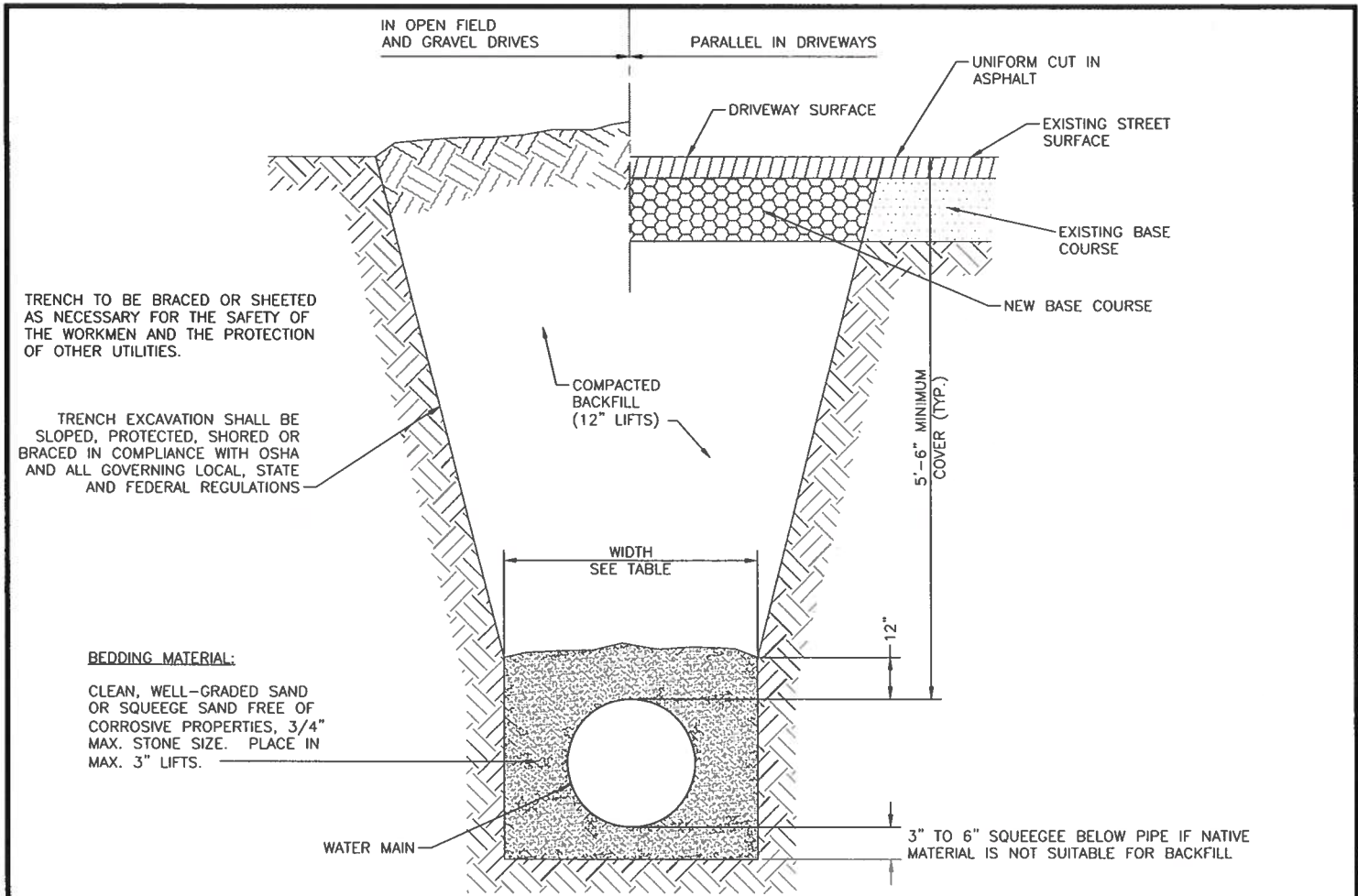
Revised:  
Revised:  
Revised:

WATER SYSTEM  
STANDARD SPECIFICATIONS

Forest View Acres  
WATER DISTRICT

W-6





TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND THE PROTECTION OF OTHER UTILITIES.

TRENCH EXCAVATION SHALL BE SLOPED, PROTECTED, SHORED OR BRACED IN COMPLIANCE WITH OSHA AND ALL GOVERNING LOCAL, STATE AND FEDERAL REGULATIONS

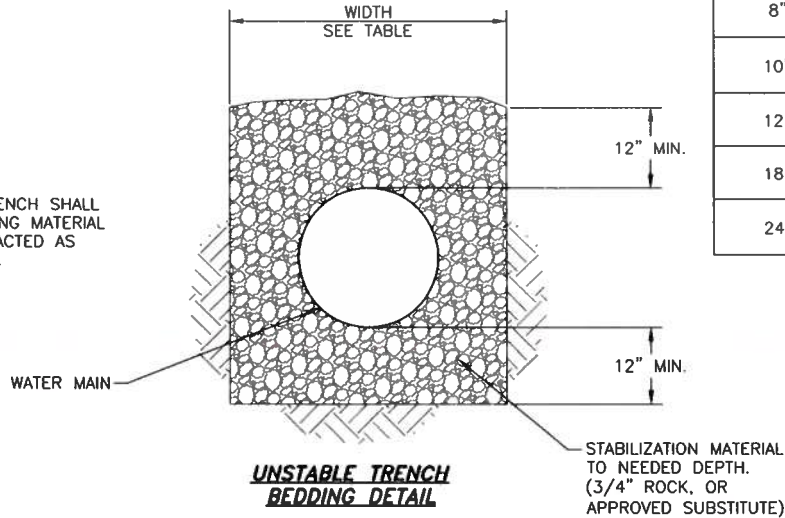
**BEDDING MATERIAL:**

CLEAN, WELL-GRADED SAND OR SQUEEGE SAND FREE OF CORROSIVE PROPERTIES, 3/4" MAX. STONE SIZE. PLACE IN MAX. 3" LIFTS.

**TYPICAL TRENCH SECTION**

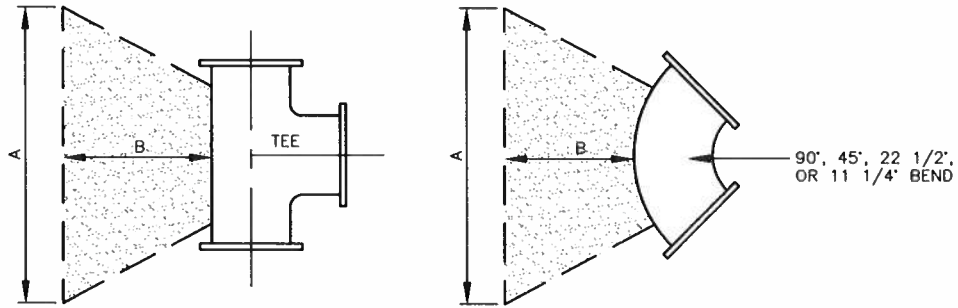
PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	2'-2"	3'-0"
6"	2'-2"	3'-0"
8"	2'-2"	3'-0"
10"	2'-4"	3'-0"
12"	2'-6"	3'-6"
18"	2'-10"	3'-9"
24"	3'-2"	4'-3"

**NOTE:**  
AN OVER-EXCAVATED TRENCH SHALL BE REFILLED WITH BEDDING MATERIAL AND THOROUGHLY COMPACTED AS PER THE SPECIFICATIONS.



**UNSTABLE TRENCH BEDDING DETAIL**

**TYPICAL TRENCH CROSS-SECTION**

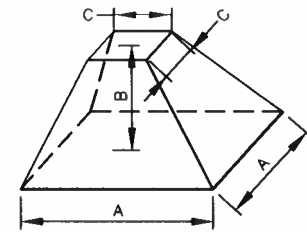


DIMENSIONS AND VOLUMES  
(SEE ISOMETRIC VIEW)

SIZE	TEE			90°			45°			22 1/2°			11 1/4°		
	in. A	in. B	c.y. VOL	in. A	in. B	c.y. VOL	in. A	in. B	c.y. VOL	in. A	in. B	c.y. VOL	in. A	in. B	c.y. VOL
4"	2'-6"	0'-10"	1/8	2'-6"	0'-10"	1/8	2'-6"	0'-10"	1/8	2'-6"	0'-10"	1/8	2'-6"	0'-10"	1/8
6"	3'-2"	2'-5"	1/2	3'-6"	3'-0"	3/4	3'-2"	2'-5"	1/2	2'-6"	0'-10"	1/8	2'-6"	0'-10"	1/8
8"	4'-0"	2'-6"	3/4	4'-10"	3'-1"	1-1/4	4'-0"	2'-6"	3/4	2'-6"	0'-10"	1/4	2'-6"	0'-10"	1/8
10"	4'-4"	3'-0"	1	5'-3"	3'-3"	1-1/2	4'-4"	3'-0"	1	2'-8"	1'-7"	1/4	2'-6"	0'-10"	1/8
12"	4'-10"	3'-1"	1-1/4	5'-7"	3'-5"	1-3/4	4'-10"	3'-1"	1-1/4	2'-8"	1'-7"	1/4	2'-6"	0'-10"	1/8
20"	5'-3"	3'-3"	1-1/2	5'-10"	3'-7"	2-0	5'-3"	3'-3"	1/2	3'-2"	2'-5"	1/2	2'-8"	1'-7"	1/4

NOTES:

1. THE MINIMUM A AND B DIMENSIONS FOR ANY BLOCK IS 1'-6". DIMENSION C FOR ALL PIPE 12" OR LESS SHALL BE 1'-6".
2. THRUST BLOCK DIMENSIONS AND VOLUMES FOR DEAD ENDS SHALL BE THE SAME AS FOR TEES.
3. THE ABOVE VOLUMES ARE ROUNDED TO THE NEAREST PORTION OF A CUBIC YARD.
4. NUTS AND BOLTS SHALL REMAIN ACCESSIBLE AND FREE OF SPLASHED CONCRETE. A BOND BREAKER IS REQUIRED BETWEEN FITTINGS AND CONCRETE.



ISOMETRIC VIEW SHOWING  
A, B, AND C DIMENSIONS

## THRUST BLOCK DATA

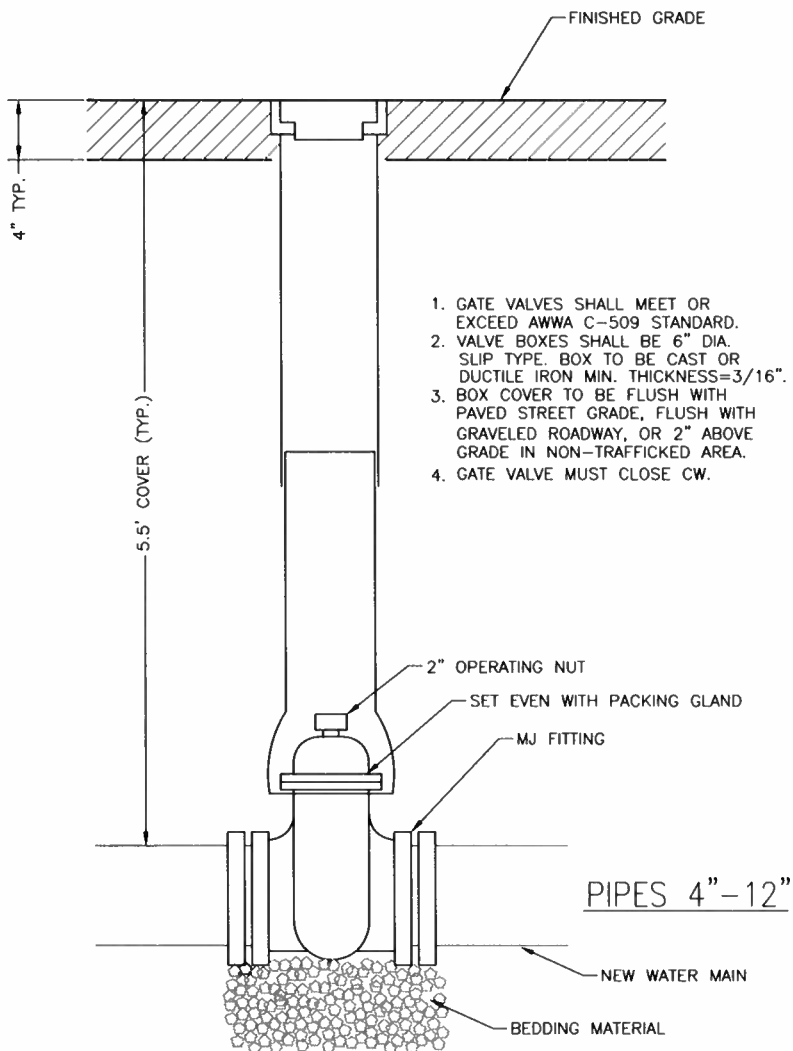
Drawn: JDS-HYDRO CONSULTANTS, INC.  
Date: MARCH 2018  
Scale: N.T.S.

Revised:  
Revised:  
Revised:

WATER SYSTEM  
STANDARD SPECIFICATIONS

Forest View Acres  
WATER DISTRICT

W-8



## TYPICAL IN-LINE GATE VALVE ASSEMBLY

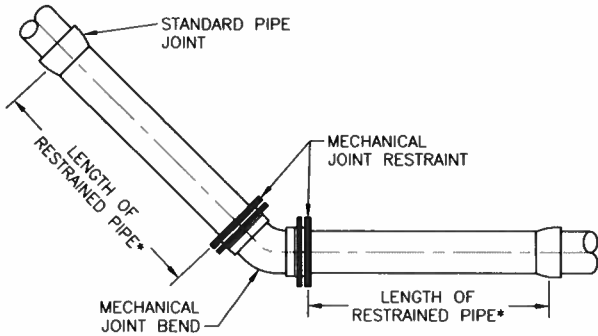
Drawn: JDS-HYDRO CONSULTANTS, INC.  
 Date: MARCH 2018  
 Scale: N.T.S.

Revised:  
 Revised:  
 Revised:

WATER SYSTEM  
 STANDARD SPECIFICATIONS

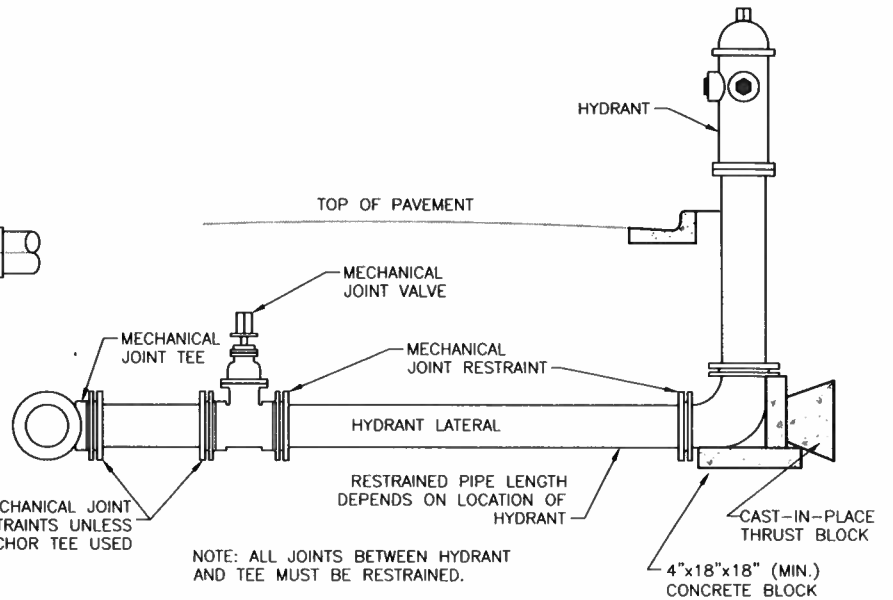
Forest View Acres  
 WATER DISTRICT

W-9

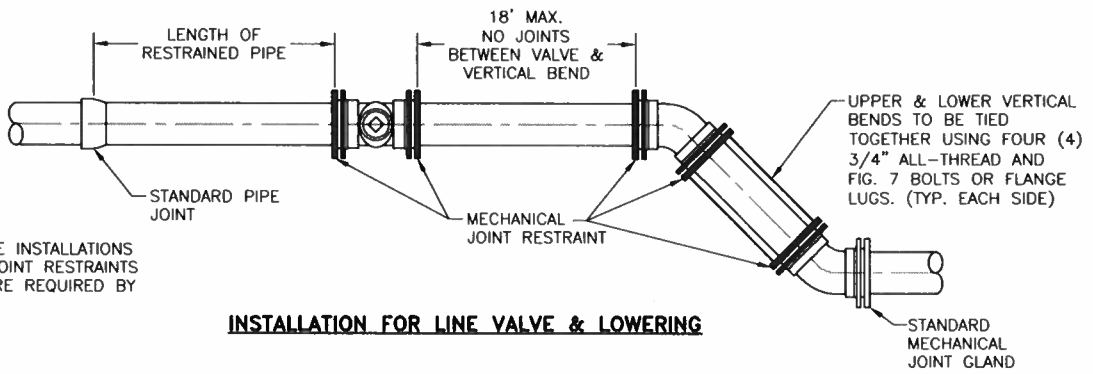


NO THRUST REACTION  
BLOCK REQUIRED

**INSTALLATION FOR BENDS**

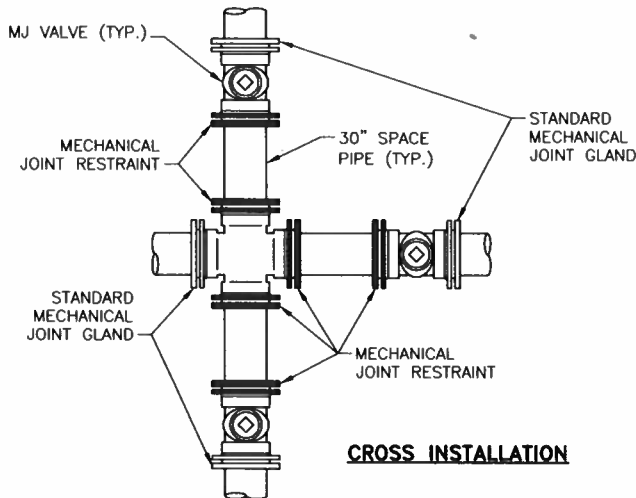


**INSTALLATION FOR BENDS**

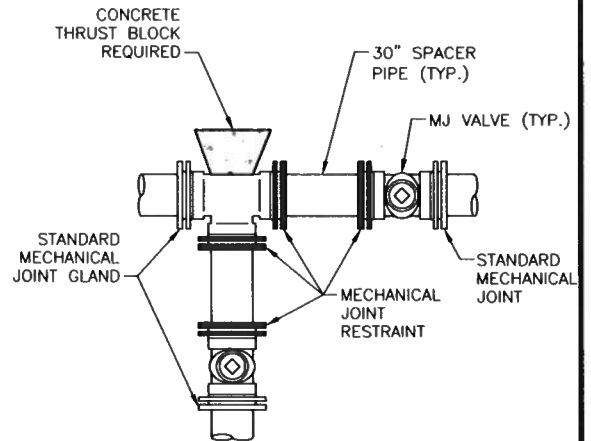


NOTE: FOR LINE VALVE INSTALLATIONS WITHOUT LOWERING, JOINT RESTRAINTS SHALL BE USED WHERE REQUIRED BY THE DISTRICT.

**INSTALLATION FOR LINE VALVE & LOWERING**



**CROSS INSTALLATION**



**TEE INSTALLATION**

- NOTES:
1. MECHANICAL JOINTS SHALL BE APPROVED ACCORDING TO MATERIAL SPECIFICATION FOR DIP AND PVC PIPE.
  2. LENGTH OF PIPE REQUIRING JOINT RESTRAINT SHALL BE DETERMINED FROM CHART ON DRAWING W-11.
  3. RESTRAINED JOINT PVC PIPE SHALL NOT BE USED FOR LOWERINGS.

**APPLICATIONS FOR MECHANICAL JOINT RESTRAINTS**

Drawn: JDS-HYDRO CONSULTANTS, INC.  
Date: MARCH 2018  
Scale: N.T.S.

Revised:  
Revised:  
Revised:

WATER SYSTEM  
STANDARD SPECIFICATIONS

Forest View Acres  
WATER DISTRICT

W-10

### RESTRAINED M.J. PIPE LENGTH (FT)

6-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	12	18	24
45° BEND	5	8	10
22-1/2' BEND	2	4	5
11-1/4' BEND	1	2	2

16-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	29	43	58
45° BEND	12	18	24
22-1/2' BEND	6	9	12
11-1/4' BEND	3	4	6

8-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	16	24	32
45° BEND	7	10	13
22-1/2' BEND	3	5	6
11-1/4' BEND	2	2	3

18-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	32	48	64
45° BEND	14	20	27
22-1/2' BEND	7	10	13
11-1/4' BEND	3	5	7

12-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	23	34	45
45° BEND	9	14	19
22-1/2' BEND	5	7	9
11-1/4' BEND	2	3	4

20-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	35	52	70
45° BEND	15	22	29
22-1/2' BEND	7	10	14
11-1/4' BEND	3	5	7

24-INCH DUCTILE IRON AND PVC

TYPE OF FITTING	STATIC PRESSURE (PSI)		
	<100	100-150	150-200
90° BEND, TEE, VALVE OR PLUG	41	61	81
45° BEND	17	25	34
22-1/2' BEND	8	12	16
11-1/4' BEND	4	6	8

**NOTES:**

1. PRESSURES GREATER THAN 200 PSI REQUIRE SPECIAL DESIGN APPROVED BY THE DISTRICT.
2. LENGTH IS BASED ON MINIMUM 5'-0" OF GROUND COVER AND SOIL COMPACTED TO 95% OF STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE.
3. APPROVED METHODS OF RESTRAINED PIPE BEYOND INITIAL FITTING SHALL BE:
  - A. FOR DUCTILE IRON PIPE, 1100 SERIES MEGALUG BY EBAA IRON OR EQUAL ON MECHANICAL JOINT PIPE OR DOUBLE 1100 SERIES MEGALUG BY EBAA IRON OR EQUAL ON PUSH ON JOINT PIPE.
  - B. FOR PVC PIPE, SERIES 1500 OR SERIES 2800 RESTRAINTS BY EBAA IRON OR EQUAL.

## RESTRAINED M.J. PIPE LENGTH DATA

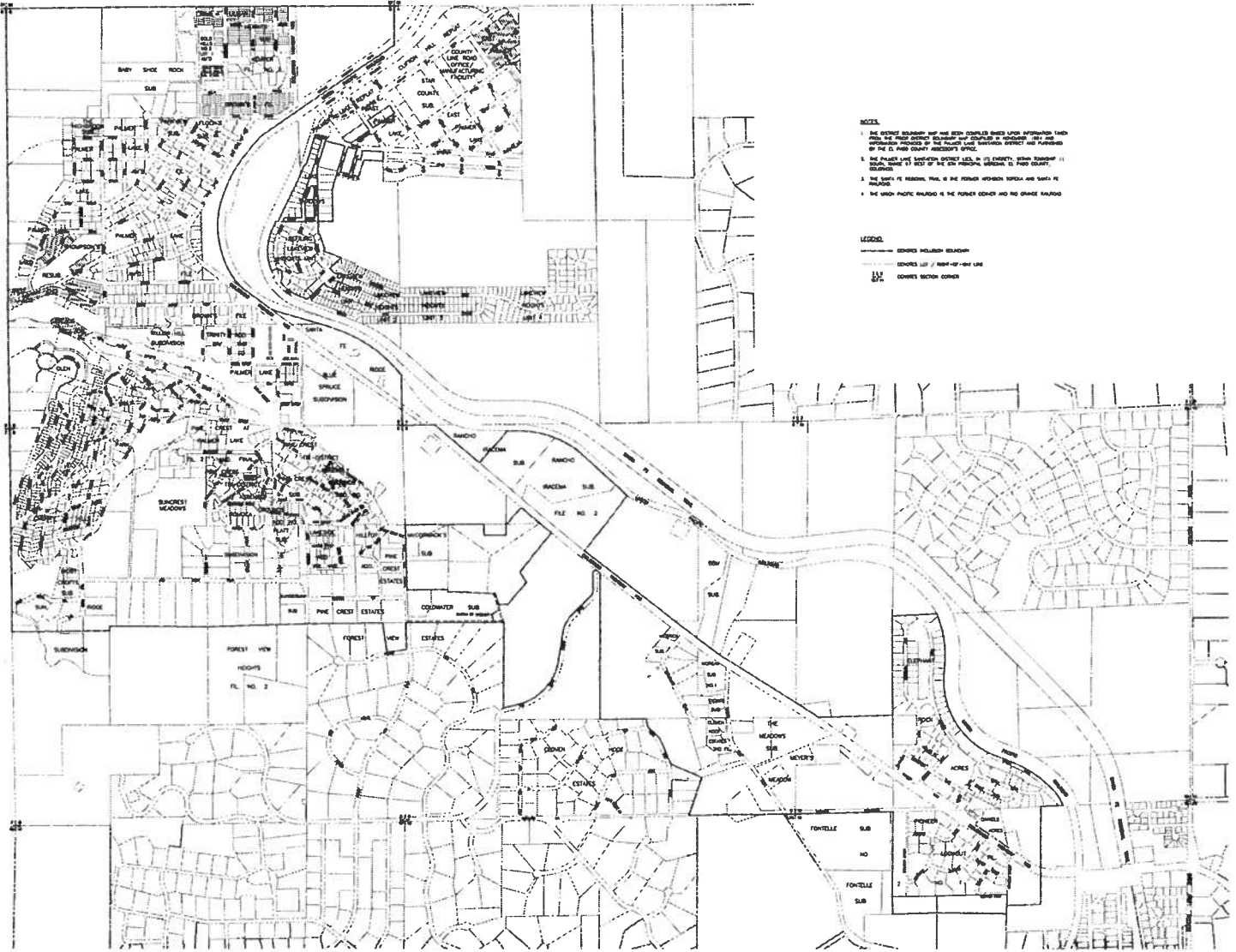
Drawn: APPLICATION FOR MECHANICAL JOINT RESTRAINTS	Revised:
Date: MARCH 2018	Revised:
Scale: N.T.S.	Revised:

**WATER SYSTEM  
STANDARD SPECIFICATIONS**

Forest View Acres  
WATER DISTRICT

**W-11**

# PALMER LAKE SANITATION DISTRICT DISTRICT BOUNDARY MAP



- NOTES:**
1. THE DISTRICT BOUNDARY MAP HAS BEEN COMPILED FROM LAND APPROXIMATELY 1980 FROM THE PLAT RECORDS OF THE DISTRICT AND IS SUBJECT TO CHANGE WITH THE PASSAGE OF TIME AND THE DISCOVERY OF NEW RECORDS.
  2. THE PALMER LAKE SANITATION DISTRICT IS IN THE COUNTY OF ELBERT COUNTY, COLORADO.
  3. THE DISTRICT IS BOUNDARY MAP IS THE PROPERTY OF THE DISTRICT AND IS NOT TO BE REPRODUCED OR COPIED WITHOUT THE WRITTEN PERMISSION OF THE DISTRICT.

- LEGEND:**
- DISTRICT BOUNDARY
  - DISTRICT LOT / RIGHT-OF-WAY LINE
  - DISTRICT SECTION CORNER



REVISIONS		
NO.	DATE	DESCRIPTION
1	11/1/88	Original Boundary Map for address of Sanborn 718-C-2000A, Colorado, 1988
2	11/1/88	Final District Boundary Map per PLSD Minutes

DISTRICT BOUNDARY MAP  
PALMER LAKE SANITATION DISTRICT  
GMS, INC.  
1111 1/2 ST. 100

Date: April 17, 2019  
 To: Forest View Acres Water District  
 Re: Project Updates

This letter is to provide a monthly update to the water district on engineering work completed by JDS.

**DOVE**

JDS has outlined a rough scope for the DOVE project and has been in contact with contractors that would be interested in completing the work and has requested quotes from each of them. A brief summary of the scope for each contractor is outlined below. Once quotes have been collected, JDS will provide a detailed cost and quotes for the District's approval. The budgetary estimate for the work remains as reported to the CDPHE. The drawings and specs sent to J&K Excavating are included as an attachment to this letter.

*Project Cost Estimate Summary:*

1.	New Sample Tap on Treatment Plant Outlet (post contact time)	\$4,500.00
2.	Piping of sampling line back into Treatment Facility	\$7,500.00
3.	Install new HACH CL-17 and associated piping	\$7,300.00
4.	SCADA modifications and history reporting	\$3,500.00
5.	Soft Costs of Engineering and Operator Oversight	\$5,000.00
<b>ESTIMATED PROJECT TOTAL</b>		<b>\$27,800.00</b>

**Mechanical Contractor Scope (contacted J&K Excavating for a quote)**

- Submit all proposed materials to JDS Hydro for review and approval prior to installation. Provide notice to JDS Hydro and ORC prior to beginning work to allow them to provide field inspection of the work while in progress.
- Hire locate service to determine buried pipeline and electrical line locations (suggest Alpine Locates – 719-290-0463).
- Obtain work in ROW permit from El Paso County if required and meet all permit requirements (<https://publicworks.elpasoco.com/forms-applications/>). Provide traffic control as needed for Redstone Ridge Road. Remove asphalt and repair asphalt after work is complete.
- Cut 5" hole in the side of the SWTP building. Install 4" PVC carrier pipe with glued joints that extends from the interior of the building to a minimum bury depth of 5.5 feet.
- Excavate and confirm the existing pipe material and arrangement. Recover to open the hole back up. Obtain necessary parts. Excavate again and hot tap the potable water line after the chlorine contact loop with a ¾" tapping saddle, corporation stop and PE water service line per district standards. (You could also choose to have various tapping saddles onsite and then return the unused parts. We anticipate that the line is 6" C900 PVC but are not certain.)
- Install ¾" PE water line (to include tracer wire) from the tapping location to the building and through the building penetration. Install isolation valve at the stub inside the building to be connected by others. Cushion wrap ¾" pipe then provide and install heat tape with thermostat above grade.

- Properly compact all excavated areas per attached excavation specification. FVAWD to pay for compaction testing.

Instrumentation and Control (contacted Fluid Design and Build for a quote)

- Install Hach CL-17 Analyzer (district to provide) and connect piping from ¼" valve left by J&K to the CL-17 inlet. Route CL-17 outlet line to drain.
- Integrate CL-17 chlorine residual reading into the existing controls system to include alarms to alert operations if chlorine residual drops below the operator defined set point.

Electrician (contacted Sawyer Electric for a quote)

- Install a new outlet near the new CL-17 location.

FVAWD/ORC

- Purchase the Hach CL-17 Chlorine Residual Analyzer
- Assist Fluid Design and Build in installing the CL-17 and provide desired alarm set points.

*Attachments:*

1. *Attachments sent the J&K Excavating including sketches and specs for the DOVE project.*

**Dawson Well**

JDS prepared a monitoring well permit application for the Dawson well which requests that it be permitted as a monitoring well which will allow the district to complete the planned Dawson well investigation. The permit needs to be signed by the District and the \$100 permit application fee payment needs to be made.

The forms can either be sent in the regular mail with a check to the DOWR office or the application can be emailed to [DWRpermitsonline@state.co.us](mailto:DWRpermitsonline@state.co.us) and then payment can be made once confirmation of receipt is received by calling 303-866-3581 (x0). Please let JDS Hydro know how the board would prefer the application be submitted and the payment made. JDS would be glad to submit the application by email, pay the bill and then pass the fee along to the district on our next bill if that is easiest.

Hydro Resources has been notified that the District would like them to complete the Dawson well investigation and has provided a scope and agreement that needs to be signed by the District. Once the monitoring well permit is obtained and the scope is signed, JDS will schedule the work. The permit application and agreement are included as attachments to this letter.

**Attachments:**

2. Monitoring Well Permit Application
3. Agreement for Dawson well investigation for Hydro Resources

Please feel free to call me directly if you have any questions or if any additional information is requested.

Sincerely,

Gwen Dall, P.E.

**JDS-Hydro Consultants, Inc.**