

WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 1

Received

OCT 13 2015

HNTB Corporation
Round Rock

Received

OCT 08 2015

HNTB Corporation
Round Rock

1. CONTRACTOR: Kwest Group
2. Change Order Work Limits: Sta. 1+00 to Sta. 12+96
3. Type of Change (on federal-aid non-exempt projects): Minor (Major/Minor)
4. Reasons: 4B, 2E (3 Max. - In order of importance - Primary first)

Project:	<u>151FB102</u>
Roadway:	<u>CR 245</u>
Purchase Order Number:	<u></u>

5. Describe the work being revised:

4B: Third Party Accommodation. Third party requested work. This Change Order adds a new Contract item to compensate the Contractor for installing a Pressure Reducing Valve (PRV) on the proposed 6 inch waterline, as required by the City of Georgetown.

2E: Differing Site Conditions (unforeseeable). Miscellaneous difference in site conditions (unforeseeable) (Item 9). The existing waterline was in a different location than shown on the plans, which allowed the Contractor to tie into the existing system at the new location, reducing the contract quantity of new waterline required to be installed.

6. Work to be performed in accordance with Items: See Attached
7. New or revised plan sheet(s) are attached and numbered: PP-04 and PVD Detail Sheet
8. New Special Provisions/Specification to the contract are attached: ☒ Yes ☐ No
9. New Special Provisions to Item N/A No. N/A, Special Specification Item 511S are attached.

Each signatory hereby warrants that each has the authority to execute this Change Order (CO).

<p><i>The contractor must sign the Change Order and, by doing so, agrees to waive any and all claims for additional compensation due to any and all other expenses; additional changes for time, overhead and profit; or loss of compensation as a result of this change.</i></p> <p>THE CONTRACTOR Date <u>10/7/15</u></p> <p>By <u>[Signature]</u></p> <p>Typed/Printed Name <u>DAVID CLARK</u></p> <p>Typed/Printed Title <u>PROJECT MANAGER</u></p>	<p>The following information must be provided</p> <p>Time Ext. #: <u>N/A</u> Days added on this CO: <u>0</u></p> <p>Amount added by this change order: <u>\$29,428.53</u></p>
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RECOMMENDED FOR EXECUTION:

[Signature] 10/8/15
Project Manager Date

N/A
Design Engineer Date

[Signature] 10/9/2015
Program Manager Date

Design Engineer's Seal:

See Attached Plan Sheets

County Commissioner Precinct 1 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Commissioner Precinct 2 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Commissioner Precinct 3 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Commissioner Precinct 4 Date
☐ APPROVED ☐ REQUEST APPROVAL

County Judge Date
☐ APPROVED

WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 1

Project # 15IFB102

TABLE A: Force Account Work and Materials Placed into Stock[illegible]**TABLE B: Contract Items**[illegible]

CHANGE ORDER REASON(S) CODE CHART

1. Design Error or Omission	1A. Incorrect PS&E 1B. Other
2. Differing Site Conditions (unforeseeable)	2A. Dispute resolution (expense caused by conditions and/or resulting delay) 2B. Unavailable material 2C. New development (conditions changing after PS&E completed) 2D. Environmental remediation 2E. Miscellaneous difference in site conditions (unforeseeable)(Item 9) 2F. Site conditions altered by an act of nature 2G. Unadjusted utility (unforeseeable) 2H. Unacquired Right-of-Way (unforeseeable) 2I. Additional safety needs (unforeseeable) 2J. Other
3. County Convenience	3A. Dispute resolution (not resulting from error in plans or differing site conditions) 3B. Public relations improvement 3C. Implementation of a Value Engineering finding 3D. Achievement of an early project completion 3E. Reduction of future maintenance 3F. Additional work desired by the County 3G. Compliance requirements of new laws and/or policies 3H. Cost savings opportunity discovered during construction 3I. Implementation of improved technology or better process 3J. Price adjustment on finished work (price reduced in exchange for acceptance) 3K. Addition of stock account or material supplied by state provision 3L. Revising safety work/measures desired by the County 3M. Other
4. Third Party Accommodation	4A. Failure of a third party to meet commitment 4B. Third party requested work 4C. Compliance requirements of new laws and/or policies (impacting third party) 4D. Other
5. Contractor Convenience	5A. Contractor exercises option to change the traffic control plan 5B. Contractor requested change in the sequence and/or method of work 5C. Payment for Partnering workshop 5D. Additional safety work/measures desired by the contractor 5E. Other
6. Untimely ROW/Utilities	6A. Right-of-Way not clear (third party responsibility for ROW) 6B. Right-of-Way not clear (County responsibility for ROW) 6C. Utilities not clear 6D. Other

Williamson County Road Bond Program

CR 245

Williamson County Project No. 15IFB102

Change Order No. 1

Reason for Change

This Change Order adds a new Contract item to compensate the Contractor for installing a Pressure Reducing Valve (PRV) on the proposed 6 inch waterline. The City of Georgetown required that a PRV be installed on their proposed 6 inch waterline prior to the beginning of project construction.

This Change Order also includes the reduction in total length of 6 inch waterline to be relocated. The existing 6 inch waterline was in a different location than what was shown on the plans. Moving the waterline tie-in to this new location shortened the overall length of the new waterline to be installed.

Following is a summary of new items required for this Change Order.

ITEM	DESCRIPTION	QTY	UNIT
511S-WC01	INSTALL PRV/VAULT ON 6" WATERLINE	1.0	LS

This Change Order results in a net increase of \$29,428.53 to the Contract amount, for an adjusted Contract total of \$619,257.64. The original Contract amount was \$589,829.11. As a result of this and all Change Orders to-date, \$29,428.53 has been added to the Contract, resulting in a 5.0% net increase in the Contract cost. No additional days will be added to or deducted from the Contract as a result of this Change Order.

HNTB Corporation

James Klotz, P.E.

Dawn Haggard

From: Don Clark <DonClark@kwestgroup.com>
Sent: Wednesday, June 03, 2015 2:55 PM
To: Ryan Rivera
Cc: Dawn Haggard; 62811_15IFB102_CR245; Rob Schackart
Subject: 15IFB102: Change Order #1 Clarification

Ryan,

Good Afternoon! For Change Order #1 PRV Change Request, Kwest Group, LLC clarifies that the submitted pricing of \$40,239.33 includes Equipment, Materials, Labor, and a 10% Markup for completion of this work. If you have any additional questions, or need any additional information, please let me know.

Thank You,

Don Clark
Project Manager



KWEST GROUP
Kite Construction and Marine Services

Cell: (214) 771-6205
Email: donclark@kwestgroup.com
Website: www.kwestgroup.com

20 Noble Court
Heath, Texas 75032
Office Phone: (972)-722-3874
Office Fax: (972)-722-3875

8305 Fremont Pike
Perrysburg, OH 43551
Phone: 419 874 4284
Fax: 419 874 4306

7680 Fishel Drive N
Dublin, OH 43016
Office: 614 734 4664

960 Plasterbed Road
Port Clinton, Ohio 43452
Office: (419) 734-5533



KWEST GROUP

Civil Construction and Environmental Services

Attn: Ryan Rivera
HNTB
14 Galloping Road
Round Rock, TX 78681

May 15, 2015

Via email: rrivera@HNTB.com

RE: 15IFB102 CR 245 – PRV Change Request

Mr. Rivera:

We appreciate the opportunity to provide pricing on this project. Per the email received on May 8th, we offer the following price of \$40,239.33 to perform the work.

The following has been included in our work:

1. All materials, equipment, and labor to excavate, furnish, and install a 6" PRV valve and vault, as per the Specifications and Drawing received via email on May 8, 2015.
2. There is a 4 week lead time on the concrete vault, therefore, a deviation from the original project phasing will be necessary.
3. Our pricing includes having a rock saw excavate for the vault during installation of the 6" waterline to reduce the cost of a 2nd mobilization. In order to maintain a safe site, our pricing includes pushing the spoils into the open excavation, and removing them when the vault arrives on site.

Thank you for providing us this opportunity. We look forward to performing this work. Please let us know when the work is approved, so we may order the materials.

If we can provide any additional information, please feel free to contact the undersigned mobile phone at (214) 771 6205

Sincerely,

Don Clark – Project Manager

cc: R. Schackart – Kwest Group
D. Stanton – Kwest Group
515205 – project file

Regional Office
5650 Blazer Parkway, Suite 179
Dublin, Ohio 43017
p: 614.734.4664
f: 614.734.1734

Main Office
8305 Fremont Pike
Perrysburg, Ohio 43551
p: 419.874.4284
f: 419.847.4306

Regional Office
20 Noble Court, Suite 145
Heath, TX 75032
p: 972.722.3874
f: 972.722.3875



FERGUSON ENTERPRISES, INC.
FERGUSON WATERWORKS #1254
200 PARK CENTRAL BLVD
GEORGETOWN, TX 78626

Deliver To: valery.graham@ferguson.com
From: Valery Graham
Comments:

17:35:27 MAY 13 2015

FEI - HOUSTON WATERWORKS #1105

Price Quotation

Page # 1

Phone : 512-930-2262

Fax : 512-930-2388

Bid No.....: B281179

Bid Date.....: 05/11/15

Quoted By.: VLG

Cust 419-874-4284

Terms.....: NET 10TH PROX

Customer: KWEST GROUP LLC
CR245 REALIGNMENT
8305 FREMONT PIKE
PERRYSBURG, OH 43551

Ship To: KWEST GROUP LLC
CR245 REALIGNMENT
8305 FREMONT PIKE
PERRYSBURG, OH 43551

Cust PO#...: NEW PRV 6" W/ 2" BYPS

Job Name: CR245 REALIGNMENT

Item	Description	Quantity	Net Price	UM	Total
PT-DISCAUS3	DISCLAIMER ***** WE HAVE ISSUED PRICES IN EFFECT AT TIME OF BID. PRICES LISTED WITHIN THIS QUOTE ARE SUBJECT TO CHANGE WITHOUT NOTICE. THIS QUOTE IS BASED ON OUR INTERPRETATION OF THE PLANS FURNISHED. PT-DISCAUS3 ----- -----	1		EA	0.00
SP-HCMV1015	10X15 COA METER VAULT	1	13174.390	EA	13174.39
FPPUS	6X5'0 FLGXPE CL BT DI SPL	2	258.750	EA	517.50
S44100000722900	6 OMNI CAST COUP 6.90-7.22	1	129.842	EA	129.84
SZF2C6	6 DI STD DUTY REST ZIP FLG	2	44.321	EA	88.64
FTUK	6X2 DI 125# C110 FLG TEE	2	235.000	EA	470.00
CFK	2 DI C110 125# THRD COMP FLG F/ STL	2	17.160	EA	34.32
C9001BYU	6 150# PRES RED VLV 30-300 PSI	1	2683.820	EA	2683.82
SP-CVX43HU	6 H TYPE X43H STRAINER FLG	1	610.290	EA	610.29
S44100000722900	6 OMNI CAST COUP 6.90-7.22	1	129.842	EA	129.84
AFC2506FFOL	6 FLG RW DI OL GATE VLV	2	483.855	EA	967.71
FPPUG	6X1'0 FLGXPE CL BT DI SPL	1	109.700	EA	109.70
SP-CVX43HK	2 H TYPE X43H STRAINER FLG	1	208.060	EA	208.06
SP-CV9001K	2 CLA-VAL 90-01 PRV	1	1898.730	EA	1898.73



FEI - HOUSTON WATERWORKS #1105

Price Quotation

Page # 2

Phone : 512-930-2262

Fax : 512-930-2388

17:35:27 MAY 13 2015

Reference No: B281179

Item	Description	Quantity	Net Price	UM	Total
S41100023801003	2X5 STL BOLT COUP 2.38	1	39.330	EA	39.33
GBRNX	LF 2X8 BRS NIP GBL	2	39.477	EA	78.95
GBRNX24	LF 2X24 BRS NIP GBL	2	116.400	EA	232.80
IBRLF9K	LF 2 BRS 90 ELL	2	26.340	EA	52.68
GBRNX36	LF 2X36 BRS NIP GBL	2	209.090	EA	418.18
GBRNX18	LF 2X18 BRS NIP GBL	1	104.548	EA	104.55
AFC2502SSOL	2 THRD RW DI OL GATE VLV	2	205.000	EA	410.00
GBRNX12	LF 2X12 BRS NIP GBL	1	58.316	EA	58.32
SS9202	2 ADJ PIPE SDL SUPP	2	135.000	EA	270.00
SS9206	6 ADJ PIPE SDL SUPP	3	147.715	EA	443.15
IBRLFBD	LF 1X1/2 BRS BUSH	2	4.155	EA	8.31
IBRLFDT	LF 1/2 BRS TEE	2	4.390	EA	8.78
FNWX420AD	LF 1/2 BRS 600# WOG THRD 2PC FP BV	4	13.568	EA	54.27

	WIKI PRESSURE GAUGE				
	INCLUDES PROTECTIVE				
	PROTECTIVE DIAPHRAGM				
	AND PRESSURE SNUBBER				
	MODEL M933.D1				
W9834613	4-1/2 PP / SS GA 0-300 1/4 LM	2	281.500	EA	563.00
	SUBTOTAL				23765.16

Net Total: \$23765.16

Tax: \$1960.66

Freight: \$0.00

Total: \$25725.82

N/A

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). SHIPMENTS BEYOND 48 HOURS SHALL BE AT THE PRICE IN EFFECT AT TIME OF SHIPMENT UNLESS NOTED OTHERWISE. Seller not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing type of products that can be sold or put into commerce. This quote is offered contingent upon the buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at http://wolseleyna.com/terms_conditionsSale.html. Govt Buyers: All items are open market unless noted otherwise.

LEAD LAW WARNING: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable law in potable water systems anticipated for human consumption. Products with *NP in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.

Direct Cost Report

Activity Resource	Desc	Quantity Pcs	Unit	Unit Cost	Labor	Perm Material	Constr Matl/Exp	Equip Ment	Sub- Contract	Total
BID ITEM = 9000										
Description = PRV VAULT			Unit =	LS	Takeoff Quan:		1.000	Engr Quan:		1.000
.001	EXCAVATE FOR VAULT		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 510	WC: TX6219		
Includes pushing spoils back in hole and re-excavating them. Lead time for box is 4 weeks. Do not leave hole open for 4 weeks.										
1 hr to push spoils back into hole 2 hr to dig back out 3 hrs to set the stone to grade										
P5	5 MAN PIPE CREW		5.00 CH	Prod:	5.0000 HU	Lab Pcs:	3.00	Eqp Pcs:		2.00
8AT111	PICKUP TRUCK	1.00	5.00 HR	18.000				90		90
8O320	CAT 320 EXCAVATOR	1.00	5.00 IIR	59.639				298		298
F	FOREMAN	1.00	5.00 MH	29.620	301					301
L	LABORER	1.00	5.00 MII	23.850	262					262
O	OPERATOR	1.00	5.00 MH	26.200	278					278
\$1,228.87	15.0000 MH/LS	15.00 MH		[438.19]	841			388		1,229
.002	ROCK EXCAVATION		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 610	WC: TX6219		
X	CREW ON THE FLY		5.00 CH	Prod:	5.0000 CH	Lab Pcs:	1.00	Eqp Pcs:		1.00
4RE	ROCK EXCAVATION	1.00	5.00 IIR	750.000					3,750	3,750
8AT111	PICKUP TRUCK	1.00	5.00 HR	18.000				90		90
F	FOREMAN	1.00	5.00 MH	29.620	312					312
\$4,152.41	5.0000 MH/LS	5.00 MH		[172.79]	312			90	3,750	4,152
.003	SET VAULT		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 510	WC: TX6219		
P5	5 MAN PIPE CREW		5.00 CH	Prod:	5.0000 HU	Lab Pcs:	3.00	Eqp Pcs:		2.00
2CP	CRANE PERMIT	1.00	1.00 EA	80.000		80				80
4CR	CRANE RENTAL	1.00	10.00 HR	215.000					2,150	2,150
8AT111	PICKUP TRUCK	1.00	5.00 IIR	18.000				90		90
8O320	CAT 320 EXCAVATOR	1.00	5.00 HR	59.639				298		298
F	FOREMAN	1.00	5.00 MH	29.620	301					301
L	LABORER	1.00	5.00 MH	23.850	262					262
O	OPERATOR	1.00	5.00 MII	26.200	278					278
\$3,458.87	15.0000 MH/LS	15.00 MII		[438.19]	841	80		388	2,150	3,459
.004	ASSEMBLE PIPING/VALVES		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 510	WC: TX6219		
P5	5 MAN PIPE CREW		12.00 CH	Prod:	12.0000 HU	Lab Pcs:	3.00	Eqp Pcs:		1.50
8AT111	PICKUP TRUCK	1.00	12.00 HR	18.000				216		216
8O320	CAT 320 EXCAVATOR	0.50	6.00 HR	59.639				358		358
F	FOREMAN	1.00	12.00 MH	29.620	721					721
L	LABORER	1.00	12.00 MH	23.850	630					630
O	OPERATOR	1.00	12.00 MH	26.200	667					667
\$2,591.48	36.0000 MH/LS	36.00 MH		[1051.64]	2,018			574		2,591
.005	BACKFILL BOX		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 510	WC: TX6219		
P5	5 MAN PIPE CREW		3.00 CH	Prod:	3.0000 IIU	Lab Pcs:	2.00	Eqp Pcs:		2.25
8AT111	PICKUP TRUCK	1.00	3.00 IIR	18.000				54		54
8O320	CAT 320 EXCAVATOR	1.00	3.00 HR	59.639				179		179
8T205	OTR WATER TRUCK	0.25	0.75 IIR	50.512				38		38
F	FOREMAN	1.00	3.00 MH	29.620	180					180
O	OPERATOR	1.00	3.00 MH	26.200	167					167
\$617.81	6.0000 MH/LS	6.00 MH		[184.21]	347			271		618

12049.44

4359 80
Labor
Material
Equip
Subs
1711 5906 = 11970

Activity Resource	Desc	Quantity Pcs	Unit	Unit Cost	Labor	Perm Material	Constr Matl/Exp	Equip Ment	Sub- Contract	Total
BID ITEM = 9000										
Description =	PRV VAULT		Unit =	LS	Takeoff Quan:		1.000	Engr Quan:		1.000
.006	MATERIALS - VAULT/PIPING		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 610	WC: TX6219		
2FITTINGS	FITTINGS	1.00	1.00 LS	10,590.770		10,591				10,591
2NG	NON-SHRINK GROUT	1.00	1.00 LS	50.000		50				50
2VAULT	VAULT	1.00	1.00 EA	13,174.000		13,174				13,174
\$23,814.77			[]			23,815				23,815
.007	BEDDING		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 610	WC: TX6219		
6A057	# 57 (1-#4)	1.00	20.00 TON	18.850			377			377
.009	ONSITE TRUCKING		Quan:	1.00 LS	Hrs/Shift:	10.00	Cal: 610	WC: TX6219		
5HHR	HUAL - HOURLY	1.00	4.00 HR	85.000			340			340
Item Totals: 9000 - PRV VAULT										
\$36,581.21	77.0000 MH/LS		77.00 MH	[2285.02]	4,358	23,895	717	1,711	5,900	36,581
36,581.210	1 LS				4,358.45	23,894.77	717.00	1,710.99	5,900.00	36,581.21

COST - \$36,581.21 *** Report Totals *** 77.00 MH 4,358 23,895 717 1,711 5,900 36,581

>>> Indicates Non Additive Activity

-----Report Notes:-----

The estimate was prepared with TAKEOFF Quantities.

This report shows TAKEOFF Quantities with the resources.

"Unreviewed" Activities are marked.

Bid Date: 02/18/15 Owner: Engineering Firm:

Estimator-In-Charge: DS

JOB NOTES

Estimate created on: 02/12/2015 by User#: 7 - Doug Stanton

Source estimate used: N:\HEAVYBIDKWEST\EST\ESTMAST

*****Estimate created on: 04/16/2015 by User#: 10 - Doug Stanton

Source estimate used: N:\HEAVYBID\EST\515205

* on units of MII indicate average labor unit cost was used rather than base rate.

[] in the Unit Cost Column = Labor Unit Cost Without Labor Burdens

In equipment resources, rent % and EOE % not = 100% are represented as XXX%YYY where XXX=Rent% and YYY=EOE%

-----Calendar Codes-----

410	4 x 10 Hr Week
508	5 x 8 Hr Week
509	5 x 9 Hr Week
510	5 X 10 HR WEEK
511	5 X 11 HR WEEK
512	5 X 12 HR WEEK
608	6 x 8 Hr Week
610	6 X 10 HR WEEK (Default Calendar)
611	6 X 11 HR WEEK
612	6 X 12 HR WEEK
710	7 X 10 HR WEEK
711	7 X 11 HR WEEK

Kwest Group
5152051R1
Doug Stanton

CR 245 transfer file

Direct Cost Report

Page 3
05/15/2015 15:44

Activity Resource	Desc	Pcs	Quantity Unit	Unit Cost	Labor	Perm Material	Constr Matl/Exp	Equip Ment	Sub- Contract	Total
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BID ITEM = 9000

Description = PRV VAULT

Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

712	7 x 12 Hr Week
D40	Double Sh. - 40 Hr
D50	Double Sh - 50 Hr Week
D60	Double Sh.- 60 Hr Week
T40	Triple Sh.- 40 Hr Week
WSA	WEEKEND SATURDAY (1.5T)
WSS	WEEKEND SATURDAY - SUNDAY
WSU	WEEKEND SUNDAY (2.0T)

511S.1 Description

This item shall govern the valves furnished and installed as indicated on the Drawings. Unless otherwise indicated on the Drawings, all valves 3 inches and larger shall be AWWA-type valves of suitable design and fully equipped for service buried in the earth, without need for further modification and shall be wrapped with 8-mil (0.2 mm) polyethylene film with all edges and laps securely taped to provide a continuous wrap. Where not indicated, the Contractor may use valves with any type end-joint allowed for fittings of the pipe class being used. Unless otherwise indicated on the Drawings, all valve stems shall be adjusted to situate the operating nut not more than 24 inches (0.6 meters) below the proposed ground or paving surface of the finished project. Laydown valves shall not be used unless indicated otherwise on the Drawings by call out.

511S.2 Materials

The Contractor shall submit descriptive information and evidence that the materials and equipment the Contractor proposes for incorporation in the Work is of the kind and quality that satisfies the specified functions and quality.

A) Samples, Inspection and Testing Requirements:

All tests and inspections called for by the applicable standards shall be performed by the manufacturer. Upon request, results of these tests shall be made available to the purchaser.

B) Other Requirements:

Each submittal shall be accompanied by:

1) Complete data covering:

- a). the operator, including type and size, model number, etc.,
- b). the manufacturer's name and address of his nearest service facility,
- c). the number of turns to fully open or close the valve.

2) Detailed instructions for calibrating the limit stops for open and closed positions, and

3) Any other information that may be necessary to operate and maintain the operator.

4) Complete dimensional data and installation instructions for the valve assembly as it is to be installed, including the operator.

5) Complete replacement parts lists and drawings, identifying every part for both the valve and operator.

511S.3 Valves

A) Iron-Body Gate Valves

Resilient-seated gate valves for potable or reclaimed service, including tapping valves, shall conform to AWWA C-509.

Reduced-wall, resilient-seated gate valves for potable or reclaimed service, including tapping valves, shall conform to AWWA C-515.

Metal-seated gate valves for potable or reclaimed service, including tapping valves, shall conform to AWWA C-500.

- 1) Stem Seals: All valves shall have approved O-ring type stem seals. At least two O-rings shall be in contact with the valve stem where it penetrates the valve body.
- 2) Operation: All valves shall have non-rising stems with a 2" (50 mm) square operating nut, or with a spoke type handwheel when so ordered, turning clockwise to close.
- 3) Gearing: Gate valves in 24 inch (610 mm) and larger sizes shall be geared and, when necessary for proper bury depth and cover, shall be the horizontal bevel-geared type enclosed in a lubricated gear case.
- 4) Bypass: Unless otherwise indicated on the Drawings, 16 inch (406 mm) and larger metal-seated gate valves shall be equipped with a bypass of the non-rising stem type which meets the same AWWA standard required for the main valve.
- 5) Valve Ends: Valve ends shall be push-on, flanged or mechanical joint, as indicated or approved.

Tapping valves shall have inlet flanges conforming to MSS SP-60, with boltholes drilled per ANSI B16.1 Class 125. Seat rings and body casting shall be over-sized as required to accommodate full size cutters; the outlet end shall be constructed and drilled to allow the drilling machine adapter to be attached directly to the valve.

- 6) Gear Case: All geared valves shall have enclosed gear cases of the extended type, attached to the valve bonnet in a manner that makes it possible to replace the stem seal without disassembly and without disturbing the gears, bearing or gear lubricant. Gear cases shall be designed and fabricated with an opening to atmosphere so that leakage past the stem seal does not enter the gear case.
- 7) Valve Body: Double disc gate valves in 16 inch (406 mm) and larger sizes installed in the horizontal position shall have bronze rollers, tracks, scrapers, etc. For reclaimed water valves, the body shall be manufactured in purple, factory painted purple, or field painted purple.

B) Butterfly Valves:

Unless otherwise indicated, all valves shall conform to the current "AWWA" Standard C-504, "Rubber-Seated Butterfly Valves", Class 150B, except as modified or supplemented herein.

1) Functional Requirements

- a). Valves shall be the short body design and shall have flanged connections on both ends unless otherwise called for.
- b). Valves shall be of such design that the valve discs will not vibrate or flutter when operated in a throttled position. Valve discs shall be secured to the shafts by means of keys or pins so arranged that the valve discs can be readily removed without damage thereto. All keys and pins used in securing valve discs to shafts shall be stainless steel or monel. Valve discs shall be stainless steel or ductile iron, ASTM A 536, Grade 65-45-12 (448-310-12); seating edge shall be stainless steel or other corrosion resistant material.

- c). Valve shafts shall be constructed of wrought stainless steel or monel. The ends of the shaft shall be permanently marked to indicate the position of the disc on the shaft.
- d). All buried valves shall have approved manufacturer's O-ring type or split V type "Chevron" shaft seals. When O-ring seals are used, there shall be at least two O-rings in contact with the valve shaft where it penetrates the valve body.

On 24 inch (635 mm) and larger valves, the seat shall be completely replaceable and/or adjustable with common hand tools without disassembling the valve from the pipeline.

Rubber seats located on the valve disc shall be mechanically secured with stainless steel retainer rings and fasteners.

- e). Unless otherwise indicated, valves shall be provided with manual operators with vertical stems and 2 inches (50 mm) square operating nut turning clockwise to close and equipped with a valve disc position indicator. All keys or pins shall be stainless steel or monel. Buried valves shall have the valve stems extended or adjusted to locate the top of the operating nut no more than 24 inches (0.6 meter) below finish grade.
- f). Unless otherwise indicated, motorized butterfly valves shall be equipped with 230/460 volt, 3-phase reversing motor operators, extended as required to locate the center line of the operator shaft approximately 4 feet to 4 feet, 6 inches (1.2 to 1.4 meters) above finish grade. Operators shall be equipped with cast iron or malleable iron manual override hand wheel with a valve position indicator, local push button controls, lighted status/position indicator, torque and travel limit switches and all switches, relays and controls (except external power and signal wiring) necessary for both local and remote operation.

2) Performance Requirements

- a). Unless otherwise indicated, valve operators shall be sized to seat, unseat, open and close the valve with 150 psi (1 megapascal) shutoff pressure differential across the disk and allow a flow velocity of 16 feet (4.9 meters) per second past the disc in either direction.
- b). Motorized valve motors shall be capable of producing at least 140 percent of the torque required to operate the valves under conditions of maximum non-shock shutoff pressure without exceeding a permissible temperature rise of 131°F over 104°F ambient (55 degrees Celsius over 40 degrees Celsius ambient); they shall have a duty rating of not less than 15 minutes and shall be capable of operating the valve through 4 1/2 cycles against full unbalanced pressure without exceeding the permissible temperature rise. Motors shall be suitable for operating the valve under maximum differential pressure when voltage to motor terminals is 80 percent of nominal voltage. Motor bearings shall be permanently lubricated and sealed.

C) Ball Valves:

Ball valves shall be brass, bronze, stainless steel or PVC as indicated on the Drawings or Details or as approved by the Engineer or designated representative.

D) Air-Vacuum Release Valves

- 1) Valves shall be combination air-release, air-vacuum units having small and large orifice units contained and operating within a single body or assembled unit.

The small orifice system shall automatically release small volumes of air while the pipe is operating under normal conditions. The large air-vacuum orifice system shall automatically exhaust large volumes of air while the pipe is being filled and shall permit immediate re-entry of air while being drained.

Valves shall be rated for at least 150 psi (1 megapascal) {maximum} normal service pressure.

2) Material Requirements

Valve exterior bodies and covers shall be cast iron or reinforced nylon.

Internal bushings, hinge pins, float guide and retaining screws, pins, etc., shall be stainless steel, bronze, nylon or Buna-N rubber.

Orifice seats shall be Buna-N rubber.

Floats shall be stainless steel, nylon or Buna-N rubber, rated at 1000 psi (6.9 megapascals).

E) Fire Hydrants

All fire hydrants shall be Dry Barrel, Traffic Model (break-away), Post Type having Compression Type Main Valves with 5 1/4" (133 mm) opening, closing with line pressure.

1) Applicable Specifications

AWWA C-502 current: "AWWA Standard for Dry-Barrel Fire Hydrants".

NFPA 1963: "National (American) Standard Fire Hose Coupling Screw Thread" and City of Austin 4 inch (102 mm) Fire Hose Connection Standard (Available upon request from the Austin Water Utility's Standards Committee Chairperson at 972-0204).

ANSI A-21.11 current: "American National Standard for Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings".

2) Functional Requirements

Design Working Pressure shall be 200 psi (1.38 megapascals) and a test pressure of 400 psi (2.76 megapascals).

Inlet shall be side connection hub end for mechanical joint (ANSI A-21.11-current). Shoe shall be rigidly designed to prevent breakage.

Lower Barrel shall be rigid to assure above ground break at traffic feature. Bury length of hydrant shall be four (4) feet (1.2 meters) minimum, five (5) feet (1.5 meters) maximum (hydrant lead pipe may be elbowed up from main using restrained joints; flanged joints in lead pipes are not allowed). Flange type connections between hydrant shoe, barrel sections and bonnet shall have minimum of 6 corrosion resistant bolts.

Hydrant Main Valve shall be 5 1/4 inch (133 mm) I.D. Valve stem design shall meet requirements of AWWA C502, with Operating Nut turning clockwise to close. Operating Nut shall be pentagonal, 1 1/2 inch (38 mm) point to flat at base, and 1 7/16 inches (36.5 mm) at top and 1 inch (25 mm) minimum height. Seat ring shall be bronze (bronze to bronze threading), and shall be removable with lightweight stem wrench. Valve mechanisms shall be flushed with each operation of valve; there shall be a minimum of two (2) drain ports.

Traffic Feature shall have replaceable breakaway ferrous metal stem coupling held to stem by readily removable type 302 or 304 stainless steel fastenings. Breakaway flange or frangible lugs shall be designed to assure aboveground break. Breakaway or frangible bolts will not be acceptable.

Outlet Nozzles shall be located approximately 18 inches (450 mm) above ground. Each hydrant shall have two (2) 2 1/2 inch (63.5 mm) nozzles 180 degrees apart with National (American) Standard Fire Hose Coupling Screw Thread NFPA 1963 and one (1) 4 inch (102 mm) pumper nozzle. Nozzles shall be threaded or cam-locked, O-ring sealed, and shall have type 302 or 304 stainless steel locking devices. Nozzle caps (without chains) and cap gaskets shall be furnished on the hydrant. The cap nut shall have the same configuration as the operating nut.

Hydrants shall be Dry-Top Construction, factory lubricated oil or grease with the lubricant plug readily accessible.

A blue Type II-B-B reflectorized pavement marker, conforming to Standard Specification Item No. 863S, shall be placed 2 to 3 feet (0.6 to 0.9 meters) offset from the centerline of paved streets, on the side of and in line with, all newly installed fire hydrants.

Hydrant shall have double O-ring seals in a bronze stem sheath housing to assure separation of lubricant from water and shall have a weather cap or seal, or both, as approved by the Owner, to provide complete weather protection.

3) Material Requirements

All below ground bolts shall be corrosion resistant. The hydrant valve shall be Neoprene, 90-durometer minimum. The seat ring, drain ring, operating nut and nozzles shall be bronze, AWWA C-502 current, containing not over 16 percent zinc. Break-away stem coupling shall be of ferrous material; its retaining pins, bolts, nuts, etc. of type 302 or 304 stainless steel.

Coatings shall be durable and applied to clean surfaces. Exterior surfaces above ground shall receive a coating of the type and color specified by the Owner. The coating shall be applied according to coating manufacturer's specifications. Other exposed ferrous metal shall receive asphalt-based varnish, or approved equal, applied according to the coating manufacturer's specifications.

F) Pressure/Flow Control Valves:

All control valves to regulate pressure, flow, etc., shall be approved by Chisholm Trail S.U.D. or their designated representative.

G) Drain Valves:

Drain valve materials and installation shall be approved by Chisholm Trail S.U.D. or their designated representative.

H) Valve Stem Extensions:

Valve stem extensions shall consist of a single piece of the required length with a socket on one end and a nut on the other.

511S.4 Construction Methods

A) Setting Valves, Drains and Air Releases

Unless otherwise indicated, main line valves, drain valves and piping, air and vacuum release assemblies and other miscellaneous accessories shall be set and jointed in the manner described for cleaning, laying, and jointing pipe.

Unless otherwise indicated, valves shall be set at the locations shown on the Drawings and such that their location does not conflict with other appurtenances such as curb ramps. Valves shall be installed so that the tops of operating stems will be at the proper elevation required for the piping at the location indicated above. Valve boxes and valve stem casings shall be firmly supported and maintained, centered and aligned plumb over the valve or operating stem, with the top of the box or casing installed flush with the finished ground or pavement in existing streets, and installed with the top of the box or casing approximately 6 inches (150 mm) below the standard street subgrade in streets which are excavated for paving construction or where such excavation is scheduled or elsewhere as directed by the Engineer or designated representative.

Drainage branches or air blowoffs shall not be connected to any sanitary sewer or submerged in any stream or be installed in any other manner that will permit back siphonage into the distribution system. Every drain line and every air release line shall have a full sized independent gate valve flanged directly to the main. Flap-valves, shear gates, etc., will not be accepted.

B) Setting Fire Hydrants:

Fire hydrants shall be located in a manner to provide accessibility and in such a manner that the possibility of damage from vehicles or conflict with pedestrian travel will be minimized. Unless otherwise directed, the setting of any hydrant shall conform to the detail.

Fire hydrants shall not be installed within nine feet (2.75 meters) vertically or horizontally of any sanitary sewer line regardless of construction.

All hydrants shall stand plumb; those near curbs shall have the 4-inch (102 mm) nozzle facing the curb and perpendicular to it. The hydrant bury mark shall be located at ground or other finish grade; nozzles of all new hydrants shall be approximately 18 inches (450 mm) above grade. Lower barrel length shall not exceed 5 feet (1.5 meters). Barrel extensions are not permitted unless approved by the Engineer or designated representative. Each hydrant shall be connected to the main by 6-inch (152 mm) ductile iron pipe; a 6-inch (152 mm) gate valve shall be installed in the line for individual shutoff of each new hydrant.

Below each hydrant, a drainage pit compliant with C.T.S.U.D. details shall be excavated and filled with compacted coarse gravel or broken stone mixed with coarse sand under and around the bowl of the hydrant, except where thrust blocking is located.

The hydrant drainage pit shall not be connected to a sanitary sewer. The drain gravel shall be covered with filter fabric to prevent blockage of voids in the gravel by migration of backfill material. The bowl of each hydrant shall be well braced against unexcavated earth at the end of the trench with concrete thrust blocking (taking care not to obstruct the hydrant drain holes), or the hydrant shall be tied to the pipe with approved metal harness rods and clamps. The fire line shall be provided with joint restraint from the main line to the fire hydrant. Hydrants shall be thoroughly cleaned of dirt or foreign matter before setting.

Fire hydrants on mains under construction shall be securely wrapped with a poly wrap bag or envelope taped into place. When the mains are accepted and placed in service the bag shall be removed.

C) Plugging Dead Ends

Standard plugs shall be inserted into the bells of all dead ends of pipes, tees or crosses and spigot ends shall be capped.

D) Protective Covering:

Unless otherwise indicated, all flanges, nuts, bolts, threaded outlets and all other steel component shall be coal tar coated and shall be wrapped with standard minimum 8-mil (0.2 mm) low density polyethylene film or a minimum 4-mil (0.1 mm) cross laminated high-density polyethylene meeting ANSI/AWWA Specification C-105-current, with all edges and laps taped securely to provide a continuous and watertight wrap. Repair all punctures of the polyethylene, including those caused in the placement of bedding aggregates, with duct tape to restore the continuous protective wrap before backfilling. For reclaimed water piping, the polyethylene shall be purple.

E) Valve Box, Casing and Cover:

Stems of all buried valves shall be protected by valve box assemblies. Valve box castings shall conform to ASTM A 48, Class 30B. Testing shall be verified by the manufacturer at the time of shipment. Each casting shall have cast upon it a distinct mark identifying the manufacturer and the country of origin. Valve boxes and covers for potable water shall be round. Valve boxes and covers for reclaimed water piping shall be square and shall have "Reclaimed Water" indicated on the lid.

511S.5 Measurement

All types of valves will be measured per each. Fire hydrants and drain valve assemblies will be measured per each. Fire Hydrant barrel extensions will be measured per vertical foot (meter: 1 meter equals 3.28 feet). Pressure/Flow control valve assemblies and both manual and automatic air release assemblies will be measured per each.

Bury depths exceeding 5.5 feet (1.68 meters) are defined as Additional Bury Depths. Additional bury depths will only be measured if indicated on the Drawings and identified in the Standard Contract Bid Form; otherwise, the unit bid price for each completed unit includes all depths.

511S.6 Payment

Payment shall include full compensation, in accordance with the pay item established in the bid, for excavation, furnishing, hauling and placing valves, drain valve assemblies, fire hydrants and barrel extensions including anchorage and all incidental materials and work; preparing, shaping, dewatering, bedding, placing and compacting backfill materials and for all other incidentals necessary to complete the installation, as indicated in the Drawings, complete in place.

- A) Valves: Valves will be paid for at the unit bid price for the size and type valve installed, including valve stem casing and cover, excavation and backfill, setting, adjusting to grade, anchoring in place, and other appurtenances necessary for proper operation.
- B) Fire Hydrants: Fire Hydrants installation shall be paid for at the unit bid price, which includes all necessary labor and materials to set, adjust to grade and anchor the hydrant body, barrel extensions, concrete block, gravel drain, and other appurtenances necessary for proper operation; but shall not include pipe and valve between the main line and fire hydrant base.

- C) Pressure or Flow Control Valve Assemblies: Pressure control and flow control valve assemblies will be paid for at the unit bid price, including box or vault, setting, adjusting to grade, anchoring in place, adjusting the control device to the required conditions, providing other appurtenances necessary for proper operation, and placing in operation.
- D) Drain Valve Assemblies: Drain valve installation shall be paid for at the unit bid price, which includes all necessary labor and materials to set, adjust to grade and anchor the bends, vertical piping, blind flange, joint restraint devices, concrete blocking, concrete pad, and other appurtenances necessary for proper operation; but shall not include pipe and valve between the main line and drain valve buried bend.
- E) Manual Air Release Assemblies: Manual air release installations will be paid for at the unit bid price and shall include valves, fittings, pipe, tapping the main, box and cover, and other appurtenances necessary for proper operation.
- F) Automatic Combination Air/Vacuum Release Valve Assembly: Automatic air-vacuum release assemblies will be paid for at the unit bid price and will include the main line tap or outlet, all pipe, valves, fittings, box or vault and cover, and other appurtenances necessary for proper operation.
- G) Additional Bury Depth: Additional bury depth will be paid for at the unit bid price, which will include all work necessary to install units with bury depths exceeding 5.5 feet (1.68 meters).
- H) Fire Hydrant Barrel Extensions: Hydrant barrel extensions will be paid for at the unit bid price which will include necessary hardware and rod extensions.

Payment, when included as a contract pay item, will be made under one of the following:

Pay Item No. 511S-A:	Valves, _____ Type, _____ Diameter	Per Each.
Pay Item No. 511S-B:	Fire Hydrants	Per Each.
Pay Item No. 511S-B1:	Relocate Existing Fire Hydrants	Per Each.
Pay Item No. 511S- C:	Pressure or Flow Control Valve Assemblies	Per Each.
Pay Item No. 511S- D:	Drain Valve Assemblies	Per Each.
Pay Item No. 511S- E:	Manual Air Release Assemblies, _____ Diameter	Per Each.
Pay Item No. 511S- F:	Automatic Combination Air/Vacuum Release Valve Assembly, _____ Diameter.	Per Each.
Pay Item No. 511S- G:	Additional Bury Depth	Per Vertical Foot.
Pay Item No. 511S-H:	Fire Hydrant Barrel Extensions	Per Vertical Foot

END

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>
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Specification 511S, "Water Valves"

<u>Designation</u>	<u>Description</u>
Item No. 510	Pipe

<u>SPECIFIC CROSS REFERENCE MATERIALS (Continued)</u>
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Specification 511S, "Water Valves"

ANSI/AWWA Standards

<u>Designation</u>	<u>Description</u>
A-21.11	American National Standard for Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings
C-105	American National Standard for Polyethylene Encasement for Ductile-Iron Pipe

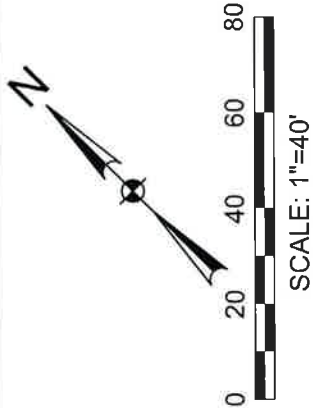
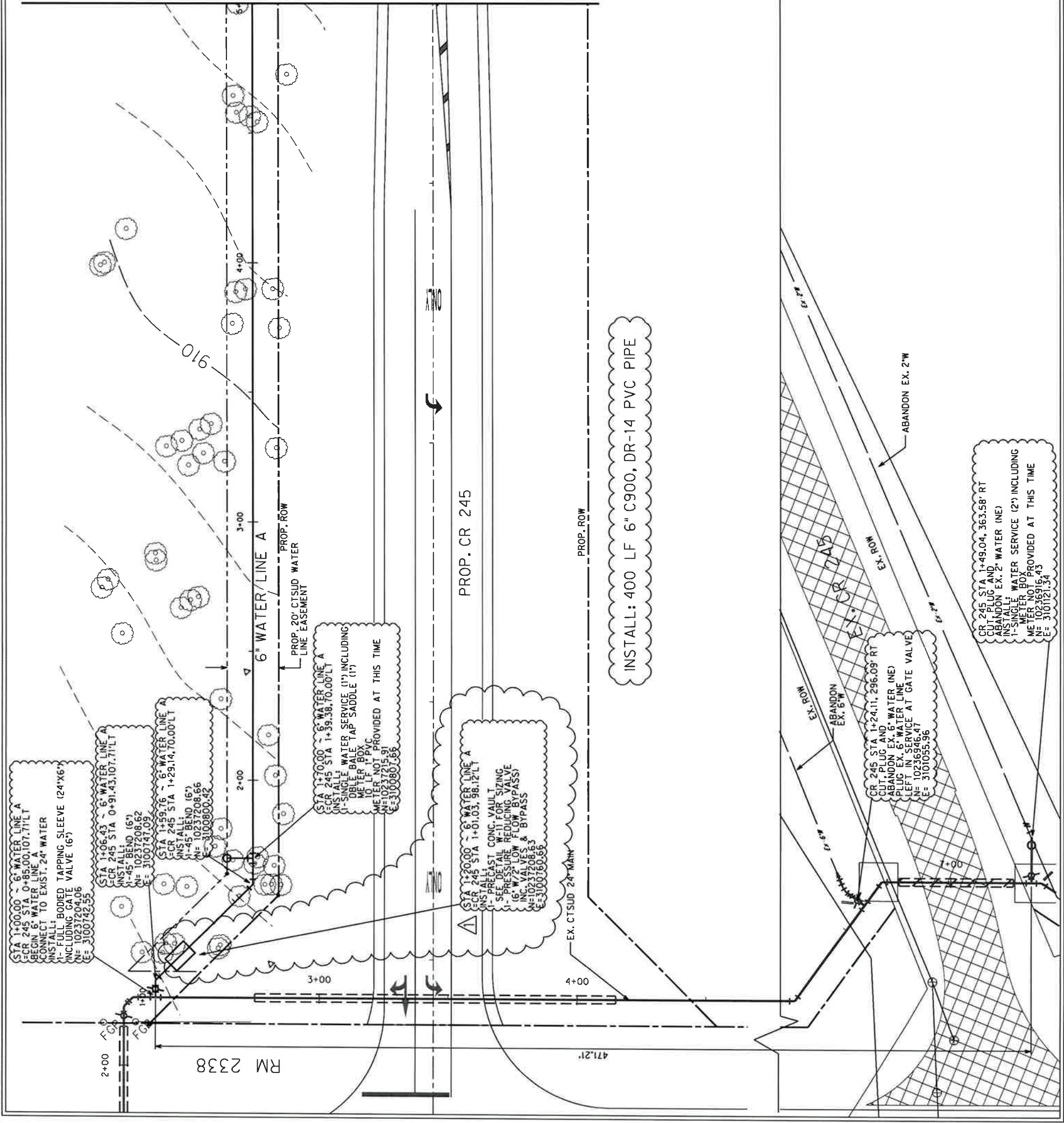
C-500	Metal-Seated Gate Valves for Water Supply Service
C-502	Dry-Barrel Fire Hydrants
C-504	Rubber-Seated Butterfly Valves
C-509	Resilient Seated Gate Valves for Water and Sewerage Systems
C-515	Reduced-Wall, Resilient-Seated Gate Valves For Water Supply Service

ASTM Standards

<u>Designation</u>	<u>Description</u>
ASTM A48/A48M	Specification for Gray Iron Castings
ASTM A 536	Specification for Ductile Iron Castings

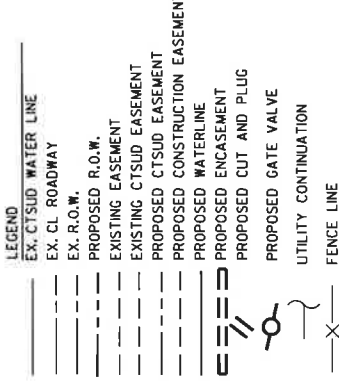
National Fire Protection Association (NFPA)

1963	National (American) Standard Fire Hose Coupling Screw Thread
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NOTES:

1. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND PROTECTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
2. ALL PROPOSED CTSUD WATER LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 36\"/>



HALFF
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PROJECT No.	AVD - 28129
DATE	
REVISION	
NO.	1
DATE	4/20/15
DESCRIPTION	ADD VALVE AS SHOWN
BY	
CHECKED BY	
DATE	
PROJECT No.	AVD - 28129
DATE	
REVISION	
NO.	1
DATE	4/20/15
DESCRIPTION	ADD VALVE AS SHOWN
BY	
CHECKED BY	
DATE	
PROJECT No.	AVD - 28129
DATE	
REVISION	
NO.	1
DATE	4/20/15
DESCRIPTION	ADD VALVE AS SHOWN
BY	
CHECKED BY	
DATE	

6" WATER LINE A
PP_04

SHEET NUMBER

MATCHLINE STA 5+00 ~ SEE SHEET 02

