City of Cheyenne - Purchasing
2101 O'Neil Avenue, Room 309
Cheyenne, WY 82001
307-773-1045
tbarttelbort@cheyennecity.org

ADDENDUM NUMBER TWO
BID S-5-22

To: All Prospective Bidders and all others concerned

From: City of Cheyenne, Purchasing Manager, TJ Barttelbort

Date: November 1, 2021

Subject: Addendum Number Two to Bid S-5-22 for the US 30 Greenway Pump Station Replacement

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The changes, clarifications, omissions, additions, and/or alterations in, on, and to the bid information and specifications shall apply to the Invitation For Bid submitted for and to the project indicated above. Except as modified by this Addendum Number Two, all of the terms and provisions of the Invitation for Bid for the above listed project remain in full force and effect. This Addendum Number Two supersedes all previous instructions pertaining to the items listed:

REVISED BID SCHEDULE:

The Governing Body of the City of Cheyenne, Wyoming ("the Governing Body") will receive sealed bid proposals at the Office of the City Purchasing Agent, located in Room 309 of the Municipal Building at 2101 O'Neil Avenue, Cheyenne, WY 82001, until 2:00 p.m. local time on the **19th Day of November, 2021** ~~*15th day of October, 2021*~~, for the **"US 30 Greenway Pump Station Replacement"** project.

Questions will be received until 5:00 pm local time on **Friday, November 5, 2021**, after which no additional questions will be accepted.

The City will respond via Addendum, no-later-than 5:00 pm local time on **Tuesday, November 9, 2021**.

BID ITEM REVISION:

Bid items have been split into two (2) separate Bid Schedules.

The original Itemized Bid Sheet has been updated to remove the Low Water Crossing Line Item, and has added the Remove and Replace Storm Check Valve Line Item.

Bid Alternative #1 has been added for the relocation of the Low Water Crossing.

Bidders shall provide a price for each Bid Schedule with their Bid Submission.

Bidders shall assume that they will be required to Mobilize separately to the site two (2) times.

ADDITIONAL DOCUMENTATION:
An updated "Method of Measurement and Basis of Payment" section is included with this Addendum Two.

An Access Exhibit is included in this Addendum Two.

Information on the R&R Check Valve Line Item, is included in this Addendum Two.

ADDENDUM TWO ACKNOWLEDGED:

BY_____ TITLE_____
(Addendum **must** be signed and returned with bid or receipt of the addendum **must** be acknowledged on the Invitation to Bid).

US 30 GREENWAY PUMP STATION REPLACEMENT
BID TAB
BID S-5-22

ITEM #	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
01000	PERFORMANCE BOND	BOND	1.00		
01000	MOBILIZATION	LS	1.00		
01000	FORCE ACCOUNT	FA	10,000.00	$ 10,000.00	$ 10,000.00
01050	TRAFFIC CONTROL	LS	1.00		
02725	REMOVE AND REPLACE STORM WATER PUMP STATION	LS	1.00		
02725	REMOVE AND REPLACE STORM CHECK VALVE	LS	1.00		
				TOTAL	

COMPANY NAME:_____
ADDRESS:_____
CITY, STATE, ZIP:_____

BIDDER'S SIGNATURE:_____

US 30 GREENWAY PUMP STATION REPLACEMENT
BID TAB - BID ALTERNATIVE #1
BID S-5-22

ITEM #	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
01000	MOBILIZATION	LS	1.00		
01000	FORCE ACCOUNT	FA	10,000.00	$ 10,000.00	$ 10,000.00
03340	RELOCATE LOW WATER CROSSING	LS	1.00		
				TOTAL	

COMPANY NAME:_____
ADDRESS:_____
CITY, STATE, ZIP:_____

BIDDER'S SIGNATURE:_____

Section 01041 Project Coordination:

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Add the following as Part 4, Method of Measurement and Basis of Payment:

4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be allowed for other items not specifically defined under this section or shown on the contract Bid Schedule.

B. **Mobilization** will be measured as the complete series of setups required to complete the contract.

C. Any required insurance, bid bonds, performance and payment bonds, warranty bonds, permit fees and other fees required by the scope of work included in the contract documents shall be measured under **Bonds, Insurance, and Fees** and be lump sum.

4.02 BASIS OF PAYMENT

A. **Mobilization** will be paid for at the contract Lump Sum price. No adjustment to the contract price for Mobilization will be allowed unless authorized by the ENGINEER. Payment shall be made with a monthly estimate based on the percentage of the original contract amount earned in accordance with the following:
   i. At the first request, up to 50% of the bid amount for Mobilization will be paid.
   ii. When 50% of the original contract amount in a given construction period is earned, a further 30% of the amount of the bid for this item will be paid.
   iii. At the final pay request, the remainder of the bid amount for Mobilization will be paid.

B. Payment for **Bonds, Insurance, and Fees** will be paid for at the contract Lump Sum price. No adjustment to the contract price for these items will be allowed unless authorized by the ENGINEER. Payment shall be in accordance with the following:
   i. At the first request, up to 90% of the bid amount for Bonds, Insurance, & Fees will be paid.

C. Full compensation for items not specifically separated for payment under this section or shown on the project Bid Schedule shall be considered as included in the prices paid for the various other contract items and no additional compensation shall be allowed.

D. All items under this section are subject to a five percent (5%) retainage that will be withheld until final payment.

Section 04000 Remove and Replace Stormwater Pump Station

PART 4 METHOD OF MEASUREMENT BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement of work and materials associated with Remove and Replace Stormwater Pump Station, as designated on the contract design plans shall be measured as a single unit lump sum. Subsidiary items include, but not be exclusive to, include the Bill of Materials listed on the contract design plans, quality control testing, demolition, piping and appurtenances, backfill, resurfacing, reseeding, and restoration, etc. to complete the work prescribed. Any minor items of labor, or materials not specifically noted in this Special Provision, General Specifications, or prescribed with the Contract Design Plans which is necessary for the proper completion of the work described will be considered incidental and are to be included in the contract.

4.02 BASIS OF PAYMENT

A. Payment for Remove and Replace Stormwater Pump Station shall be made at the contract lump sum price. Major materials as described by the Bill of Materials that are installed and operational on jobsite over 30 days may be considered for partial payment upon receipt of documentation for the materials (i.e. vendor invoice, bill of lading, sub-contractor invoicing etc.) at the discretion of ENGINEER and OWNER.

B. Full compensation for items not specifically separated for payment under this section or shown on the project Bid Schedule shall be considered as included in the prices paid for the other various contract items and no additional compensation shall be allowed.

C. Payment shall be made under:

Pay Item	Pay Unit
Remove and Replace Stormwater Pump Station	LS

D. All items under this section are subject to a five percent (5%) retainage that will be withheld until final payment.

Section 04001 Relocation of Low Water Crossing

PART 4 METHOD OF MEASUREMENT BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. Measurement of work and materials associated with Relocate Low Water Crossing, as designated on the contract design plans shall be measured as a single unit lump sum. Subsidiary items include, but not be exclusive to, include the Bill of Materials listed on the contract design plans, quality control testing, demolition, restoration, piping and appurtenances, backfill, resurfacing, reseeding and restoration, etc. to complete the work prescribed. Any minor items of labor, or materials not specifically noted in this Special Provision, General Specifications, or prescribed with the Contract Design Plans which is necessary for the proper completion of the work described will be considered incidental and are to be included in the contract.

4.02 BASIS OF PAYMENT

A. Payment for Relocate Low Water Crossing shall be made at the contract lump sum price. Major materials as described by the Bill of Materials that are installed and operational on jobsite over 30 days may be considered for partial payment upon receipt of documentation for the materials (i.e., vendor invoice, bill of lading, sub-contractor invoicing etc.) at the discretion of ENGINEER and OWNER.

B. Full compensation for items not specifically separated for payment under this section or shown on the project Bid Schedule shall be considered as included in the prices paid for the other various contract items and no additional compensation shall be allowed.

C. Payment shall be made under:

Pay Item	Pay Unit
Relocate Low Water Crossing	LS

D. All items under this section are subject to a five percent (5%) retainage that will be withheld until final payment.

Section 04002 Replace Existing Check Valve

PART 4 METHOD OF MEASUREMENT BASIS OF PAYMENT

4.02 METHOD OF MEASUREMENT

B. Measurement of work and materials associated with Replace Existing Check Valve, as designated on Addenda 1 shall be measured as a single unit lump sum. Subsidiary items include, but not be exclusive to, salvage and hauling of the existing tideflex valve, installation of the proposed checkmate inline check valve, quality control testing, demolition, backfill, resurfacing, reseeding and restoration, etc. to complete the work prescribed. Any minor items of labor, or materials not specifically noted in this

Special Provision, General Specifications, or prescribed with the Contract Design Plans which is necessary for the proper completion of the work described will be considered incidental and are to be included in the contract.

4.02 BASIS OF PAYMENT

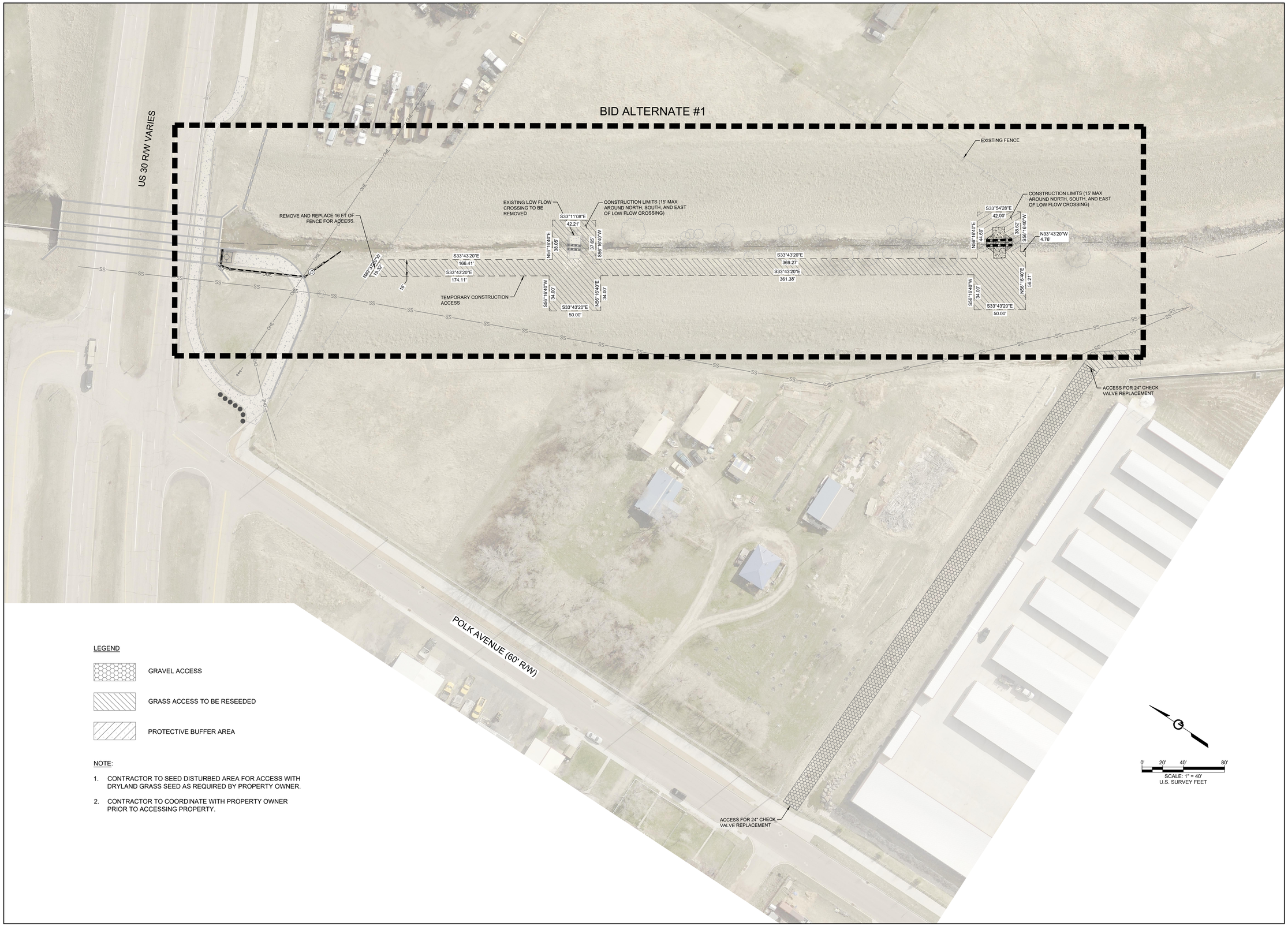
A. Payment for Replace Existing Check Valve shall be made at the contract lump sum price..

B. Full compensation for items not specifically separated for payment under this section or shown on the project Bid Schedule shall be considered as included in the prices paid for the other various contract items and no additional compensation shall be allowed.

C. Payment shall be made under:

Pay Item	Pay Unit
Replace Existing Check Valve	LS

D. All items under this section are subject to a five percent (5%) retainage that will be withheld until final payment.



LEGEND

- GRAVEL ACCESS
- GRASS ACCESS TO BE RESEEDED
- PROTECTIVE BUFFER AREA

NOTE:

1. CONTRACTOR TO SEED DISTURBED AREA FOR ACCESS WITH DRYLAND GRASS SEED AS REQUIRED BY PROPERTY OWNER.
2. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER PRIOR TO ACCESSING PROPERTY.

SCALE: 1" = 40'
U.S. SURVEY FEET

CivilWorx
4025 Automation Way
Suite B2
Fort Collins, CO 80525
(970) 698-6046
CivilWorxeng.com

NO.	BY	DATE	REVISIONS
1	CWK	7/29/21	REVISED COORDINATION

US30 GREENWAY PUMP STATION

ACCESS EXHIBIT

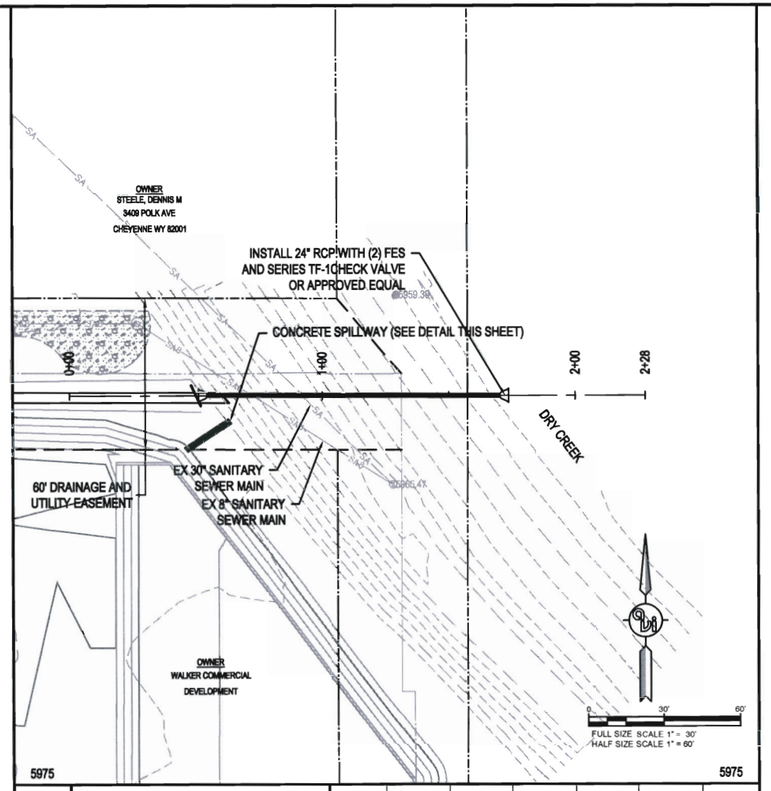
DATE SUBMITTED: 6/14/2021

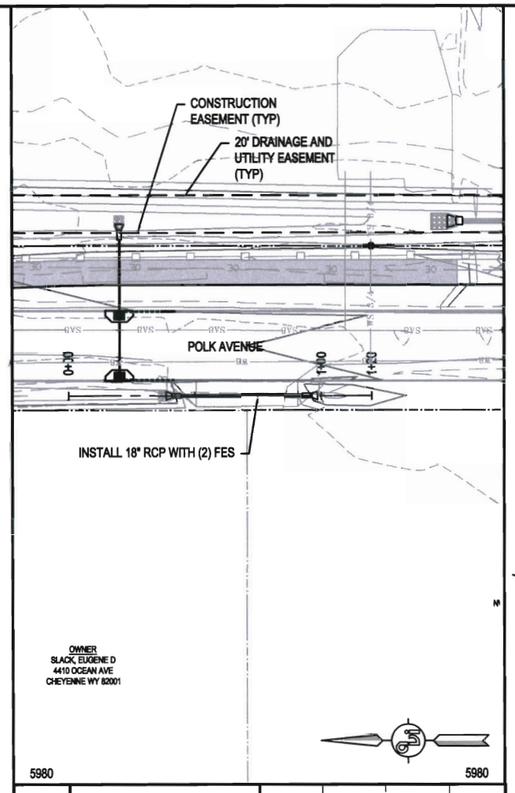
PREPARED FOR: CITY OF CHEYENNE

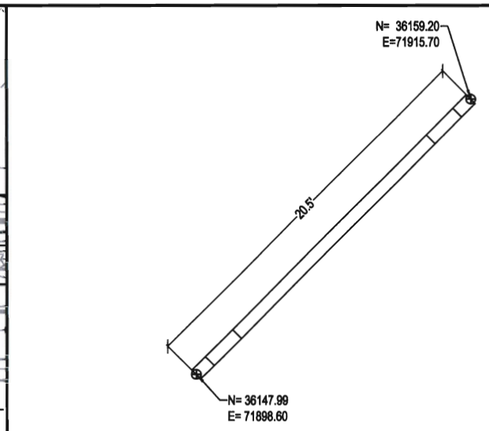
SHEET NUMBER
EXH1
X OF 7 SHEETS

SCALE
VERTICAL: N/A
HORIZONTAL: 1" = 40'

JOB NUMBER
C20019





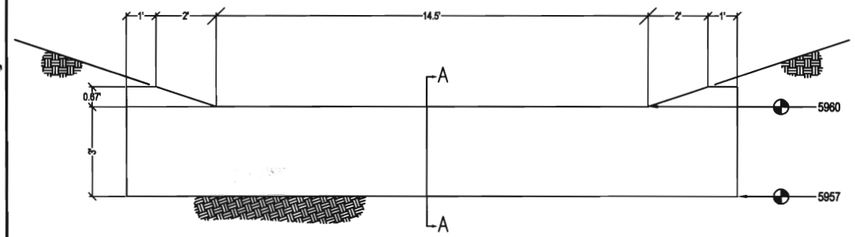


NOTES:

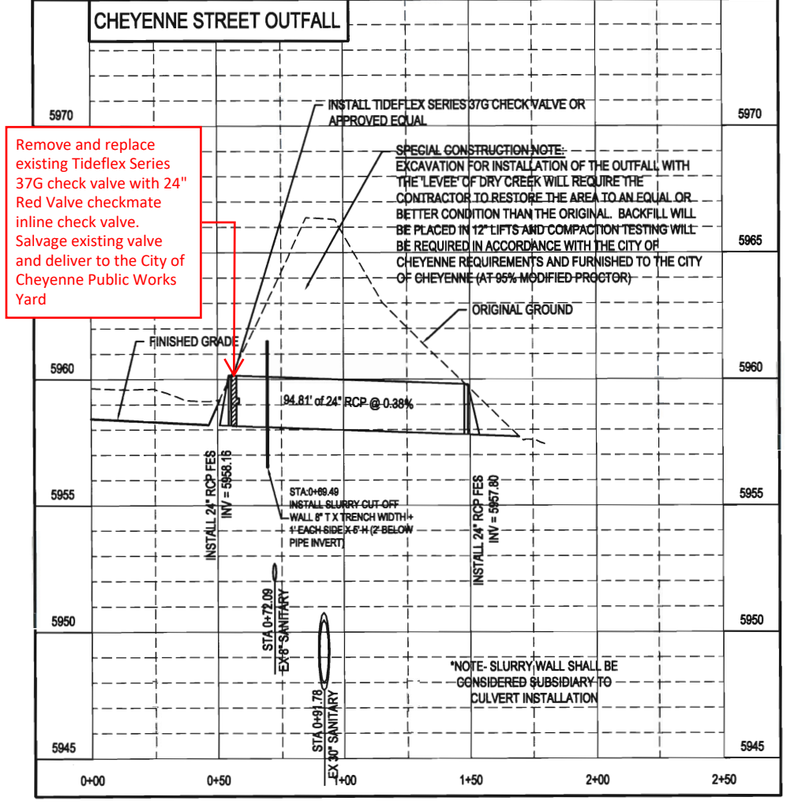
1. ALL EXPOSED CORNERS AND EDGES SHALL BE CHAMFERED ¾" MINIMUM EACH SIDE USING TRIANGULAR CHAMFER STRIPS.

2. ALL CONCRETE SURFACES THAT WILL BE EXPOSED SHALL RECEIVE A "SMOOTH RUBBED SURFACE". OTHERWISE THEY SHALL RECEIVE "A ROUGH FORM FINISH" IN CONFORMANCE WITH ACI 301

3. LOAD FACTOR DESIGN:
   γ = 2000 PCF (ALLOWABLE SOIL PRESSURE)
   fc' = 4,000 PSI
   fy = 60,000 PSI (GRADE 60)

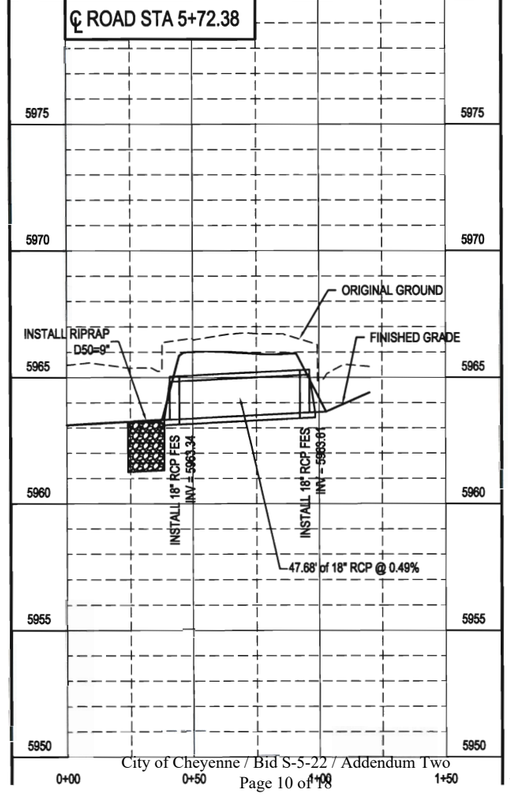


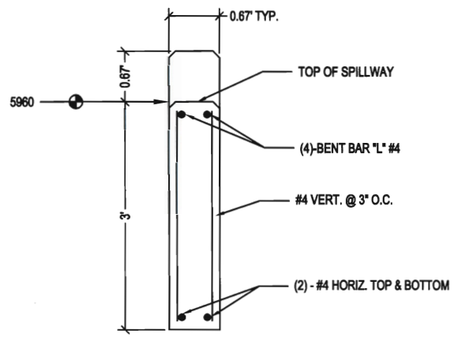
CHEYENNE STREET OUTFALL



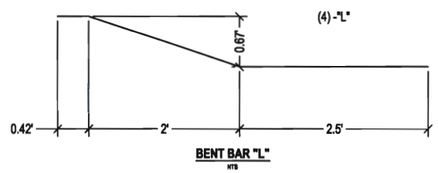
Remove and replace existing Tideflex Series 37G check valve with 24" Red Valve checkmate inline check valve. Salvage existing valve and deliver to the City of Cheyenne Public Works Yard

℄ ROAD STA 5+72.38





SECTION A-A
NTS



BENT BAR "L"
NTS

CONCRETE SPILLWAY DETAIL

NO.	REVISION	DATE

PREPARED FOR:
CITY OF CHEYENNE
PARKS AND REC DEPT.
2101 O'NEIL AVE ROOM 302
CHEYENNE, WY 82009

PROJECT: POLK AVE. GREENWAY

DRAWING TITLE: POLK AVENUE STORM CROSSING

ENGINEERING PLANNING SURVEYING PC
307.637.6017
1103 OLD TOWN LANE, SUITE 101
CHEYENNE, WY 82009
AVI@AVIPC.COM

DATE: APRIL 2013
DRAWN BY: TDC
DESIGNED BY:
CHECKED BY:

JOB NO.: 3425

DRAWING NO. ST6 OF ST6

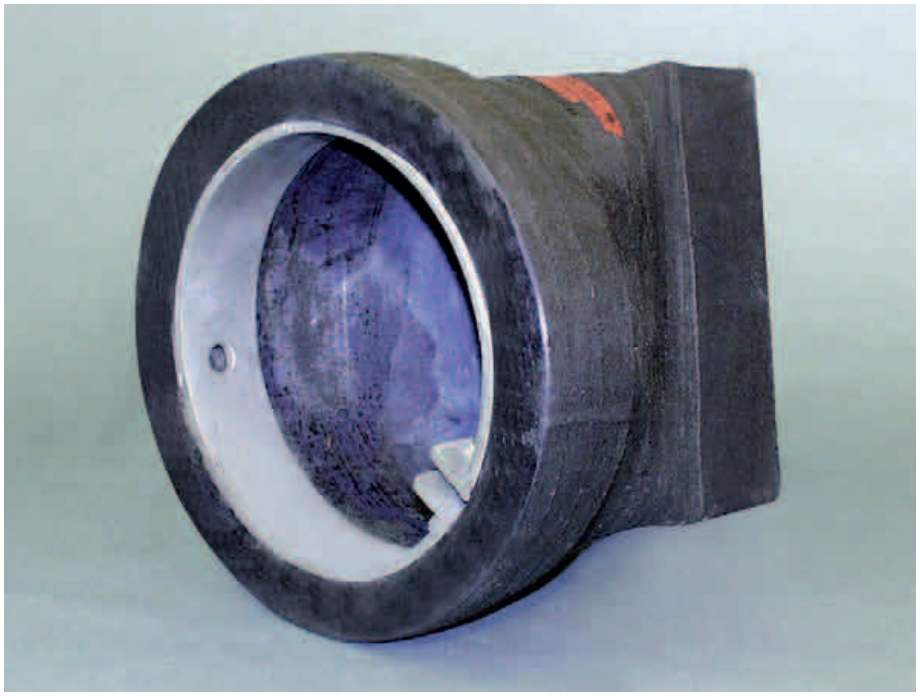
H:\3425 Polk Ave Greenway_Survey & Engineering\Design\Design_Utilities.dwg Jan 09, 2014 - 11:57am cjohnson

Series 37G (valve being removed)

- Fits inside pipe I.D.
- Fastened with internal expansion clamp.
- Features all-elastomer, maintenance-free design.
- Is custom-built to customer specifications.
- Closes on entrapped solids.

Materials of Construction

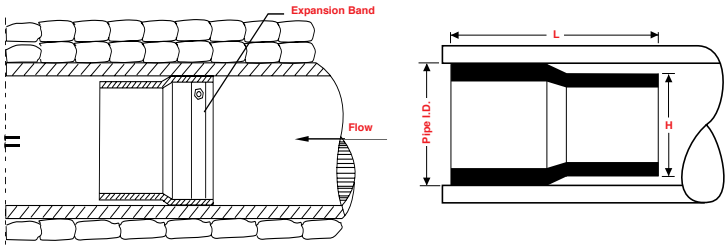
- Valves are available in pure gum rubber, neoprene, Hypalon®, buna-N, Viton® and EPDM.
- Stainless steel expansion clamps.



The Series 37G InLine Check Valve was developed specifically for installations where clearance below the invert of a pipe is insufficient to clear the flange of the standard Series 37. The 37G effectively has a zero face-to-face dimension since it can be completely slipped into an existing pipe. Piping modifications are not required to provide space for the valve. The Series 37G design uses the slip-on principle in reverse.

A special clamp that expands outward is provided to secure the valve to the inside of a pipe, enabling the valve to be installed easily on the outlet pipe from a manhole, such as in a CSO system.

The pressure drop of the Series 37G is increased because of the smaller I.D. required to fit the check valve in the line. Tideflex® Technologies recommends the valves be pinned to the pipe. Each clamp has four pre-drilled holes to allow installation of anchors/bolts. Contact our engineering staff for additional information.



Dimensions Series 37G Check Valve

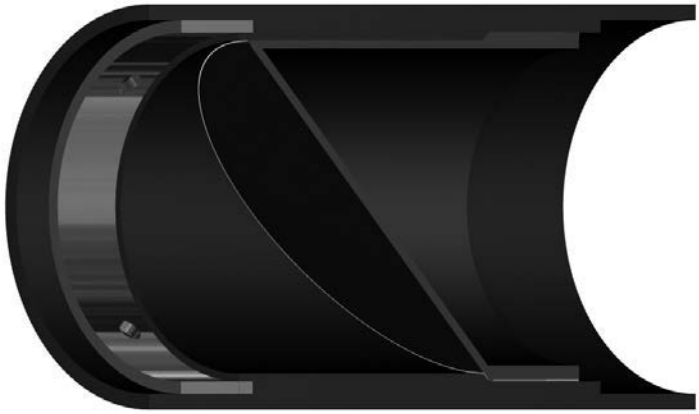
Nominal Size* (Pipe I.D.)	Length L	Height of Bill H	Max. Backpressure (psi)	
			Standard Tideflex®	With Saddle Support
2	5	1 7/8	150	CONTACT FACTORY
3	5 1/2	2 7/8	100	
4	7	3 7/8	75	
6	11	5 7/8	75	
8	12 1/2	7 7/8	60	
10	15 1/2	9 7/8	45	
12	18 1/2	11 7/8	35	
14	22	13 3/4	25	
16	23	15 3/4	20	
18	24	17 3/4	15	
20	32	19 3/4	10	
24	37	23 3/4	10	
30	41	29 3/4	8	
36	47	35 3/4	8	
42	49	41 1/2	5	
48	52	47 1/2	5	
54	57	53 1/2	5	
60	64	59 1/2	5	
72	73	71 1/2	5	

Numbers indicate maximum dimensions in inches.
Contact engineering staff to verify overall dimensions.
** Other sizes available; consult factory. Valves are also made for non-standard pipe I.D.'s.*

Tideflex® Technologies
A Division of Red Valve, Inc.

CHECKMATE® (valve being added)
INLINE CHECK VALVES

INSTALLATION, OPERATION AND MAINTENANCE MANUAL



The revolutionary design of the CheckMate® Inline Check Valve provides superior backflow prevention and odor mitigation in stormwater, CSO and SSO outfalls. The CheckMate's® custom-engineered, all-rubber unibody design eliminates costly back-flow from oceans, rivers and interceptors. The valve's unique elastomer fabric and wire reinforced design provides a proven record of maintenance-free performance, cost savings and results that no other inline check valve can match. The Check-Mate® is built to suit all your site-specific and flow needs.

The CheckMate® has a 100% fabric and elastomer construction that eliminates corrosion problems. Because the CheckMate® is made with a unibody construction, there are no mechanical components that trap debris, corrode or fail.

The CheckMate® Valve's inherent flexibility virtually eliminates seating problems. The CheckMate® remains in the closed posi-tion until forward differential pressure opens it. The fabric-rein-forced elastomer CheckMate® Valve seals around silt and small debris, preventing unwanted backflow.

The major advantage of the CheckMate® Valve is its extremely low headloss. The CheckMate® can open to a near full pipe diameter. This maximizes flow capacity of the outfall, which is particularly beneficial in low-lying areas where limited driving head is available.

Tideflex® Technologies recommends pinning all CheckMate® Valves for added security and stability. CheckMate's® effectively have a zero face-to-face dimension because they fit completely inside of the pipe. No modification of piping is required provided adequate pipe length exists.

IMPORTANT

Please take a moment to **review this manual.** The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Tideflex® Technologies can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service department at (412) 279-0044. We appreciate your comments. Thank you for choosing Tideflex® Technologies.

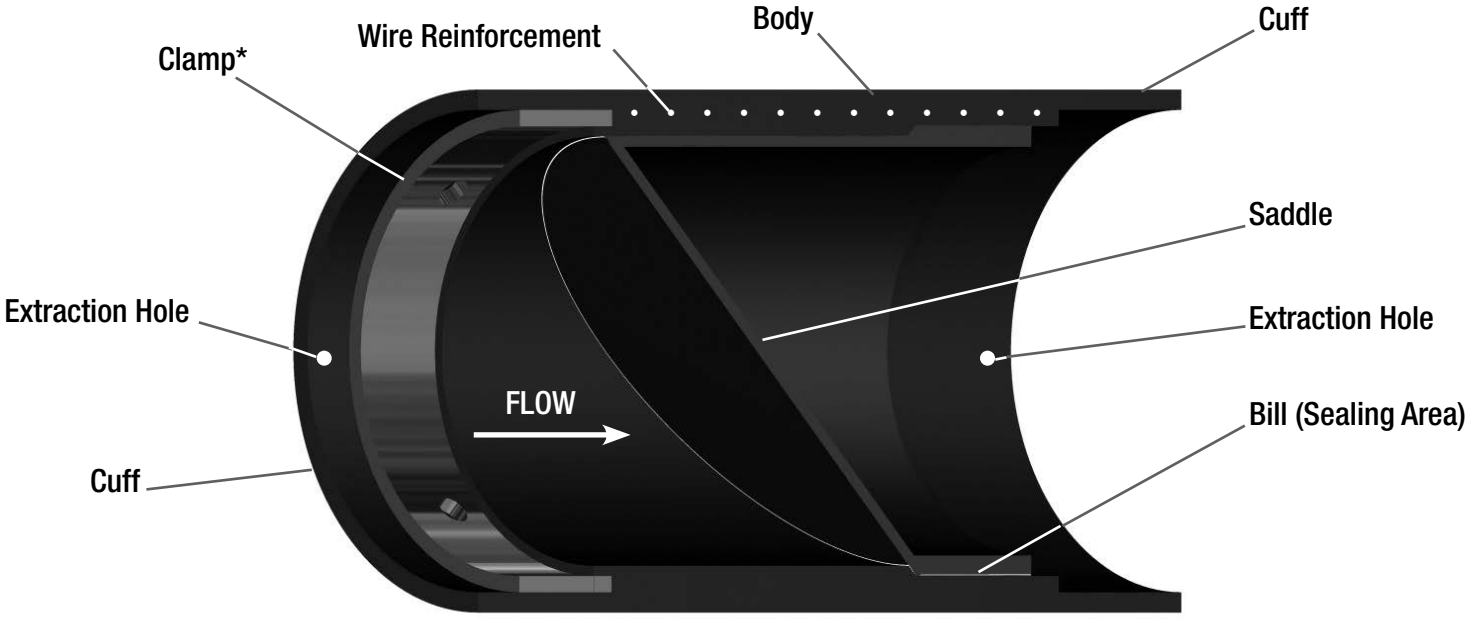
CheckMate® Installation Procedure

NEVER...
Install the valve at an angle

NEVER...
Use Sharp Tools on Rubber

NEVER...
Exceed Design Back Pressure

NEVER...
Install the Valve Backwards



*Clamps are installed in the upstream or downstream cuff, depending upon the application.
The illustration above is shown clamped upstream.

CHECKMATE® INSTALLATION

1. Product Shipping

Valve sizes 2" - 18" are furnished with one clamp. Valves 20" - 60" ship with two clamps. 72" valves ship with three clamps.

NOTE: A clamp is installed on each end of the valve to keep the valve's shape during transit and storage. Once the installation orientation is determined the CheckMate® valve will be clamped from either the upstream or downstream side. **For valves with two or three clamps, they can be installed onto the same side of the valve and offset from each other, as illustrated in Figure 1.**

2. Unpacking & Lifting

Do not use sharp tools when unpacking this product as it may damage the valve.

For larger CheckMate® valves, the valve should be lifted with either a sling or with supports around the O.D. at each side of the valve to ease the installation procedure. Do not place an object through the valve in order to lift.

CAUTION: Do not try to bend, collapse or fold the valve in order to facilitate the installation as this will cause permanent damage and will not allow the valve to return to a fully round shape.

3. Inspection of Pipe I.D.

Check the inside diameter (I.D.) of the pipe section for rough or damaged areas. The inside surface should be uniform and relatively smooth. Long gouges or cracks in the pipe may allow water to pass and should be filled prior to installation. Do not attempt to install a CheckMate® in a smaller pipe I.D.

4. Pipe I.D. Measurements

The pipe I.D. is to be checked in the field. It should be a consistent diameter for the length of valve and should not be out of round. When there is a +/- tolerance on the pipe I.D., the CheckMate® Valve should be ordered to the smallest pipe I.D.. Then, rubber adhesive strip can be applied to both CheckMate® cuffs to build the cuff O.D. up to the actual pipe I.D. See procudure in #5.

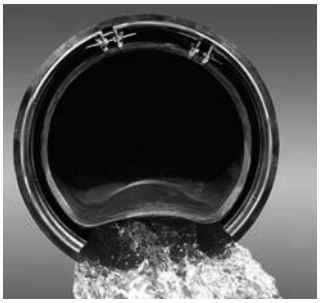


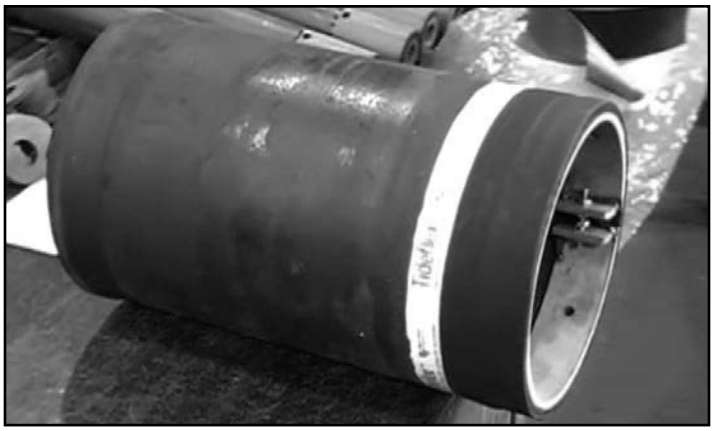
Figure 1 – Clamps shown installed on the same side of valve

CheckMate® Rubber Adhesive Strip Build Up Procedure

5. Rubber Adhesive Strip Build up

When valve O.D. is smaller than the pipe I.D., one-sided rubber adhesive strip is used to build up the O.D. of both CheckMate® cuffs to the actual pipe I.D.

NOTICE: Clean and dry the exterior of the valve prior to beginning rubber adhesive strip build up procedure.



STEP A: Place the valve on a solid, flat surface with the clamped end hanging slightly over the edge of the surface.

STEP B: Slowly rotate the valve while firmly pressing the rubber adhesive strip onto itself in concentric layers until valve O.D. is equal to or a fraction smaller than pipe I.D.

STEP C: Repeat steps A and B on the opposite side of the valve to ensure uniformity of the CheckMate's® O.D. is consistent and matches the pipe I.D.

STEP D: Lubricate the valve and rubber adhesive strip surface. Slide valve into pipe. Ensure the area marked TOP is in the 12:00 position.

STEP E: Check O.D. of the valve to ensure it fits snugly into the I.D. of pipe. If loose, add another layer(s) of the rubber adhesive strip.

STEP F: Once in place, tighten the clamp to secure it against the pipe and compress the rubber ahesive strip.

CheckMate® Installation Procedure

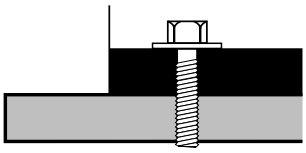
6. Preparation

The CheckMate® Valve uses expanding clamp(s) to exert pressure outwards on the walls of the valve to wedge it in place within the pipe. The walls of the pipe should be clean and free of debris prior to installation.

The valve should be inserted fully into the pipe so that no part of the cuff or bill extends outside the pipe. Ensure that the valve is not slanted at an angle with the bill pointing upwards or downwards. The valve centerline should be parallel to the pipe centerline.

Tideflex® Technologies recommends pinning the CheckMate® Valve on all installations. See below.

Four pre-drilled holes are provided in each expansion clamp. At least one clamp should be pinned. On exposed pipe, holes can be drilled through the valve and pipe, and a bolt run through secured with a nut. For buried pipe, silicon or similar sealant should be used to seal bolts.



7. Lubrication

The outside of the valve can be lubricated with a water-based lubricant prior to inserting the valve into the pipe. If the taping procedure has been used, the surface of the tape can be lubricate to aid insertion.

CAUTION: <u>Do not use petroleum-based lubricants</u> on this product or on the vulcanized rubber tape.

8. Plumb Lines and Arrows

The CheckMate® Valve arrives with a “top” arrow, “flow” arrow and plumb lines, marked in white, at the 12:00 and 6:00 position of the valve. Utilize this marking to orient the valve in the pipe, as well as to ensure the valve is oriented correctly in pipe section.

9. Valve Orientation

The CheckMate® Valve must be installed in a horizontal pipe. Valves 4" – 18" (nominal) are supplied with a single clamp. The clamp turnbuckle should be oriented at top dead center as delinated by the plumb line.

Valves 20” – 60” (nominal) are supplied with two clamps. The turnbuckles should be oriented 45° from the top center plumb line.

The 72” is supplied with three clamps. The turnbuckle for one clamp to be at top center. The other clamps to be 45° to each side of top center.

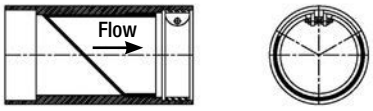
10. Insertion Into Pipe

Clamp to support the shape of the cuff should be hand tight and should be extended outward, but only tight enough to loosely keep the shape of the cuff during installation.

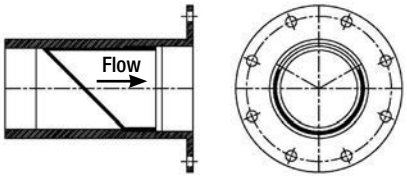
CAUTION: If you expand the clamp excessively at this step it will hinder or prevent the CheckMate® valve being fully inserted into the pipe.

CheckMate® Clamping Diagrams

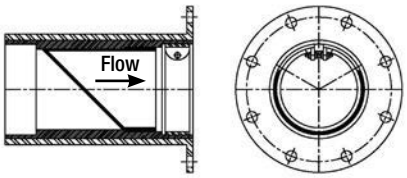
Downstream Clamp



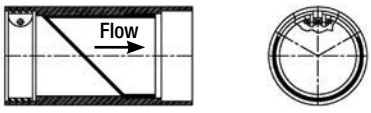
Downstream Flanged



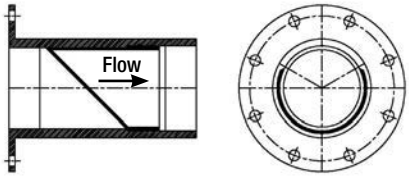
Downstream Flanged Thimble Insert



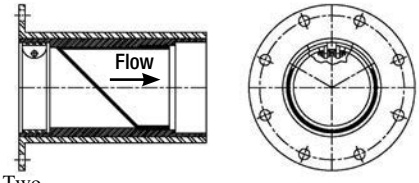
Upstream Clamp



Upstream Flanged



Upstream Flanged Thimble Insert



11. Pallet Push for Larger CheckMate® Valves

Larger CheckMate® valves can be pushed into the pipe utilizing the shipping pallet. The pallet should be placed perpendicular to the valve being inserted into the pipe. Then, with assistance from an excavator, push with consistent even force against the shipping pallet to insert the CheckMate® valve into the pipe.

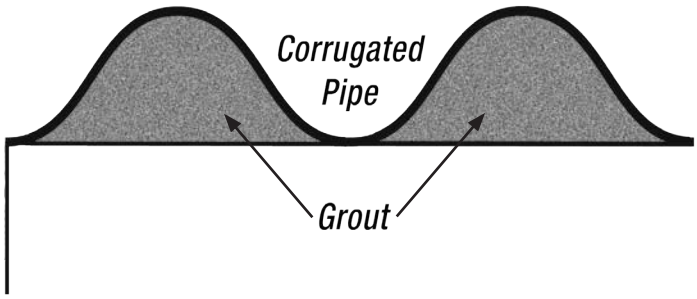
See the image to the right for the suggested positioning and usage of the excavator's shovel assistance for larger-sized CheckMate® valves. Clamps must be installed to prevent damage to cuff.

Pallet Push method for installing CheckMate® Valve

12. Corrugated Pipe and Smooth Wall (PVC, HDPE) Pipe Installation

For installation on corrugated pipe, it is recommended that the corrugations be filled with hydraulic cement (or similar material) that will provide a smooth I.D.

For smooth wall pipe, it is recommended that the valve be pinned.



CheckMates® can be made for any pipe I.D.
Built to fit in sizes from 3" to 78".

Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

	CHECKMATE® VALVE											
	NOMINAL PIPE SIZE I.D.		OVERALL LENGTH*		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING**		WEIGHT	
	Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters	lbs	Kg
Low Pressure	3	75	5.1	130	1	1.5	38	5	1.5	1.5	0.7
	4	100	7.9	201	1	1.5	38	5	1.5	1.5	0.7
Standard Pressure	3	75	5.1	130	1	1.5	38	85	26.0	3	1.4
	4	100	7.9	201	1	1.5	38	85	26.0	3	1.5
	5	125	9.5	241	1	1.5	38	83	25.3	4	2
	6	150	11.0	279	1	2.0	51	83	25.3	9	4
	7	175	12.8	325	1	2.0	51	79	24.1	11	5
	8	200	15.2	386	1	2.0	51	79	24.1	13	6
	9	225	15.4	391	1	2.0	51	75	22.9	17	8
	10	250	16.1	409	1	2.0	51	71	21.6	20	10
	12	300	19.8	503	1	2.0	51	68	20.1	37	17
	14	350	25.8	655	1	4.0	102	64	20.0	110	50
	16	400	28.6	726	1	4.0	102	60	18.3	133	52
	18	450	31.0	787	1	4.0	102	56	17.1	143	65
	20	500	42.1	1069	2	8.0	203	53	16.2	223	102
	24	600	47.5	1207	2	8.0	203	45	13.7	304	137
	30	750	54.9	1395	2	8.0	203	38	11.6	500	227
	36	900	62.3	1582	2	8.0	203	30	9.1	828	376
	42	1050	70.6	1793	2	8.0	203	26	7.9	1423	646
	48	1200	79.0	2007	2	8.0	203	23	7.0	1801	817
	54	1350	86.4	2195	2	8.0	203	17	5.2	2700	1225
	60	1500	96.8	2459	2	9.0	229	15	4.6	3315	1504
	72	1800	119.0	3023	3	12.0	305	13	4.0	6100	2767
	78	1950	119.0	3023	3	12.0	305	13	4.0	7000	3176

*Shorter lengths available.

**Back pressure measured from pipe invert.
Higher back pressure ratings available. Consult factory.

13. Flanged Valve Bolt Torques

The valve end with the rubber flange shall be installed using the backup rings provided. The sleeve split should be installed facing downstream, with the split in the vertical position.

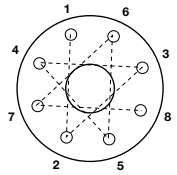
The installation bolt torque on the end flange bolts are listed in the table below.

RECOMMENDED MINIMUM BOLT TORQUE

Valve Size	Bolt Size	Torque (ft*lb.)
1”	1/2” - 13NC	20
1-1/2”	1/2” - 13NC	20
2”	5/8” - 11NC	30
2-1/2”	5/8” - 11NC	40
3”	5/8” - 11NC	40
4”	5/8” - 11NC	30
5”	3/4” - 10NC	40
6”	3/4” - 10NC	30
8”	3/4” - 10NC	40
10”	7/8” - 9NC	40
12”	7/8” - 9NC	50
14”	1” - 8NC	50
16”	1” - 8NC	50
18”	1-1/8” - 7NC	30
20”	1-1/8” - 7NC	30
24”	1-1/4” - 7NC	40
30”	1-1/4” – 7NC	30
36”	1-1/2” – 6NC	40
42”	1-1/2” – 6NC	50
48”	1-1/2” – 6NC	55
54”	1-3/4”– 5NC	60
60”	1-3/4”– 5NC	80
72”	1-3/4”– 5NC	100

Torque values are suggested minimum values.

Torque all flange bolts in a star pattern, first to 50% of tabulated values, then retorque to 100% of tabulated values. If greater torque is required, continue retorquing in increments of 50% of tabulated values. Use of a high quality anti–seize compound on all bolt threads is recommended.



Always use a “star” pattern when bolting a check valve.

Variables such as the surface finish on bolt threads, type of anti–seize compound used, and surface finish of the mating flanges all have an effect on the minimum torque required to obtain a leak–tight flange seal.

During installation you may need to retorque the flange bolts several times for a proper seal. This will overcome any leaks due to the cold flow of the rubber sleeve flange.

CheckMate® Installation Notes

1. It is important that the CheckMate® is installed level within the pipe. The CheckMate® may "gap open" if installed improperly.

2. The sealing area of the CheckMate® must have room to expand outwards, while bottom of the sealing area rises. The area around the sealing area must be kept free of debris to allow the bill to close in order for the valve to seal properly.

3. The CheckMate® effectively reduces the inside diameter of the pipe in which it is installed, creating a restriction. It may also create a "ledge" inside the pipe, causing standing water.

4. Back pressure in excess of the back pressure rating may cause valve failure.

5. Should the conditions that the CheckMate® was designed for change, (line pressure, back pressure, chemical compatibility) the performance of the valve may suffer.

6. CheckMate® Valves must be installed in true round pipe which is concentric across the entire length. Out of round pipe may cause the sealing area of the valve to distort and gap, which will cause the valve to leak.

MAINTENANCE

Inspection

Valves should occasionally be inspected for damage, wear, and buildup of debris. The frequency of the inspections should be determined by the severity of the service and the environment in which it operates.

The clamps should be checked for proper tension, and be sure that the inside of the valve is free of debris. Soft marine growth is normal on valves in submerged applications. Because hard marine growth such as barnacles will not bond well to the CheckMate®, they can be easily removed. Also insert pins to ensure they are tight.

STORAGE

If your CheckMate®, is to be stored for a period of time prior to installation, the following storage guidelines will help to preserve the valve and assure a trouble-free installation:

1. Store in a clean, cool, dry location. Avoid exposure to light, electric motors, dirt, or chemicals.
2. Store valve vertically on floor or pallet.
3. Store valve to prevent other items from contacting check sleeve to prevent possible damage.
4. Store this manual with the valve, so that it is readily available at time of installation.

TROUBLESHOOTING GUIDE

Sleeve Inverted or Distorted

1. Excessive back pressure, water surge, or water hammer.

Leaking Around Perimeter of Valve

1. Tighten clamp.
2. Check for cracks and holes in surface of pipe.
3. If taped, check tape to ensure the pipe I.D. has been fully sealed

Backflow

1. Debris lodged inside bill.

TIDEFLEX® TECHNOLOGIES WARRANTY

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