

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2005-0201	COOK	16	1

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

D-91-419-01

INDEX OF SHEETS

SHEET	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES & SUMMARY OF QUANTITIES
3-7	DYNAMIC MESSAGE SIGN DETAILS
8-16	COMM. CENTER UNINTERRUPTIBLE POWER SUPPLY

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

F.A.I. ROUTE 94/90 (DAN RYAN EXPRESSWAY)(NB)

SECTION 2005-0201

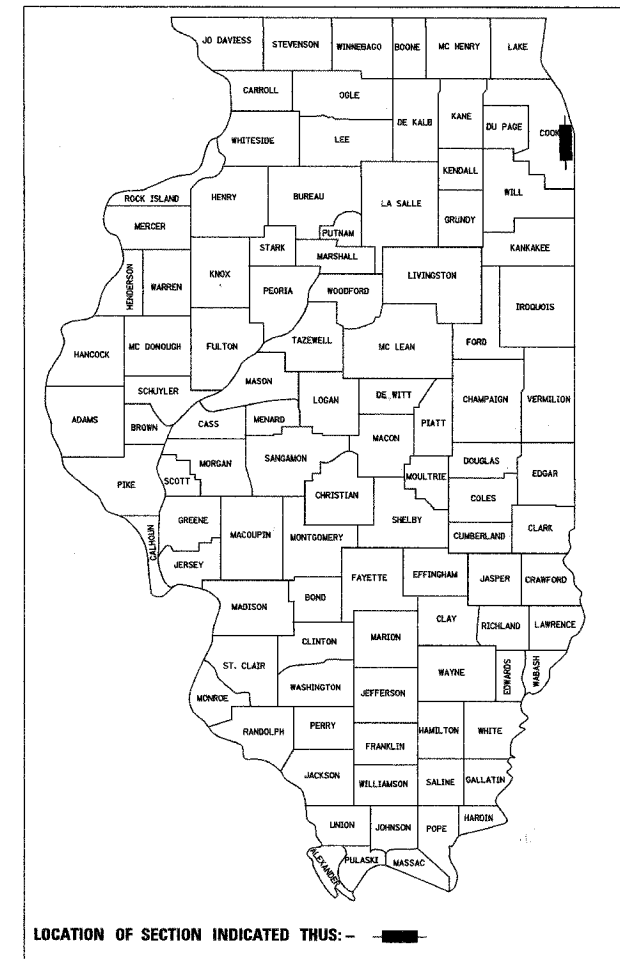
PROJECT: IM-094-3(399)055

31ST STREET TO I-57 INTERCHANGE

DYNAMIC MESSAGE SIGN PROCUREMENT

COOK COUNTY

C-91-192-05

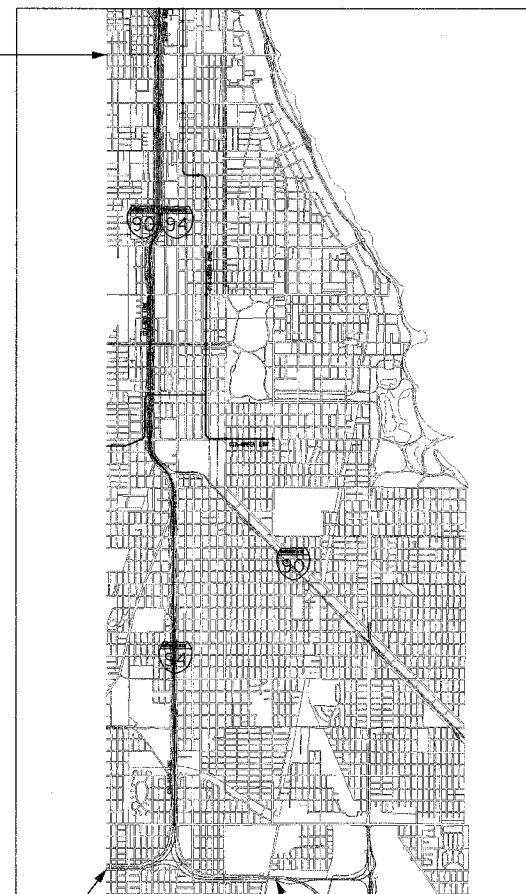


PROJECT LOCATED IN CITY OF CHICAGO

DESIGN DESIGNATION

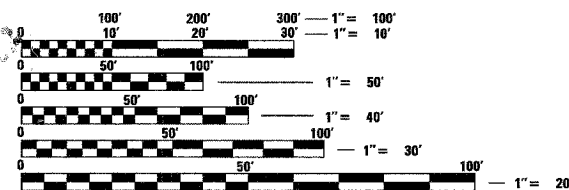
	ADT (2010)	DESIGN SPEED	POSTED SPEED
SOUTH OF 67TH STREET			
I-94 (DAN RYAN)	266,800	60 MPH	55 MPH
I-94 (BISHOP FORD)	123,400	60 MPH	55 MPH
I-57	107,600	60 MPH	55 MPH
RAMPS	(VARIES)	40 MPH	35 MPH
NORTH OF 67TH STREET			
I-904-94 NB LOCAL LANES	53,270	60 MPH	45 MPH
I-904-94 SB LOCAL LANES	47,185	60 MPH	45 MPH
RAMPS	(VARIES)	40 MPH	30 MPH

PROJECT LIMIT
31ST ST. STA. 1635+00 (SB I-94)



LOCATION MAP

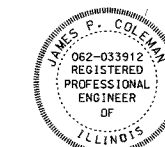
SCALE 0.84" = 1 MILE
GROSS LENGTH OF PROJECT = 52,800 FEET (10 MILES)
NET LENGTH OF PROJECT = 52,800 FT (10 MILES)



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

DIGGER:
CHICAGO UTILITY ALERT NETWORK
(312) 744-7000

CONTRACT NO. 62947



James P. Coleman
JAMES P. COLEMAN
3-7
SHEET NOS.

11/30/05
EXPIRES
07/06/05
DATE



Cecil D. Stovall
CECIL D. STOVALL
8-16
SHEET NOS.

11/30/05
EXPIRES
07/06/05
DATE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED July 20, 20 05

Diane O'Keefe / AP
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

August 19, 20 05

Mike Hine / RD
ENGINEER OF DESIGN AND ENVIRONMENT

August 19, 20 05

Victor Medeiros / RD
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS



DISTRICT ONE DESIGN/CONSULTANT SERVICES PROJECT MANAGER
RAJENDRA SHAH (847) 705-4437

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	2
STA. TO STA.		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT	
		62947	

GENERAL NOTES

1. THE DEPARTMENT CONTACT PERSONS FOR THIS CONTRACT ARE MARTIN ANDERSON, BUREAU CHIEF OF ELECTRICAL OPERATIONS, 847-705-4351 AND JEFF GALAS, TRAFFIC SYSTEMS CENTER MANAGER, 708-524-2145. THE CONTRACTOR MUST COORDINATE AND COOPERATE WITH THE DEPARTMENT AND THE INVOLVED PARTIES AS DIRECTED BY THE DEPARTMENT.

2. CRITICAL PATCH WORK SCHEDULE REQUIREMENT

THE CONTRACTOR WILL SUBMIT TO THE ENGINEER A SATISFACTORY PROGRESS SCHEDULE AND CRITICAL PATH SCHEDULE WHICH SHOW THE PROPOSED SEQUENCE OF WORK AT THE TIME OF PRE-CONSTRUCTION CONFERENCE.

3. THE ENGINEERING DESIGN IN THESE PLANS IS BASED UPON FIELD INVESTIGATIONS OF CURRENT CONDITIONS, REVIEW OF EXISTING AS-BUILT DOCUMENTATION, AND INFORMATION OBTAINED FROM PRELIMINARY DESIGN DOCUMENTS FOR THE RECONSTRUCTION PROJECT. DUE TO THE CHANGING NATURE OF THESE ITEMS, THE ACTUAL CONDITIONS MAY BE DIFFERENT THAN THOSE DEPICTED. THE CONTRACTOR SHALL VERIFY THE EXISTING FIELD CONDITIONS PRIOR TO ANY CONSTRUCTION ACTIVITIES AND CORRELATE THESE CONDITIONS WITH THE PROPOSED CONSTRUCTION ACTIVITIES OF THIS AND OTHER CONTRACTS. THE CONTRACTOR SHALL IDENTIFY TO THE ENGINEER ANY SIGNIFICANT DIFFERENCES BETWEEN THESE PLANS AND THE EXISTING FIELD CONDITIONS OR PROPOSED CONSTRUCTION THAT COULD IMPACT HIS EFFORTS PRIOR TO BEGINNING WORK. CORRECTIVE ACTIONS FOR PROBLEMS ENCOUNTERED AFTER THE CONTRACTOR HAS BEGUN WORK WILL BE INCLUDED IN THE TASK UNLESS PREVIOUSLY IDENTIFIED TO THE ENGINEER.

4. THE CONTRACTOR SHALL BE REQUIRED TO PAY, ON BEHALF OF IDOT, ANY UTILITY FEES FOR ELECTRICAL OR TELEPHONE SERVICE INCLUDING SET-UP DELIVERY COSTS NECESSARY TO EXTEND THE UTILITY POWER OR TELEPHONE TO THE SURVEILLANCE/COMMUNICATIONS EQUIPMENT LOCATIONS IN ACCORDANCE WITH ARTICLE 109.05 OF THE STANDARD SPECIFICATIONS.

5. ALL ELECTRICAL WORK SHALL CONFORM TO THE NATIONAL ELECTRIC CODE (NEC).

6. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, CONSTRUCTION METHODOLOGIES, PRODUCT MANUFACTURER SPECIFICATIONS, OWNERS MANUALS, AND USERS MANUALS BEFORE PROCURING AND INSTALLING ANY SURVEILLANCE/COMMUNICATIONS EQUIPMENT AS PART OF THIS CONTRACT. ALL PROPOSED SURVEILLANCE/COMMUNICATIONS WORK SHALL BE REVIEWED AND APPROVED BY THE DEPARTMENT IN CONSULTATION WITH THE DESIGN ENGINEER.

7. THE CONTRACTOR SHALL COORDINATE WITH THE DEPARTMENT ALL WORK TO BE CONDUCTED AT THE COMMUNICATIONS CENTER (201 WEST CENTER COURT, SCHAUMBURG). THE CONTRACTOR SHALL CONTACT THE DEPARTMENT 72 HOURS BEFORE COMMENCING ANY WORK AT THIS LOCATION.

URBAN
96% FED
10% STATE

SUMMARY OF QUANTITIES				
				QUANTITIES
				SURVEILLANCE
CODE NO.	ITEM DESCRIPTION	UNIT	QUANTITY	Y032-IF
X0324831	UNINTERRUPTIBLE POWER SUPPLY UPGRADE	LSUM	1	1
X0325097	CABINET, MODEL 334, DYNAMIC MESSAGE SIGN, MATERIAL ONLY	EACH	2	2
X0325098	CABINET, MODEL 334, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY	EACH	13	13
X0325099	CABINET, MODEL 334 EQUIPMENT, DYNAMIC MESSAGE SIGN, MATERIAL ONLY	EACH	2	2
X0325100	CABINET, MODEL 334 EQUIPMENT, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY	EACH	13	13
X0325101	LED DYNAMIC MESSAGE SIGN FULL MATRIX CONFIGURATION, MATERIAL ONLY	EACH	13	13

GN-01



ONE NORTH FRANKLIN
CHICAGO, IL 60606
PHONE: (312) 251-3000
FAX: (312) 251-3015
WEB: WWW.EKCORP.COM

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 94/90 (DAN RYAN EXPRESSWAY)
31st STREET to I-57

GENERAL NOTES & SUMMARY OF QUANTITIES

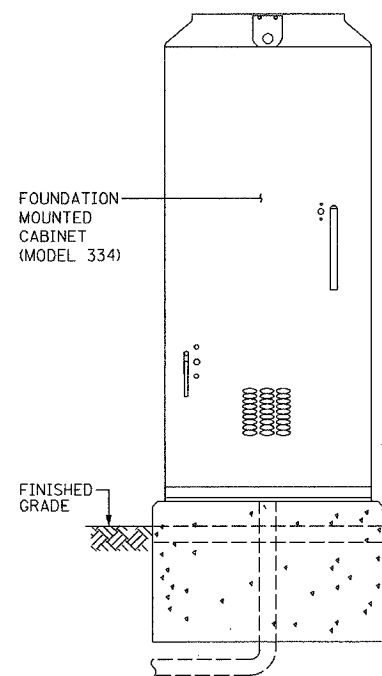
SCALE: NOT TO SCALE DRAWN BY: MJL
DATE: September 23, 2005 CHECKED BY: GFR

PA-10468-E (REV) 11/15/05 CONTRACT 2005020201Z-SHT

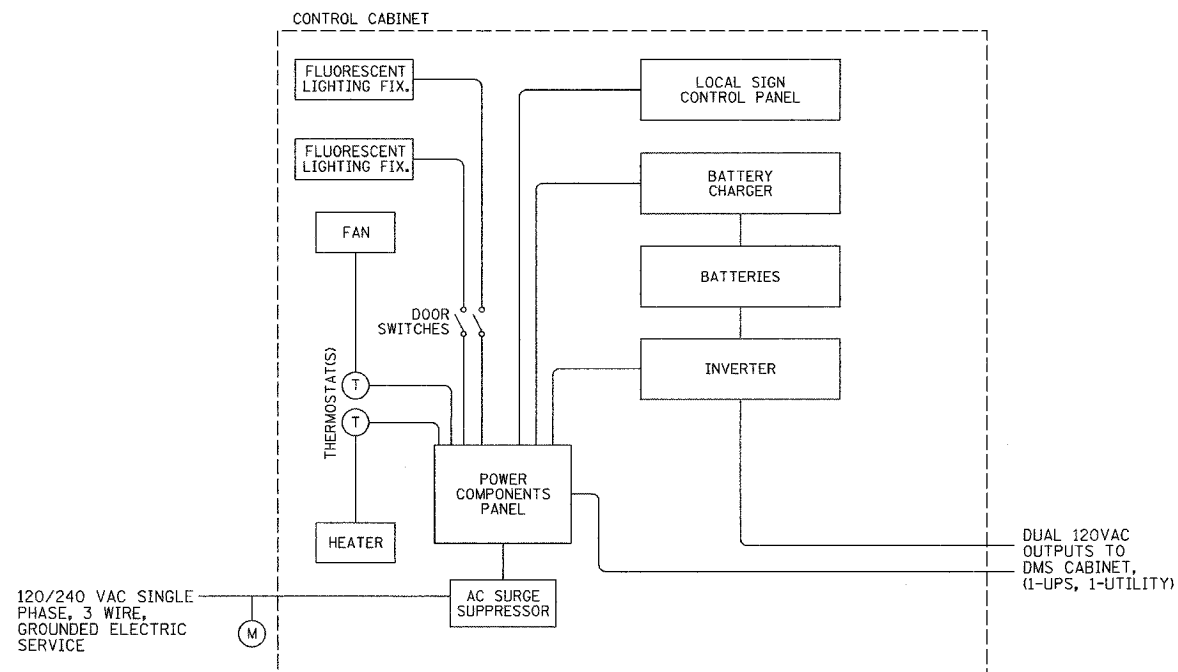
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2005-0201	COOK	16	3
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		
62947				

NOTES:

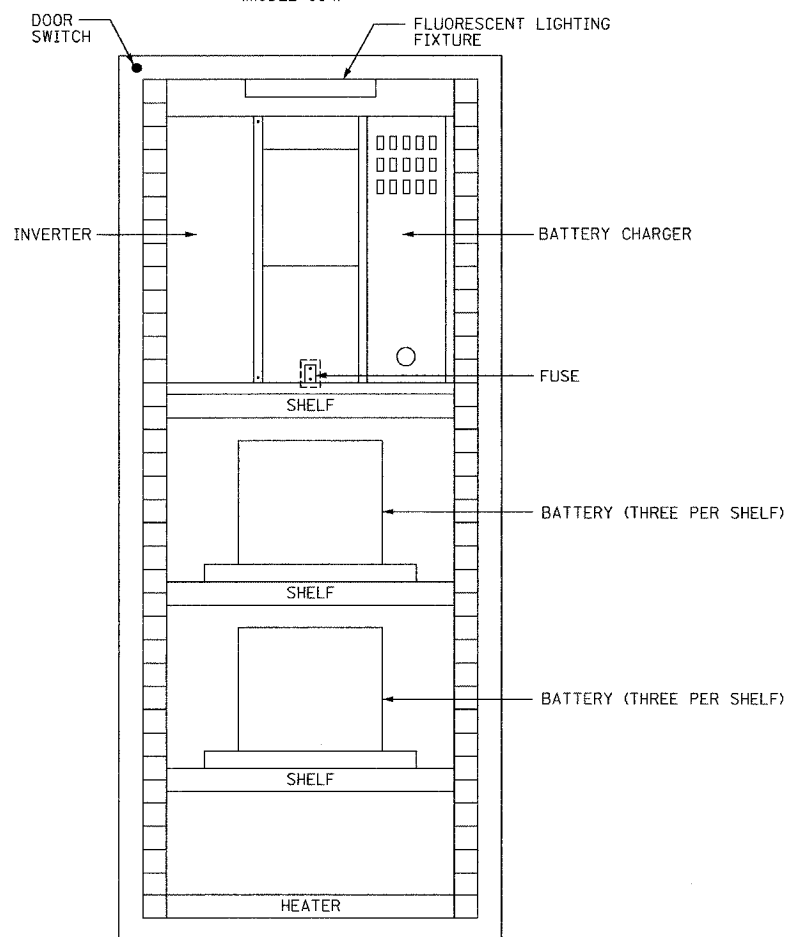
1. ALL POWER AND COMMUNICATION CONNECTIONS SHOWN OUTSIDE OF THE CABINET WILL BE PROVIDED BY THE CABINET INSTALLATION CONTRACTOR AND ARE SHOWN HERE FOR INFORMATION ONLY.
2. ONE UPS CABINET WILL BE SUPPLIED WITH EACH SIGN.



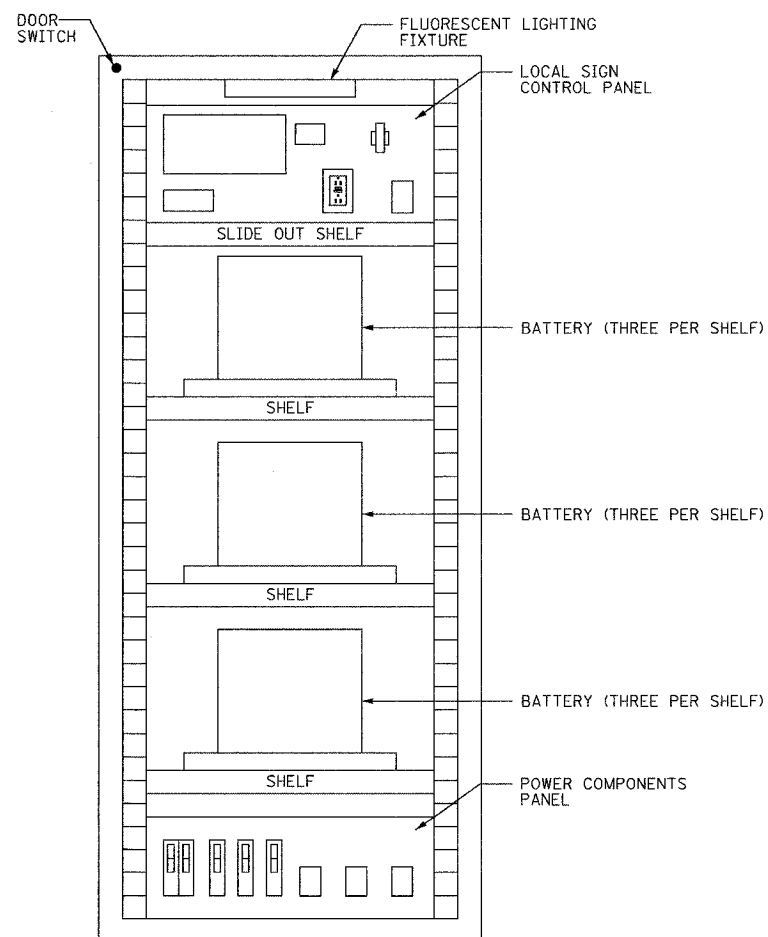
UPS CABINET FRONT VIEW (MODEL 334)



DMS UPS CABINET SINGLE LINE DIAGRAM (TYPICAL) (MODEL 334)



UPS CABINET LAYOUT FRONT VIEW (TYPICAL) (MODEL 334)



UPS CABINET LAYOUT BACK VIEW (TYPICAL) (MODEL 334)

CTE | AECOM

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 90/94 (DAN RYAN EXPRESSWAY)
31st STREET TO I-57
DYNAMIC MESSAGE SIGN
UPS CABINET DETAILS

SCALE: NOT TO SCALE
DATE: September 23, 2005
DRAWN BY: BHP
CHECKED BY: BMW

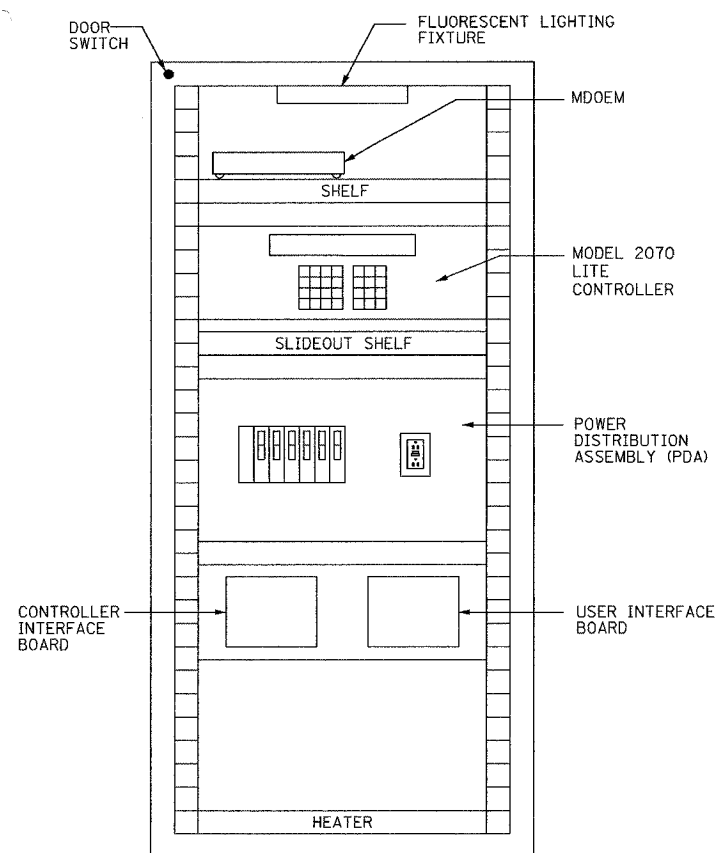
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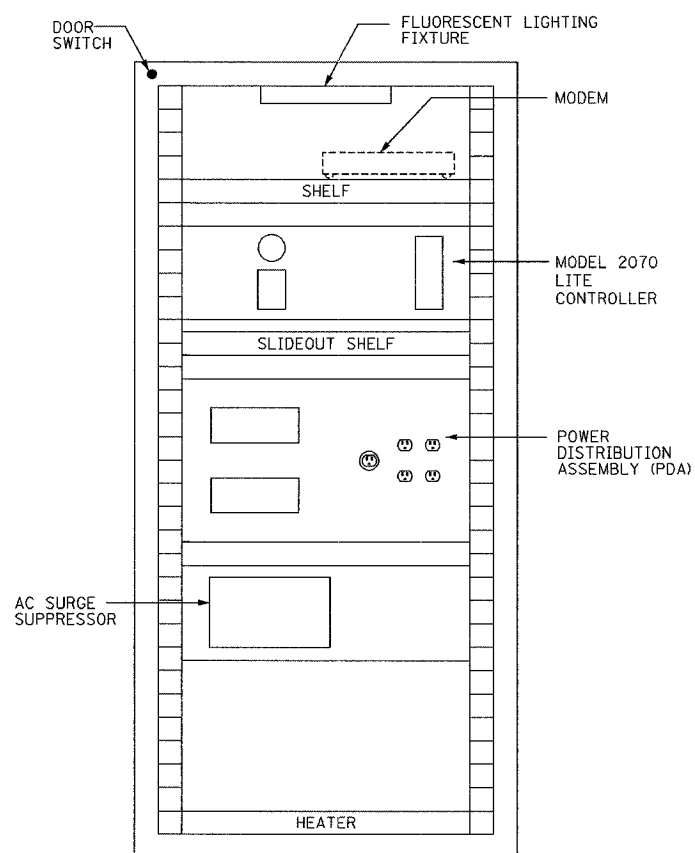
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2005-020I	COOK	16	4
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT	62947	

NOTES:

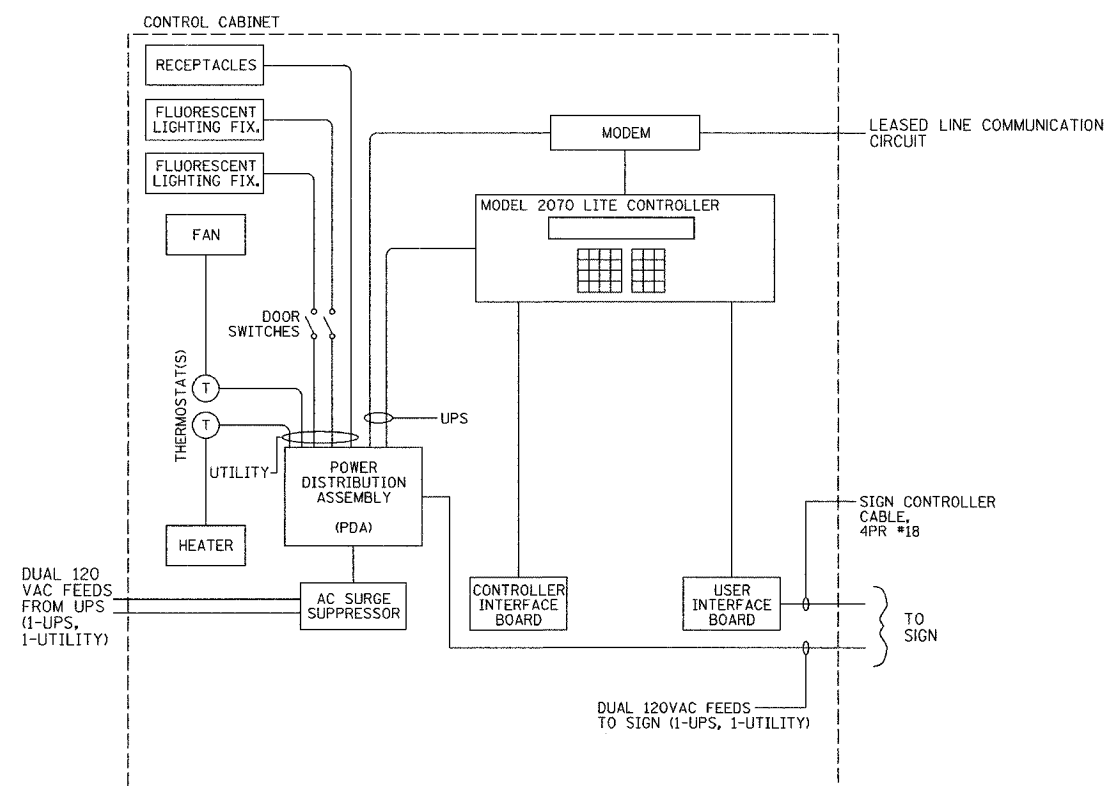
1. ALL POWER AND COMMUNICATION CONNECTIONS SHOWN OUTSIDE OF THE CABINET WILL BE PROVIDED BY THE CABINET INSTALLATION CONTRACTOR AND ARE SHOWN HERE FOR INFORMATION ONLY.
2. DMS CONTROLLER CABINETS WILL ONLY BE SUPPLIED WITH SIGNS DMS-A AND DMS-B.



CONTROL CABINET LAYOUT
FRONT VIEW (TYPICAL)
(MODEL 334)



CONTROL CABINET LAYOUT
BACK VIEW (TYPICAL)
(MODEL 334)



CONTROL CABINET SINGLE
LINE DIAGRAM (TYPICAL)
(MODEL 334)

REVISIONS	
NAME	DATE

P:\030019\035\VT\S\CAD\Contract\62947\DT0200022.dwg

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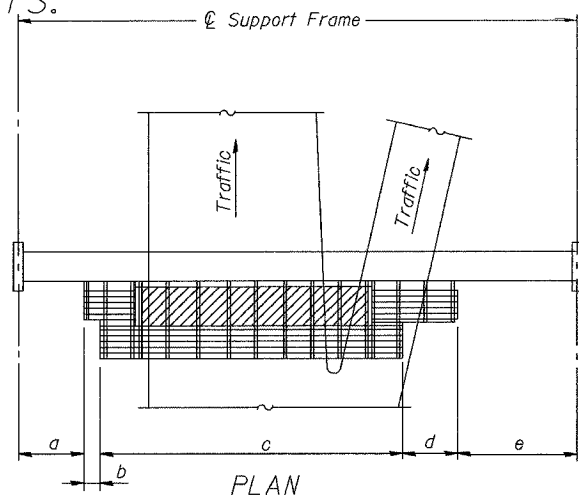
DRAWINGS OS-A-9-DMS2, OS-A-10-DMS2, AND OS-A-10a-DMS2 ARE FURNISHED FOR INFORMATION ONLY. CONTRACTOR MUST FURNISH SIGN MOUNTING BRACKETS WITH SIGN AND COORDINATE WITH TRUSS MANUFACTURER TO ENSURE COMPATIBILITY OF BRACKETS.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

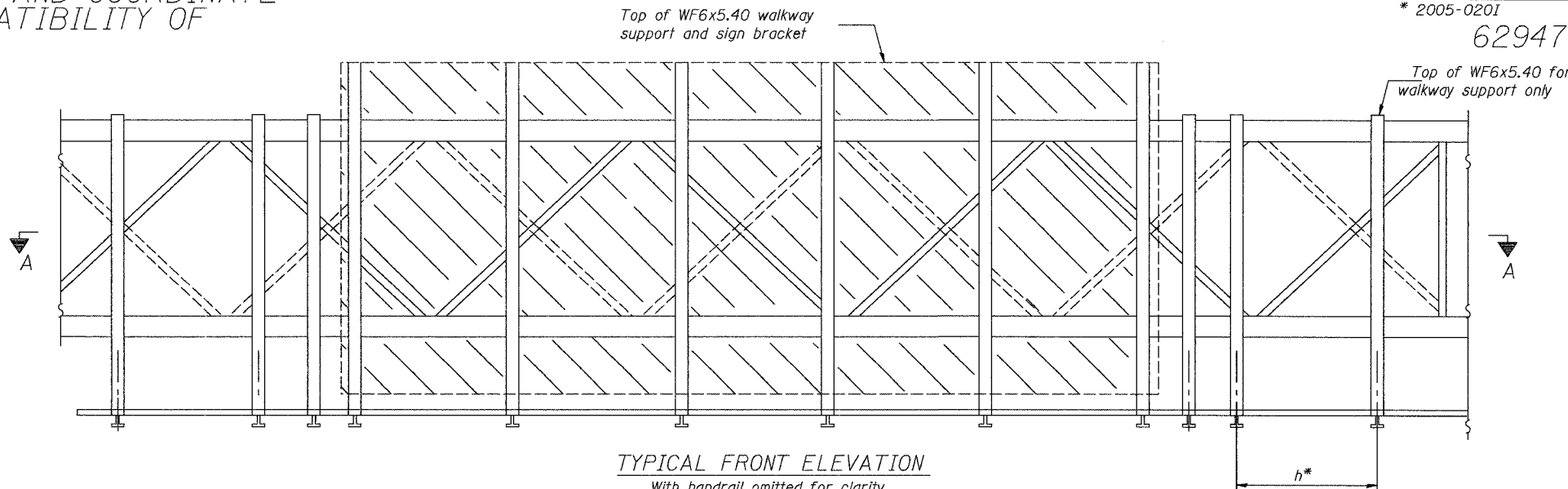
ROUTE NO.	SECTION	COUNTY	SHEET	SHEET NO.
90/94	*	COOK	16	5
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	

* 2005-0201

62947



PLAN
WALKWAY AND HANDRAIL SKETCH
(Road plan beneath truss varies)



TYPICAL FRONT ELEVATION

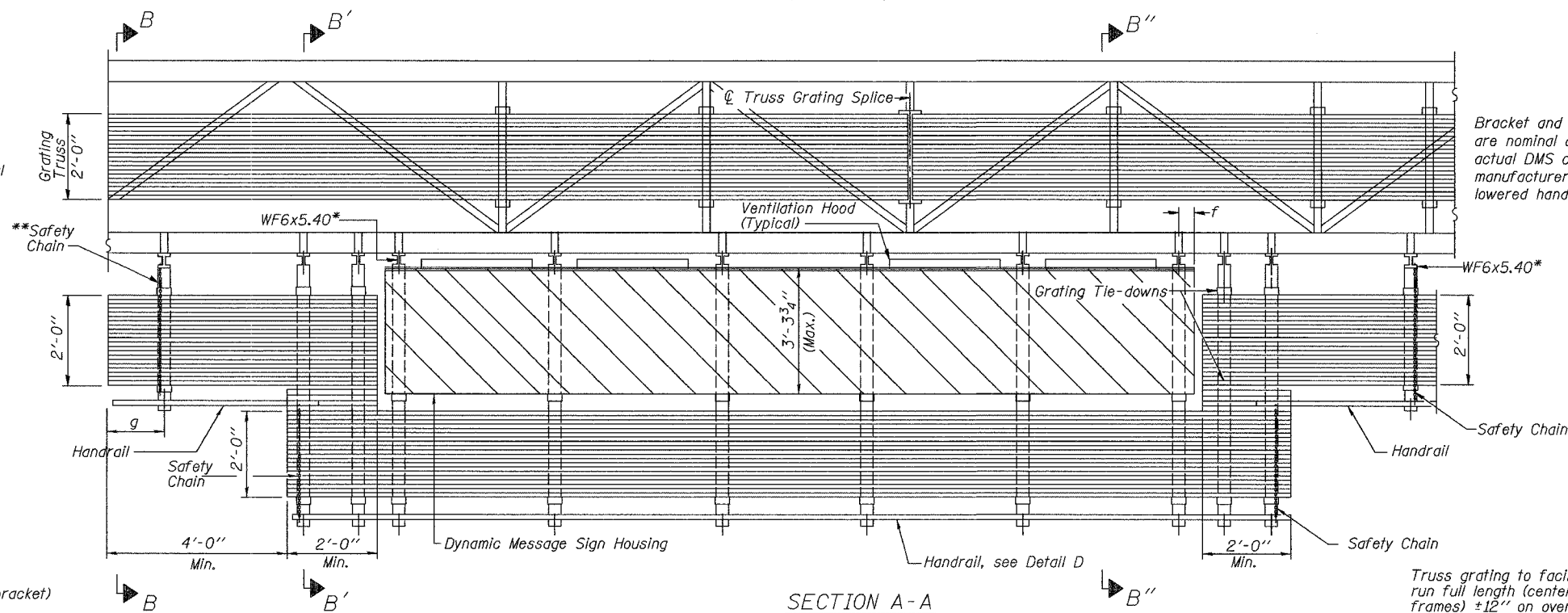
With handrail omitted for clarity.
For Section B-B, see Base Sheet OS-A-10-DMS2
For Section B'-B', and B''-B'', see Base Sheet OS-A-10a-DMS2

Walkway and Truss Grating width dimensions are nominal and may vary $\pm 1/2$ " based on available standard widths.

Bracket and grating dimensions are nominal and will vary based on actual DMS cabinet dimensions plus manufacturer's mounting devices, lowered handrail and DMS cabinet.

BRACKET TABLE

WF6x5.40 ASTM B308, Alloy 6061-T6	
Sign Width	Number Brackets Required
26'-1"	6



SECTION A-A

Notes: *Space WF6x5.40 brackets for efficiency and within limits shown:

- f = 12" maximum, 4" minimum (End of sign to \mathcal{C} of nearest bracket)
- g = 12" maximum, 4" minimum (End of walkway grating to \mathcal{C} of nearest support bracket)
- h = 6'-0" maximum (\mathcal{C} to \mathcal{C} or walkway support brackets, WF6x5.40)

**If walkway bracket at safety chain location is behind sign, add angle to bracket, see Alternate Safety Chain Attachment on Base Sheet OS-A-11-DMS2

For Details T and W, Section B-B and Grating Splice Details, see Base Sheet OS-A-10-DMS2.
For Details D, F, G and P and Handrail Splice Details, see Base Sheet OS-A-11-DMS2.

Handrail and walkway shall span a minimum of three brackets between splices and/or gap joints.
Place all sign and walkway brackets as close to panel points as practical.
Grating and handrail splices placed as needed.

OVERHEAD SIGN STRUCTURES
ALTERNATE ALUMINUM WALKWAY DETAILS

F.A.I. 90/94 (DAN RYAN EXPRESSWAY)
31st Street to 71st Street

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

19
EXAMINED
ENGINEER OF STRUCTURAL SERVICES
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

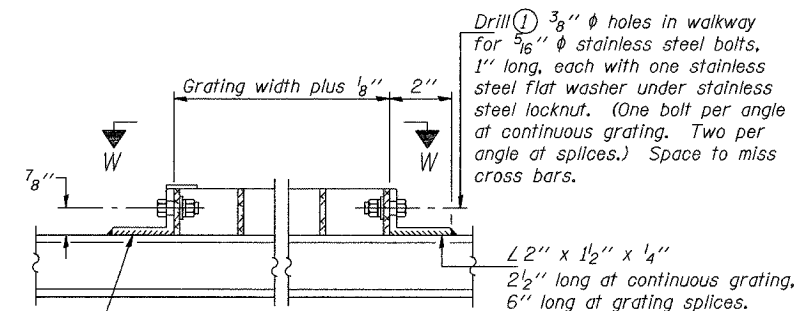
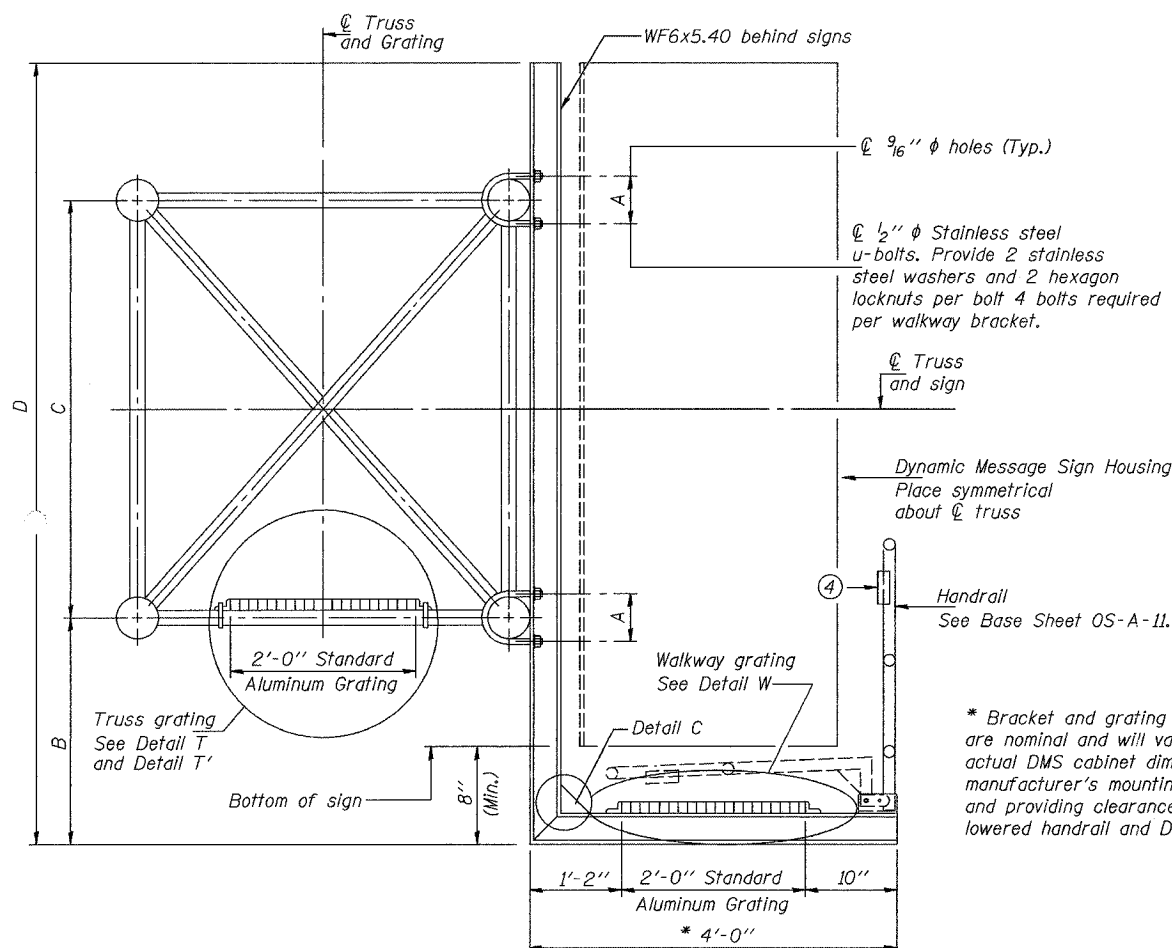
Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
Typical Structure Dimensions			12.00'	32.00'	12.00'		56.00'

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

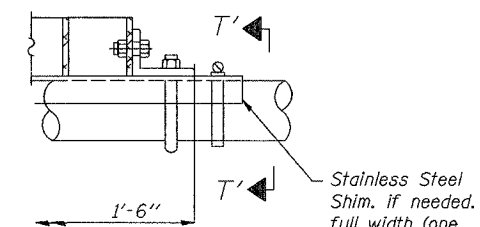
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	*	COOK	16	6

* 2005-0201

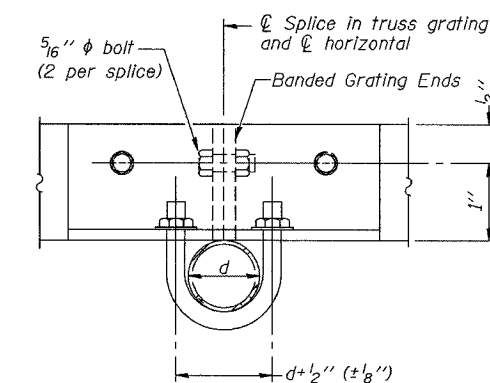
62947



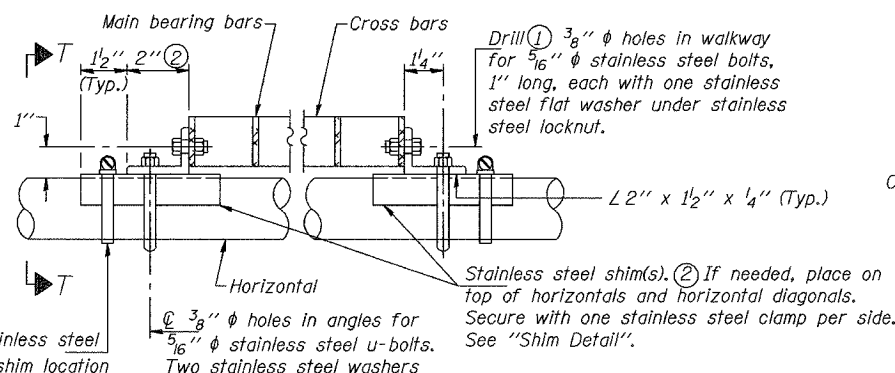
DETAIL W
(Walkway grating)



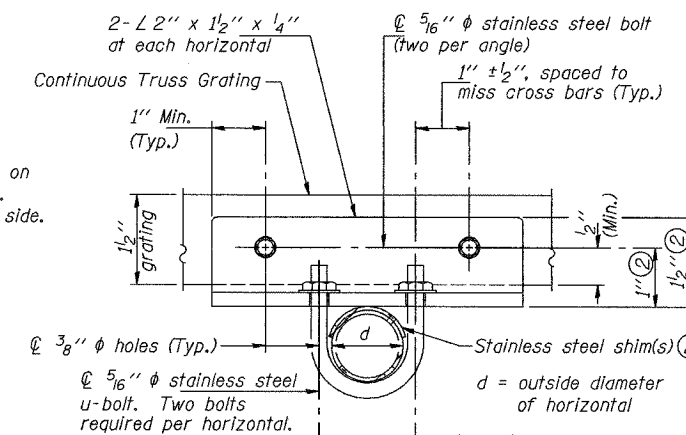
DETAIL T'
(Truss grating splice)
Details not shown same as Detail T.
Alternate materials may be used subject to the Engineer's review and approval.



SECTION T'-T'



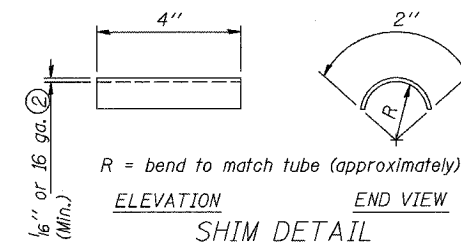
DETAIL T
(Continuous Truss grating)



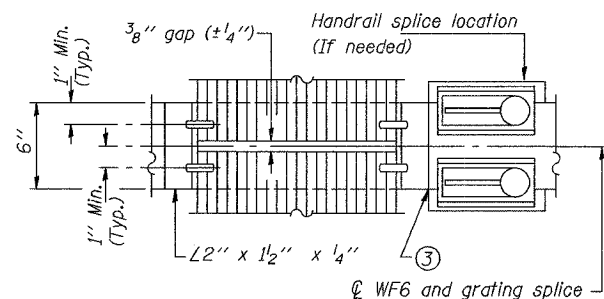
SECTION T-T

* Bracket and grating dimensions are nominal and will vary based on actual DMS cabinet dimensions plus manufacturer's mounting devices, and providing clearance between the lowered handrail and DMS cabinet.

Screw type stainless steel tube clamp at shim location



SHIM DETAIL



SECTION B-B

SPECIFICATIONS FOR STANDARD ALUMINUM GRATING

Main Bearing Bars shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B221 Alloy 6061-T6.
Cross bars shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

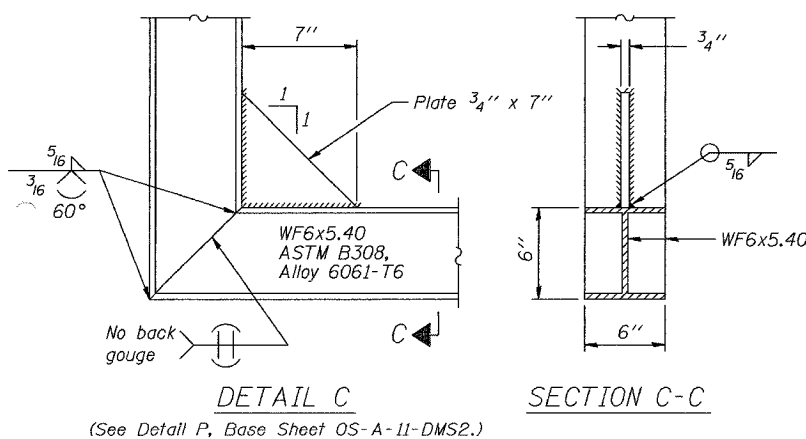
OR

Aluminum Grating with modified "I" sections for main bearing bars shall meet the following requirements:
Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.³ per bar, a depth of 1 1/2", spaced on 1 3/16" centers.
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.

Structure Number	Station	A	B	C	D
Typical Structure Dimensions		7 1/2"	1'-5"	7'-0"	9'-2"

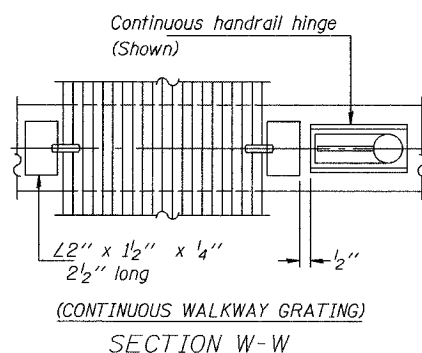
OVERHEAD SIGN STRUCTURES
ALTERNATE ALUMINUM WALKWAY DETAILS

F.A.I. 90/94 (DAN RYAN EXPRESSWAY)
31st Street to 71st Street



DETAIL C

SECTION C-C



SECTION W-W

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

EXAMINED	19
PASSED	ENGINEER OF STRUCTURAL SERVICES
	ENGINEER OF BRIDGES AND STRUCTURES

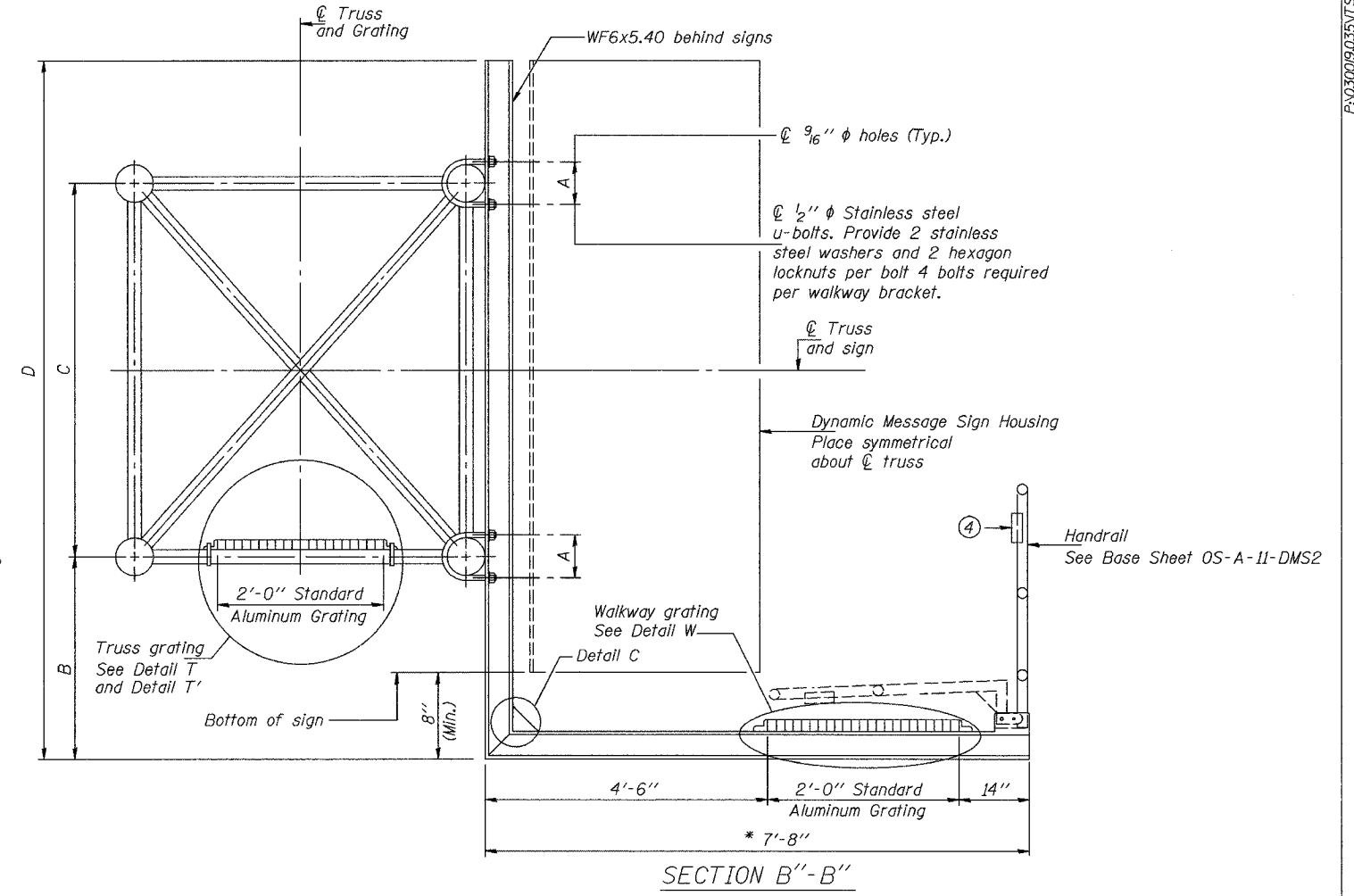
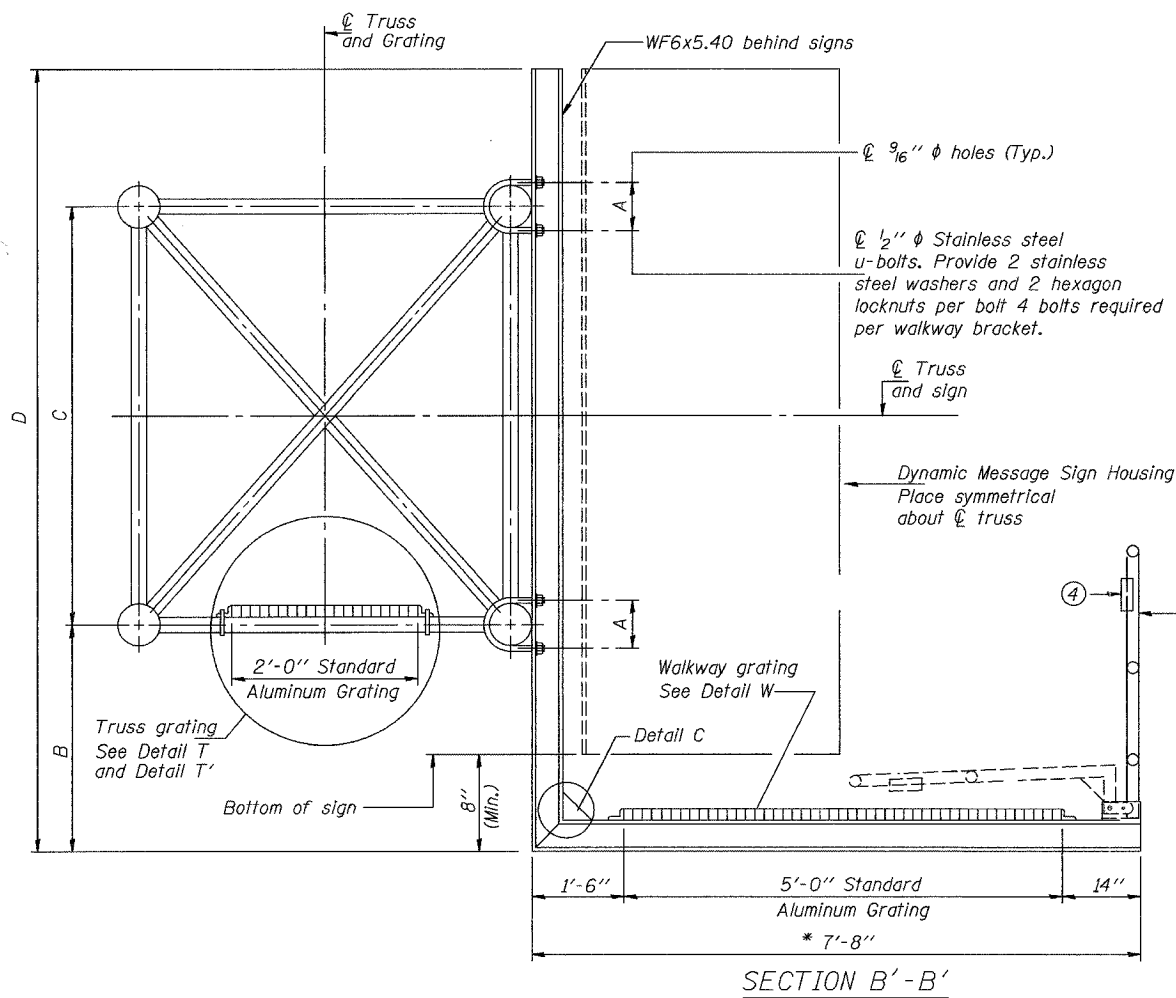
NUMBER	REVISION	DATE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	*	COOK	16	7

* 2005-0201

62947



* Bracket and grating dimensions are nominal and will vary based on actual DMS cabinet dimensions plus manufacturer's mounting devices, and providing clearance between the lowered handrail and DMS cabinet.

Note:
For dimensions "A" to "D" and remaining details, see sheet OS-A-10-DMS2

NUMBER	REVISION	DATE

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

OS-A-10a-DMS2 7/1/2001

OVERHEAD SIGN STRUCTURES
ALTERNATE ALUMINUM WALKWAY DETAILS

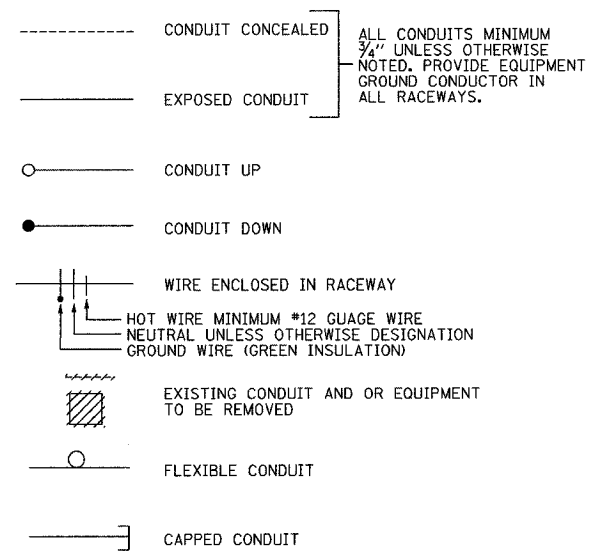
F.A.I. 90/94 (DAN RYAN EXPRESSWAY)
31st Street to 71st Street

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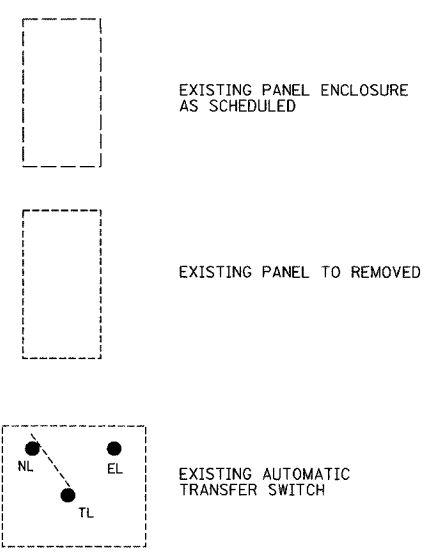
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	8
STA. TO STA.		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT	
62947			

UPS SYSTEM LEGEND AND SYMBOLS

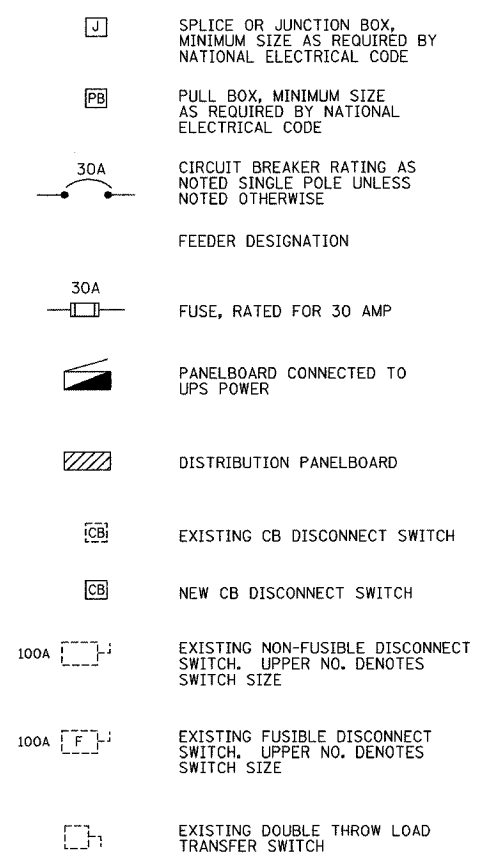
CONDUIT SYMBOLS



POWER SYMBOLS (CONTINUED)



POWER SYMBOLS



ABBREVIATIONS

AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AIC	AMPS
AMP, A	AMPERE
AMPAY	AMPACITY
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRING GAUGE
BATT	BATTERY
BR	BRANCH
BRKR	BREAKER
C	CONDUIT
CAP	CAPACITY
CB	CIRCUIT BREAKER
CCT, CKT	CIRCUIT
CONT	CONTACTOR
DC	DIRECT CURRENT
DISC	DISCONNECT
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
EC	EMPTY CONDUIT
ECH	ELECTRIC CABINET HEATER
EMERG	EMERGENCY
EMP	EMERGENCY PANEL
EMT	ELECTRIC METALLIC TUBING
EO	ELECTRICALLY OPERATED
F	FUSE
FDR	FEEDER
FLA	FULL LOAD AMPERES
FLC	FULL LOAD CURRENT
FLR	FLOOR
GA	GAGE, GAUGE
GEN	GENERATOR
GRD, GND	GROUND
HDG	HOT - DIPPED, GALVANIZED
HP	HORSEPOWER
HZ	HERTZ (CYCLE)
IC	INTERRUPTING CAPACITY
INV	INVERTER
ITC	INTERFACE
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWHR	KILOWATT-HOUR
M	METER
MAN	MANUAL
MAX	MAXIMUM
MTG	MOUNTING
NC	NORMALLY CLOSED
NEG	NEGATIVE
NEUT, N	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
PB	PULL BOX
PF	POWER FACTOR
PH	PHASE
PNL	PANELBOARD
POS	POSITIVE
PRI	PRIMARY
RECPT	RECEPTACLE
REC	RECTIFIER
REST	RESISTANCE
RGS	RIGID GALVANIZED STEEL CONDUIT
SCA	SHORT CIRCUIT AMPERES
SEC	SECONDARY
SP	SINGLE POLE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SS	STAINLESS STEEL
SW	SWITCH
SWBD	SWITCHBOARD
TERM	TERMINAL
TGL	TOGGLE
TP	TAMPER PROOF
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPER
VIF	VERIFY IN FIELD
XFMR, TRANSF	TRANSFORMER

NOTES

- PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- ALL CONTRACTORS WILL VISIT THE JOB SITE (SCHAUMBURG COMMUNICATION CENTER) AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE GENERAL CONSTRUCTION DEMOLITION AND ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN.
- THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE DRAWINGS, THE GENERAL NOTES, AND THE SEQUENCE OF CONSTRUCTION PHASING AND FIELD CONDITIONS, CLARIFICATION SHALL BE REQUESTED IN WRITING PRIOR TO SUBMISSION OF BIDS.
- THE SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT SUCH EVIDENCE AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR, EQUIPMENT, OR MATERIAL REQUIRED OR FOR DIFFICULTIES ENCOUNTERED, WHICH WOULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE, WILL NOT BE RECOGNIZED.
- THE ELECTRICAL CONTRACTOR UPON AGREEMENT AND APPROVAL OF THE DRAWINGS ASSUMES FULL RESPONSIBILITY FOR THE MATERIALS, AND WORKMANSHIP OF THE WORK DESCRIBED IN THESE NOTES AND DRAWINGS, AND HE WILL BE EXPECTED TO COMPLY WITH THE SPIRIT AS WELL AS THE LETTER IN WHICH THEY WERE WRITTEN.

UPS-01

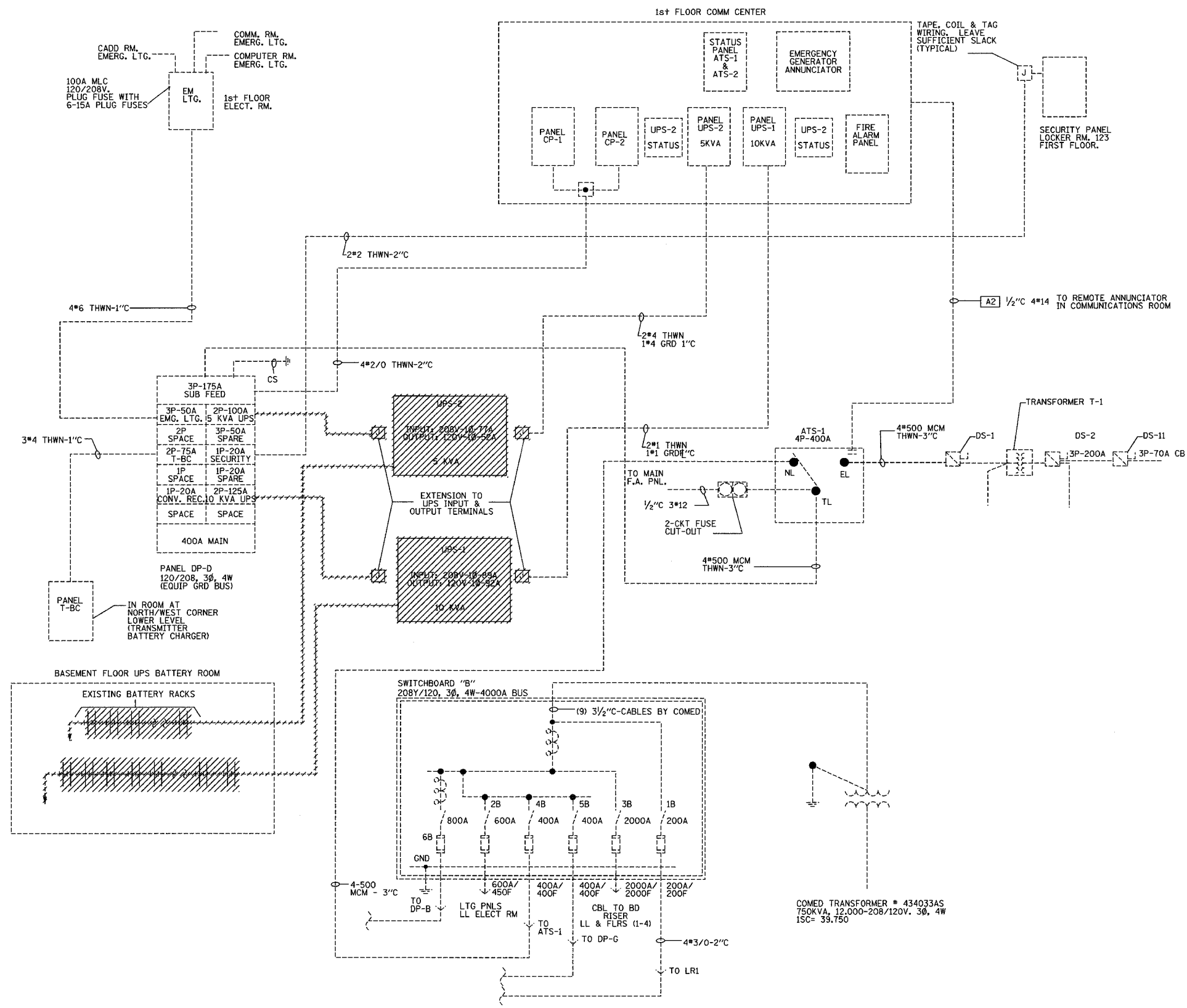
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 F.A.I. 94/90 (DAN RYAN EXPRESSWAY)
 31st STREET to I-57
 UNINTERRUPTIBLE POWER SUPPLY
 LEGENDS, SYMBOLS AND ABBREVIATIONS
 (SCHAUMBURG COMMUNICATION CENTER)
 SCALE: NOT TO SCALE DRAWN BY: JM
 DATE: SEPTEMBER 23, 2005 CHECKED BY: CS

Edwards AND Kelcey
 ONE NORTH FRANKLIN
 CHICAGO, IL 60606
 PHONE: (312) 251-3000
 FAX: (312) 251-3015
 WEB: WWW.EKCORP.COM

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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94/90	2005-0201	COOK	16	9
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
62947				



LEGEND
 EXISTING CONDUIT AND OR EQUIPMENT TO BE REMOVED

UPS-02

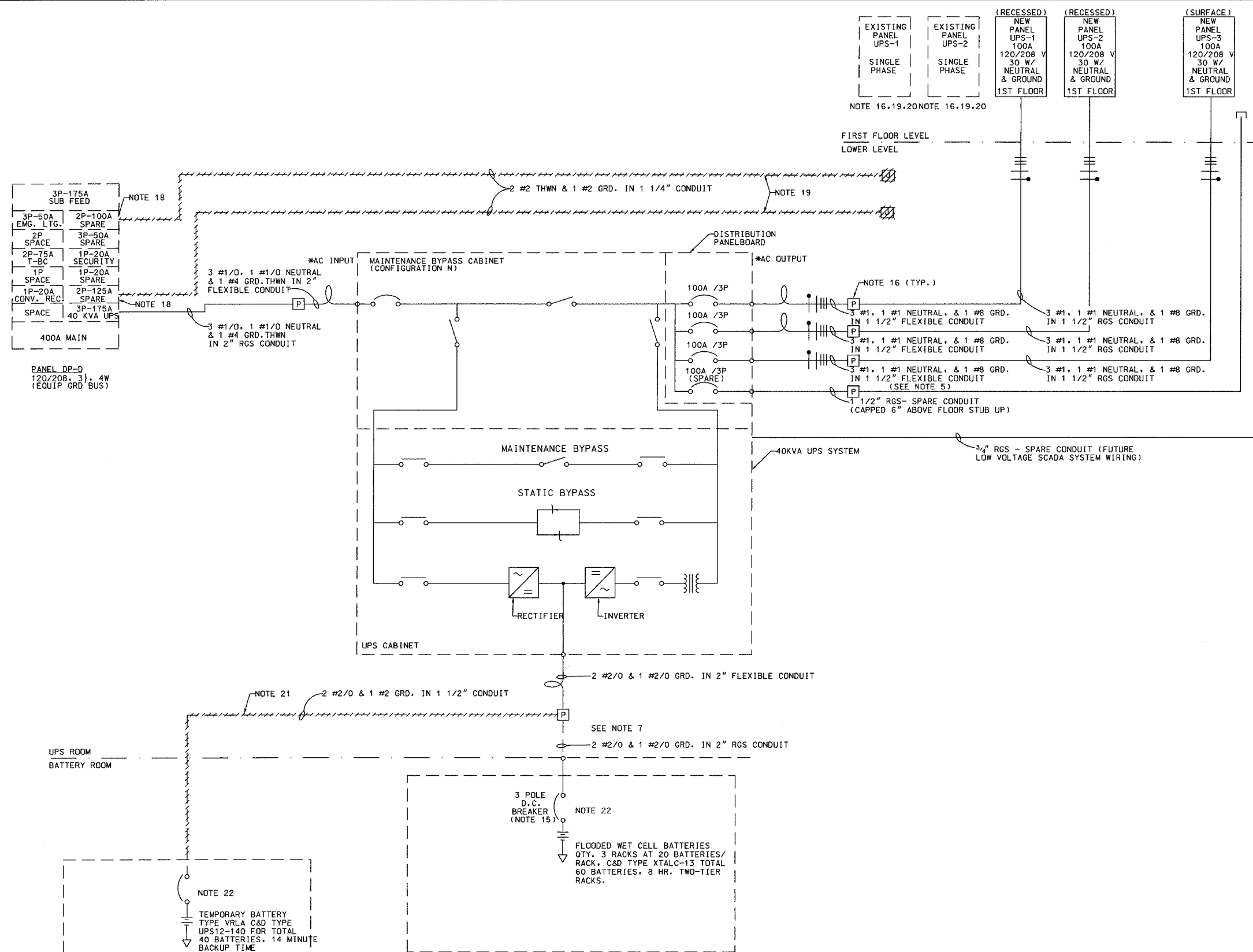
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 F.A.I. 94/90 (DAN RYAN EXPRESSWAY)
 31st STREET to I-57
 EXISTING SINGLE LINE DIAGRAM
 (SCHAUMBURG COMMUNICATION CENTER)
 SCALE: NOT TO SCALE
 DATE: SEPTEMBER 23, 2005
 DRAWN BY: JM
 CHECKED BY: CS

Edwards AND Kelcey
 ONE NORTH FRANKLIN
 CHICAGO, IL 60606
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 FAX: (312) 251-3015
 WEB: WWW.EDKORP.COM

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SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	10
STA.	TO STA.		
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT		
62947			



NOTES

- INSTALL IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES
- INPUT SOURCE MUST BE SOLIDLY GROUND WYE.
- A NEUTRAL IS REQUIRED FROM THE AC INPUT SOURCE.
- WHEN THE LOAD REQUIRES A NEUTRAL, THE NEUTRAL CONDUCTOR SHOULD BE FULL CAPACITY (OR LARGER FOR NON-LINEAR LOADS).
- UPS OUTPUT NEUTRAL CONNECTION MUST BE CONNECTED TO THE AC INPUT SOURCE NEUTRAL. THE EQUIPMENT GROUND CONNECTION MUST BE CONNECTED TO THE SYSTEM GROUND BUS.
- POWER CABLES FROM UPS DC LINK TO BATTERIES SHOULD BE SIZED FOR A TOTAL MAXIMUM 2 VOLT LINE DROP AT MAXIMUM DISCHARGE CURRENT.
- DC POWER WIRING IS PROVIDED BY ELECTRICAL CONTRACTOR.
- UPS AC INPUT AND AC OUTPUT CABLES MUST BE RUN IN SEPARATE CONDUIT.
- CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUITS.
- SEE ELECTRICAL SPECIFICATION FOR UPS CONFIGURATION.
- ALL LUGS TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
- ALL WIRE WILL BE THWN, UNLESS OTHERWISE NOTED.
- REFERENCE CONSTRUCTION PHASING FOR THE TIMELY INSTALLATION AND REMOVAL OF EQUIPMENT
- DURING NORMAL UPS OPERATIONS, SHORT TERM CURRENT DEMAND FROM THE AC INPUT SOURCE MAY REACH 10 TIMES THE UPS FULL LOAD OUTPUT CURRENT RATING. THE INSTANTANEOUS TRIP SETTING OF THE UPSTREAM AC INPUT FEEDER BREAKER MUST BE SET ACCORDINGLY.
- SEE 40KVA BREAKER DETAIL, SHEET DT-121
- CONTRACTOR TO INTERCEPT EXISTING BRANCH CIRCUIT WIRING AND TRANSFER LOADS FROM EXISTING SINGLE PHASE PANELS UPS-1 & UPS-2 TO NEW THREE PHASE PANELS UPS-1 & UPS-2 RESPECTIVELY.
- AFTER SUCCESSFUL TRANSFER OF LOADS FROM 5KVA UPS TO NEW 40KVA UPS THE EXISTING 100A BREAKER TO REMAIN IN PANELBOARD AS SPARE.
- AFTER SUCCESSFUL TRANSFER OF LOADS FROM 10KVA UPS TO NEW 40KVA UPS THE EXISTING 125A BREAKER TO REMAIN IN PANELBOARD AS SPARE.
- CONTRACTOR TO REMOVE PANEL AND FEEDER WIRING AFTER NEW UPS SYSTEM HAS BEEN INSTALLED AND HAS BEEN ACCEPTED BY IDOT AS BEING A COMPLETE AND WORKABLE SYSTEM.
- EXISTING UPS PANELS UPS-1, UPS-2 TO BE REMOVED, INCLUDING ALL FEEDER CONDUIT AND WIRING, UPON COMPLETION OF INSTALLATION OF NEW 3 UPS PANEL UPS-1,2.
- TEMPORARY WIRING TO BE REMOVED BETWEEN TEMPORARY SEALED BATTERY CABINET AND PULL BOX AFTER CUTOVER TO NEW FLOODED WET CELL BATTERIES.
- SIZE BREAKER PER MANUFACTURER'S RECOMMENDATION.

LEGEND

EXISTING CONDUIT AND OR EQUIPMENT TO BE REMOVED

UPS-03

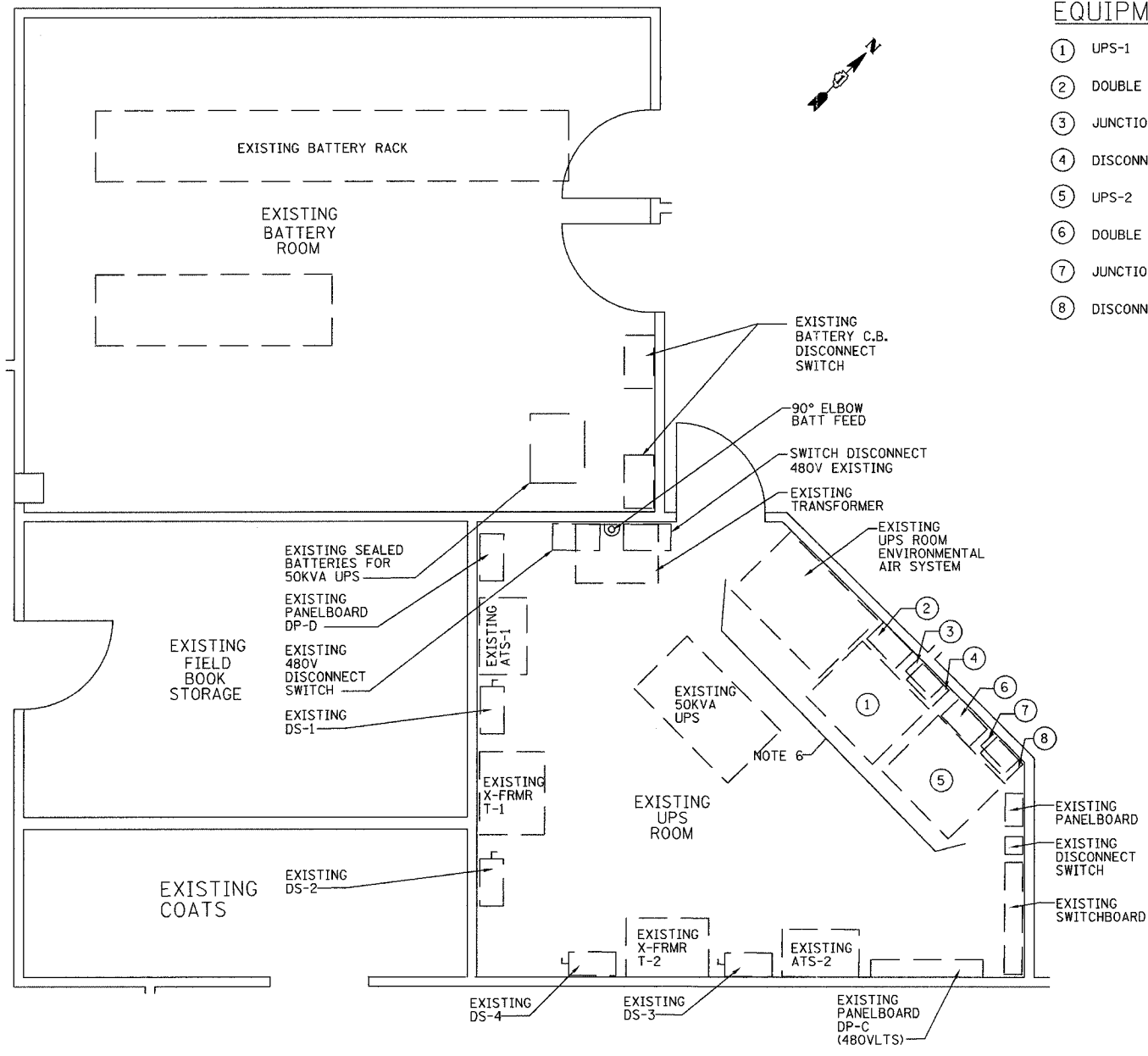
REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION F.A.I. 94/90 (DAN RYAN EXPRESSWAY) 31st STREET to I-57 PROPOSED SINGLE LINE DIAGRAM 40 KVA UPS SYSTEM (SCHAUMBURG COMMUNICATION CENTER)
NAME	DATE	
		SCALE: NOT TO SCALE DATE: SEPTEMBER 23, 2005 DRAWN BY: JM CHECKED BY: CS

Edwards and Kelcey
ONE NORTH FRANKLIN
CHICAGO, IL 60606
PHONE: (312) 251-3000
FAX: (312) 251-3015
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*EXTERNAL OVERCURRENT PROTECTION BY ELECTRICAL CONTRACTORS
— FIELD SUPPLIED WIRING BY ELECTRICAL CONTRACTOR
— WIRE SIZE, CONDUIT SIZE

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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94/90	2005-0201	COOK	16	11
STA.		TO STA.		
FED. ROAD DIST. NO. - ILLINOIS		FED. AID PROJECT		
62947				

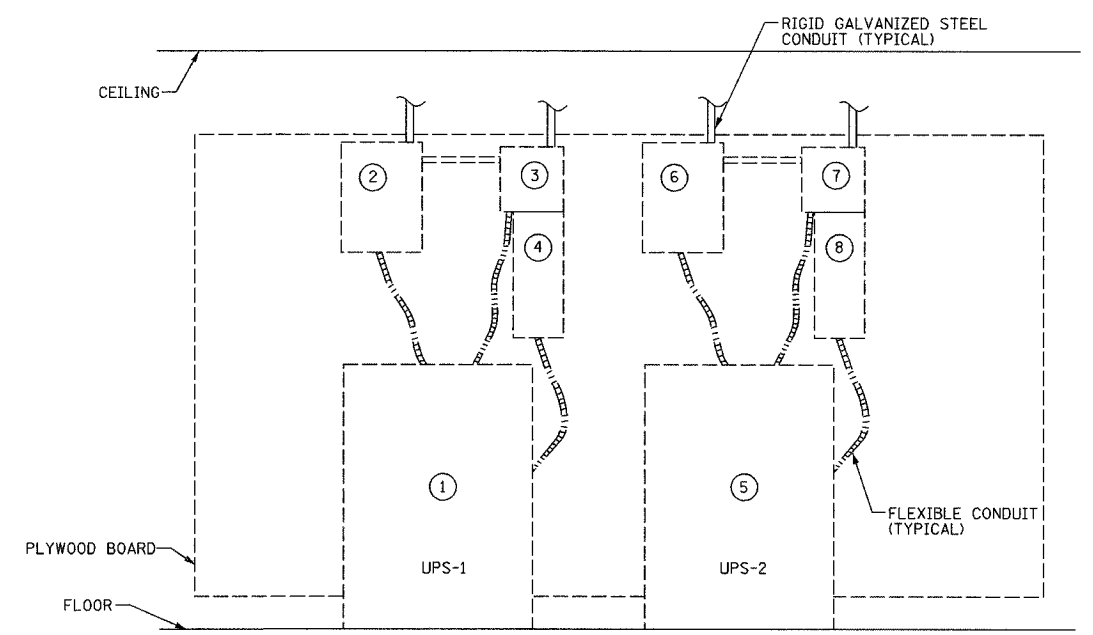


EQUIPMENT IDENTIFICATION KEY

- ① UPS-1
- ② DOUBLE THROW MANUAL TRANSFER SWITCH
- ③ JUNCTION BOX
- ④ DISCONNECT SWITCH-DP-S1
- ⑤ UPS-2
- ⑥ DOUBLE THROW MANUAL TRANSFER SWITCH
- ⑦ JUNCTION BOX
- ⑧ DISCONNECT SWITCH-DP-S2

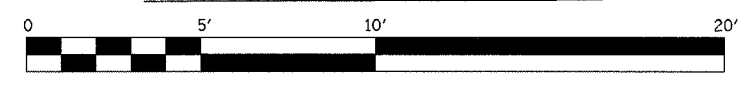
NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOL LIST, SEE SHEET UPS-01.
2. THE CONTRACTOR SHALL ENSURE THE EXISTING UPS SYSTEMS TO REMAIN OPERATIONAL 24 HOURS PER DAY. ANY INTERRUPTION OF UPS POWER SHALL BE COORDINATED WITH IDOT A MINIMUM OF 48 HOURS IN ADVANCE FOR ANY CUT-OVER OR PRIOR APPROVED INTERRUPTION OF SERVICE.
3. EXISTING UPS SYSTEMS TO BE DISCONNECTED AND REMOVED IN PRESCRIBED SEQUENCE, AFTER NEW UPS INSTALLATION IS INSTALLED AND CONNECTED AND ALL EXISTING LOADS ARE TRANSFERRED FROM THE EXISTING UPS SYSTEMS.
4. THE CONTRACTOR SHALL DISCONNECT AND COMPLETELY REMOVE THE TWO EXISTING UPS SYSTEMS FROM THE EXISTING UPS EQUIPMENT ROOM AND ALL THE ASSOCIATED CONDUIT AND WIRING BACK TO THEIR SOURCES.
5. EXISTING UPS SYSTEMS SHALL BE INVENTORIED AND DELIVERED TO THE IDOT MAINTENANCE STORAGE SHOP OR AS OTHERWISE DIRECTED BY IDOT.
6. SEE EQUIPMENT IDENTIFICATION KEY THIS SHEET FOR CIRCLED ITEMS.



EXISTING UPS SERVICE & DISTRIBUTION EQUIPMENT
NOT TO SCALE

PARTIAL LOWER LEVEL PLAN



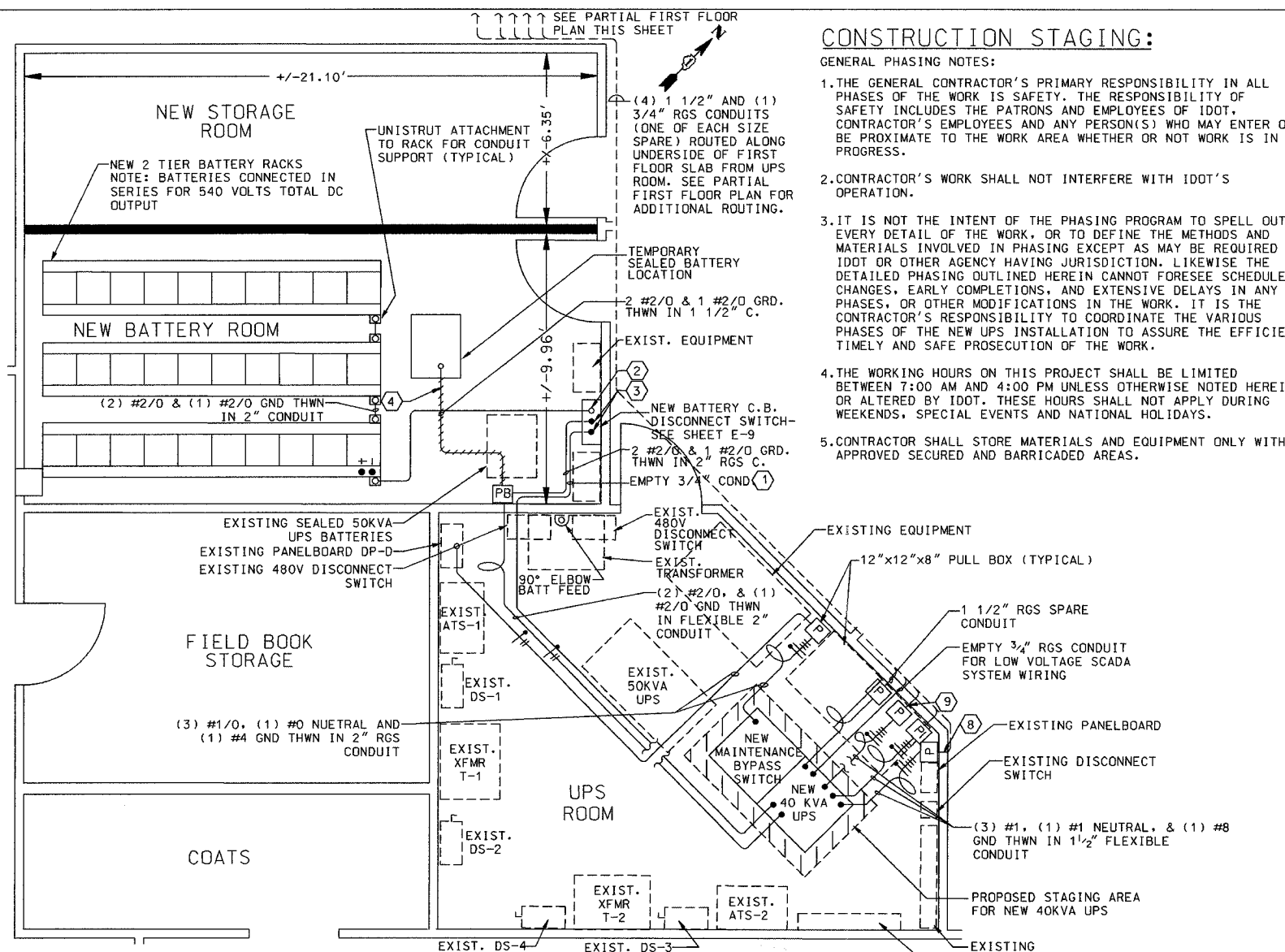
Edwards AND Kelcey
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CHICAGO, IL 60606
PHONE: (312) 251-3000
FAX: (312) 251-3015
WEB: WWW.EKCORP.COM

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION F.A.I. 94/90 (DAN RYAN EXPRESSWAY) 31st STREET to I-57
NAME	DATE	
		EXISTING UPS ROOM EQUIPMENT LAYOUT (SCHAUMBURG COMMUNICATION CENTER)
SCALE: AS SHOWN ON PLANS		DRAWN BY: JM
DATE: SEPTEMBER 23, 2005		CHECKED BY: CS

UPS-04

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SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	12
STA. TO STA.			
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			
62947			



CONSTRUCTION STAGING:

- GENERAL PHASING NOTES:
1. THE GENERAL CONTRACTOR'S PRIMARY RESPONSIBILITY IN ALL PHASES OF THE WORK IS SAFETY. THE RESPONSIBILITY OF SAFETY INCLUDES THE PATRONS AND EMPLOYEES OF IDOT. CONTRACTOR'S EMPLOYEES AND ANY PERSON(S) WHO MAY ENTER OR BE PROXIMATE TO THE WORK AREA WHETHER OR NOT WORK IS IN PROGRESS.
 2. CONTRACTOR'S WORK SHALL NOT INTERFERE WITH IDOT'S OPERATION.
 3. IT IS NOT THE INTENT OF THE PHASING PROGRAM TO SPELL OUT EVERY DETAIL OF THE WORK, OR TO DEFINE THE METHODS AND MATERIALS INVOLVED IN PHASING EXCEPT AS MAY BE REQUIRED BY IDOT OR OTHER AGENCY HAVING JURISDICTION. LIKEWISE THE DETAILED PHASING OUTLINED HEREIN CANNOT FORESEE SCHEDULE CHANGES, EARLY COMPLETIONS, AND EXTENSIVE DELAYS IN ANY PHASES, OR OTHER MODIFICATIONS IN THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE VARIOUS PHASES OF THE NEW UPS INSTALLATION TO ASSURE THE EFFICIENT, TIMELY AND SAFE PROSECUTION OF THE WORK.
 4. THE WORKING HOURS ON THIS PROJECT SHALL BE LIMITED BETWEEN 7:00 AM AND 4:00 PM UNLESS OTHERWISE NOTED HEREIN OR ALTERED BY IDOT. THESE HOURS SHALL NOT APPLY DURING WEEKENDS, SPECIAL EVENTS AND NATIONAL HOLIDAYS.
 5. CONTRACTOR SHALL STORE MATERIALS AND EQUIPMENT ONLY WITHIN APPROVED SECURED AND BARRICADED AREAS.

6. ALL UNFURNISHED WORK SHALL BE PROPERLY SECURED IN PLACE AND PRESENT NO DANGER TO IDOT PATRONS, PERSONNEL, AND EQUIPMENT. AT EACH WORK PERIOD COMPLETION, THE CONTRACTOR SHALL REMOVE AND RETRIEVE INTO THE STORAGE AREA ALL CONSTRUCTION EQUIPMENT, MATERIALS, DEBRIS AND CLEAR AREA FOR IDOT OPERATIONS. IF THE CONTRACTOR USES ANY PARTIALLY COMPLETED FINISHED WORK AREA FOR STORAGE, CARE SHALL BE TAKEN TO AVOID DAMAGE TO SUCH WORK. ANY DAMAGE WILL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE.
7. NO FUEL POWERED EQUIPMENT OF ANY KIND SHALL BE USED BELOW GROUND LEVEL.

SEQUENCE OF PRELIMINARY STAGING

- PHASE ONE**
- STEP-A.
THE CONTRACTOR MUST PREPARE THE EXIST. UPS ROOM FOR TEMPORARY OPERATION OF THE NEW UPS SYSTEM. AREA OF TEMPORARY OPERATION SHALL BECOME NEW EQUIPMENT LOCATION AFTER CUTOVER IS COMPLETE. SEE PARTIAL PLAN THIS SHEET.
- STEP-B.
THE CONTRACTOR SHALL FABRICATE TEMPORARY AC & DC FEEDER CABLE OF SUFFICIENT LENGTH TO BE ABLE TO RELOCATE UPS-1 & UPS-2 OUT OF THE WAY OF THE DESIGNATED STAGING AREA FOR INSTALLATION OF THE NEW UPS SYSTEM.
- STEP-C.
THE CONTRACTOR MUST POSITION AND INSTALL A TEMPORARY SEALED BATTERY CABINET IN THE BATTERY ROOM TO SUPPORT NEW UPS SYSTEM DURING BURN IN, CHECKOUT AND TESTING. THE CONTRACTOR SHALL INSTALL D.C. CABLES FROM TEMPORARY BATTERY CABINET TO NEW 40 KVA UPS PRIOR TO CUTOVER. NOTE: THE TEMPORARY SEALED BATTERIES WILL ALSO SERVE AS THE PRIMARY SOURCE OF DC POWER (10 MINUTE RESERVE) FOR THE NEW 40 KVA UPS SYSTEM WHILE THE WET CELL BATTERIES ARE BEING INSTALLED & UPGRADED IN THE EXIST. BATTERY ROOM.
- STEP-D.
POSITION NEW 40 KVA UPS SYSTEM AS SHOWN ON PLANS IN THE STAGING AREA OF UPS ROOM. THIS IS A TWO STEP PROCEDURE. THE FIRST STEP INVOLVES GETTING THE UPS SYSTEM ON-LINE FOR BURN-IN, CHECKOUT AND TESTING, AND CONNECTING TO WALL MOUNTED 3 PHASE PANELS UPS-1, UPS-2 AND UPS-3. AFTER CHECKOUT & TESTING AND LOADS HAVE BEEN TRANSFERRED TO THE NEW UPS SYSTEM, THE UPS WILL BE PLACED IN BYPASS AND ROLLED ON CASTERS TO ITS FINAL POSITION AGAINST THE WALL AFTER REMOVAL OF EXIST. ENCLOSURES.

- PHASE TWO:**
- STEP-A.
THE CONTRACTOR SHALL INSTALL A NEW 175 AMP BREAKER IN PANEL DP-D TO SERVE AS OVERCURRENT PROTECTION AND PRIMARY AC FEEDER TO THE NEW 40KVA UPS.
- STEP-B.
INSTALL NEW FEEDER CABLE FROM PANEL DP-D TO AC POWER INPUT BUS OF THE NEW 40 KVA UPS.
- STEP-C.
PROVIDE A TEMPORARY CONNECTION TO TEMPORARY SEALED BATTERY CABINET TO SUPPORT NEW UPS SYSTEM DURING BURN IN, CHECKOUT AND TESTING. NOTE: TEMPORARY BATTERIES WILL CONTINUE TO BE USED UNTIL DEMOLITION AND RECONSTRUCTION OF EXISTING BATTERY ROOM IS COMPLETE.

- SEQUENCE OF PHASING CUTOVER**
- PHASE THREE:**
- STEP-A.
THE CONTRACTOR SHALL PREPARE FOR THE CUTOVER PHASE BY INSTALLING APPROPRIATE CONDUIT AND WIRE TO PROPOSED PANELS UPS-1, UPS-2 AND UPS-3 BEFORE DECOMMISSIONING EITHER OF THE EXIST. UPS SYSTEMS.
- STEP-B.
PRIOR TO BEGINNING CUTOVER WORK THE CONTRACTOR SHALL MAKE PREPARATIONS IN ADVANCE VIA COORDINATION AND COMMUNICATION WITH IDOT'S PROJECT MANAGER TO KEEP ONE OF THE TWO UPS SYSTEMS UP AND RUNNING UNTIL THE SUCCESSFUL TRANSFER OF ALL LOADS ON THAT SYSTEM IS COMPLETED TO THE NEW DESIGNATED PANELBOARD.
- STEP-C.
THE CONTRACTOR SHALL MAKE PREPARATIONS IN ADVANCE TO DETERMINE WHAT MISSION CRITICAL LOADS (IF ANY) SHOULD BE TRANSFERRED TO THE SYSTEM TO REMAIN IN OPERATION AS A PRECAUTIONARY MEASURE TO MINIMIZE INTERRUPTING OF OPERATIONS IN THE EVENT OF SOME UNFORESEEN DELAYS IN BRINGING THE NEW UPS SYSTEM ON-LINE.

STEP-D.
BEFORE CUTOVER THE CONTRACTOR SHALL INSTALL 3 NEW FEEDER CABLES FROM NEW UPS DISTRIBUTION PANELBOARD TO THE FOLLOWING:

UPS-1 PANELBOARD 1ST FLOOR COMMUNICATIONS ROOM:
CONTRACTOR TO INSTALL NEW FEEDER CABLE AND CONDUIT TO UPS-1. CONTRACTOR MUST BE AWARE THAT FLOOR MUST BE CORE DRILLED TO ROUTE CONDUIT RISER TO 1ST FLOOR. SUGGESTED CONDUIT ROUTING IS SHOWN FOR CONTRACTOR REFERENCE ONLY. CONTRACTOR SHALL DETERMINE BEST CONDUIT ROUTING PATH AND CORE DRILLING LOCATIONS AND REVIEW WITH IDOT PRIOR TO PROCEEDING. REFERENCE PARTIAL ELECTRICAL PLAN, THIS SHEET. NOTE: NEW PANELBOARD SHALL BE RECESSED TYPE. AFTER INSTALLATION OF PANELBOARD THE WALL SHALL BE RESTORED TO MATCH PRIOR EXIST. CONDITION INCLUDING BUT NOT LIMITED TO PAINT TO MATCH EXISTING WALL COLORS. COORDINATE WITH IDOT PROJECT ENGINEER PRIOR TO ALTERING WALL IN ANYWAY.

UPS-2 PANELBOARD 1ST FLOOR COMMUNICATIONS ROOM:
CONTRACTOR TO INSTALL NEW FEEDER CABLE AND CONDUIT TO UPS-2. CONTRACTOR MUST BE AWARE THAT FLOOR MUST BE CORE DRILLED TO ROUTE CONDUIT RISER TO 1ST FLOOR. CONTRACTOR SHALL DETERMINE BEST CONDUIT ROUTING PATH AND CORE DRILLING LOCATIONS AND REVIEW WITH IDOT PRIOR TO PROCEEDING. REFERENCE PARTIAL ELECTRICAL PLAN, THIS SHEET. NOTE: NEW PANELBOARD SHALL BE RECESSED TYPE. AFTER INSTALLATION OF PANELBOARD THE WALL SHALL BE RESTORED TO MATCH PRIOR EXIST. CONDITION INCLUDING BUT NOT LIMITED TO PAINT TO MATCH EXISTING WALL COLORS. COORDINATE WITH IDOT PROJECT ENGINEER PRIOR TO ALTERING WALL IN ANYWAY. INSTALLATION OF PANELBOARD UPS-3 SHALL BE THE SAME AS DESCRIBED FOR UPS-1 AND UPS-2 ABOVE. ALL THE AFOREMENTIONED PANELBOARDS SHALL BE 100 AMP, 120/208 VOLT, THREE PHASE, 4 WIRE PLUS GROUND BAR. PANELS SHALL HAVE CAPACITY FOR 42 CIRCUITS. THE ABOVE WIRES SHOULD BE PRE-PULLED IN ADVANCE OF CUTOVER DATE LEAVING 5 FEET OF WIRED COILED FOR FINAL TERMINATION AT PANELBOARD. NOTE: THE EXIST. POWER DISTRIBUTION SYSTEM MUST BE LEFT OPERATIONAL UNTIL PRIOR APPROVAL IS RECEIVED FROM IDOT FOR AN ACCEPTABLE CUTOVER DATE AND TIME. AFTER THE SUCCESSFUL TRANSFER OF LOADS OF THE 1ST SYSTEM, THE SAME PROCEDURE SHOULD BE FOLLOWED FOR TRANSFER OF LOADS FOR THE 2ND UPS SYSTEM. AFTER CUTOVER IS COMPLETE BEGIN REMOVAL OF ENCLOSURES ITEMS 2, 3, 4, 6, 7 & 8 FROM WALL IN UPS ROOM. CONTRACTOR IS TO DELIVER EXIST. ITEMS 1 AND 2 (10KVA & 5KVA RESPECTIVELY) TO DESIGNATED MAINTENANCE STORAGE AREA AS DIRECTED BY IDOT. NOTE: CONDUITS FOR ITEMS 3 AND 4 ARE TO BE REMOVED BACK TO SOURCE.

UPGRADE AND REPLACEMENT OF BATTERIES AFTER UPS ON-LINE

PHASE FOUR:

STEP-A.
THE CONTRACTOR SHALL START THE REMOVAL OF EXIST. WET CELL BATTERIES FROM EXIST. BATTERY ROOM.

STEP-B.
BATTERIES SHALL BE REMOVED AND DISPOSED OF TO MEET ALL EPA REGULATIONS AND GUIDELINES FOR DISPOSAL OF HAZARDOUS MATERIAL.

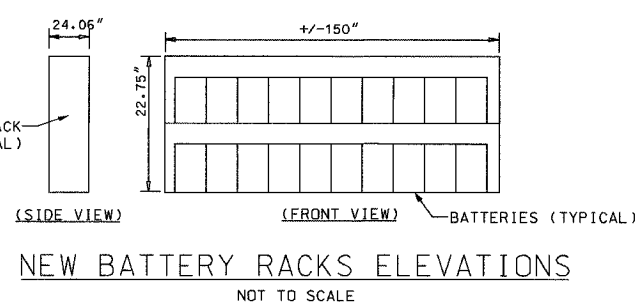
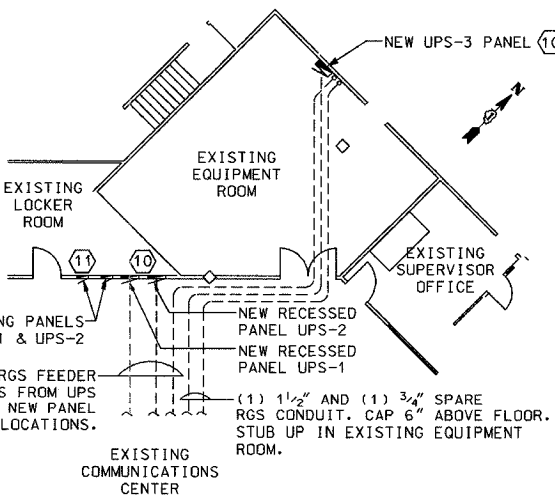
STEP-C.
INSTALL NEW BATTERY RACKS TO COMPLY WITH SEISMIC 1 CONSIDERATIONS FOR EARTHQUAKES.

STEP-D.
IF APPLICABLE, INCREASE SIZE OF EXIST. WALL MOUNTED BATTERY BREAKER TO COMPLY WITH MANUFACTURERS RECOMMENDATION.

STEP-E.
CONTRACTOR TO INSTALL NEW CONDUIT AND WIRING FROM BATTERY BANK TO NEW 40 KVA UPS SYSTEM AS REQUIRED TO MEET MANUFACTURERS REQUIREMENTS. NOTE: EXIST. CONDUIT AND/OR DC CABLING MAY BE RE-USED OR RUN IN PARALLEL WITH NEW WIRING TO MEET INCREASED CAPACITY REQUIREMENTS FOR NEW 40KVA UPS.

BATTERY ROOM FACILITY MODIFICATIONS
CONTRACTOR TO COORDINATE WITH DEPARTMENT THE PARTIAL REMOVAL OF EXIST. WALLS AT EXIST. LOWER LEVEL BATTERY ROOM AS NECESSARY FOR THE CONSTRUCTION OF NEW DIVIDING WALL PARTITION AND NEW DOOR INSTALLATION FOR THE NEW STORAGE ROOM. CONTRACTOR TO MATCH EXIST. WALL CONSTRUCTION AND FINISHES UNLESS OTHERWISE DIRECTED BY DEPARTMENT. THE CEILING AREA AROUND THE AIR CONDITIONING DUCTS SHALL BE SEALED. A NEW DOOR SHALL BE INSTALLED ON NORTHEAST WALL OF STORAGE ROOM AS SHOWN ON PARTIAL LOWER LEVEL PLAN. DOOR/FRAME SIZE, MATERIAL, HARDWARE, FINISH SHALL MATCH THAT OF EXIST. BATTERY ROOM DOOR AND SHALL HAVE A MATCHED KEY LOCK PER DIRECTION OF THE ENGINEER.

- NOTES:**
1. ELECTRICAL CONTRACTOR TO SUPPLY INTERCONNECTION CABLE TO UPS MODULE; SEE SHEET UPS-09 FOR INTERCONNECTION DIAGRAM. CONSULT MANUFACTURER'S SHOP DRAWINGS FOR SIZE OF WIRE AND TYPE OF CABLE.
 2. POSITIVE AND NEGATIVE DC POWER CABLES NEED TO ENTER FROM THE BOTTOM OF THE ENCLOSURE TO PREVENT CONTACT WITH BATTERY INTERFACE BOARD "BIB".
 3. LOW VOLTAGE WIRING NEEDS TO ENTER FROM THE TOP OF THE ENCLOSURE.
 4. TEMPORARY WIRING TO BE REMOVED BETWEEN TEMPORARY SEALED BATTERIES AND PULL BOX AFTER NEW UPS IS ON-LINE.
 5. ALL WIRING WILL BE INSTALLED IN RIGID GALVANIZED STEEL (RGS) CONDUIT UNLESS OTHERWISE NOTED.
 6. ALL WIRING SHALL BE TYPE THWN INSULATION UNLESS OTHERWISE NOTED.
 7. ALL WIRING WILL BE INSTALLED BY QUALIFIED INDIVIDUALS, IN A NEAT WORKMANLIKE MANNER, TO CONFORM TO THE NATIONAL ELECTRICAL CODE AND SHALL MEET ALL STATE AND LOCAL CODES.
 8. 3#1 & 1#1 NEUTRAL & 1#8 GRD THWN IN NEW 1 1/2" CONDUIT TO NEW REPLACEMENT PANELBOARDS UPS-1 & UPS-2 RESPECTIVELY. SEE PARTIAL FIRST FLOOR PLAN THIS SHEET FOR RECOMMENDED LOCATION OF NEW REPLACEMENT PANELS.
 9. 3#1 & 1#1 NEUTRAL & 1#8 GRD THWN IN NEW 1 1/2" CONDUIT TO NEW PANELBOARD UPS-3. SEE PARTIAL FIRST FLOOR PLAN THIS SHEET FOR RECOMMENDED LOCATION OF NEW PANEL WITHIN EXIST. EQUIPMENT ROOM.
 10. PANELBOARD SHALL BE 120/208V, 3Ø, 4W, PLUS GND, WITH 100A MAIN BREAKER, 100A BUS, AND CAPACITY FOR 42 CIRCUITS.
 11. EXIST. PANELBOARDS UPS-1 AND UPS-2 SHALL BE REMOVED AFTER CUTOVER TO NEW RECESSED PANELS UPS-1 AND UPS-2 IS COMPLETE. AFTER REMOVAL OF PANELBOARD, THE WALL SHALL BE RESTORED TO MATCH EXIST. WALL CONDITIONS. CONTRACTOR TO MATCH EXIST. WALL CONSTRUCTION AND FINISHES UNLESS OTHERWISE DIRECTED BY DEPARTMENT.



LEGEND

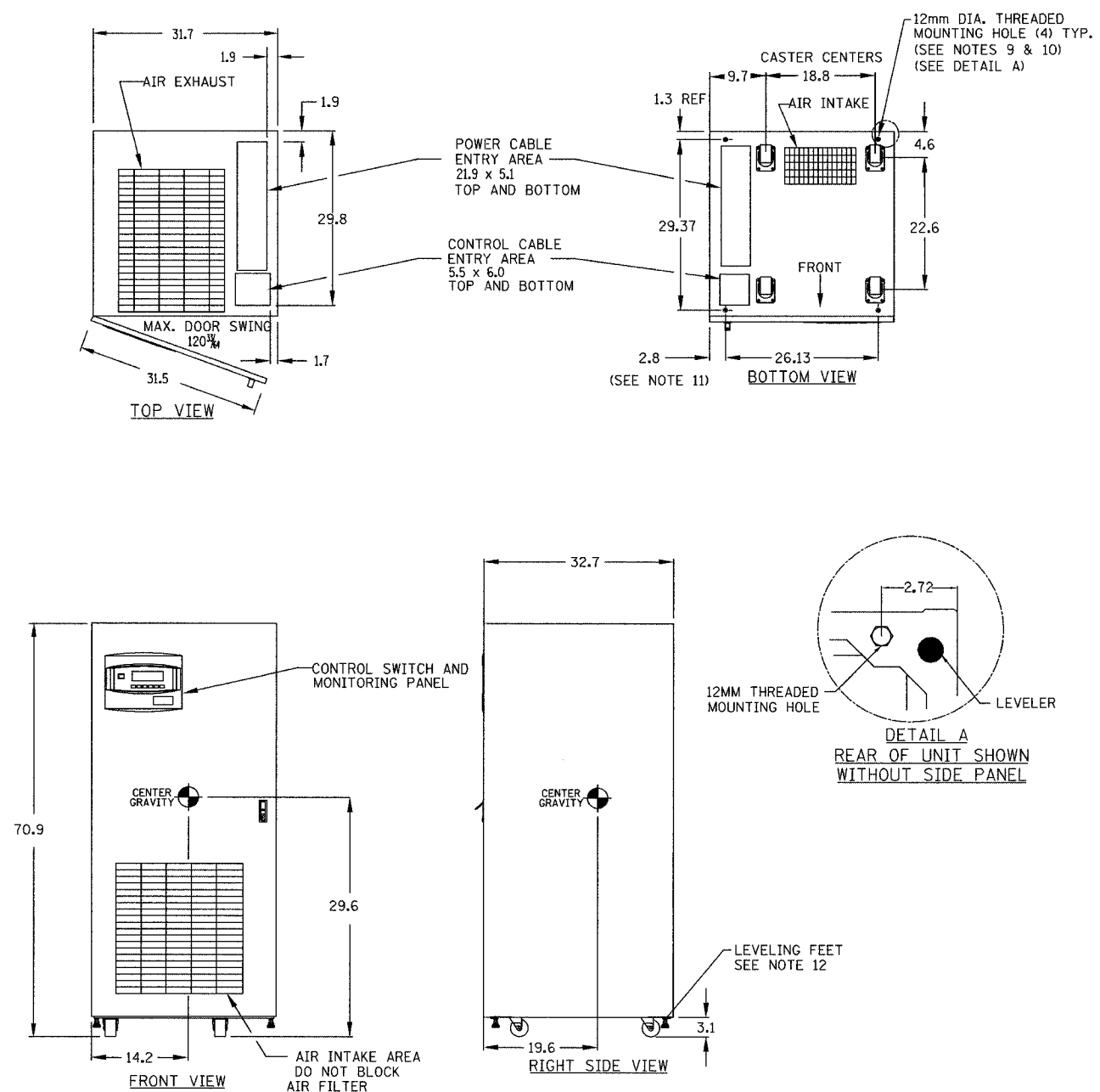
EXIST. EQUIPMENT TO REMAIN

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ILLINOIS DEPARTMENT OF TRANSPORTATION F.A.I. 94/90 (DAN RYAN EXPRESSWAY) 31st STREET to I-57	
PROPOSED UPS EQUIPMENT INSTALLATION (SCHAUMBURG COMMUNICATION CENTER)	
SCALE: AS SHOWN ON PLANS	DRAWN BY: JM
DATE: SEPTEMBER 23, 2005	CHECKED BY: CS

07/06/2005 11:31:13 AM 62947 UPS-05 225251

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	13
STA.	TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	
62947			



- NOTES:**
- ALL DIMENSIONS ARE IN INCHES.
 - 24" MINIMUM CLEARANCE ABOVE UNIT REQUIRED FOR AIR EXHAUST.
 - INSTALLATION AND SERVICE ACCESS REQUIRED IN FRONT ONLY. RH SIDE ACCESS RECOMMENDED FOR MAXIMUM EASE OF INSTALLATION.
 - KEEP CABINET WITHIN 15 DEG. OF VERTICAL WHILE HANDLING.
 - TOP AND BOTTOM CABLE ENTRY AVAILABLE THROUGH REMOVABLE ACCESS PLATES. REMOVE PUNCH TO SUIT CONDUIT SIZE AND REPLACE.
 - COLOR - IBM OFF WHITE.
 - UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING.
 - OPEN DOOR TO REPLACE AIR FILTER, DISPOSABLE TYPE. SIZE 1 x 25 x 25
 - THREADED MOUNTING HOLES USED FOR SEISMIC ANCHORING OR FLOOR STAND. NOTE, IF FLOOR STAND IS USED THE WEIGHT OF THE UNIT MUST BE SUPPORTED UNDER ALL CASTERS.
 - EACH MOUNTING LOCATION IS SUPPORTED BY (2) 10 GA. (.135") GALVANIZED STEEL. THE THREADED 12MM INSERT IS APPROX. 3/4" DEEP. MOUNTING BOLTS MUST BE THREADED INTO UNIT MOUNTING HOLES FROM UNDERNEATH UNIT BASE.
 - INCLUDES SIDE PANEL. REFER TO DETAIL A FOR DIMENSION TO FRAME WITH SIDE PANEL REMOVED. SIDE PANELS ARE REMOVED BETWEEN ADJACENT UNITS WHICH ARE BOLTED TOGETHER.
 - LEVELING FEET ARE NOT DESIGNED TO CARRY THE FULL WEIGHT OF THE CABINET. FINGER-TIGHT LEVELER AGAINST THE FLOOR, THEN TIGHTEN WITH A WRENCH LESS THAN 2 TURNS FOR FRICTION FIT AGAINST FLOOR.

KVA RATING	VOLTAGE		WEIGHT		HEAT REJECTION BTU/HR	COOLING AIR CFM
	INPUT	OUTPUT	LBS	KG		
40	208	208	2200	1000	11000	720

Edwards AND Kelcey
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 CHICAGO, IL 60606
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 WEB: WWW.EKCORP.COM

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION F.A.I. 94/90 (DAN RYAN EXPRESSWAY) 31st STREET to I-57 OUTLINE DRAWING 40 KVA UPS MODULE NPOWER
NAME	DATE	

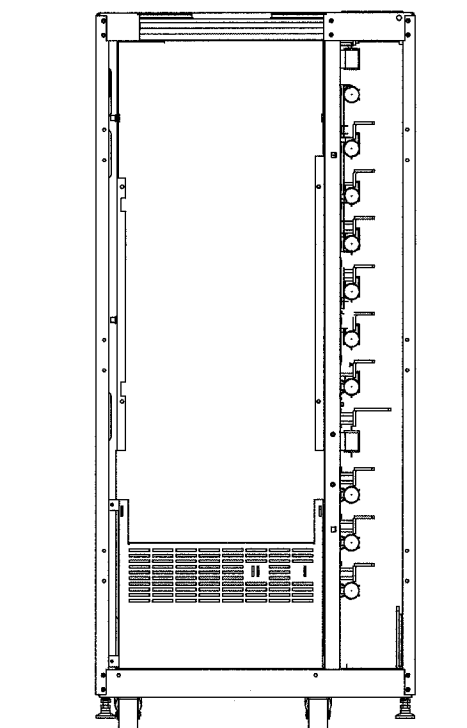
SCALE: NOT TO SCALE DRAWN BY: JM
 DATE: SEPTEMBER 23, 2005 CHECKED BY: CS

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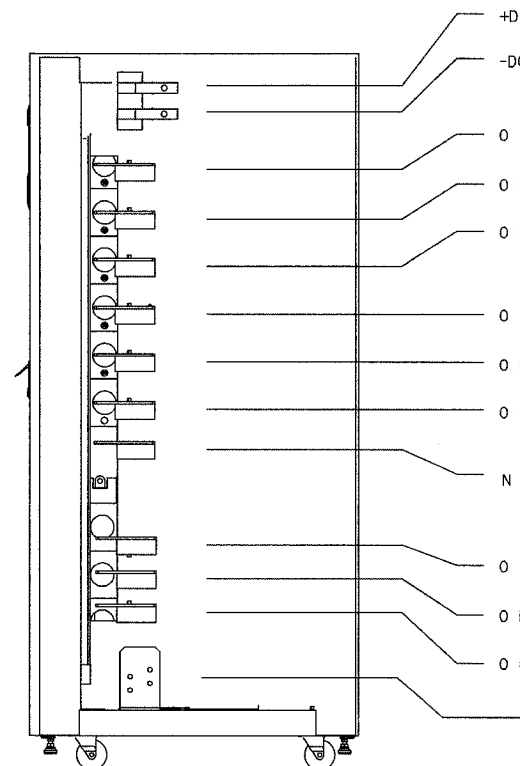
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	14
STA.	TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	
62947			

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. TOP AND BOTTOM CABLE ENTRY AVAILABLE THROUGH REMOVABLE ACCESS PLATES. REMOVE, PUNCH TO SUIT CONDUIT SIZE, AND REPLACE.
3. CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUIT. OUTPUT CABLES MUST BE RUN IN A SEPARATE CONDUIT FROM INPUT CABLES.
4. ALUMINUM AND COPPER CLAD ALUMINUM CABLES ARE NOT RECOMMENDED.
5. ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.

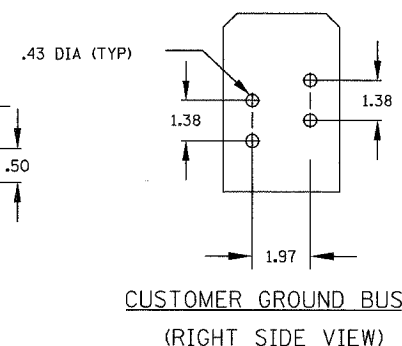
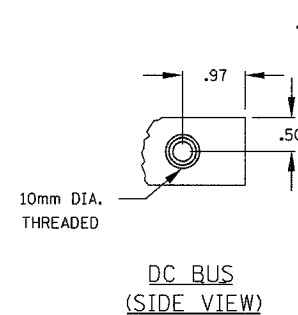
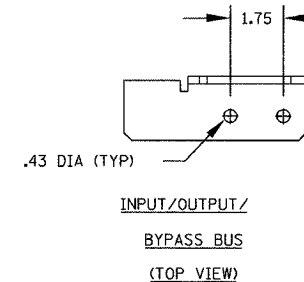
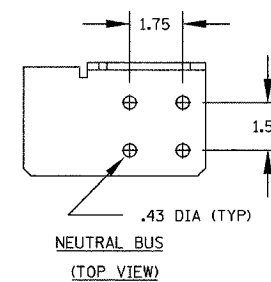


FRONT VIEW
(WITH FRONT PANELS REMOVED)



RIGHT SIDE VIEW
(WITH SIDE PANEL REMOVED)

- DC INPUT BATTERY CABLE CONNECTIONS
MAX (1) 500 kcmil
- +DC
- DC
- AC INPUT CABLE CONNECTIONS
MAX (2) 500 kcmil
- O A
- O B
- O C
- BYPASS AC INPUT CABLE CONNECTIONS
MAX (2) 500 kcmil
(DUAL INPUT ONLY)
- O A
- O B
- O C
- NEUTRAL CABLE CONNECTIONS
- N
- AC OUTPUT CABLE CONNECTIONS
MAX (2) 500 kcmil
- O A
- O B
- O C
- GROUND BUS CONNECTIONS



UPS-07

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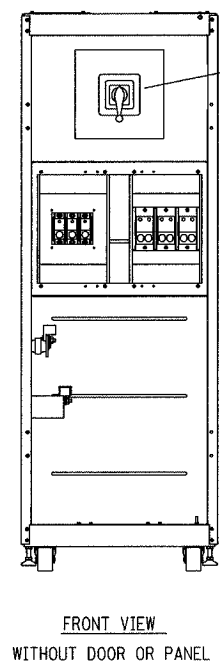
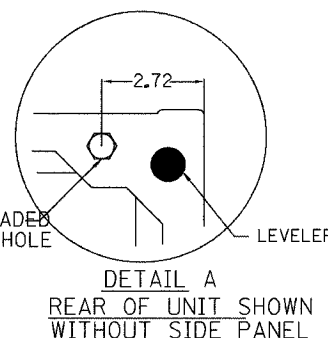
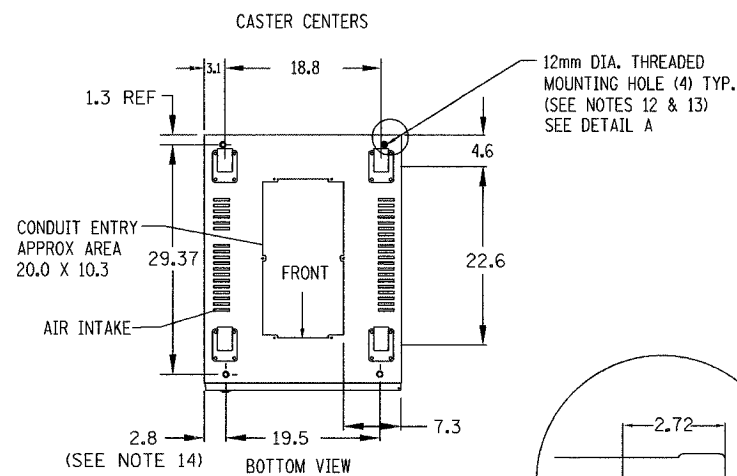
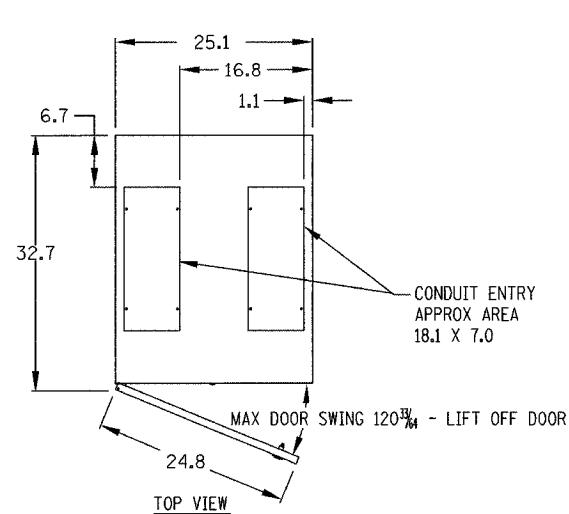
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 94/90 (DAN RYAN EXPRESSWAY)
31st STREET to I-57
TERMINAL DETAILS
40 KVA UPS MODULE

SCALE: NOT TO SCALE
DATE: SEPTEMBER 23, 2005
DRAWN BY: JM
CHECKED BY: CS

07/06/2005 11:34:4 AM

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	15
STA. TO STA.			
FED. ROAD DIST. NO. - ILLINOIS		FED. AID PROJECT	
62947			



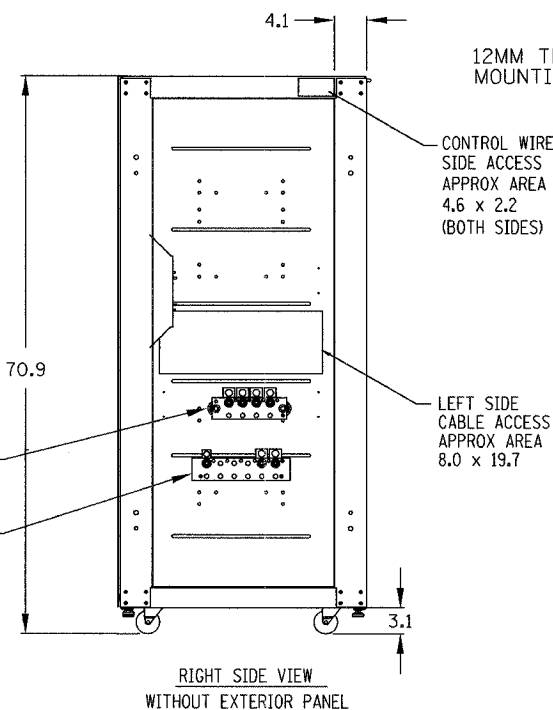
MAINTENANCE BYPASS SWITCH

O A INPUT CABLE
O B CONNECTIONS
O C

O A OUTPUT CABLE
O B CONNECTIONS
O C

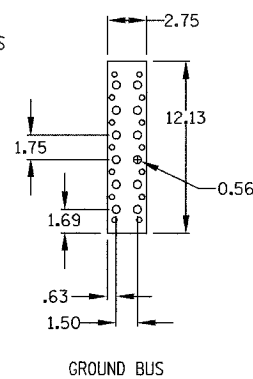
NEUTRAL BUS

GROUND BUS

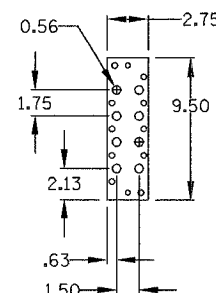


12MM THREADED MOUNTING HOLE

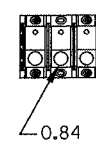
DETAIL A
REAR OF UNIT SHOWN WITHOUT SIDE PANEL



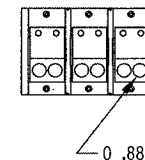
GROUND BUS



NEUTRAL BUS



POWER LUGS



NOTES:

- ALL DIMENSIONS ARE IN INCHES.
- MIN CLEARANCE 36 FRONT, 12 TOP FOR AIR EXHAUST.
- KEEP CABINET WITHIN 15 DEGREES OF VERTICAL WHILE HANDLING.
- TOP AND BOTTOM CABLE ENTRY AVAILABLE THROUGH REMOVABLE ACCESS PLATES. REMOVE, PUNCH TO SUIT CONDUIT SIZE, AND REPLACE.
- CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUIT. OUTPUT CABLES MUST BE RUN IN A SEPARATE CONDUIT FROM INPUT CABLES.
- ALUMINUM AND COPPER CLAD ALUMINUM CABLES ARE NOT RECOMMENDED.
- ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
- INTER CABINET WIRING BETWEEN THE UPS AND THE MB CABINET IS SUPPLIED BY LIEBERT, INSTALLATION BY OTHERS.
- MAINTENANCE BYPASS CABINET IS NOT A STAND ALONE UNIT. IT IS BOLTED TO THE RIGHT SIDE OF THE UPS.
- COLOR - IBM OFF WHITE.
- UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING.
- THREADED MOUNTING HOLES USED FOR SEISMIC ANCHORING OR FLOOR STAND. NOTE, IF FLOOR STAND IS USED THE WEIGHT OF THE UNIT MUST BE SUPPORTED UNDER ALL CASTERS.
- EACH MOUNTING LOCATION IS SUPPORTED BY (2) 10 GA. (.135") GALVANIZED STEEL. THE THREADED 12MM INSERT IS APPROX. 3/4" DEEP. MOUNTING BOLTS MUST BE THREADED INTO UNIT MOUNTING HOLES FROM UNDERNEATH UNIT BASE.
- INCLUDES SIDE PANEL. REFER TO DETAIL A FOR DIMENSION TO FRAME WITH SIDE PANEL REMOVED. SIDE PANELS ARE REMOVED BETWEEN ADJACENT UNITS WHICH ARE BOLTED TOGETHER.

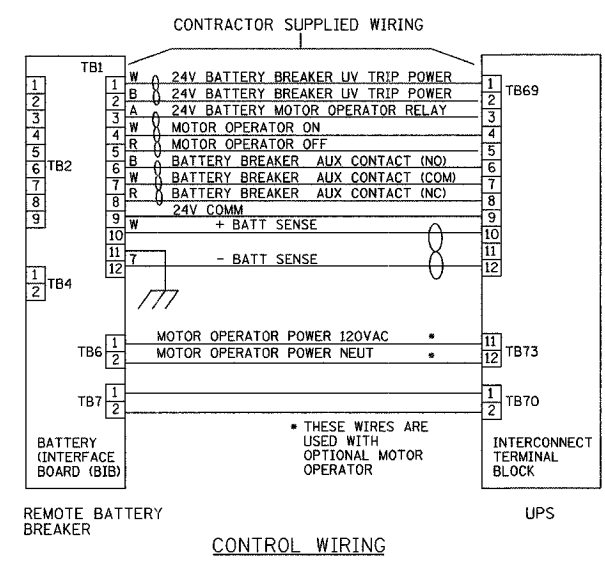
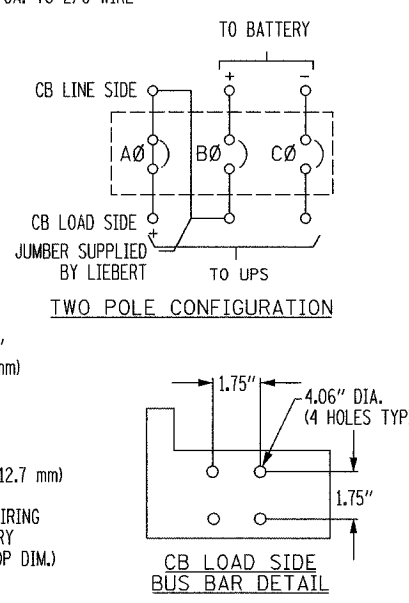
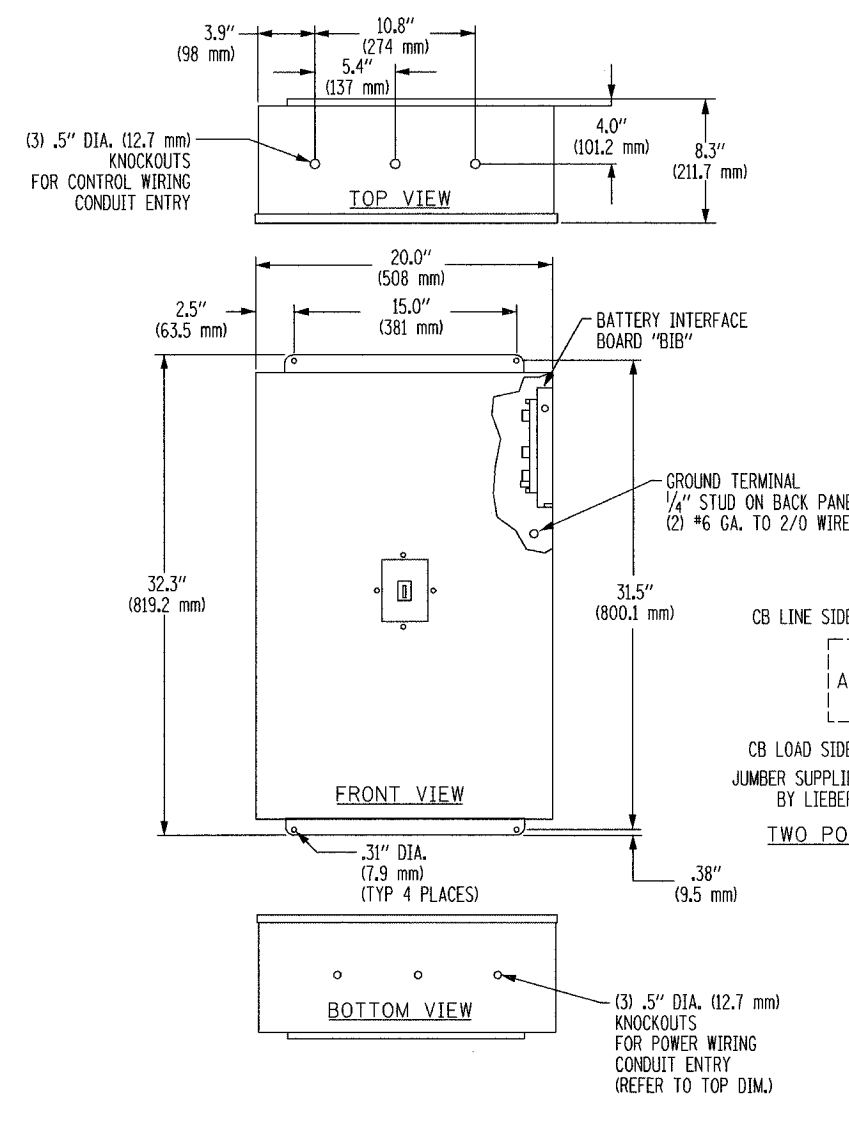
UPS-08

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 94/90 (DAN RYAN EXPRESSWAY)
31st STREET to I-57
TERMINAL DETAILS
25" MAINTENANCE BYPASS CABINET
CONFIGURATION "N" SINGLE INPUT
(NPOWER)
SCALE: AS SHOWN DRAWN BY: JM
DATE: SEPTEMBER 23, 2005 CHECKED BY: CS

07/06/2005 11:34 AM

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2005-0201	COOK	16	16
STA. TO STA.			
FED. ROAD DIST. NO. ILLINOIS		FED. AID PROJECT	
62947			



NOTES

- NEMA 1 ENCLOSURE PROVIDED IS SUITABLE FOR WALL MOUNTING ONLY. APPROX. WEIGHT IS 60 LB.
- HARDWARE FOR CONNECTING CABLES TO THE BREAKER SUPPLIED.
- CIRCUIT BREAKER, SQUARE D TYPE KHL36XXX FOR 40KVA. C.B. TO BE SUPPLIED BY MANUFACTURER.
- COLOR: IBM OFF-WHITE.
- MOUNT ENCLOSURE AND PULL ALL CABLES INTO ENCLOSURE PRIOR TO INSTALLING "BIB" BOARD.
- NUMBER NOT USED.
- POSITIVE AND NEGATIVE DC POWER CABLES NEED TO ENTER FROM THE BOTTOM OF THE ENCLOSURE TO PREVENT CONTACT WITH THE "BIB" BOARD.
- LOW VOLTAGE WIRING NEED TO ENTER FROM THE TOP OF THE ENCLOSURE.
- LINE SIDE POWER CONNECTIONS TO LUGS: (1) #2/0 PER CONNECTION FOR 40KVA UPS. LOAD SIDE POWER CONNECTIONS TO BUS BARS, SEE DETAIL.

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REVISIONS	NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 F.A.I. 94/90 (DAN RYAN EXPRESSWAY)
 31st STREET to I-57
 OUTLINE DRAWING REMOTE
 BATTERY BREAKER - 40 KVA
 (NPOWER)

SCALE: NOT TO SCALE DRAWN BY: JM
 DATE: SEPTEMBER 23, 2005 CHECKED BY: CS

UPS-09

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