

10.28.2008	BLDG. DEPT. REVIEW #1
10.28.2008	OWNER CHANGES
11.07.2008	BLDG. DEPT. REVIEW #2
12.15.2008	BLDG. DEPT. REVIEW #3
01.24.2009	BLDG. DEPT. REVIEW #4
02.19.2009	OWNER CHANGES
03.25.2009	CONTRACTOR CHANGES
05.08.2009	CONTRACTOR CHANGES
06.26.2009	CONTRACTOR CHANGES
08.22.2009	CONTRACTOR CHANGES
09.11.2009	RECORD DRAWINGS

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UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

UNDISTURBED EARTH (FIGURE 1)
HORIZONTAL OR VERTICAL BEND (FIGURE 3)
TEE PLUG OR CAP (FIGURE 2)
DOWNWARD VERTICAL BEND (FIGURE 4)

GENERAL NOTES
VALVES, FITTINGS AND APPURTENANCES SHALL BE COVERED AND WRAPPED IN ACCORDANCE WITH SECTION 3, PROTECTIVE COVERING. COVERS (NOT BROADCAST IN CONCRETE) SHALL BE WRAPPED IN 10 MIL POLYETHYLENE FILM. ALL CONCRETE SHALL BE 3000 PSI MINIMUM 28 DAYS COMPRESSIVE STRENGTH CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH. ALL JOINTS SHALL BE PROTECTED WITH 10 MIL POLYETHYLENE FILM. 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.

PIPE ID	FIGURE	BEARING AREA IN SQ FT	CONC./CJ	YES					
4"	2	90"	49"	221"	11.8"				
6"	2	2	2	1	1.0	0.5	0.5		
8"	2	3	4	2	1	1.8	1.0	0.8	
10"	4	8	11	5	3	2	4.0	2.5	1.5
12"	8	11	15	9	4	2	4.0	3.0	1.6
15"	10	20	29	15	8	4	8.0	4.0	3.0
18"	13	35	35	19	10	5	13.5	7.5	4.5
20"	16	51	44	24	12	6	18.0	9.0	4.5
24"	22	74	63	34	17	9	25.5	12.5	6.0

• #4 REBAR
** #6 REBAR

USE OF THRUST BLOCKS FOR PIPE DIAMETERS GREATER THAN 14" REQUIRES PRIOR AGENCY APPROVAL AND WILL BE EVALUATED ON A CASE BY CASE BASIS

NOT TO SCALE

FILE NAME: UGAS-7
DRAWN BY: SOM
CHECKED BY: SOM

THRUST BLOCK INSTALLATION

UGAS PLATE NO. 5
SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

TRENCH SECTION BACKFILL SPECIFICATION
PAVED AND UNPAVED AREAS

FOR AREAS WITHIN PUBLIC RIGHTS-OF-WAY TRENCH BACKFILL REQUIREMENTS ABOVE PIPE ZONE INSTALLED PER UNIFORM STANDARD SPECIFICATIONS (USSS) AND STANDARD DRAWING NO. 504 FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, LATEST EDITION.

PIPE ZONE (INCLUDING BEDDING) TYPE I OR TYPE II AGGREGATE BASE BACKFILL (USSS 208.02.04) AS APPROVED BY AGENCY, COMPACTED TO 90% OF MAX DENSITY, OR CLSM (USSS 208.02.06)

IN AREAS OF EXCESSIVE GROUND WATER OR POOR SUBGRADE MATERIAL, USE DRAIN BACKFILL SECTION (USSS 208.02.05) TO A MAXIMUM DEPTH OF 18" FOR STABILIZATION. INSTALL AND COMPACT AS DIRECTED BY THE ENGINEER.

NOT TO SCALE

FILE NAME: UGAS-6A
DRAWN BY: SOM
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TRENCH SECTION BACKFILL SPECIFICATION

UGAS PLATE NO. 6A
SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

TRENCH SECTION BACKFILL SPECIFICATION
STREET R/W GREATER THAN 60"

PAVEMENT REPLACEMENT AND TRENCH BACKFILL REQUIREMENTS ABOVE THE PIPE ZONE INSTALLED PER UNIFORM STANDARD SPECIFICATIONS (USSS) AND STANDARD DRAWING NO. 504 FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, LATEST EDITION.

EXISTING BASE MATERIAL

PIPE ZONE (INCLUDING BEDDING) TYPE I OR TYPE II AGGREGATE BASE BACKFILL (USSS 208.02.04) AS APPROVED BY AGENCY, COMPACTED TO 90% OF MAX DENSITY, OR CLSM (USSS 208.02.06)

IN AREAS OF EXCESSIVE GROUND WATER OR POOR SUBGRADE MATERIAL, USE DRAIN BACKFILL SECTION (USSS 208.02.05) TO A MAXIMUM DEPTH OF 18" FOR STABILIZATION. INSTALL AND COMPACT AS DIRECTED BY THE ENGINEER.

NOT TO SCALE

FILE NAME: UGAS-6C
DRAWN BY: SOM
CHECKED BY: SOM

TRENCH SECTION BACKFILL SPECIFICATION

UGAS PLATE NO. 6C
SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

FIRE HYDRANT INSTALLATION

PAD DETAIL
3'-0" x 3'-0" x 4" MIN. CONTINUOUS REBAR
1/2" PREMOULDED EXPANSION JOINT WHERE FIRE HYDRANT PAD IS SET AGAINST EXISTING CONCRETE AND AROUND FIRE HYDRANT BARREL

HYDRANT ASSEMBLY DETAIL
NOTE: A SUITABLE SAFETY OR BREAKING FLANGE SHALL BE PROVIDED. PLACE FLANGE 2" MIN ALL AROUND ABOVE CONCRETE PAD.
CURB AND GUTTER
3/4" PVC OR IN PIPE
VALVE BOX SEE UGAS PLATE 8
WATER MAIN
UNDISTURBED EARTH
USE CLEAN 1/2" x 2" GRAVEL FOR 4'-0" DIAMETER
CONCRETE THRUST BLOCKS REQUIRED RESTRAINED JOINTS ALLOWED ONLY UPON DISTRICT ENGINEER APPROVAL
DO NOT COVER AUTOMATIC DRAIN VALVE (WEEP HOLES) WITH CONCRETE

NOT TO SCALE

FILE NAME: UGAS-7
DRAWN BY: SOM
CHECKED BY: SOM

FIRE HYDRANT INSTALLATION

UGAS PLATE NO. 7
SHEET 1 OF 2

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

FIRE HYDRANT INSTALLATION

CONDITION A
1/2" PREMOULDED EXPANSION JOINT
R/W AT BACK OF SIDEWALK, SET FIRE HYDRANT PAD ADJACENT TO R/W

CONDITION B
1/2" PREMOULDED EXPANSION JOINT
R/W GREATER THAN 3' FROM BACK OF SIDEWALK, SET FIRE HYDRANT PAD ADJACENT TO R/W

CONDITION C
1/2" PREMOULDED EXPANSION JOINT
R/W GREATER THAN 3' FROM BACK OF SIDEWALK, SET FIRE HYDRANT PAD ADJACENT TO R/W

CONDITION D
IN AREA WITH CURB AND GUTTER ONLY, AND R/W IS GREATER THAN 6'-6" FROM BACK OF CURB, CENTER FIRE HYDRANT PAD 6'-0" FROM BACK OF CURB

CONDITION E
7'-0" GREATER THAN 6'-6"

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

CONDITION G
1/2" PREMOULDED EXPANSION JOINT
EASEMENT AREA (6' x 6' TYP)
SET FIRE HYDRANT PAD ADJACENT TO R/W WITHIN EASEMENT

NOT TO SCALE

FILE NAME: UGAS-7
DRAWN BY: SOM
CHECKED BY: SOM

FIRE HYDRANT INSTALLATION

UGAS PLATE NO. 7
SHEET 2 OF 2

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

FIRE HYDRANT INSTALLATION

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 PAINTED AS REQUIRED IF DAMAGED DURING INSTALLATION.
6. USE OF FIRE HYDRANT BARREL EXTENSIONS MUST HAVE PRIOR AGENCY APPROVAL.

NOT TO SCALE

FILE NAME: UGAS-7
DRAWN BY: SOM
CHECKED BY: SOM

FIRE HYDRANT INSTALLATION

UGAS PLATE NO. 7
SHEET 3 OF 3

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

VALVE BOX INSTALLATION & ADJUSTMENT

IMPROVED AREAS UNIMPROVED AREAS

INSTALL VALVE BOX FLANGE AND CENTER OVER VALVE OPERATING NUT (TYP)

24" DIA x 10" THICK CONCRETE COLLAR 3000 PSI @ 28 DAYS COMPRESSIVE STRENGTH

WATER MAIN WATER VALVE

NOTES
1. FIRE R/W ELEVATION TO BE 1/4" TO 1/4" BELOW FINAL STREET GRADE.
2. MORE STRINGENT INSTALLATION REQUIREMENTS MAY BE IMPOSED BY THE ENTITY HAVING THE JURISDICTION OVER THE VALVE BOX INSTALLATION LOCATION.
3. A VALVE STEM EXTENSION SHALL BE PROVIDED TO WITHIN TWO FEET OF FINISHED GRADE, MEASURING THE DEPTH TO THE OPERATING NUT EXCLUDES FIVE FEET.
4. CONTRACTOR TO FORM CONCRETE COLLAR IN UNIMPROVED AREAS WITH SMOOTHNESS OF EQUAL AND REMOVE PRIOR TO BACKFILL INSTALLATION (TYP).

NOT TO SCALE

FILE NAME: UGAS-8
DRAWN BY: SOM
CHECKED BY: SOM

VALVE BOX INSTALLATION & ADJUSTMENT

UGAS PLATE NO. 8
SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

STORM DRAIN OR SANITARY SEWER WATER MAIN CROSSING

EXISTING STORM DRAIN OR SANITARY SEWER (SIZE VARIES)

EXISTING GRADE

WATER MAIN

STEEL CASING SEE UGAS PLATE 16

45° BENDS RESTRAINED OR WITH CONCRETE THRUST BLOCKS

NOTES
SEE UGAS PLATES 6A, 6B, 6C, 6D, AND 6E FOR COVER REQUIREMENTS.

NOT TO SCALE

FILE NAME: UGAS-15
DRAWN BY: SOM
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STORM DRAIN OR SANITARY SEWER WATER MAIN CROSSING

UGAS PLATE NO. 15
SHEET 1 OF 1

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

CASING INSTALLATION

ANGLES TO BE CONSTANT AROUND ENTIRE CIRCUMFERENCE OF THE PIPE. NUMBER OF SPACERS PER MANUFACTURER'S SPECIFICATIONS

PIPE CASING

SPACER

CASING

CARRIER PIPE

CARRIER PIPE

OVER LAPPING RUBBER END SEAL

PLACEMENT OF SPACERS ON CARRIER PIPE PER MANUFACTURER'S SPECIFICATIONS

CARRIER PIPE

PIPE SIZE	CASING OD	THICKNESS
8"	16"	1/4"
10"	20"	3/16"
12"	24"	1/8"
15"	30"	3/16"
18"	36"	1/4"
20"	36"	1/4"
24"	42"	1/4"

* CASING INSTALLATIONS OVER 25 FEET BELOW FINISHED GRADE TO HAVE THICKNESS DETERMINED BY A NEVADA LICENSED PROFESSIONAL ENGINEER.
* CASING INSTALLATIONS UNDER RAILROAD TRACKS TO HAVE THICKNESS DETERMINED BY A NEVADA LICENSED PROFESSIONAL ENGINEER AND APPROVED BY UNION PACIFIC RAILROAD.

NOTES
1. STEEL PIPE CASING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A253, GRADE B, C, OR D. ALL JOINTS SHALL BE WELDED. INTERIOR JOINTS SHALL BE GROUNDED TO A SMOOTH FINISH. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D10.02, TAPMA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE. COATINGS FOR STEEL CASING ARE NOT REQUIRED.
2. STEEL PIPE CASING SHALL BE INSTALLED SYMMETRICAL ABOUT WATER MAIN CENTERLINE (TYP). PIPE CASING SHALL BE LAID TRUE TO LINE AND GRADE WITH NO BENDS OR CHANGES IN GRADE FOR THE FULL LENGTH OF THE CASING.
3. AGENCY APPROVED CASING SPACERS AND END SEALS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. USE A "CENTERED" CONFIGURATION AND PROVIDE THE MANUFACTURER WITH THE FOLLOWING (PIPE OD, CASING ID, AND CASING LENGTH).
4. ALL PIPE JOINTS WITHIN THE CASING ARE TO BE RESTRAINED.
5. CASING TO BE FILLED WITH SAND OR GROUT AS APPROVED BY AGENCY.

NOT TO SCALE

FILE NAME: UGAS-16
DRAWN BY: SOM
CHECKED BY: SOM

CASING INSTALLATION

UGAS PLATE NO. 16
SHEET 1 OF 1

CITY OF LAS VEGAS
FREEDOM PARK RENOVATION
50 NORTH MOJAVE, LAS VEGAS, NEVADA 89101
GENERAL DETAILS

Russ Manger
Russ Manger
Roche Constructors, Inc.

RECORD DRAWINGS
01-31-2010

OWNER: CITY OF LAS VEGAS
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OWNER: CITY OF LAS VEGAS
DEPARTMENT OF PUBLIC WORKS
ARCHITECTURAL SERVICES

FILE: 3006-C2.04d
DATE: FEBRUARY 13, 2009
SCALE: N.T.S.
SHEET NO: 07035d
CUTTING NO: 650.22-18
SHEET NO: SHEET 6 OF 78
C2.04

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT DATE

Call before you dig
1-800-227-2829

Call before you dig
1-800-227-2829

122950

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