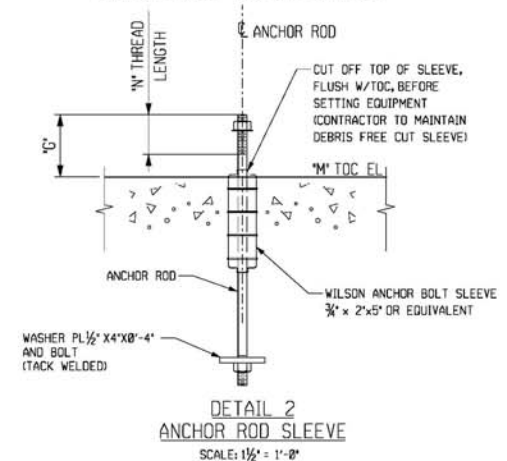


- NOTES:**
1. REFER TO DRAWING 5-2-L-40070-A-1 FOR ALL NOTES.
 2. REFER TO THE PROJECT SPECIFIC STANDARD SPECIFICATION: SITE PREPARATION, EXCAVATION, AND BACKFILL SPECIFICATION - PIP CYS02100 PLAIN AND REINFORCED CONCRETE - PIP STS03001 FABRICATION AND INSTALLATION OF ANCHOR BOLTS (RODS) - PIP STF05121
 3. MINIMUM CONCRETE STRENGTH TO BE 4,000 PSI @ 28 DAYS.
 4. PLAIN MIX CONCRETE TO BE MINIMUM 3,000 PSI @ 28 DAYS.
 5. BACKFILL AND COMPACT AROUND FOUNDATIONS WITH SUITABLE MATERIAL IN ACCORDANCE WITH PROJECT SPECIFICATION PRIOR TO INSTALLING NEW GRADE SLAB TO MATCH EXISTING GRADE SLAB.
 6. EMD IS BASED ON A FOUNDATION BEARING ON SOIL, HOWEVER IF ROCK IS ENCOUNTERED BEFORE REACHING THIS DEPTH THIS DIMENSION MAY BE REDUCED TO 3'-0" MINIMUM. CONFIRM WITH THE ENGINEER.
 7. ANCHOR BOLT SLEEVES SHALL BE FILLED WITH FOAM.
 8. FOR ANY EXISTING PIPE PENETRATING THE FOUNDATIONS, USE "SPLIT SLEEVE" 2 SIZES LARGER THAN THE PIPE, ADJUST REINFORCING CAGE AND CAST FOOTING AROUND NEW SLEEVE. SEAL ENDS WITH EXPANDING FOAM, MINIMUM 6".

- REFERENCE DOCUMENTS:**
- SP-00-07 HDH/DOS PROJECT MINNESOTA REFINERY DIVISION SPECIFICATION FOR CIVIL STRUCTURAL ENGINEERING
 - SP-00-13 SPECIFICATION FOR DESIGN LOADS FOR STRUCTURES
 - SP-00-18 SPECIFICATION FOR REINFORCED CONCRETE FOUNDATIONS
 - SP-00-19 SPECIFICATION FOR SUPPORTING STRUCTURES AND FOUNDATIONS FOR HEAVY MACHINERY
 - SP-00-24 MINNESOTA REFINERY DIVISION - SPECIFICATION FOR BASIC ENGINEERING & DESIGN DATA
 - SP-43-15 MACHINERY INSTALLATION & INSTALLATION DESIGN

- REFERENCE DRAWINGS:**
- 5-2-L-35944-A REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 1
 - 5-2-L-35945-A REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 2
 - 5-2-L-35946-A REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 3
 - 5-2-L-35947-A REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 4
 - 5-2-L-4911-A REV 13 PLOT PLAN - CRUDE UNIT NO.2 AND VACUUM UNIT
 - 5-2-L-35944-DEMO REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 1
 - 5-2-L-35945-DEMO REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 2
 - 5-2-L-35946-DEMO REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 3
 - 5-2-L-35947-DEMO REV AA CRUDE UNIT 2 UNDERGROUND PLAN SHEET 4
 - 5-2-P-33721-A REV 3A CRUDE UNIT 2 SEWER PLAN



THE DESIGN ASSUMES AN ALLOWABLE BEARING CAPACITY OF 5 KSF FOR THE ITEMS NOTED AS BEARING 'TO ROCK' AND 2 KSF FOR THOSE BEARING ON SOIL; AT THE DEPTHS INDICATED IN THE TABLE. A GEOTECHNICAL EVALUATION OF THE PROPOSED BEARING SURFACE SHALL BE PERFORMED AND REPORTED BY A GEOTECHNICAL CONSULTANT TO VERIFY THIS DESIGN ASSUMPTION. IF THE GEOTECHNICAL CONSULTANT CONCLUDES THAT THE NET BEARING IS LESS THAN THIS DESIGN ASSUMPTION, THEN THE SIZES OF THE FOUNDATION AND/ OR THE TABULATED DEPTH, MUST BE RE-EVALUATED BY THE DESIGNERS, ENGINEER

		CONCRETE DIMENSIONAL DATA												ANCHOR RODS					COORDINATES		COMMENTS	
		PLANT NORTH DIRECT	A (BOLT CTR)	B	C	D	E (MIN) SEE NOTE 6	F (MIN)	H	K	L	M TOC EL	GROUT THICKNESS	ROD DIAMETER	ROD TYPE (ASTM)	QUANTITY	TOTAL LENGTH	PROJECTION LENGTH (G)	THREADED LENGTH (N)	EQUIPMENT & E DISCHARGE		
																				EAST		NORTH
PUMP NO	5-2-G-4	↑	2'-0 1/4"	9'-3"	2'-2"	5'-3"	5'-0"	1'-0"	1'-3 3/4"	7"	5 1/2"	725-9 1/2"	2 1/2"	3/4"	F1554 GRADE 55 GALVANIZED (8 THREAD SERIES)	10	2'-6"	6 1/2"	4"	9600.5000	11218.6615	DEMO EXIST SLEEVE VENT PIPE SEE 5-02-L-35945-A-1 & 5-02-L-35947-A-1
	5-2-G-30 B	↑	2'-4 1/8"	8'-3"	1'-11"	4'-9"	5'-0"	1'-0"	9 1/8"	7 1/4"	5 1/2"	725-9 1/2"	2 1/2"	3/4"		8	2'-6"	6 1/2"	4"	8-9534.7240	8-11202.3594	DEMO EXIST DUCT BANK FOR 30 A SEE DRAWING 5-2-L-40004-A-2
	5-2-G-13/14	↑	2'-2 3/8"	14'-6"	2'-10 1/4"	6'-8"	TO ROCK 5'-0" MIN	1'-0"	1'-4 5/8"	7 7/8"	5 3/4"	725-2 1/2"	3 1/2"	3/4"		14	2'-6"	7 1/2"	4"	13-9592.3958 14-9592.4792	13-11142.0469 14-11154.0469	SLEEVE EXIST DRAIN & VENT PIPE
	5-2-G-33 B	↑	1'-11 5/8"	13'-0"	1'-7 1/2"	4'-2"	TO ROCK 4'-6" MIN	1'-0"	1'-8 1/2"	7 7/8"	5 1/2"	725-9 3/4"	2 1/2"	3/4"		14	2'-6"	6 1/2"	4"	8-9638.9375	8-11269.1667	FOR 33 A SEE DRAWING 5-2-L-40004-A-2
	5-2-G-27	↑	2'-6 1/4"	6'-3"	1'-1 1/2"	3'-2"	5'-0"	1'-0"	3 1/8"	7 1/4"	5 1/2"	725-9 1/2"	2 1/2"	3/4"		6	2'-6"	6 1/2"	4"	9598.8333	11193.9531	
	5-2-G-32	↑	2'-6 1/4"	6'-3"	1'-1 1/2"	3'-2"	5'-0"	1'-0"	2 7/8"	7 1/4"	5 1/2"	725-9 1/2"	2 1/2"	3/4"		6	2'-6"	6 1/2"	4"	9599.0990	11232.8385	
	5-5-G-38	←	5'-1 1/2"	6'-0"	7 1/2"	2'-4"	5'-0"	1'-0"	3 1/4"	5 1/4"	6 1/2"	725-3 1/2"	2 1/2"	3/4"		4	2'-6"	6 1/2"	4"	9590.7552	11232.8385	
COMPABLOC NO	5-2-E-14	↑	3'-7 3/4"	5'-0"	1'-0 3/4"	4'-0"	TO ROCK 3'-0" MIN	1'-0"	-	8 1/8"	11 3/8"	725-7"	NO GROUT	1"	F1554 GRADE 55 GALVANIZED (8 THREAD SERIES)	4	2'-6"	4 1/2"	4"	9582.2344	11241.0365	NO GROUT REQ'D BELOW BASE TOP OF FDN TO BE CAST WITH SMOOTH AND LEVEL SURFACE
	5-5-E-10	↑	3'-7 3/4"	5'-0"	1'-0 3/4"	4'-0"	TO ROCK 3'-0" MIN	1'-0"	-	8 1/8"	11 3/8"	725-7"	NO GROUT	1"		4	2'-6"	4 1/2"	4"	9534.5781	1127.8594	

LOOK HERE!!!