CIVIL CONSTRUCTION NOTES

GENERAL

THE UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION ALL UNDERGROUND UTILITIES , EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO TRENCHING, EXCAVATION, GRADING OR CONSTRUCTION.

WATER AND OTHER UNDERGROUND UTILITIES SHALL NOT CONFLICT WITH THE VERTICAL OR HORIZONTAL LOCATION OF EXISTING STORM SEWERS INCLUDING LATERALS.

THE CONTRACTOR SHALL PERSONALLY INSPECT THE PREMISES TO DETERMINE THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE AND THE KIND AND AMOUNT OF MATERIALS TO BE REMOVED. THE CONTRACTOR SHALL ACCEPT THE SITE CONDITIONS AS FOUND.

CARE SHALL BE TAKEN TO PREVENT DAMAGE TO EDGES OF EXISTING PAVEMENT AND CURBING THAT IS TO REMAIN. DAMAGED SLABS SHALL BE REPAIRED OR THE ENTIRE SLAB OR SECTIONS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S COST AS DIRECTED BY THE OWNER.

THE CONTRACTOR SHALL PERFORM ALL WORK REQUIRED TO PROTECT THE ADJOINING PROPERTY, STREET, SIDEWALK, CURBING, ETC., FROM DAMAGE.

THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS WHICH MAY BE REQUIRED FOR THIS PROJECT.

ALL MATERIALS AND WORKMANSHIP FOR PAVEMENTS AND OTHER MISCELLANEOUS ITEMS SHALL BE PERFORMED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL GOVERNING AUTHORITY.

EXISTING CIVIL PLAN INFORMATION IS TAKEN FROM A TOPOGRAPHIC SURVEY BY METRON SURVEYING, ST. LOUIS, MISSOURI, JUNE, 1995 AND MARCH, 1997.

ALL STRUCTURES BUILT WITHOUT ELEVATIONS PROVIDED BY THE ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

JETTING IS NOT AN ACCEPTABLE METHOD FOR COMPACTION OF BACKFILL.

VERIFY WATER MAIN LOCATIONS, SIZES AND MATERIALS PRIOR TO BID, PROCUREMENT AND INSTALLATION.

CONTRACTOR SHALL PROVIDE RECORD DRAWINGS (AS-BUILTS) TO MEMC AND FRU-CON ENGINEERING, INC. FOR HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND UTILITIES FOLLOWING CONSTRUCTION OF THOSE UNDERGROUND UTILITIES.

BENCH MARK

T.B.M.: P.K. NAIL @ CL INTERSECTION "D" STREET AND "4th" STREET
ELEV. = 483.535 (REFER TO LOCATION MAP ON DWG. C-001)

BENCHMARK --- "H-149 RESET" ---

STANDARD DISC 20' SOUTH OF TRACK
10'E OF CL BRIDGE
UNADJUSTED U.S.C. & G.S. ELEV. 505.026
BENEATH BRIDGE ON RTE. 79 OVER
NORFOLK & WESTERN R-R

GRADING

ALL FILL PLACED UNDER PAVED SURFACES SHALL BE COMPACTED TO AT LEAST 98 PERCENT OF STANDARD PROCTOR (ASTM D-698) MAXIMUM DENSITY UNLESS OTHERWISE SPECIFIED BY LOCAL GOVERNING AUTHORITY SPECIFICATIONS. ALL TESTING SHALL BE VERIFIED BY A SOILS ENGINEER.

ALL ELEVATIONS SHOWN ARE TO FINISHED SURFACE OF PAVEMENT OR DIRT AND SHALL BE WITHIN 0.10 FEET OF THOSE SHOWN ON THE DRAWINGS.

THE CONTRACTOR SHALL PROVIDE SILTATION CONTROL, AS REQUIRED BY LOCAL GOVERNING AUTHORITY, TO PREVENT SILTATION OFF-SITE UNTIL THE PAVEMENT HAS BEEN INSTALLED AND VEGETATION HAS BEEN ESTABLISHED, AT WHICH TIME THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF THE SILTATION CONTROL, REPAIR OF ANY ERODED AREAS AND RESTORATION AT THE SILTATION CONTROL DEVICE.

MATCH EXISTING ADJACENT MATERIAL AND SECTION ON ALL GRADED AREAS WHICH ARE NOT NOTED TO RECEIVE A SPECIFIED PAVING OR SURFACE. COORDINATE WITH MEMC REPRESENTATIVE.

FIRE WATER

APPLICATION: UNDERGROUND FIRE WATER AND UNDERGROUND POTABLE WATER

MEMC PIPING SPECIFICATION D2DA1:

ITEM	SIZE RANGE	SPECIFICATIONS
CONSTRUCTION	3 - 24	MECHANICAL JOINT OR MANUFACTURERS SPECIAL JOINT WITH SHOP COAT AND WRAP
INTERIOR LINING	3 - 24	STANDARD THICKNESS CEMENT LINING PER ANSI/AWWA C104/A21.4
EXTERIOR COATING	3 - 24	MANUFACTURER SUPPLIED POLYETHYLENE TUBING AND TAPE FOR COMPLETE POLYETHYLENE ENCASEMENT (LOOSE WRAP) OF PIPE AND FITTINGS. MATERIALS PER ANSI/ASTM D1248 WITH MINIMAL NOMINAL THICKNESS OF 8 MILS. INSTALLATION PER ANSI/AWWA C105/A21.5.
	3 - 24	COAT AND WRAP PER MEMC K1.3 STD U1
CATHODIC PROTECTION	3 - 24	SACRIFICIAL ANODE CATHODIC PROTECTION PER MEMC E2.6 STD. 5. JUMPER AROUND EACH JOINT BY USING NO. 4 AWG STRANDED INSULATED COPPER WIRE JOINED TO PIPE AND FITTINGS WITH CADWELD CONNECTORS. COORDINATE WITH MEMC REPRESENTATIVE PRIOR TO CONSTRUCTION
PIPE	6 - 24	DUCTILE IRON PIPE, ANSI/AWWA C151, GRADE 60-42-10, STANDARD THICKNESS CEMENT LINING, PER ANSI/AWWA C104/A21.4, THICKNESS CLASS 50, MECHANICAL JOINT, COATED AND WRAPPED PER MEMC K1.3, STD. U1.
FITTINGS	3 - 24	MECHANICAL JOINT DUCTILE IRON FITTINGS, ANSI/AWWA C110, SCH 40S, GRADE 70-50-05, STANDARD THICKNESS CEMENT LINING, PER ANSI/AWWA C104/A21.4.
FLANGES	3 - 24	MECHANICAL JOINT DUCTILE IRON FLANGE ADAPTOR FITTING, ANSI/AWWA C110, GRADE 70-50-05, STANDARD THICKNESS CEMENT LINING.
GASKETS MECHANICAL JOINT	3 - 24	ANSI/AWWA C111 PUSH ON JOINT GASKET, STYRENE BUTADINE RUBBER.
GASKETS FLANGED JOINT	3 - 24	FULL FACE GASKET, ANSI B16.21, CLASS 125 1/8 INCH THICK BLACK NEOPRENE, GARLOCK 8639
BOLTS (NOTE 4)	3 - 24	MECHANICAL JOINT: BOLT FOR MECHANICAL JOINT, ANSI/AWWA C111 FLANGE JOINT: CARBON STEEL HEAVY HEX HEAD BOLT WITH HEAVY HEX NUT, ASTM A307 GR B, FOR CLASS 150 JOINT
BLOCK VALVE	3 - 24	MEMC VALVE TAG NO. 5C-1 CAST IRON VALVE, 175 PSI MECHANICAL JOINT, BUTTERFLY WITH POST INDICATOR OR "ROAD TYPE" VALVE BOX, SPECIFY DEPTH OF BURY. PRATT PIVA TYPE FM3 NOT UL/FM LISTED
	6 - 24	MEMC VALVE TAG NO. CH310FM - BURY DEPTH CAST IRON UL/FM LISTED VALVE, 175 PSI MECHANICAL JOINT UNDERGROUND LOW PRESSURE BUTTERFLY WITH POST INDICATOR OR "ROAD TYPE" VALVE BOX. SPECIFY DEPTH OF BURY. PRATT PIVA TYPE FM3
CHECK VALVE	3 - 14	IBBM CHECK VALVE, CLASS 125 SWING CHECK UNDERGROUND SERVICE AMERICAN-DARLING 52USC 3 - 14 M&H 250F 3 - 14 NIBCO F908W 3 - 12 STOCKHAM G939 3 - 12 WALWORTH 883F 3 - 12

DESIGN/CONSTRUCTION NOTES:

1. PIPING DETAIL DRAWINGS SHOW TYPE OF END PREPARATION FOR EACH PIPE AND FITTINGS SEGMENT, I.E., PLAIN END (PE), MECHANICAL JOINT (MJ), MECHANICAL JOINT WITH RETAINER GLAND (MJR), STANDARD PUSH BELL (B), FLANGED (F), OR MANUFACTURER SPECIAL RESTRAINED JOINT (MS).

2. THE SPECIFIED WALL THICKNESS FOR PIPE AND FITTINGS IS SUITABLE FOR BETWEEN 2.5 AND 10 FEET OF COVER TO TOP OF PIPE, PLUS H-20 TRUCK LOAD, AN IMPACT FACTOR OF 1.5, 150 PSIG WATER PRESSURE AND LAYING CONDITION PER ANSI/AWWA C151.

3. CONSTRUCTION TO BE MECHANICAL JOINT FOR PIPE AND FITTINGS WITH CONCRETE THRUST BLOCKS AT ELBOWS AND TEES. WHERE CONCRETE THRUST BLOCKS ARE IMPRACTICAL, USE MECHANICAL JOINT PIPE AND FITTINGS WITH RETAINER GLANDS FOR RESTRAINT. WHEN RETAINER GLANDS ARE USED, THE JOINTS AT ELBOWS AND TEES, AS WELL AS A DISTANCE ALONG CONNECTING STRAIGHT SECTIONS, MUST BE RESTRAINED. THE DISTANCE IS A FUNCTION OF OPERATING OR TEST PRESSURE, LINE SIZE, SOIL CONDITIONS AND DEPTH OF BURY.

4. PIPE AND FASTENERS TO BE DOMESTIC MANUFACTURE OR PROVIDE CERTIFIED MILL TEST REPORTS.

5. PROVIDE WARNING TAPE WITH CONTINUOUS COPPER DETECTION WIRE ABOVE BURIED PIPE. COORDINATE WITH MEMC REPRESENTATIVE.

6. PROVIDE MINIMUM 48" GRADE COVER OVER TOP OF PIPELINE.

	REV.	BY	DESCRIPTION	DATE
				/ /
				/ /
97025 207010-01	0	E DAVIS	ISSUED FOR CONSTRUCTION	05/12/97

NOTE: "THIS SEAL APPLIES ONLY TO THIS DOCUMENT. I DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THIS PROJECT OR ANY OTHER PROJECT."

STATE OF MISSOURI — LEON W. SCHNUR — NUMBER E-17777 — REGISTERED PROFESSIONAL ENGINEER

5-14-97

FRU-CON
15933 CLAYTON ROAD
ST. LOUIS COUNTY
BALLWIN, MISSOURI
63011
PHONE: (314) 391-6700
FAX: (314) 391-4513
PROJECT NO. 207010-01
FRU-CON ENGINEERING, INC

MEMC ELECTRONIC MATERIALS, INC.
MEMC ELECTRONIC MATERIALS, INC.
O'FALLON, MISSOURI 63366

CIVIL CONSTRUCTION NOTES

FIRE WATER LINE EXTENSION

DRAWN BY	E DAVIS	DATE 05/12/97	SCALE N/A	PLOT DATE 05/09/97
CHECKED BY		DATE 5/7/97		

PROJECT NO.	PLANT	SIZE	ZONE	TYPE	NUMBER	REV.
97025	16	D	000.000	C	012	0

CADD FILE NO. 083CG012.DGN

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