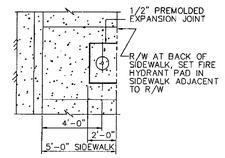
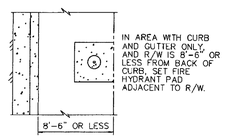
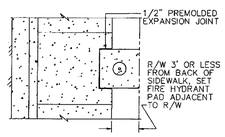
UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



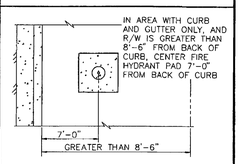
CONDITION A



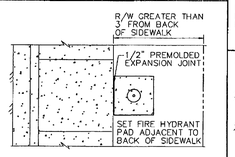
CONDITION D



CONDITION B



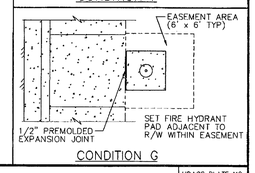
CONDITION E



CONDITION C

IF NO SIDEWALK, CURB AND GUTTER EXISTS, SET FIRE HYDRANT PAD ADJACENT TO R/W AS SHOWN IN CONDITION D ABOVE.

CONDITION F



CONDITION G

NOT TO SCALE	FILE NAME: UDACS-7 DRAWN BY: SDM CHECKED BY: SPM	FIRE HYDRANT INSTALLATION	UDACS PLATE NO. 7 SHEET 2 OF 3

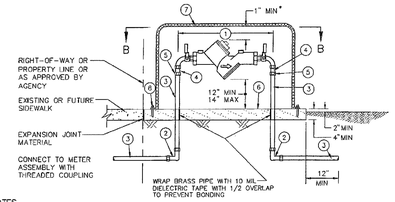
UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE REQUIREMENTS AND APPROVED FIRE HYDRANT INSTALLATION GUIDES OF THE FIRE DEPARTMENT HAVING JURISDICTION.
2. NO HYDRANT SHALL BE LOCATED WITHIN 25 FEET OF ANY STRUCTURE OR 6 FEET OF A DRIVEWAY, POWER POLE, LIGHT STANDARD, OR ANY OTHER OBSTRUCTION. FOR WALLS, FENCE, AND PLANTER LOCATIONS, A PERIMETER AROUND THE HYDRANT MEASURING A MINIMUM OF 3 FEET FROM ITS CIRCUMFERENCE SHALL BE MAINTAINED CLEAR OF ALL OBSTRUCTIONS AT ALL TIMES. HYDRANTS MUST BE LOCATED A MINIMUM OF 6 FEET AWAY FROM THE BEGINNING OF A TURNING RADIUS.
3. 6" FIRE HYDRANT LATERAL SHALL BE THE SAME PRESSURE CLASS AS THE DISTRIBUTION MAIN.
4. DUCTILE IRON PIPE TO BE ENCASED WITH TWO LAYERS EIGHT MILS THICK POLYETHYLENE FILM. DO NOT ENCASE FIRE HYDRANT BARREL.
5. ALL FIRE HYDRANTS SHALL BE REPAINTED AS REQUIRED IF DAMAGED DURING INSTALLATION.
6. USE OF FIRE HYDRANT BARREL EXTENSIONS MUST HAVE PRIOR AGENCY APPROVAL.

NOT TO SCALE	FILE NAME: UDACS-7 DRAWN BY: SDM CHECKED BY: SPM	FIRE HYDRANT INSTALLATION	UDACS PLATE NO. 7 SHEET 3 OF 3

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



SECTION A–A

* INSIDE ENCLOSURE DIMENSIONS

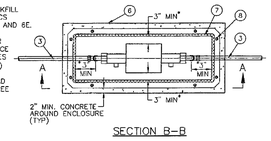
NOTES

APPROVED COMPACT BACKFLOW PREVENTION DEVICE INCLUDING ABOVE GRADE PIPING NOT TO BE PAINTED.

INSTALL BOLLARDS AS REQUIRED. SEE UDACS PLATE 23.

ADDITIONAL TRENCH BACKFILL REQUIREMENTS SEE UDACS PLATES 6A, 6B, 6C, 6D, AND 6E.

IN ORDER TO ALLOW FOR ACCESS AND MAINTENANCE OF BACKFLOW ASSEMBLIES A MINIMUM OF THREE (3) FEET ADJACENT TO BACKFLOW ASSEMBLY PAD SHALL BE LEVEL AND FREE OF SHRUBBERY AND OBSTRUCTIONS (TYP).



SECTION B–B

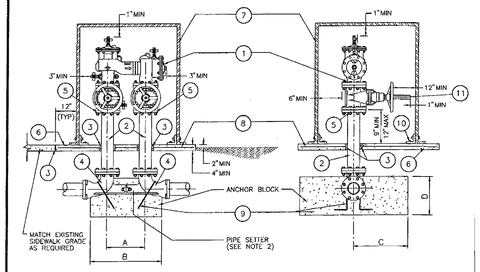
LEGEND

1. APPROVED BACKFLOW ASSEMBLY
2. BRASS 90° BEND – IRON PIPE THREAD (IPF x IPF)
3. BRASS PIPE – STANDARD – TOE
4. BRASS CLOSE NIPPLE
5. BRASS UNION – IRON PIPE THREAD (IPF x IPF) (IF NOT PROVIDED WITH ASSEMBLY)
6. CONCRETE PAD – 3000 PSI (PAD SIZE TO MEET ENCLOSURE MANUFACTURERS SPECIFICATIONS)
7. APPROVED ENCLOSURE
8. ANCHOR PER MANUFACTURERS REQUIREMENTS

(IPF = IRON PIPE FEMALE, IPM = IRON PIPE MALE, TBE = THREADED BOTH ENDS)

NOT TO SCALE	FILE NAME: UDACS-11A DRAWN BY: SDM CHECKED BY: SPM	BACKFLOW PREVENTION ASSEMBLY 1" - 2" DIAMETER	UDACS PLATE NO. 11A SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



ANCHOR BLOCK SIZING REQUIREMENTS

ASSEMBLY SIZE	3"	4"	6"	8"	10"
A	12-1/2"	14"	16"	18-1/2"	21"
B	18"	21"	26"	30"	36"
C	15"	15"	21"	24"	27"
D	6"	8"	12"	16"	20"

NOTES

1. ENCLOSURE SIZE AND CONCRETE PAD TO BE DETERMINED USING MINIMUM CLEARANCES SHOWN.
2. PIPE SETTER MAY BE OMITTED WHEN APPROVED BY THE AGENCY HAVING JURISDICTION.
3. DIFFERENCE IN ELEVATION NOT PERMITTED AT 90° BENDS BELOW GRADE, UNLESS APPROVED BY THE AGENCY HAVING JURISDICTION.
4. INSTALL BOLLARDS AS REQUIRED. SEE UDACS PLATE 23.
5. APPROVING AGENCY MAY REQUIRE INSTALLATION OF A REDUCER. INSTALL REDUCER PRIOR TO AND/OR AFTER 90° BEND ON INLET/OUTLET PIPING.
6. IN ORDER TO ALLOW FOR ACCESS AND MAINTENANCE OF BACKFLOW ASSEMBLIES A MINIMUM OF THREE (3) FEET ADJACENT TO BACKFLOW ASSEMBLY PAD SHALL BE LEVEL AND FREE OF SHRUBBERY AND OBSTRUCTIONS (TYP).

NOT TO SCALE	FILE NAME: UDACS-11C DRAWN BY: SDM CHECKED BY: SPM	COMPACT BACKFLOW PREVENTION ASSEMBLY 3" - 10" DIAMETER	UDACS PLATE NO. 11C SHEET 1 OF 2

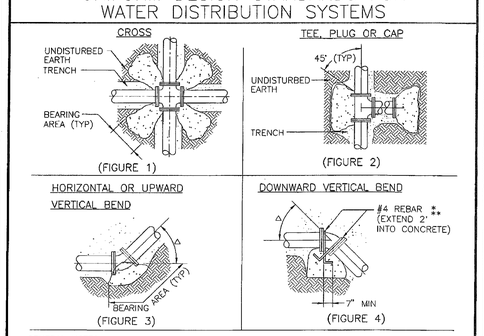
UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

LEGEND

1. APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY
   APPROVED REDUCED PRESSURE DETECTOR ASSEMBLY
   APPROVED DOUBLE CHECK VALVE ASSEMBLY
   APPROVED DOUBLE CHECK DETECTOR ASSEMBLY
   ALL ASSEMBLIES TO BE FACTORY COATED. ABOVE GRADE PIPING TO BE PAINTED. SEE SECTION 3, PROTECTIVE COATINGS.
2. FLG x PE DUCTILE IRON PIPE, PRESSURE CLASS 350.
3. 1/2" EXPANSION JOINT MATERIAL.
4. FLG x MJ 90° DUCTILE IRON BEND (WITH SETTER).
5. DUCTILE IRON RESTRAINED ADAPTER FLANGE.
6. CONCRETE PAD – 3000 PSI (PAD SIZE TO MEET ENCLOSURE MANUFACTURERS SPECIFICATIONS)
7. APPROVED ENCLOSURE.
8. WELDED WIRE FABRIC – W4.0 x W4.0 WIRE.
9. NO. 4 REBAR. (WRAP EXPOSED PORTION OF REBAR WITH 10 MIL DIELECTRIC PLASTIC TAPE WITH 1/2 OVERLAP)
10. ANCHOR PER MANUFACTURERS REQUIREMENTS
11. FOR OS & Y VALVE INSTALLATIONS VALVE STEM TO MAINTAIN 1" (MIN) CLEARANCE FROM INSIDE WALL OF ENCLOSURE OR AS APPROVED BY AGENCY.

NOT TO SCALE	FILE NAME: UDACS-11C DRAWN BY: SDM CHECKED BY: SPM	COMPACT BACKFLOW PREVENTION ASSEMBLY 3" - 10" DIAMETER	UDACS PLATE NO. 11C SHEET 2 OF 2

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



GENERAL NOTES

VALVES, FITTINGS AND APPURTENANCES SHALL BE COATED AND WRAPPED IN ACCORDANCE WITH SECTION 3, PROTECTIVE COATINGS. EXPOSED (NOT ENCASED IN CONCRETE) REBAR SHALL BE WRAPPED IN 10 MIL DIELECTRIC TAPE. ALL CONCRETE SHALL BE 3000 PSI MINIMUM, 28 DAYS COMPRESSIVE STRENGTH. CONCRETE IS TO BE PLACED AGAINST UNDISTURBED EARTH. THE TABLE BELOW DENOTES MINIMUM BEARING AREA OR VOLUME OF THRUST BLOCK. SPECIAL DESIGN CALCULATIONS ARE TO BE SUBMITTED FOR APPROVAL IF ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN 3000 PSF. ALL VERTICAL SURFACES NOT BEARING AGAINST UNDISTURBED EARTH SHALL BE FORMED.

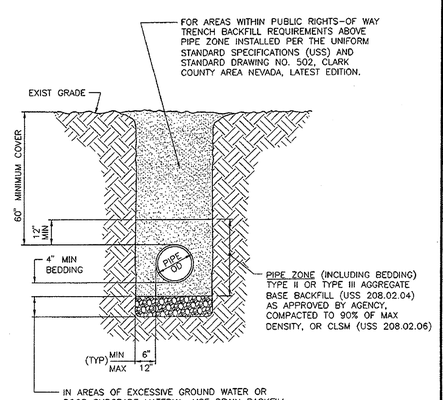
	BEARING AREA IN SQ FT							CONC/CU YDS		
PIPE ID	FIGURE 1	FIGURE 2	FIGURE 3, Δ					FIGURE 4, Δ		
			90°	45°	22½°	11¼°		45°	22½°	11¼°
4"	2	2	2	2	1	1		1.0	0.5	0.5
6"	2	3	4	2	1	1		1.5	1.0	0.5
8"	3	5	7	4	2	1		3.0	1.5	1.0
10"	4	8	11	6	3	2		4.0	2.5	1.5
12"	6	11	15	8	4	2		6.0	3.0	1.5
16"	10	20	28	15	8	4		10.5 *	6.0	3.0
18"	13	25	35	19	10	5		13.5 *	7.5	3.5
20"	16	31	44	24	12	6		16.0 **	9.0	4.5
24"	22	44	63	34	17	9		23.5 **	12.5 *	6.5

* #5 REBAR
** #6 REBAR

USE OF THRUST BLOCKS FOR PIPE DIAMETERS GREATER THAN 24" REQUIRES PRIOR AGENCY APPROVAL AND WILL BE EVALUATED ON A CASE BY CASE BASIS.

NOT TO SCALE	FILE NAME: UDACS-5 DRAWN BY: SDM CHECKED BY: SPM	THRUST BLOCK INSTALLATION	UDACS PLATE NO. 5 SHEET 1 OF 1

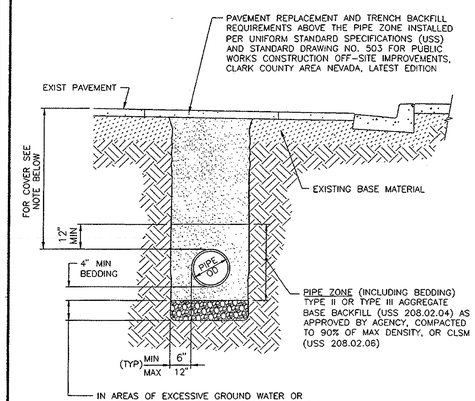
UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



NOTE:
FOR TRENCH SECTION NOTES SEE UDACS PLATE 6E

NOT TO SCALE	FILE NAME: UDACS-6A DRAWN BY: SDM CHECKED BY: SPM	TRENCH SECTION BACKFILL SPECIFICATION UNPAVED AREAS	UDACS PLATE NO. 6A SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



NOTES:
42" MIN COVER FOR PIPE 12" AND SMALLER
48" MIN COVER PIPE GREATER THAN 12", LESS THAN 24"
60" MIN COVER FOR PIPE 24" AND GREATER

FOR TRENCH SECTION NOTES SEE UDACS PLATE 6E

NOT TO SCALE	FILE NAME: UDACS-6B DRAWN BY: SDM CHECKED BY: SPM	TRENCH SECTION BACKFILL SPECIFICATION PAVED AND UNPAVED AREAS (STREET R/W 60' OR LESS)	UDACS PLATE NO. 6B SHEET 1 OF 1

REV	DESCRIPTION	BY	DATE	AGEN. APP.

PROJ NO: 2193.00
DESIGN: JL
PLOT DATE: 10/12/07
SCALE: AS SHOWN

PROFESSIONAL ENGINEER STATE OF NEVADA THOMAS D. MILLER EXP. 12-31-07 CIVIL NO. 15776

STAMP DATE: 10/12/07

MARTIN MARTIN CIVIL ENGINEERS & SURVEYORS
2101 S. JONES BLVD
SUITE 120
LAS VEGAS, NV 89146
PHONE (702) 248-8000
FAX (702) 248-8070

CITY OF LAS VEGAS
FIRE STATION NO. 48
CONSTRUCTION DETAILS VIII

SHEET C-16
16 OF 26 SHTS
CLV DWG. NO. 630-104

105716

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