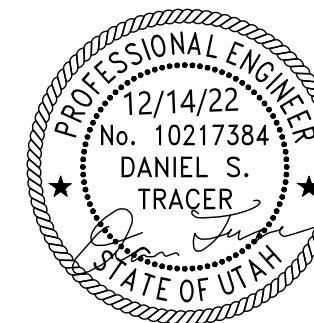


FIRE FLOW DEFICIENCIES PROJECT

CONSTRUCTION PROJECT NO. COB22001WS
DECEMBER 2022



MAYOR NATALIE HALL
COUNCIL MEMBER KALLAS
COUNCIL MEMBER ASTON
COUNCIL MEMBER GASTON
COUNCIL MEMBER HALES
COUNCIL MEMBER CROCKETT



ACCEPTED FOR CONSTRUCTION

ACCEPTANCE DOES NOT GUARANTEE THE
CORRECTNESS OR COMPLETENESS OF THE PLANS
OR THAT THEY MEET ALL CITY REQUIREMENTS
AND STANDARDS

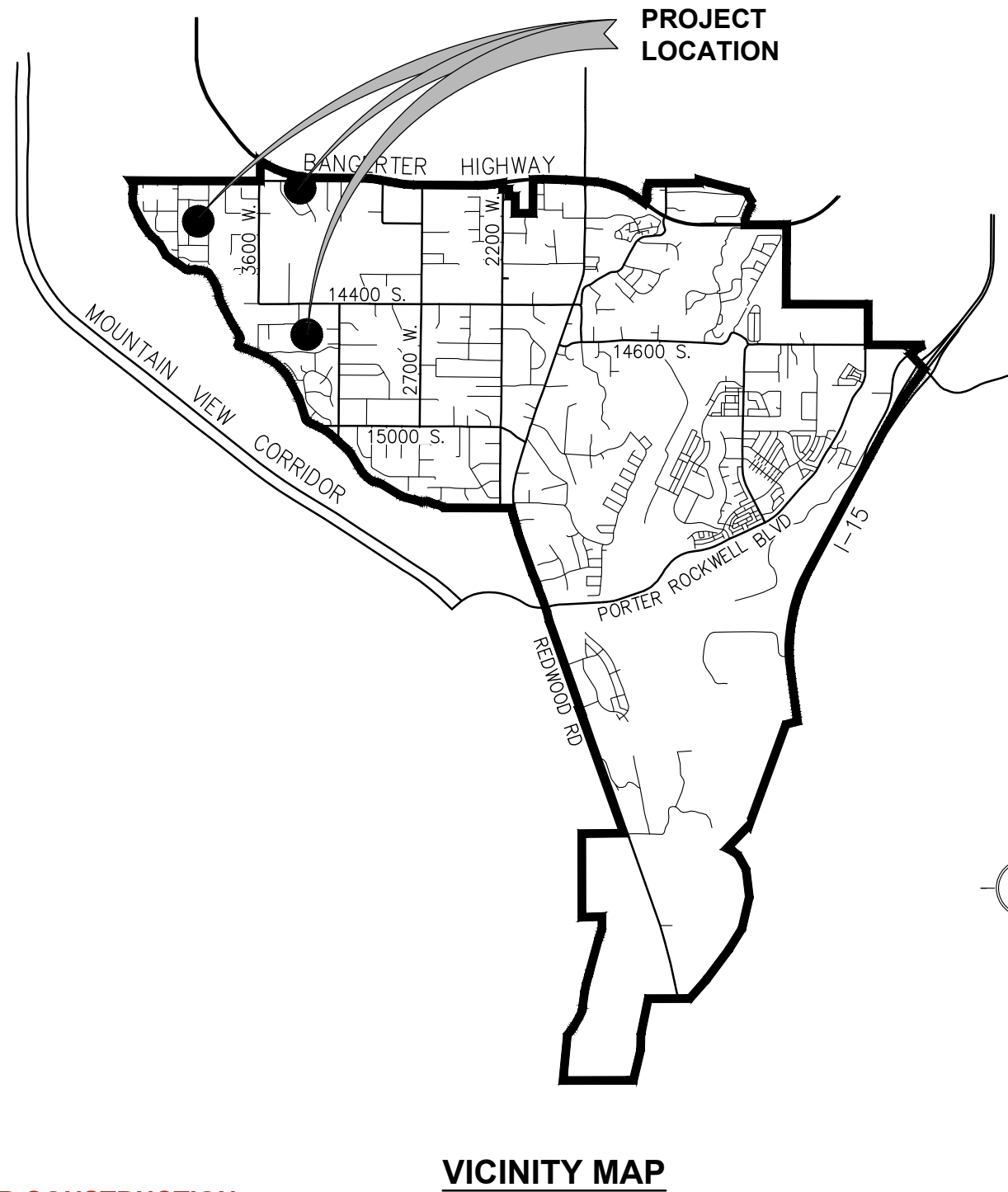
Feb 01, 2023

THE CITY MAY REQUIRE FIELD MODIFICATION TO
RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: Michael G. [Signature]

G:\Projects\ACTIVE\1-DRINKING WATER\COB.DW.2022\Fire Flow Deficiencies Project\Design\Water Deficiencies - Design.dwg | plot date: December 14, 2022 | plotted by: KThompson

CITY OF BLUFFDALE



SHEET INDEX

1 - GENERAL:

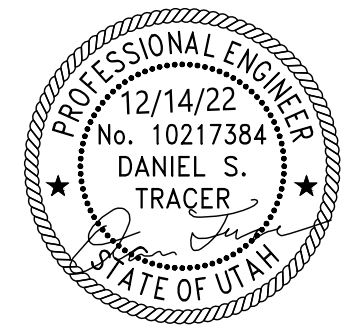
	<u>DWG NO.</u>
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ABBREVIATIONS & LEGEND	G3
GENERAL NOTES & UTILITY CONTACTS	G4
STORM WATER POLLUTION PREVENTION DETAILS	G5

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PLAN & PROFILE SHEETS	PP1-PP6
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3 - DETAILS:

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DRINKING WATER LINE INSTALLATION DETAIL	DT-2
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Feb 01, 2023

CALL BLUESTAKES @ 1-800-862-4111 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: Michael G. [Signature]
























FIRE FLOW DEFICIENCIES PROJECT

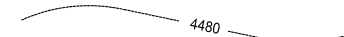




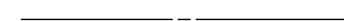







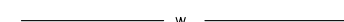




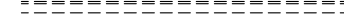

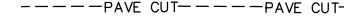
INDEX & VICINITY MAP

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				DRAWN	DATE	SHEET NO.
				KT	9/6/22	2 OF 20
				CHECKED	DATE	DRAWING NO.
				DT	9/6/22	G02

Plot date: December 14, 2022 | plotted by: KThompson
 Design: G:\Projects\ACTIVE\1-DRINKING WATER\COB.DW.2022\Fire Flow Deficiencies Project\Design\Water Deficiencies - Design.dwg

LEGEND

-  SECTION CORNER
-  MONUMENT
-  EXIST REBAR AND CAP
-  SET REBAR AND CAP
-  WATER METER
-  WATER MANHOLE
-  WATER VALVE
-  FIRE HYDRANT
-  IRRIGATION VALVE
-  SANITARY SEWER MANHOLE
-  STORM DRAIN MANHOLE
-  CLEAN OUT
-  STORM DRAIN CATCH BASIN
-  STORM DRAIN CULVERT
-  SIGN
-  GAS VALVE
-  EXISTING DECIDUOUS TREE
-  EXISTING CONIFER TREE
-  EXISTING FIBER OPTIC MANHOLE
-  EXISTING TELEPHONE PEDESTAL
-  EXISTING OVERHEAD TELEPHONE & POWER LINE WITH GUY ANCHOR
-  EXISTING ELECTRICAL BOX
-  EXISTING IRRIGATION CONTROL BOX

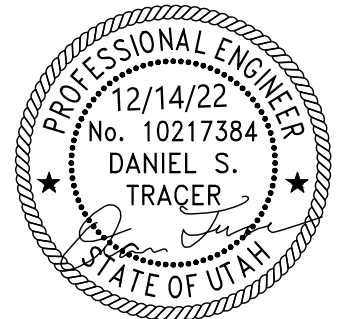
-  4480 EXISTING MAJOR CONTOURS
-  4479 EXISTING MINOR CONTOURS
-  CONCRETE
-  SECTION LINE
-  R/W RIGHT OF WAY
-  CENTERLINE
-  PROPERTY LINE
-  ADJACENT PROPERTY LINE
-  EXIST DITCH FLOW LINE
-  X X X X EXISTING FENCE
-  ----- EDGE OF ASPHALT
-  ss EXISTING SANITARY SEWER
-  sd EXISTING STORM DRAIN LINE
-  w EXISTING WATER LINE
-  g EXISTING GAS LINE
-  pi EXISTING PRESSURIZED IRRIGATION LINE
-  ugt EXISTING UNDERGROUND FIBER OPTIC
-  ----- EASEMENT LINE
-  ===== EXISTING CURB & GUTTER
-  ===== NEW RETAINING WALL
-  -----PAVE CUT-----PAVE CUT----- SAW-CUT LINE

ABBREVIATIONS

AC	ASPHALT CONCRETE PAVEMENT	N/A	NOT APPLICABLE
BV	BUTTERFLY VALVE	#, NO	NUMBER
BLDG.	BUILDING	NT'D	NOTED
BVCE	BEGIN VERTICAL CURVE ELEVATION	NTS	NOT TO SCALE
BVCS	BEGIN VERTICAL CURVE STATION	PERM	PERMANENT
CI	CAST IRON	OC	ON CENTER
C	CENTER LINE	OD	OUTSIDE DIAMETER
CLR	CLEAR	OH	OVERHEAD
CO	CLEANOUT	R	PROPERTY LINE
COM	COMPRESSION FITTING	PVC	POLYVINYL CHLORIDE
CONC	CONCRETE	PVI	POINT OF VERTICAL INTERSECTION
CONST	CONSTRUCT	PWD	PUBLIC WORKS DEPARTMENT
CTS	COPPER TUBE STEEL	Q	RATE OF FLOW
C.Y.	CUBIC YARD	REINF	REINFORCEMENT, REINFORCING
d	DEPTH OF FLOW	REQD	REQUIRED
D	DIAMETER OF PIPE	RES	RESERVOIR
DWG	DRAWING	REV	REVISION
DIA	DIAMETER	RT	RIGHT
DIM.	DIMENSION	R/W	RIGHT OF WAY
DIP	DUCTILE IRON PIPE	S	SOUTH SLOPE
E	EAST	ST STL	STAINLESS STEEL
EA	EACH	STD	STANDARD
EL, ELEV	ELEVATION	STA	STATION
ESMT	EASEMENT	S/W	SIDEWALK
EVCE	END VERTICAL CURVE ELEVATION	T.B.	THRUST BLOCK
EVCS	END VERTICAL CURVE STATION	TEMP	TEMPORARY
EW	EACH WAY	TBM	TEMPORARY BENCH MARK
EXIST OR EX	EXISTING	TYP	TYPICAL
FH	FIRE HYDRANT	UBC	UNTREATED BASE COURSE
FIP	FEMALE IRON PIPE FITTING	UNO	UNLESS NOTED OTHERWISE
FM	FORCE MAIN	UG	UNDERGROUND
FRP	FIBERGLASS REINFORCED PLASTIC	V	VELOCITY
F, FL	FLOW LINE	VERT	VERTICAL
FL, FLG	FLANGE FITTING	W	WEST
FE	FLANGE END		
FT	FOOT		
FPS	FEET PER SECOND		
GB	GRADE BREAK		
GV	GATE VALVE		
HORIZ	HORIZONTAL		
ID	INSIDE DIAMETER		
", IN	INCH(ES)		
INV	INVERT		
LOG	LIP OF GUTTER		
LT	LEFT		
LV	LENGTH OF VERTICAL CURVE		
MAX	MAXIMUM		
MGD	MILLION GALLONS PER DAY		
MIP	MALE IRON PIPE FITTING		
MH	MANHOLE		
MFRS	MANUFACTURERS		
MJ	MECHANICAL JOINT FITTING		
N	NORTH, FRICTION FACTOR		

PIPE ABBREVIATIONS

PVC	POLYVINYL CHLORIDE PLASTIC PIPE
RCP	REINFORCED CONCRETE PIPE
VCP	VITRIFIED CLAY PIPE
CIP	CAST IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE
DIP	DUCTILE IRON PIPE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED POLYETHYLENE PIPE
POLY	POLYETHYLENE PIPE



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FIRE FLOW DEFICIENCIES PROJECT

LEGEND

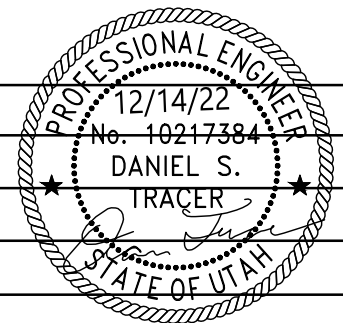
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				KT	9/6/22	3 OF 20
				CHECKED	DATE	DRAWING NO.
				DT	9/6/22	G03

THE CITY MAY REQUIRE FIELD MODIFICATION TO
 RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: Michael G. [Signature]

UTILITY CONTACTS

UTILITY COMPANY	CONTACT NAME	TITLE	TELEPHONE NUMBER	CELL NUMBER	E-MAIL
KERN RIVER GAS 2755 EAST COTTONWOOD PARKWAY, SUITE 300 SALT LAKE CITY, UT 84121	MIKE TASE		801-937-6000 801-420-7500		
CENTURYLINK	DARREN KELLER	DESIGN ENGINEER	801-238-0414		darren.keller@centurylink.com
ROCKY MOUNTAIN POWER 1407 WEST NORTH TEMPLE SALT LAKE CITY, UT 84119	JOHN LANGI	MANAGER	801-576-6102		john.langi@rockymountainpower.net
SOUTH VALLEY SEWER DISTRICT 1253 WEST JORDAN BASIN LANE BLUFFDALE, UT 84065	MATTHEW GARN	DISTRICT ENGINEER	801-617-1057		matthewg@svsewer.com
BLUFFDALE CITY WATER 14175 SOUTH REDWOOD ROAD BLUFFDALE, UT 84065	SHANE PADDOCK	PUBLIC WORKS DIRECTOR	801-849-9450	435-671-2493	spaddock@bluffdale.com
COMCAST 1350 EAST MILLER AVE SALT LAKE CITY, UT 84139	TYSON STONE GARY GOLDSTEIN		801-401-3058 801-401-3041	801-831-7029	Tyson_Stone@cable.comcast.com gary_goldstein@cable.comcast.com
DOMINION ENERGY P.O. BOX 45841 1140 WEST 200 SOUTH SALT LAKE CITY, UT 84139	TYSON ANDERSON	MAPPING	801-324-3634 1-800-767-1689		tyson.anderson@dominionenergy.com
JORDAN VALLEY WATER CONSERVANCY DISTRICT 8215 SOUTH 1300 WEST WEST JORDAN CITY, UT	WADE TUFT DAVE McLEAN	OPERATION SUPERVISOR ENGINEER	801-716-0141 801-680-6334		wadet@jvwcd.org dmclean@jvwcd.org
UTAH & SALT LAKE CANAL COMPANY 9643 S. COUNTESS WAY S. JORDAN, UT	NELSON PETERSON	PRESIDENT	801-969-5419		
VERIZON			1-800-837-4966		
UTAH LAKE DISTRIBUTING CANAL	BRENT MICHAELSEN	WATER MASTER	801-673-1568		
CITY OF BLUFFDALE POLICE DEPT	NICK STIDHAM		801-849-9445		
CITY OF BLUFFDALE FIRE DEPT			801-254-2200 EXT. 442		



GENERAL NOTES

- REFERENCE PROJECT'S CURRENT SPECIFICATIONS AND DETAILS, CITY OF BLUFFDALE CONSTRUCTION SPECIFICATIONS AND DRAWINGS, IN THE LISTED ORDER. THE SPECIFICATIONS ORDER OF PRIORITY IS: SPECIAL PROVISIONS, CITY STANDARDS, APWA STANDARDS, PLANS DETAILS AND SUMMARY.
- ALL UTILITY LOCATIONS ARE APPROXIMATE. NOTIFY BLUE STAKES (811) PRIOR TO ANY EXCAVATION AND FOR LOCATION OF ALL UTILITIES.
- SUBMIT FOR ACCEPTANCE TO ENGINEER A TRAFFIC CONTROL PLAN FOR THE PROJECT'S TRAFFIC MAINTENANCE THAT MEETS MUTCD STANDARDS.
- PROTECT ALL EXISTING UTILITIES (WATER, FIBER OPTIC, AND DRAINAGE SERVICES AND ACCESS ROADS, ETC.) DURING CONSTRUCTION AND ENSURE THEY REMAIN IN PLACE AND OPERATIONAL (UNLESS OTHERWISE NOTIFIED BY PROPERTY OWNER). DEPTHS OF DRY UTILITIES ARE APPROXIMATE. POT HOLE TO ASSESS LOCATION OF UTILITIES.
- LENGTHS SHOWN ON PLAN SHEETS ARE HORIZONTAL.
- MAINTAIN SAFE CONSTRUCTION PROCEDURES AND WORKING CLEARANCES AT ALL TIMES WHILE WORKING NEAR POWER LINES. FOLLOW ALL APPLICABLE OSHA STANDARDS.
- VERIFY ALL DIMENSIONS BEFORE STARTING WORK. IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.
- UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION REQUIREMENTS ARE IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS APPLY EVEN WHEN NOT REFERENCED AT SPECIFIC LOCATIONS ON THE DRAWINGS.
- CONSULT WITH THE ENGINEER WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK.
- PRESERVE AND PROTECT ALL SURVEY MONUMENTS. CONTACT COUNTY SURVEYORS OFFICE TO RESET SURVEY MONUMENTS TO FINISH GRADE.
- INSTALL RIMS 3/8" BELOW PAVEMENT OR ADJUST AS REQUIRED IN FIELD.
- PRESERVE, RESTORE, OR REPLACE ALL EXISTING FENCES, ROADS, DRIVE APPROACHES, CULVERTS, MAIL BOXES, LANDSCAPING, EROSION CONTROL BLANKETS, DITCHES, SIGNS, K-RAIL, ETC. TO PRE-CONSTRUCTION CONDITION.
- NOTIFY AT LEAST 48 HOURS IN ADVANCE THE CITY CONSTRUCTION MANAGER, THE FIRE CHIEF AND THE POLICE CHIEF OF ANY ROAD CLOSURES THAT HAVE BEEN APPROVED BY THE ENGINEER RELATING TO THE PROJECT.
- IDENTIFY DAMAGED ITEMS WITHIN THE CONSTRUCTION BOUNDARIES PRIOR TO BEGINNING CONSTRUCTION. REPLACE ANY ITEM DAMAGED, NOT IDENTIFIED PRIOR TO BEGINNING CONSTRUCTION, AT NO COST TO THE CITY. PROVIDE VIDEO OF THE SITE BEFORE CONSTRUCTION.
- PROTECT EXISTING ASPHALT FROM CONSTRUCTION EQUIPMENT DAMAGE. REPLACE DAMAGED PAVEMENT AT THE DIRECTION OF THE ENGINEER.
- DO NOT TRESPASS PRIVATE PROPERTY ALONG THE PROJECT. SECURE ACCESS IN WRITING FROM OWNERS TO PROPERTIES, RESIDENCES AND BUSINESSES DURING CONSTRUCTION. MAINTAIN TRAFFIC TO LOCAL RESIDENTS AT ALL TIMES.
- DO NOT PERFORM ANY WORK NEAR UTILITY LINES WITHOUT FIRST CONTACTING THE RELATED UTILITY COMPANY AND ALLOWING A REPRESENTATIVE OF THE RELATED UTILITY COMPANY TO OBSERVE THE WORK IF REQUESTED.
- REQUEST ANY CHANGES TO THE PLANS IN WRITING TO THE ENGINEER FOR APPROVAL PRIOR TO MAKING THE CHANGES.
- PROVIDE UPDES SWPP PERMIT PRIOR TO PRE-CONSTRUCTION MEETING. KEEP THE PERMIT ON THE PROJECT FOR REVIEW.
- CONTRACTOR TO PROVIDE AS-BUILT DATA ACCORDING TO CITY OF BLUFFDALE STANDARDS.

PROJECT NOTES

- CORRELATE ALL WORK WITH PROPERTY OWNERS.
- CORRELATE ALL WORK THROUGH THE CITY CONSTRUCTION MANAGER.
- DO NOT BLOCK/IMPEDE USE OF DRIVEWAY ENTRANCES WITHOUT OWNERS WRITTEN ACKNOWLEDGMENT.
- PROTECT ALL UTILITIES AND FEATURES.
- CONTACT THE CITY OF BLUFFDALE TO INFORM OF ANY ROAD CLOSURES NEEDED DURING CONSTRUCTION.

NOTE:

NOTIFY ALL THE FOLLOWING PEOPLE/ORGANIZATIONS BELOW FOR ANY APPROVED CHANGE IN TRAFFIC CONTROL INCLUDING, BUT NOT LIMITED TO, PARTIAL OR FULL ROAD CLOSURES.

CITY EMERGENCY CONTACTS

MATT EVANS - FIRE CHIEF (801) 849-9441
SGT. NICK STIDHAM - SERGEANT (801) 849-9445

PROJECT CONSTRUCTION CONTACT

TOM HYATT - CONSTRUCTION MANAGER (801) 386-1227

JORDAN SCHOOL DISTRICT

SULA BEARDEN (801) 386-1227 sula.bearden@jordandistrict.org

ACCEPTED FOR CONSTRUCTION

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Feb 01, 2023

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FIRE FLOW DEFICIENCIES PROJECT

GENERAL NOTES & CONTACTS

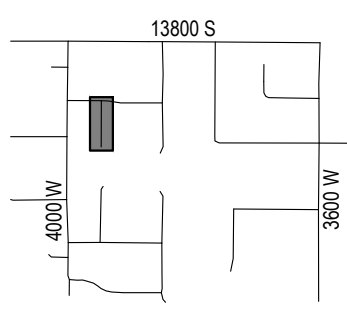
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REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	4 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	G04

THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: Michael G. [Signature]

G:\Projects\DRINKING WATER\COB\DW\2022\Fire Flow Deficiencies Project\Design\Water Deficiencies - Design.dwg | plot date: December 14, 2022 | plotted by: KThompson

VICINITY MAP

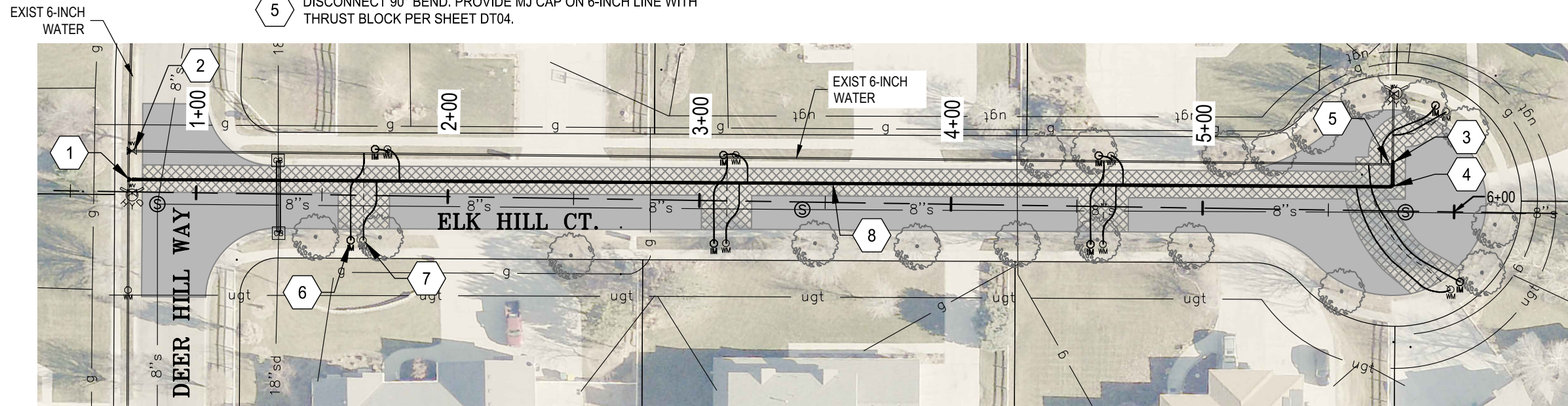


KEYED NOTES:

- 1 CUT IN 6"x6" TEE WITH ML & TB & MJ SLEEVE. PROVIDE 6"x8" REDUCER WITH ML ON SOUTHERN LEG. PROVIDE 8-INCH GATE VALVE WITH MEGA-LUGS ON REDUCER.
- 2 DISCONNECT SOUTHERN LEG OF TEE AND INSTALL BLIND FLANGE. PROVIDE MJ CAP ON 6-INCH LINE.
- 3 INSTALL 8"x6" REDUCER TO CONNECT TO EXIST 6-INCH LINE.
- 4 INSTALL 8-INCH 90° BEND WITH MEGA-LUG JOINT RESTRAINTS PER SHEET DT06 AND THRUST BLOCK PER SHEET DT04.
- 5 DISCONNECT 90° BEND. PROVIDE MJ CAP ON 6-INCH LINE WITH THRUST BLOCK PER SHEET DT04.
- 6 INSTALL IRRIGATION METER CAN PER SHEET DT09. CONNECT NEW 1" SERVICE LINE TO EXISTING SADDLE ON 6-INCH WATERLINE. REPLACE CURB & GUTTER PER COB ST-3 AS NEEDED. CAP EXISTING LATERAL AND ABANDON IN PLACE.
- 7 EXISTING METERS: REPLACE EXISTING 1" LATERAL WITH NEW 1" BLUE POLY LINE PER SHEET DT01. CONNECT INTO NEW 8-INCH LINE.
- 8 INSTALL 8-INCH BLUE PVC C900 DR18 PER PER SHEET DT02.

NOTES:

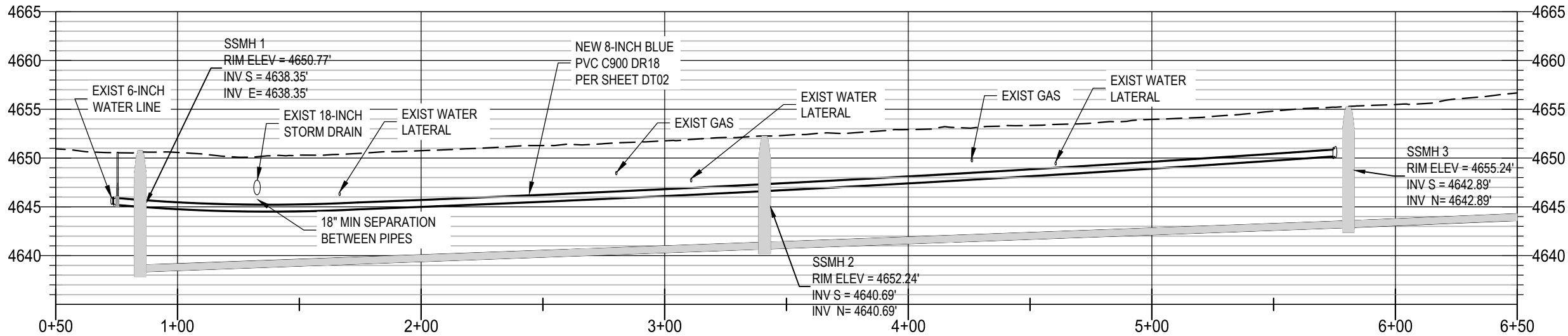
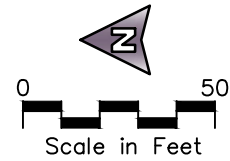
- 1. BE AWARE THAT SEWER SERVICE LINE CONNECTIONS ARE NOT SHOWN. VERIFY LOCATION AND MAINTAIN PROPER DISTANCE BETWEEN WATERLINES & SEWER SERVICE LINES. PLACE FLOWABLE FILL WHERE SEPARATION IS LESS THAN 18-INCHES.
- 2. REMOVE EXIST PAVEMENT AND PLACE NEW 3-INCH HMA PER CITY STANDARD.
- 3. ALL CURB & GUTTER REPLACEMENT TO BE PER COB ST-2.



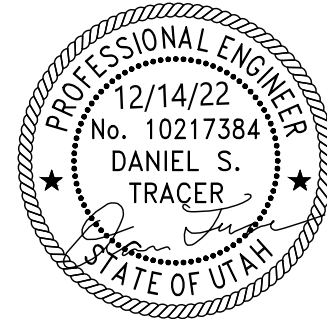
PLAN
SCALE: 1"=50'

LEGEND:

- EXISTING WATER LATERAL
- NEW WATER LATERAL
- [Hatched Box] 2-INCH ROTOMILL & OVERLAY PER COB ST-12, ST-7B & ST-7D
- [Cross-hatched Box] FULL ASPHALT RESTORATION PER COB ST-12, ST-7B & ST-7D



PROFILE
HORZ: 1"=50' VERT: 1:4



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SIGNED: *Michael G. [Signature]*



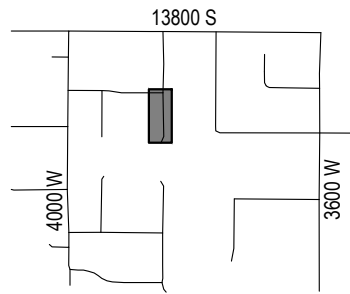
FIRE FLOW DEFICIENCIES PROJECT

ELK HILL CT - PLAN & PROFILE

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
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			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	PP01

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Fire Flow Deficiencies Project | Design | Water Deficiencies | Project | 1-DRINKING WATER\COB.DW.2022

VICINITY MAP

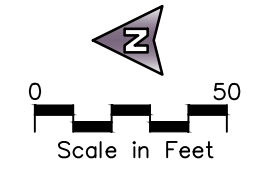
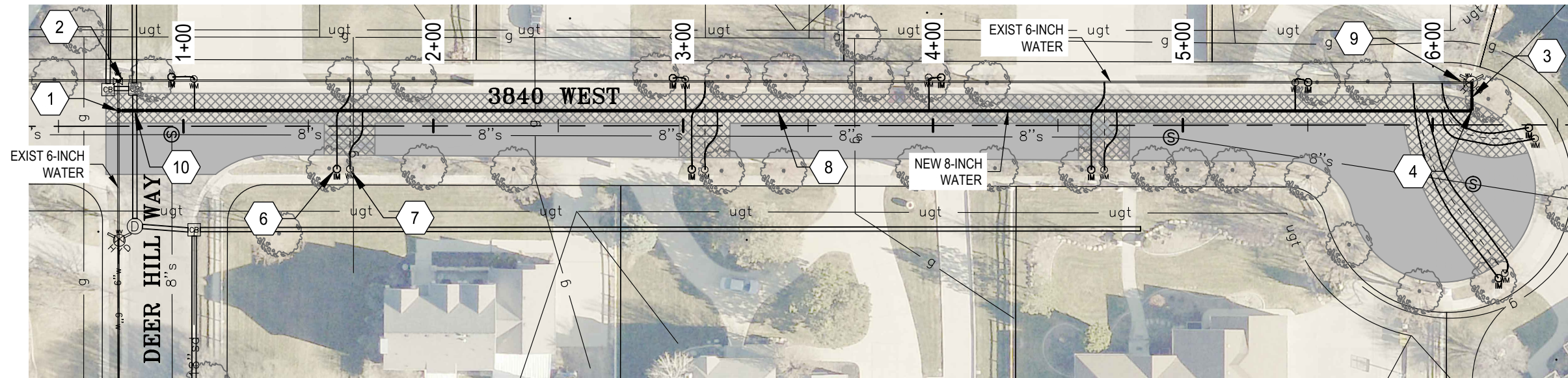


KEYED NOTES:

- 1 CUT IN 6"x6" TEE WITH ML & TB & MJ SLEEVE. PROVIDE 6"x8" REDUCER WITH ML ON SOUTHERN LEG. PROVIDE 8-INCH GATE VALVE WITH MEGA-LUGS ON REDUCER.
- 2 DISCONNECT SOUTHERN LEG OF TEE AND INSTALL BLIND FLANGE. PROVIDE MJ CAP ON 6-INCH LINE.
- 3 TIE EXISTING HYDRANT LINE TO NEW 8-INCH DRINKING WATER LINE. ADD 8"x6" REDUCER TO CONNECT TO BEND.
- 4 INSTALL 90° BEND WITH MEGA-LUG JOINT RESTRAINTS PER SHEET DT06 AND THRUST BLOCK PER SHEET DT04.
- 6 INSTALL IRRIGATION METER CAN PER SHEET DT09. CONNECT NEW 1" SERVICE LINE TO EXISTING SADDLE ON 6-INCH WATERLINE. REPLACE CURB & GUTTER PER COB ST-3 AS NEEDED. CAP EXISTING LATERAL AND ABANDON IN PLACE.
- 7 EXISTING METERS: REPLACE EXISTING 1" LATERAL WITH NEW 1" BLUE POLY LINE PER SHEET DT01. CONNECT INTO NEW 8-INCH LINE.
- 8 INSTALL 8-INCH BLUE PVC C900 DR18 PER PER SHEET DT02.
- 9 PROVIDE MJ CAP ON EXISTING 6-INCH LINE.
- 10 LOOP WATERLINE AROUND STORM DRAIN PIPE PER SHEET DT03.

NOTES:

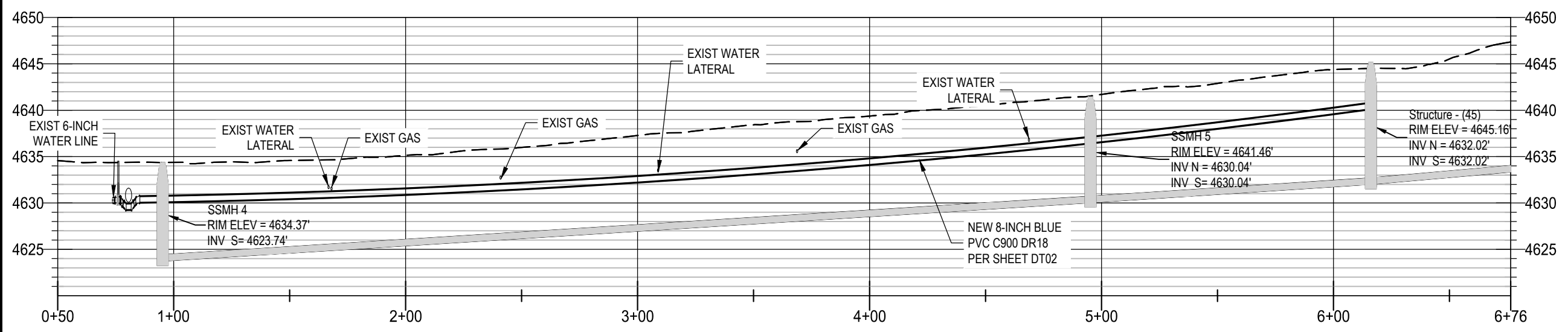
- 1. BE AWARE THAT SEWER SERVICE LINE CONNECTIONS ARE NOT SHOWN. VERIFY LOCATION AND MAINTAIN PROPER DISTANCE BETWEEN WATERLINES & SEWER SERVICE LINES. PLACE FLOWABLE FILL WHERE SEPARATION IS LESS THAN 18-INCHES.
- 2. REMOVE EXIST PAVEMENT AND PLACE NEW 3-INCH HMA PER CITY STANDARD.
- 3. ALL CURB & GUTTER REPLACEMENT TO BE PER COB ST-2.



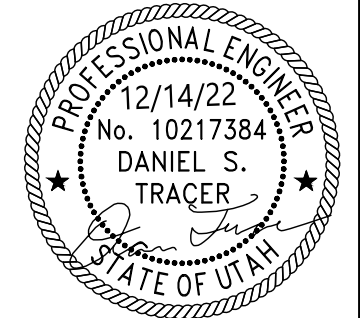
LEGEND:

- - - - - EXISTING WATER LATERAL
- NEW WATER LATERAL
- [Hatched Box] 2-INCH ROTOMILL & OVERLAY PER COB ST-12, ST-7B & ST-7D
- [Cross-hatched Box] FULL ASPHALT RESTORATION PER COB ST-12, ST-7B & ST-7D

PLAN
SCALE: 1"=50'



PROFILE
HORZ: 1"=50' VERT: 1:4



ACCEPTED FOR CONSTRUCTION
 ACCEPTANCE DOES NOT GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE PLANS OR THAT THEY MEET ALL CITY REQUIREMENTS AND STANDARDS.
 Feb 01, 2023
 THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: *Michael G. [Signature]*

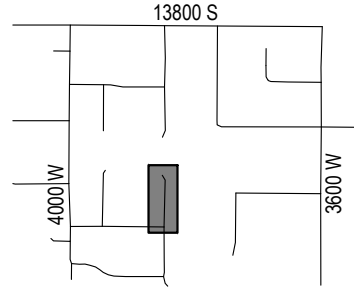


FIRE FLOW DEFICIENCIES PROJECT
 3840 WEST STREET - PLAN & PROFILE

REVISIONS			DESIGNED	DATE	PROJECT NO.
			KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	6 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	PP02

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Fire Flow Deficiencies Project | Design | Water

VICINITY MAP

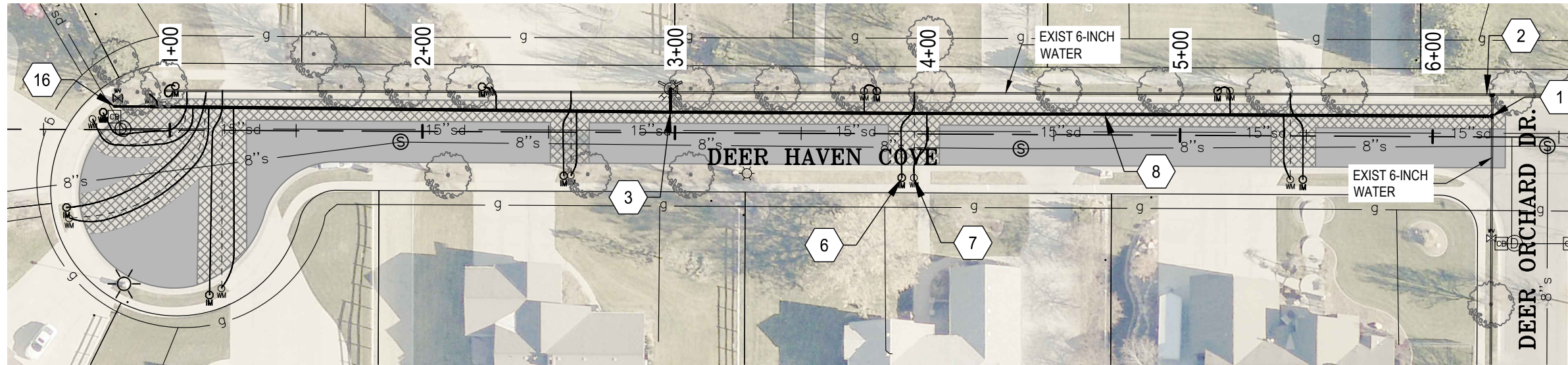


KEYED NOTES:

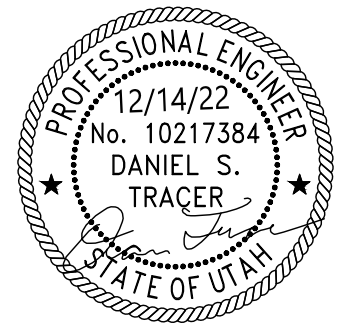
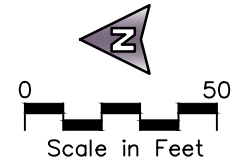
- 1 CUT IN 6"x6" TEE WITH ML & TB & MJ SLEEVE. PROVIDE 6"x8" REDUCER WITH ML ON SOUTHERN LEG. PROVIDE 8-INCH GATE VALVE WITH MEGA-LUGS ON REDUCER.
- 2 DISCONNECT NORTHERN LEG OF TEE AND INSTALL BLIND FLANGE. PROVIDE MJ CAP ON 6-INCH LINE.
- 3 INSTALL 8"x8"x6" TEE WITH ML JOINT RESTRAINTS PER SHEET DT-06 & THRUST BLOCKS PER SHEET DT-04. TIE NEW 6-INCH LINE TO EXIST. FIRE HYDRANT.
- 6 INSTALL IRRIGATION METER CAN PER SHEET DT09. CONNECT NEW 1" SERVICE LINE TO EXISTING SADDLE ON 6-INCH WATERLINE. REPLACE CURB & GUTTER PER COB ST-3 AS NEEDED. CAP EXISTING LATERAL AND ABANDON IN PLACE.
- 7 EXISTING METERS: REPLACE EXISTING 1" LATERAL WITH NEW 1" BLUE POLY LINE PER SHEET DT01. CONNECT INTO NEW 8-INCH LINE.
- 8 INSTALL 8-INCH BLUE PVC C900 DR18 PER PER SHEET DT02.
- 9 PROVIDE MJ CAP ON EXISTING 6-INCH LINE.
- 16 INSTALL 4-INCH BLOW-OFF VALVE PER DETAIL SHEET DT08.

NOTES:

- 1. BE AWARE THAT SEWER SERVICE LINE CONNECTIONS ARE NOT SHOWN. VERIFY LOCATION AND MAINTAIN PROPER DISTANCE BETWEEN WATERLINES & SEWER SERVICE LINES. PLACE FLOWABLE FILL WHERE SEPARATION IS LESS THAN 18-INCHES.
- 2. REMOVE EXIST PAVEMENT AND PLACE NEW 3-INCH HMA PER CITY STANDARD.
- 3. ALL CURB & GUTTER REPLACEMENT TO BE PER COB ST-2.

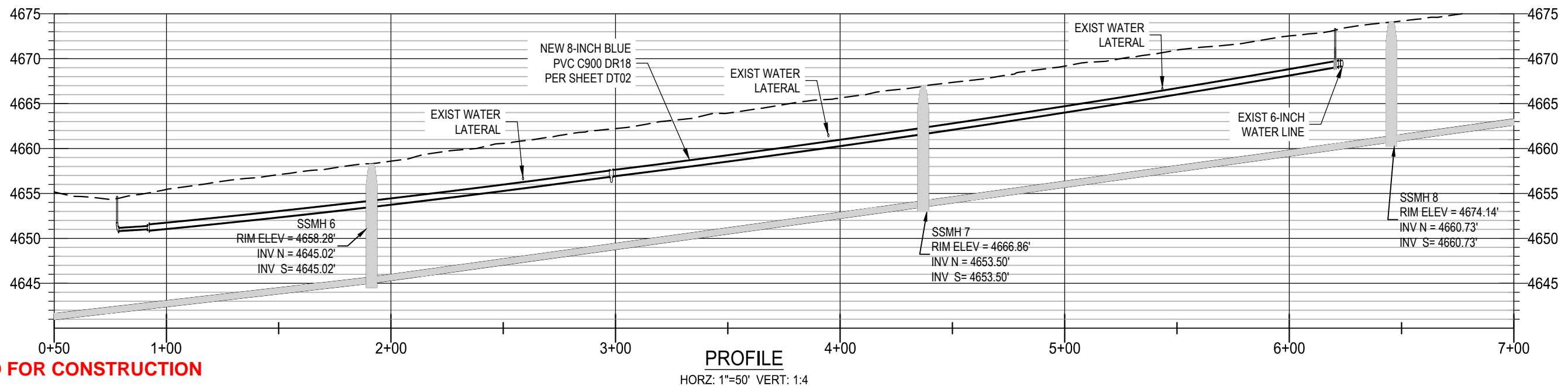


PLAN
SCALE: 1"=50'



LEGEND:

- - - - - EXISTING WATER LATERAL
- NEW WATER LATERAL
- 2-INCH ROTOMILL & OVERLAY PER COB ST-12, ST-7B & ST-7D
- ▨ FULL ASPHALT RESTORATION PER COB ST-12, ST-7B & ST-7D



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Feb 01, 2023

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SIGNED: *Michael G. [Signature]*



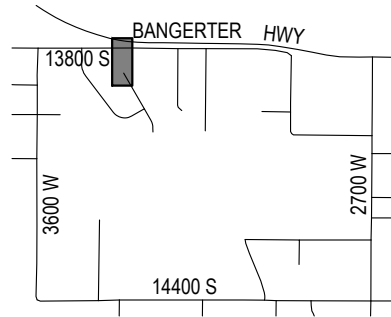
FIRE FLOW DEFICIENCIES PROJECT

DEER HAVEN COVE - PLAN & PROFILE

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	8 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	PP04

Plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Fire Flow Deficiencies Project | Water Deficiencies | Design.dwg

VICINITY MAP

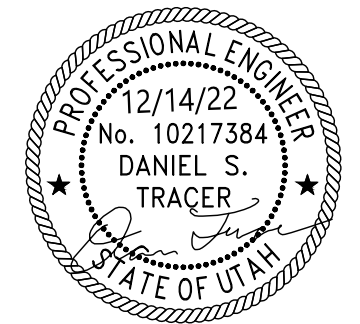
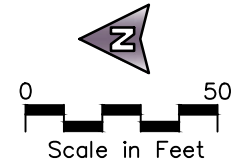
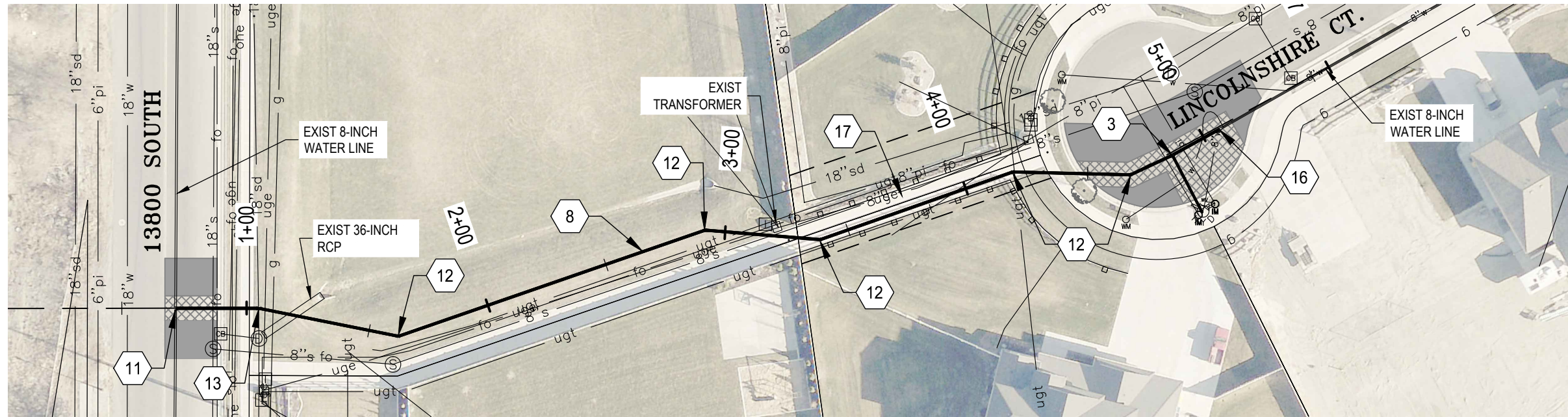


KEYED NOTES:

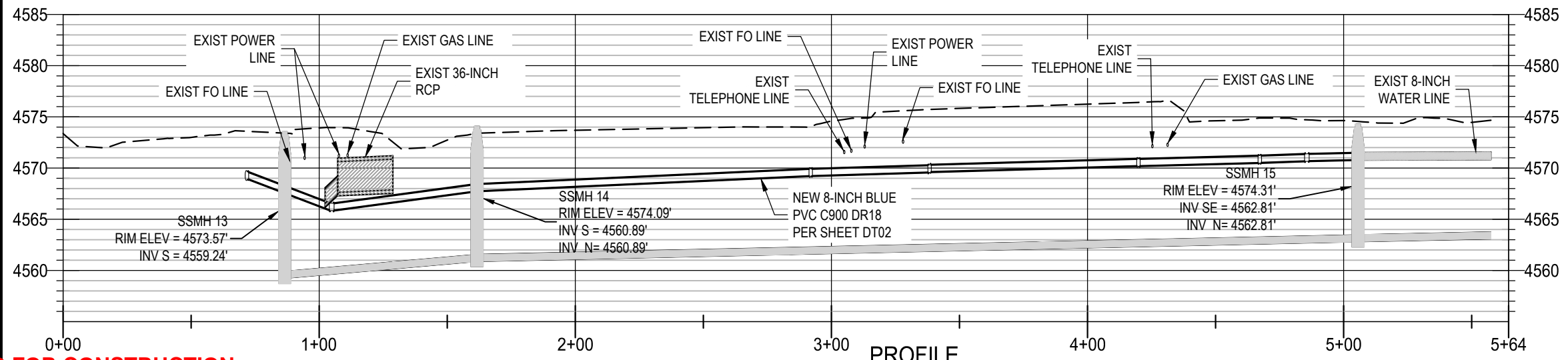
- 3 INSTALL 8"x8" TEE WITH ML JOINT RESTRAINTS PER SHEET DT-06 & THRUST BLOCKS PER SHEET DT-04. TIE NEW 6-INCH LINE TO EXIST. FIRE HYDRANT.
- 8 INSTALL 8-INCH BLUE PVC C900 DR18 PER PER SHEET DT02.
- 11 CUT IN 8"x8" TEE WITH ML & TB & MJ SLEEVE. PROVIDE 8-INCH GATE VALVE WITH MEGA-LUGS ON SOUTHERN LINE.
- 12 INSTALL 22.5° MJ BEND WITH ML PER SHEET DT06 & TB PER SHEET DT04.
- 13 INSTALL 11.25° MJ BEND WITH ML PER SHEET DT06 & TB PER SHEET DT04.
- 14 INSTALL 45° MJ BEND WITH ML PER SHEET DT06 & TB PER SHEET DT04.
- 16 REMOVE EXIST. BEND & LINE GOING TO FIRE HYDRANT. TIE NEW 8-INCH LINE INTO EXIST. 8-INCH LINE.
- 17 REPLACE 10' CONCRETE TRAIL AS NEEDED. MATCH EXISTING THICKNESS.

NOTES:

1. BE AWARE THAT SEWER SERVICE LINE CONNECTIONS ARE NOT SHOWN. VERIFY LOCATION AND MAINTAIN PROPER DISTANCE BETWEEN WATERLINES & SEWER SERVICE LINES. PLACE FLOWABLE FILL WHERE SEPARATION IS LESS THAN 18-INCHES.
2. REMOVE EXIST PAVEMENT AND PLACE NEW 3-INCH HMA PER CITY STANDARD.
3. ALL CURB & GUTTER REPLACEMENT TO BE PER COB ST-2.



PLAN
SCALE: 1"=50'



PROFILE
HORZ: 1"=50' VERT: 1:4

LEGEND:

- EXISTING WATER LATERAL
- NEW WATER LATERAL
- 2-INCH ROTOMILL & OVERLAY PER COB ST-12, ST-7B & ST-7D
- FULL ASPHALT RESTORATION PER COB ST-12, ST-7B & ST-7D

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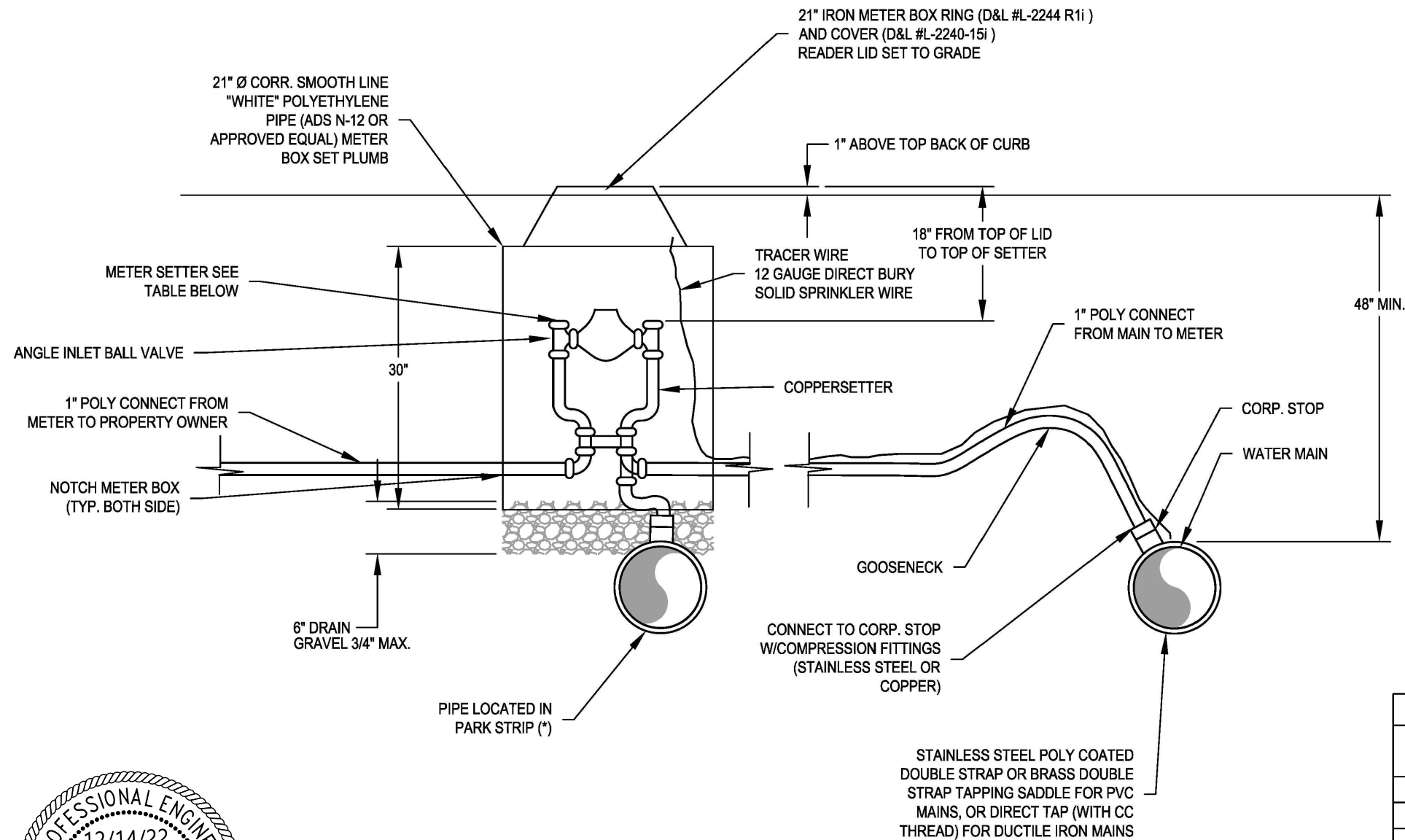
SIGNED: *Michael G. [Signature]*



FIRE FLOW DEFICIENCIES PROJECT
 LINCOLNSHIRE COURT - PLAN & PROFILE

REVISIONS			DESIGNED	DATE	PROJECT NO.
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REV	DATE	BY	DRAWN	DATE	SHEET NO.
			KT	9/6/22	9 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	PP05

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg - Fire Flow Deficiencies Project - Water Deficiencies - Design.dwg



SECTION
SCALE: 3/4" = 1'-0"

RELOCATED METERS:

EXIST. LID, BOX, METER AND SETTER TO BE RELOCATED TO LOCATIONS SHOWN ON PLANS. CONNECTION TO THE SUPPLY MAIN, CORP. STOP, AND SERVICE PIPING FROM THE MAIN TO THE METER, AND FROM THE METER TO THE OWNERS PIPING TO BE PROVIDED BY THE CONTRACTOR MAKING SERVICE COMPLETE AND OPERATIONAL. AT THE OPTION OF THE CITY NEW COMPONENTS OF THE LID, BOX METER OR SETTER MAY BE PROVIDED, IN WHICH THE NEW COMPONENTS SHALL BE USED AS PART OF THE RELOCATION CONNECTION.

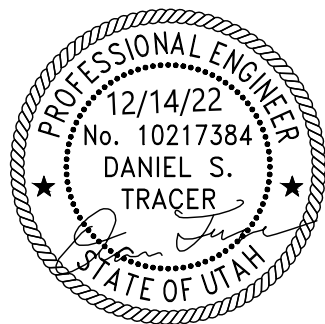
NEW METERS:

NEW METERS TO BE INSTALLED AT THE LOCATIONS SHOWN ON THE PLANS. THE LID, BOX, METER, AND SETTER WILL BE PROVIDED BY THE CONTRACTOR. CONNECTION TO THE SUPPLY MAIN, CORP. STOP, AND SERVICE PIPING FROM THE MAIN TO THE METER AND FROM THE METER TO 10'-0" ONTO THE OWNERS PROPERTY SHALL BE PROVIDED BY THE CONTRACTOR. SETTERS SHALL BE FORD MODELS AS LISTED BELOW OR APPROVED EQUAL.

NOTES:

- PIPES AND PIPE FITTINGS MUST MEET THE SPECIFICATIONS OF ANSI/NSF 372 OR ANNEX G OF ANSI/NSF 61
- PROVIDE 4-FT MINIMUM OF SEPARATION BETWEEN VALVES, BENDS, TEES AND TAPS OR SADDLES UNLESS APPROVED BY CITY ENGINEER

DRINKING WATER METER SETTER			
APPLICATION	METER SIZE	DUAL CHECK	FORD MODEL #
			LONG SIDE
RESIDENTIAL	3/4" x 3/4"	YES	VBHC-73-18W-NL
RESIDENTIAL	1" x 1"	YES	VBHC-74-18W-NL
COMMERCIAL	3/4" x 3/4"	YES	VBHC-73-18W-NL
COMMERCIAL	1" x 1"	YES	VBHC-74-18W-NL



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Feb 01, 2023

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SIGNED: *Michael G. [Signature]*

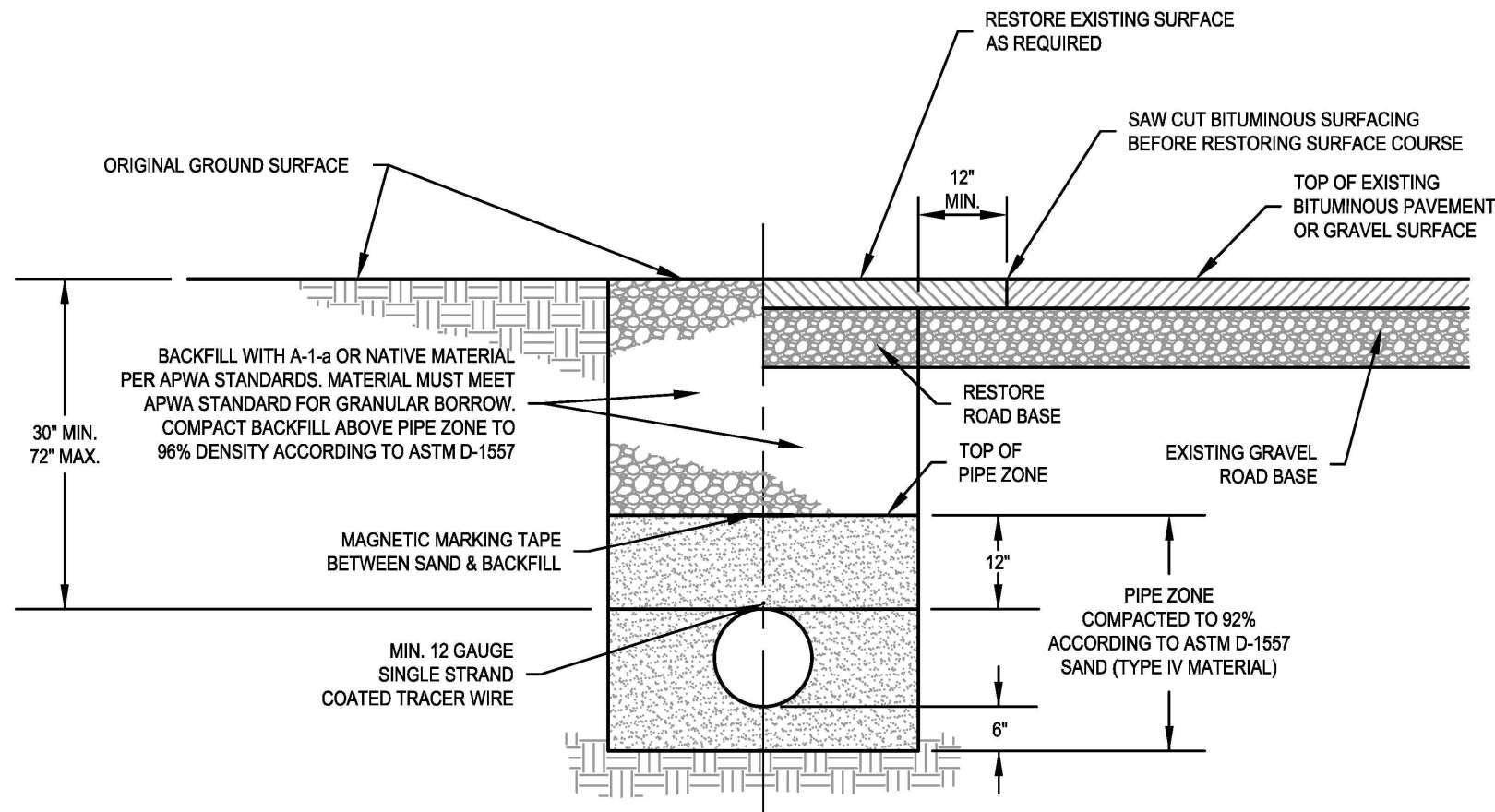


FIRE FLOW DEFICIENCIES PROJECT

DRINKING WATER SERVICE DETAIL

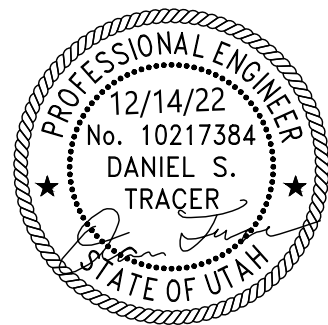
REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	11 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT01

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Project: Fire Flow Deficiencies | State: Utah



CROSS-SECTION: TYPICAL TRENCH

SCALE: 1/2" = 1'-0"



GENERAL WATERLINE NOTES:

1. FOLLOW UAC RULE 309-550-8 FOR ALL WATER MAIN INSTALLATIONS
2. PROVIDE A MINIMUM PIPE DIAMETER OF 8-INCH FOR ALL DRINKING WATER THAT SUPPORT FIRE FLOW OR AS STATE CODE ALLOW. SIZE THE DISTRIBUTION SYSTEM FOR THE FLOW RATE AND DURATION ACCORDING TO THE CITY FIRE CODE. DESIGN THE WATER DISTRIBUTION SYSTEM TO MEET THE CITY FIRE CODE REQUIREMENTS.
3. PROVIDE A MINIMUM PIPE DIAMETER OF 6-INCH FOR ALL DRINKING WATER THAT DOES NOT SUPPORT FIRE FLOW.
4. SET FIRE HYDRANTS AT LOCATIONS ACCORDING TO THE ADOPTED STATE FIRE CODE (SEE UAC R309-550-5(5)).
5. AT DEAD-END LINES PROVIDE A FIRE HYDRANT OR FLUSH HYDRANT OR BLOW OFF VALVES
6. SIZE FLUSHING DEVICES FOR A MINIMUM VELOCITY OF 2.5 FPS. PROVIDE MINIMUM SEPARATION FROM SEWER ACCORDING TO STATE REQUIREMENTS (SEE UAC R309-550-7).
7. DO NOT SPACE ISOLATION VALVES MORE THAN 500 FEET IN COMMERCIAL DISTRICTS.
8. DO NOT SPACE ISOLATION VALVES MORE THAN 800 FEET IN NON-COMMERCIAL DISTRICTS.
9. USE ONLY NSF/ANSI 61 CERTIFIED WATER SYSTEM COMPONENTS. PROVIDE CERTIFICATIONS TO THE CITY PRIOR TO ANY NEW WATER INSTALLATION.
10. WATERLINES WITH INSIDE DIAMETER 8-INCH TO 12-INCH PROVIDE BLUE PVC C900 CLASS, DR18, CLASS 235.
11. WATERLINES WITH INSIDE DIAMETER 14-INCH AND LARGER - PROVIDE DUCTILE IRON CLASS-250 WRAPPED IN PLASTIC OR BLUE PVC C905, DR18, CLASS 235.
12. USE BUTTERFLY VALVES FOR WATERLINES WITH ID OF 14-INCH OR LARGER.
13. THE CHARACTER OF THE SOIL THROUGH WHICH WATER MAINS ARE TO BE LAID SHALL BE CONSIDERED (SEE UAC R309-550(6)).

OPERATION

14. NOTIFY THE CITY OF BLUFFDALE PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO MAKING ANY CONNECTION TO ANY EXISTING WATERLINES.
15. AVOID ANY SPLICING CONNECTION OF TRACER WIRE IF POSSIBLE. WHEN SPLICING IS NEEDED USE GREASE FILLED NUT AND WRAP WITH TAPE. RUN TRACER WIRE INSIDE VALVE BOX TO THE LID.
16. USE JOINT FITTINGS UNLESS OTHERWISE APPROVED BY CITY ENGINEER. WHERE RESTRAINED JOINTS ARE REQUIRED USE MEGA LUGS.

MINIMUM STANDARDS

17. FOLLOW ALL CURRENT OSHA REQUIREMENTS AND UOSH REQUIREMENTS FOR SAFETY.
18. SUPPLY DRINKING WATER HAVING:
 - 18.1. MINIMUM 20 PSI PEAK DAY DEMAND DURING FIRE FLOW
 - 18.2. MINIMUM 30 PSI PEAK INSTANTANEOUS DEMAND
 - 18.3. MINIMUM 40 PSI PEAK DAY DEMAND.
19. MAINTAIN THE MINIMUM PRESSURE AT POINTS OF CONNECTION UNDER ALL FLOW CONDITIONS. PROVIDE PRESSURE REDUCING DEVICES WHERE THE STATIC PRESSURE EXCEEDS 150 PSI.
20. PROVIDE MATERIALS/PARTS THAT MEET THE FOLLOWING SPECIFICATIONS:
 - 20.1. DRINKING WATER: NSF/ANSI 61, AWWA C104-A21.4-08 THROUGH C550-05, C900-07 THROUGH C950-07
 - 20.2. DUCTILE IRON PIPE (DIP): AWWA C600-10
 - 20.3. PVC PIPE: ASTM D2774 AND AWWA M23
 - 20.4. HDPE PIPE: ASTM D2774 AND AWWA M55
 - 20.5. STEEL PIPE: AWWA C604-11
21. PROVIDE CONTINUOUS BEDDING FOR ALL WATERLINES (SEE UAC R309-550-8(2)).
22. DO NOT DROP PIPES IN THE TRENCH. PROVIDE AT LEAST 6INCH BEDDING. USE BACKFILL WITH PARTICLE SIZE THAT ARE NOT LARGER THAN 3/4INCH (SEE UAC R309-550-8(3)).
23. TEST THE PIPE FOR PRESSURE AND LEAKS ACCORDING TO AWWA C600-10.
24. SEAL THE NEW PIPE INSTALLATION AT THE END OF EACH CONSTRUCTION DAY.
25. FOLLOW AWWA C651-14 FOR FLUSHING, DISINFECTING AND MICROBIOLOGICAL TESTING.

VALVING

26. PLACE VALVES SO THAT NO MORE THAN 30 HOMES ARE AFFECTED BY A SHUT DOWN.
27. AT A TEE PLACE VALVES ON AT A LEAST TWO BRANCHES, AT A CROSS PLACE VALVES ON AT A LEAST THREE BRANCHES OR AS NEEDED FOR PROPER ISOLATION.
28. PLACE VALVES AT NO MORE THAN 500 FEET INTERVALS IN COMMERCIAL DISTRICTS AND NO MORE THAN ONE BLOCK OR 800 FEET FOR NON COMMERCIAL DISTRICTS.
29. USE MECHANICAL JOINTS ON VALVES AND BENDS.

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Feb 01, 2023

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SIGNED: *Michael G. [Signature]*



FIRE FLOW DEFICIENCIES PROJECT

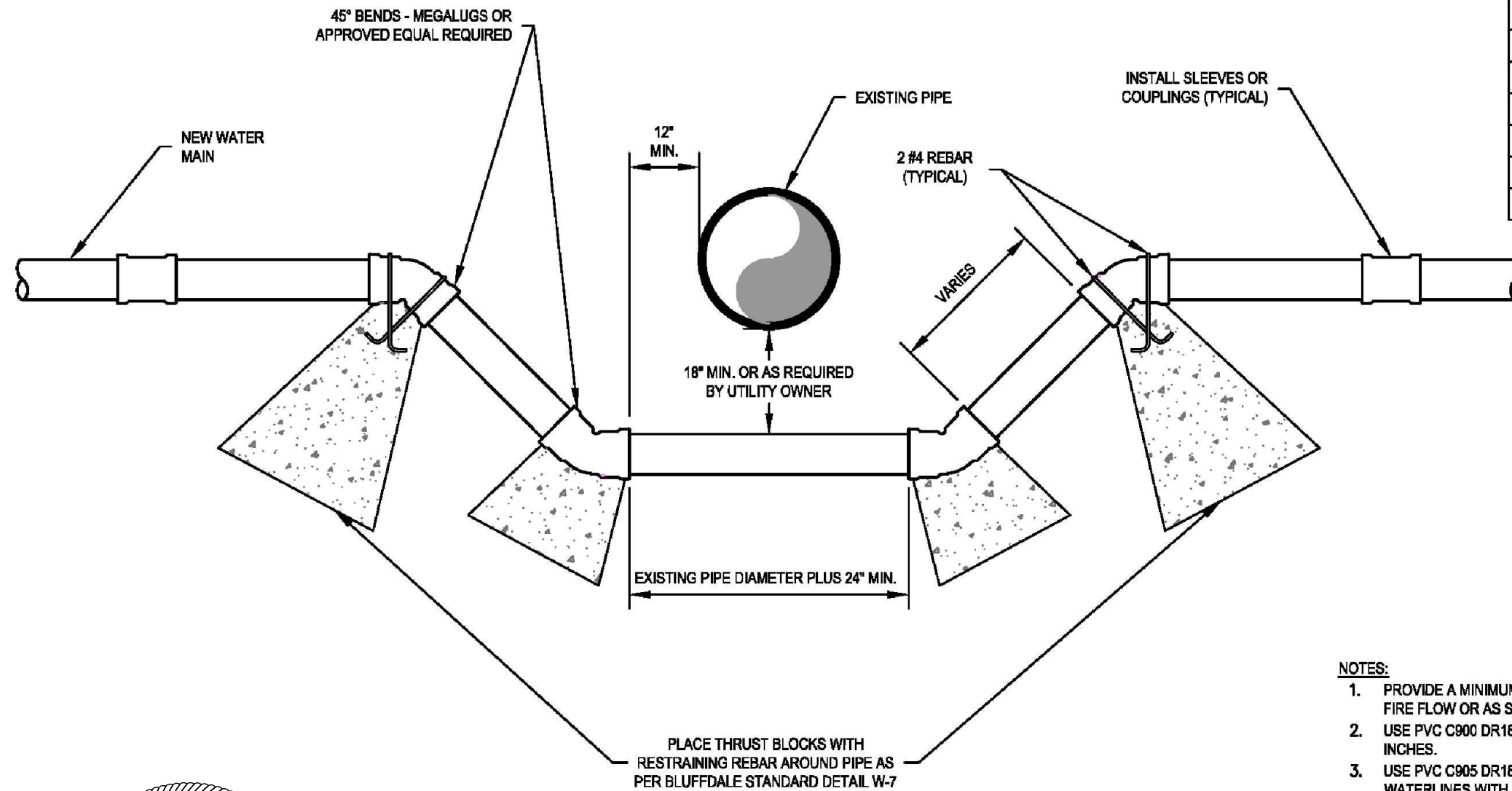
DRINKING WATER LINE INSTALLATION DETAIL

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	12 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT02

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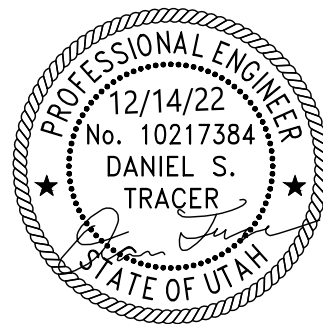
THRUST BLOCK DIMENSIONS

FITTING SIZE	90° ELBOW	45° BEND	22½° BEND	11¼° BEND
4"	-	-	-	-
6"	1.3 CY	-	-	-
8"	2.3 CY	1.1 CY	-	-
10"	3.7 CY	1.8 CY	-	-
12"	5.5 CY	2.8 CY	1.2 CY	-
14"	7.6 CY	3.9 CY	1.7 CY	-
16"	9.9 CY	5.1 CY	2.3 CY	0.9 CY



NOTES:

1. PROVIDE A MINIMUM PIPE DIAMETER OF 8-INCH FOR ALL DRINKING WATER THAT SUPPORT FIRE FLOW OR AS STATE CODE ALLOWS.
2. USE PVC C900 DR18 CLASS 235 PVC FOR ALL WATERLINES WITH INSIDE DIAMETER OF 8-12 INCHES.
3. USE PVC C905 DR18 CLASS 235 OR DUCTILE IRON CLASS 240 WRAPPED IN PLASTIC FOR ALL WATERLINES WITH INSIDE DIAMETER OF 14 INCHES AND LARGER.
4. NOTIFY THE CITY OF BLUFFDALE PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO MAKING ANY CONNECTION TO EXISTING WATERLINES.
5. AVOID ANY SPLICING CONNECTION OF TRACER WIRE TO THE MAXIMUM EXTENT POSSIBLE. IF SPLICING IS NECESSARY, USE GREASE FILLED NUT AND WRAP WITH TAPE.
6. AVOID LOOPING POTABLE WATERLINES UNDER SANITARY SEWER WHEREVER POSSIBLE. IF A LOOP UNDER A SANITARY SEWER MAIN IS NECESSARY, ENCASE POTABLE WATERLINE IN FLOWABLE FILL FOR 5' ON EITHER SIDE OF THE CROSSING, CROSS THE SEWER LINE AT A 90 DEGREE ANGLE, AND CENTER THE PIPE LENGTH AT THE CROSSING SO THE JOINTS ARE AS FAR AWAY FROM THE SEWER LINE AS POSSIBLE. PERMISSION FROM DDW IS REQUIRED BEFORE LOOPING UNDER SANITARY SEWER LINES IN ACCORDANCE WITH UAC R309-105-6(2)(b).
7. ALL WATERLINE DESIGN AND INSTALLATION MUST COMPLY WITH ALL REQUIREMENTS IN UAC R309-550.



SECTION

SCALE: 1/2" = 1'-0"

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Feb 01, 2023

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SIGNED: *Michael G. [Signature]*

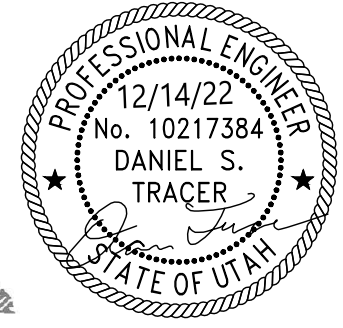


FIRE FLOW DEFICIENCIES PROJECT

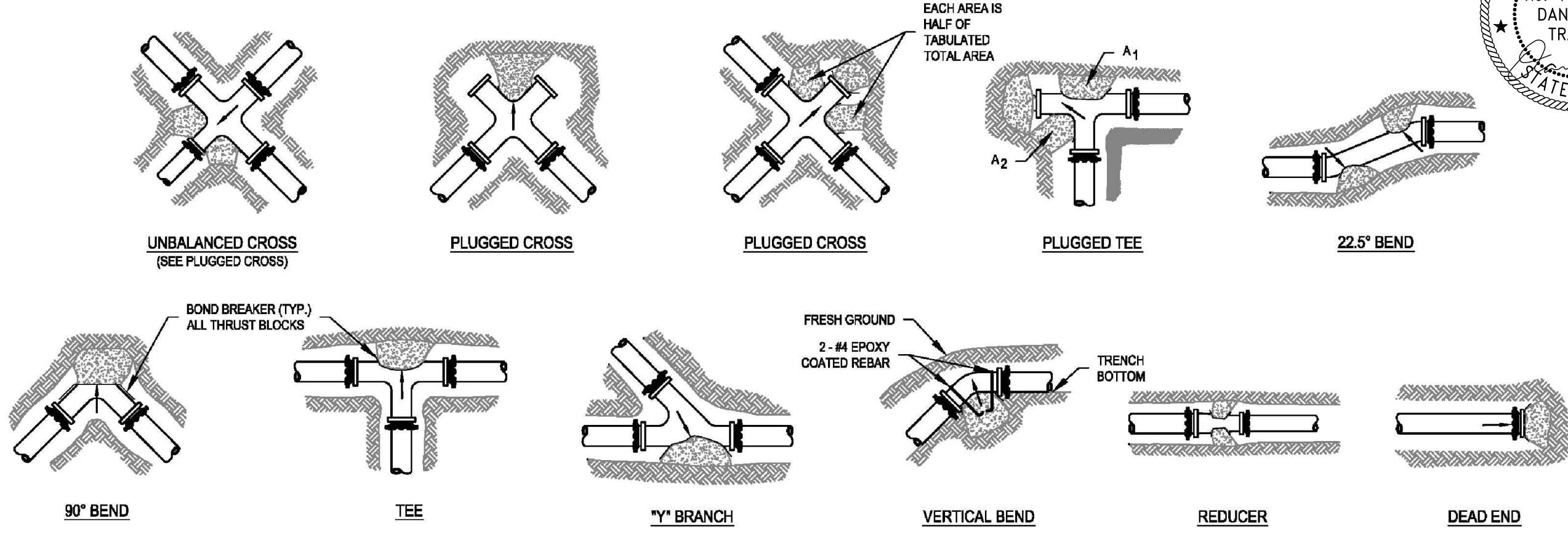
DRINKING WATER PIPE LOOP DETAIL

REVISIONS				DESIGNED	DATE	PROJECT NO.
REV	DATE	BY		KT	9/6/22	COB22001WS
				DRAWN	DATE	SHEET NO.
				KT	9/6/22	13 OF 20
				CHECKED	DATE	DRAWING NO.
				DT	9/6/22	DT03

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THRUST BLOCK DETAILS



THRUST BLOCK DIMENSIONS

FITTING SIZE	TEE, "Y", PLUG OR CAP	90° ELBOW	TEE PLUGGED ON RUN		45° BEND	22½° BEND	11¼° BEND
			A ₁	A ₂			
4"	1.0 SF	1.4 SF	1.9 SF	1.4 SF	1.0 SF	-	-
6"	2.0 SF	3.0 SF	4.3 SF	3.0 SF	1.6 SF	1.0 SF	-
8"	3.8 SF	5.3 SF	7.6 SF	5.4 SF	2.9 SF	1.5 SF	1.0 SF
10"	5.9 SF	8.4 SF	11.8 SF	8.4 SF	4.6 SF	2.4 SF	1.2 SF
12"	8.5 SF	12.0 SF	17.0 SF	12.0 SF	6.6 SF	3.4 SF	1.7 SF
14"	11.5 SF	16.3 SF	23.0 SF	16.0 SF	8.9 SF	4.6 SF	2.3 SF
16"	15.0 SF	21.3 SF	30.0 SF	21.3 SF	11.6 SF	6.0 SF	3.0 SF
18"	27.0 SF	27.0 SF	38.0 SF	27.0 SF	14.6SF	7.6 SF	3.8 SF

NOTE: TABLE BASED ON 150 PSI. AND SOIL BEARING PRESSURE OF (F_c) = 2000 PSI

NOTES:

1. MEASURE THE VERTICAL FACE OF THE BEARING AREA IN SQUARE FEET (SF).
2. PROVIDE ALL THRUST BLOCKS OF EQUAL HEIGHT AND WIDTH DIMENSIONS.
3. GREASE AND WRAP FITTINGS WITH BOND BREAKER SUCH AS VISQUEEN OR POLY WRAP.
4. USE "MEGA-LUG" JOINTS IN ADDITION TO, NOT INSTEAD OF THRUST BLOCKS.
5. ARROWS INDICATE DIRECTION OF THRUST.
6. POUR THRUST BLOCK AGAINST UNDISTURBED EARTH.
7. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES.
8. ADJUST BEARING SURFACE TO SOIL STRENGTH (ALLOWABLE SOIL BEARING STRESS) IF NEEDED.
9. USE CONCRETE WITH 3000 P.S.I. MINIMUM STRENGTH. FOLLOW APWA 033000.

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Feb 01, 2023

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SIGNED: *Michael G. [Signature]*

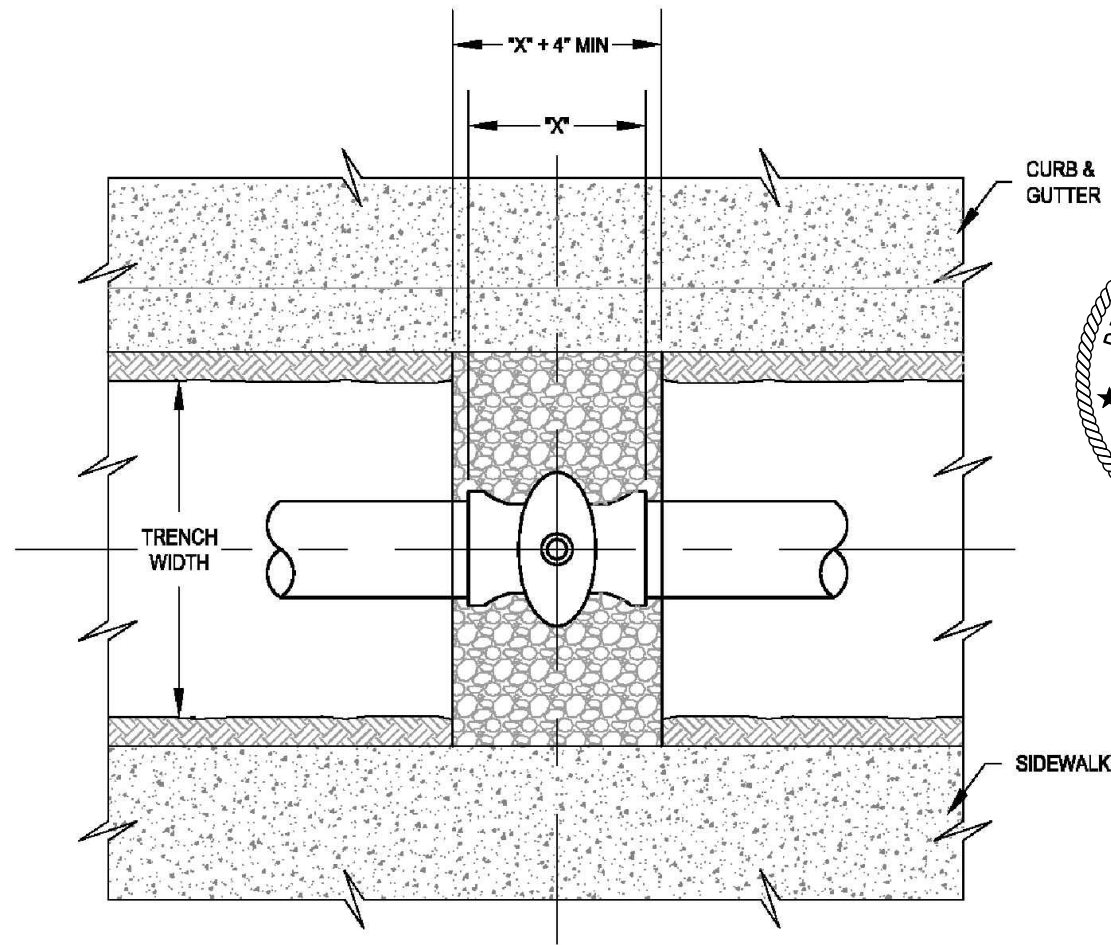


FIRE FLOW DEFICIENCIES PROJECT

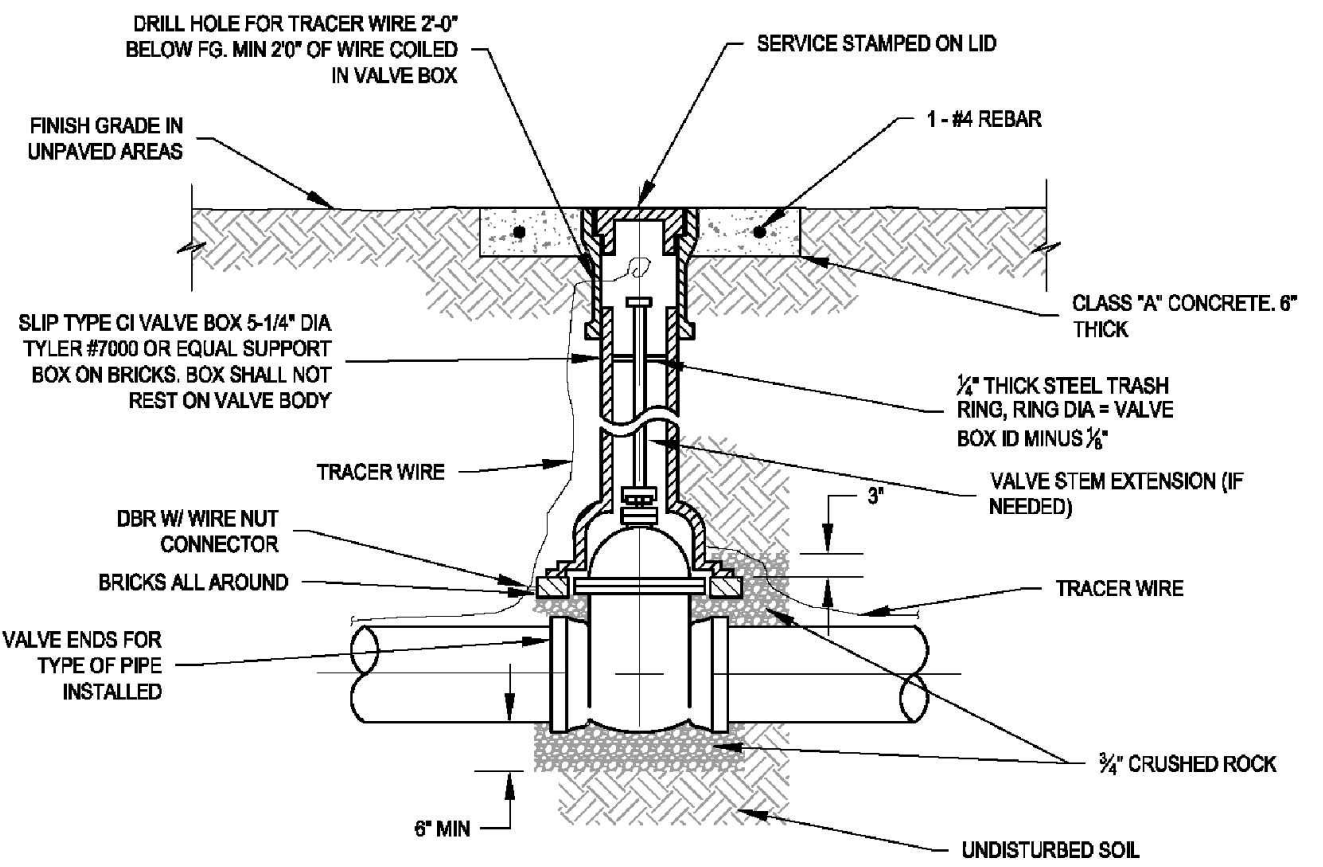
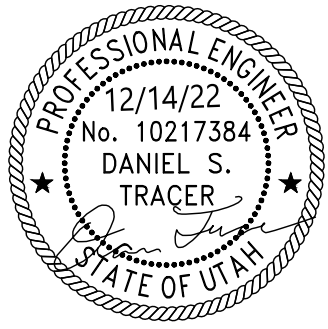
WATERLINE THRUST BLOCKING DETAIL

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
					SHEET NO.
			KT	9/6/22	14 OF 20
					DRAWING NO.
			DT	9/6/22	DT04

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Fire Flow Deficiencies Project | Water Deficiencies | Design | Fire Flow Deficiencies Project | Water Deficiencies | Design | Fire Flow Deficiencies Project | Water Deficiencies | Design

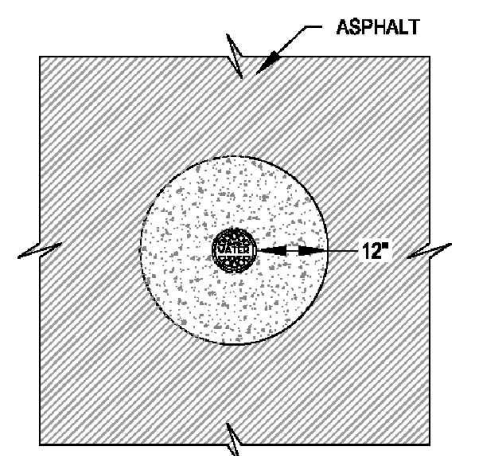


PLAN
SCALE: 1/2" = 1'-0"

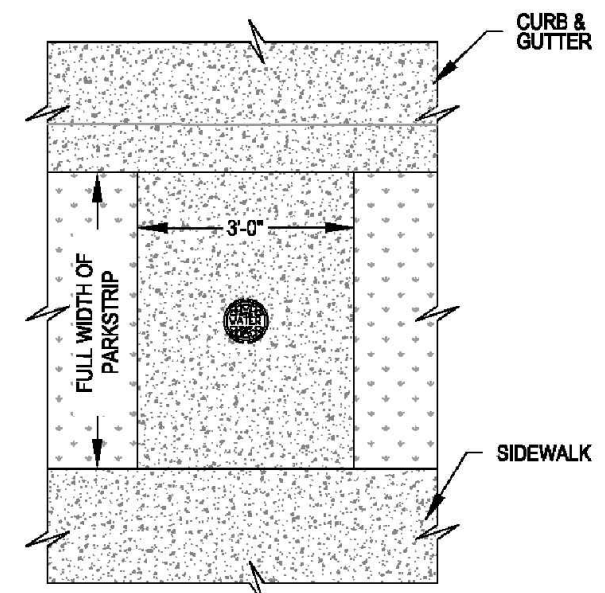


SECTION
SCALE: 1/2" = 1'-0"

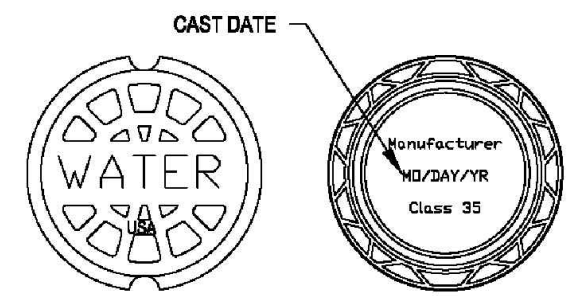
- NOTES:**
1. ALL BURIED VALVES TO BE PROVIDED W/ EXTENSION STEM OPERATOR W/ 2" SQ AWWA NUT WITHIN 36" OF VALVE BOX COVER. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.
 2. DOWE COAT BURIED PIPE & VALVE BOX PER SPECIFICATIONS.
 3. CLEAN VALVE BOX OF ALL DEBRIS & SOIL.
 4. GATE VALVE 10" AND UNDER. BUTTERFLY VALVE 12" AND LARGER. (VALVE SAME SIZE AS PIPELINE)
 5. DO NOT SPACE ISOLATION VALVES MORE THAN 500 FEET IN COMMERCIAL DISTRICTS.
 6. DO NOT SPACE ISOLATION VALVES MORE THAN 800 FEET IN NON-COMMERCIAL DISTRICTS.



CONCRETE COLLAR IN ROADWAY
SCALE: 3/8" = 1'-0"



CONCRETE COLLAR IN PARK STRIP
SCALE: 3/8" = 1'-0"



- VALVE LID NOTES:**
1. LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
 2. VALVE COVER TO BE DOMESTICALLY CAST
 3. COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
 4. COVER MUST BE CLASS 35 OR GREATER.
 5. COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS
 6. "WATER" ON LIDS FOR POTABLE WATER SERVICE
 7. "IRRIGATION" ON LIDS FOR PRESSURIZED IRRIGATION SERVICE

ACCEPTED FOR CONSTRUCTION
 ACCEPTANCE DOES NOT GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE PLANS OR THAT THEY MEET ALL CITY REQUIREMENTS AND STANDARDS
 Feb 01, 2023
 THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES



FIRE FLOW DEFICIENCIES PROJECT
 WATERLINE THRUST BLOCKING DETAIL

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	15 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT05

SIGNED: *Michael G. [Signature]*

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Fire Flow Deficiencies Project | Water Deficiencies | Design.dwg | Fire Flow Deficiencies Project | Water Deficiencies | Design.dwg

PVC VERTICAL BEND RESTRAINED LENGTHS IN FT.										
(L1, - BEFORE CONNECTION / L2, - AFTER CONNECTION)										
BEND ANGLE	PIPE SIZE									
4	6	8	10	12	14	16	18	20	24	
11.25	5/2	7/2	9/3	11/4	13/4	15/5	17/5	19/6	21/6	24/7
22.5	10/3	15/5	19/6	23/7	27/9	31/10	35/11	38/12	42/13	49/15
45	22/7	30/10	40/13	48/15	56/18	64/20	72/23	80/25	87/27	102/31

DIP VERTICAL BEND RESTRAINED LENGTHS IN FT.										
(L1, - BEFORE CONNECTION / L2, - AFTER CONNECTION)										
BEND ANGLE	PIPE SIZE									
4	6	8	10	12	14	16	18	20	24	
11.25	3/1	5/2	6/3	7/3	8/4	10/4	11/5	12/5	13/5	15/6
22.5	7/3	9/4	12/5	15/6	17/7	20/8	22/9	24/10	27/11	31/13
45	14/6	19/8	25/11	30/13	36/15	41/17	46/19	51/21	56/23	65/27

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOURS OF THE GROUND.

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.										
BEND ANGLE	PIPE SIZE									
4	6	8	10	12	14	16	18	20	24	
11.25	2	2	3	4	4	5	5	6	6	7
22.5	3	5	6	7	9	10	11	12	13	15
45	7	10	13	15	18	20	23	25	27	31
90	17	24	31	37	43	49	55	60	65	75

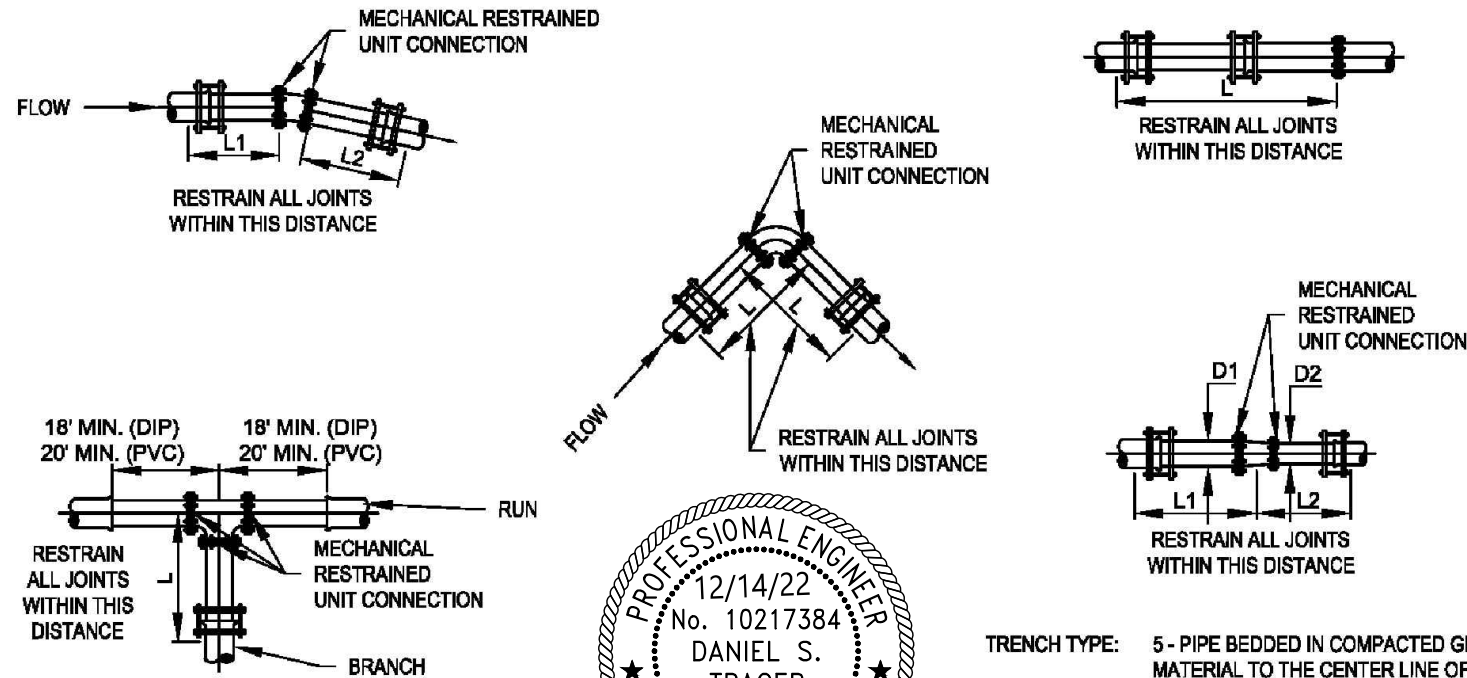
DIP HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.										
BEND ANGLE	PIPE SIZE									
4	6	8	10	12	14	16	18	20	24	
11.25	1	2	3	3	4	4	5	5	6	6
22.5	3	4	5	6	7	8	9	10	11	13
45	6	8	11	13	15	17	19	21	23	27
90	14	20	26	31	37	41	46	51	56	64

PVC DEAD END RESTRAINED LENGTHS L, IN FT.										
PIPE SIZE										
4	6	8	10	12	14	16	18	20	24	
52	73	96	115	136	155	174	192	211	246	

DIP DEAD END RESTRAINED LENGTHS L, IN FT.										
PIPE SIZE										
4	6	8	10	12	14	16	18	20	24	
33	47	61	73	86	98	111	122	134	156	

NOTES:

- FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE L1 ON BOTH SIDES OF FITTING.
- ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED.
- RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
- ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 20' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.
- CONTRACTOR MUST USE EITHER MEGALUG OR CONCRETE THRUST RESTRAINING SYSTEM FOR THE ENTIRE PROJECT UNLESS SPECIFIED OTHERWISE.
- CROSSES TO BE TREATED AS TEES FOR THE MEGALUG THRUST RESTRAINING SYSTEM.



BASED ON:

TEST PRESSURE: 200 PSI
 SOIL TYPE: GM - SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
 BURIAL DEPTH: 4 FT.

TRENCH TYPE: 5- PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4" MIN. UNDER PIPE. COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE. (APPROX. 90% STANDARD PROCTOR, AASHTO T-99)

SAFETY FACTOR : 1.5

* CALCULATIONS DERIVED FROM EBAA IRON SALES

PVC TEE RESTRAINED LENGTHS L, IN FT.										
BRANCH SIZE D/A.	RUN SIZE DIAMETER									
4	*	*	*	*	*	*	*	*	*	*
6	*	*	*	*	*	*	*	*	*	*
8	-	-	*	*	*	*	*	*	*	*
10	-	-	-	*	*	*	*	*	*	*
12	-	-	-	-	8	*	*	*	*	*
14	-	-	-	-	-	25	5	*	*	*
16	-	-	-	-	-	-	44	24	4	*
18	-	-	-	-	-	-	-	60	43	6
20	-	-	-	-	-	-	-	-	78	45
24	-	-	-	-	-	-	-	-	-	110

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

DIP TEE RESTRAINED LENGTHS L, IN FT.										
BRANCH SIZE D/A.	RUN SIZE DIAMETER									
4	*	*	*	*	*	*	*	*	*	*
6	*	*	*	*	*	*	*	*	*	*
8	-	-	*	*	*	*	*	*	*	*
10	-	-	-	1	*	*	*	*	*	*
12	-	-	-	-	13	*	*	*	*	*
14	-	-	-	-	-	24	13	*	*	*
16	-	-	-	-	-	-	36	25	14	*
18	-	-	-	-	-	-	-	47	37	16
20	-	-	-	-	-	-	-	-	58	39
24	-	-	-	-	-	-	-	-	-	79

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

PVC REDUCER RESTRAINED LENGTHS L, IN FT.										
(SMALL SIDE / LARGE SIDE)										
D2	D1									
6	8	10	12	14	16	18	20	24		
4	55/38	133/69	226/93	341/118	-	-	-	-	-	-
6	-	53/40	116/71	194/99	206/123	392/147	-	-	-	-
8	-	-	48/39	108/72	178/101	258/127	349/151	-	-	-
10	-	-	-	48/40	108/73	167/103	240/130	320/155	-	-
12	-	-	-	-	47/40	100/74	160/104	226/132	382/182	-
14	-	-	-	-	-	45/40	97/74	154/105	285/160	-
16	-	-	-	-	-	-	45/39	94/74	209/134	-
18	-	-	-	-	-	-	-	44/39	144/106	-
20	-	-	-	-	-	-	-	-	90/74	-

DIP REDUCER RESTRAINED LENGTHS L, IN FT.										
(SMALL SIDE / LARGE SIDE)										
D2	D1									
6	8	10	12	14	16	18	20	24		
4	35/24	85/44	144/60	218/75	-	-	-	-	-	-
6	-	34/36	74/45	125/63	183/78	251/93	-	-	-	-
8	-	-	31/25	69/46	114/64	165/81	223/96	-	-	-
10	-	-	-	30/25	68/47	107/66	153/83	205/99	-	-
12	-	-	-	-	30/25	64/47	102/66	145/84	243/116	-
14	-	-	-	-	-	29/25	61/47	98/67	181/101	-
16	-	-	-	-	-	-	28/25	60/47	133/85	-
18	-	-	-	-	-	-	-	26/25	92/67	-
20	-	-	-	-	-	-	-	-	57/47	-

ACCEPTED FOR CONSTRUCTION

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Feb 01, 2023

CALL BLUESTAKES @ 1-800-862-4111 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: *Michael G. [Signature]*

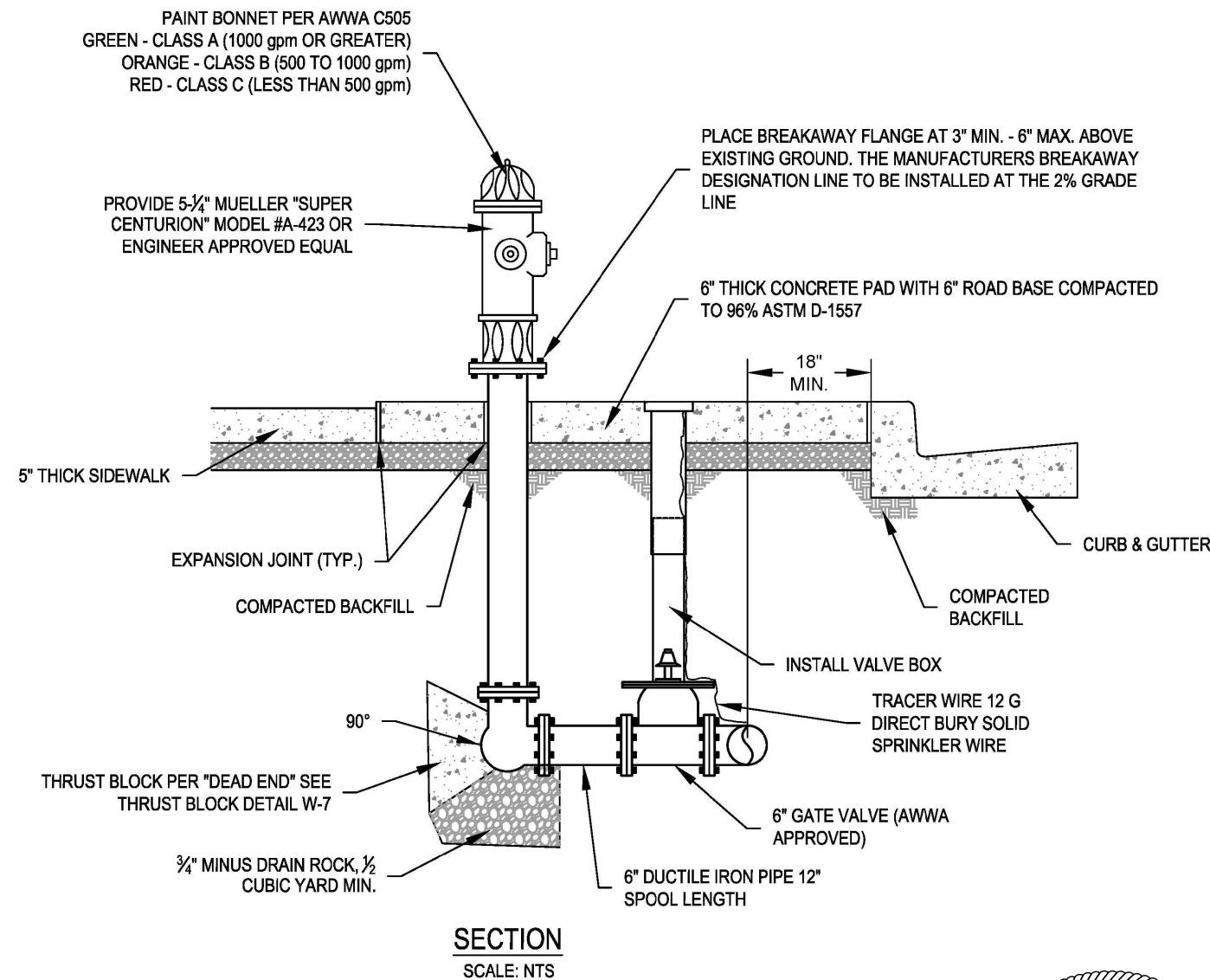


FIRE FLOW DEFICIENCIES PROJECT

MECHANICAL THRUST RESTRAINING SYSTEM DETAIL

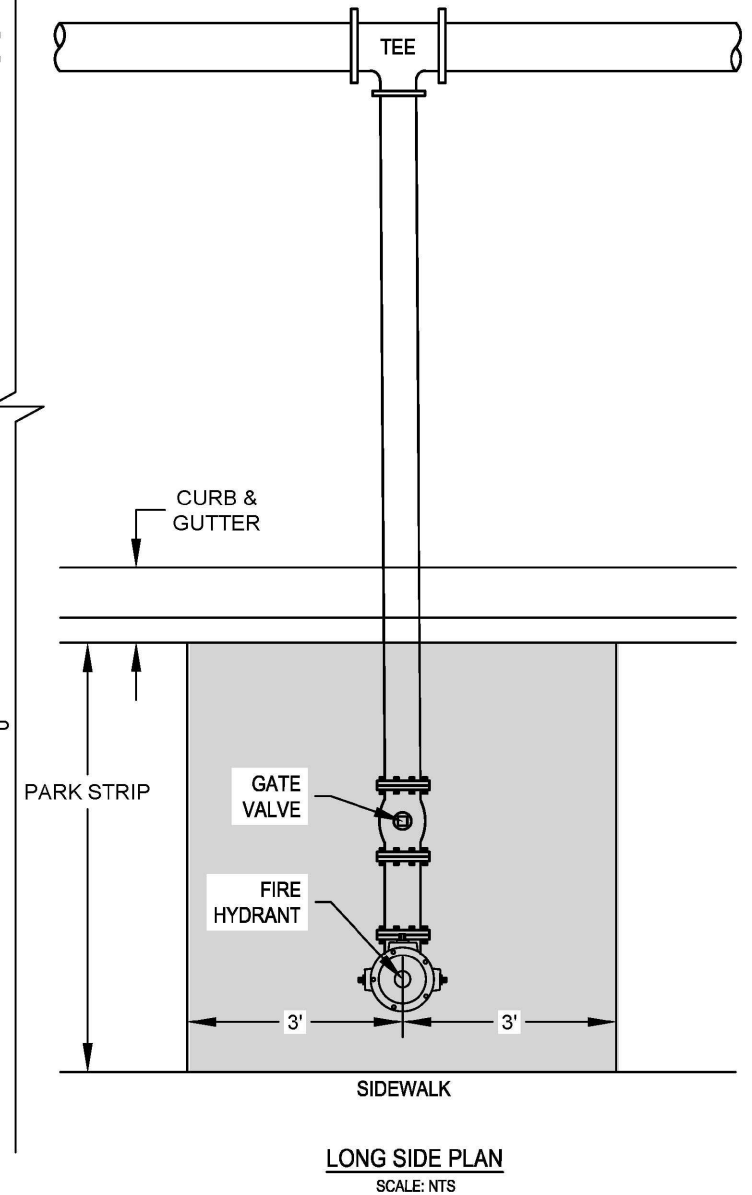
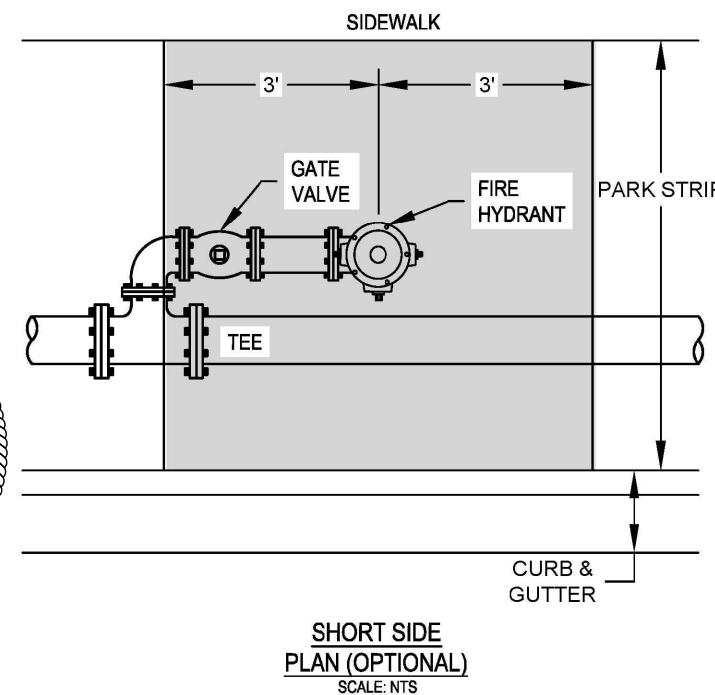
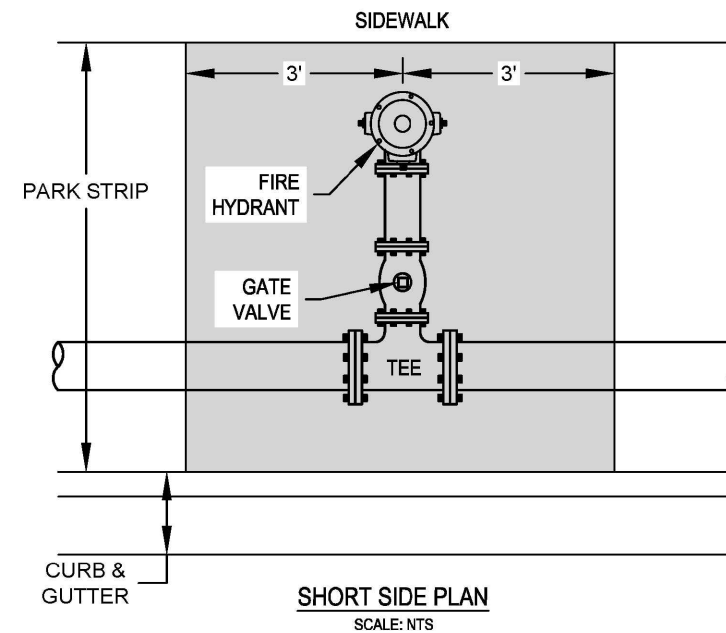
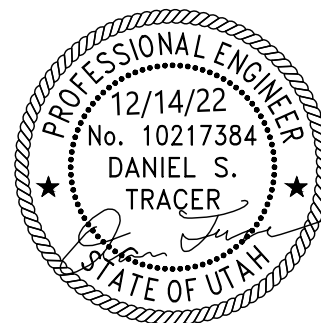
REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	16 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT06

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg | Fire Flow Deficiencies Project | Water Deficiencies | Design.dwg



NOTES:

1. INSTALL FOOT VALVES FOR ALL FIRE HYDRANTS. INSTALL FOOT VALVE WITHIN CONCRETE PAD.
2. INSTALL 6" WIDE CONCRETE PAD CENTERED ON FIRE HYDRANT. EXTEND PAD FROM FACE OF CURB TO FACE OF SIDEWALK.
3. AS APPROVED BY CITY ENGINEER, PROVIDE A 90° ELBOW FROM TEE WHERE SPACE IS LIMITED WITHIN PARK STRIP.
4. USE CLASS 4000 CONCRETE OR BETTER PER APWA SECTION 03 30 04. USE CONCRETE CURING AGENT PER APWA SECTION 03 39 00.
5. COMPACT ALL BASE AND BACKFILL TO 96% OF THE MODIFIED PROCTOR (ASTM D-1557) MAXIMUM DRY DENSITY.
6. FIRE HYDRANT DRAINS TO BE A MINIMUM OF 10 FEET FROM SANITARY SEWERS AND STORM DRAINS.
7. ALL WATERLINE DESIGN AND INSTALLATION MUST CONFORM WITH ALL REQUIREMENTS OF UAC RULE 309-550-5(5).
8. FIRE HYDRANT SPACING ACCORDING TO IFC APPENDIX C



ACCEPTED FOR CONSTRUCTION

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Feb 01, 2023

CALL BLUESTAKES @ 1-800-862-4111 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.



FIRE FLOW DEFICIENCIES PROJECT

FIRE HYDRANT & WATER METER LOCATION DETAIL

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	17 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT07

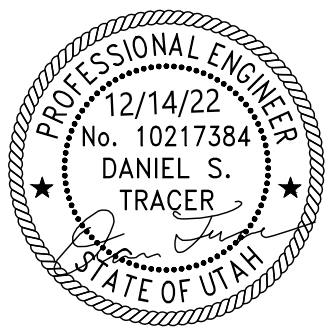
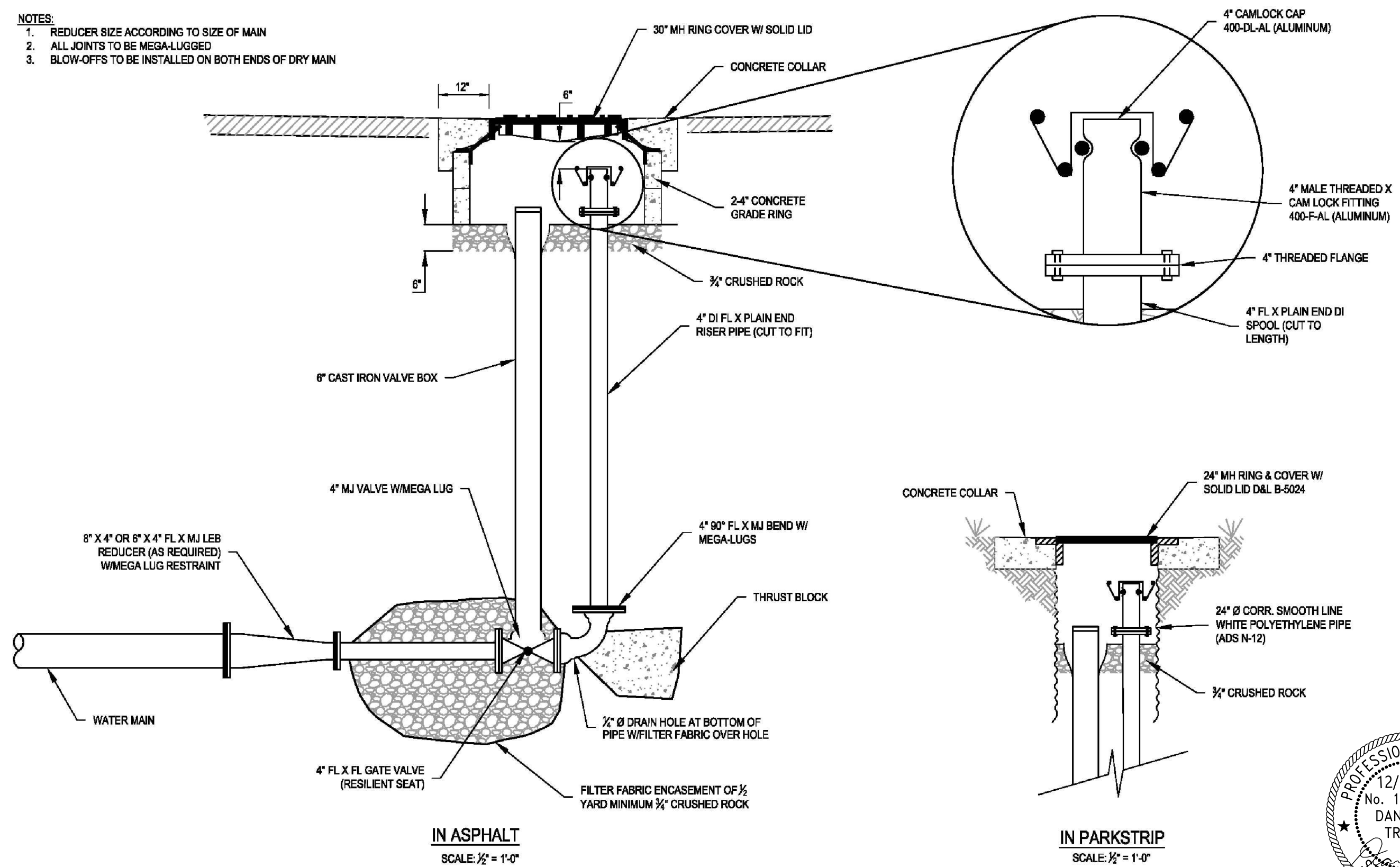
THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES

SIGNED: *Michael G. [Signature]*

plotted by: KThompson | plot date: December 14, 2022 | Design.dwg - Fire Flow Deficiencies Project

NOTES:

1. REDUCER SIZE ACCORDING TO SIZE OF MAIN
2. ALL JOINTS TO BE MEGA-LUGGED
3. BLOW-OFFS TO BE INSTALLED ON BOTH ENDS OF DRY MAIN



ACCEPTED FOR CONSTRUCTION

ACCEPTANCE DOES NOT GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE PLANS OR THAT THEY MEET ALL CITY REQUIREMENTS AND STANDARDS

Feb 01, 2023

THE CITY MAY REQUIRE FIELD MODIFICATION TO RECTIFY ANY POSSIBLE DEFICIENCIES

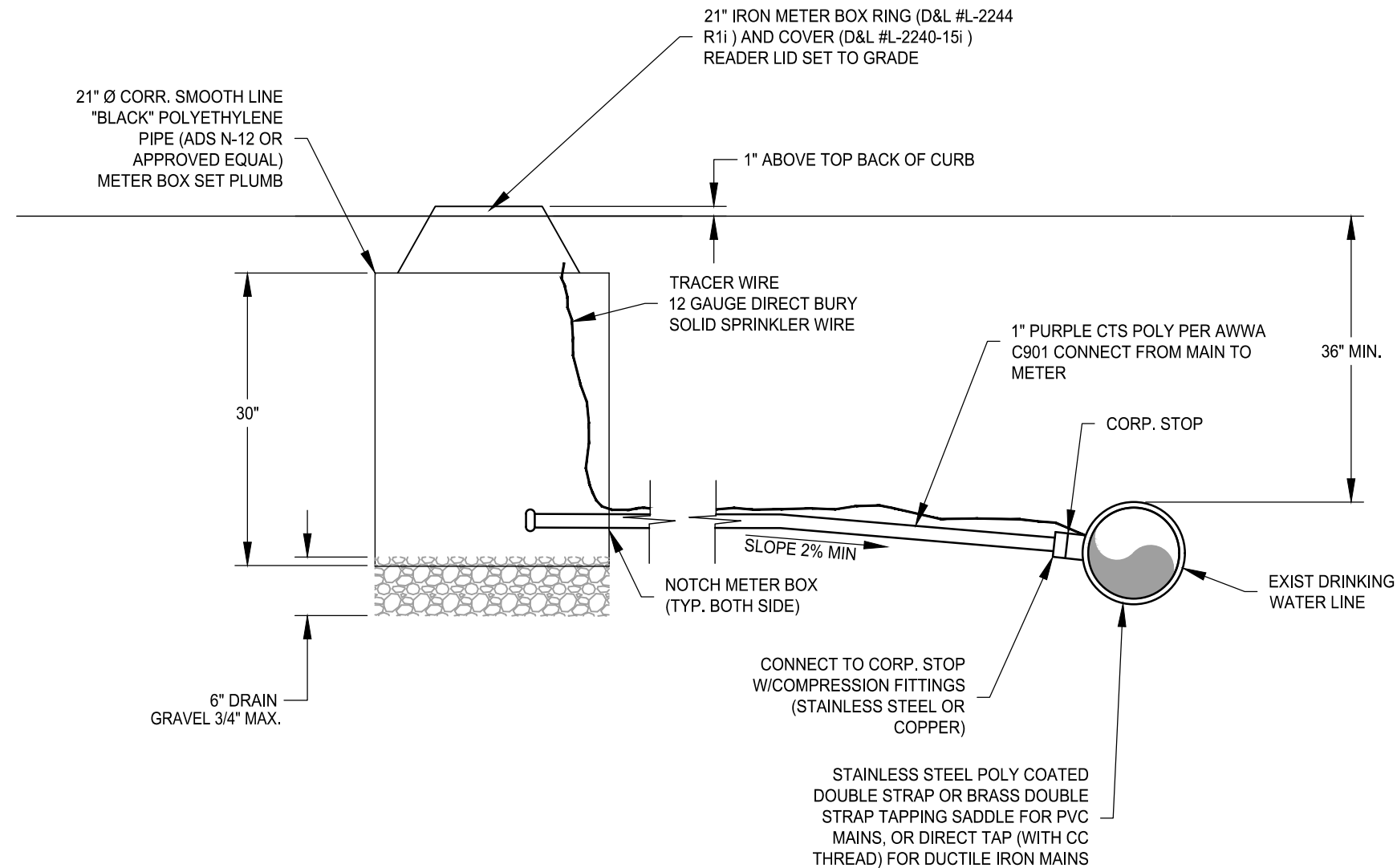
SIGNED: *Michael G. [Signature]*



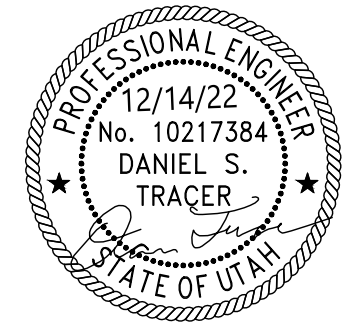
FIRE FLOW DEFICIENCIES PROJECT
 4" BLOW OFF DETAIL

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	18 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT08

path: G:\Projects\ACTIVE\1-DRINKING WATER\COB.DW.2022\Fire Flow Deficiencies Project\Design\Water Deficiencies - Design.dwg | plot date: December 14, 2022 | plotted by: KThompson



SECTION
SCALE: 3/4" = 1'-0"



NEW METERS:
NEW METERS TO BE INSTALLED AT THE LOCATIONS SHOWN ON THE PLANS. THE LID AND BOX WILL BE PROVIDED BY THE CONTRACTOR. CONNECTION TO THE SUPPLY MAIN, CORP. STOP, AND SERVICE PIPING FROM THE MAIN TO THE METER SHALL BE PROVIDED BY THE CONTRACTOR.

NOTES:
1. PROVIDE 4-FT MINIMUM OF SEPARATION BETWEEN VALVES, BENDS, TEES AND TAPS OR SADDLES UNLESS APPROVED BY CITY ENGINEER

ACCEPTED FOR CONSTRUCTION
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Feb 01, 2023
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FIRE FLOW DEFICIENCIES PROJECT
PRESSURE IRRIGATION LATERAL & CAN DETAIL

REVISIONS			DESIGNED	DATE	PROJECT NO.
REV	DATE	BY	KT	9/6/22	COB22001WS
			DRAWN	DATE	SHEET NO.
			KT	9/6/22	19 OF 20
			CHECKED	DATE	DRAWING NO.
			DT	9/6/22	DT09

SIGNED: *Michael G. [Signature]*

