

- NOTES:**
- PADS SHALL BE CONSTRUCTED AS PER THE CONCRETE AND REBAR DETAIL SHEETS REFERENCED IN THE TABLE BELOW.
 - OF MEANS OVERSIGHT AND LF MEANS LIFESPAN.
 - CABLE SPREADER WELLS ARE REQUIRED ON LOOP FEED TRANSFORMER PADS. REFERENCE DETAIL SHEETS 28 THRU 37 FOR DIMENSIONS.
 - PIERS ARE REQUIRED ON ALL PADS UNLESS WAIVED BY THE COMPANY INSPECTOR. REFERENCE DETAIL SHEET 25 FOR PIER DETAILS.

KVA	A	B	C	D	E	F	G	H	I	J	REFERENCE DETAIL SHEET
75 - 150 RADIAL	6"	83"	83"	12"	16"	48"	28"	20"	21"	14"	24
225 - 500 RADIAL	6"	94"	94"	12"	16"	52"	28"	24"	25"	17"	25
1500 - 2500 RADIAL	6"	96"	114"	12"	20"	52"	28"	24"	27"	17"	26
75 - 150 LF LOOP FEED	6"	114"	132"	12"	20"	52"	28"	24"	34"	28"	27
75 - 150 DF LOOP FEED	6"	83"	83"	12"	14"	56"	38"	18"	14"	13"	38 & 29
225 - 500 LF LOOP FEED	6"	83"	83"	12"	14"	62"	37"	25"	11"	10"	30 & 31
225 - 500 DF LOOP FEED	6"	96"	86"	12"	14"	60"	40"	20"	16"	10"	32 & 33
750 DF LOOP FEED	6"	96"	86"	12"	14"	62"	37"	25"	17"	17"	34 & 35
750 DF LOOP FEED	6"	96"	96"	12"	14"	62"	37"	25"	17"	17"	36 & 37



**TRANSFORMER PADS- CONCRETE
THREE PHASE PAD DIMENSIONS**

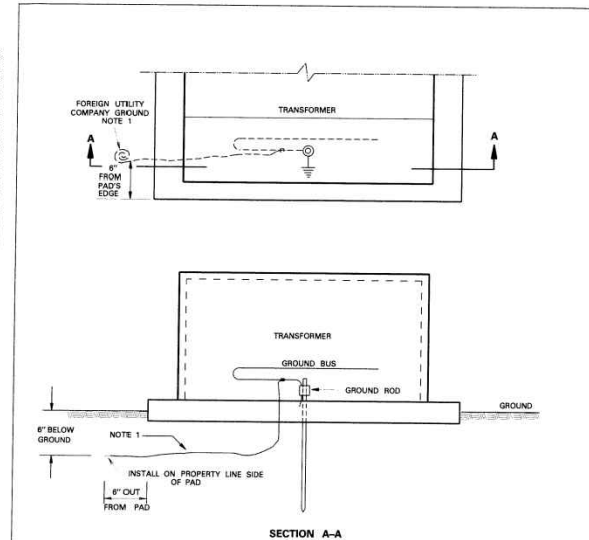
DDS-4 UG DETAIL SHEET 20 OF 57

- CONTACT COMPANY REPRESENTATIVE FOR PAD SIZE AND NUMBER AND LOCATION OF PRIMARY AND SECONDARY CONDUITS.
- REFERENCE DETAIL SHEET 9 FOR BEND RADIUS FOR ALL HORIZONTAL AND VERTICAL CONDUIT BENDS.
- GROUND RODS TO BE OBTAINED AND INSTALLED BY CONTRACTOR. INSTALLATION DEPTH SHALL BE 7'-6". REFERENCE DETAIL SHEETS FOR SIZE.
- REFERENCE DETAIL SHEET 16 FOR LOCATION OF FOREIGN UTILITY EQUIPMENT GROUND.
- REFER TO DETAIL SHEETS 51, 52, 53 & 54 FOR MINIMUM CLEARANCES FROM SURROUNDING OBJECTS.
- PIERS ARE REQUIRED ON ALL SINGLE PHASE TRANSFORMER PADS UNLESS WAIVED BY THE COMPANY INSPECTOR. REFERENCE DETAIL SHEET 17 FOR PIER DETAIL FOR SINGLE PHASE PADS.
- BEAMS SHALL BE INSTALLED ON ALL THREE PHASE TRANSFORMER PADS SET IN UNSTABLE SOILS AND IN AREAS WHERE DRAINAGE COULD CAUSE SOIL UNDER THE PAD TO WASH OUT. THE DEPTH OF BEAMS SHALL BE AS SHOWN OR TO ROCK IF ROCK IS ENCOUNTERED WITHIN THREE INCHES OF SURFACE. BEAMS ARE NOT REQUIRED.
- PIERS ARE REQUIRED ON ALL THREE PHASE TRANSFORMER PADS AND ON ALL SWITCHGEAR PADS UNLESS WAIVED BY THE COMPANY INSPECTOR. REFERENCE DETAIL SHEETS 22 AND 23 FOR PERS FOR THREE PHASE TRANSFORMER AND SWITCHGEAR PADS.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615 AND SHALL BE DEFORMED, INTERMEDIATE GRADE (GRADE 60). ALL REINFORCING STEEL SHALL BE CLEANED OF ALL COATINGS THAT ADVERSELY AFFECT BONDING CAPACITY. ALL REINFORCING STEEL SHALL BE ACCURATELY POSITIONED AND RIGIDLY HELD IN PLACE DURING POURING.
- ALL REINFORCING STEEL SHALL HAVE A 3 INCH CLEARANCE FROM THE BOTTOM. THERE SHALL BE A 3 INCH CLEARANCE FROM SIDES TO STEEL RUNNING PARALLEL THEREOF. THERE SHALL BE A 2 INCH CLEARANCE FROM END OF STEEL TO SIDES AND WINDOW.
- OUTER SURFACE EDGES OF PADS TO BE CHAMFERED 1 1/2" x 45 DEGREES. ROUNDING OF EDGES WITH A ROUNDING TROWEL IS ACCEPTABLE IN LIEU OF CHAMFERING.
- TAMP ALL DISTURBED SOIL UNDERNEATH PAD TO 95% COMPACTION AS PER ASTM D 698.
- CONCRETE SHALL CONFORM TO ASTM C 150 FOR TYPE I OR TYPE II HIGH EARLY. CONCRETE SHALL BE PROPORTIONED TO PRODUCE A COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. CONCRETE SLUMP SHALL BE 3-4 INCHES.
- AGGREGATES SHALL CONFORM TO ASTM C 39 AND SHALL BE CLEAN AND FREE FROM DELETERIOUS AMOUNTS OF ACIDS, ALKALIS, ORGANIC MATTER OR OTHER FOREIGN SUBSTANCES. THE MAXIMUM AGGREGATE SIZE SHALL NOT EXCEED 3/4 INCH.
- MIXING WATER SHALL BE CLEAN AND FREE FROM OILS, ACIDS, ALKALIS, SALTS, ORGANIC MATERIALS OR OTHER SUBSTANCES THAT MAY BE DELETERIOUS TO CONCRETE OR STEEL.
- NO ADMIXTURES WILL BE PERMITTED WITHOUT THE APPROVAL FROM THE COMPANY.
- CONCRETE MAY BE MIXED ON THE JOB OR READY MIX CONCRETE MAY BE USED.
- FOR CONCRETE MIXED ON THE JOB, A MIXER WITH A MINIMUM TWO (2) SACK CAPACITY SHALL BE USED. CEMENT AND AGGREGATES SHALL BE PROPORTIONED ON CALIBRATED SCALES. WATER FOR MIXING SHALL BE ACCURATELY MEASURED. ALL CONCRETE SHALL BE PLACED WITHIN ONE HOUR AFTER MIXING.
- IF READY MIXED CONCRETE IS USED, THE DRIVER OF EACH TRUCK SHALL FURNISH A TICKET SHOWING THE TIME THE TRUCK WAS LOADED AT THE BATCH PLANT. ANY TRUCK WHICH HAS NOT DISCHARGED ITS COMPLETE LOAD ONE HOUR AND THIRTY MINUTES AFTER LOADING SHALL BE REJECTED UNLESS A RETARDANT, APPROVED BY THE COMPANY, HAS BEEN ADDED TO THE CONCRETE AT THE TIME OF BATCHING. READY MIXED CONCRETE SHALL CONFORM TO ASTM C 94.



**GENERAL NOTES FOR
POURED IN PLACE
CONCRETE PAD**

DDS-4 UG DETAIL SHEET 21 OF 57

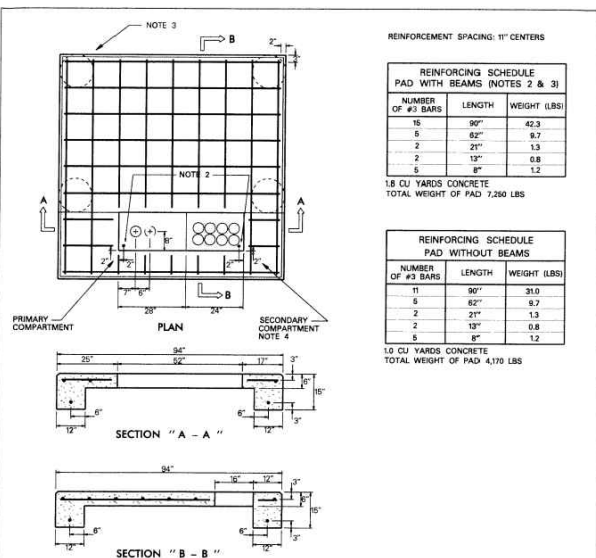


- NOTES:**
- ON NEW INSTALLATIONS, INSTALL NO. 6 S.D. BARE COPPER AS SHOWN FOR FOREIGN UTILITY COMPANY BONDING.
 - THE NATIONAL ELECTRICAL SAFETY CODE RULE 394C RECOMMENDS BONDING OF ALL ABOVE GROUND METALLIC POWER AND COMMUNICATIONS APPARATUS (PEDIESTALS, TERMINALS, APPARATUS CASES, TRANSFORMER CASES, ETC.) THAT ARE SEPARATED BY A DISTANCE OF 6 FEET OR LESS.



**METHOD OF PROVIDING
UTILITY COMPANY
EQUIPMENT GROUND**

DDS-4 UG DETAIL SHEET 16 OF 57



REINFORCEMENT SPACING: 12" CENTERS

**REINFORCING SCHEDULE
PAD WITH BEAMS (NOTES 2 & 3)**

NUMBER OF #3 BARS	LENGTH	WEIGHT (LBS)
10	90"	45.3
5	82"	9.7
2	21"	1.3
2	10"	0.8
5	8"	1.2

1.8 CU YARDS CONCRETE
TOTAL WEIGHT OF PAD 7,280 LBS

**REINFORCING SCHEDULE
PAD WITHOUT BEAMS**

NUMBER OF #3 BARS	LENGTH	WEIGHT (LBS)
10	90"	39.0
5	82"	9.7
2	21"	1.3
2	10"	0.8
5	8"	1.2

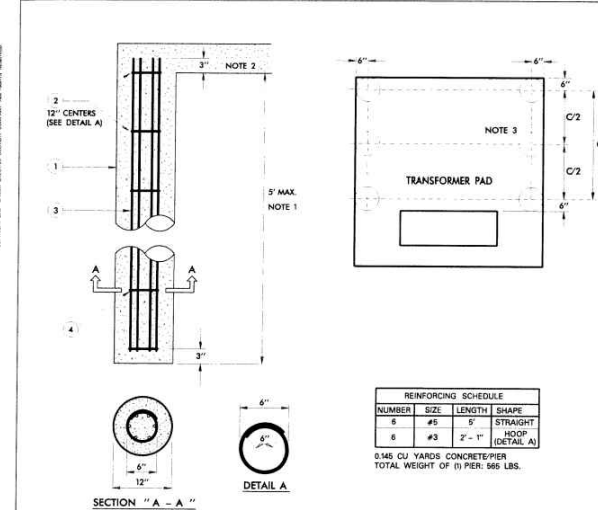
1.0 CU YARDS CONCRETE
TOTAL WEIGHT OF PAD 4,170 LBS

- NOTES:**
- SEE DETAIL SHEET 21 FOR GENERAL NOTES.
 - CONTRACTOR TO OBTAIN AND INSTALL 20 3/8" X 8" GROUND RODS AS SHOWN. INSTALLATION DEPTH SHALL BE 7'-6".
 - PIERS ARE REQUIRED ON ALL THREE PHASE TRANSFORMER PADS UNLESS WAIVED BY THE COMPANY INSPECTOR. REFERENCE DETAIL SHEET 22 FOR PIER DETAILS.
 - BEGIN SECONDARY CONDUITS AT RIGHT EDGE OF PAD WINDOW. ADD CONDUITS AS REQUIRED RIGHT TO LEFT. DO NOT CROSS DIVIDING LINE BETWEEN PRIMARY AND SECONDARY COMPARTMENTS.
 - GROUT WINDOW AS PER DETAIL SHEET 15.



**TRANSFORMER PAD
THREE PHASE
225 - 500 KVA RADIAL**

DDS-4 UG DETAIL SHEET 25 OF 57



- NOTES:**
- PIER DEPTH SHALL BE 5 FEET BELOW BOTTOM OF PAD UNLESS ROCK OR OTHER HARD SURFACES ARE ENCOUNTERED. IF ROCK OR OTHER HARD SURFACES ARE ENCOUNTERED PRIOR TO A 5 FOOT DEPTH, PIER DEPTH SHALL EXTEND 6 INCHES INTO THE HARD SURFACE.
 - PIER REINFORCING TO EXTEND 3 INCHES INTO PAD.
 - FOUR PIERS POSITIONED AS SHOWN ARE RECOMMENDED FOR ALL PAD SIZES EXCEPT THE 16" X 12" PAD. SIX PIERS POSITIONED AS SHOWN ARE RECOMMENDED FOR THIS PAD SIZE.
 - SEE DETAIL SHEET 21 FOR ADDITIONAL NOTES.

REINFORCING SCHEDULE

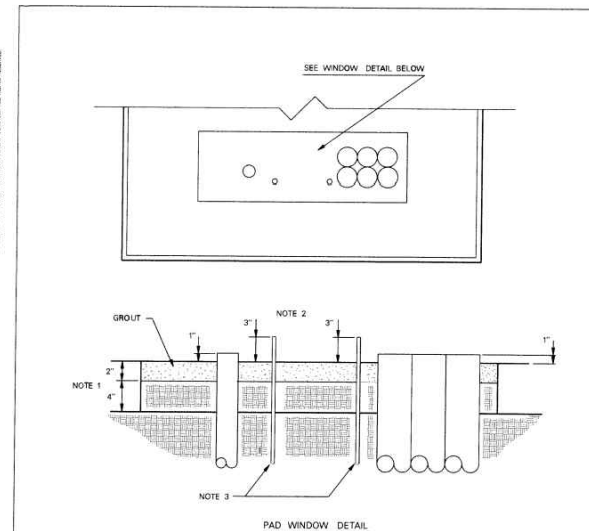
NUMBER	SIZE	LENGTH	SHAPE
6	#3	5'	STRAIGHT
6	#3	2'-1"	HOOP (DETAIL A)

0.865 CU YARDS CONCRETE/PIER
TOTAL WEIGHT OF (6) PIERS 565 LBS.



**PIER DETAILS
FOR THREE PHASE
TRANSFORMER PADS**

DDS-4 UG DETAIL SHEET 22 OF 57



- NOTES:**
- THE GROUT SHALL BE PORTLAND BASED AND SANDED. DO NOT USE CONCRETE.
 - FILL IN PAD WINDOW WITH 4 INCHES OF EARTH BACKFILL AND 2" OF GROUT.
 - GROUND RODS SHALL EXTEND A MAXIMUM OF 3 INCHES ABOVE GROUTING TO ASSURE ADEQUATE DRIVEN DEPTH AND ALLOW FOR ADEQUATE CONNECTING SPACE.
 - GROUND RODS SHALL EXTEND A MINIMUM OF 7'-6" INTO EARTH.
 - GRAVEL FILL IS NOT ACCEPTABLE.



**GROUTING DETAIL
FOR TRANSFORMER
PAD WINDOWS**

DDS-4 UG DETAIL SHEET 15 OF 57

FMI PROJECT #
15023

Damir Lulo
THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DAMIR LULO, P.E. NO. 90370 ON 6/7/16

FREEMAN-MILLICAN, INC.
ENGINEERS - ARCHITECTS - PLANNERS
NORTH ARLINGHAM ROAD 12160, SUITE 200, DALLAS, TX 75243 214-620-0555 (PH) 214-620-1148 (F)
TX REG. ENG. FIRM # 2627