

CITY OF CRYSTAL LAKE WATER MAIN CHLORINATION SPECIFICATIONS:

- DISINFECTION OF WATER MAINS SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION, CURRENT EDITION
- THE CITY ENGINEERING DIVISION AND WATER DIVISION SHALL BE NOTIFIED 48 HOURS IN ADVANCE FOR SCHEDULING OF ANY TESTING, CHLORINATING, FLUSHING, OR SAMPLES.
- ONLY CITY WATER DIVISION PERSONNEL MAY OPERATE WATER VALVES ON LIVE MAINS
- A WATER VALVE JUMPER IS REQUIRED TO MAINTAIN PRESSURE ON THE CHLORINATED LINES DURING THE GAUING PROCEDURE FOR PROPER INSTALLATION AND REQUIREMENTS SEE THE STANDARD WATER VALVE JUMPER DETAIL.
- WATER MAINS SHALL BE FLUSHED WITH A MINIMUM VELOCITY OF 2.5 FPS.
- THE INITIAL CHLORINE CONCENTRATION SHALL BE 50 mg/L WITH A MINIMUM 24 HOUR RESIDUAL OF 25 mg/L.
- THE METHOD OF CHLORINE APPLICATION SHALL BE APPROVED BY THE CITY:
 - LIQUID CHLORINE (W/CHLORINATING DEVICE WITH BACKFLOW PREVENTER)
 - CHLORINE GAS (W/CHLORINATING DEVICE WITH BACKFLOW PREVENTER)
 - TABLET DISINFECTION
- ALL NEW VALVES AND HYDRANTS SHALL BE OPERATED WHILE LINE IS BEING CHLORINATED.
- THE CITY ENGINEERING DIVISION SHALL DETERMINE LOCATION AND QUANTITY OF CORPORATION STOPS FOR FLUSHING AND CHLORINATING.
- THE FINAL FLUSHING RESIDUAL IN THE NEW CHLORINATED LINES SHALL BE BETWEEN 0.2 AND 0.3 mg/L.
- ALL WATER SAMPLES SHALL BE COLLECTED ON TWO (2) CONSECUTIVE DAYS AND PASS BACTERIOLOGICAL TEST RESULTS. IN THE EVENT THAT THE FIRST SET OF SAMPLES (TWO (2) CONSECUTIVE DAYS APART) FAIL TO PASS, ANOTHER SET OF SAMPLES MAY BE TAKEN TWO (2) DAYS APART (PER STATE SPEC). IF THE SECOND SET FAILS TO PASS TESTING, THEN THE PROCEDURE MUST BE REPEATED WITH THE MAIN BEING RECHLORINATED, REFRESHED, AND RESAMPLED.
- STATE CERTIFIED LAB MUST BE USED FOR SAMPLES.

CHLORINE REQUIREMENTS TO PRODUCE 50 mg/L CHLORINE CONCENTRATION IN 100 FEET OF PIPE BY DIAMETER

PIPE SIZE IN INCHES	100% CHLORINE SOL. GALL.	1% CHLORINE SOL. GALL.
4	0.037	0.33
6	0.051	0.75
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

NUMBER OF 6 GRAIN HYPOCHLORITE TABLETS REQUIRED FOR A DOSAGE OF 50mg/L PER LENGTH OF PIPE SECTION

PIPE SIZE IN INCHES	UP TO 15	15	20	30	40
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	3	4
8	2	3	4	5	6
10	3	4	7	7	9
12	5	6	10	10	14

LENGTH OF PIPE SECTION IN FEET

PIPE SIZE IN INCHES	UP TO 15	15	20	30	40
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	3	4
8	2	3	4	5	6
10	3	4	7	7	9
12	5	6	10	10	14

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **CHLORINATION SPECIFICATIONS**

Drawing Number: **UW-08**

Date: 4/15/2007

Drawn: EM
Checked: LZ
Engineering Division

FIRE HYDRANT

FIRE HYDRANTS SHALL BE FROM THE FOLLOWING LIST, AS APPROVED BY THE CITY:

- MUELLER CENTURION FIRE HYDRANT, OPT 694 (5/8" BARREL WITH MUELLER VALVE SHARDWARE AND AUXILIARY VALVE # 2300-23 6000 MOORFED WEDGE RESILIENT SEAL)
- WATERIOUS VB-67-250 HYDRANT (5/8" FACER) WITH SERIES 2300-1 RESILIENT WEDGE GATE VALVE

- PROVIDE CLASS II CONCRETE BASE AND BLOCKING AGAINST UNDISTURBED EARTH
- DRAIN SUMP TO BE 1/2 CUBIC YARD OF 1/2" WASHED STONE
- CONCRETE SUPPORT
- CONCRETE BLOCK OR BRICK SUPPORT
- PIPE AS REQUIRED TO MAINTAIN 2" SEPARATION AS SHOWN (DIRECT MECHANICAL JOINT CONNECTION IF APPROVED BY CITY)
- RUBBER VALVE BOX STABILIZER
- USE "CORTEM" STEEL THE RODS BETWEEN AUXILIARY VALVE AND WATER MAIN (STAINLESS STEEL MAY BE REQUIRED BY THE CITY ENGINEER). ANY DISTANCE GREATER THAN 30" SHALL BE ROODED TO MEGA-LUG FLANGE. NO COUPLINGS ARE PERMITTED IN RODS.
- CONCRETE BLOCKINGS CAST IN PLACE 3000 P.S.I.
- 4 1/2" PORT TO FACE PAVEMENT OR AS DIRECTED BY CITY ENGINEER
- ALL NEWLY INSTALLED HYDRANTS MUST BE TOP COATED WITH RUST-OLEUM FIRE HYDRANT ENAMEL (COLOR = FIRE HYDRANT RED)
- MIN. 4" BETWEEN HYDRANT AND ANY VERTICAL OBSTRUCTIONS.
- MIN. 12" BETWEEN HYDRANT AND ANY LANDSCAPING WITH A MATURE HEIGHT GREATER THAN 12".
- ALL VALVE AND HYDRANT HARDWARE MUST BE STAINLESS STEEL, INCLUDING NUTS, BOLTS, AND WASHERS.

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **FIRE HYDRANT**

Drawing Number: **UW-06**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

WATER MAIN PRESSURE CONNECTION

1" (PREFERRED, 3/4" MIN.) MUELLER, A.Y. MEDWALD, OR FORD CORPORATION STOP EACH SIDE OF VALVE (TYP)

1" (PREFERRED, 3/4" MIN.) MUELLER, A.Y. MEDWALD, OR FORD CORPORATION STOP EACH SIDE OF VALVE (TYP)

CLASS II CONCRETE THURST BLOCK POURED IN PLACE, FORMED AS TO NOT COVER BOLTS

CLASS II CONCRETE THURST BLOCK POURED IN PLACE, FORMED AS TO NOT COVER BOLTS

3" X 3" CONCRETE SUPPORT

CONCRETE FOOTING (6" MIN.)

4" CA-7 BEDDING (2" MINIMUM)

SECTION A-A

PLAN VIEW

NOTES:

- FRAME AND RINGS TO BE SET IN MORTAR BED OR SEALED WITH APPROVED BUTYL SEAL (E-Z BUTYL OR APPROVED EQUAL)
- CAST FROM MANHOLE FRAME AND COVER SIMILAR TO NEENAH R-1712 OR EQUAL WITH STANDARD DUTY, NON-ROCKING TYPE LIDS WITH "CITY OF CRYSTAL LAKE WATER" SHALL BE CAST INTO LID (NEENAH R-2835 OR EQUAL MAY BE USED IN GRASSY AREAS)
- ALL VALVE HARDWARE MUST BE STAINLESS STEEL, INCLUDING NUTS, BOLTS, AND WASHERS.
- MUELLER F-6300-10 OR AMERICAN FLOW CONTROL SERIES 2300-1 TAPPING VALVE
- STAINLESS STEEL SMITH BLAIR "88", CASCADE "CST-EX", "ROMAC INDUSTRIES "SST", OR FORD "FIS" TAPPING SLEEVE

* DUCTILE IRON FLANGE AND M.J. OUTLET NOT APPROVED FOR USE UNLESS AS SET

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **WATER MAIN PRESSURE CONNECTION**

Drawing Number: **UW-02**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

THRUST BLOCK INSTALLATION

BEARING AREA (SQ. FT.)

PIPE SIZE	THURSTING	90°	45°	21.5°	11.5°
6	4	2	1	1	1
8	8	4	3	1	1
10	7	5	3	2	1
12	9	6	4	3	2
14	12	9	6	4	3
16	15	12	7	5	3
18	18	15	9	5	4
24	40	30	15	10	5

NOTE: ALL BLOCKING SHALL BE POURED CLASS II CONCRETE AGAINST UNDISTURBED EARTH.

ALL BENDS OR ELBOWS GREATER THAN 11 1/4" SHALL HAVE THRUST BLOCKING. FORMS TO NOT COVER BOLTS.

IN LIEU OF THRUST BLOCKING "MEGALUG" (E-88) JOINT RESTRAINTS OR APPROVED EQUAL CAN BE USED AS APPROVED BY THE ENGINEER.

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **THRUST BLOCK INSTALLATION**

Drawing Number: **UW-03**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

STANDARD VALVE VAULT

NOTE: ALL VALVE HOLES MUST BE DAMP PROOF PER 503 SPECIFICATIONS 1800 "WATER PROOFING MATERIALS"

ALL LIDS TO BE USED ON WATER SYSTEM STRUCTURE SHALL BEAR THE WORDS "CITY OF CRYSTAL LAKE WATER"

DRAIN FOR VALVE VAULT SHALL BE CONSTRUCTED ONLY WHEN SHOWN ON THE PLANS.

FRAME AND RINGS TO BE SET IN MORTAR BED OR SEALED WITH A PREFERRED BUTYL SEAL (E-Z BUTYL OR APPROVED EQUAL)

FOR PRESSURE CONNECTION, SEE DETAIL UW-2.

NOTE: ALL VALVE HARDWARE MUST BE STAINLESS STEEL, INCLUDING NUTS, BOLTS & WASHERS.

1 CONCRETE CONES REQUIRED

2 1" (PREFERRED, 3/4" MIN.) MUELLER, A.Y. MEDWALD, OR FORD CORPORATION STOP EACH SIDE OF VALVE MUST BE A COMPRESSION FITTING

3 MUELLER 2300-23 6000 OR AMERICAN FLOW CONTROL 2300-1 RESILIENT WEDGE GATE VALVE

4 PRECAST CONCRETE MANHOLE SECTIONS WITH A MINIMUM THICKNESS OF 6"

5 WATER TIGHT JOINT

6 CASKET-TYPE WATERSTOP COLLAR FOR ALL WATER MAIN CONNECTIONS

7 CAST FROM MANHOLE FRAME AND COVER SIMILAR TO NEENAH R-1712, OR EQUAL WITH STANDARD DUTY, NON-ROCKING TYPE LIDS WITH "CITY OF CRYSTAL LAKE WATER" CAST INTO LID (NEENAH R-2835, OR EQUAL MAY BE USED IN GRASSY AREAS)

ADJUSTING RING HEIGHT NOT TO EXCEED 6" WITH A MAXIMUM OF THREE (3) ADJUSTMENT RINGS.

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **STANDARD VALVE VAULT**

Drawing Number: **UW-01**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

HANDICAPPED PARKING SIGN

NO SCALE

SEE SIGN ENLARGEMENT FOR DIM, COLOR, ETC.

LETTERS, BORDER, & ARROW TO BE COLOR "GREEN"

STD. METAL SIGN POST (PAINTED) EMBED 3'-0" INTO GROUND

FIN. GRADE.

"WHITE" HANDICAPPED SYMBOL ON "BLUE" BACKGROUND.

"WHITE" BACKGROUND.

EDGE OF CURB & GUTTER

4" WIDE WHITE PAINTED STRIPING

18'-0"

9'-0"

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **HANDICAPPED PARKING SIGN**

Drawing Number: **UW-04**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

TYPICAL WATER METER INSTALLATION W/BACKFLOW PREVENTOR CITY OF CRYSTAL LAKE

DRIP VALVE VALVE MAY BE OF ANY TYPE. IF VALVE HAS HUSE THREADS A NON-REMOVABLE VACUUM BREAKER MUST BE USED.

WATER METER SUPPLIED BY CITY

MUELLER B-BOX W/ RISER ROD, BOX AND CURB STOP BY CITY OR DEVELOPER

TYPE "K" COPPER

WATER TIGHT SLEEVE CEMENTED AND TAPPED ON OUTSIDE, THRU OR UNDER FOUNDATION OR BASEMENT WALL

NOTE:

- METER SHALL NOT BE INSTALLED IN CRAWL SPACE OR INACCESSIBLE AREA
- DO NOT LOCATE B-BOX IN DRIVE WAY OR SIDEWALK
- PLACE METER AS METER CLEARANCE SPECIFICATIONS REQUIRE
- BACKFLOW DEVICE PER STATE REQUIREMENTS

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **TYPICAL WATER METER INSTALLATION W/BACKFLOW PREVENTOR CITY OF CRYSTAL LAKE**

Drawing Number: **UW-05**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

WATER MAIN TEST REPORT

PROJECT NAME: _____

CONTRACTOR: _____

WITNESS: _____

LINE PRESSURIZED DATE: _____ TIME: _____

LINE TESTED DATE: _____ TIME: _____

LOCATION DIAGRAM: _____

INDICATE NORTH

INDICATE NORTH

APPROVED: _____

DATE: _____

APPROVED: _____

DATE: _____

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **WATER MAIN TEST REPORT**

Drawing Number: **UW-09**

Date: 4/15/2007

Drawn: EM
Checked: LZ
Engineering Division

STRIPING DETAIL

NTS

18'-0"

1'-6"

UNIVERSAL SYMBOL OF ACCESSIBILITY TO CONFORM TO ALL STATE & LOCAL CODES.

H.C. SIGNAGE-SEE DET. 1/A1

4" H.C. STALL STRIPING TO CONFORM TO ALL STATE & LOCAL CODES

Approved: City Engineer
Victor C. Ramirez, P.E.
Director of Engineering and Building

Drawing Name: **STRIPING DETAIL**

Drawing Number: **UW-07**

Date: 4/15/2007

Drawn: EM
Checked: JN
Engineering Division

No.	Description	Date
3	CITY COMMENTS	02/07/08
2	CITY COMMENTS	12/07/07
1	CITY COMMENTS	10/25/07
	NO REVISION	09/07/07
	ISSUED FOR PERMIT	08/28/07

CITY DETAILS

AL & JOE'S RESTAURANT

PARTNERS IN DESIGN

CRYSTAL LAKE, IL

JACOB & HEFNER ASSOCIATES, INC.

ENGINEERS • SURVEYORS

1901 S. BAYBERRY ROAD, SUITE 360
OAKBROOK, ILLINOIS, IL 60181
PHONE: (630) 584-4000
FAX: (630) 682-4601

N.T.S.

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