

3.3.1

Survey As-Builts

3.3.1.1

The Surveyor shall obtain As-built Survey before back filling occurs. This field information is necessary for updating and correcting FPL work order drawings (usually Plan & Profile). The Surveyor is to record all as-built information in a field book. (See 4.0 Data Recording). All manholes, vaults, trench routes and duct bank locations are to be stationed to a baseline or reference line. The as-built information is to be referenced to this line. Elevations will be to NGVD 1929, NAVD 1988, or other established local datum. They are to be taken along the top of the duct bank or cable and at existing grade at 50-foot maximum intervals. Existing grade elevation shots (Top of Ground) are to be taken as close as practical to the elevation shots of the duct bank or cable being recorded. Additional elevations and grade shots are required when there is a change of elevation and/or direction of the cable or duct bank. Elevations are required on the roof of the manhole, rim if installed, at existing grade and where the duct enters the manhole or feeder splice box. When other utilities are uncovered, (water, gas, sewer, telephone, etc.) their size, material and type are to be determined, their location referenced to the base line, and their elevation noted. An elevation will be taken on the duct bank or cable directly above or below the other utility and at existing grade. As-built shall show the relation of installed facility to any easement provided by the permitting agency or others.

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SPECIFICATIONS FOR UNDERGROUND CONDUIT INSTALLATION

1. Conduit, handhole, and transformer pad placement shall be in the easement provided and in accordance with the design drawings and field staking.
2. Use only EPL supplied conduit with EPL supplied bends. (Figure 1)
3. Glue all joints securely with EPL supplied glue. (Appendix A)
4. EPL conduit markers must be placed at all conduit ends. (Figure 1)
5. Primary conduit is to have a minimum of 36 inches of cover. Secondary conduit is to have a minimum of 24 inches of cover. (Figure 1). Secondary conduit may be placed at 36" depth when in the same trench as primary conduit.
6. All service and street light conduit is to have 24 - 30 inches of cover at property line. All future service stub-outs at transformer locations to be installed with 90's. Where primary, secondary, or street light conduit runs turn horizontally, 36 inch radius 90 degree bends are to be used.
7. Cap all ends of the conduit with EPL supplied end caps. Denote termination point of each conduit run on the capped end. (Appendix B). All conduit ends are to be terminated 1 - 2 feet above final grade except at transformer locations where conduit ends are to be terminated 3 inches above final grade. (Figure 3)
8. Install 1 #12 copper locate wire supplied by EPL in each trench per attached specs (Figure 4). All ends of the #12 copper locate wire must be exposed above grade, and secured with a tie wrap to a piece of stubbed up conduit for future locates. (Figure 4)
9. Conduits terminated at transformer locations to be installed with templates supplied by EPL per Figure 3A, 3B, or 3C according to the type of transformer being installed. (Consult your Service Planner).

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10. Concrete transformer slabs provided by FPL are to be installed level on compacted fill at final grade and oriented as shown on the FPL design drawing(s) (Figure 3)
11. Conduits terminated at future secondary handhole locations to be installed per Figure 2. If secondary handholes are being installed at the time of conduit installation, install 45 degree bends as shown in Figure 1.
12. Primary splice handhole to be installed with electronic cable marker (Figure 2A)
13. Install a continuous length of pull string in all conduit runs.
14. Backfill operations are to be done carefully with special attention given to utilizing clean fill, thereby assuring the elimination of rock and other scrap material to insure that the conduit will not be damaged or marking devices moved and proper compaction is achieved.

TESTING AND ACCEPTANCE GUIDELINES

Following notification of completed installation of underground conduits by a developer/contractor FPL will:

1. Randomly spot check the installation depth of conduits below grade at a minimum of 2 points between each primary termination point, (transformers, splice boxes & risers) noting the measured depth on the record drawing.
2. After confirming the correct routing and integrity of a conduit run, verify that the cable markers were installed and exposed conduit ends are plugged.
3. Confirm that a continuous length of pull string has been installed in all conduit runs and verify that all conduits runs terminate in the correct locations.
4. The final acceptance of the conduit installation will occur when FPL pulls the conductor and occupies the conduit.

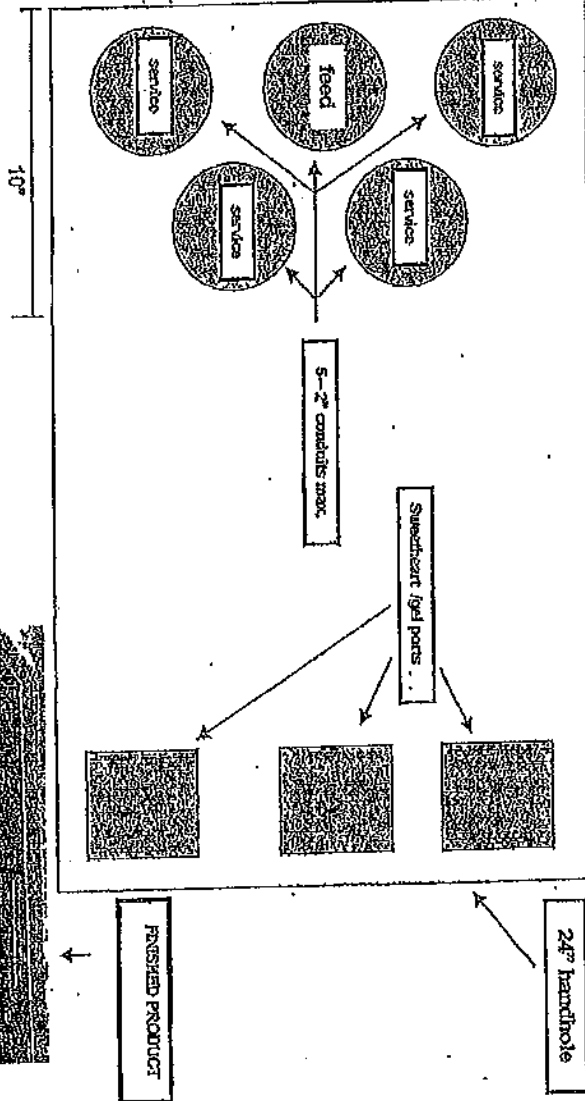
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EXAMPLE

WHEN INSTALLING 2" CONDUITS UP TO 6 MAY BE PLACED IN A 24" HANDHOLE. Please install all conduits within 10" of one end of the handhole. This allows cables to drape across to the other end of handhole where the terminations will be placed such as sweatheart connectors or gel port connectors. When the wires are raised out of the handhole this will allow approximately 18" of wire above ground level making it easier for employees to work on in future situations.



24"

FINISHED PRODUCT

24" handhole

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[illegible][illegible]

FDI

Note - Transformer location to be per specific design drawing, and may split lot lines in some cases.

LEGRE

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FIGURE 2

TYPICAL SERVICE HANDHOLE INSTALLATION

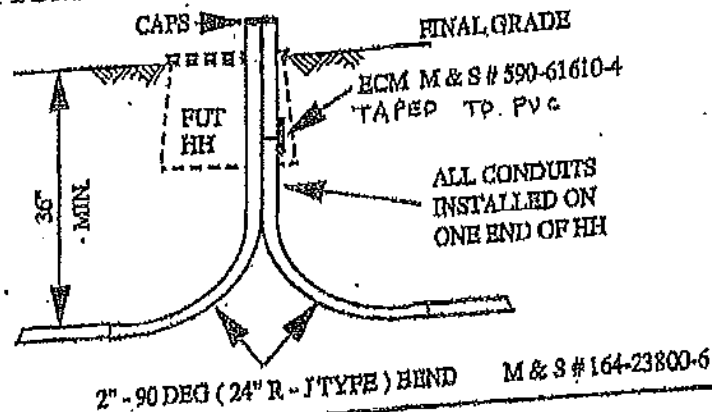
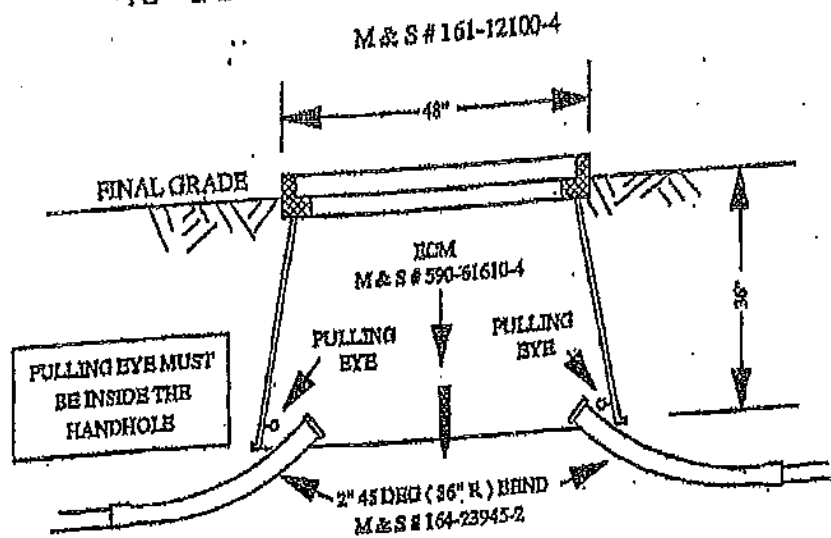


FIGURE 2A

48" PRIMARY SPLICE HANDHOLE



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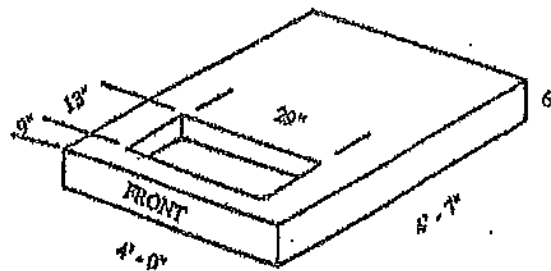
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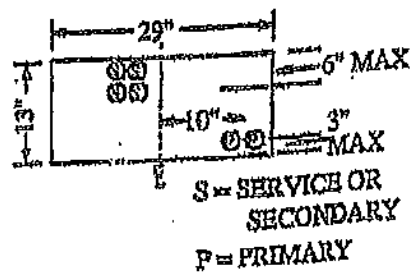
FIGURE 3

PAD & CONDUIT DETAILS

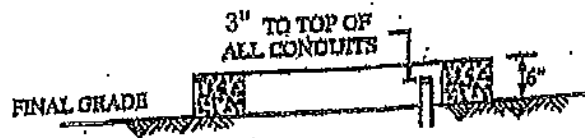
SINGLE PHASE LOW STYLE
PADMOUNT TRANSFORMER



CONCRETE TRANSFORMER PAD
M & S # 162-24800-4



PAD CONDUIT OPENING



FRONT ELEVATION OF PAD

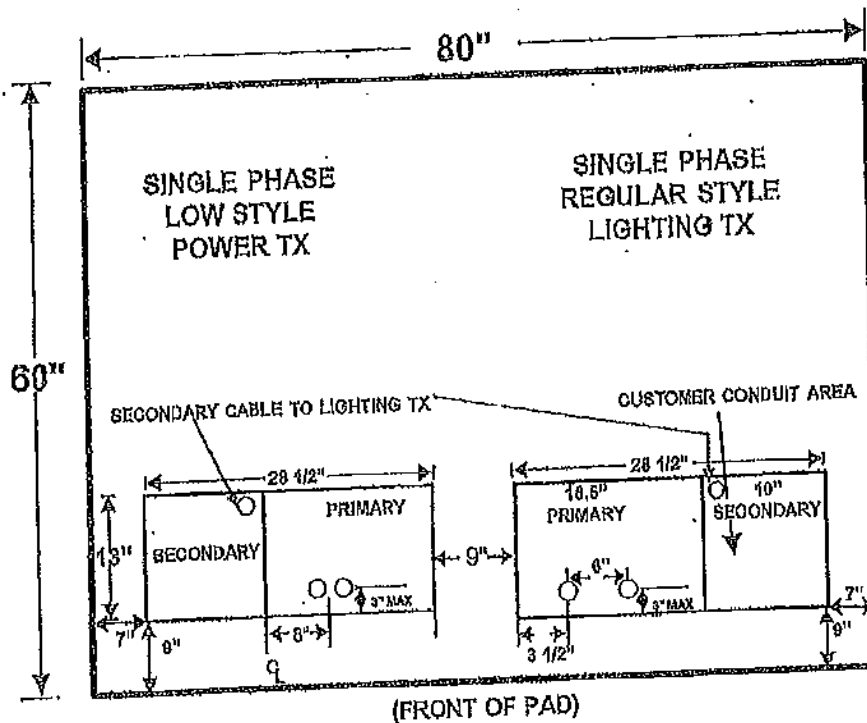
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FIGURE 3A

ONE LOW STYLE & ONE REGULAR STYLE TRANSFORMER



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FIGURE 3B
SINGLE PHASE LOW STYLE TRANSFORMER

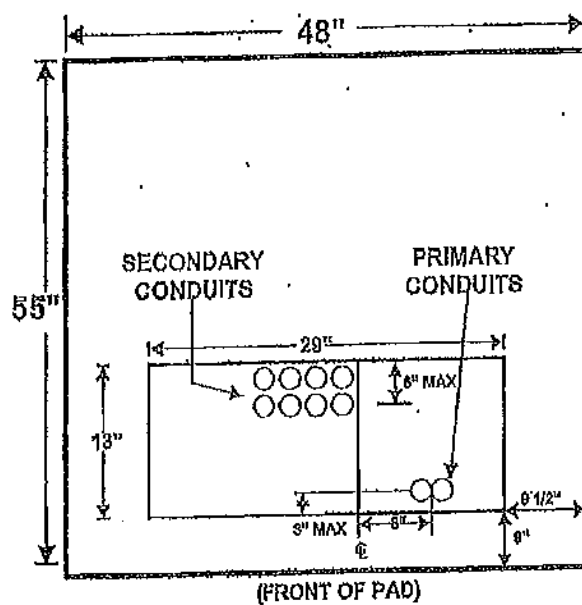
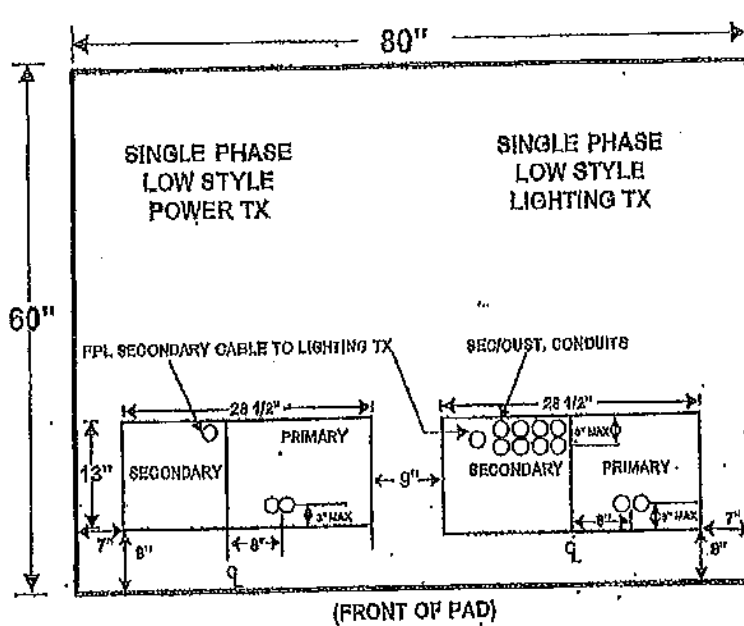


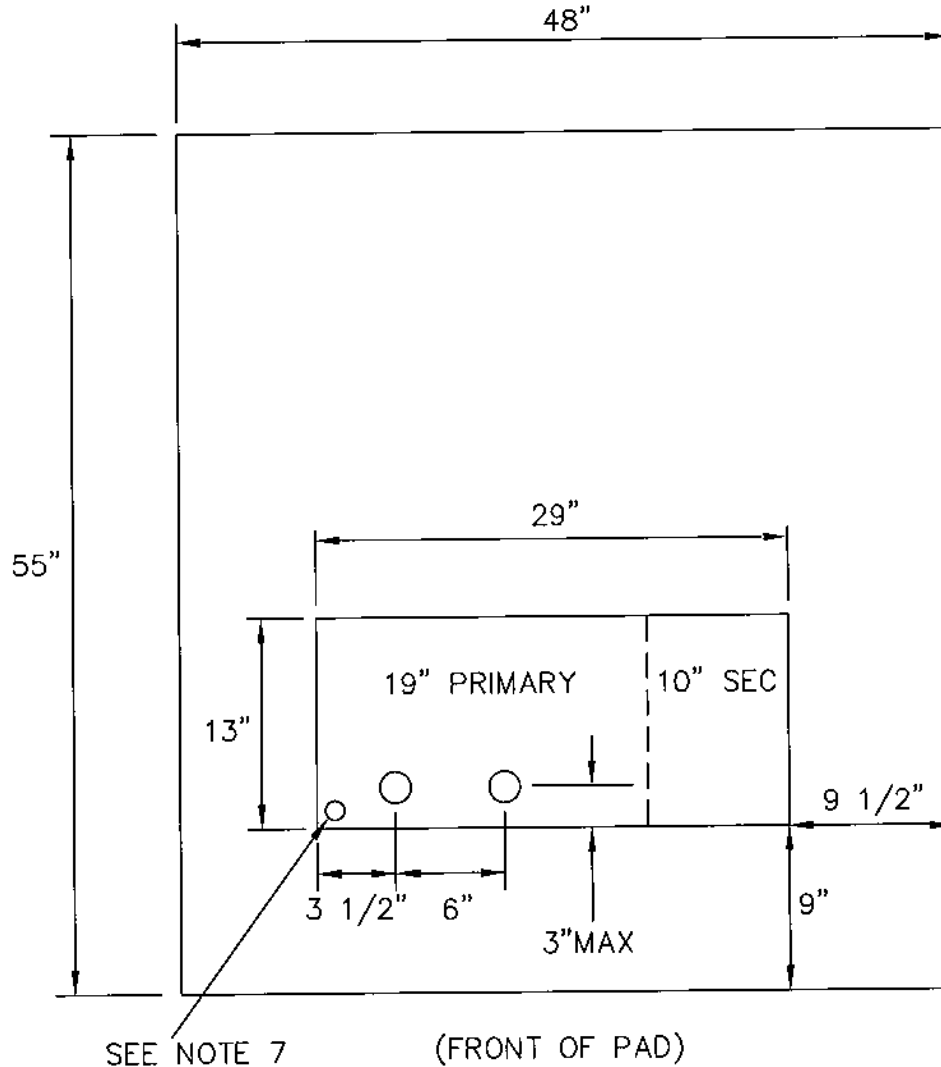
FIGURE 3C
TWO LOW STYLE TRANSFORMERS



UX-117.0.2

CONDUIT LOCATIONS FOR SINGLE PHASE REGULAR STYLE PAD MOUNTED TRANSFORMERS

UX-117.0.2



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NOTES:

1. REFERENCE I-62.0.0 OF THE DCS.
2. PAD M&S #162-248-004.
3. ALL CONDUITS TO EXTEND 3" MAX ABOVE GROUND LEVEL.
4. ALL SECONDARY/CUSTOMER CONDUITS MUST FIT WITHIN THE 10"x13" AREA INDICATED.
5. ALL CONDUIT RELATED DIMENSIONS ARE TO THE CENTER OF THE DUCT.
6. MAINTAIN 8' CLEARANCE FROM FRONT AND 3' CLEARANCE FROM SIDES AND BACK OF TRANSFORMER PAD.
7. INSTALL 2" SLEEVE FOR GROUND ROD, 48" LONG.
8. CABLES REQUIRING CT METERING INSIDE THE TRANSFORMER MUST BE PLACED TOWARDS THE FRONT OPENING OF THE TX PAD AND IN FRONT OF ANY OTHER CABLES WHICH ARE NOT CT METERED INSIDE THE TRANSFORMER. THIS IS TO AVOID CABLE TRAINING ISSUES.



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: SMS

DRAWN BY: BILL

DATE:

APPROVED: J.J. McEVoy

NO SCALE

SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

2	1/28/16	UPDATE NOTES	ARR	ELS	RDH
1	5/7/15	UPDATE DRAWING	ARR	ELS	RDH
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

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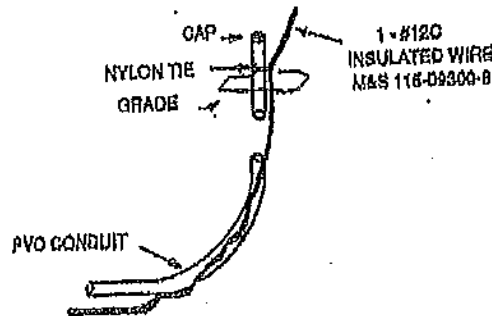
By brandon at 11:30:30 AM, 3/4/2020

FIGURE 4

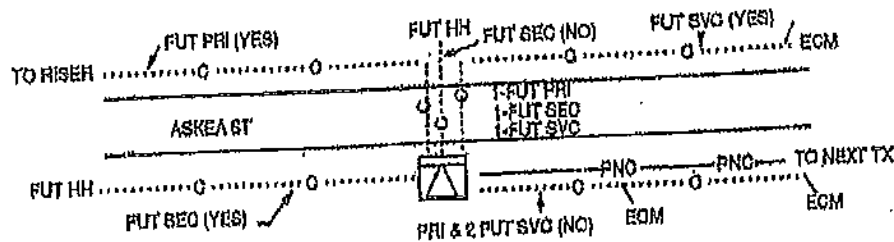
1 - #120 INSTALLATION

When installing conduit only (cable to be pulled later), a single #12 copper insulated wire is to be direct buried in every trench at the same depth as the conduits. The ends of the wire are to be terminated above ground at the conduit ends as shown. This wire will allow empty plastic conduits to be located with electronic equipment.

This method is not intended for areas where conduit is installed strictly for road crossings only. In these cases EOM markers should be used to mark the conduit ends.



WHERE TO INSTALL #120 WIRE

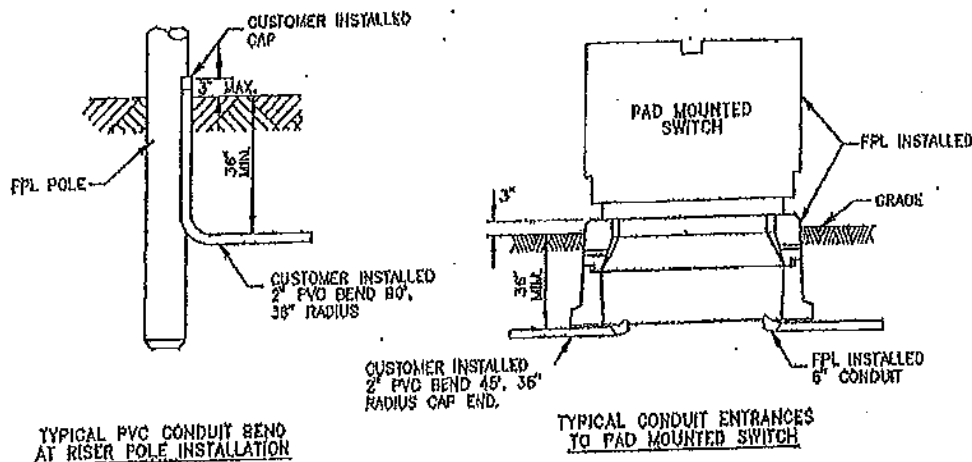


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DRAWING SYMBOLS



SYMBOLS

CONDUCTORS -- PRIMARY

FPL OWNED, IN CONDUIT, WITH CONDUCTOR SIZE, METAL, RATED VOLTAGE INSULATION AND NEUTRAL INDICATED.

EXISTING

---PNC---

PROPOSED

---PNC---

CONDUCTORS -- SECONDARY -- STREET LIGHT

FPL OWNED, IN CONDUIT, WITH CONDUCTOR SIZE, METAL AND INSULATION INDICATED (HM/HD TPX SHOWN).

1/OA

4/OA

SERVICE LATERALS

THREE-WIRE SECONDARY SERVICE, FPL OWNED IN CONDUIT WITH CONDUCTOR SIZE, METAL, INSULATION AND JACKET INDICATED.

3-20 RN

1/OA TPX

EMPTY CONDUIT

PADMOUNTED TRANSFORMERS

PADMOUNTED TRANSFORMER, 15, WITH KVA RATING (FRONT, OR TERMINAL, CHAMBER, IS SMALL RECTANGLE AT RIGHT END OF SYMBOL. PRIMARY PHASE INDICATED) TRANSFORMER STYLE SHOWN AS FOLLOWS: (RS) - REGULAR SIZE - 42" x HIGH, (DF) - DEAD FRONT - 32" x HIGH, (LS) - LOW STYLE - 24" x HIGH.

▶ B 15

▶ B 15

STRUCTURES

ELECTRONIC CABLE MARKER AND OR SPLICE PIT (BURIED)

⊙

⊙

SERVICE HANDHOLE

⬢

⬢

F P L

UN-27.0.0

RECOMMENDED PRACTICES FOR FIELD JOINING OF PVC CONDUIT (USING CLEAR SOLVENT CEMENT) AND PVC CONDUIT INSTALLATION

UN-27.0.0

FIELD JOINING

1. EXAMINE EACH LENGTH OF CONDUIT AND ENSURE THERE ARE NO INTERIOR OR EXTERIOR IMPERFECTIONS, CRACKS, ETC. REMOVE ALL FOREIGN MATERIAL FROM INSIDE CONDUIT.
2. USING A HACKSAW, (594-40600-7) FINE TOOTH WOOD SAW, OR NYLON STRING, CUT PIPE SQUARE (IF REQUIRED). REMOVE ANY BURRS AND BEVEL ANY SHARP EDGES. WIPE DRY WITH A CLEAN, DRY CLOTH.
3. APPLY CEMENT (M & S #522-14100-7) UNIFORMLY ON INSIDE OF BELL OR FITTING. APPLY UNIFORM COAT OF CEMENT ONTO CONDUIT END. DO NOT POUR, SPLASH, OR GLOB CEMENT ON!
4. IMMEDIATELY INSERT THE CONDUIT INTO THE BELL END OF FITTING ALL THE WAY TO THE INSIDE SHOULDER. ENSURE SNUG FIT AND TURN CONDUIT 1/4 TURN TO DISTRIBUTE CEMENT EVENLY.
5. HOLD JOINT FOR APPROXIMATELY ONE MINUTE TO ALLOW CEMENT TO BEGIN SETTING. WIPE OFF EXCESS CEMENT.
(NOTE: MANUFACTURER RECOMMENDATIONS ARE TO ALLOW FOR A MINIMUM OF 10 MINUTES OF DRYING TIME PRIOR TO ANY BACKFILLING. WEATHER CONDITIONS MAY VARY THIS SETTING TIME.)

FIELD INSTALLATION

1. LAY CONDUIT RUN INTO TRENCH. DO NOT KICK, THROW OR SLAM IT IN!
2. SURROUNDING TRENCH BACKFILL MUST BE FREE OF LARGE OR SHARP ROCKS, CINDERS OR OTHER DEBRIS WHICH WILL DAMAGE CONDUITS DURING BACKFILL OPERATION OR SUBSEQUENT COMPACTION.
3. IN CORAL ROCK AREAS, IT IS RECOMMENDED THAT HAND BACKFILLING FOR THE FIRST 3 TO 6 INCHES BE PERFORMED.
4. INSTALL PLUGS OR END BELLS ON ALL VACANT DUCTS, AS REQUIRED.
5. THE FINISHED CONDUIT RUN SHALL BE RODDED IN AN APPROVED MANNER (I.E. WINCH LINE, MANDREL, ETC.) TO VERIFY CONTINUITY AND CLEANLINESS. (NOTE: NO CONDUIT RUN SHALL BE ACCEPTED AS PROPERLY INSTALLED UNLESS FREE PASSAGE IS OBTAINED AND VERIFIED BY FPL SUPERVISION.)

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OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: CM

DRAWN BY: BQ

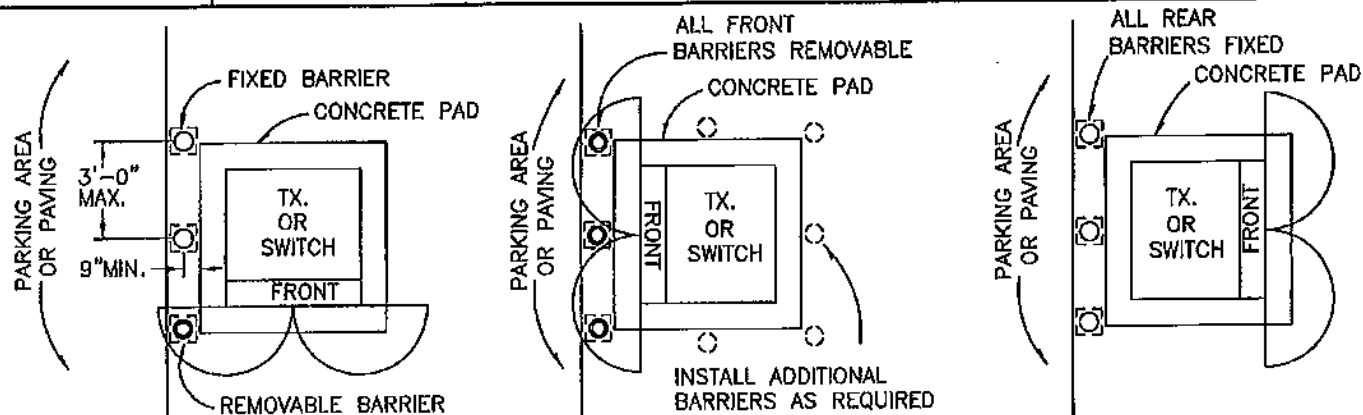
1	7/16/01	UPDATE DRAWING (TEXT)	RAP	JES	JJM	DATE: 9-30-94	APPROVED: R.J. SALESKY	NO SCALE
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.	DIRECTOR, DISTRIBUTION ENGINEERING AND OPERATIONS SERVICES		

UN

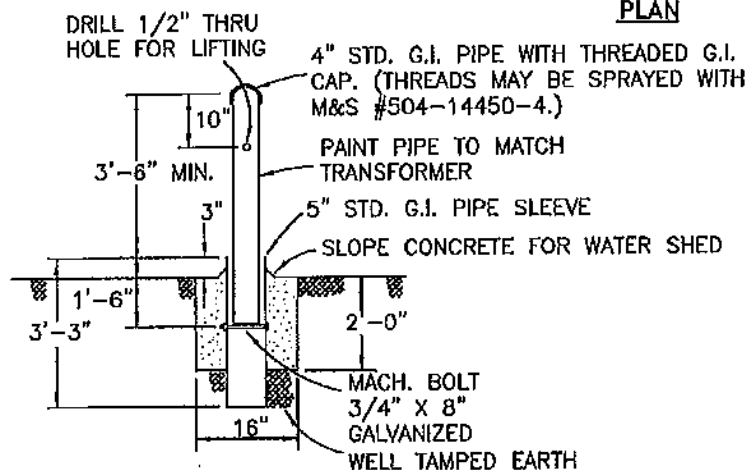
UN-21.0.0

PROTECTIVE BARRIER AND PLANTING CLEARANCES FOR PAD MOUNT TRANSFORMERS AND SWITCHES

UN-21.0.0

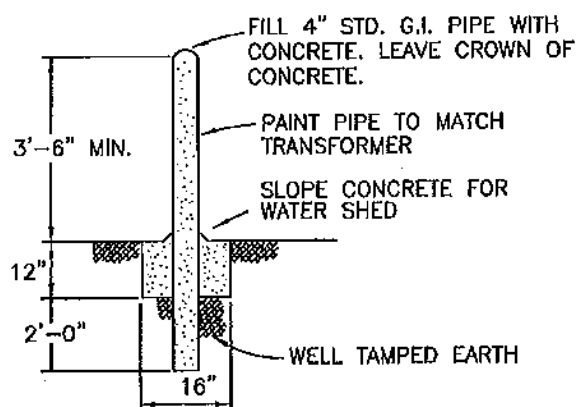


PLAN



REMOVABLE BARRIER

SECTION

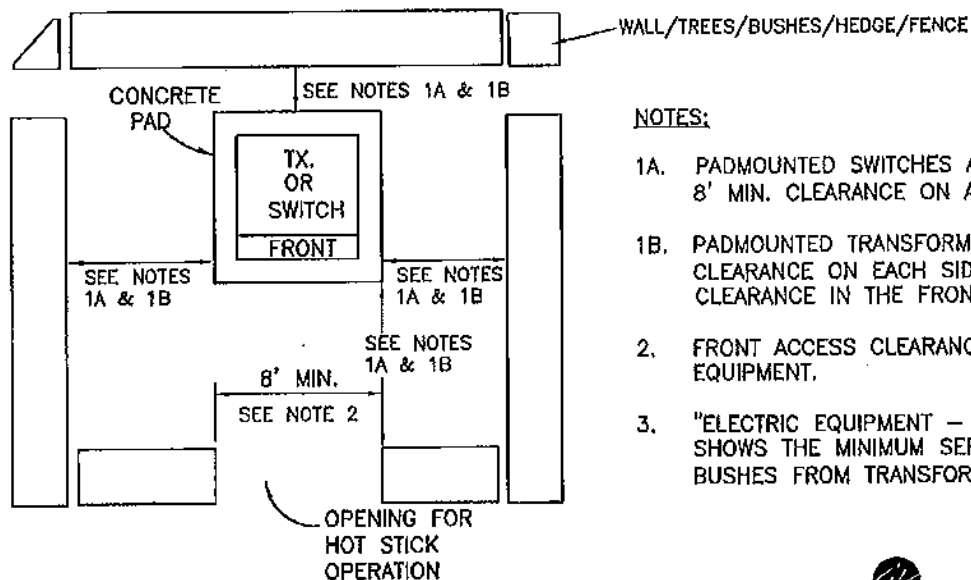


FIXED BARRIER

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PLAN

NOTES:

- PADMOUNTED SWITCHES AND CAPACITOR BANKS REQUIRE 8' MIN. CLEARANCE ON ALL SIDES.
- PADMOUNTED TRANSFORMERS REQUIRE 3' MIN. CLEARANCE ON EACH SIDE AND BACK AND 8' CLEARANCE IN THE FRONT.
- FRONT ACCESS CLEARANCE SHOULD BE 8' FOR ALL EQUIPMENT.
- "ELECTRIC EQUIPMENT - KEEP OUT" DECAL THAT SHOWS THE MINIMUM SEPARATION DISTANCES FOR BUSHES FROM TRANSFORMERS IS M&S #548-560-101.

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

5	3/3/17	UPDATE DRAWING (NOTES)	ARR	ELS	RDH
4	9/13/18	UPDATE DRAWING (NOTES)	ARR	ELS	RDH
3	9/17/13	UPDATE DRAWING (NOTES)	JJR	ELS	WM
2	7/18/01	UPDATE DRAWING (NOTES)	RAP	JES	JJM
1	8/27/89	UPDATE DRAWING (NOTES)	RAP	JES	JJM
0	9/30/94	ORIGINAL DRAWING	CJM	PMG	RJS
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

ORIGINATOR: CJM

DRAWN BY: PTH

DATE: 9/30/94

APPROVED: R.J. SALESKY
DIRECTOR, DISTRIBUTION ENGINEERING
AND OPERATIONS SERVICES

NO SCALE

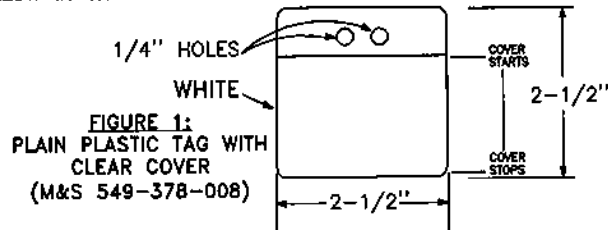
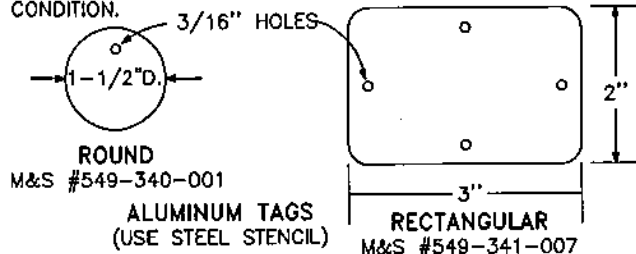
UN

GENERAL ALL UNDERGROUND CIRCUITS SHOULD BE IDENTIFIED WHERE APPLICABLE AS FOLLOWS:

FEEDER NUMBER
SWITCH NUMBER
PHASE
CONDUCTOR SIZE, METAL, TYPE INSULATION AND VOLTAGE RATE (IF NOT SAME AS OPERATING VOLTAGE)
SOURCE OR DIRECTION OF FEED
OWNERSHIP
ADDRESS OF BUILDING SERVED
TLM NUMBER
DATE OF FAILURE ON SECTION OF CABLE (DIRECT BURIED ONLY)
ANY UNUSUAL CONDITIONS, I.E. CABLE IN CONDUIT, PARTIALLY IN CONDUIT, DIRECT BURIED, ETC.

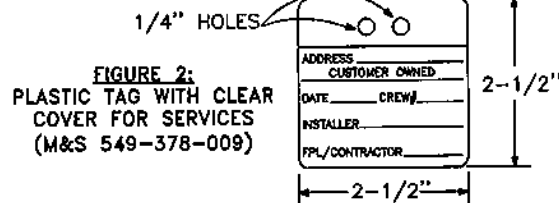
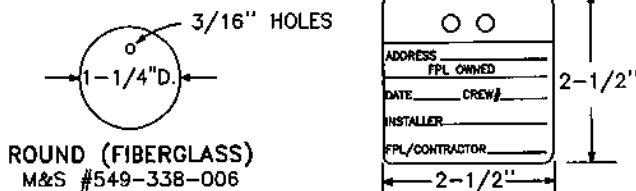
ALL CIRCUITS AND VACANT CONDUITS SHOULD BE APPROPRIATELY IDENTIFIED AT EACH TERMINAL OR SWITCHING POINT AND ALL INTERMEDIATE LOCATIONS SUCH AS VAULTS, MANHOLES, PAD MOUNTED TRANSFORMERS, OR HANDHOLES. WHEN THE CIRCUIT OR VACANT CONDUIT IS OWNED BY OTHER THAN FLORIDA POWER & LIGHT COMPANY, SHOW "CUST" ON APPROPRIATE TAG. IF NECESSARY INFORMATION CANNOT BE SHOWN ON ONE TAG, USE ADDITIONAL TAGS.

INFORMATION WILL BE PLACED ON APPROVED TAGS SHOWN BELOW IN THE MANNER DESCRIBED FOR THE PARTICULAR CONDITION.



SERVICE OWNERSHIP TAGS

PLACE INSIDE METER CAN. USE TIE WRAP TO ATTACH TAG TO CONDUCTORS. PRINT ADDRESS USING MARKING PEN (M&S #549-50100-4)



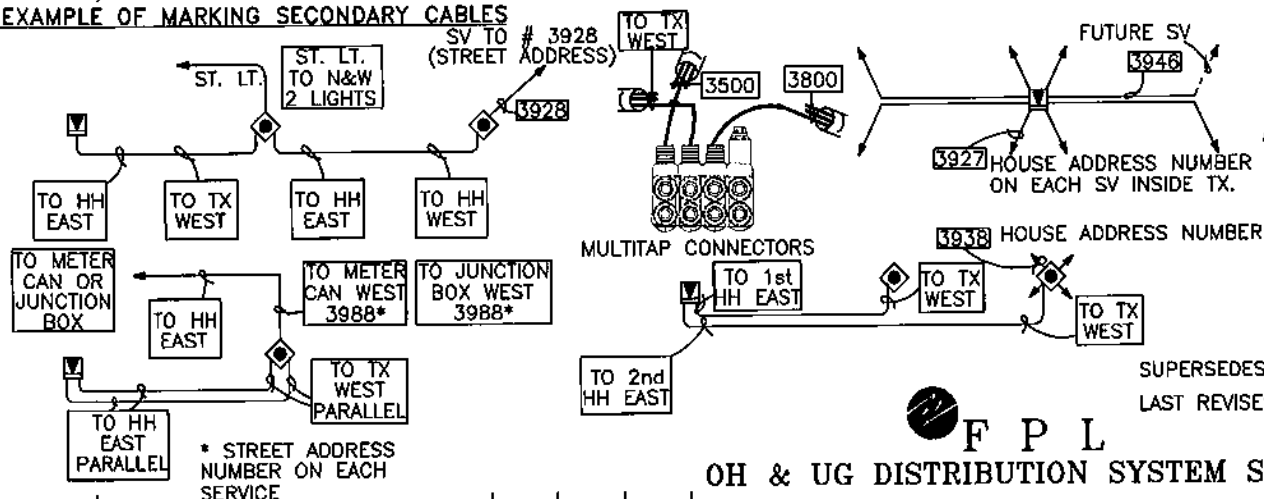
UNDERGROUND DUCT & MANHOLE SYSTEMS

USE ALUMINUM TAGS, AFFIXED TO CABLES WITH #12C-TW ON ALL CIRCUITS IN UNDERGROUND SYSTEMS, SUCH AS SUBWAY VAULTS, MANHOLES, RISER POLES, ECT. ROUND ALUMINUM TAGS ARE FOR FEEDER NUMBER AND PHASE IDENTIFICATION. RECTANGULAR ALUMINUM TAGS ARE USED FOR ALL OTHER IDENTIFICATION PURPOSES FOR EXAMPLE, ON ISOLATED NEUTRAL CONDUCTORS OF PILC CABLES, ETC.

DIRECT BURIED AND CABLE IN CONDUIT SYSTEMS

USE PLASTIC TAGS AS SHOWN IN FIGURE 2 (M&S 549-378-009) FOR CUSTOMER IDENTIFICATION AT LOCATIONS THAT WILL BE SUBJECTED TO SUNLIGHT, SUCH AS RISERS, AND ALSO IN URD APPLICATIONS FOR IDENTIFYING SERVICES, SUCH AS PADMOUNTED TRANSFORMERS AND HANDHOLES. USE PLAIN PLASTIC TAGS AS SHOWN IN FIGURE 1 (M&S 549-378-008) IN PRIMARY TERMINATION TAGGING APPLICATIONS. PLASTIC TAGS HAVE A CLEAR, UV RESISTANT FLAP TO REDUCE FADING AND WEATHERING. ALLOW 10 SECONDS MINIMUM DRYING TIME TO PREVENT SMEARING BEFORE ADHERING THE CLEAR FLAP. FASTEN PLASTIC TAG TO CABLE WITH 5-3/4" BLACK TIE-WRAPPS (M&S 534-250-001) OR 12" BLACK PLASTIC TIE-WRAPPS (M&S 534-253-000).

EXAMPLE OF MARKING SECONDARY CABLES



F P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

3	6/15/09	UPDATE DRAWING	AR	ELS	JRD
2	9/29/08	UPDATE DWG AND NOTES	GAP	ELS	JJM
1	7/16/01	REVISED TEXT AND ADDED A DETAIL DWG.	RAP	JES	JJM
0	9/30/94	CHANGED PAGE FORMAT AND REVISED NOTES AND DIMENSIONS	RJO	MLG	RJS
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

ORIGINATOR: RJO

DRAWN BY: MLG

DATE: 9-30-94

APPROVED: R.J. SALESKY
DIRECTOR, DISTRIBUTION ENGINEERING
AND OPERATIONS SERVICES

NO SCALE

UV

PRIMARY and SECONDARY PHASE MARKING TAPE

SIZE	COLOR	M&S NUMBER
1" WIDE X 36 YARDS LONG	YELLOW	549-441-001
1-1/2" WIDE X 36 YARDS LONG	BLACK	549-441-002
2" WIDE X 36 YARDS LONG	YELLOW	549-442-008
3/4" WIDE X 66 FEET LONG	BLACK	532-269-006
3/4" WIDE X 66 FEET LONG	WHITE	532-218-002
1/2" WIDE X 20 FEET LONG	(8)COLOR PACK (RED, WHITE, BLUE, GREEN, YELLOW, BROWN, VIOLET, ORANGE)	549-443-100

TY-RAPS IDENTIFICATION TABLE

COLOR	M&S NUMBER	LENGTH	WIDTH
BROWN	534-254-014	7.4"	.19"
RED	534-254-022	7.4"	.19"
ORANGE	534-254-031	7.4"	.19"
YELLOW	534-254-049	7.4"	.19"
GREEN	534-254-057	7.4"	.19"
BLUE	534-254-065	7.4"	.19"
PURPLE	534-254-073	7.4"	.19"
GREY	534-254-081	7.4"	.19"
WHITE	534-255-002	14.5"	.30"

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CONSTRUCTION, INC.

by brandon at 11:31:07 AM, 3/4/2020

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: RAP

DRAWN BY: J.SHOUP

DATE: 7/16/01

APPROVED: J.J McEVoy

NO SCALE

SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

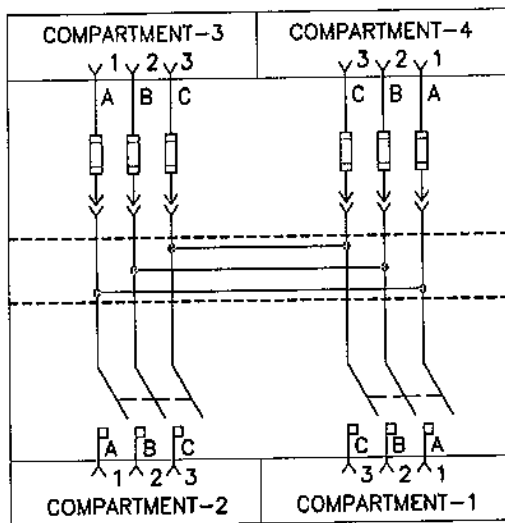
5	6/6/16	UPDATED CHART	AR	ELS	RDH
4	2/27/13	UPDATED CHART	AR	ELS	WM
3	2/12/13	ADDED M&S 594-441-002	AR	ELS	WM
2	9/29/09	UPDATED TITLE BLOCK & ADDED M&S #594-443-000	AR	ELS	JRD
1	6/15/09	UPDATE TITLE FOR BOTH CHARTS	AR	ELS	JRD
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

C-32.0.1

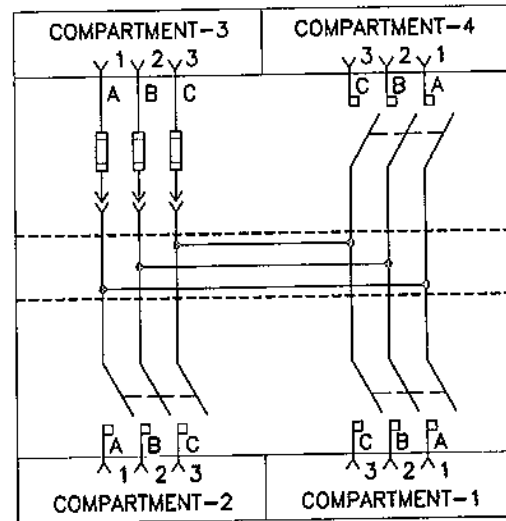
TYPICAL INSTALLATION OF 15 OR 25 KV S & C TYPE PME DEAD FRONT THREE PHASE PAD MOUNTED SWITCHGEAR

C-32.0.1

STYLE IDENTIFICATION AND 3 PHASE CONNECTION DIAGRAMS S&C TYPE PME-9

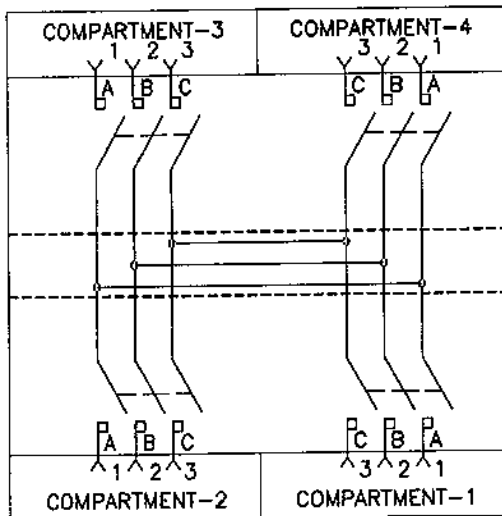


SWITCHGEAR		REQUIRES FUSEHOLDER	
M&S NO.	RATED VOLTAGE	M&S NO.	QTY
270-67400-7	15KV	531-56150-1	6
270-67401-5	15KV SS*	531-56150-1	6
270-67200-4	25KV	531-56310-5	6
270-67201-2	25KV SS*	531-56310-5	6



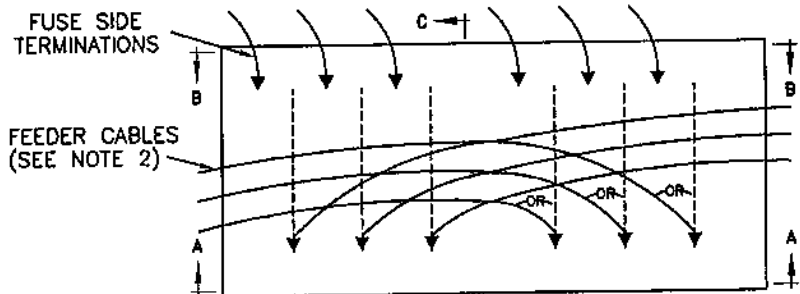
SWITCHGEAR		REQUIRES FUSEHOLDER	
M&S NO.	RATED VOLTAGE	M&S NO.	QTY
270-67900-9	15KV	531-56150-1	3
270-67901-7	15KV SS*	531-56150-1	3
270-68100-3	25KV	531-56310-5	3
270-68101-1	25KV SS*	531-56310-5	3

S&C TYPE PME-10



SWITCHGEAR	
M&S NO.	RATED VOLTAGE
270-683-000	15KV
270-683-050	15KV SS*
270-684-000	25KV
270-684-050	25KV SS*

* (SS) INDICATES ENCLOSURES OF #304 STAINLESS STEEL FOR USE IN HIGHLY CORROSIVE AREAS



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CONSTRUCTION, INC.

By brandon at 11:31:17 AM, 3/4/2020

C ←

TOP VIEW

DIAGRAM FEEDER CABLE LAYOUT
(PME-9 SHOWN)



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: RWS

DRAWN BY: JRG

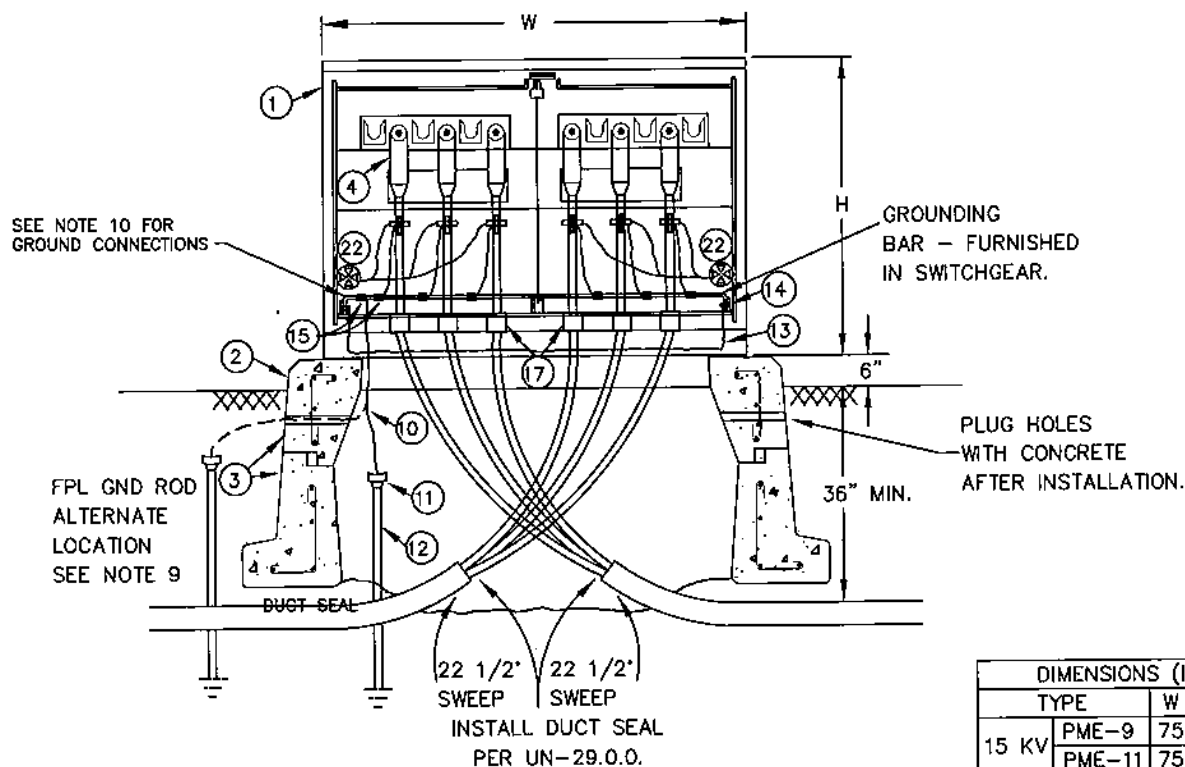
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.
2	06/08/01	ADDED PME-10	CEA	JES	JJM
1	9/30/94	REMOVED DEADFRONT SW NOTE AND ADDED NEW BORDER	RWS	RAS	RJS

DATE: 6/30/93

APPROVED: R.J. SALESKY
DIRECTOR, DISTRIBUTION ENGINEERING
AND OPERATIONS SERVICES

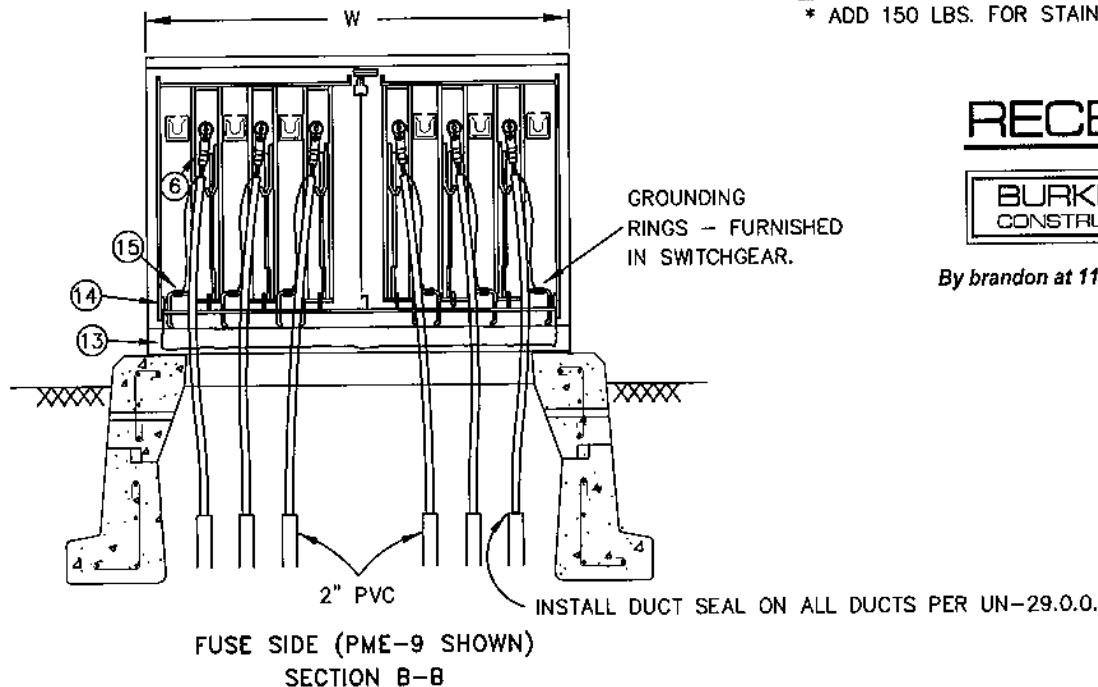
NO SCALE

**TYPICAL INSTALLATION OF 15 OR 25KV
S&C TYPE PME DEAD FRONT
THREE PHASE PAD MOUNTED SWITCHGEAR**



DIMENSIONS (INCHES)					WEIGHT IN LBS.*
TYPE	W	D	H		
15 KV	PME-9	75	67	50	2092
	PME-11	75	73	50	2230
	PME-10	75	73	50	2292
25 KV	PME-9	84	82	56	2592
	PME-11	84	88 1/2	56	2875
	PME-10	84	88 1/2	56	2950

* ADD 150 LBS. FOR STAINLESS STEEL.



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By brandon at 11:31:23 AM, 3/4/2020

4	8/1/16	UPDATE TABLE	AGR	ELS	RDH
3	10/22/09	ADD NOTE	CEA	ELS	AEL
2	7/21/01	UPDATE DRAWING ADDED PME-10 AND CHANGED SOME TEXT	RAP	JES	JJM
1	9/30/94	ADDED ARROW TO INCLUDE TOP CHAMBER SECTION ③	RJO	BAQ	RJS
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: RWS

DRAWN BY: JRG

DATE: 6/30/93

APPROVED: R.J. SALESKY

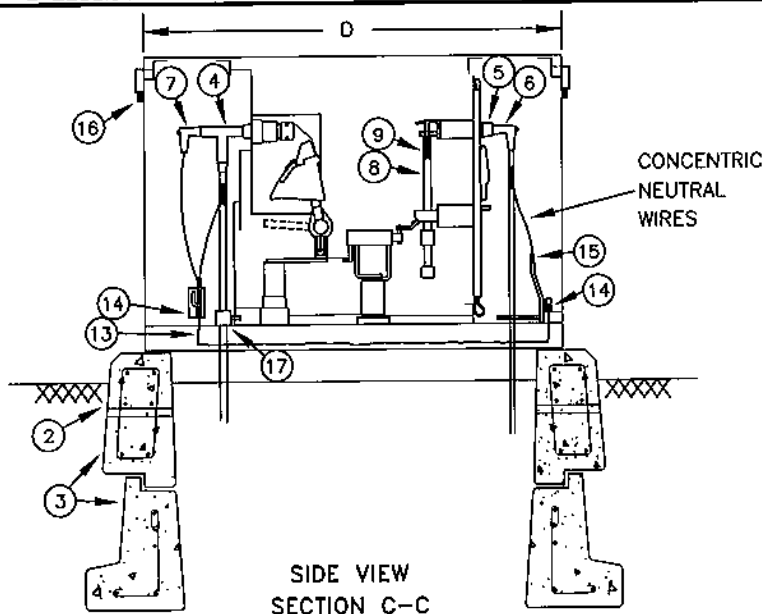
NO SCALE

DIRECTOR, DISTRIBUTION ENGINEERING
AND OPERATIONS SERVICES

C-32.03

TYPICAL INSTALLATION OF 15 OR 25KV S&C TYPE PME DEAD FRONT THREE PHASE PAD MOUNTED SWITCHGEAR

C-32.0.3



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By Brandon at 11:31:28 AM, 3/4/2020

NOTES:

1. WHEN CHANGING OUT A LIVE FRONT PAD MOUNTED SWITCH TO A DEAD FRONT PAD MOUNTED SWITCH, IT IS IMPORTANT TO ENSURE THAT THE REPLACEMENT DEAD FRONT SWITCH HAS THE SIX INCH ADAPTER BASE SPACER. THE NEW SWITCH MUST BE INSTALLED WITH THE SAME ORIENTATION AS THE OLD SWITCH IN ORDER TO ENSURE THAT THE ADAPTER BASE SPACER MATCHES THE NEW SWITCH CORRECTLY TO THE ORDER, SMALLER SIZED PAD.
NOTE: IT IS NO LONGER REQUIRED TO CHANGE OUT THE TOP PAD PORTION OF THE CHAMBER. USE 600 AMP REPLACEMENT ELBOWS (M&S #163-502-567), AS SHOWN IN DCS UH-40.0.0 FOR THE FEEDER CABLES AND 200 AMP REPAIR ELBOWS (VARIOUS M&S NUMBERS), AS SHOWN IN UH-78.0.0 FOR THE LOOP SIDE PRIMARY CABLES.
2. CABLES MUST NOT BE IN CONTACT WITH THE EDGE OF CHAMBER FOOTING. TOP VIEW SHOWS CORRECT ROUTING FOR FEEDER CABLES THAT IS NECESSARY TO PROVIDE FOR CABLE MOVEMENT.
3. PRIMARY CABLES MUST BE ABLE TO REACH PARKING LOCATIONS.
4. ALLOW SUFFICIENT LENGTH OF CONCENTRIC NEUTRAL TO REACH GROUNDING BARS AND PERMIT FREE MOVEMENT OF ELBOWS.
5. BRASS STUDS FURNISHED WITH THE 600 AMP ELBOW KITS MUST BE INSTALLED AND TIGHTENED SECURELY (55 FT. LBS) IN THE 600 AMP BUSHINGS. THE SHORT THREADED END OF THE STUD GOES INTO THE BUSHING. SEE UH-41.0.1 AND UH-41.0.2 FOR 600 AMP ELBOW DETAILS.
6. INSTALL 800 AMP 3Ø FAULT INDICATORS ON EACH SET OF FEEDER CABLES. SEE UV-14.0.0, UV-14.0.1, UV-14.0.2.
7. LOOP SIDE PRIMARY CABLES (#1/0A) MUST GO THRU CABLE GUIDES TO AVOID CONFLICT WITH FUSE DOOR WHEN IT IS ROTATED TO OPEN.
8. CABLE MOUNTING BRACKET SHOULD BE USED ON THE FEEDER CABLE TO CORRECTLY POSITION THE CABLES FOR EASIER INSTALLATION OF THE BOLT-ON ELBOW TERMINATORS ON TO THE 600 AMP BUSHINGS. THE 600 AMP ELBOWS MUST BE INSTALLED PERFECTLY STRAIGHT (VERTICALLY AND HORIZONTALLY) ON TO THE 600 AMP BUSHINGS TO PROPERLY ENGAGE THE THREADS. THE MOUNTING BRACKETS ARE TO BE BOLTED TO THE BOTTOM FLANGE OF THE SWITCH COMPARTMENT WALL WITH 3/8" X 1/2" BOLTS THRU EXISTING HOLES PROVIDED BY THE SWITCH MANUFACTURER.
9. INSTALL GROUND RODS PER DCS G-2.0.2. MAKE CERTAIN OF CABLE LOCATIONS BEFORE DRIVING GROUND RODS. WHEN INSTALLING GROUND RODS IN ALTERNATE LOCATION, INSURE THAT BOTH THE TOP OF THE ROD AND THE #4C WIRE ARE AT LEAST 3" BELOW GRADE AND ARE COVERED. EXISTING 3/4" HOLES SHOULD BE USED IF AT LEAST 3" BELOW GRADE.
10. CONNECT BOND FROM GROUND ROD TO THE GROUNDING BAR ON THE FEEDER SIDE OF THE SWITCH CABINET OR, WHEN PROVIDED, TO THE GROUNDING PAD OF THE CABINET ON THE FEEDER SIDE.
11. APPLY CAULKING COMPOUND TO SEAM BETWEEN PAD MOUNTED SWITCH AND PAD CHAMBER.
12. UNUSED FUSE POSITIONS MUST HAVE BUSHINGS & PROTECTIVE CAPS INSTALLED. UNUSED FEEDER POSITIONS MUST HAVE 600 AMP PROTECTIVE CAPS (M&S #163-645-007). SEE MATERIAL DETAILS ON C-32.0.4.
13. AFTER THE PAD MOUNTED SWITCH IS INSTALLED, THE LIFTING BRACKETS MUST BE REMOVED AND STORED INSIDE THE CABINET BY SECURING THEM TO THE GROUNDING ROD FOUND ON THE FEEDER COMPARTMENT.
14. ENSURE THAT THE "CAUTION" LABEL (M&S #548-560-104) IS INSTALLED ON EACH SIDE OF THE SWITCH HAVING ACCESS TO THE HIGH VOLTAGE SWITCH AND/OR THE HIGH VOLTAGE FUSE COMPARTMENTS PER DCS Z-35.0.0.
15. SEAL DUCTS PER UN-29.0.0.
16. DO NOT SET THE SWITCH IN LOW-LYING AREAS SUBJECT TO FLOODING. EXTRA PAD TOPS SHOULD BE ADDED, IF NEEDED, TO RAISE THE SWITCH.

8	1/23/19	UPDATED NOTE 12	ARR	ELS	BXN
7	2/24/11	UPDATED NOTE 9 AND ADDED NOTE 10	ARR	ELS	BXN
6	10/22/09	UPDATED NOTE 9 AND ADDED NOTE 10	CEA	ELS	AEL
5	7/31/08	UPDATED NOTE 12	CEA	ELS	JJM
4	6/27/08	ADDED NOTE 15	CEA	ELS	JJM
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: JPL

DRAWN BY: JPL

DATE: 11/11/19

APPROVED: JPL

NO SCALE

C-32.0.4

TYPICAL INSTALLATION OF 15 OR 25KV S&C TYPE PME DEAD FRONT THREE PHASE PAD MOUNTED SWITCHGEAR

C-32.0.4

MATERIAL LIST

ITEM	DESCRIPTION		QUANTITY	M&S NO.
1	15KV SWITCHGEAR	PME-9 (2-THREE PHASE FEEDER POSITIONS AND 6 FUSE POSITIONS)	1	STANDARD 270-674-007 STAINLESS STEEL 270-674-015
		PME-11 (3-THREE PHASE FEEDER POSITIONS AND 3 FUSE POSITIONS)	1	STANDARD 270-679-009 STAINLESS STEEL 270-679-017
		PME-10 (4-THREE PHASE FEEDER POSITIONS AND NO FUSE POSITIONS)	1	STANDARD 270-683-000 STAINLESS STEEL 270-683-050
	25KV SWITCHGEAR	PME-9 (2-THREE PHASE FEEDER POSITIONS AND 6 FUSE POSITIONS)	1	STANDARD 270-672-004 STAINLESS STEEL 270-672-012
		PME-11 (3-THREE PHASE FEEDER POSITIONS AND 3 FUSE POSITIONS)	1	STANDARD 270-681-003 STAINLESS STEEL 270-681-011
		PME-10 (4-THREE PHASE FEEDER POSITIONS AND NO FUSE POSITIONS)	1	STANDARD 270-684-000 STAINLESS STEEL 270-684-050
2	PAD (TOP SECTION ONLY) FOR REPLACING LF WITH DF		FOR 15KV FOR 25KV	162-122-035 162-122-051
3	PAD & CABLE CHAMBER (TOP & BOTTOM SECT.)		FOR 15KV FOR 25KV	162-122-019 162-122-027
4	DEAD FRONT TERMINATOR, 1000 KCML AL 15KV/25KV		VARIES	T-BODY 600 AMP ELBOW 163-639-101 CABLE ADAPTER 163-639-161 SHEAR BOLT CONNECTOR 163-639-104
5	LOADBREAK BUSHING, 200 AMP 15KV 25KV		VARIES	163-861-001 163-864-001
6	ELBOW TERMINATOR, 1/0 AL 15KV 25KV		VARIES	163-587-007 163-502-001
7	PROTECTIVE CAP 200 AMP (25KV SWITCHES ONLY)		VARIES	163-022-000
	PROTECTIVE CAP 200 AMP (15KV SWITCHES ONLY)		VARIES	163-018-002
	ELBOW SURGE ARRESTER (25KV SWITCHES ONLY)		VARIES	334-015-005
8	SME-4Z FUSE HOLDERS 15KV 25KV		VARIES	531-561-501 531-563-105
9	15KV 25KV	FUSES: REFILL UNITS FOR SME-4Z, SM-4Z&SML-4Z FUSE HOLDERS		NOTE: THE FUSE REFILLS ARE THE SAME AS THOSE USED IN LIVEFRONT SWITCHES
		20 AMP 531-387-005	10 AMP 531-327-002	
		30 AMP 531-388-001	15 AMP 531-328-009	
		50 AMP 531-389-008	20 AMP 531-329-005	
		65 AMP 531-395-008	30 AMP 531-330-003	
		80 AMP 531-395-016	40 AMP 531-331-000	
		100 AMP 531-396-004	50 AMP 531-332-006	
		125 AMP 531-398-007	65 AMP 531-333-002	
		150 AMP 531-402-004	80 AMP 531-334-009	
		175 AMP 531-403-001	100 AMP 531-335-005	
		200 AMP 531-390-006	125 AMP 531-337-008	
			150 AMP 531-338-004	
			175 AMP 531-339-001	
			200 AMP 531-340-009	
10	WIRE #4C SDB		6	112-309-000
11	CONNECTOR, GROUND ROD, CLAMP TYPE		1	120-036-106
12	COPPERWELD GROUND RODS AS REQUIRED GROUND ROD COUPLINGS		VARIES	130-614-005 130-405-104
13	#4/0C CABLE, 600V		27	110-101-081
14	CONNECTOR #4/0 COPPER CABLE TO FLAT		6	120-871-005
15	CONNECTOR, COPPER TO COPPER, BOLTED		PME-9 19 PME-11 22 PME-10 25	102-800-002
16	LOCK STANDARD PADLOCK, SMALL		PME-9 4 PME-11 5 PME-10 6	546-246-011
17	CABLE MOUNTING BRACKET		PME-9 6 PME-11 9 PME-10 12	160-311-000 STANDARD (S) 160-310-000 STAINLESS STEEL (SS)
18	BOLT, 3/8" X 1 1/2" WITH NUT (FOR MOUNTING BRACKETS)		SAME AS BRACKETS	140-525-001 (SS)
19	NUT, 3/8" (FOR MOUNTING BRACKETS)		SAME AS BRACKETS	161-450-004 (S)
20	LOCKWASHER, 3/8" (FOR MOUNTING BRACKETS)		SAME AS BRACKETS	161-524-008 (S) 145-294-001 (SS)
21	BOLT, CAP SCREW, HEX HEAD 3/8"-16X1-1/2"		SAME AS BRACKETS	161-479-002 (S)
22	FAULT INDICATOR, 800 AMP, 3 PHASE		PME-9 2 PME-11 3 PME-10 4	163-297-009

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By Brandon at 11:31:34 AM, 3/4/2010

REPLACEMENT PARTS FOR SWITCHES

600 AMP BUSHINGS 15KV 274-002-003
25KV 274-003-000
200 AMP BUSHING WELLS 15KV 274-002-208
25KV 274-003-204



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

6	1/23/19	UPDATE TABLE	ARR	ELS	RDH
5	3/31/11	UPDATE NOTES	ARR	ELS	BXN
4	3/1/2011	UPDATE NOTES	ARR	ELS	BXN
3	9/2/2010	UPDATE NOTE 17	GAP	ELS	BXN
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

ORIGINATOR:

DRAWN BY:

DATE:

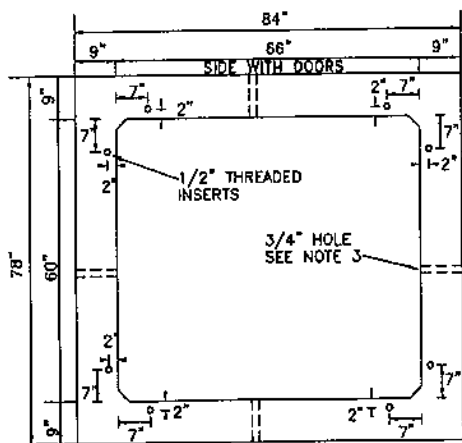
APPROVED:

NO SCALE

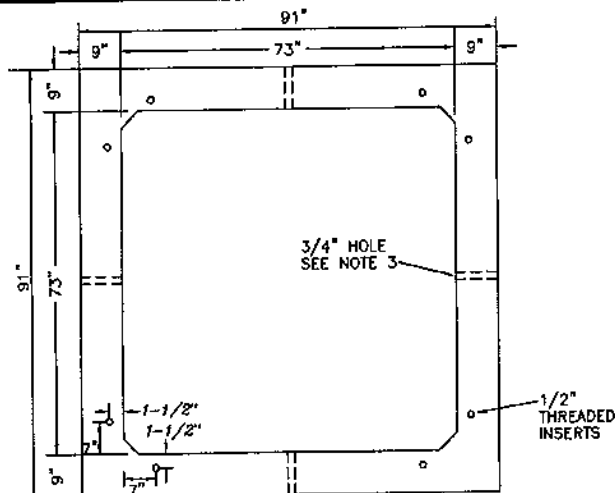
UX-122.0.0

CONCRETE FOUNDATION FOR DEADFRONT THREE PHASE PAD MOUNTED SWITCHES 15 AND 25KV

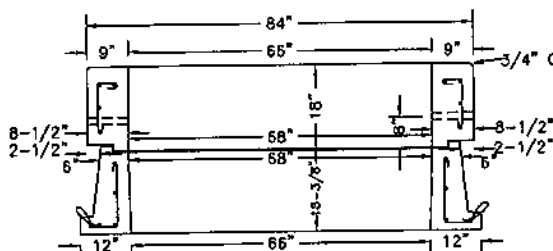
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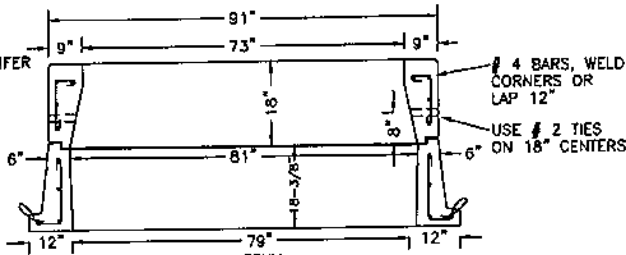
SIDE WITH DOORS
15KV PAD TOP SECTION



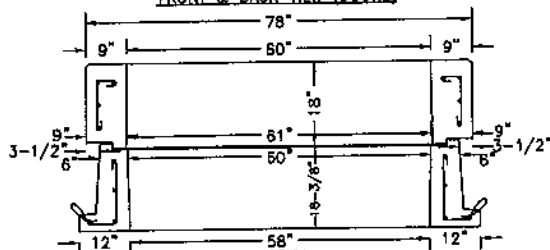
25KV PAD TOP SECTION
25KV PAD TOP SECTION



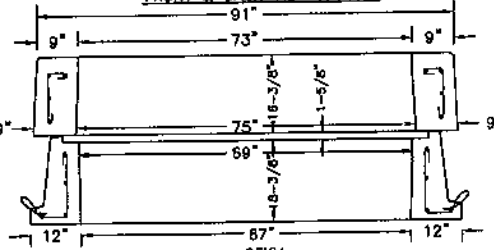
FRONT & BACK VIEW (DOORS)
15KV



FRONT & BACK VIEW (DOORS)
25KV



SIDE VIEW
15KV



SIDE VIEW
25KV

NOTES

1. INSIDE EDGE OF INSERT TO BE MINIMUM OF 2" FROM EDGE OF CONCRETE.
2. LIFTING RINGS TO BE GALV. WIRE ATTACHED TO #4 REINFORCING ROD AND HAVE ADEQUATE LIFTING STRENGTH. (TOTAL 4)
3. 3/4" HOLE FOR LIFTING BOLT TO EXTEND THROUGH THE WALL. SUPPLIED WITH SEALING CAP PLUG. (TOTAL 4)
4. TOP SURFACE SHALL BE SMOOTH PLANE. THE MAXIMUM ALLOWABLE VARIATION IN HEIGHT BETWEEN ANY TWO POINTS ON THIS SURFACE IS 0.125 INCHES.
5. SUPERIOR THREADED INSERTS, 1/2" WITH PLUG. ELECTRO-GALV. B REQUIRED. (SEE DETAIL A).
6. #2 AND #4 REINFORCING RODS.
7. 4000 LBS. TEST CONCRETE.
8. MANUFACTURERS IDENTIFICATION, YEAR OF MANUFACTURE, AND FPL CO. M&S NUMBER TO BE CAST IN TOP SURFACE OF PAD NEAR CENTER OF PAD AND IN FOOTING OF CHAMBER NEAR CENTER OF FOOTING. (THIS REQUIRED WHEN PRECAST).

APPROXIMATE WEIGHT (POUNDS)

15KV PAD	3500
15KV CHAMBER	3250
25KV PAD	3900
25KV CHAMBER	4140

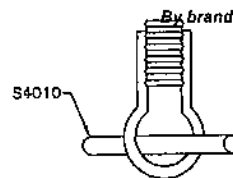
DEADFRONT PAD AND CABLE CHAMBER

DESCRIPTION	M&S NUMBER
15KV TOP PAD ONLY	162-12203-5
15KV TOP PAD AND BOTTOM CHAMBER	162-12201-9
25KV TOP PAD ONLY	162-12205-1
25KV TOP PAD AND BOTTOM CHAMBER	162-12202-7

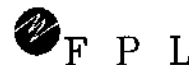
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By Brandon at 11:31:41 AM, 3/4/2020



DETAIL "A"



OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: SMS

DRAWN BY: BILL

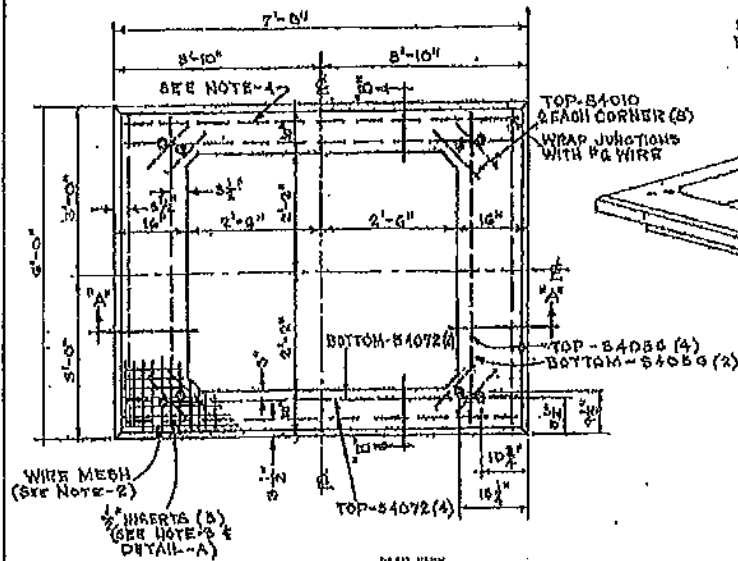
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.
3	10/19/00	UPDATE DIMENSIONS	RAP	JES	JJM
2	10/10/96	UPDATE FOUNDATION	BS	BILL	BS

DATE: _____ APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

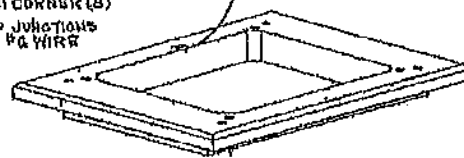
NO SCALE

CONCRETE FOUNDATION FOR S&O 30 PADMOUNTED SWITCH

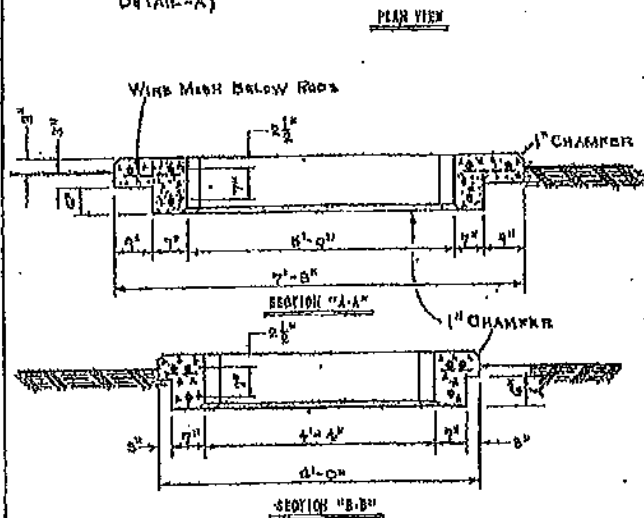
UX-113



DATE, MFG. NAME,
F.P.L. M & S No. 122-214



WEIGHT - 2745 LB.
CU. FT. - 10.8
CU. YD. - 0.83
1245 - KILOGRAMS
519 - LITERS
0.619 - CU. METERS



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CONSTRUCTION, INC.

By brandon at 11:31:48 AM, 3/4/2020

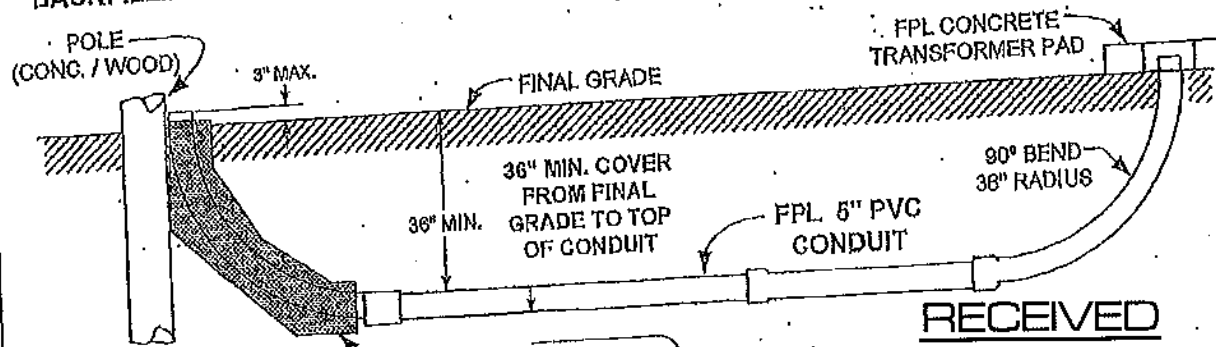
1. Top surface to be smooth and level. Surface irregularities are not acceptable.
2. 4 x 4 No. 4 Galvanized Wire Mesh Reinforcing to step 2" from sides and opening of foundation.
3. Superior Threaded Inserts, 1/2" with Plug, Ringed-Base, & Required (See Detail A)
4. #4 Reinforcing Rod as shown.
5. 3000 lb. Test Concrete.
6. For use with S & O Switches, M & S Nos. 270-853, 270-854, 270-855 & 270-856.
7. Manufacturers Identification, Year of Manufacture, and FPL No. M & S Number to be cast in top surface of pad near center of pad. (This required when present.)

STANDARDS
UNDERGROUND DISTRIBUTION SYSTEM
FLORIDA POWER & LIGHT COMPANY
DATE 12-26-71
NO SCALE

NO.	DATE	REVISION	BY	CHK	APP
1	3-2-71	CORRECTED DIMENSIONS			

****** NOTICE ******

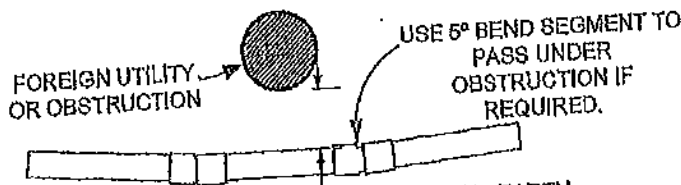
- CALL SUNSHINE 1-800-432-4770 48 HOURS BEFORE YOU DIG FOR UNDERGROUND LOCATIONS.
- NOTIFY FPL REP. FOR INSPECTION OF TRENCH DEPTH & PVC INSTALLATION PRIOR TO BACKFILLING TRENCH.



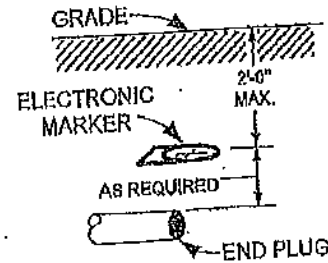
IF REQUIRED:
BENDS AT RISER POLE TO BE ENCASED IN CONCRETE WITH 4-80LB. BAGS OF SAKRETE. FORM CONCRETE ADJACENT TO POLE AND AT SURFACE.

12" MIN. SEPARATION FROM FPL CONDUIT TO FOREIGN UTILITY WITH WELL TAMPED EARTH

By brandon at 11:31:54 AM, 3/4/2020



12" MIN. SEPARATION OF WELL TAMPED EARTH
FPL CONDUIT CROSSING UNDER A FOREIGN UTILITY

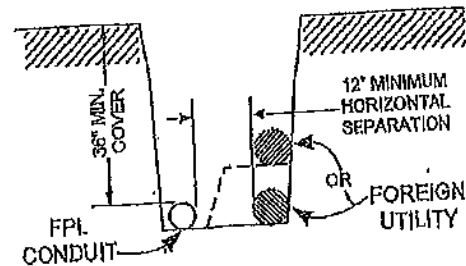


DUCT END MARKING
(IF REQUIRED)

NOTES:

- * BACK-FILL WITHIN 4" OF THE CONDUIT TO BE FREE OF MATERIAL THAT MAY DAMAGE CONDUIT SYSTEM (BOARDS, ROCKS LARGER THAN 1" IN DIAMETER, DEBRIS, ETC.)
- * IF COMPACTION OF TRENCH ROUTE IS REQUIRED FOR PAVING, ETC. BEGIN MACHINE COMPACTION 6" MINIMUM ABOVE CONDUIT.
- * WHERE 36" OF COVER CANNOT BE MAINTAINED, 30" OF COVER WILL BE ALLOWED WITH 3" OF CONCRETE ENCASEMENT AROUND THE CONDUIT. (N.E.S.C. RULE FOR PRIMARY VOLTAGES)
- * INSTALL A CONTINUOUS LENGTH OF PULL STRING IN ALL CONDUIT RUNS.

MATERIAL LIST 5" PVC SCH 40 CONDUIT	
20' LENGTH (BELLED END)	164-33800-1
90° BEND 36" RADIUS	164-25250-5
90° BEND 48" RADIUS	164-25200-9
45° BEND 48" RADIUS	164-61400-3
5° BEND SEGMENT	164-56100-1
22.5° SWEEP 12'-6" RADIUS	164-13000-1
STRAIGHT COUPLING	164-44900-7
REPAIR SLEEVE 6' LONG	164-47630-0
END PLUG	164-53500-1
ELECTRONIC MARKER	590-61601-5

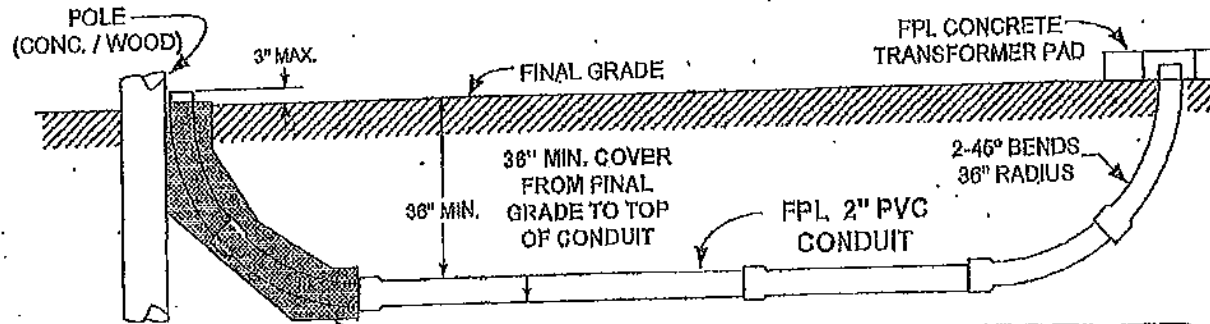


INSTALLATION OF FPL CONDUIT
PARALLEL WITH - OR - IN A SHARED TRENCH
WITH A FOREIGN UTILITY.

FPL SUPPLIED 5" PVC CONDUIT
TYPICAL CUSTOMER INSTALLATION DETAILS
(PORTIONS OF UN-6, UN-15, CONC. & PAD DETAILS)

****** NOTICE ******

- CALL SUNSHINE 1-800-432-4770 48 HOURS BEFORE YOU DIG FOR UNDERGROUND LOCATIONS.
- NOTIFY FPL REP. FOR INSPECTION OF TRENCH DEPTH & PVC INSTALLATION PRIOR TO BACKFILLING TRENCH.



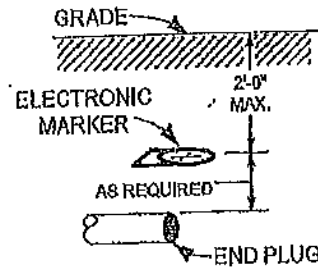
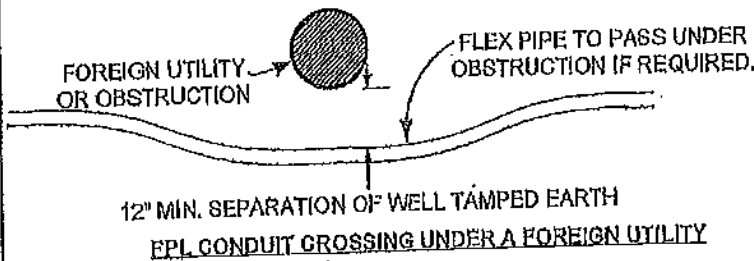
IF REQUIRED:
BENDS AT RISER POLE TO BE
ENCASED IN CONCRETE WITH
4-80LB. BAGS OF SAKRETE.
FORM CONCRETE ADJACENT
TO POLE AND AT SURFACE.

12" MIN. SEPARATION
FROM FPL CONDUIT TO
FOREIGN UTILITY WITH
WELL TAMPED EARTH

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**BURKHARDT
CONSTRUCTION, INC.**

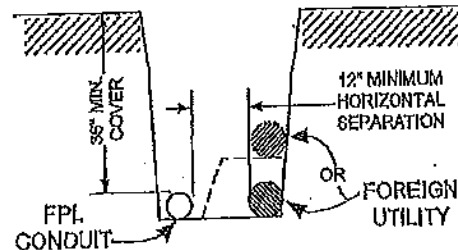
By brandon at 11:32:01 AM, 3/4/2020



**DUCT END MARKING
(IF REQUIRED)**

NOTES:

- BACK-FILL WITHIN 4" OF THE CONDUIT TO BE FREE OF MATERIAL THAT MAY DAMAGE CONDUIT SYSTEM (BOARDS, ROCKS LARGER THAN 1" IN DIAMETER, DEBRIS, ETC.)
- IF COMPACTION OF TRENCH ROUTE IS REQUIRED FOR PAVING, ETC. BEGIN MACHINE COMPACTION 6" MINIMUM ABOVE CONDUIT.
- WHERE 36" OF COVER CANNOT BE MAINTAINED, 30" OF COVER WILL BE ALLOWED WITH 3" OF CONCRETE ENCASEMENT AROUND THE CONDUIT. (N.E.S.C. RULE FOR PRIMARY VOLTAGES)
- INSTALL A CONTINUOUS LENGTH OF PULL STRING IN ALL CONDUIT RUNS.

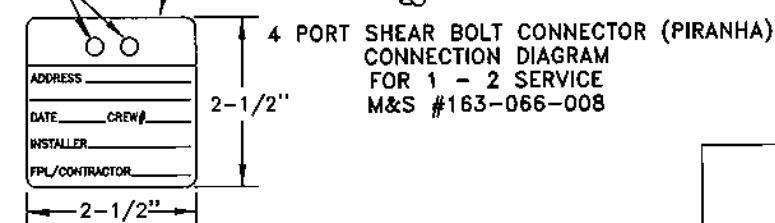
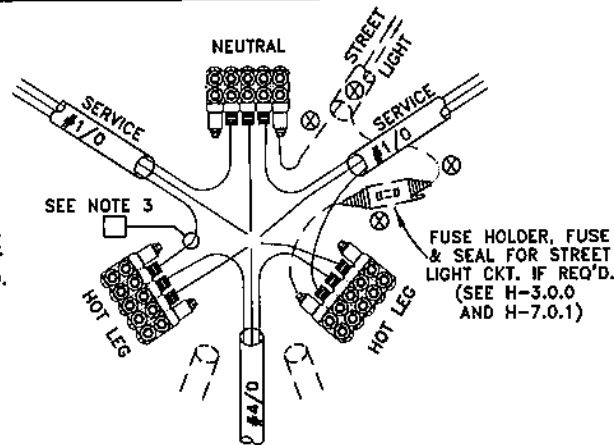
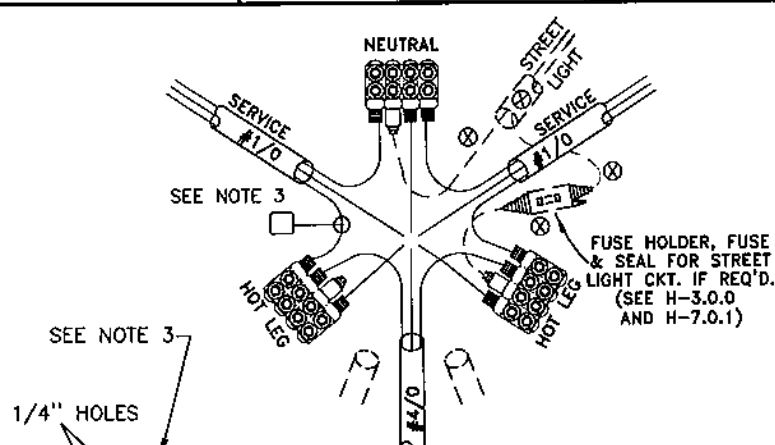


INSTALLATION OF FPL CONDUIT
PARALLEL WITH - OR - IN A SHARED TRENCH
WITH A FOREIGN UTILITY.

MATERIAL LIST 2" PVC SCH 40 CONDUIT

20' LENGTH (BELLED END)	164-33100-6
90° BEND 24" RADIUS	164-23800-6
45° BEND 36" RADIUS	164-23945-2
45° BEND 24" RADIUS	164-23800-2
STRAIGHT COUPLING	164-47000-6
REPAIR SLEEVE 4" LONG	164-47520-2
END PLUG	164-54800-5
ELECTRONIC MARKER	590-61601-5

FPL SUPPLIED 2" PVC CONDUIT
TYPICAL CUSTOMER INSTALLATION DETAILS
(PORTIONS OF UN-6, UN-16, CONC. & PAD DETAILS)

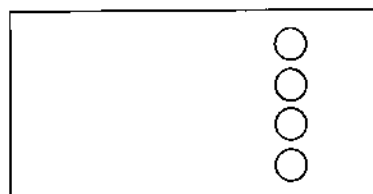


5 PORT SHEAR BOLT CONNECTOR (PIRANHA)
CONNECTION DIAGRAM
FOR 3 - 4 SERVICE
M&S #163-066-009

M&S # 549-378-009

NOTES:

1. FOR ONE SERVICE, SEE UC-5.0.0, UC-6.0.0 AND UC-6.0.2.
2. ONLY INSULATED CONDUCTORS MAY BE CONNECTED TO SHEAR BOLT CONNECTORS.
3. INSTALL TAG M&S #549-378-009 EVERYTIME A CONNECTOR IS INSTALLED OR REPLACED.
4. FOR ADDITIONAL INFORMATION REFER TO L-17.0.9, L-17.0.10 AND L-17.0.11.
5. FOR 24" AND 30" HANDHOLES INSTALL ALL CONDUITS AT ONE END OF THE HANDHOLE. BOTH THE 24" AND 30" HANDHOLES COME WITH A SPECIAL STENCIL "TO PLACE ALL CONDUITS AT THE END OF THE HANDHOLES". THIS ALLOWS THE CONDUCTOR TO BE LIFTED OUT OF THE HANDHOLE AND WORK THE CONNECTORS ABOVE GROUND.
6. WHEN FIELD CONDITIONS DICTATE THE USE OF FIVE OR MORE CABLES, IT MAY BE BEST TO CONSIDER THE USE OF THE 30" HANDHOLE, AS THIS WILL ALLOW ADDITIONAL ROOM TO WORK THE CONNECTIONS.
7. A 24" HEAVY DUTY HANDHOLE (M&S #162-120-500) IS ALSO AVAILABLE FOR USE IN SIDEWALKS, DRIVEWAYS AND PARKING LOTS. NOT FOR USE IN ROADWAYS OR AREAS OF DELIBERATE TRAFFIC.



TOP VIEW OF CONDUIT
LAYOUT IN HANDHOLE
(SEE NOTE 5)

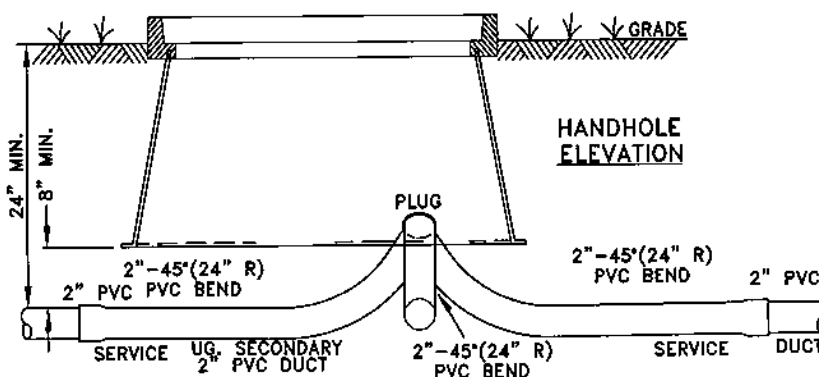


TABLE 1

TABLE 1

CABLES	CONNECTORS	HANDHOLE
1/0 SECONDARY, #6 DUPLEX AND 12CU FOR STREET LIGHT	163-066-008 (4 PORT)	162-304-001 (15.5"x10.5"x18" DEEP)
1/0 SECONDARY, AND 1/0 SERVICES, UP TO 4 SERVICES	163-066-009 (5 PORT)	162-120-008 (24"x13"x18" DEEP)
4/0 SECONDARY, AND 1 OR 2 SERVICES	163-066-008 (4 PORT)	162-120-008 (24"x13"x18" DEEP)
4/0 SECONDARY, AND 3 OR 4 SERVICES	163-066-009 (5 PORT)	162-120-008 (24"x13"x18" DEEP)
250 MCM TO 350 MCM	163-066-010 (5 PORT)	162-100-007 (30"x17"x18" DEEP)
350 MCM TO 500 MCM (NO MORE THAN 4 SETS)	163-066-011 (5 PORT)	162-100-007 (30"x17"x18" DEEP)
400 MCM TO 500 MCM (NO MORE THAN 4 SETS)	163-017-502 (6 PORT)	162-100-007 (30"x17"x18" DEEP)
400 MCM TO 500 MCM (NO MORE THAN 5 SETS)	163-017-502 (6 PORT)	162-121-004 (48"x30"x36" DEEP)
600 MCM TO 750 MCM	163-017-502 (6 PORT)	162-121-004 (48"x30"x36" DEEP)
FOR TRAFFIC LOADING USE HANDHOLE		162-122-892 (32"x50"x36" DEEP)
		162-122-893 (17"x30"x18" DEEP)

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CONSTRUCTION, INC.

By brandon at 11:32:07 AM, 3/4/2020

22	12/7/17	UPDATE TABLE	ARR	ELS	RDH
21	11/3/17	UPDATE TABLE	ARR	ELS	RDH
20	10/24/16	ADD NOTE 7	ARR	ELS	RDH
19	9/27/16	UPDATE TABLE AND DRAWING	ARR	ELS	RDH
18	5/12/16	UPDATE DRAWING AND NOTES	ARR	ELS	RDH
17	11/11/14	UPDATE TABLE	ARR	ELS	RDH
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

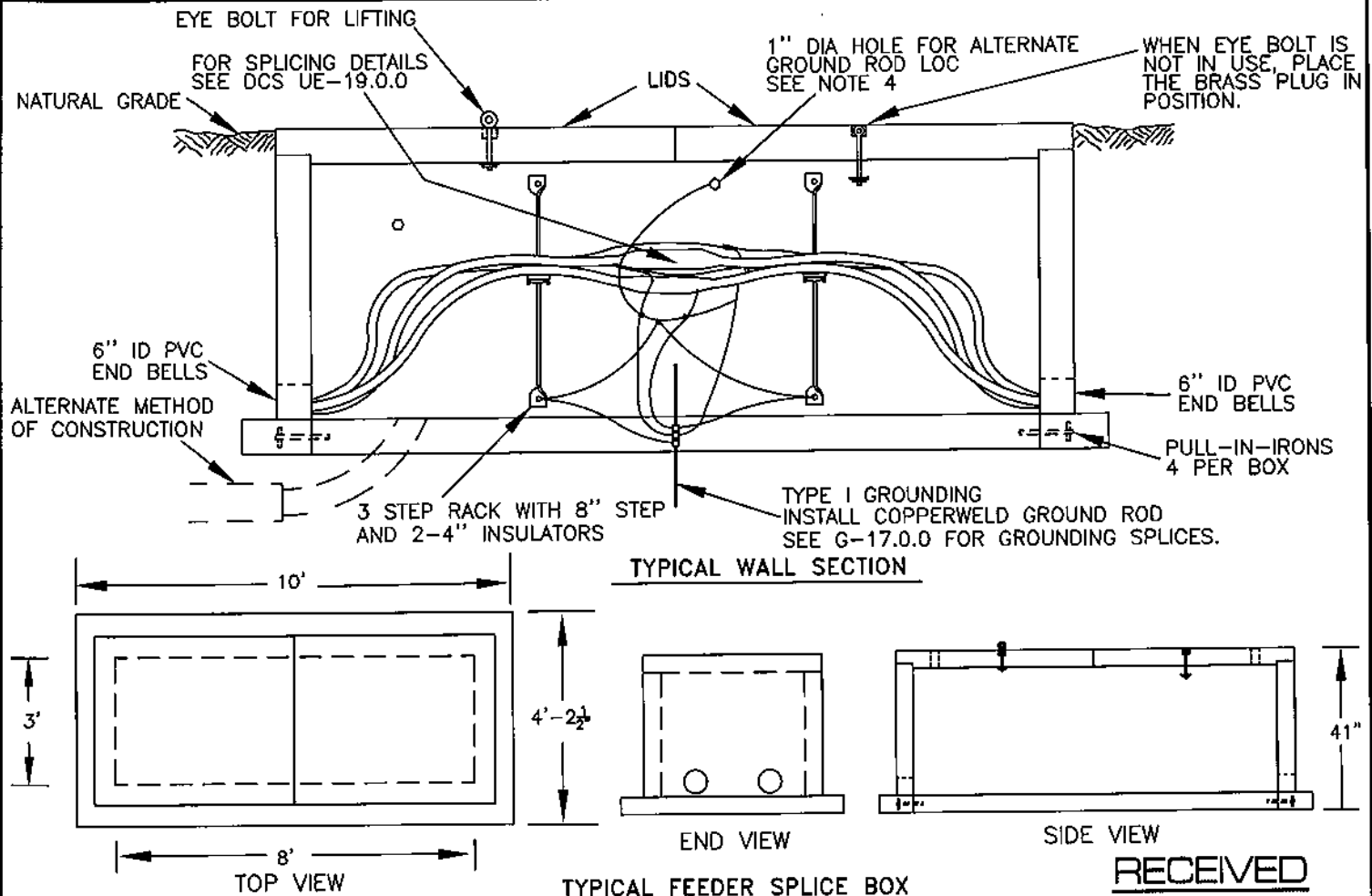
F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: SMS

DRAWN BY: RAS

DATE: 8/09/96 APPROVED: J.R. "PEPE" DIAZ NO SCALE
RELIABILITY ENGINEERING MANAGER

**RECEIVED**

M&S NUMBER	DESCRIPTION	BURKHARDT CONSTRUCTION, INC.
162-240-003	CONCRETE FEEDER SPLICE BOX & LIDS. (SEE NOTE 5)	By Brandon at 11:32:16 AM, 3/4/2020
162-241-000	CONCRETE FEEDER SPLICE BOX & LIDS COMES WITH SPECIAL BRUSHED SIDEWALK FINISH LIDS AND FLUSH INSERTS SUITABLE FOR PEDESTRIAN TRAFFIC. (SEE NOTE 5)	
162-242-203	POLYMER CONCRETE FEEDER SPLICE BOX. TO BE INSTALLED IN AREAS NOT SUBJECT TO ANY VEHICULAR TRAFFIC SUCH AS STREETS, PARKING LOTS, OR DRIVEWAYS.	

NOTES:

1. LEAVE SUFFICIENT EXPOSED GROUND ROD TO INSTALL 6 EACH #4/0-#2 CONNECTIONS M&S #120-118-005.
2. GROUND ALL SPICES PER DISTRIBUTION STANDARD G-17.0.0.
3. GROUND CABLE RACKS.
4. EACH SPLICE BOX IS SUPPLIED WITH 2-1" DIA HOLE FOR ALTERNATE GROUND ROD LOCATION. MAKE ALL GROUNDING CONNECTIONS INSIDE THE BOX. RUN SUFFICIENT AMOUNT OF 4/0 TO MAKE CONNECTION TO ALT. GROUND ROD LOCATION. RESEAL 1" DIA HOLE WITH AQUASEAL.
5. REFER TO UX-233.0.1 FOR DRIVEWAY LOADING SPLICE BOXES (H20 RATED), M&S #162-240-003 AND 162-241-000. (H20 RATED = 32,000LBS).
6. WEIGHT OF SPLICE BOX (W/O LIDS) = 8700 LBS. DIMENSIONS ARE 10' X 4'-2.5" X 41" DEEP.
7. WEIGHT OF EACH LID = 1400 LBS. TWO LIDS REQUIRED. M&S # FOR LID ONLY 162-240-011.
8. URD FEEDER CABLE SPLICES MUST BE BONDED TO DRIVEN GROUNDS.
9. REFER TO UE-19.0.0 FOR SPLICE ASSEMBLY. A WATER TIGHT SEAL MUST BE MADE WHERE INSULATED.
10. CONDUCTORS CONNECT TO SYSTEM NEUTRAL. SEE G-17.0.0.
11. THE MAXIMUM PERMISSIBLE IMPEDENCE TO SYSTEM NEUTRAL FOR A DRIVEN GROUND IS 25 OHMS.
12. AS SHOWN ABOVE, THE PVC MAY ENTER UNDERNEATH THE SPLICE BOX BY USING A 45 DEGREE SWEEP. SEAL CONDUIT WITH DUCT SEAL.
13. IN AREAS SUBJECT TO WATER INTRUSION, INSTALL A SUFFICIENT AMOUNT OF PEAROCK 1/4"-3/4" SIZE ROCK TO ALLOW FOR THE PERCOLATION OF THE WATER.
14. IF FEEDER SPLICE BOX IS TO BE INSTALLED IN A SIDEWALK, A SEPARATION WILL BE NEEDED BETWEEN THE CONCRETE AND THE LIDS. THE D.O.T. INDEX 310 SPECIFIES THE USE OF A 1/2" EXPANSION JOINT (PREFORMED JOINT FILLER) FOR THIS SEPARATION. ALSO CONSULT YOUR LOCAL MUNICIPALITY FOR ANY ADDITIONAL REQUIREMENTS.
15. THE MAXIMUM SEPARATION BETWEEN FEEDER SPLICE BOXES IS 950', THIS IS TO ALLOW FOR PROPER CABLE PULLING TENSIONS.
16. UX-233.0.1 AND UX-233.0.3 FOR MORE DETAIL.
17. WHEN SETTING A PAD/MANHOLE OR FEEDER SPLICE BOX, THE AREA MUST BE LEVELED WITHIN 1 INCH IN 8 FEET IN ALL DIRECTIONS, AND THOROUGHLY COMPACTED WITH A VIBRATORY PLATE COMPACTOR. THIS STEP WOULD PROVIDE A SMOOTH AND LEVEL SURFACE.
18. FEEDER CABLES ARE NOT TO BE LOOPED AROUND THE ENDS OF THE BOX, THIS WILL EXCEED THE BEND RADIUS OF THE CABLES CREATING A POTENTIAL FAILURE

**F P L****OH & UG DISTRIBUTION SYSTEM STANDARDS**

8	8/26/19	ADD NOTE 18	ARR	ELS	RDH
7	8/6/18	ADD NOTE 17	ARR	ELS	RDH
6	6/12/17	UPDATE DRAWING AND NOTES	ARR	ELS	RDH
5	5/19/17	ADD NOTE 15	ARR	ELS	RDH
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

ORIGINATOR: RAP

DRAWN BY: J.SHOUP

DATE: 8/27/99

APPROVED: J.J. McEVoy

NO SCALE

SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

J-4.0.0

PAD-MOUNTED CAPACITOR BANK INSTALLATIONS

J-4.0.0

WE HAVE TWO STANDARD 1200 KVAR PAD-MOUNTED, CAPACITOR BANKS. THEY ARE PRESENTLY OPERATED AS FIXED BANKS, BUT MAY BE REMOTELY SWITCHED IN THE FUTURE.

223-388-508 13KV, PAD-MOUNTED, DEADFRONT, STAINLESS STEEL ENCLOSURE, 3 PHASE, 1200 KVAR CAPACITOR BANK TO INCLUDE: A POTENTIAL TRANSFORMER, VACUUM SWITCHES, DOUBLE BUSHING CAPACITOR CANS, (7.62KV, 400 KVAR), X-LIMITER FUSES (80A), BUSHING WELLS (200A), PARKING STANDS, METER SOCKET AND CONTROL WIRING FOR RADIO RECEIVER.

223-388-001 23KV, PAD-MOUNTED, DEADFRONT, STAINLESS STEEL ENCLOSURE, 3 PHASE, 1200 KVAR CAPACITOR BANK TO INCLUDE: A POTENTIAL TRANSFORMER, VACUUM SWITCHES, DOUBLE BUSHING CAPACITOR CANS, (13.2 KVAR), 400 KVAR), X-LIMITER FUSES (50A), BUSHING WELLS (200A), PARKING STANDS, METER SOCKET AND CONTROL WIRING FOR RADIO RECEIVER.

EITHER UNIT CAN MOUNT ON FOUNDATION UX-108 (M&S 162-251-005). THE FOUNDATION, ARRESTERS, AND ROTATABLE BUSHINGS ARE INCLUDED IN THE FOLLOWING MECA UNIT.

EITHER UNIT CAN BE USED IN SALT-SPRAY AREAS.

A	B	C	D	E	F	G	H
C			1200	T	E		

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CONSTRUCTION, INC.

By brandon at 11:32:24 AM, 3/4/2020

DETAILS OF INSTALLATION:

1. THE UNITS ARE TO BE INSTALLED NO MORE THAN 100FT FROM A DEAD-FRONT, PADMOUNTED SWITCH CABINET, ONLY. LIVE FRONT CABINETS SHOULD BE CHANGED OUT FOR THIS APPLICATION.
2. THE UNIT WILL BE SERVED WITH 1/0, 25KV CABLE FROM THE BACK (200-AMP INTERFACE) OF THE ARRESTERS PRESENTLY FOUND IN THE CABINET, BUT THESE ARRESTERS MAY BE RE-USED IN THE CAP BANK UNIT.
3. INSTALL ROTATABLE, FEED-THRU BUSHINGS ON THE 23KV URD CAPACITOR BANK (ONE SIDE FOR THE ARRESTER ELBOW AND ONE SIDE FOR THE PRIMARY ELBOW COMING FROM THE PADMOUNTED SWITCH CABINET). NOTE: THIS ONLY APPLIES TO 23KV UNITS, SINCE IT IS TYPICALLY, NOT NECESSARY, TO PROTECT 15KV URD SYSTEMS, WITH ELBOW ARRESTERS.
4. THE PAD-MOUNTED BANK SITS ON A PRE-CAST CONCRETE PAD. REFER TO UX-108.
5. THE BANK IS PROTECTED, BY CURRENT-LIMITING FUSES, AND HAS A POTENTIAL TRANSFORMER (INTERNALLY PROTECTED AND HOOKED UP TO THE LINE SIDE OF FUSES), WHICH POWERS THE VACUUM SWITCHES.
6. FAULT INDICATORS SHOULD BE INSTALLED AT BOTH THE PADMOUNTED SWITCH CABINET AND THE CAPACITOR CABINET TO DISTINGUISH BETWEEN CAN OR CABLE FAILURE.
7. INSTALL SIGNS SHOWING "INSTRUCTIONS FOR SWITCHING" (M&S 548-223-000) AND "REPLACEMENT COMPONENTS" (M&S 548-223-100) ON INSIDE OF CABINET DOOR.

NOTES:

1. PADMOUNTED CAPACITOR BANKS REQUIRE 8' MINIMUM CLEARANCE IN FRONT AND REAR DOORS.



F P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

4	9/17/13	UPDATE DRAWING (TEXT)	JJR	ELS	WM
3	4/5/13	UPDATE DRAWING (TEXT)	JJR	ELS	WM
2	5/21/12	UPDATE DRAWING (TEXT)	LFV	ELS	WM
1	12/12/11	UPDATE DRAWING (TEXT)	LFV	ELS	JJM

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/25/01 APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG_PRODUCT

NO SCALE

J-4.0.1

CAPACITOR BANK SWITCHING INSTRUCTIONS

J-4.0.1

THE FOLLOWING INSTRUCTIONS ARE TO BE PLACED INSIDE ALL PAD-MOUNTED CAPACITOR BANKS:

INSTRUCTIONS FOR SWITCHING PADMOUNTED CAPACITOR BANKS:

TO ENERGIZE THE BANK, FOLLOW THESE STEPS:

1. TURN RC OFF AT FEEDER BREAKER.
2. VERIFY THAT ELBOWS ARE PARKED AT BOTH FEEDER PAD-MOUNTED SWITCH CABINET AND CAPACITOR BANK CABINET.
3. VERIFY ALL GROUNDS/SHORTING STRAPS HAVE BEEN REMOVED FROM THE CAPACITOR CANS.
4. VERIFY THAT SEMAPHORES IN VACUUM SWITCHES ARE IN THE "OPEN" POSITION.
5. VERIFY THAT CURRENT LIMITING FUSES ARE INSTALLED, WITH THE BLOWN INDICATOR FACING DOWN.
6. PLACE REMS CONTROLLER SWITCH IN THE LOCAL POSITION.
7. CLOSE IN ELBOWS AT CAPACITOR CABINET.
8. CLOSE IN ELBOWS AT SWITCH CABINET.
9. PRESS THE RED (CLOSE) BUTTON ON THE REMS OR USE THE REMOTE HAND OPERATOR TO CLOSE VACUUM SWITCHES.
10. TURN RC ON AT FEEDER BREAKER.

TO SWITCH OUT AND ISOLATE THE BANK, FOLLOW THESE STEPS:

1. VERIFY THAT REMS CONTROLLER'S TOGGLE SWITCH IS PLACED IN THE POSITION.
2. PRESS GREEN TRIP BUTTON ON REMS RECEIVER BOX.
3. VERIFY THAT SEMAPHORES IN VACUUM SWITCHES SHOW OPEN.
4. ALLOW AT LEAST FIVE MINUTES THEN TEST FOR VOLTAGE OR CURRENT AT THE CAPACITOR CELLS.
5. OPEN, PARK, AND CAP ELBOWS AT FEEDER PAD-MOUNTED SWITCH CABINET.
6. OPEN, PARK, AND CAP ELBOWS AT CAPACITOR CABINET.
7. ATTACH ALL NECESSARY GROUNDS.

NOTE:
THE CAPACITOR CANS ARE TO BE ENERGIZED OR DE-ENERGIZED WITH THE VACUUM SWITCHES, ONLY.
DO NOT USE THE LOAD-BREAK ELBOWS OR THE CURRENT-LIMITING FUSES FOR THE ACTIVITY.

PAD-MOUNTED CAPACITOR BANK-REPLACEMENT COMPONENTS:

RECEIVED


By brandon at 11:32:30 AM, 3/4/2020

CURRENT LIMITING FUSES:
13KV, 80A, X-LIMITER
23KV, 50A, X-LIMITER

M&S 531-454-802
M&S 531-455-001

POTENTIAL TRANSFORMERS:
13KV, INTERNALLY FUSED
23KV, INTERNALLY FUSED

M&S 461-088-059
M&S 461-088-105

CAPACITOR CANS:
7620V, 400KVAR, TWO-BUSHING
13,200V, 400KVAR, TWO-BUSHING

M&S 225-402-130
M&S 225-402-230

VACUUM SWITCHES:
13KV, 200A
23KV, 200A

M&S 275-108-120
M&S 275-108-130

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

NO	DATE	DESCRIPTION	BY	CHKD	APPD
4	5/21/12	ADDED "PAD-MOUNTED"	JGV	ELS	WM
3	9/19/08	UPDATE DRAWING (M&S NUMBERS)	LFV	ELS	JJM
2	3/25/05	UPDATE DRAWING (M&S NUMBERS)	LFV	ELS	JJM
		UPDATE DRAWING (TEXT)	LFV	ELS	JJM

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 04/14/00 APPROVED: J.J. MOEVOY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

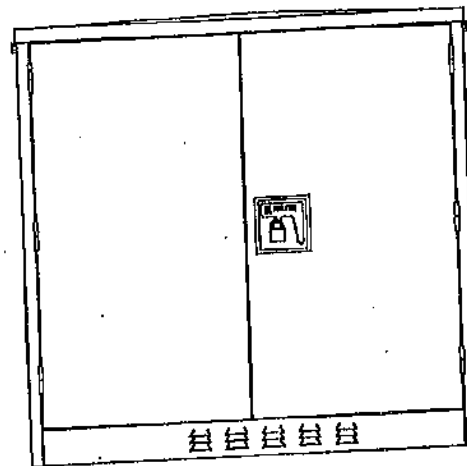
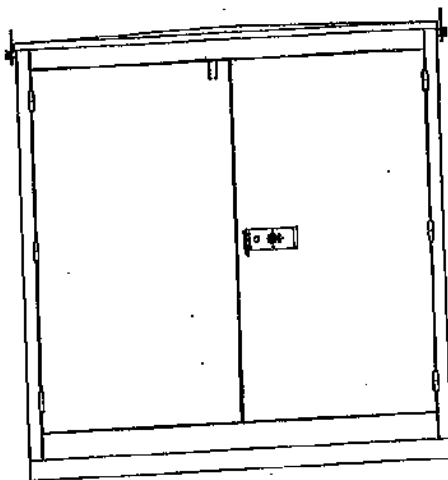
J-4.0.2

TYPICAL INSTALLATION OF 25 KV S & C DEAD FRONT SWITCHGEAR AND THREE PHASE PAD-MOUNTED CAPACITOR BANK

J-4.0.2

NOTES:

1. INSTALL 92" X 92" PRECAST PAD (M&S 162-251-005)
2. DRIVE GROUND RODS & ATTACH #2 CU GROUND TO GROUNDING LUGS.
3. INSTALL URD CAPACITOR BANK (M&S 223-388-001) ON PAD.
4. INSTALL ROTATABLE FEED-THRU BUSHING 25KV (M&S 163-250-002) ON EACH BUSHING.
5. INSTALL 200 AMP ELBOWS ON ROTATABLE FEED-THRU BUSHINGS.
6. INSTALL 18KV ELBOW ARRESTERS (M&S 334-015-005) ON ROTATABLE FEED-THRU BUSHINGS.



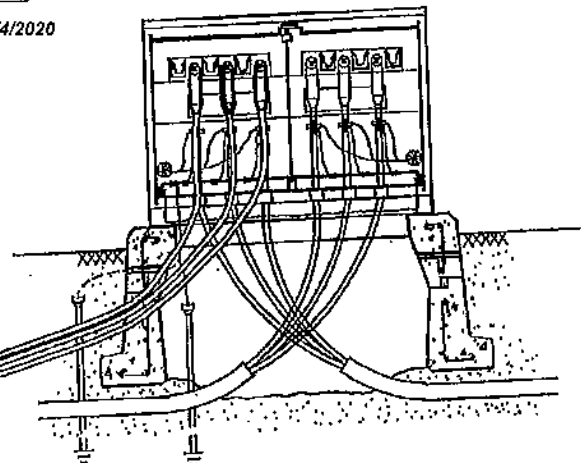
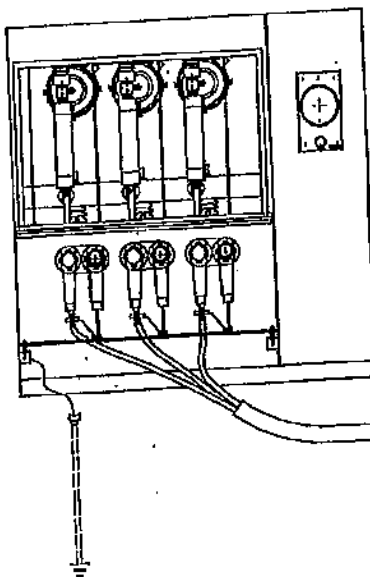
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CONSTRUCTION, INC.

PAD-MOUNTED SWITCH CABINET

CAPACITOR CABINET

By brandon at 11:32:36 AM, 3/4/2020



3#1/0 AL XPE 25KV CABLES
IN 1-4" CONDUIT
MAXIMUM DF 100 FEET

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/26/01 APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT

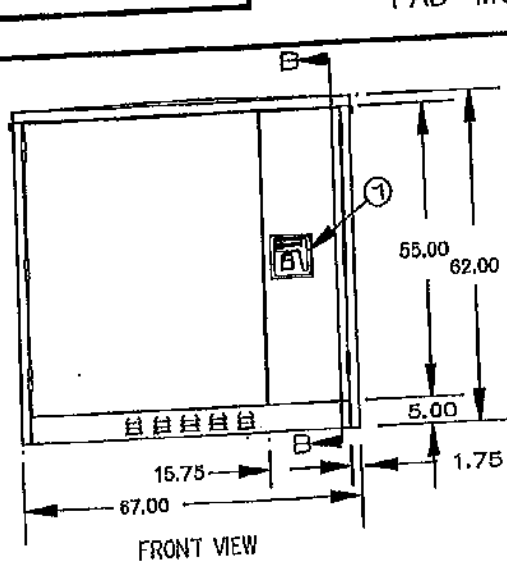
NO SCALE

JGV ELS WM

J-4.0.3

MALTON 25KV, 200A, 125KV BIL, 1200KVAR
PAD-MOUNTED CAPACITOR BANK

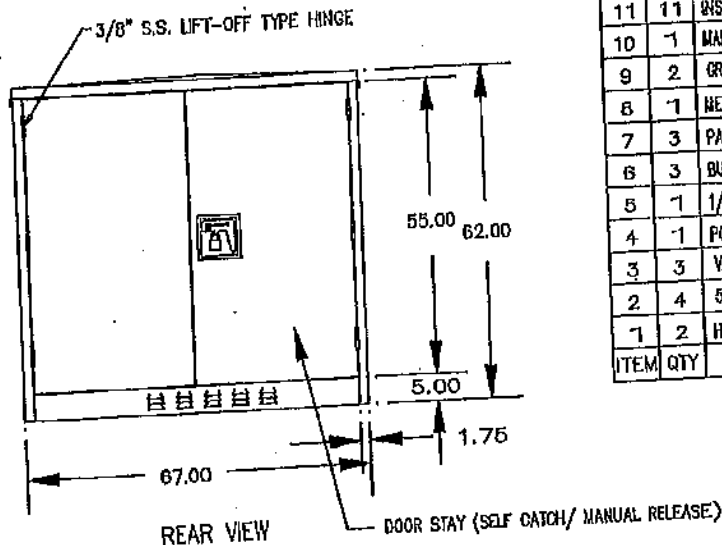
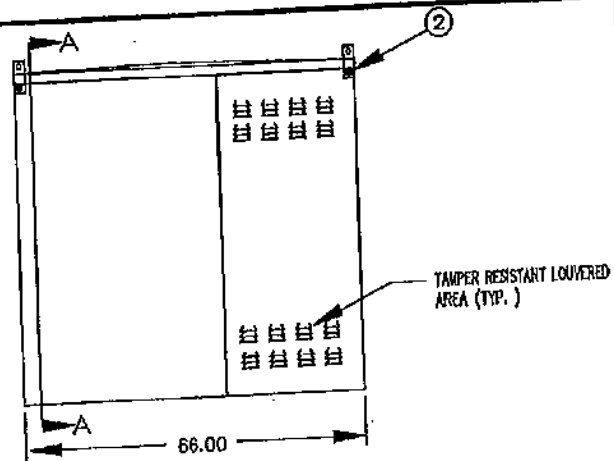
J-4.0.3



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CONSTRUCTION, INC.

By brandon at 11:32:42 AM, 3/4/2020



ITEM	QTY	DESCRIPTION
16	1	4-POINT TERMINAL BLOCK
15	3	CAPACITORS, 400 KVAR, 13200V, 150KV BIL, 1-BUSHING COOPER #CEP133M22 OR EQUAL 23
14	3	FUSE MOUNTING COOPER TYPE NK - CODE 6 W/50A X-LIMITE FUSE 25KV
13	1	INNER DOOR BARRIER - CLEAR LEXAN
12	LOT	#2 FLEXIBLE COPPER WIRE
11	11	INSULATOR 25KV, 125KV BIL
10	1	MANUFACTURERS NAMEPLATE
9	2	GROUNDING STRAPS
8	1	METER SOCKET 100 AMP, 4-TERMINAL, RING TYPE
7	3	PARKING STAND
6	3	BUSHING WEL 200AMP, 25KV, 125KV BIL
5	1	1/4" CLEAR LEXAN WINDOW (REMOVABLE TO ACCESS FUSES)
4	1	POTENTIAL TRANSFORMER, SINGLE BUSHING, 12&1 1KVA - INTERNALLY FUSED 23
3	3	VACUUM SWITCH, 200A, 25KV, 5-PW CONTROL, MANUAL TRIP JOSLYN VERSAVAC 23
2	4	5/8-11 UNC THREADED INSERTS WITH REMOVABLE LIFTING TABS
1	2	HANDLE ASSY. W/ S.S. HEX BOLT, 3-PT. LATCHING

NOTES:

1. MATERIAL IS 12 GA. OR 11 GA. (106) STEEL - AS SPECIFIED
2. STEEL IS PHOSPHATE TREATED FOR PAINT ADHESION
3. ENCLOSURE IS PAINTED WITH MALTON "POLYMAX PLUS" FINISHING PROCESS TO MEET ANSI/AEI PERFORMANCE GUIDELINES
PAINT COLOR: MUNSELL 7GY3.28/1.5 GREEN.
4. ENCLOSURE CONSTRUCTION TO MEET THE LATEST ANSI STANDARD C57.12.28

REV	DATE	BY	DESCRIPTION	TOLERANCE (UNLESS NOTED)
D	4/7/00	TO	REVISION #	
C	3/11/00	TO	CHANGE FUSE MOUNTING FROM 125KV TO 25KV	
B	12/13/97	RR	ADD 4 1/2" X 1/2" LATCH TO HANDLE ASSY. FROM 125KV TO 25KV	XX ±.02
A	11/21/97	RR	ADD 4 1/2" X 1/2" LATCH TO HANDLE ASSY. FROM 125KV TO 25KV	XXX ±.010

F P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LPV

DRAWN BY: J. SHOUP

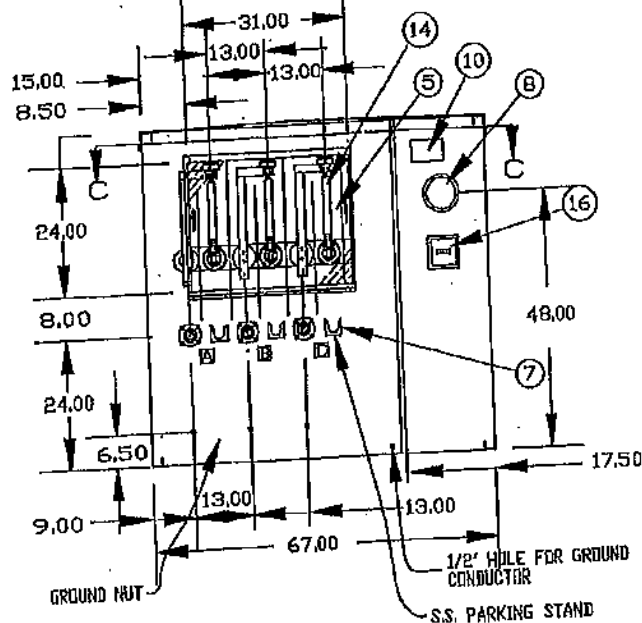
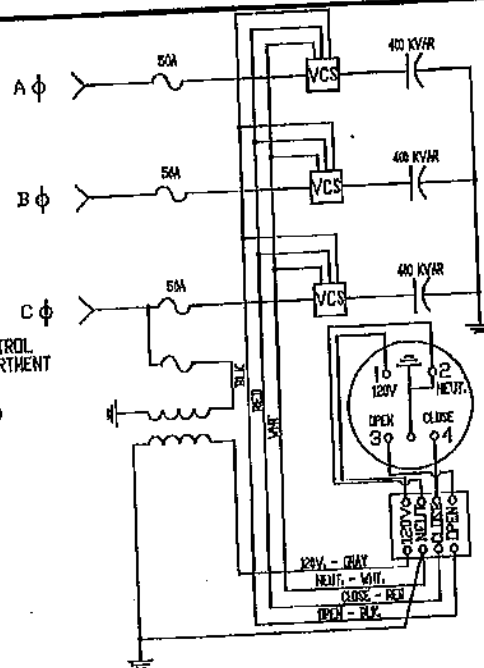
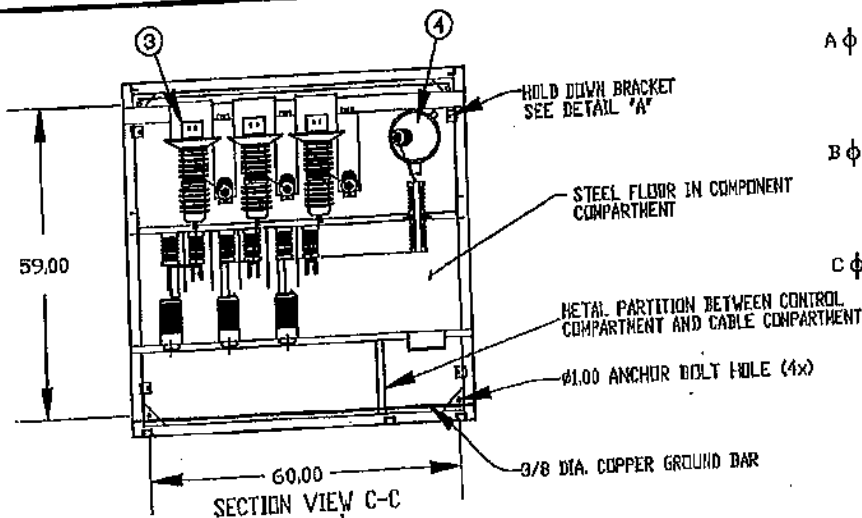
DATE: 07/26/01 APPROVED: J.J. NICEVOY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

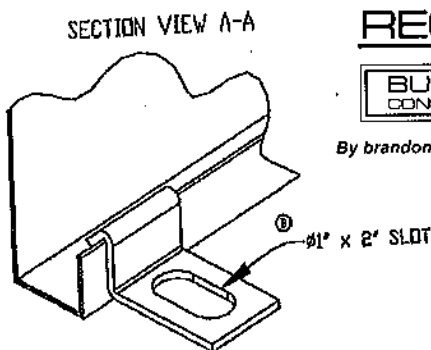
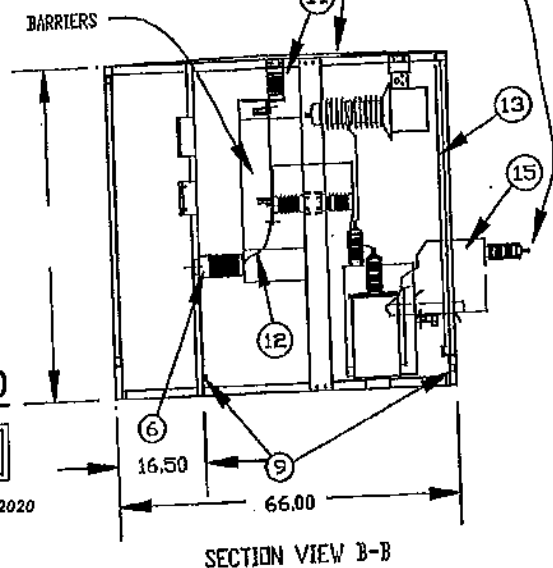
J-4.0.4

MALTON 25KV 200A, 125KV BIL, 1200KVAR PAD-MOUNTED CAPACITOR BANK

J-4.0.4



LINE DIAGRAM
CAPACITOR TILTS OUT FOR MAINTENANCE
ANTI-CONDENSATE COATING ON INSIDE OF ROOF



RECEIVED

BURKHARDT
CONSTRUCTION, INC.

By brandon at 11:32:47 AM, 3/4/2020

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/28/01

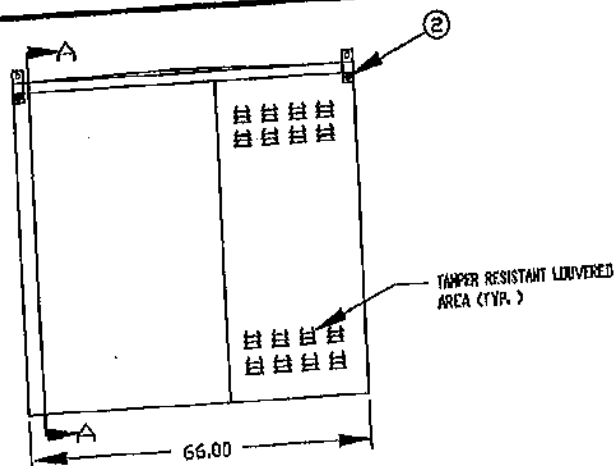
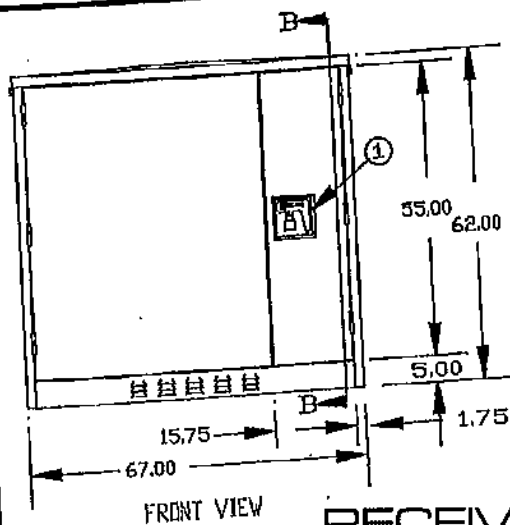
APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

J-4.0.5

MALTON 15KV, 200A, 95KV BIL, 1200KVAR
PAD-MOUNTED CAPACITOR BANK

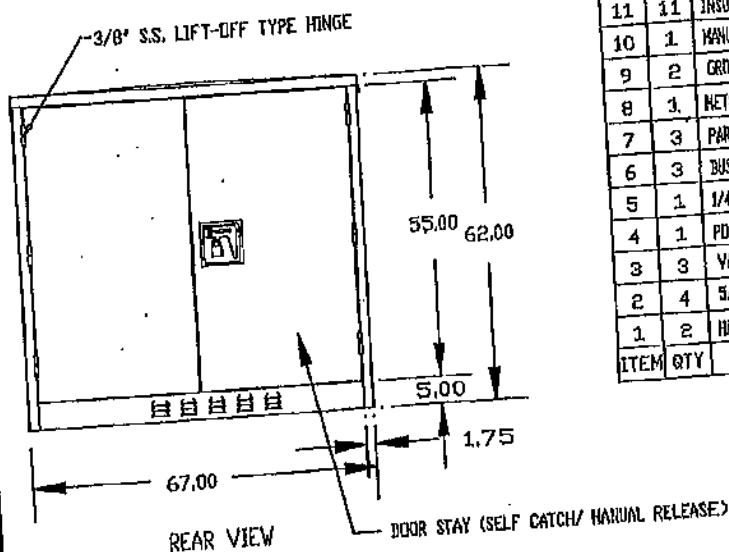
J-4.0.5



RECEIVED

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CONSTRUCTION, INC.

By brandon at 11:32:52 AM, 3/4/2020



ITEM	QTY	DESCRIPTION
16	1	4-POINT TERMINAL BLOCK
15	3	CAPACITORS, 400 KVAR, 7620V, 95KV BIL, 1-BUSHING COPPER WOP17087FA OR EQUAL IS
14	3	FUSE MOUNTING CUPPER TYPE IX - CIDE 6 V/80A X-LONTER FUSE 15KV
13	1	INNER DOOR BARRIER - CLEAR LEXAN
12	LOT	#2 FLEXIBLE COPPER WIRE
11	11	INSULATOR 25KV, 125KV BIL
10	1	MANUFACTURERS NAMEPLATE
9	2	GROUNDING STRAPS
8	1	METER SOCKET 100 AMP, 4-TERMINAL, RING TYPE
7	3	PARKING STAND
6	3	BUSHING VELL. 200AMP, 25KV, 125KV BIL
5	1	1/4\" CLEAR LEXAN WINDOW REMOVABLE TO ACCESS FUSES)
4	1	POTENTIAL TRANSFORMER, SINGLE BUSHING, 600V 1KVA - INTERNALLY FUSED IS
3	3	VACCUUM SWITCH, 200A, 15KV, 5-PIN CONTROL, MANUAL TRIP JOSLYN VERSAVAC IS
2	4	5/8-11 UNC THREADED INSERTS WITH REMOVABLE LIFTING TABS
1	2	HANDLE ASSY. W/ S.S. HEX BOLT, 3-PT. LATCHING

NOTES:

1. MATERIAL IS 12 GA. OR 11 GA. (105) STEEL - AS SPECIFIED
2. STEEL IS PHOSPHATE TREATED FOR PAINT ADHESION
3. ENCLOSURE IS PAINTED WITH MALTON 'POLYNAX PLUS' FINISHING PROCESS TO MEET ANSI/ASTM PERFORMANCE GUIDELINES
PAINT COLOR: MUNSSELL 76Y3.29/1.5 GREEN
4. ENCLOSURE CONSTRUCTION TO MEET THE LATEST ANSI STANDARD C57.1228

REV	DATE	BY	DESCRIPTION	TOLERANCE (UNLESS NOTED)
A	04/08/00	TG	ADDED H & S D	XX ±.02
				XXX ±.010

F P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/26/01 APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

NO SCALE

MALTON 15KV, 200A, 95KV BIL, 1200KVAR
PAD-MOUNTED CAPACITOR BANK

SECTION VIEW C-C

59.00

60.00

3

4

HOLD DOWN BRACKET
SEE DETAIL "A"

STEEL FLOOR IN COMPONENT
COMPARTMENT

METAL PARTITION BETWEEN CONTROL
COMPARTMENT AND CABLE COMPARTMENT

#1.00 ANCHOR BOLT HOLE (4x)

3/8 DIA. COPPER GROUND BAR

A ϕ

B ϕ

C ϕ

RECEIVER

BURKHARDT
CONSTRUCTION, INC.

Technical drawing of a parking stand assembly. The drawing shows a side view of the assembly with various dimensions and callouts. Key dimensions include:

- Overall width: 31.00
- Internal width segments: 13.00, 13.00
- Overall height: 48.00
- Internal height segments: 15.00, 8.50, 24.00, 8.00, 24.00, 6.50
- Base width segments: 9.00, 13.00, 13.00
- Overall base width: 67.00
- Right side width: 17.50

Callouts and labels include:

- 14: Top right corner bracket
- 10: Top right corner bracket
- 8: Top right corner bracket
- 16: Top right corner bracket
- 7: Right side vertical support
- 1/2" HOLE FOR GROUND CONDUCTOR: Located on the right side of the stand.
- S.S. PARKING STAND: Label for the main assembly.
- GROUND NUT: Label for the base of the stand.

③ $\phi 1" \times 2"$ SLOT

LINE DIAGRAM
CAPACITOR TILTS OUT FOR MAINTANANCE
ANTI-CONDENSATE COATING ON INSIDE OF ROOF 7

[illegible]

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

DRAWN BY: J. SHOUP

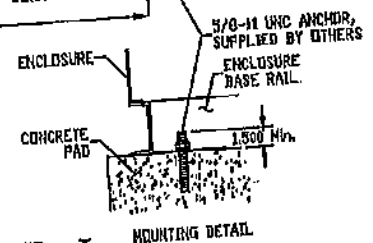
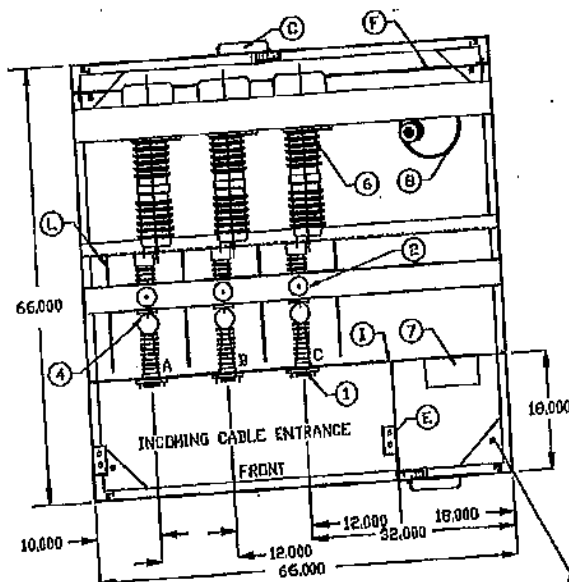
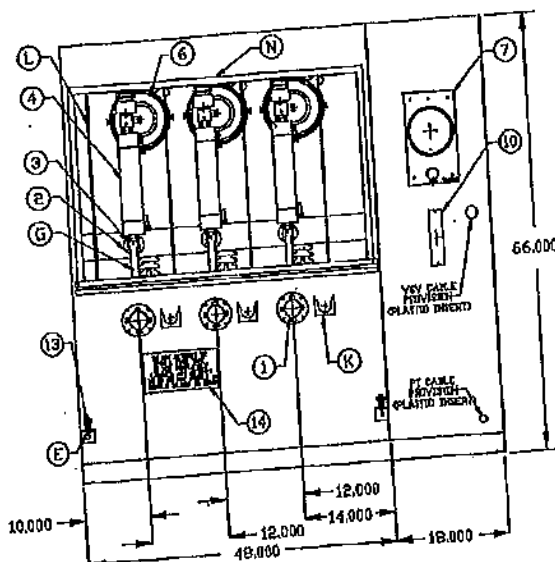
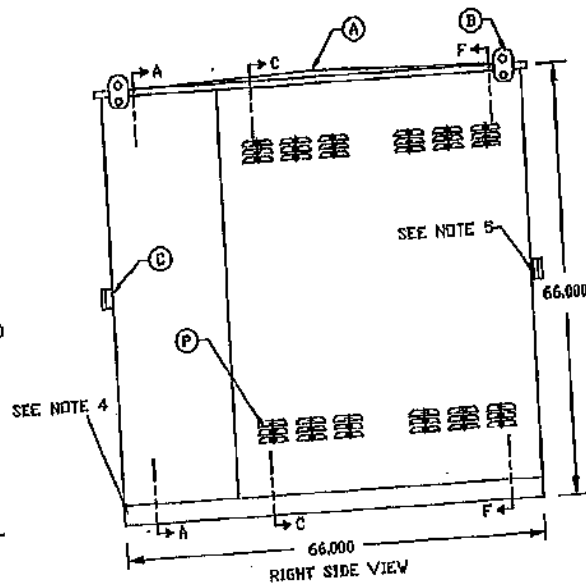
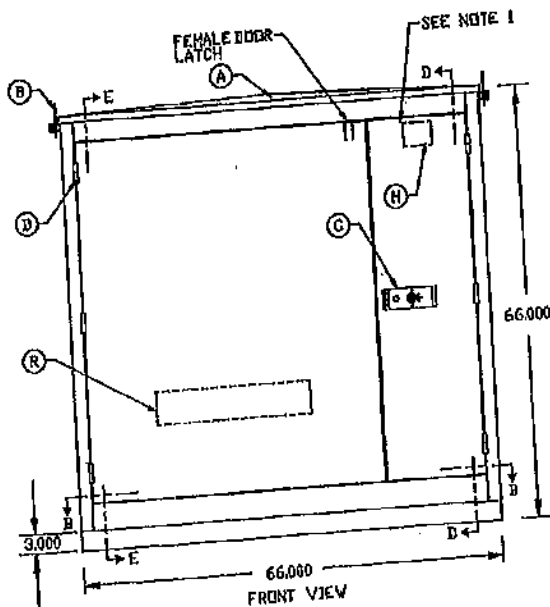
DATE: 07/26/01 APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

J-4.0.7

SHALLBETTER 25KV, 125KV BIL, 1200KVAR,
DEAD-FRONT, PAD-MOUNTED,
CAPACITOR BANK

J-4.0.7



RECEIVED

BURKHARDT
CONSTRUCTION, INC.

By Brandon at 11:33:05 AM, 3/4/2020

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

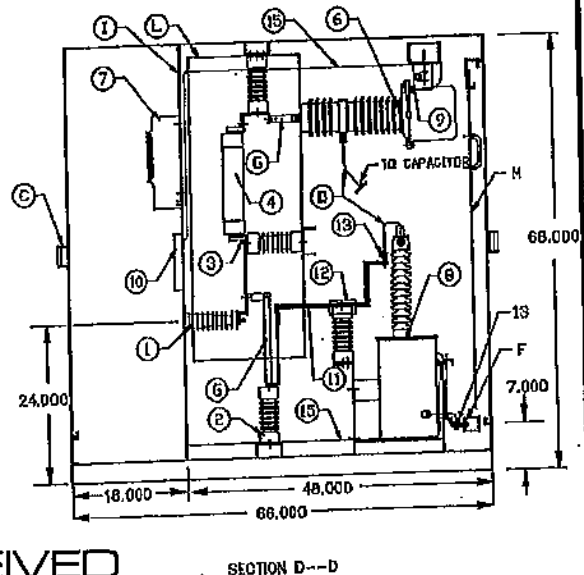
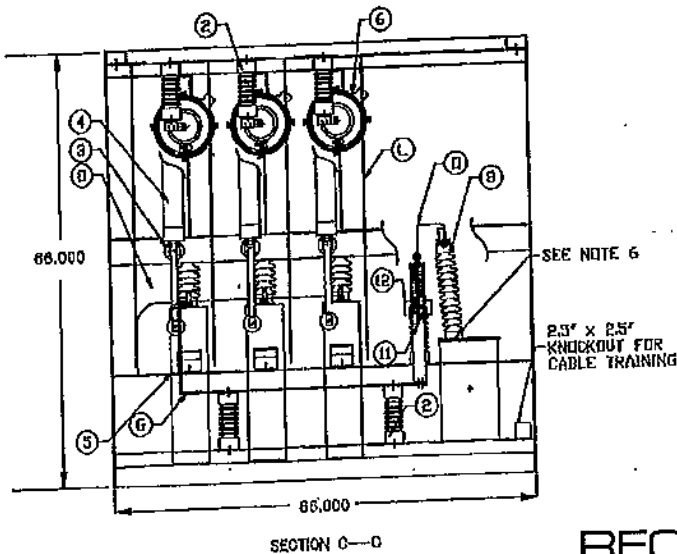
DATE: 07/26/01 APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

NO SCALE

J-4.0.8

SHALLBETTER, 25KV, 125KV BIL, 1200KVAR
DEAD-FRONT, PAD-MOUNT, CAPACITOR BANK

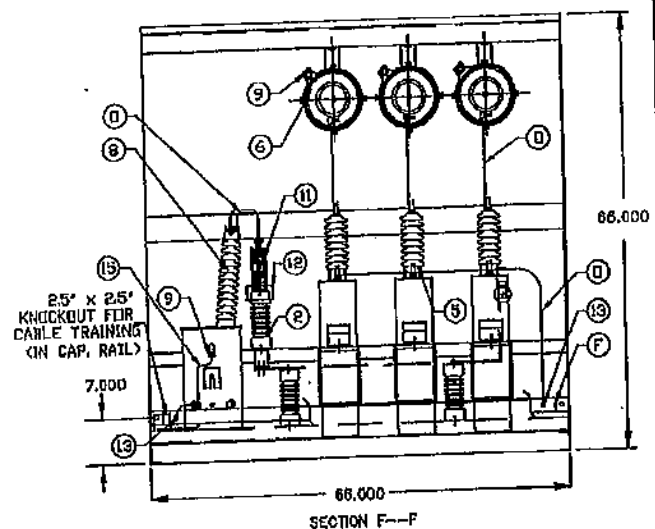
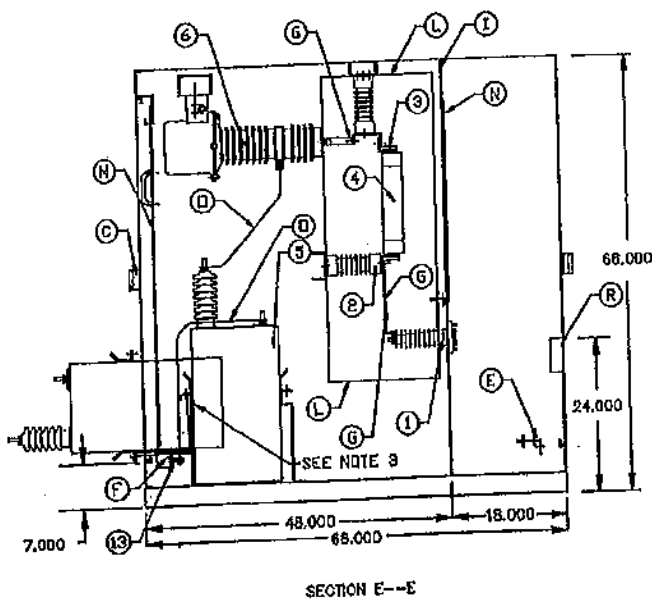
J-4.0.8



RECEIVED

BURKHARDT
CONSTRUCTION, INC.

By brandon at 11:33:10 AM, 3/4/2020



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/28/01 APPROVED: J.J. McEVY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

J-4.0.9

SHALLBETTER, 25KV, 125KV BIL, 1200KVAR, DEAD-FRONT, PAD-MOUNT, CAPACITOR BANK

J-4.0.9

CONSTRUCTION NOTES

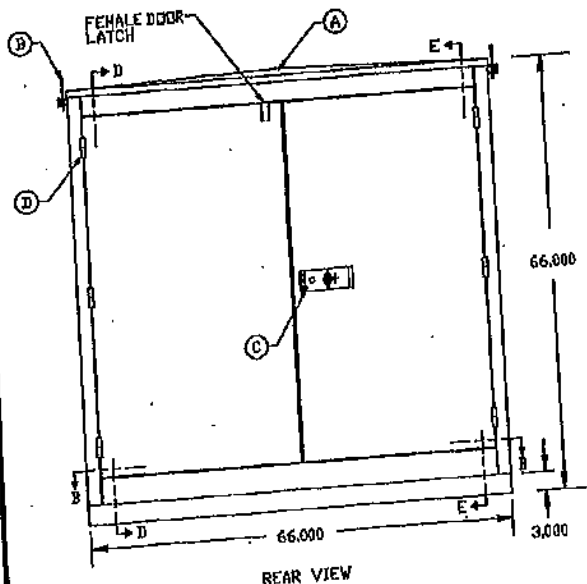
- *NEMA TYPE 3R, 11 GAUGE GALVANNEAL, WELDED CONSTRUCTION, WELDS AND SEAMS GRIND SMOOTH.
- *FINISH COAT IS MUNSSELL No. 76Y 3.29/1.5, GREEN. PAINT FINISH MEETS OR EXCEEDS ANS.I. CS712.28-1988 PAINT SPECIFICATIONS FOR PAD-MOUNT EQUIPMENT ENCLOSURE INTEGRITY.
- *ENCLOSURE TO HAVE A 3" 304L STAINLESS STEEL FORMED CHANNEL BASE.

FEATURES

- ACROSS KINKED ROOF FOR ADDED STRENGTH AND PREVENTING STANDING MOISTURE.
- REMOVABLE LIFTING PLATES WITH BLIND MOUNTING HOLES.
- CSB'S 'ENTRY LATCH' 3-POINT POSITIVE LATCH MECHANISM, SECURED AND OPERATED BY 1/2-TURN, CAPTIVE, RECESSED HEX-HEAD BOLT AND SHIELDED PADLOCK SHACKLE.
- HINGE, LOOSE JOINT PIN, 304L STAINLESS STEEL, SOLID WELDED TO DOOR AND CABINET, ALLOWS DOORS TO BE REMOVED IN THE OPEN POSITION ONLY.
- E-1 FRONT GROUND PADS, 304L STAINLESS STEEL, WITH 1/2"-13 UNC THREADED HOLE FOR CUSTOMER SUPPLIED GROUND CONNECTORS. PADS ARE UNPAINTED AND WELDED TO ENCLOSURE.
- E-2 REAR GROUND BUS, FULL LENGTH, CONTINUOUS, SILVER PLATED COPPER, SUPPORTED WITH UNPAINTED, STAINLESS STEEL GROUND PADS WELDED TO ENCLOSURE.
- GND BAR, SILVER PLATED COPPER, FREE OF SHARP EDGES OR BURRS.
- MANUFACTURE'S DATA PLATE, CONTAINS INFORMATION LISTED UNDER SYSTEM RATING, NON-CORROSIVE, PERMANENTLY STAMPED AND ATTACHED TO ENCLOSURE.
- EQUIPMENT WALL, FULL HEIGHT.
- DOOR STAYS (RETAINED) HOLD DOORS IN 90°, 110°, OR 140° OPEN POSITION.
- PARKING STANDS, 14 GAUGE 304L STAINLESS STEEL, WELDED TO EQUIPMENT WALL.
- LBARRIERS, 3/16" GPO-3, GLASS REINFORCED POLYESTER.
- COMPARTMENT BARRIER, 1/4" LEXAN, CLEAR POLYCARBONATE, REMOVABLE, WITH NON-CONDUCTIVE HANDLES.
- REUSE ACCESS BARRIER, 1/4" CLEAR POLYCARBONATE (LEXAN), SECURED WITH 3/4 TURN FASTENERS.
- OCOPPER ROD, HARDDRAWN 3/8" DIA.
- PSCREENED, TAMPER PROOF LOUVERS.
- RSPARE FUSE POCKET

SPECIAL NOTES FOR MANUFACTURER ONLY

- 1NO SIGNS OR LABELS TO BE ON ANY EXTERIOR PART OR INTERIOR DOORS OF ENCLOSURE, PER FPEL SPEC. (SBI DATA PLATE WILL BE ON INTERIOR OF FRONT HALE DOOR).
- 2NO HIGH VOLTAGE CABLE TO BE USED ON ANY PART OF THIS GEAR.
- 3ALL HV ELECTRICAL CONNECTIONS TO BE MADE WITH HARDDRAWN BUS OR ROD.
- 4THIS ENCLOSURE UTILIZES A TILT-OUT CAPACITOR RACK.
- 5CAPACITORS TO BE ABLE TO INDIVIDUALLY TILTED OUT AT 90°.
- 6ENCLOSURE BOTTOM CHANNEL TO BE A 3" FORMED 304L STAINLESS STEEL CHANNEL.
- 7DOOR LATCH HAS A HEX HEAD BOLT.
- 8POTENTIAL TRANSFORMER IS INTERNALLY FUSED.
- 9THESE NOTES ARE FOR MANUFACTURER ONLY.



SYSTEM RATING

NOMINAL SYSTEM VOLTAGE	23/13.28 KV GROUNDED WYE
MAXIMUM DESIGN VOLTAGE	25 KV
BASIC INSULATION LEVEL (BIL)	125 KV
CONTINUOUS CURRENT	200 AMP
FUSE TYPE	NX CURRENT-LIMITING
FUSE RATING, MAXIMUM	200E AMP
FUSE INTERRUPTING, SYMMETRICAL	9,400 AMP
KVAR	1200
PHASE	THREE
HERTZ	60 HZ.
WEIGHT	2,150 Lbs.
CATALOG NUMBER	SCBD-P3326(2009SW-GA-FPL

RECEIVED

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CONSTRUCTION, INC.

By brandon at 11:33:15 AM, 3/4/2020

F P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/26/01 APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

J-4.0.10

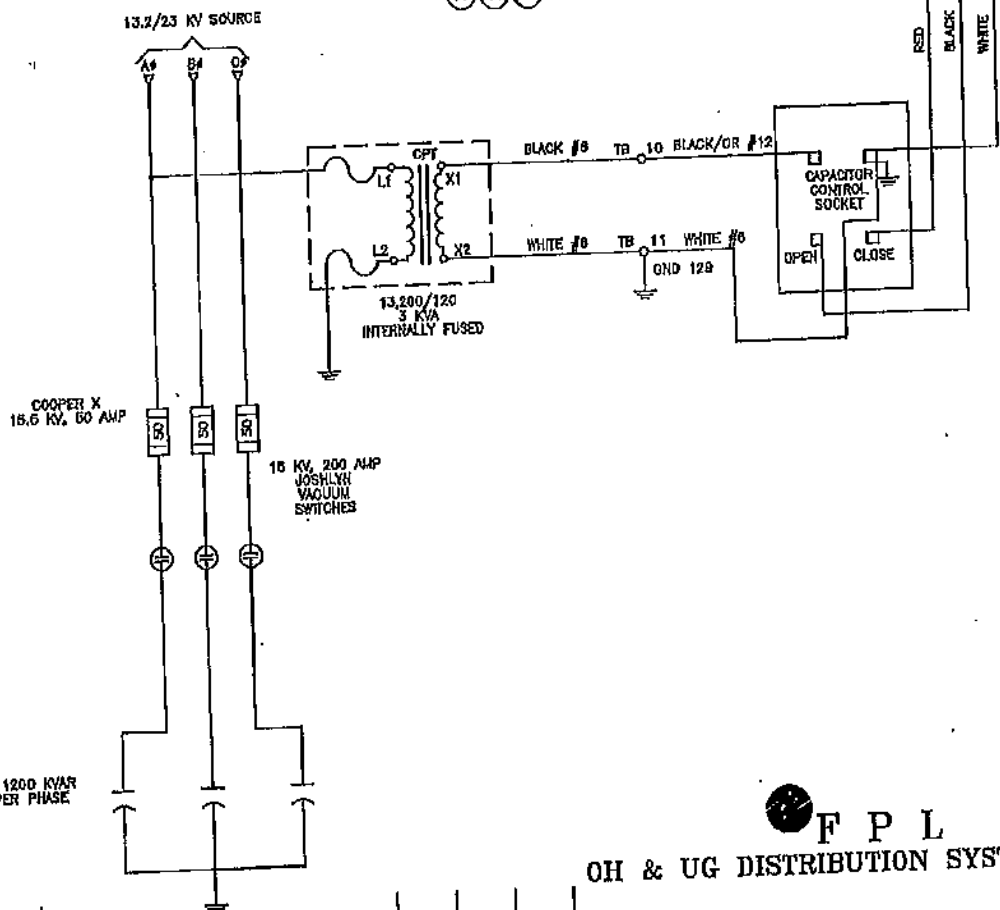
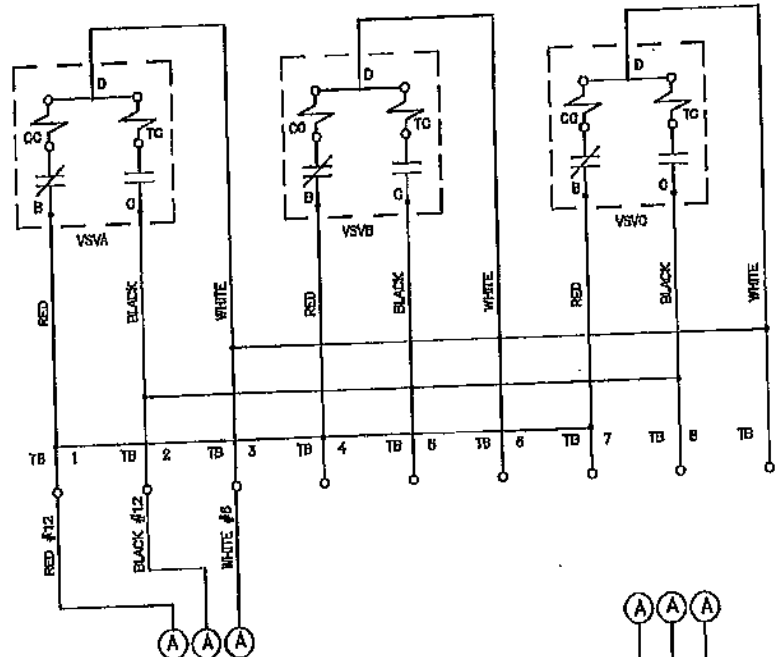
SHALLBETTER 25 KV, 1200 KVAR
PAD-MOUNTED CAPACITOR BANK

J-4.0.10

RECEIVED

BURKHARDT
CONSTRUCTION, INC.

By brandon at 11:33:20 AM, 3/4/2020

CAPACITORS, 1200 KVAR
400 KVAR PER PHASEF P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: LFV

DRAWN BY: J. SHOUP

DATE: 07/28/01

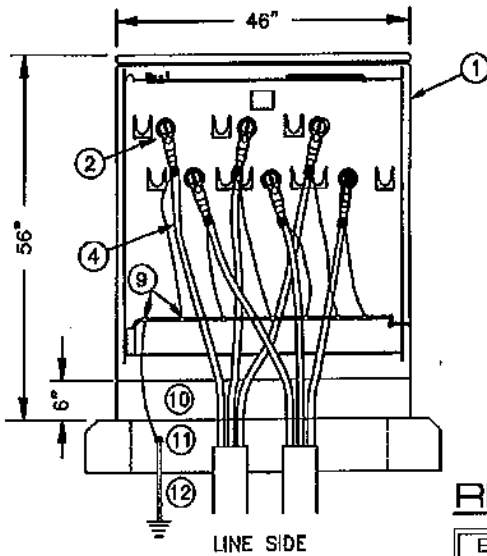
APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT

NO SCALE

C-39.0.1

**INSTALLATION OF S&C TYPE PME-4 DEAD FRONT
THREE PHASE PAD MOUNTED FUSE CABINET
FOR 13 AND 23 KV MAXIMUM FUSE 200 AMP
(NEW DESIGN-SIX BUSHINGS ON LINE SIDE)**

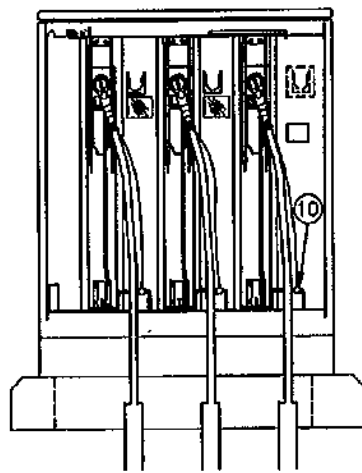
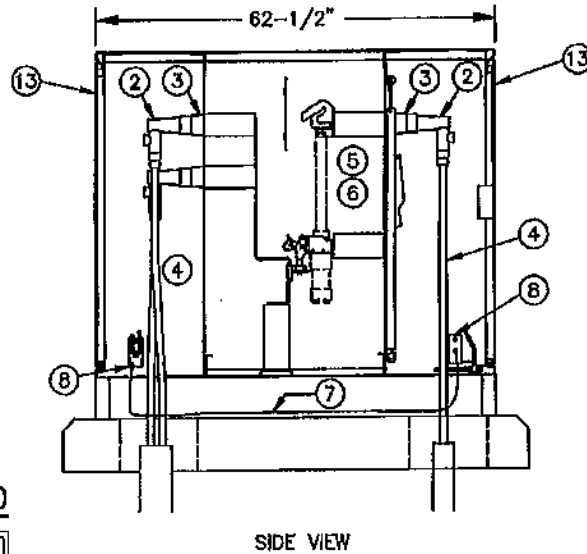
C-39.0.1



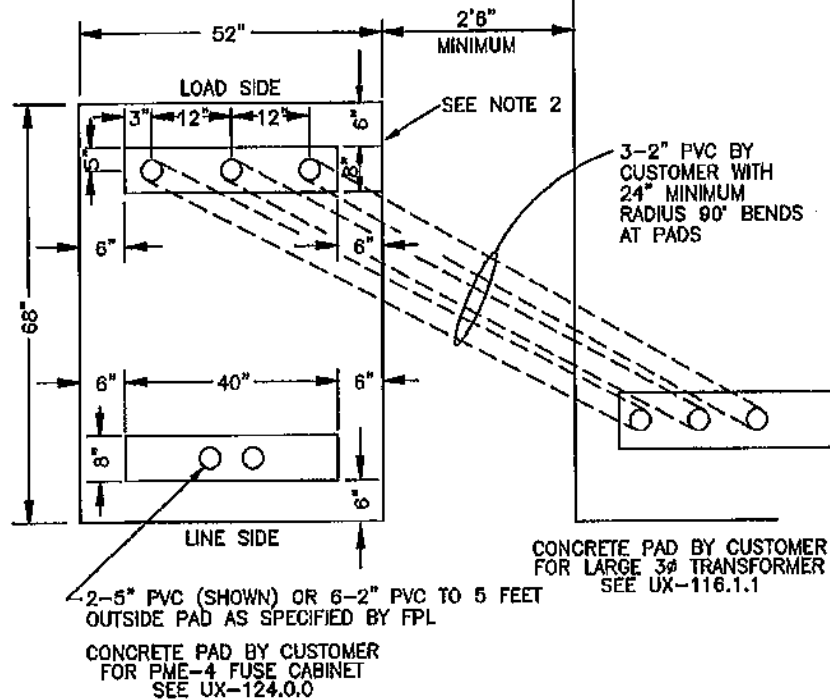
RECEIVED

BURKHARDT
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By Brandon at 11:33:25 AM, 3/4/2020

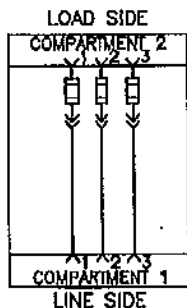


LOAD SIDE

CONCRETE PAD BY CUSTOMER
FOR LARGE 30 TRANSFORMER
SEE UX-116.1.1CONCRETE PAD BY CUSTOMER
FOR PME-4 FUSE CABINET
SEE UX-124.0.02-5" PVC (SHOWN) OR 6-2" PVC TO 5 FEET
OUTSIDE PAD AS SPECIFIED BY FPL

SEE C-39.0.2 FOR MATERIAL LIST AND NOTES

WEIGHT: 1200 LBS.



LINE SIDE

F P L
OH & UG DISTRIBUTION SYSTEM STANDARDS

2	9/8/03	UPDATE NOTES	CEA	ELS	JJM
1	1/31/03	UPDATE DRAWING TO NEW SIX BUSHING ON LINE SIDE DESIGN	CEA	JES	JJM
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

ORIGINATOR: PMG

DRAWN BY: RAS

DATE: 8/09/98

APPROVED: J.J. MCEVOY
SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

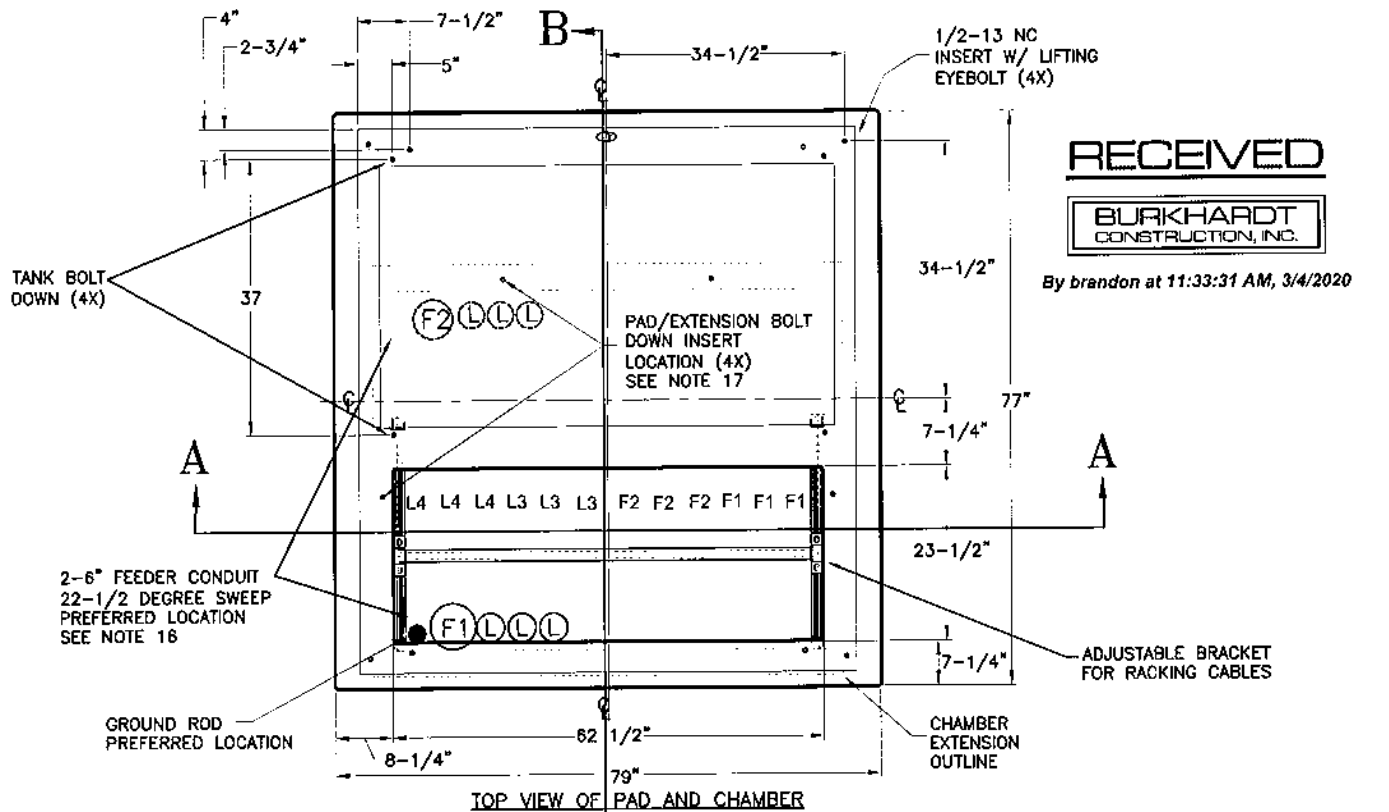
NO SCALE

C-46.0.0

TYPICAL INSTALLATION OF 25KV S&C VISTA THREE PHASE SWITCH FOR USE IN 13KV OR 23KV BELOW GRADE AND PAD MOUNTED APPLICATIONS

C-46.0.0

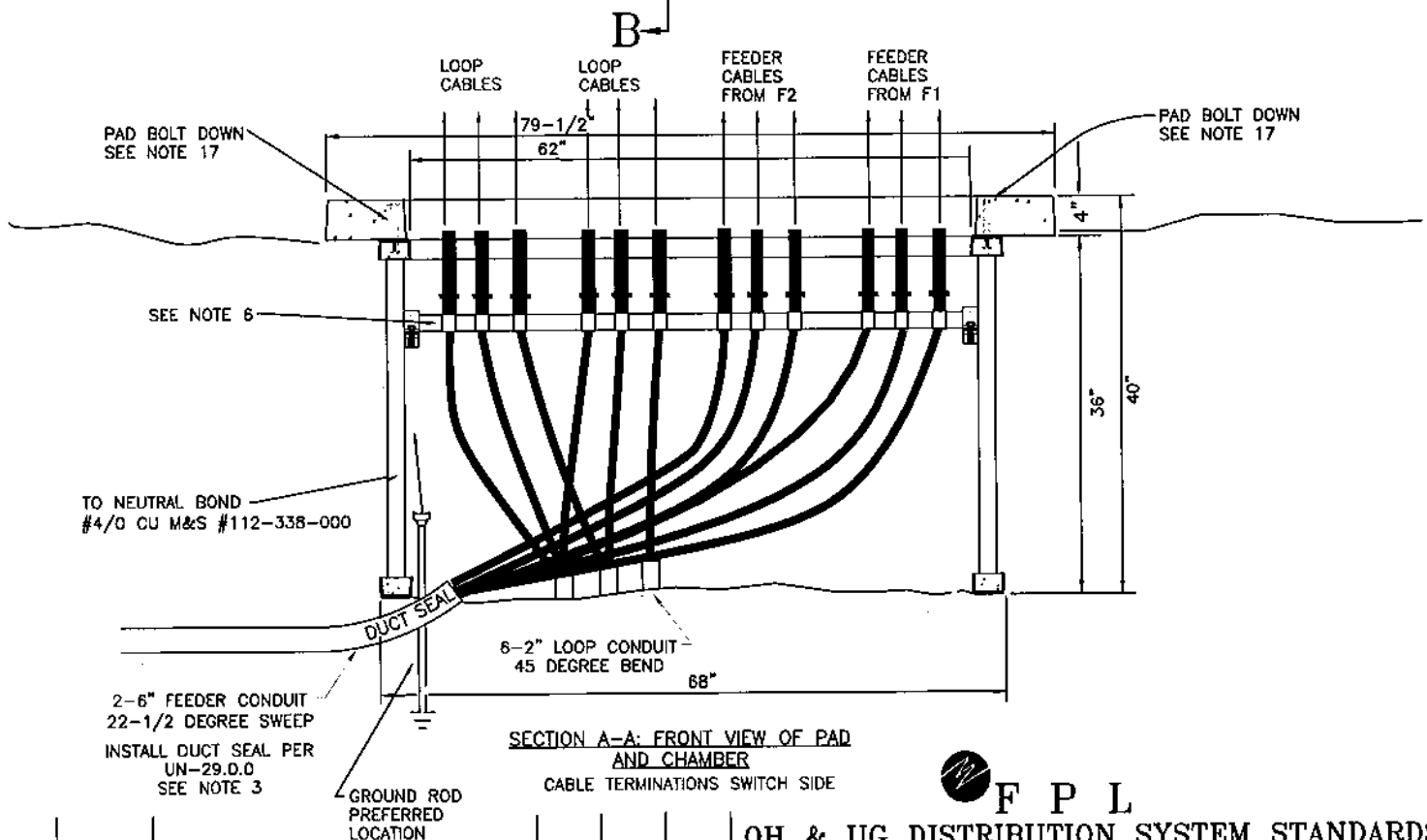
TYPICAL BUSHING POSITION ON VISTA SWITCH MODEL 422 SHOWN
F=FEEDER L=LATERAL



RECEIVED

BURKHARDT
CONSTRUCTION, INC.

By brandon at 11:33:31 AM, 3/4/2020



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: JGV

DRAWN BY: JGV

DATE: 11/14/12

APPROVED: JGV

NO SCALE

NO.	DATE	REVISION	ORIG.	DRAWN	APPR.
1	11/14/12	LOOP CABLE IDENTIFICATION	JGV	ELS	WM

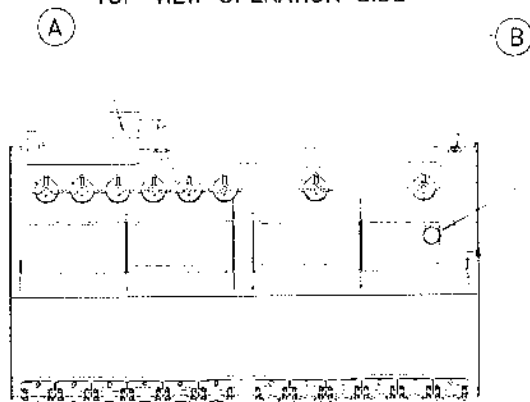
C-46.0.1

TYPICAL INSTALLATION OF 25KV S&C VISTA THREE PHASE SWITCH FOR USE IN 13KV OR 23KV BELOW GRADE AND PAD MOUNTED APPLICATIONS

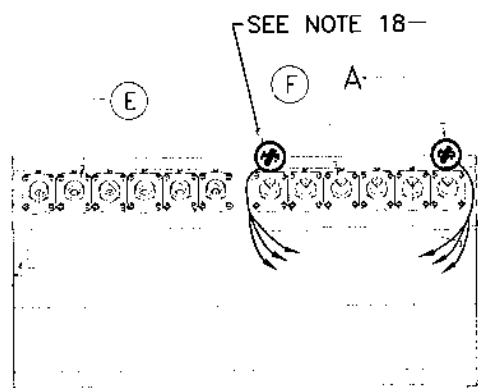
C-46.0.1

TYPICAL VISTA SWITCH MODEL 422 SHOWN

TOP VIEW OPERATION SIDE



TOP VIEW TERMINATION SIDE



FRONT VIEW TERMINATION SIDE

A-A

34-5/16

28-3/4

SECTION A-A: FEEDER SWITCH

FEATURES IN THIS ASSEMBLY

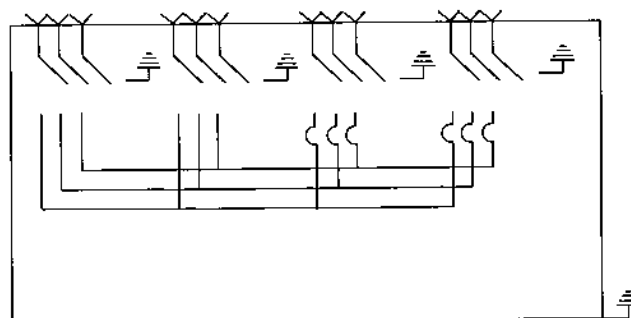
- A. OVERCURRENT CONTROL
- B. GAS FILL PORT
- C. PRESSURE GAUGE
- D. WINDOW FOR VIEWING OPEN GAP AND GROUNDED POSITION OF LOAD-INTERRUPTER SWITCH OR FAULT INTERRUPTER
- E. 200-AMPERE BUSHING-WELLS FOR FAULT-INTERRUPTER
- F. 600-AMPERE BUSHINGS FOR LOAD-INTERRUPTER SWITCH
- G. TWO-HOLE GROUND PAD
- H. 600-AMPERE THREE-POLE LOAD-INTERRUPTER SWITCH WITH GROUND POSITION
- I. OPERATING MECHANISM
- J. MANUAL OPERATING HANDLE
- K. NAMEPLATE
- L. SUBMERSIBLE SF6-INSULATED TANK
- M. 600-AMPERE ALUMINUM BUS
- N. BASE BRACKET

RECEIVED

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By brandon at 11:33:36 AM, 3/4/2020

TERMINATION SIDE



OPERATION SIDE

CONNECTION DIAGRAM

N SEE NOTE 19 & 20

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: A M J

DRAWN BY: J L P

DATE: 11/14/12

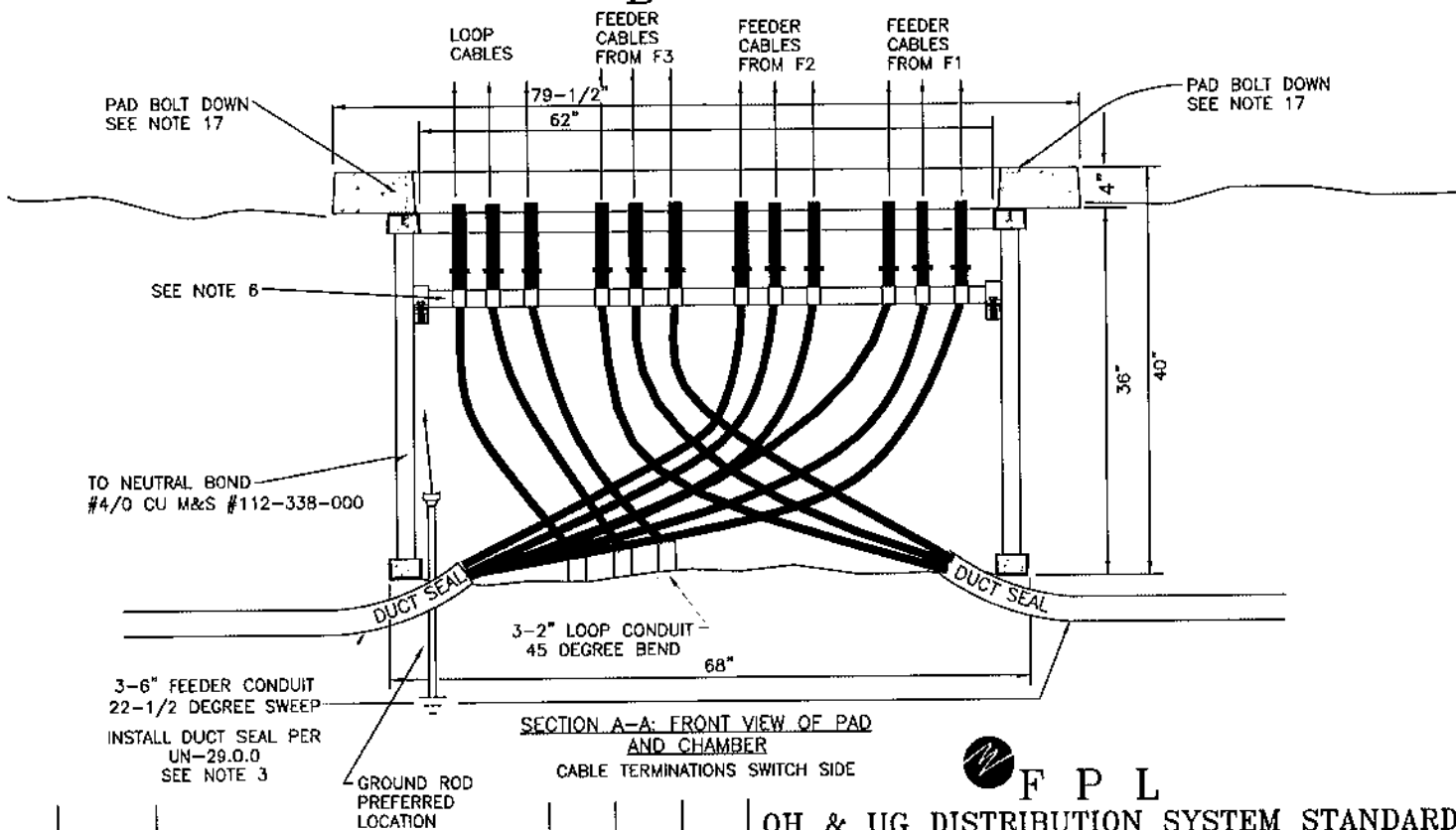
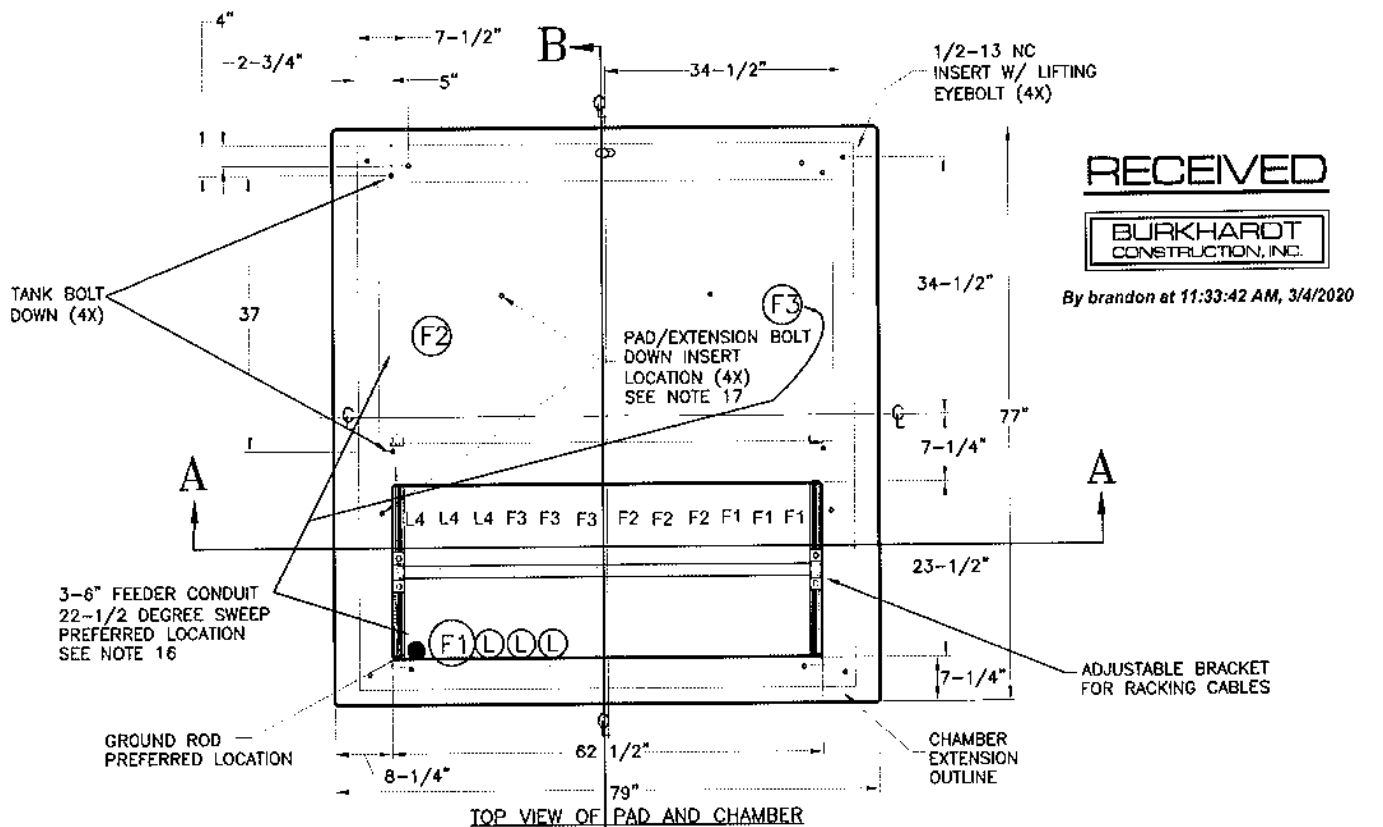
APPROVED: J L P

NO SCALE

1	11/14/12	CHANGE C-46.0.2 TO C-46.0.1	JGV	ELS	WM
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

TYPICAL INSTALLATION OF 25KV S&C VISTA THREE PHASE SWITCH FOR USE IN 13KV OR 23KV BELOW GRADE AND PAD MOUNTED APPLICATIONS

TYPICAL BUSHING POSITION ON VISTA SWITCH MODEL 431 SHOWN
F=FEEDER L=LATERAL



F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR:

DRAWN BY:

DATE:

APPROVED:

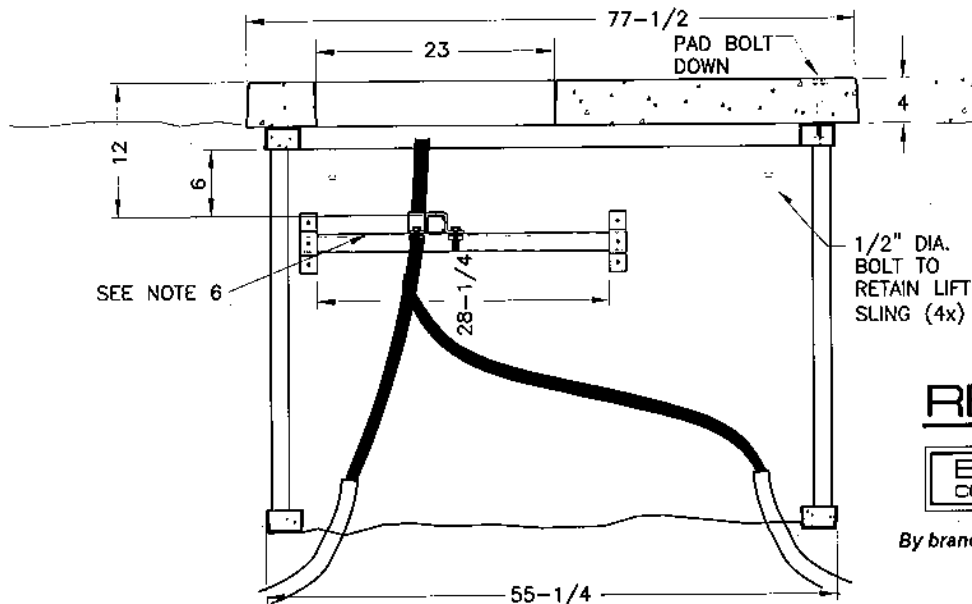
NO SCALE

1	11/14/12	NEW PAGE OF C-46	JGV	ELS	WM
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

C-46.0.3

TYPICAL INSTALLATION OF 25KV S&C VISTA THREE PHASE SWITCH FOR USE IN 13KV OR 23KV BELOW GRADE AND PAD MOUNTED APPLICATIONS

C-46.0.3

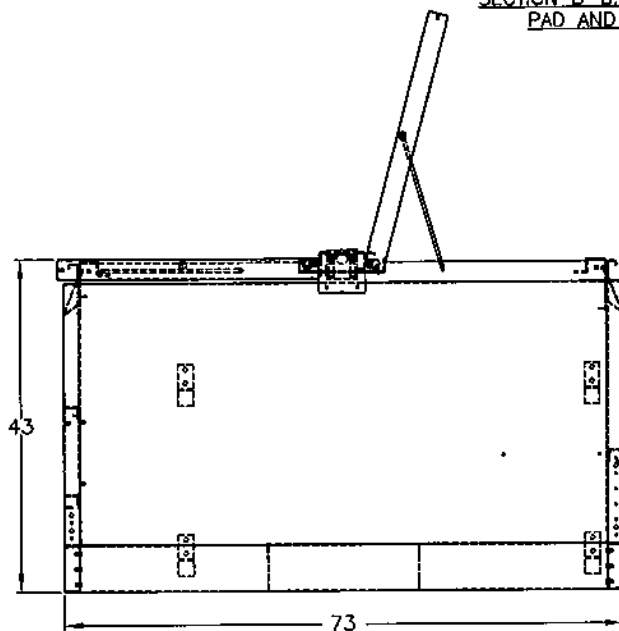


SECTION B-B: SIDE VIEW OF
PAD AND CHAMBER

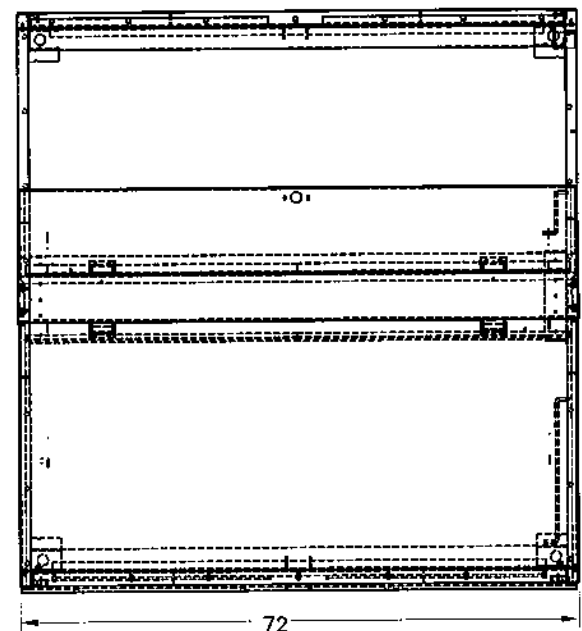
RECEIVED

**BURKHARDT
CONSTRUCTION, INC.**

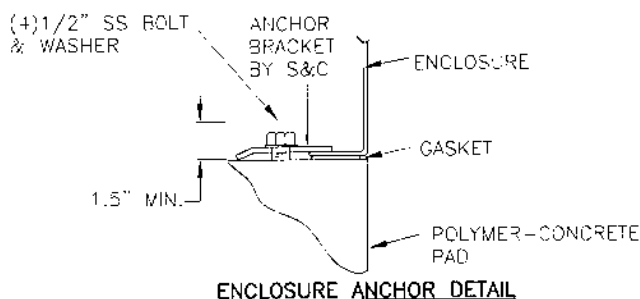
By brandon at 11:33:47 AM, 3/4/2020



SWITCH ENCLOSURE SIDE VIEW



SWITCH ENCLOSURE TOP VIEW



ENCLOSURE ANCHOR DETAIL

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: A. J. JONES

DRAWN BY: A. J. JONES

DATE: 11/14/12

APPROVED: A. J. JONES

NO SCALE

NO.	DATE	REVISION	ORIG.	DRAWN	APPR.
1	11/14/12	CHANGE C-46.0.1 TO C-46.0.3	JCV	ELS	WM

C-46.0.4

TYPICAL INSTALLATION OF 25KV S&C VISTA THREE PHASE SWITCH FOR USE IN 13KV OR 23KV BELOW GRADE AND PAD MOUNTED APPLICATIONS

C-46.0.4

MATERIAL LIST

ITEM	DESCRIPTION	QUANTITY	M&S NUMBER	WMS CU
	VISTA 422 (4 "WAYS", 2-THREE PHASE FEEDER GANG SWITCHES AND TWO-THREE PHASE, INDIVIDUALLY PROTECTED LOAD TAPS, WITH A STAINLESS STEEL ENCLOSURE		279-209-050	SW-VISTA-422-PAD
1	VISTA 431 (4 "WAYS", 3-THREE PHASE FEEDER GANG SWITCHES AND ONE-THREE PHASE, INDIVIDUALLY PROTECTED LOAD TAPS, WITH A STAINLESS STEEL ENCLOSURE	1	279-211-050	SW-VISTA-431-PAD
	VISTA 440 (4 "WAYS", 4-THREE PHASE FEEDER GANG SWITCHES AND NO PROTECTED TAPS, WITH A STAINLESS STEEL ENCLOSURE		279-210-050	SW-VISTA-440-PAD
2	PAD AND CHAMBER FOR PM DF VISTA SWITCH (77"X 79"X 40" DEEP)	1	162-690-790	PD-SW-W/CC-VISTA
3	600 AMP T-BODY ELBOWS	VARIES	163-639-101	TM-PDF-600-1K
4	200 AMP BUSHINGS (25KV)	VARIES	163-864-001	SW-PD-BSH
5	200 AMP LOADBREAK ELBOWS (25KV)	VARIES	163-502-001	TM-PDF-1/0
6	PROTECTIVE CAP (15KV ONLY)	VARIES	163-022-000	TM-PDF-GC
7	ELBOW SURGE ARRESTERS (25KV ONLY)	VARIES	334-015-005	TM-PDF-LA
8	GROUND ROD CONNECTOR, CLAMP TYPE	1	120-036-106	DG-CLP-5/8
9	GROUND RODS, AS NEEDED	VARIES	130-614-005	DG-PKG-5/8
10	GROUND ROD COUPLINGS	VARIES	130-405-104	DG-C-5/8
11	#4 COPPER WIRE, SOB	6	112-309-000	
12	#4/0 CU CABLE, 600V	27	110-101-169	SW-PMD-GC
13	#4/0 CABLE CONNECTORS	6	120-871-005	(Qty - 1)
14	COPPER TO COPPER BOLTED CONNECTORS	22	102-800-002	
15	STANDARD LOCKS	2	546-246-011	SW-PMD-LOCK
16	CABLE MOUNTING BRACKET, STAINLESS		160-310-000	
17	BOLTS, SS, 1/2"X 1-1/2" FOR CABLE BRACKET	12	140-515-557	SW-VISTA-MT-HDW
18	SPRING, NUTS, SS, FOR 1/2" BOLT FOR CABLE BRACKET		161-463-000	
19	LOCK WASHER, 1/2", FOR CABLE BRACKET		145-294-010	
20	800 AMP FAULT INDICATOR	VARIES	163-297-009	P-CL-FCI-800
		6	163-250-002	SW-VISTA-422-PAD
21	ROTATABLE FEEDTHRU DEVICE, 200AMP, 25KV	3	163-250-002	SW-VISTA-431-PAD

NOTES:

1. THE INTERRUPTERS MUST BE PRE-SET BY THE ERC PRIOR TO BEING ISSUED TO THE JOB. CALL 863-4921 OR 863-4900 TO MAKE ARRANGEMENTS.
2. THE PAD MOUNTED VISTA SWITCH MAY BE INSTALLED IN AREAS SUBJECT TO FLOODING.
3. SEAL THE INCOMING DUCTS PER UN-29.0.0.
4. THE SWITCH AND ITS ENCLOSURE MUST BE BOLTED TO THE PAD.
5. REFER TO DCS UH-41.0.1 FOR PROPER INSTALLATION OF 600 AMP T-BODY ELBOWS.
6. BOTH THE FEEDER CABLES AND LOOP SIDE CABLES ARE TO BE RACKED THROUGH THE CABLE SUPPORT BRACKETS INSTALLED ON THE UNISTRUT IN THE CABLE CHAMBER.
7. CABLES MUST NOT BE IN CONTACT WITH THE CABLE CHAMBER OR PAD TOP.
8. ALLOW SUFFICIENT LENGTH OF CONCENTRIC NEUTRAL TO REACH GROUNDING BARS AND PERMIT THE FREE MOVEMENT OF THE ELBOWS.
9. MAKE CERTAIN OF CABLES LOCATIONS BEFORE DRIVING GROUND RODS.
10. APPLY CAULKING COMPOUND TO THE SEAM BETWEEN THE ENCLOSURE AND THE PAD TOP.
11. DUST CAPS USED FOR COVERING BUSHINGS AND BUSHING WELLS DURING SHIPMENT MUST BE REMOVED PRIOR TO ENERGIZING THE SWITCH.
12. UNUSED LOAD TAPS MUST HAVE BUSHINGS AND PROTECTIVE CAPS INSTALLED.
13. UNUSED FEEDER POSITIONS MUST HAVE 600 AMP PROTECTIVE CAPS INSTALLED (M&S #163-645-007).
14. AFTER THE SWITCH ENCLOSURE HAS BEEN INSTALLED, THE LIFTING BRACKETS MUST BE REMOVED AND STORED INSIDE THE ENCLOSURE FOR FUTURE USE.
15. ENSURE THAT THE WARNING LABEL (M&S #548-560-104) IS INSTALLED ON BOTH THE CABLE COMPARTMENT AND THE OPERATOR SIDES OF THE ENCLOSURE.
16. INSTALL FEEDER CONDUITS AS SHOWN IN C-46.0.0 AND C-46.0.2 ON LEFT AND/OR REAR SIDE OF CABLE CHAMBER TO ALLOW FOR BENDING RADIUS OF CABLE.
17. BOLTS FOR SECURING PAD TO CHAMBER ARE INCLUDED FROM VENDOR. THERE ARE 4 BOLTING LOCATIONS AS SHOWN ON DRAWINGS.
18. INSTALL 800 AMP 3# FAULT INDICATORS ON EACH SET OF FEEDER CABLES. SEE UV-14.0.0, UV-14.0.1, & UV-14.0.2.
19. FOR PAD MOUNTED APPLICATIONS, THE BASE BRACKETS ("FEET"). "N" AS SHOWN IN C-46.0.1 ARE REQUIRED.
20. THE BASE BRACKETS ARE NOT REQUIRED FOR BELOW GRADE ("UNDER-COVER") APPLICATIONS, BUT SHOULD BE KEPT WITH THE SWITCH IN THE POSSIBLE EVENT OF FUTURE RE-USE IN A PAD MOUNTED APPLICATION.
21. INSTALL ROTATABLE FEED-THRU DEVICE ON THE LOAD SIDE OF THE VISTA SWITCH (M&S #163-250-002)

RECEIVED

BURKHARDT
CONSTRUCTION, INC.

Received 11/22/2011 11:22 AM 11/22/2011

4	4/4/19	UPDATE LINE 3	AXR	ELS	RDH
3	2/18/19	UPDATE TABLE	AXR	ELS	RDH
2	11/14/12	UPDATE NOTES 16 AND 19 ADD NOTE 21 AND ITEM 21	JGV	ELS	WM
1	9/2/10	UPDATE ITEM 16	GAP	ELS	BMX
NO.	DATE	REVISION	ORIG.	DRAWN	APPR.

F P L

OH & UG DISTRIBUTION SYSTEM STANDARDS

ORIGINATOR: A. J. J. J.

DRAWN BY: J. J. J. J.

DATE: 11/22/2011

APPROVED: J. J. J. J.

NO SCALE

UX-232.0.0

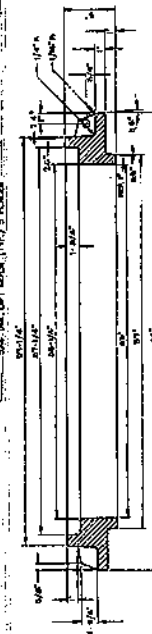
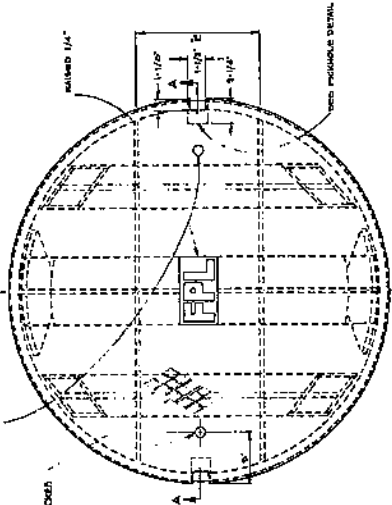
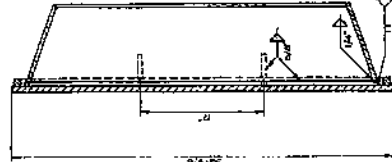
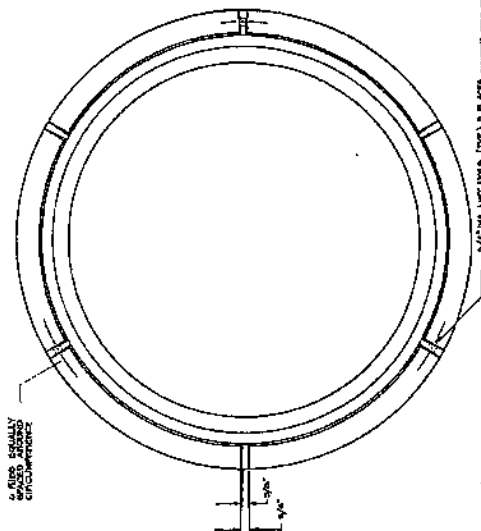
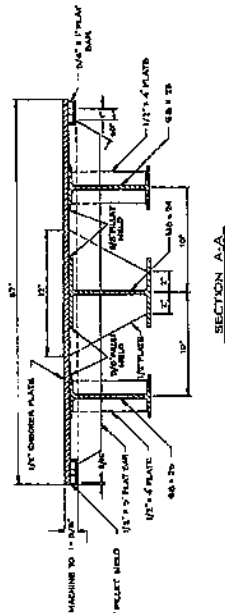
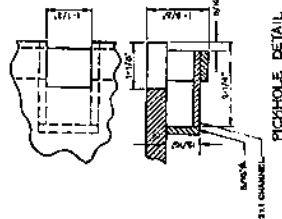
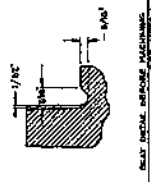
AIRCRAFT MANHOLE FRAME AND COVER

UX-232.0.0

M&S #161-041-007

RECEIVED
EXHIBIT
11/12/16

ON INQUIRY AT 11:30 AM, 11/12/16



- NOTES:
1. BEARING SURFACES OF COVER AND OF FRAME WHERE IT CONTACTS MUST BE GRIND TRUE TO PREVENT RATTING OF COVER.
 2. 3" HIGH FPL LETTERS IN CENTER TO BE BEAD WELDED ON GROUND FLUSH CHECKER PLATE.
 3. PICKHOLE SHALL BE 1-8/16" DEEP.
 4. WELDS SHALL BE CONTINUOUS ALL AROUND EXCEPT AS NOTED.
 5. SPECIFICATIONS FOR FRAME CASTING: CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, HATCH SPOTS, SHRINKAGE DISTORTION, CRACKS, OR OTHER DEFECTS WHICH COULD BE DETECTED BY VISUAL INSPECTION. ALL SURFACES SHALL BE CLEANED BY SHOT BLASTING AND COATED WITH A COAT OF ZINC RICH PAINT. THE SURFACE SHALL BE SMOOTH, TOUGH AND TENACIOUS WHEN A COAT OF PAINT IS APPLIED. THE SURFACE SHALL NOT CRACK WHEN HOT.
 6. THE MATERIAL USED IN THE MANUFACTURE OF THESE CASTINGS SHALL BE ASTM CLASS 30 GRAY IRON, MINIMUM TENSILE STRENGTH 30,000 LBS. PER SQUARE INCH, AND SHALL CONFORM WITH ASTM SPECIFICATION A-48-64.
 7. ALL CASTINGS SHALL BE MANUFACTURED TRUE TO PATTERN. COVERS & FRAMES SHALL FIT TOGETHER IN A SATISFACTORY MANNER. ALL BEARING SURFACES SHALL BE MACHINED TO PREVENT RATTING & ROLLING UNDER TRAFFIC.
 8. APPROX. TOTAL WEIGHT 750 LBS.
 9. REFER TO UX DRAWING UX-235.0.0, FOR SPECIAL (AIRCRAFT) 2-WAY 7-8" MANHOLE, M&S #162-027-002.
 10. MANHOLE AND COVER RATED AT 280,000 LBS.

NO.	DATE	REVISION	APP.	DR.	ELS.	ROH.
2	1/12/16	UPDATED NOTES	ARR	ELS	ROH	
1	8/13/14	ADDED NOTES	ARR	ELS	ROH	
			ORG.	DR.	APP.	

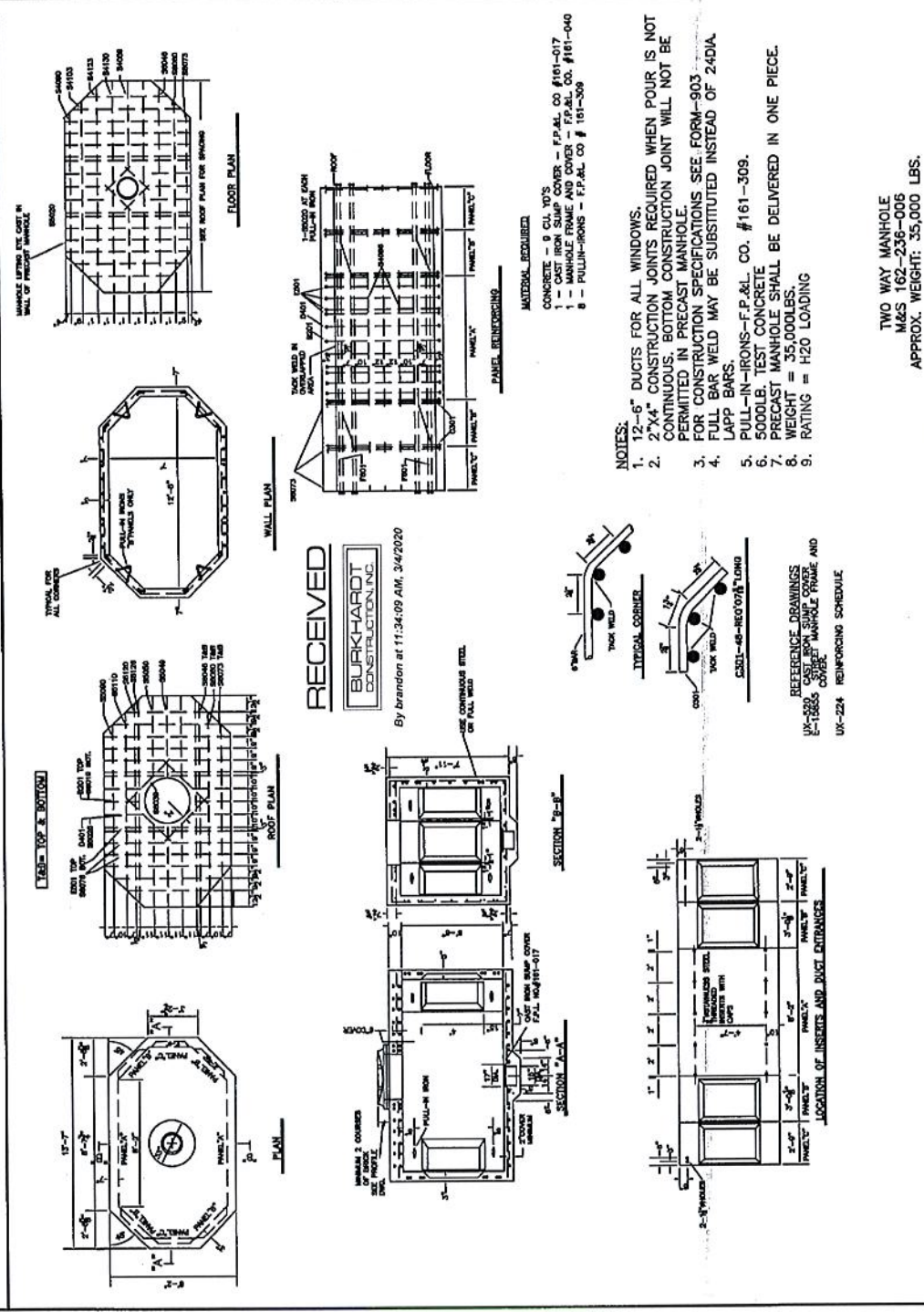
FLORIDA POWER & LIGHT COMPANY
APPROVER: J.J. McEVOT
DATE: 7/15/88
SUPERVISOR: CH/UG PRODUCT
SUPPORT SERVICES
DRAWING: EJ
NO SCALE

UX-223.0.0

MANHOLE, 2 WAY, 8'2" PANEL

M&S #162-236-006

UX-223.0.0



NOTES:

1. 12-6" DUCTS FOR ALL WINDOWS.
2. 2"x4" CONSTRUCTION JOINTS REQUIRED WHEN POUR IS NOT CONTINUOUS. BOTTOM CONSTRUCTION JOINT WILL NOT BE PERMITTED IN PRECAST MANHOLE.
3. FOR CONSTRUCTION SPECIFICATIONS SEE FORM-903
4. FULL BAR WELD MAY BE SUBSTITUTED INSTEAD OF 24D/A LAPP BARS.
5. PULL-IN-IRONS-F.P.A.L. CO. #161-309.
6. 5000LB TEST CONCRETE
7. PRECAST MANHOLE SHALL BE DELIVERED IN ONE PIECE.
8. WEIGHT = 35,000LBS
9. RATING = H20 LOADING

MATERIAL REQUIRED

CONCRETE - 8 CU YDS
FORMWORK - 1000 SQ FT
1 - MANHOLE FRAME AND COVER - F.P.A.L. CO. #161-040
8 - PULL-IN-IRONS - F.P.A.L. CO. #161-309

REFERENCE DRAWINGS

UX-223.0.0 PRECAST MANHOLE FRAME AND COVER
UX-224.0.0 REINFORCING SCHEDULE

FLORIDA POWER & LIGHT COMPANY

TWO WAY MANHOLE
M&S 162-236-006
APPROX. WEIGHT: 35,000 LBS.

NO SCALE APPROVED

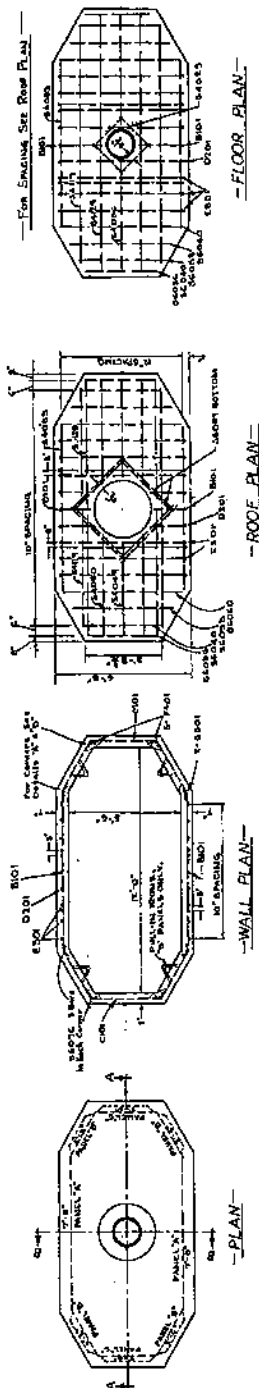
ORIG. DATE: _____

DRAWN: J.R. GARCIA

DIRECTOR, DISTRIBUTION ENGINEERING AND OPERATIONS SERVICES

UX-219.0.0

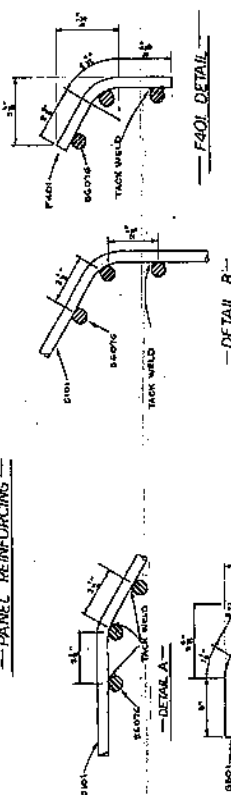
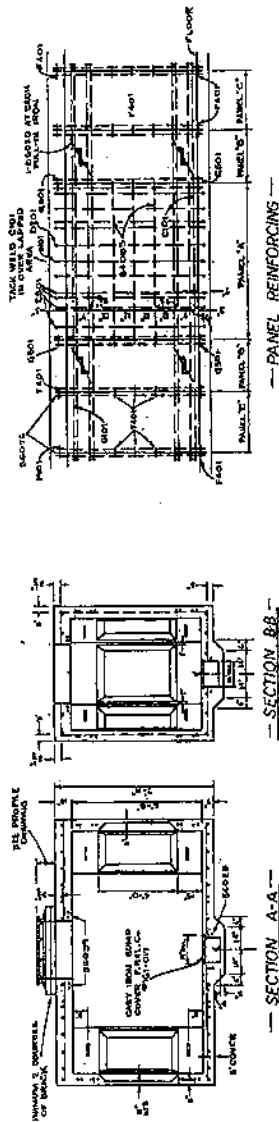
MANHOLE, 2 WAY 7'-8" PANEL
M&S #162-235-000



RECEIVED

**BLUMHARDT
CONSTRUCTION, INC.**

By Brandon at 11:34:19 AM, 3/4/2020



NOTES:
1. APPROXIMATE TOTAL WEIGHT - 32,200 LBS.
2. RATING = H2O LOADING

---LOCATION OF INSERTS AND DUCT ENTRANCES---

REFERENCE DRAWING
 17-020 QANT FROM JUMP COVER
 18-10038 SYMBET MANTHOLE TREASURE & COVER
 19-250 SHAWMONTING / CONTAINING

4	8/4/18	ADD NOTE	ARR	ELS	RDH
3	8/21/15	ADD NOTE	ARR	ELS	RDH
2	3/4/15	UPDATE TITLE	ARR	ELS	RDH
1	7/1/83	ADD MASS NO. & WEIGHT			
NO.	DATE	REVISION	ORIG.	DR.	APP.

FLORIDA POWER & LIGHT COMPANY

NO SCALE

DRAWING: K23

DATE: 3/25/70

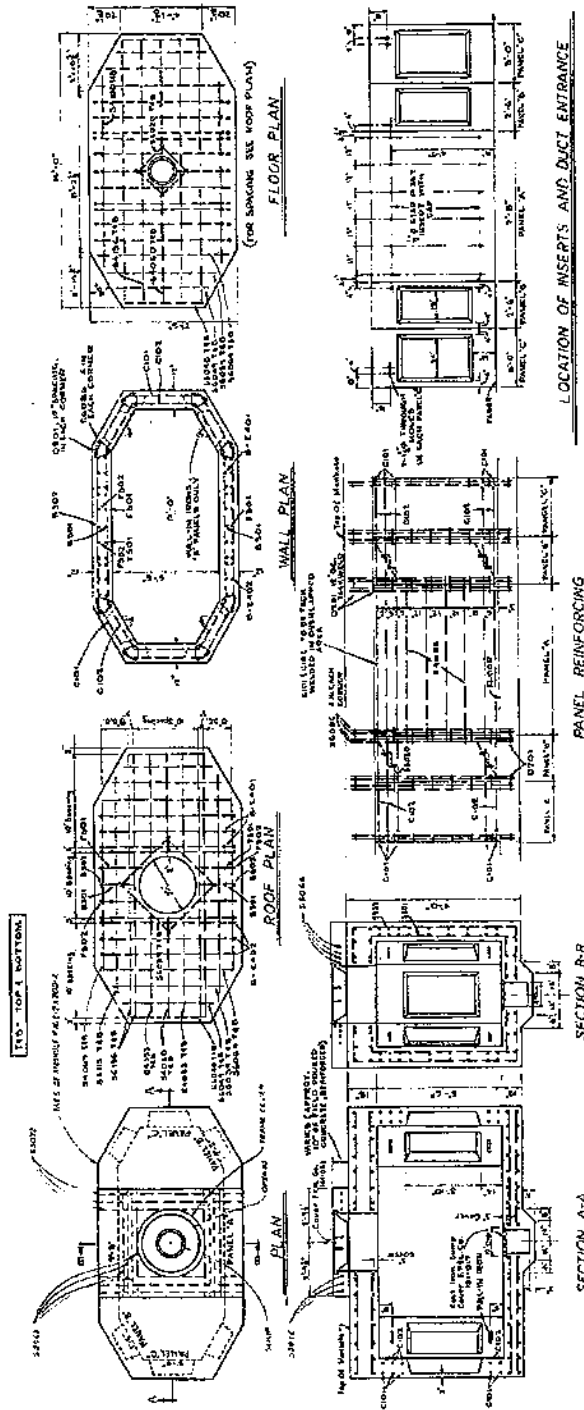
APPROVED: J.J. McEVROY
SUPERVISOR, OH/UG PRODUCT
SUPPORT SERVICES

UX-225.0.0

SPECIAL PRECAST - TWO WAY 7'-8" MANHOLE M&S #162-237-002

UX-225.0.0

APPROXIMATE TOTAL WEIGHT - 66,200 LBS.

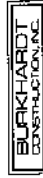


LOCATION OF INSERTS AND DUCT ENTRANCE

PANEL REINFORCING

- NOTES:
1. AIRCRAFT MANHOLE FRAME & COVER M&S #161-041-007, REFER TO UX DRAWING UX-232.0.0.
 2. MANHOLE AND COVER RATED AT 300,000 LBS.
 3. CAST IRON SUMP COVER, REFER TO UX-520.0.0
 4. REINFORCING SCHEDULE, REFER TO UX-226.0.0

RECEIVED



By Brandon at 11:34:25 AM, 3/4/2020

NO.	DATE	REVISION	ORG.	DR.	APP.
3	8/13/14	ADDED M&S NUMBER & WEIGHT	HR	ELS	RDH
2	7/1/83	ADDED M&S NUMBER & WEIGHT			
1	6/2/82	ADD REBAR S2072 & COVER MODIFICATION			

NO SCALE

APPROVED: J.J. MEEVOY
SUPERVISOR OF THE PRODUCT
SUPPORT SERVICES

DATE: 1-29-70

DRAWN: MGB

D201 -S - 72 Rtop - 2.1 Long