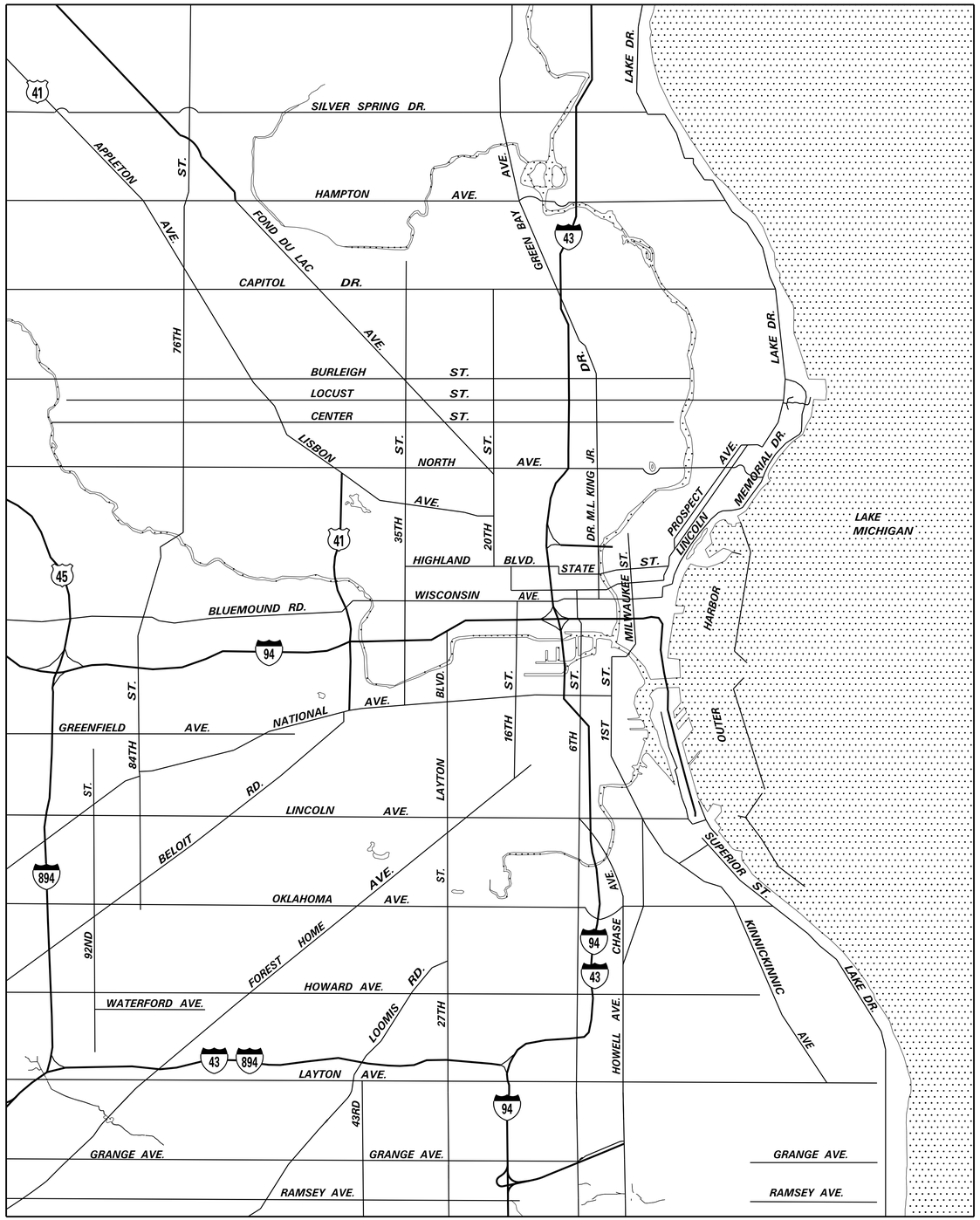
Milwaukee
Water Works

WATER STORAGE TANK – GROUND

LS–34 COATING AND APPURTENANCES MODIFICATIONS



0 0.5 1.0 1.5
APPROX SCALE IN MILES

DRAWING INDEX

DRAWING NO.	TITLE
CONTRACT DRAWINGS	
LS–34–01	LOCATION MAP – DRAWING INDEX
LS–34–02	SITE PLAN, TANK PLAN AND TANK ELEVATION
LS–34–03	DETAILS
REFERENCE DRAWINGS	
	ELEVATIONS AND SECTIONS
	PLANS AND DETAILS
	MISCELLANEOUS DETAILS
	CUPOLA DETAILS

MILWAUKEE, WISCONSIN

LOCATION MAP

WISCONSIN
MARK J. SCHILLER
E-32034
MILWAUKEE, WI
PROFESSIONAL ENGINEER

NO.	BY	REVISION	DATE

Milwaukee Water Works — **Water Engineering**
Department of Public Works

WEST WATER STORAGE TANK - GROUND

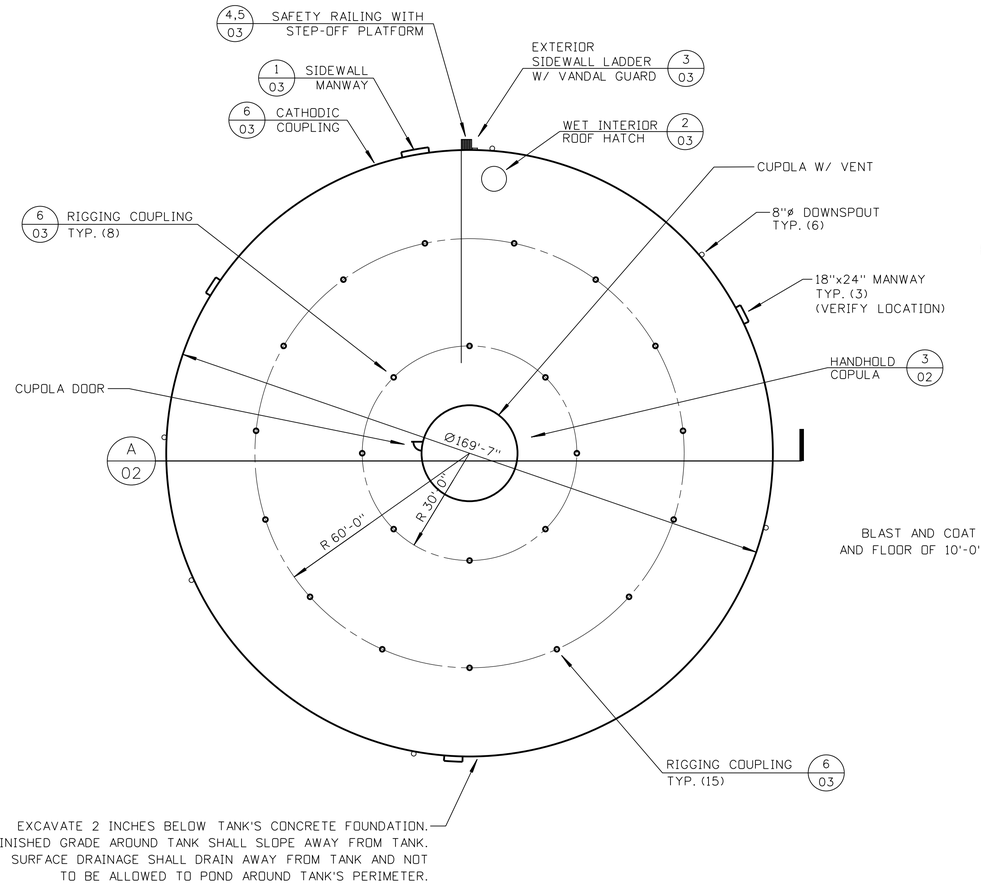
LS-34 COATING AND APPURTENANCES MODIFICATIONS

LOCATION MAP & DRAWING INDEX

DESIGNED BY	M. GREMMER
DRAWN BY	S. MILLER
CHECKED BY	M. GREMMER
DATE	2-5-2015
SCALE	AS SHOWN
WORK ORDER	WT450146100
OFFICIAL NOTICE	24-1-2015
FILE NO.	

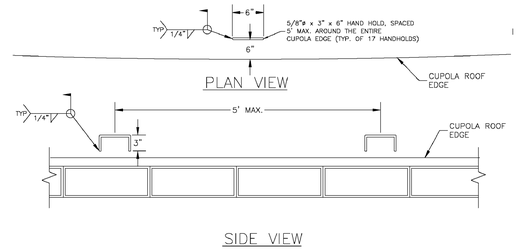
APPROVED	DATE
Mark Gramer — FOR PLANTS PROJECT ENGINEER	2/5/2015
M J Schiller — CHIEF DESIGN ENGINEER	2/5/2015
C Lewis — SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS	2/5/2015

DRAWING NO. **LS-34-01**



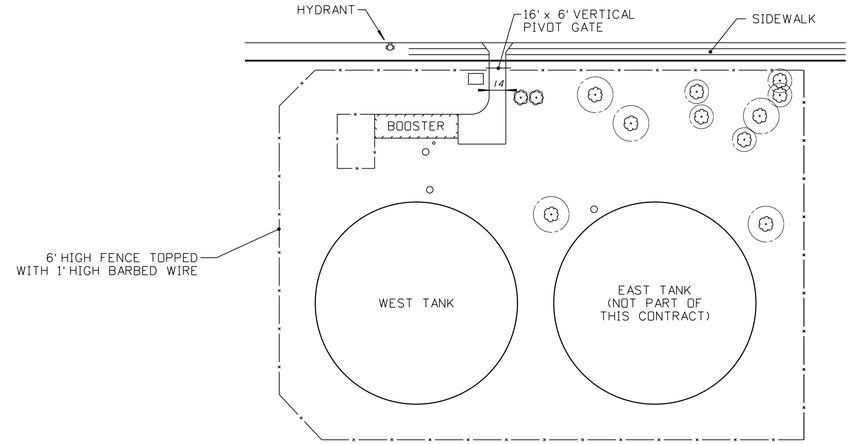
WEST TANK PLAN VIEW

SCALE = 1" = 20'



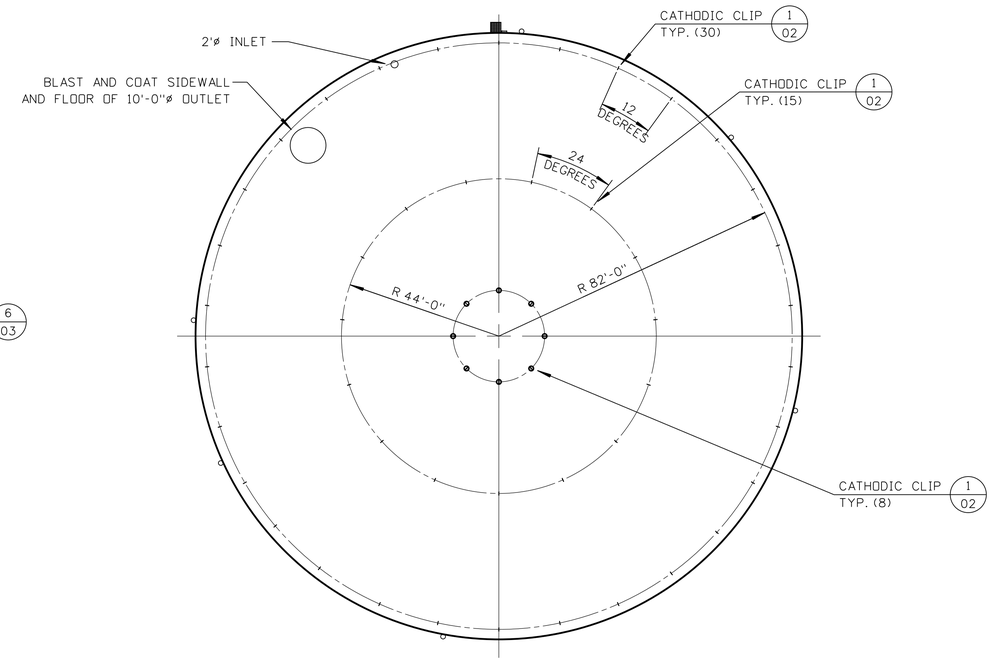
3 DETAIL - HANDHOLDS ON ROOF CUPOLA

NOT TO SCALE



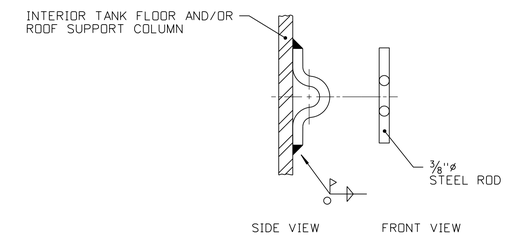
SITE PLAN

NOT TO SCALE



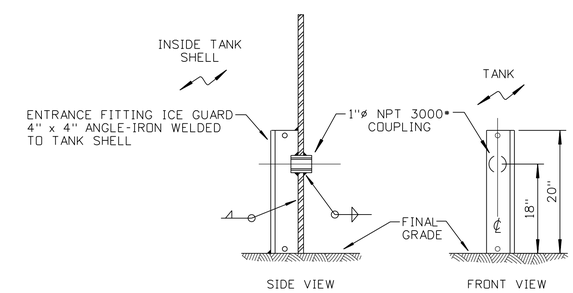
B SECTION - WEST TANK PLAN VIEW

SCALE = 1" = 20'



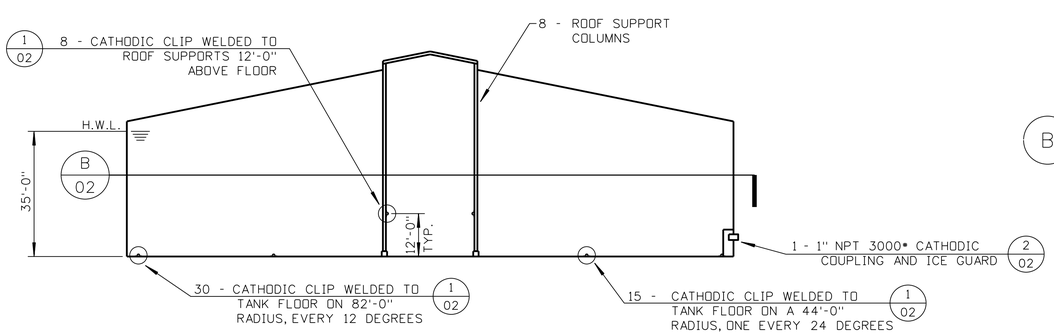
1 DETAIL - CATHODIC CLIP

NOT TO SCALE



2 DETAIL - CATHODIC COUPLING

NOT TO SCALE



A SECTION - WEST TANK ELEVATION

SCALE 1" = 20'

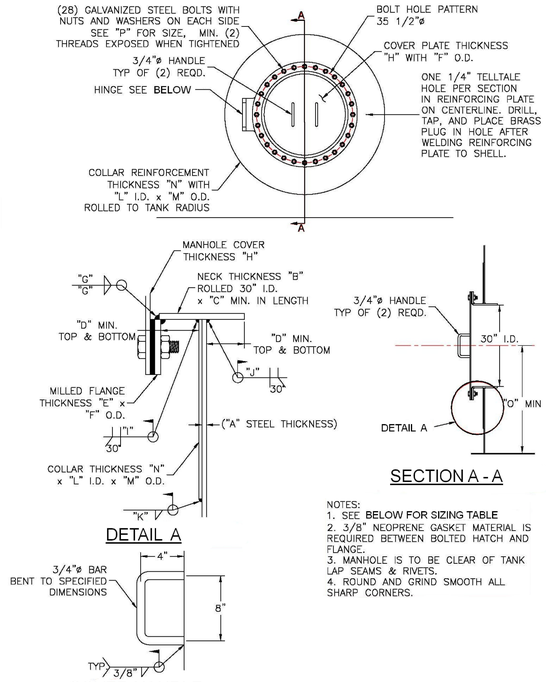
Milwaukee Water Works — Water Engineering, Department of Public Works

WEST WATER STORAGE TANK - GROUND

LS-34 COATING AND APPURTENANCES MODIFICATIONS

WEST TANK ELEVATION, SECTION & PLAN

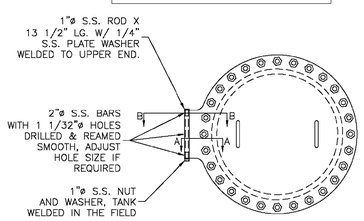
		APPROVED	DATE
DESIGNED BY	M. GREMMER		
DRAWN BY	S. MILLER		
CHECKED BY	M. GREMMER	FOR PLANTS PROJECT ENGINEER	2/5/2015
DATE	2-5-2015	CHIEF DESIGN ENGINEER	2/5/2015
SCALE	AS SHOWN	SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS	2/5/2015
PROJECT NUMBER	WT450136100		
OFFICIAL NOTICE	24-1-2015		
FILE NO.		DRAWING NO.	LS-34-02



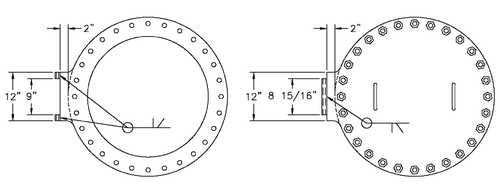
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	EXISTING STEEL THICKNESS	NECK THICKNESS	NECK LENGTH	NECK PROTRUSION IN & OUT	MILLED FLANGE THICKNESS	FLANGE & COVER O.D.	FLANGE TO NECK WELD	COVER THICKNESS	NECK TO COLLAR OR OUTSIDE TANK WELD	NECK TO INSIDE TANK WELD	COLLAR O.D. WELD	COLLAR I.D.	COLLAR O.D.	COLLAR THICKNESS	EDGE TO CENTER OF MANWAY	SIZE OF BOLTS
1	1 1/4"	1 1/4"	17"	6"	1 3/8"	40.25"	1 1/4"	1"	1/2"	1/2"	1/2"	32 1/2	58 1/2	1/2"	37"	1"
2	1 1/4"	1 3/8"	19 1/2"	7"	1 3/8"	40.25"	1 1/4"	1"	1/2"	1/2"	3/8"	32 3/4	53"	3/8"	35"	1"

NOTES:
1. SEE BELOW FOR SIZING TABLE
2. 3/8" NEOPRENE GASKET MATERIAL IS REQUIRED BETWEEN BOLTED HATCH AND FLANGE.
3. MANHOLE IS TO BE CLEAR OF TANK LAP SEAMS & RIVETS.
4. ROUND AND GRIND SMOOTH ALL SHARP CORNERS.

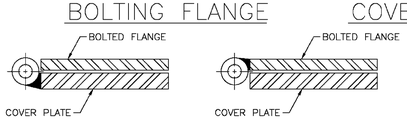
NOTES:
1. CONTRACTOR TO INDICATE WHICH ROW (1 OR 2) IS TO BE USED TO DETERMINE INSTALLED MANWAY MEASUREMENTS. ATTACH WITH SUBMITTAL PACKAGE WITH SELECTED ROW.
2. *F.D.* (FIELD DETERMINE)



MANWAY HINGE



BOLTING FLANGE COVER PLATE

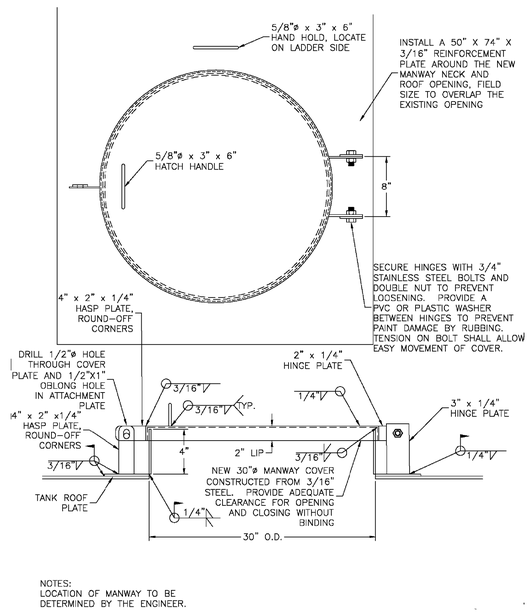


SECTION A–A SECTION B–B

NOTES:
1. GRIND SMOOTH ALL SHARP CORNERS.
2. COVER NOT TO SAG GREATER THAN 1/2" AND TO CLOSE EVENLY.

1 DETAIL - 30" BOLTED MANWAY & HINGE

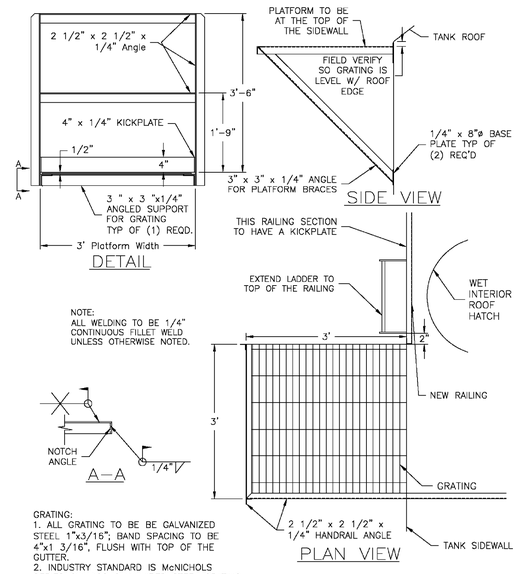
NOT TO SCALE



NOTES:
LOCATION OF MANWAY TO BE DETERMINED BY THE ENGINEER.

2 DETAIL - 30" WET INTERIOR ROOF HATCH

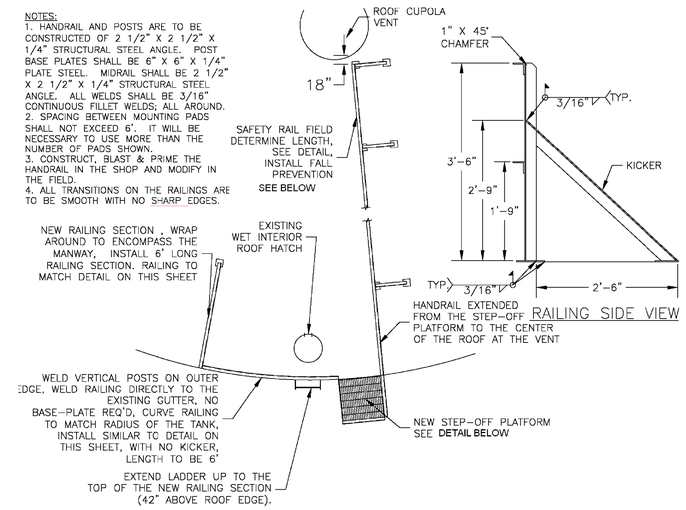
NOT TO SCALE



GRATING:
1. ALL GRATING TO BE BE GALVANIZED STEEL 1"x3/16"; BAND SPACING TO BE 4"x1 3/16", FLUSH WITH TOP OF THE GUTTER.
2. INDUSTRY STANDARD IS McNICHOLS SERIES GW-100 GALVANIZED STEEL GRATING
3. CONTRACTOR TO FIELD VERIFY ALL GRATING SIZES (GRATING TO BE ONE CONTINUOUS PIECE)
4. MOUNT GRATING USING 4 'M' FASTENERS, ONE AT EACH CORNER

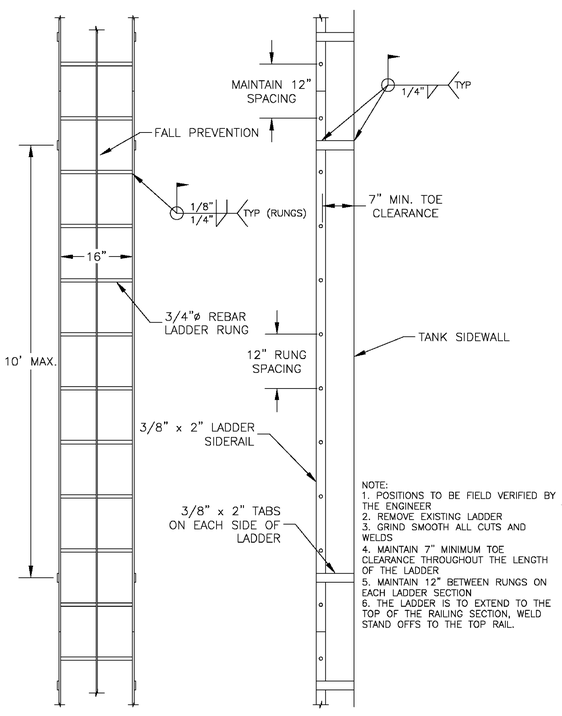
PLATFORM DETAILS

NOTES:
1. HANDRAIL AND POSTS ARE TO BE CONSTRUCTED OF 2 1/2" X 2 1/2" X 1/4" STRUCTURAL STEEL ANGLE. POST BASE PLATES SHALL BE 6" X 6" X 1/4" PLATE STEEL. MIDRAIL SHALL BE 2 1/2" X 2 1/2" X 1/4" STRUCTURAL STEEL ANGLE. ALL WELDS SHALL BE 3/16" CONTINUOUS FILLET WELDS; ALL AROUND.
2. SPACING BETWEEN MOUNTING PADS SHALL NOT EXCEED 6'. IT WILL BE NECESSARY TO USE MORE THAN THE NUMBER OF PADS SHOWN.
3. CONSTRUCT, BLAST & PRIME THE HANDRAIL IN THE SHOP AND MODIFY IN THE FIELD.
4. ALL TRANSITIONS ON THE RAILINGS ARE TO BE SMOOTH WITH NO SHARP EDGES.



4 DETAIL - SAFETY RAILING & STEP-OFF PLATFORM

NOT TO SCALE

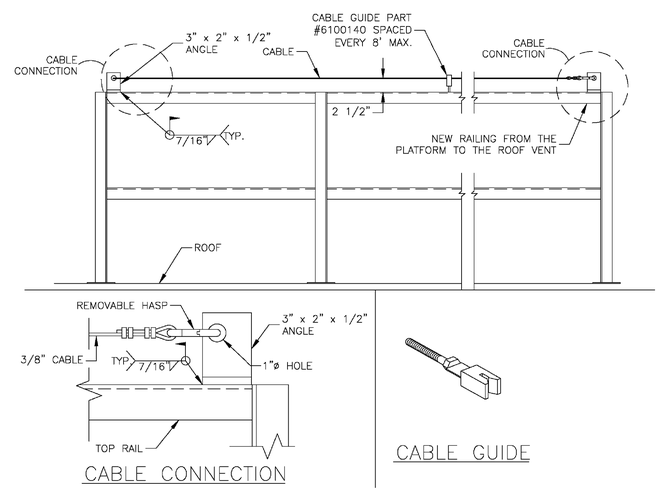


NOTE:
1. POSITIONS TO BE FIELD VERIFIED BY THE ENGINEER
2. REMOVE EXISTING LADDER
3. GRIND SMOOTH ALL CUTS AND WELDS
4. MAINTAIN 7" MINIMUM TOE CLEARANCE THROUGHOUT THE LENGTH OF THE LADDER
5. MAINTAIN 12" BETWEEN RUNGS ON EACH LADDER SECTION
6. THE LADDER IS TO EXTEND TO THE TOP OF THE RAILING SECTION, WELD STAND OFFS TO THE TOP RAIL.

SIDEWALL LADDER

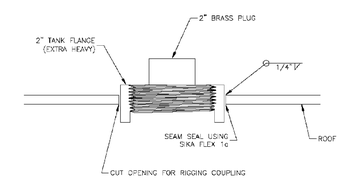
3 DETAIL - EXTERIOR SIDEWALL LADDER

NOT TO SCALE



5 DETAIL - FALL PREVENTION DEVICE

NOT TO SCALE



6 DETAIL - RIGGING COUPLING

NOT TO SCALE

Milwaukee Water Works

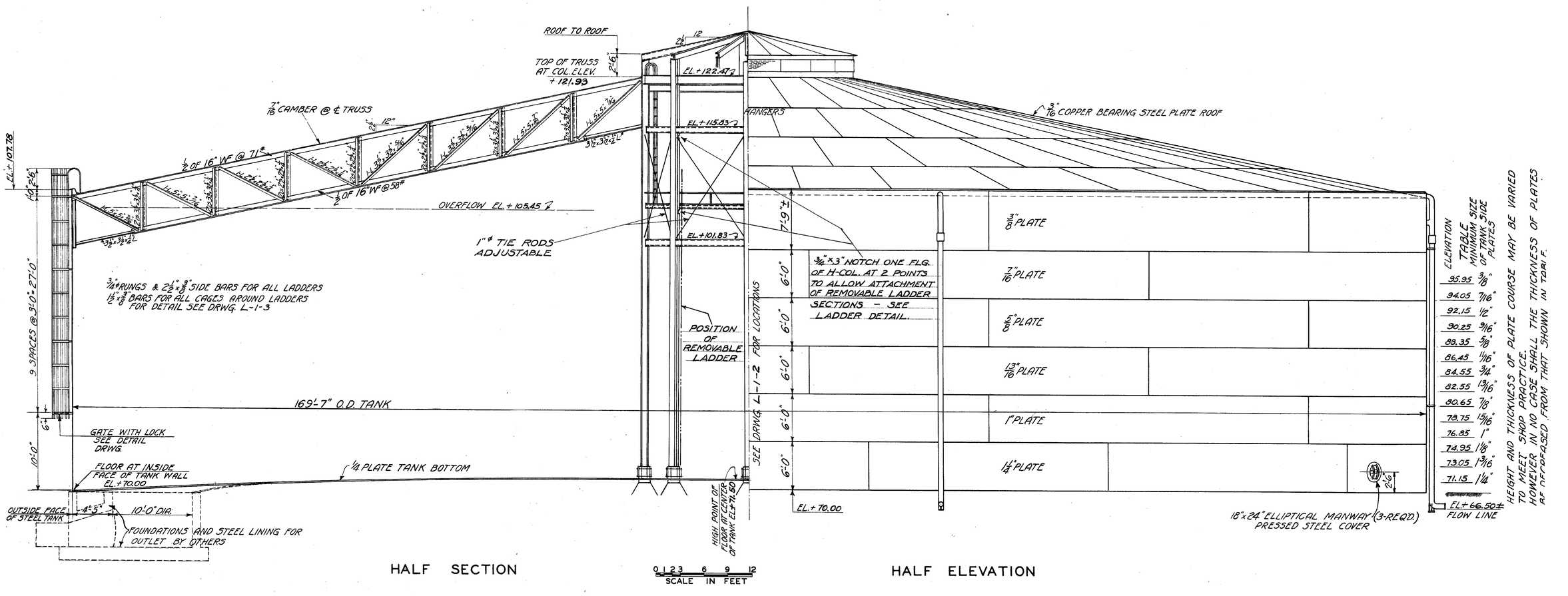
Water Engineering
Department of Public Works

WEST WATER STORAGE TANK - GROUND

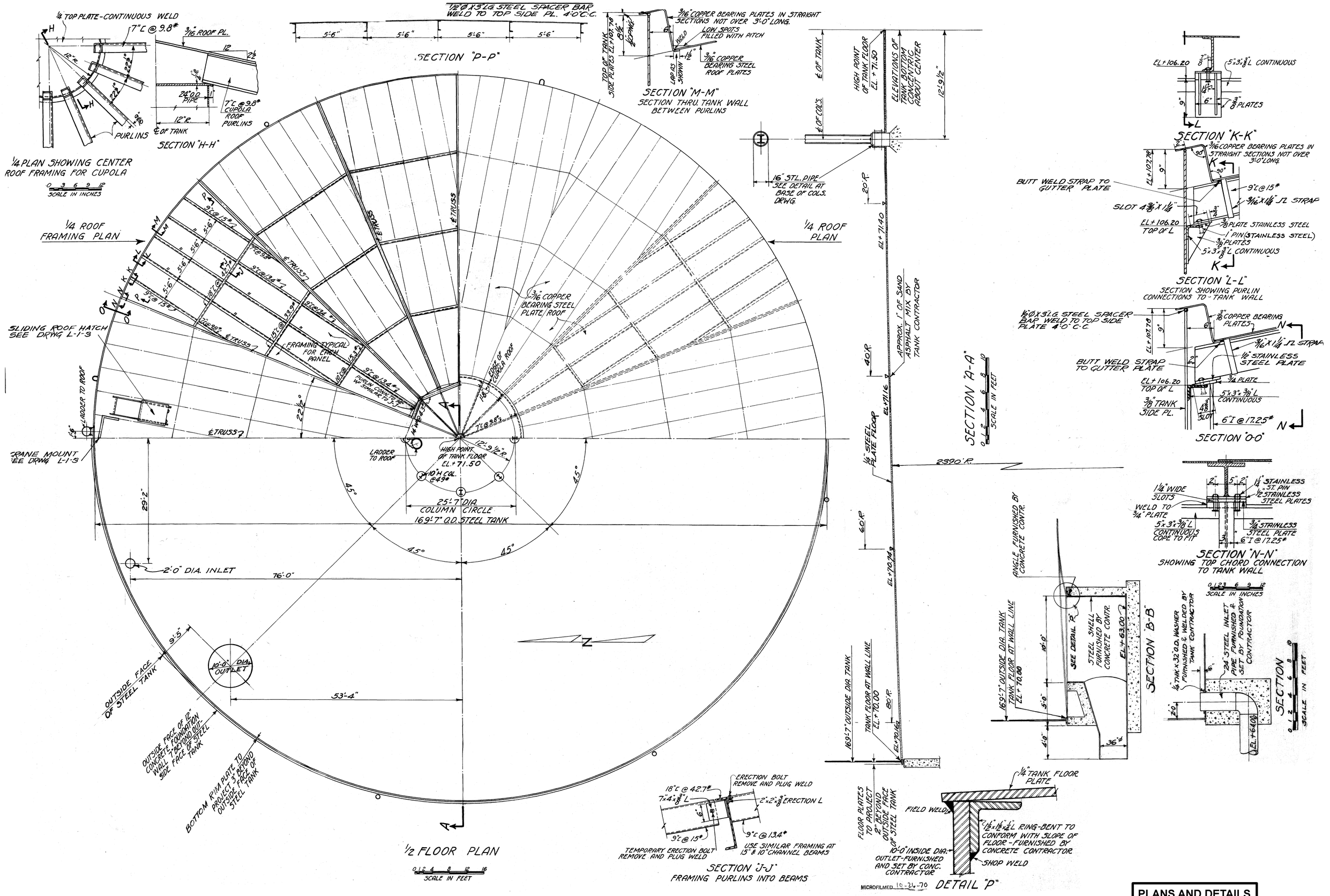
LS-34 COATING AND APPURTENANCES MODIFICATIONS

DETAILS

		APPROVED	DATE
DESIGNED BY	M. GREMMER	Mark Gramer	2-5-2015 FOR PLANTS PROJECT ENGINEER
DRAWN BY	S. MILLER		
CHECKED BY	M. GREMMER		
DATE	2-5-2015		2-5-2015 CHIEF DESIGN ENGINEER
SCALE	AS SHOWN		
PROJECT NUMBER	WT450136100		2-5-2015 SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS
OFFICIAL NOTICE	24-1-2015		
FILE NO.		DRAWING NO.	LS-34-03

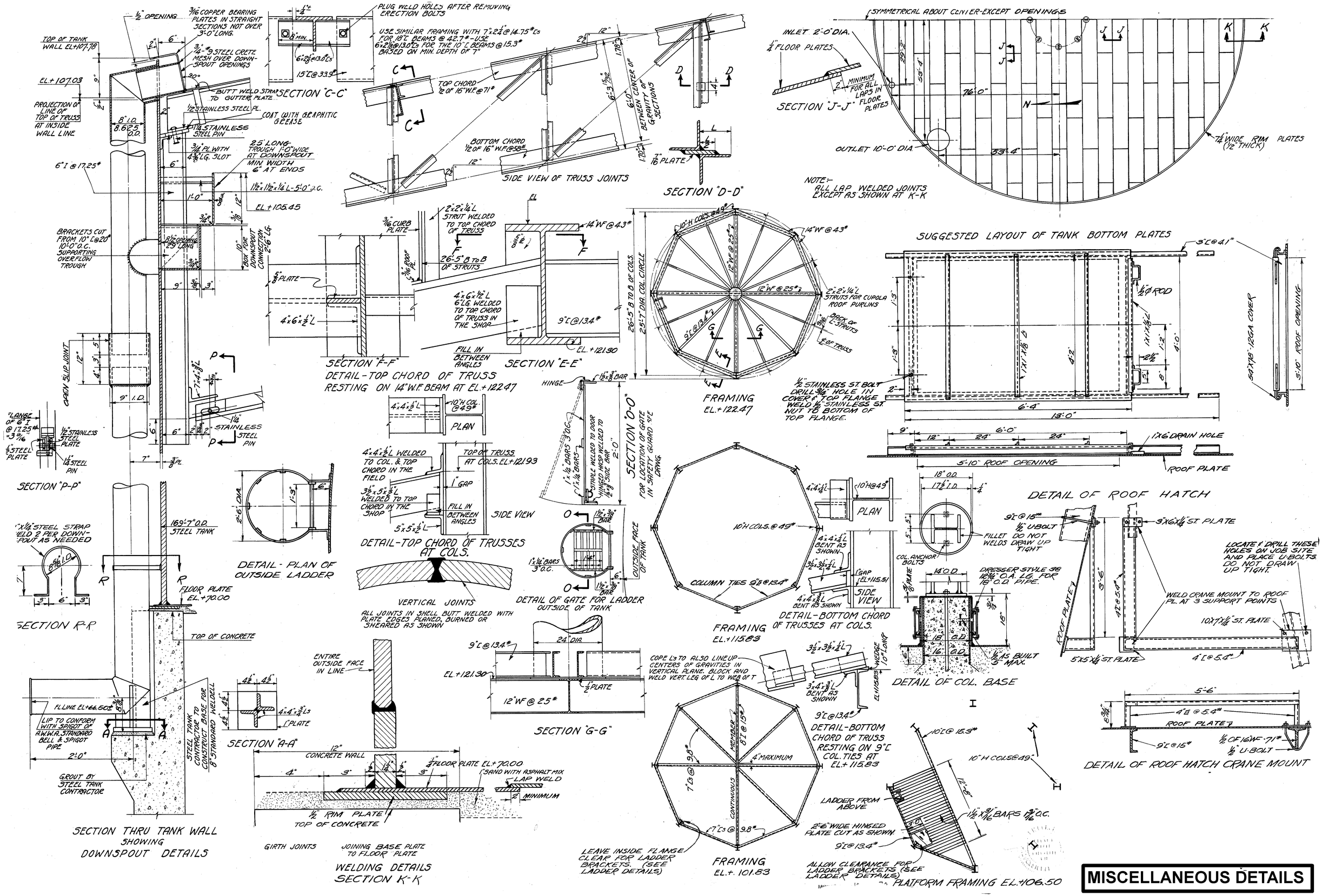


ELEVATIONS AND SECTIONS

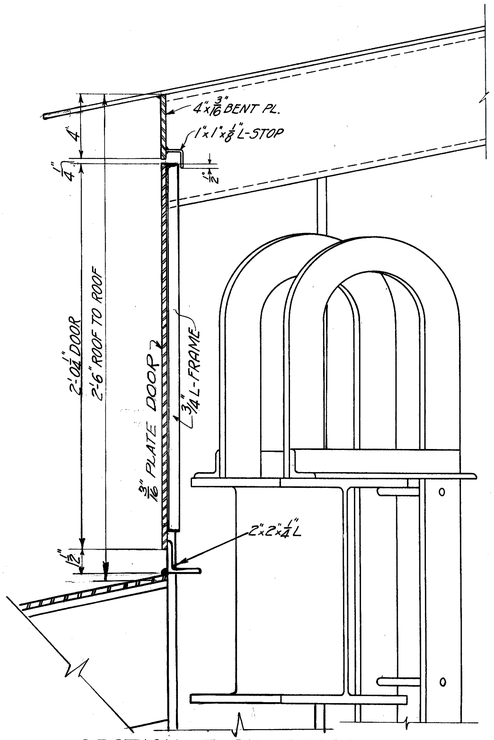


MICROFILMED 10-26-70

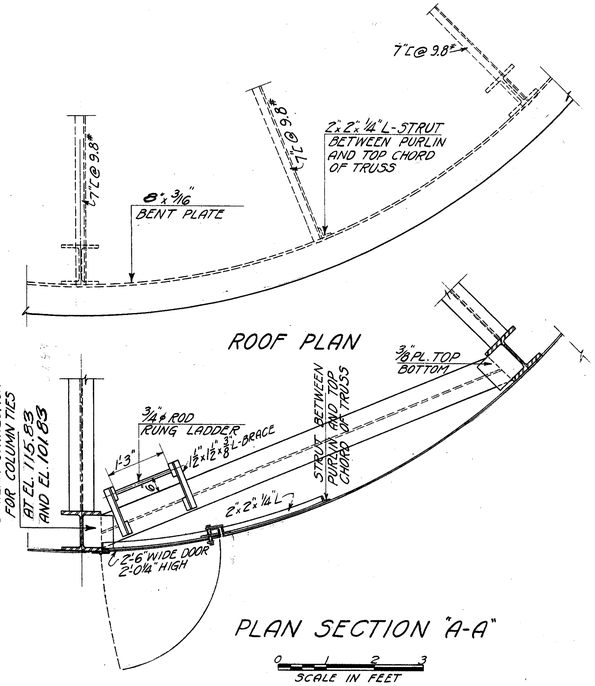
PLANS AND DETAILS



MISCELLANEOUS DETAILS

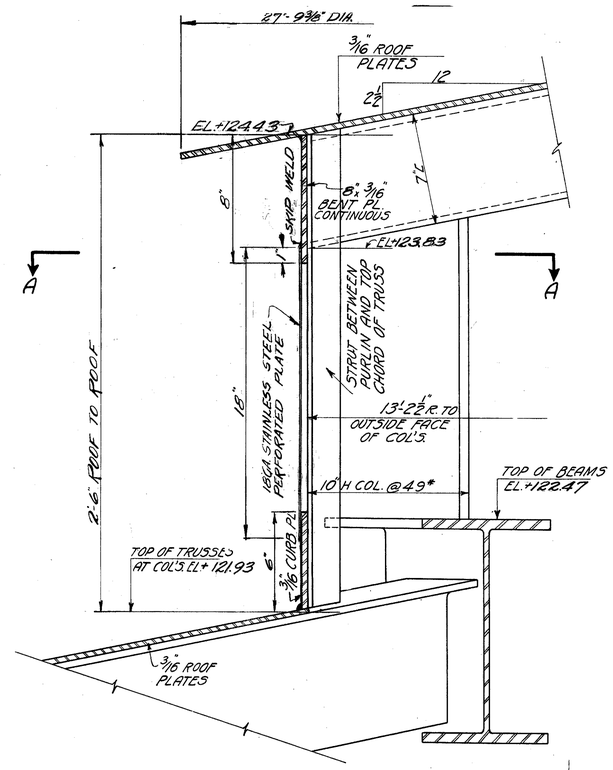


SECTION THRU DOORS

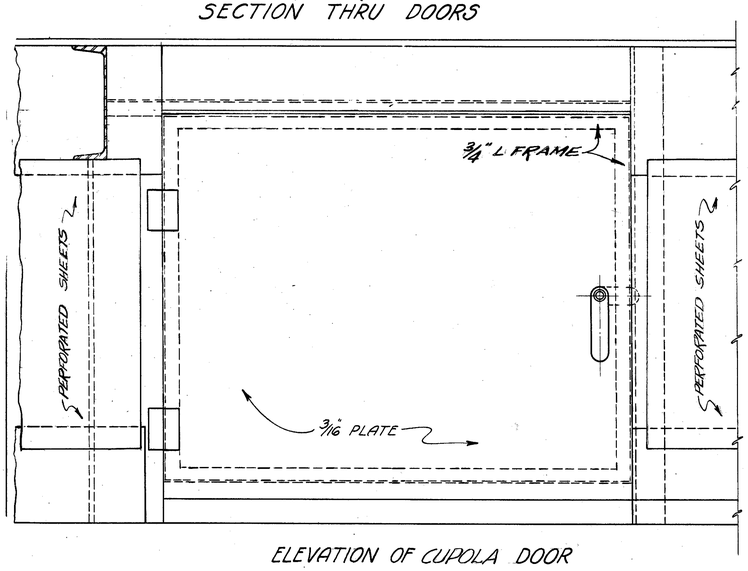


ROOF PLAN

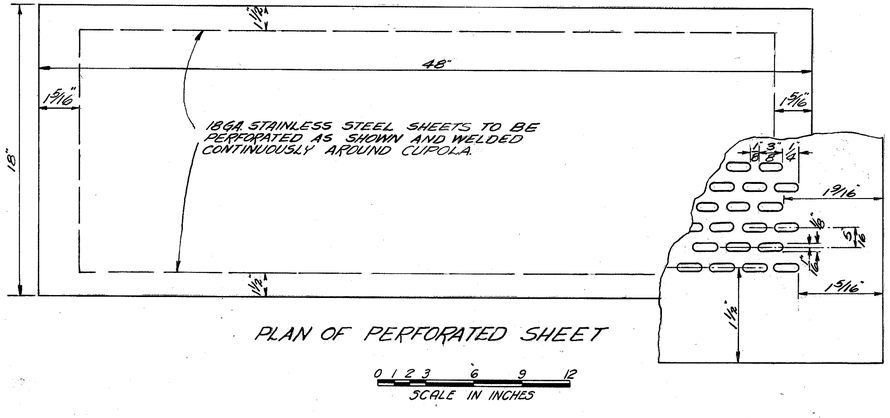
PLAN SECTION "A-A"



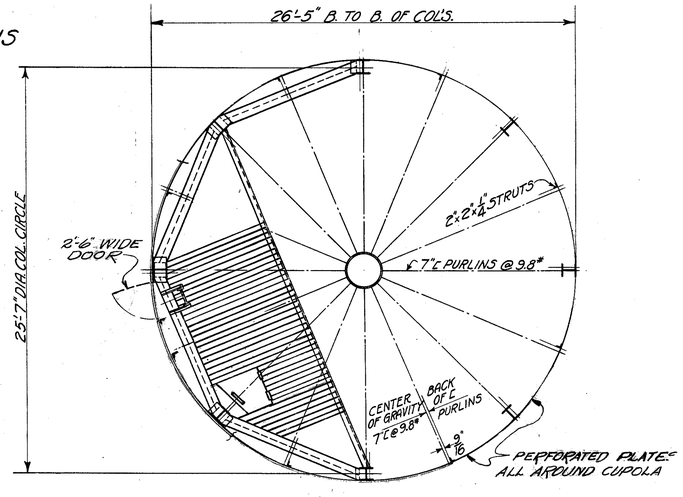
SECTION THRU SCREENS



ELEVATION OF CUPOLA DOOR

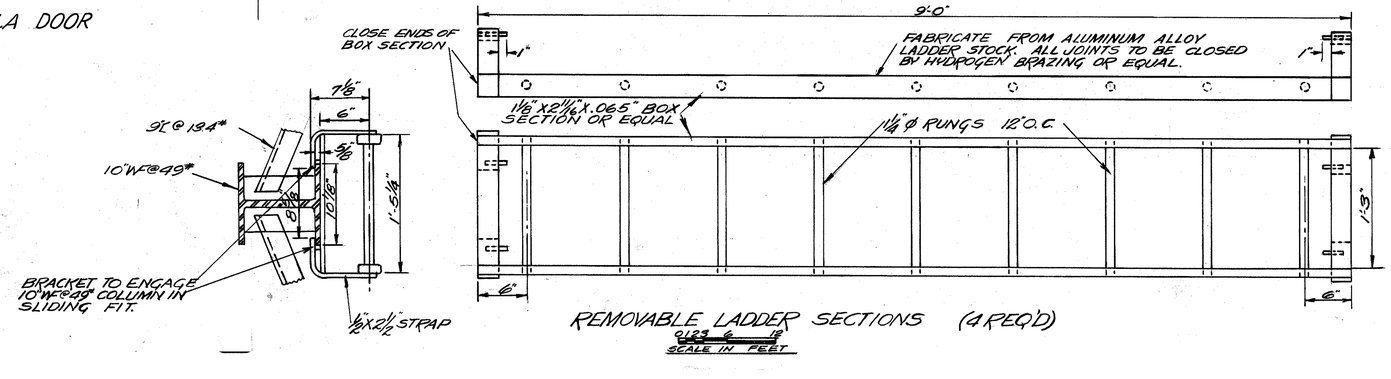


PLAN OF PERFORATED SHEET



PLAN SECTION OF CUPOLA AT EL.+123

SCALE IN FEET



REMOVABLE LADDER SECTIONS (4 REQ'D)

SCALE IN FEET

CUPOLA DETAILS