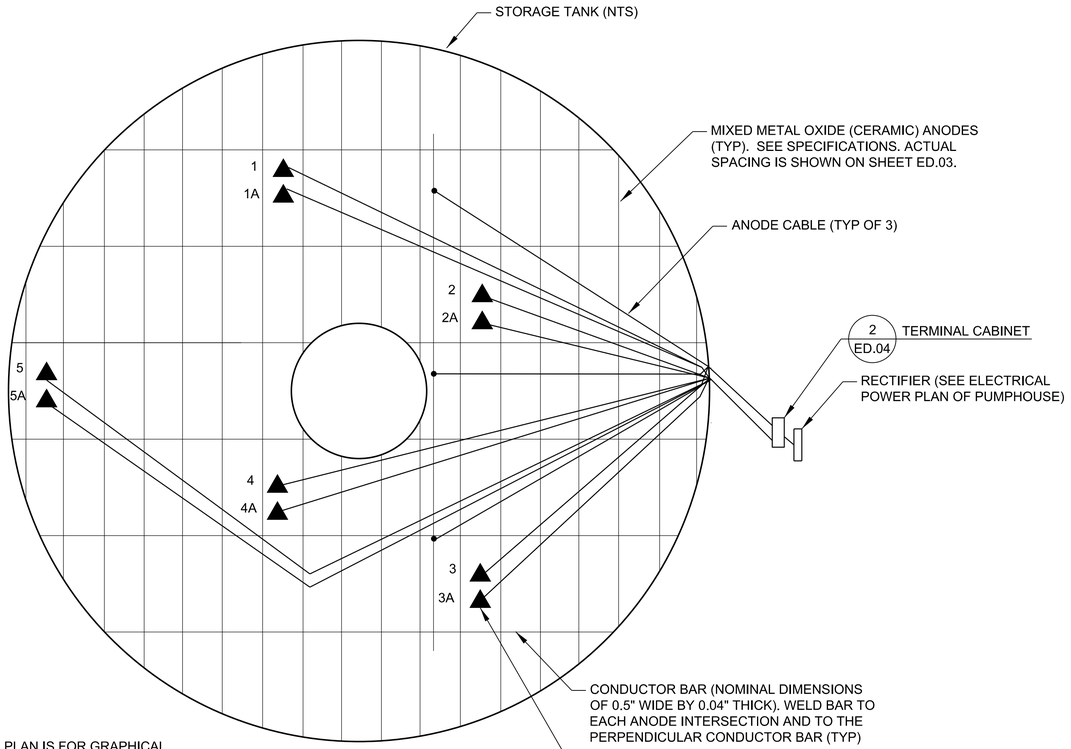
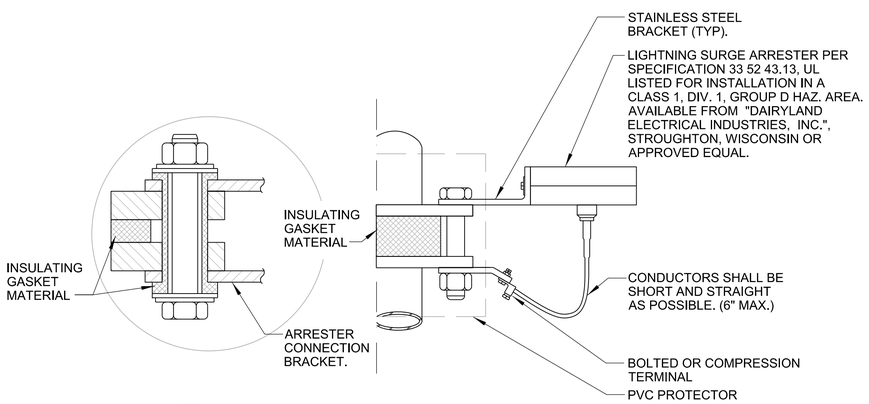


NOTE: THIS PLAN IS FOR GRAPHICAL REPRESENTAION ONLY AND DOES NOT NECESSARILY MATCH ACTUAL SPACING OF GRID. SEE ON GRADE TANKS CATHODIC PROTECTION ON ED.03 FOR THE SPACING REQUIREMENTS.

TANK ON GRADE CERAMIC ANODE CATHODIC PROTECTION PLAN

SCALE: NONE

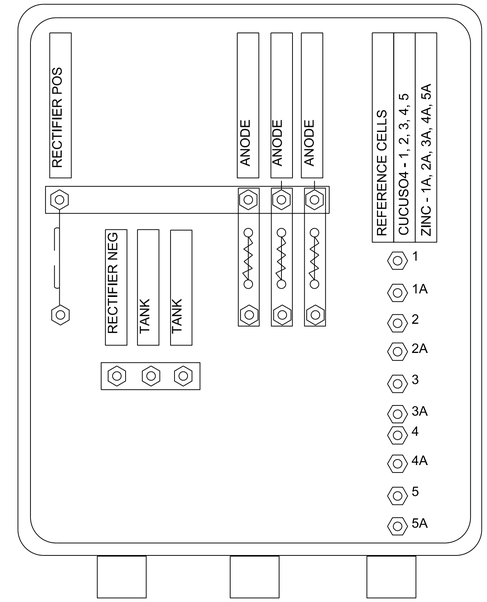


NOTE:

WRAP ENTIRE INSULATING FLANGE IN PVC PIPING AND SECURE WITH STAINLESS STEEL BAND CLAMP. LEAVE LIGHTNING SURGE ARRESTER EXPOSED.

LIGHTNING SURGE ARRESTER DETAIL

NO SCALE



NOTES:
1. PROVIDE SHUNTS WITH THE APPROPRIATE POWER RATINGS. SEE SPECIFICATIONS. SHUNTS SHALL BE O.01 OHM.

2. ALL UNDERGROUND CONNECTIONS SHALL BE ENCASED TO BE WATERTIGHT.

3. PROVIDE ETCHED LABELS BY EACH TERMINAL INDICATING THE NUMBER AND/OR FUNCTION.

4. ALL TERMINALS SHALL BE SOLDERLESS TYPE AND ALL WIRES SHALL HAVE RING OR LUG TERMINATIONS.

5. PROVIDE 24"H X 24" W X 6" D NEMA 4X ENCLOSURE WITH HINGED COVER AND LOCKABLE STAINLESS STEEL HARDWARE.

6. LAYOUT OF TERMINALS CAN BE ADJUSTED. NOTE THAT IF ANOTHER ANODE CONFIGURATION IS USED, THE NUMBER OF ANODE CONDUCTORS COULD CHANGE. CABINET SHALL BE ADJUSTED IN SIZE ACCORDINGLY.

7. LOCATE TERMINAL CABINET OUTSIDE OF CONCRETE CONTAINMENT AREA AND HAZARDOUS LOCATIONS. TERMINAL CABINET MAY BE LOCATED NEXT TO RECTIFIER.

TERMINAL CABINET 2

SCALE: NONE

ED.01 | ED.04
ED.03
ED.04

DESIGNER NOTE:

THE SYSTEM SHOWN IS BASED ON A GRID SYSTEM WITH THE DISTANCES SHOWN. THE ANODES HAD A MAXIMUM 5 mA/FT RATING WITH A TARGET OF 4 mA/FT. THE CONTRACTOR HAS THE OPTION OF USING OTHER SYSTEMS WHICH MEET THE FOLLOWING:

A. TANK BOTTOM IS BARE. PROTECTIVE COVERAGE SHALL BE 1.5 MA/SQ.FT OF SURFACE. MINIMUM 25 YEAR LIFE IS REQUIRED. RECTIFIER SHALL HAVE A 6 AMP OUTPUT. VOLTAGE OUTPUT SHALL HAVE A MINIMUM SAFETY FACTOR OF 3 TIMES WHAT IS REQUIRED INITIALLY. SHOP DRAWING SHALL INDICATE THAT AN OPTION IS BEING USED. ALL CHANGES NECESSARY TO THE TERMINAL CABINET, CONDUIT, NUMBER OF CABLES, SIZE OF RECTIFIER, ETC. TO MAKE A COMPLETE AND USABLE SYSTEM SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE GOVERNMENT.

(1). SPIRAL SYSTEM. ONE CONTINUOUS SPIRAL WITH A LINEAR ANODE. THE SPIRALS SHALL BE PLACED A MAXIMUM OF 3 FT APART. USE SAME SPACING BETWEEN SPIRALS. THE ANODE SHALL HAVE BETWEEN 5 mA/FT TO 25 mA/FT RATING. IF THE SPIRAL ANODE HAS A TOTAL LENGTH UNDER 600 FT, THERE SHALL BE A CONNECTION ON EACH END OF THE ANODE. IF THE SPIRAL ANODE IS OVER 600 FT, THERE SHALL BE THREE CONNECTIONS CONSISTING OF ONE FOR EACH END AND ONE IN THE MIDDLE. THE MAXIMUM INDIVIDUAL ANODE LENGTH WAS ASSUMED TO BE 1000 FT. THE ANODE SHALL BE A MIXED METAL OXIDE TYPE. OUTER SPIRAL SHALL BE BETWEEN 1 FT TO 2.5 FT FROM TANK EDGE.

(2). CONCENTRIC CIRCLES. USING A MIXED METAL OXIDE ANODE, PLACE THE ANODES IN CONCENTRIC CIRCLES EACH ANODE SHALL HAVE A CABLE CONNECTED TO THE END AND BROUGHT OUT TO THE TERMINAL CABINET, I.E. TWO WIRES PER CONCENTRIC CIRCLE.
CONCENTRIC CIRCLES SHALL BE SPACED A MAXIMUM OF 3 FT APART, I.E. DIAMETER OF EACH CONCENTRIC CIRCLE INCREASES BY 6 FT. USE SAME SPACING BETWEEN CIRCLES. MINIMUM OUTPUT OF THE ANODE SHALL BE 20 mA/FT. OUTER CIRCLE SHALL BE BETWEEN 1 FT TO 2.5 FT FROM TANK EDGE.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO

DES MSO | DRW MHK | CHK WVB

SUBMITTED BY:

DATE: APRIL 2015

NAVAL FACILITIES ENGINEERING COMMAND – ALANTIC

DOD STANDARD DESIGN AW78-24-27

FUEL TANKS WITH FIXED ROOFS ABOVEGROUND VERTICAL STEEL

CATHODIC PROTECTION LAYOUT & TYPICAL DETAILS

SCALE: AS NOTED

EPROJECT NO.: XXXXX

CONSTR. CONTR. NO. XXXXX

NAVFAC DRAWING NO. XXXXX

SHEET 27 OF 57

ED.04

DRAWFORM REVISION: 10 MAY 2014