

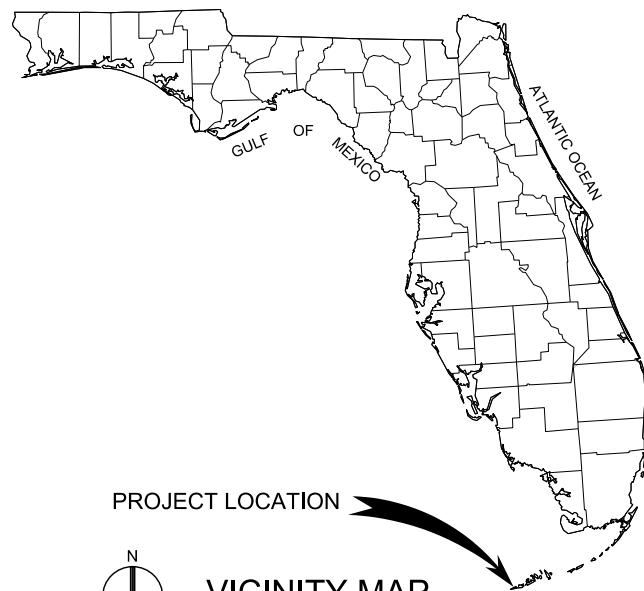
BID DOCUMENTS

FOR THE CONSTRUCTION OF THE

NAVY MOLE PIER ELECTRICAL DISTRIBUTION SYSTEM UPGRADES

PREPARED FOR

CITY OF KEY WEST



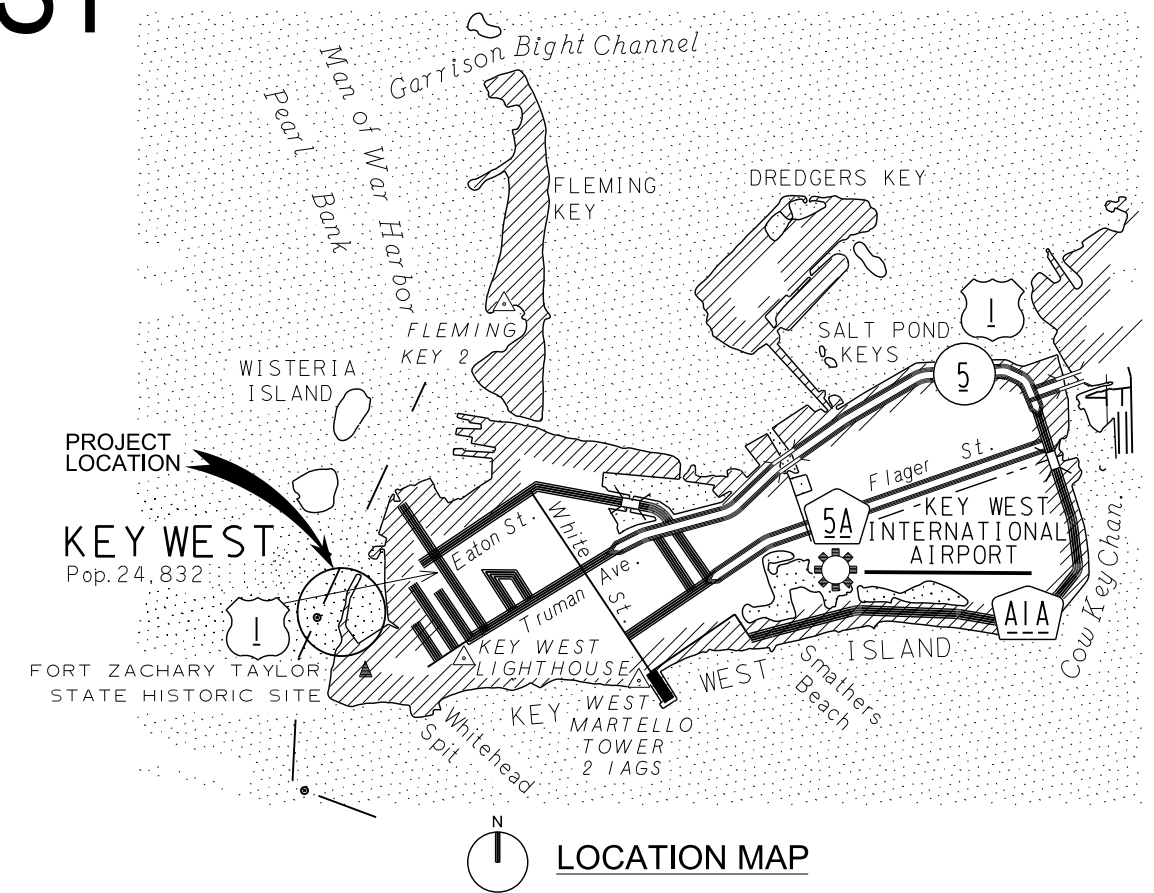
PROJECT LOCATION
VICINITY MAP



Volume 2 of 2
Drawings

INDEX TO DRAWINGS

E-001	LEGEND, ABBREVIATIONS, GENERAL NOTES
E-002	AREA MAP AND KEY PLAN
E-101	NORTH MOLE SITE PLAN
E-102	CENTRAL MOLE SITE PLAN
E-103	SOUTH MOLE SITE PLAN
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E-105	PIER 8 SITE PLAN
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E-603	ONE LINE DIAGRAM SUBSTATION #2
E-604	ONE LINE DIAGRAM SUBSTATION #3
E-605	ONE LINE DIAGRAM SUBSTATION #4



PROJECT LOCATION
LOCATION MAP
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Key West, FL 33040
305/294-1645

CH2MHILL

CH2M Hill Project No. 436331
Key West Project No. ITB# 12-023

MAY 2012

ABBREVIATIONS: ABBREVIATIONS CONT. . . . ABBREVIATIONS CONT. . . . ABBREVIATIONS CONT. . . . LEGEND: GENERAL NOTES:

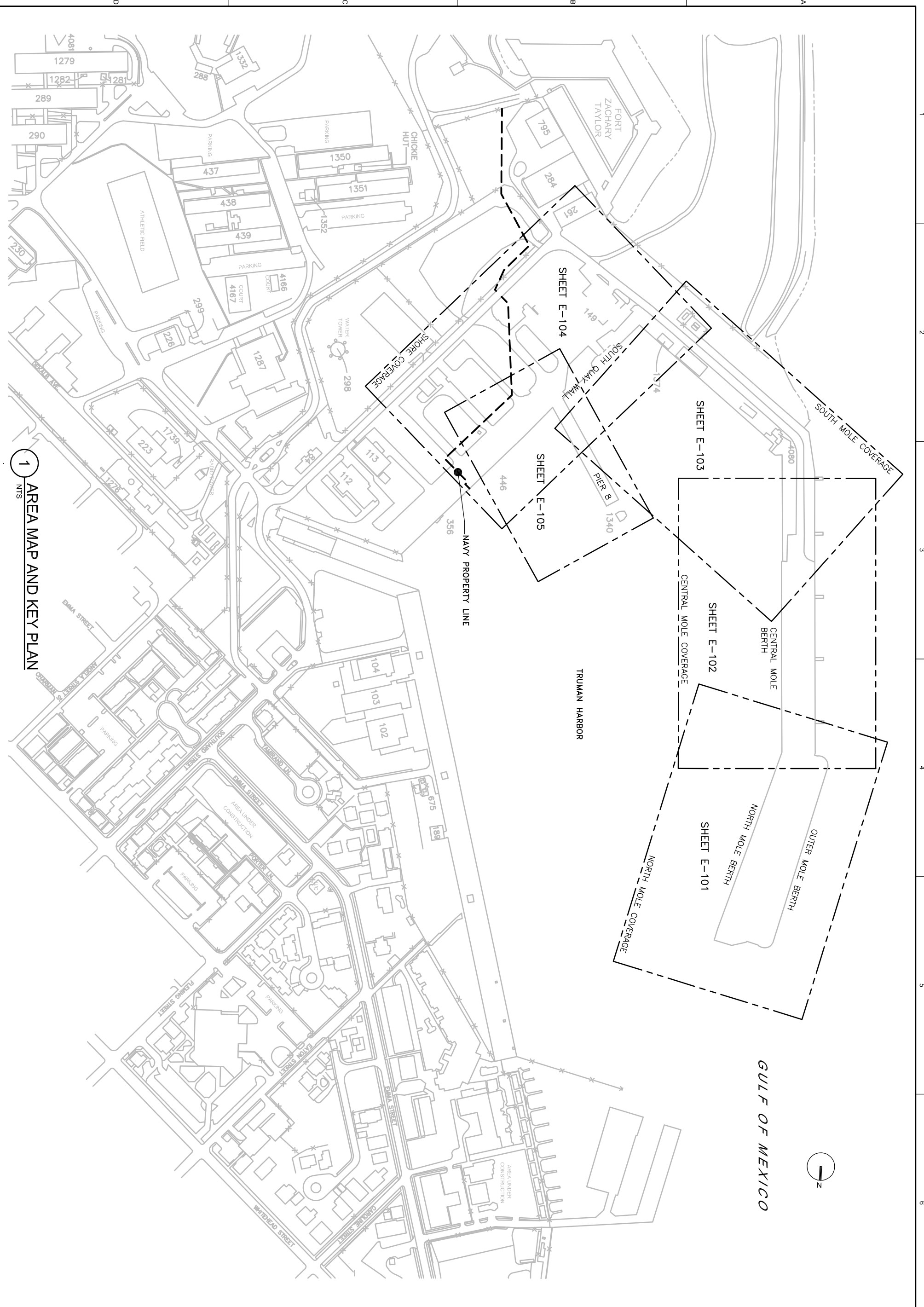
Table of abbreviations and their meanings, organized into three columns. Includes terms like AMP, AMPERE, ALTERNATING CURRENT, etc.

Legend table defining symbols used in drawings. Includes symbols for reference note tag, feeder legend tag, conduit contents tag, etc.

General notes section containing numbered instructions for contractors regarding preparation, removal of dirt, and application of sealant.

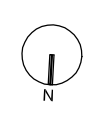
CH2MHILL logo and project information including 'NAVY MOLE ELECTRICAL' and 'LEGEND, ABBREVIATIONS GENERAL NOTES'.

Revision table with columns for NO., DATE, DSGN, DR, CHK, APVD, and BY. Includes names like J BARTON and R HAMMETT.



1 AREA MAP AND KEY PLAN

GULF OF MEXICO



3011 S.W. Williston Road
Gainesville, FL 32608
EB0000072 AAC001992

ELECTRICAL
AREA MAP AND KEY PLAN

NAVY MOLE ELECTRICAL
KEY WEST, FLORIDA
NAVAL FACILITIES ENGINEERING COMMAND
SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA

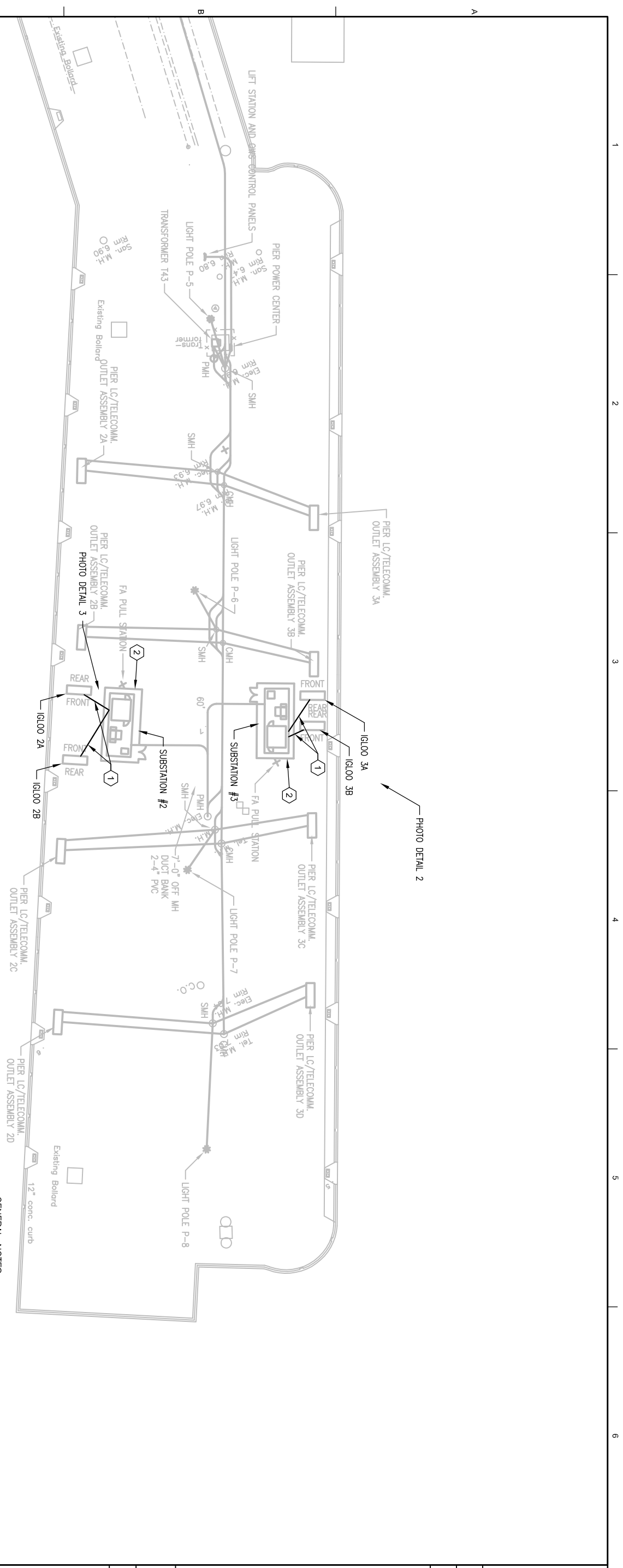
NO.	DATE	DR	CHK	APVD	BY	APVD
DSGN	J BARTON	DR	R HAMMETT	CHK	J BARTON	APVD
					J BARTON	

Jack S. Barton, P.E.
Fla. P.E. No. 42467

FILENAME: E-002_436331.dwg PLOT DATE: 4/30/2012 PLOT TIME: 4:36 PM

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1 NORTH MOLE SITE PLAN
1" = 30'



2 PHOTO DETAIL



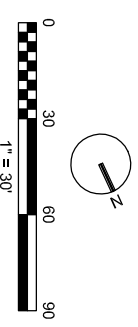
3 PHOTO DETAIL

GENERAL NOTES:
 1. CONTRACTOR TO PREP AND COAT THE METAL TOP OF EACH ELECTRICAL SUBSTATION (FOUR TOTAL) AS DESCRIBED BELOW WITH AMES @ SNOW SEAL:

- A) REMOVE LOOSE DIRT, FLAKING RUST AND DEBRIS FROM ROOF SURFACE. RE-FASTEN OR REPLACE ANY SCREWS THAT HAVE WORKED LOOSE.
- B) PRIME WITH ONE COAT AMES @ SNOW SEAL UNTIL ROOF SURFACE IS SMOOTH AND SEALED. APPLY AMES @ SEAM TAPE OVER ALL SEAMS AND BRUSH A LIBERAL COATING OF AMES @ SNOW SEAL OVER J-STRIPS AND SCREWS.
- C) TOP COAT WITH TWO COATS AMES @ SNOW SEAL.
- D) CONTRACTOR TO FOLLOW MANUFACTURER'S RECOMMENDED APPLICATION REQUIREMENTS.

KEYED NOTES:

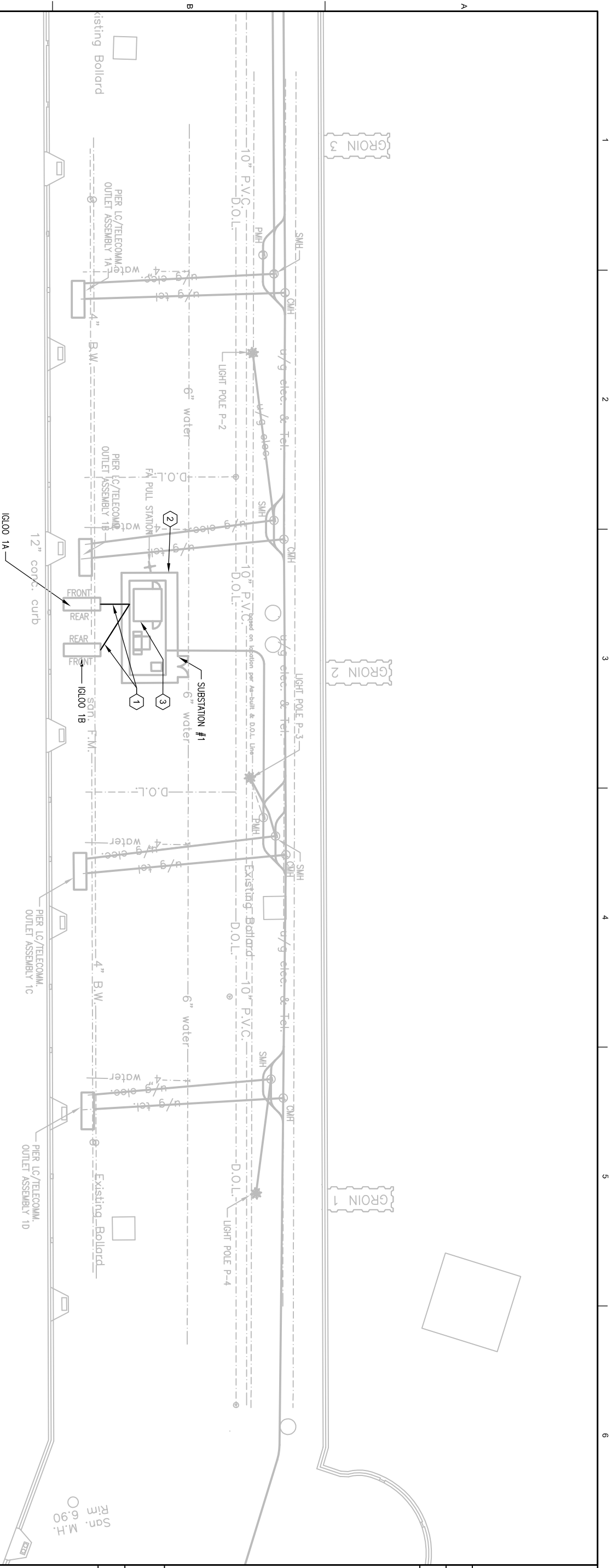
- ① REMOVE/REPLACE (24) CTS, (8) SETS OF 3#750, #2G AND ASSOCIATED REMOTE CONTROL WIRE FROM SWITCHBOARD TO IGL00. TERMINATE FEEDER AND CONTROL WIRE. CONTRACTOR SHALL FIELD VERIFY FEEDER AND CONTROL SIZE AND COUNT. NOTIFY ENGINEER IMMEDIATELY IF DIFFERENT THAN STATED OR SHOWN ON DRAWINGS.
- ② INSTALL AND SET PROTECTIVE RELAYS AS SPECIFIED IN SECTION 280501-207.



FILENAME: E-101_436331.dwg PLOT DATE: 4/30/2012

		3011 S.W. Williston Road Gainesville, FL 32608 EB0000072 AAC001992		NO. DATE		REVISION		BY APVD	
		ELECTRICAL NORTH MOLE SITE PLAN		NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA		DSGN J BARTON	DR R HAMMETT	CHK J BARTON	APVD J BARTON
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING		DATE APRIL 2012		PROJ 436331		DWG E-101		SHEET of	

1 CENTRAL MOLE SITE PLAN
1" = 20'

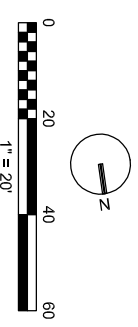


GENERAL NOTES:

1. CONTRACTOR TO PREP. AND COAT THE METAL TOP OF EACH ELECTRICAL SUBSTATION (FOUR TOTAL) AS DESCRIBED BELOW WITH AMES @ SNOW SEAL.
 - A) REMOVE LOOSE DIRT, FLAKING RUST AND DEBRIS FROM ROOF SURFACE. RE-FASTEN OR REPLACE ANY SCREWS THAT HAVE WORKED LOOSE.
 - B) PRIME WITH ONE COAT AMES @ SNOW SEAL UNTIL ROOF SURFACE IS SMOOTH AND SEALED. APPLY AMES @ SEAM TAPE OVER ALL SEAMS AND BRUSH A LIBERAL COATING OF AMES @ SNOW SEAL OVER J-STRIPS AND SCREWS.
 - C) TOP COAT WITH TWO COATS AMES @ SNOW SEAL.
 - D) CONTRACTOR TO FOLLOW MANUFACTURER'S RECOMMENDED APPLICATION REQUIREMENTS.

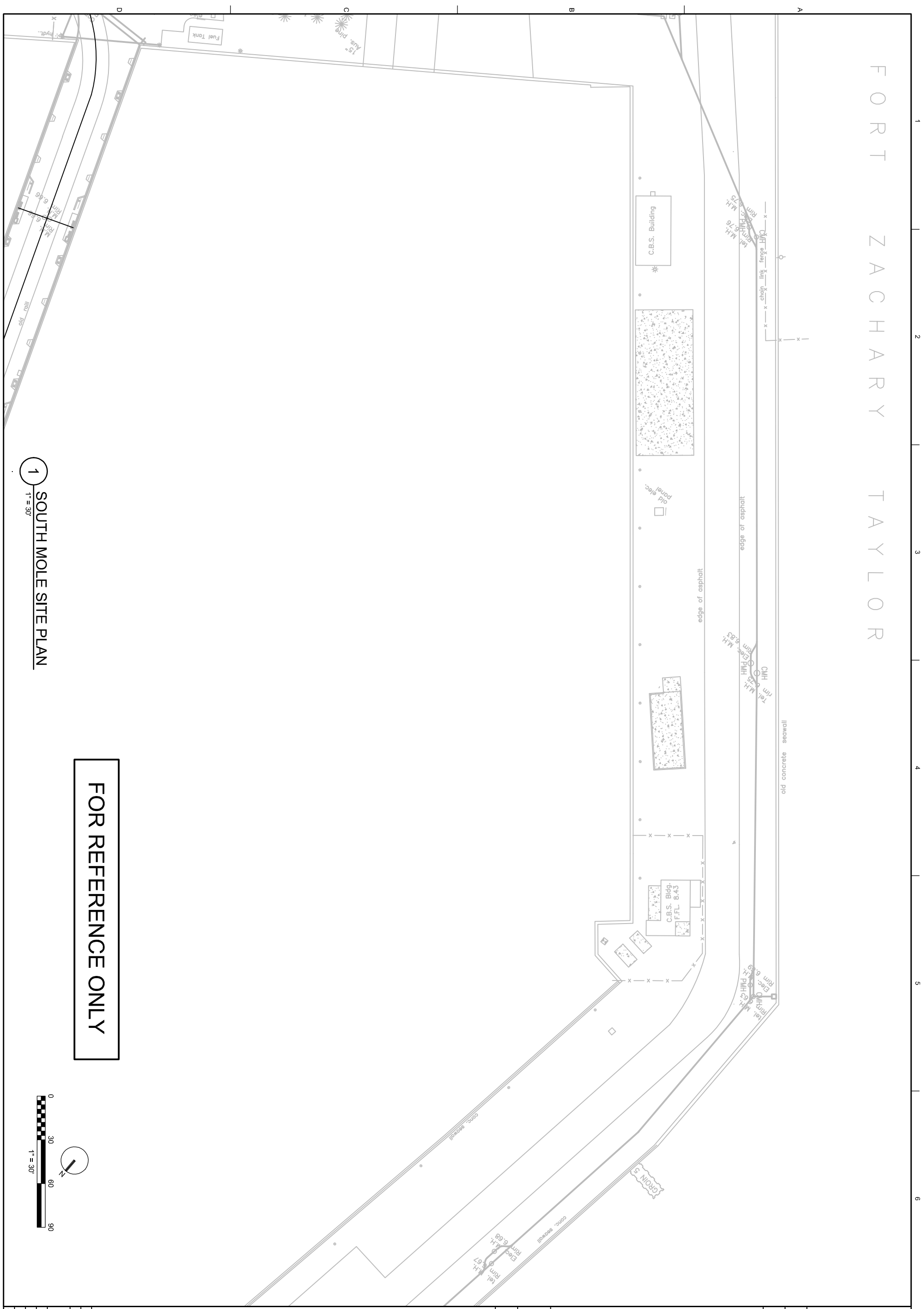
KEYED NOTES:

- 1 REMOVE/REPLACE (24) CTS. (8) SETS OF #750, #26 AND ASSOCIATED REMOTE CONTROL WIRE FROM SWITCHBOARD TO IGLOO. TERMINATE FEEDER AND CONTROL WIRE. CONTRACTOR SHALL FIELD VERIFY FEEDER AND CONTROL SIZE AND COUNT. NOTIFY ENGINEER IMMEDIATELY IF DIFFERENT THAN STATED OR SHOWN ON DRAWINGS.
- 2 INSTALL AND SET PROTECTIVE RELAYS AS SPECIFIED IN SECTION 260501-2.07.
- 3 INSPECT AND REPAIR BUS BETWEEN TRANSFORMER AND SWITCHBOARD.



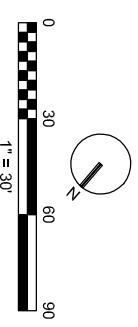
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		ELECTRICAL CENTRAL MOLE SITE PLAN		NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA		DR J BARTON		CHK R HAMMETT		APVD J BARTON	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING		DATE APRIL 2012		PROJ 436331		DWG E-102		SHEET of		Jack S. Barton, P.E. Fla. P.E. No. 42467	



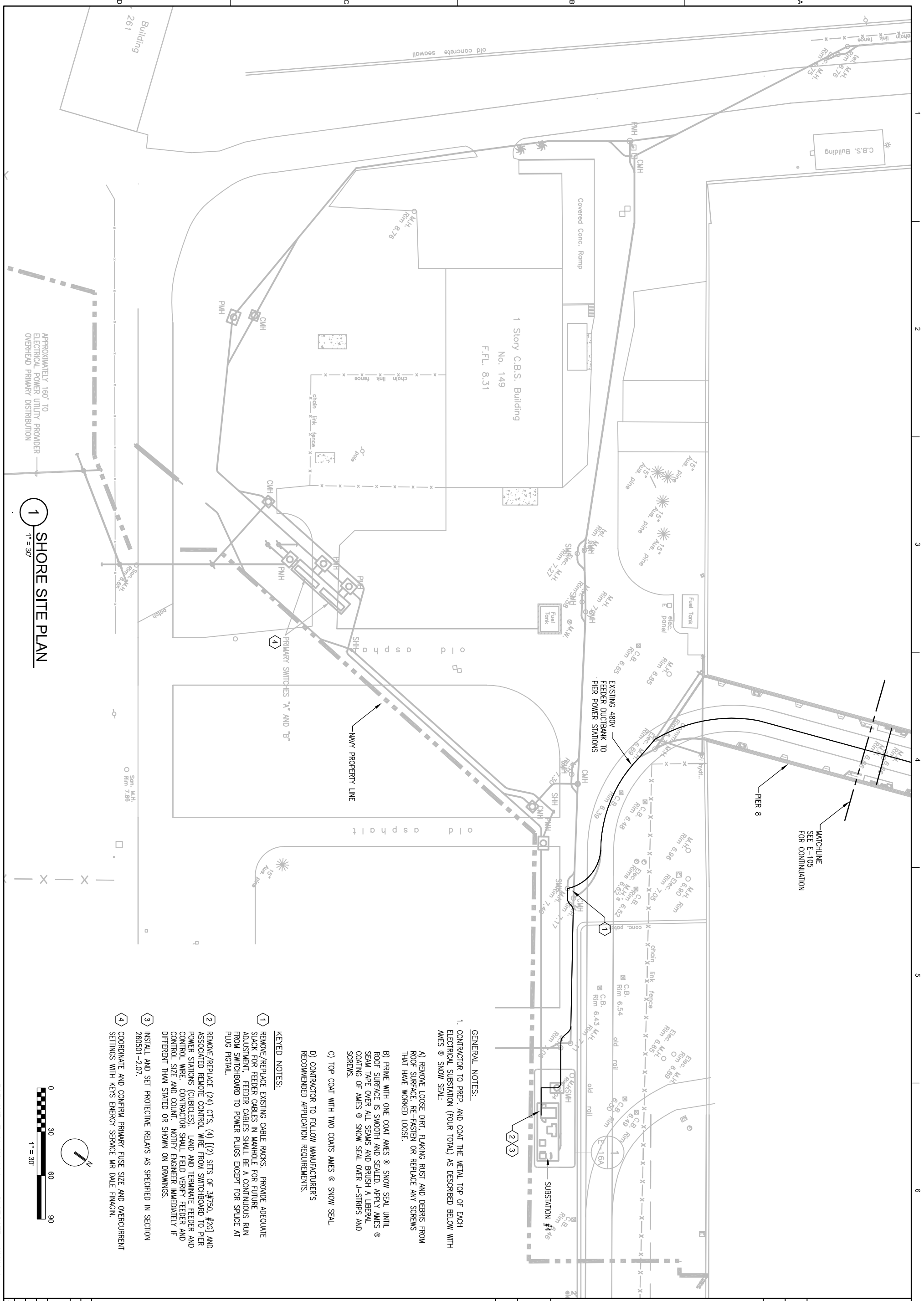
1 SOUTH MOLE SITE PLAN
1" = 30'

FOR REFERENCE ONLY



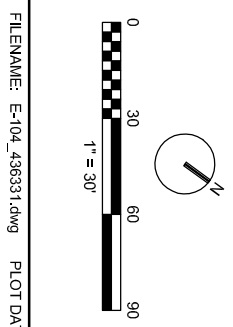
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ELECTRICAL SOUTH MOLE SITE PLAN		NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA		NO. DATE DSGN J BARTON DR R HAMMETT		REVISION CHK J BARTON APVD J BARTON		BY APVD	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE APRIL 2012 PROJ 436331 DWG E-103		SHEET of		PLOT TIME: 4:39 PM		Jack S. Barton, P.E. Fla. P.E. No. 42467	



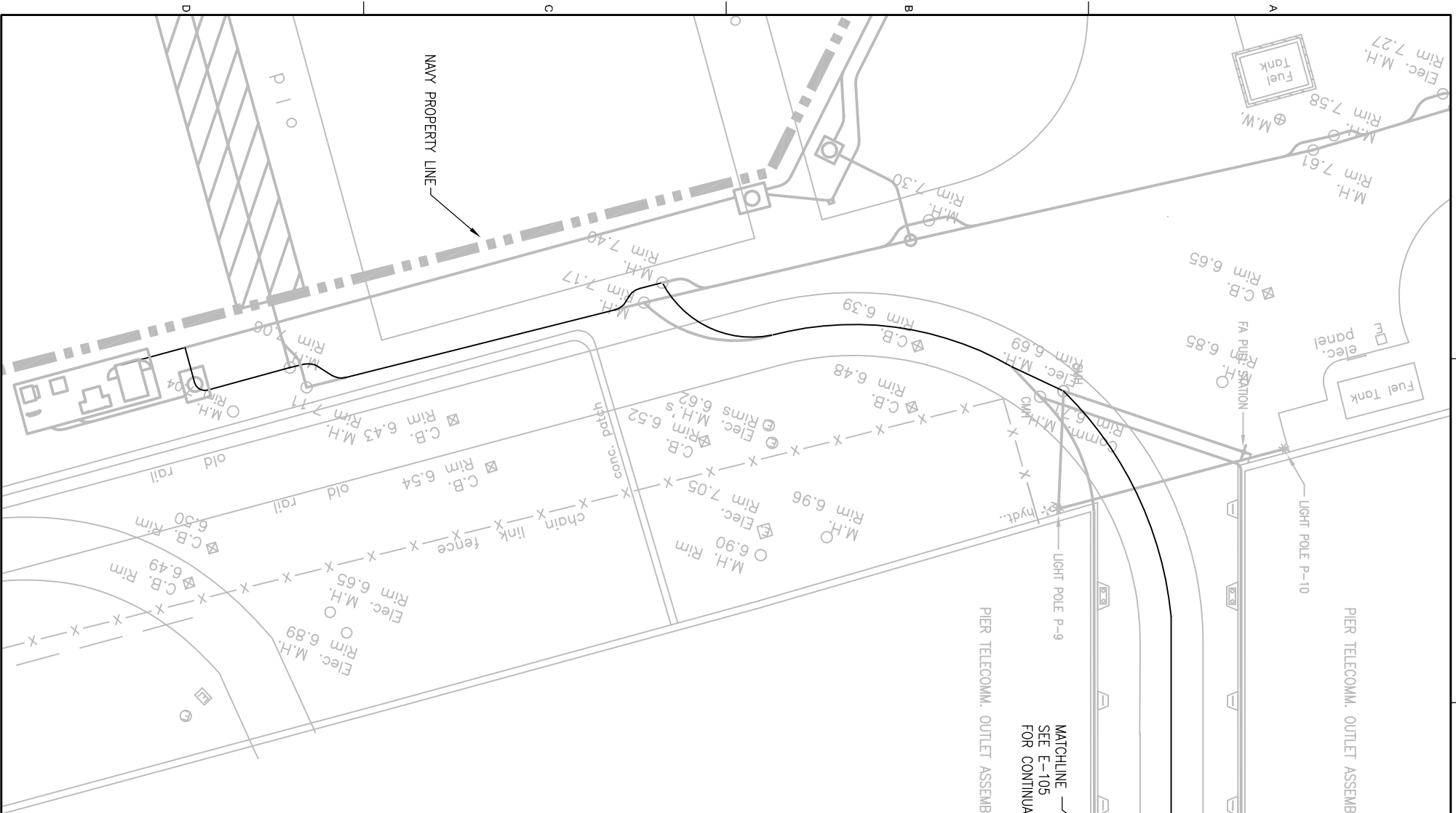
1 SHORE SITE PLAN
T = 30'

- KEYED NOTES:**
- 1 REMOVE/REPLACE EXISTING CABLE RACKS. PROVIDE ADEQUATE SLACK FOR FEEDER CABLES IN MANHOLE FOR FUTURE ADJUSTMENT. FEEDER CABLES SHALL BE A CONTINUOUS RUN FROM SWITCHBOARD TO POWER PLUGS EXCEPT FOR SPLICE AT PLUG PIGTAIL.
 - 2 REMOVE/REPLACE (24) CTS, (4) (2) SETS OF 3#750, #26] AND ASSOCIATED REMOTE CONTROL WIRE FROM SWITCHBOARD TO PIER POWER STATIONS (CUBICLES), LAND AND TERMINATE FEEDER AND CONTROL WIRE. CONTRACTOR SHALL FIELD VERIFY FEEDER AND CONTROL SIZE AND COUNT. NOTIFY ENGINEER IMMEDIATELY IF DIFFERENT THAN STATED OR SHOWN ON DRAWINGS.
 - 3 INSTALL AND SET PROTECTIVE RELAYS AS SPECIFIED IN SECTION 260501-2.07.
 - 4 COORDINATE AND CONTROL PRIMARY FUSE SIZE AND OVERCURRENT SETTINGS WITH KEYS ENERGY SERVICE WR DALE FINAGIN.
- GENERAL NOTES:**
- 1. CONTRACTOR TO PREP AND COAT THE METAL TOP OF EACH ELECTRICAL SUBSTATION (FOUR TOTAL) AS DESCRIBED BELOW WITH AMES @ SNOW SEAL:
 - A) REMOVE LOOSE DIRT, FLAKING RUST AND DEBRIS FROM ROOF SURFACE. RE-FASTEN OR REPLACE ANY SCREWS THAT HAVE WORKED LOOSE.
 - B) PRIME WITH ONE COAT AMES @ SNOW SEAL UNTIL ROOF SURFACE IS SMOOTH AND SEALED. APPLY AMES @ SEAM TAPE OVER ALL SEAMS AND BRUSH A LIBERAL COATING OF AMES @ SNOW SEAL OVER J-STRIPS AND SCREWS.
 - C) TOP COAT WITH TWO COATS AMES @ SNOW SEAL.
 - D) CONTRACTOR TO FOLLOW MANUFACTURER'S RECOMMENDED APPLICATION REQUIREMENTS.



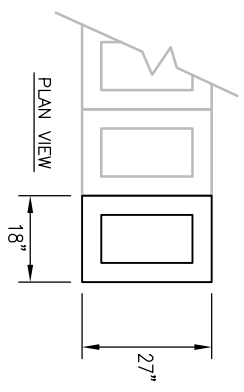
FILENAME: E-104_436331.dwg PLOT DATE: 4/30/2012

CH2MHILL		3011 S.W. Williston Road Gainesville, FL 32608 EB0000072 AAC001992		NOV 11 2012	
ELECTRICAL SHORE SITE PLAN		NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA		NO. DATE DR	
		J BARTON R HAMMETT		REVISION	
				CHK J BARTON	
				APVD J BARTON	
				BY APVD	
				J BARTON	
				Jack S. Barton, P.E. Fla. P.E. No. 42467	



1 PIER 8 SITE PLAN
1" = 20'

2 CUBICLE DETAIL
NTS



1 TOP ACCESS OPENING TO MATCH EXISTING BACK ACCESS OPENING. USE EXISTING BACK COVER PLATE FOR NEW TOP PLATE.



3 PHOTO DETAIL

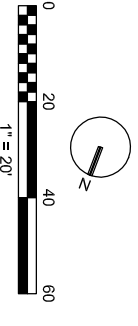


4 PHOTO DETAIL



5 PHOTO DETAIL

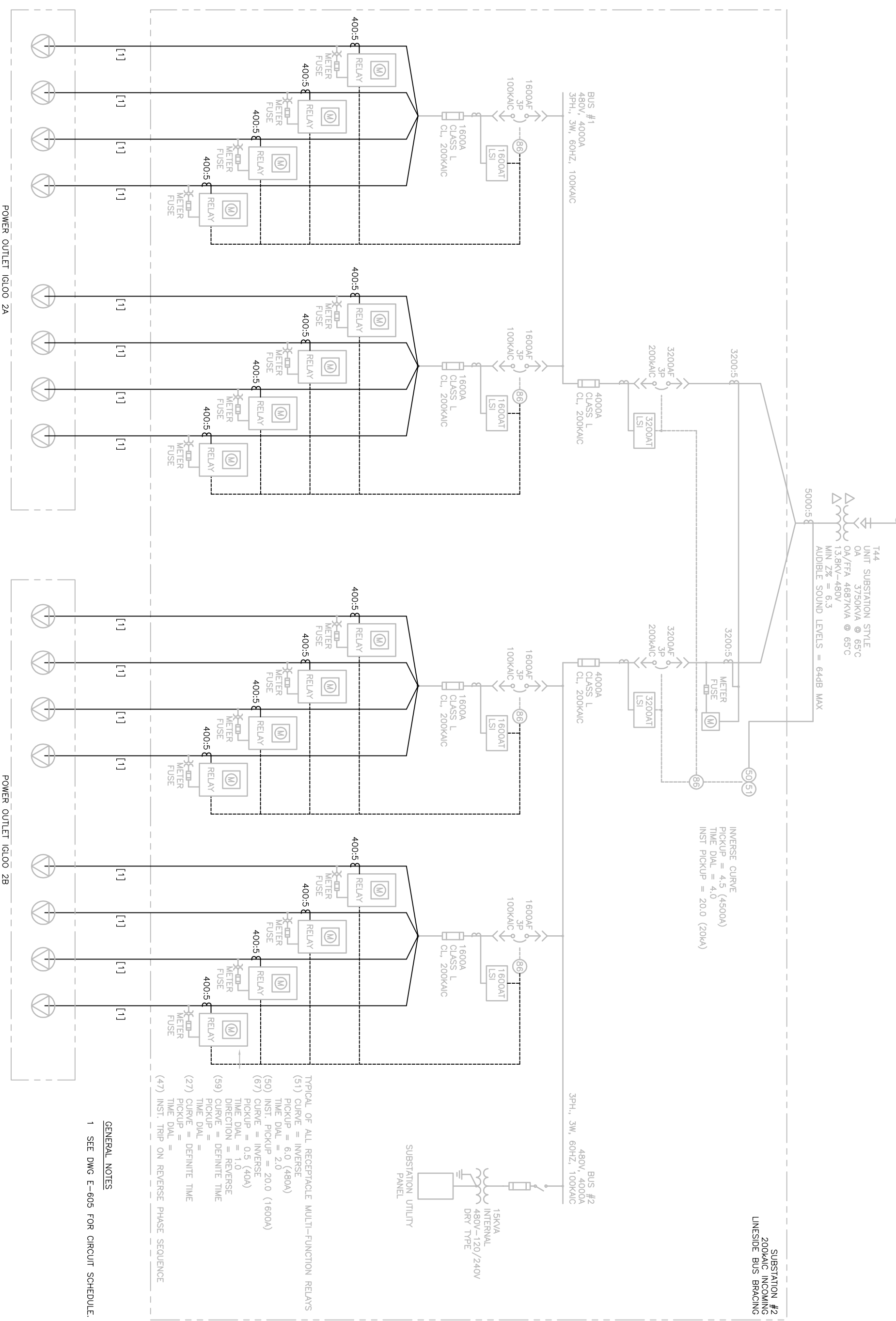
- KEYED NOTES:**
- ① REMOVE/REPLACE EXISTING CABLE RACKS. PROVIDE ADEQUATE SLACK FOR FEEDER CABLES IN MANHOLE FOR FUTURE ADJUSTMENT. FEEDER CABLES SHALL BE A CONTINUOUS RUN FROM SWITCHBOARD TO POWER PLUGS EXCEPT FOR SPLICE AT PLUG DETAIL.
 - ② REPLACE MOMENTARY KEY LOCK SWITCH ON ALL POWER STATIONS 1, 2, 3 & 4.
 - ③ FABRICATE AND INSTALL STAINLESS STEEL (316) EXTENSION TO EXISTING POWER STATIONS (CUBICLES). SEE DETAIL 2.



FILENAME: E-105_436331.dwg PLOT DATE: 4/30/2012

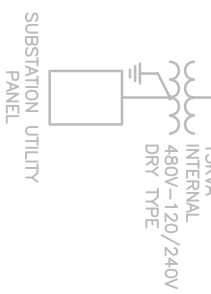
CH2MHILL		3011 S.W. Williston Road Gainesville, FL 32608 EB0000072 AAC001992	
ELECTRICAL PIER 8 SITE PLAN		NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		NO. DATE REVISION DSGN J BARTON DR R HAMMETT CHK J BARTON APVD J BARTON	
DATE: APRIL 2012	PROJ: 436331	BY: J BARTON APVD: J BARTON	
DWG: E-105	Jack S. Barton, P.E. Fla. P.E. No. 42467		
PLOT TIME: 4:40 PM		<small>REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL.</small> <small>© CH2M HILL 2011. ALL RIGHTS RESERVED.</small>	

REFER TO DRAWING E-601
FOR CONTINUATION



T44
UNIT SUBSTATION STYLE
0A/FFA 4687kVA @ 65°C
13.8kV-480V
MIN Z% = 6.3
AUDIBLE SOUND LEVELS = 64dB MAX

INVERSE CURVE
PICKUP = 4.5 (4500A)
TIME DIAL = 4.0
INST PICKUP = 20.0 (20kA)



- TYPICAL OF ALL RECEPTACLE MULTI-FUNCTION RELAYS
- (51) CURVE = INVERSE
PICKUP = 6.0 (480A)
TIME DIAL = 2.0
 - (50) INST. PICKUP = 20.0 (1600A)
 - (67) CURVE = INVERSE
PICKUP = 0.5 (40A)
TIME DIAL = 1.0
DIRECTION = REVERSE
 - (59) CURVE = DEFINITE TIME
PICKUP =
TIME DIAL =
 - (27) CURVE = DEFINITE TIME
PICKUP =
TIME DIAL =
 - (47) INST. TRIP ON REVERSE PHASE SEQUENCE

GENERAL NOTES
1 SEE DWG E-605 FOR CIRCUIT SCHEDULE.

FILENAME: E-603_436331.dwg PLOT DATE: 4/30/2012

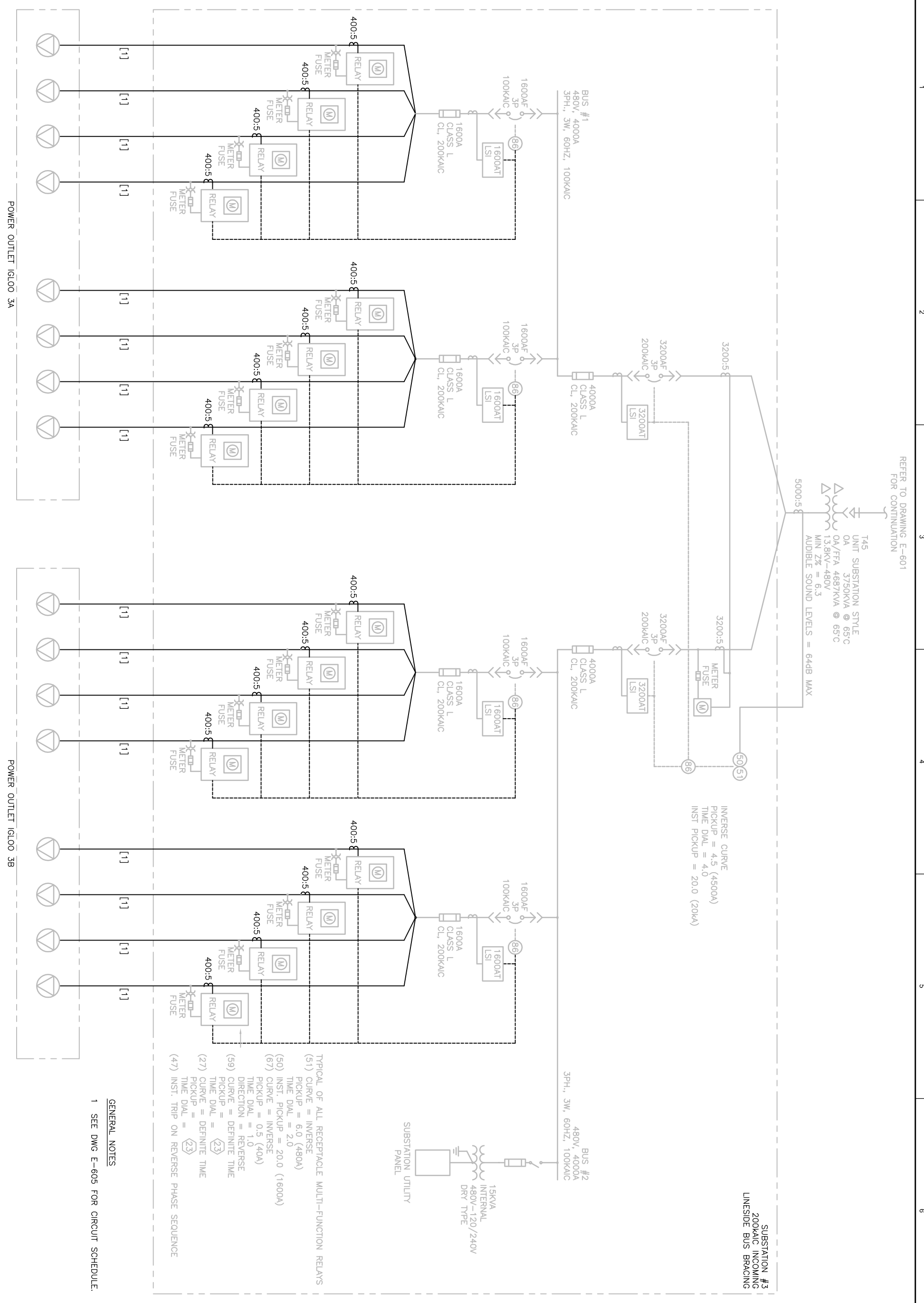
		3011 S.W. Williston Road Gainesville, FL 32608 EB0000072 AAC001992		NO. DATE		REVISION		BY APVD	
		ELECTRICIAN ONE LINE DIAGRAM SUBSTATION #2		NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA		DSGN J BARTON	DR R HAMMETT	CHK J BARTON	APVD J BARTON
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING		DATE APRIL 2012		PROJ 436331		DWG E-603		Jack S. Barton, P.E. Fla. P.E. No. 42467	

REFER TO DRAWING E-601
FOR CONTINUATION

T45
UNIT SUBSTATION STYLE
0A
3750KVA @ 65°C
0A/FFA 4687KVA @ 65°C
13.8KV-480V
MIN Z% = 6.3
AUDIBLE SOUND LEVELS = 64dB MAX

INVERSE CURVE
PICKUP = 4.5 (4500A)
TIME DIAL = 4.0
INST PICKUP = 20.0 (20KA)

SUBSTATION #3
200KAIC INCOMING
LINESIDE BUS BRACING



- TYPICAL OF ALL RECEPTACLE MULTI-FUNCTION RELAYS
- (51) CURVE = INVERSE
PICKUP = 6.0 (480A)
TIME DIAL = 2.0
 - (50) INST. PICKUP = 20.0 (1600A)
PICKUP = 0.5 (40A)
TIME DIAL = 1.0
 - (59) CURVE = REVERSE
DIRECTION = REVERSE
PICKUP = DEFINITE TIME
TIME DIAL = (23)
 - (27) CURVE = DEFINITE TIME
PICKUP = (23)
TIME DIAL = (23)
 - (47) INST. TRIP ON REVERSE PHASE SEQUENCE

GENERAL NOTES
1 SEE DWG E-605 FOR CIRCUIT SCHEDULE.

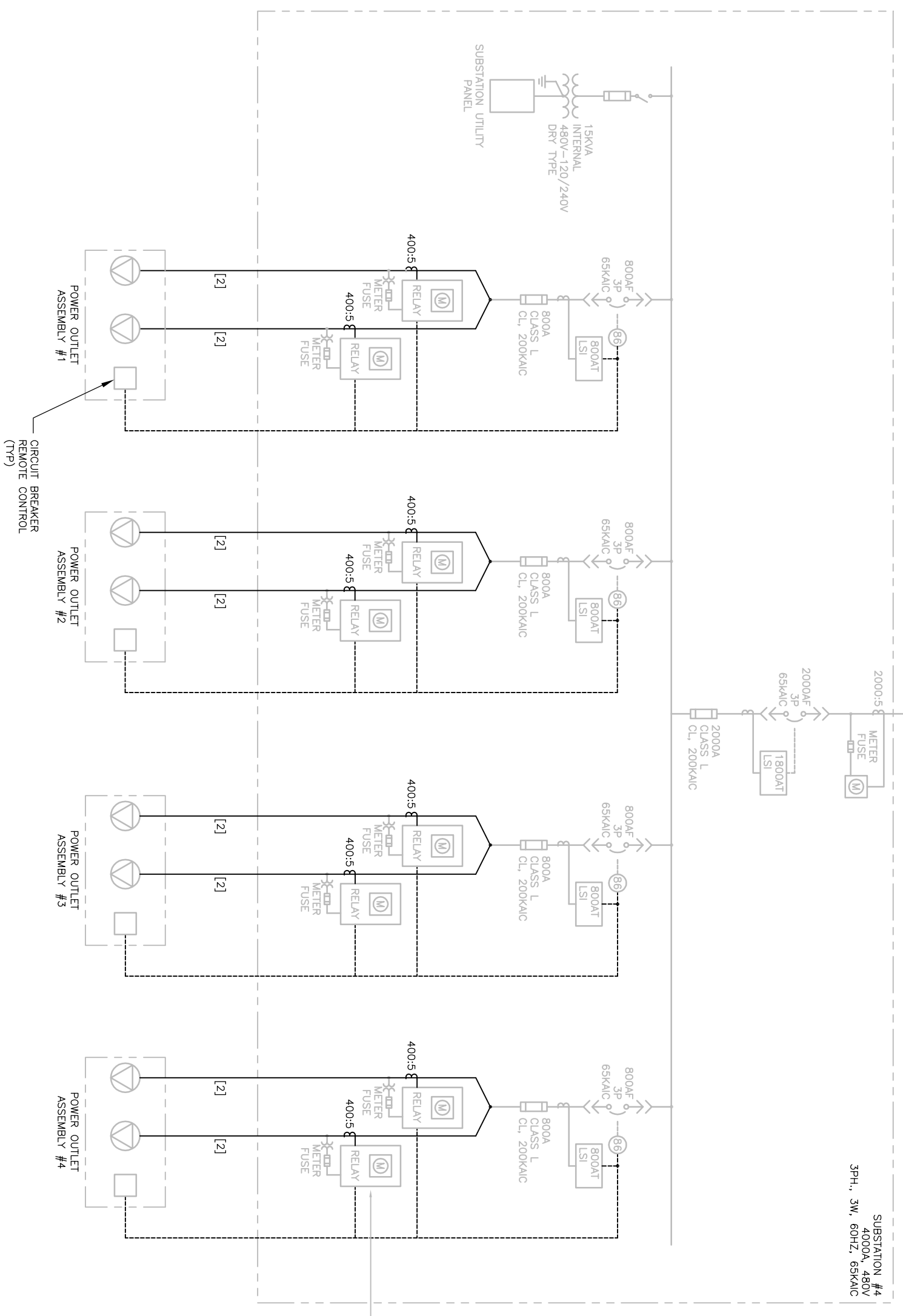
FILENAME: E-604_436331.dwg PLOT DATE: 4/30/2012

<p>CH2MHILL</p> <p>3011 S.W. Williston Road Gainesville, FL 32608 EB0000072 AAC001992</p>		<p>NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA</p>		<p>NO. DATE</p> <p>DSGN J BARTON DR R HAMMETT CHK J BARTON APVD J BARTON</p>		<p>BY APVD</p> <p>J BARTON</p>		<p>Jack S. Barton, P.E. Fla. P.E. No. 42467</p>	
<p>ELECTRICAL ONE LINE DIAGRAM SUBSTATION #3</p>		<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING</p> <p>DATE APRIL 2012 PROJ 436331 DWG E-604 SHEET</p>		<p>REVISION</p>		<p>APVD</p>		<p>© CH2M HILL 2011. ALL RIGHTS RESERVED.</p>	

REFER TO DRAWING E-601
FOR CONTINUATION

T41
UNIT SUBSTATION STYLE
0A 1500KVA @ 65°C
0A/FA 1725KVA @ 65°C
1.38KV-480V
MIN Z% = 5.32
AUDIBLE SOUND LEVELS = 61DB MAX

SUBSTATION #4
4000A, 480V
3PH, 3W, 60HZ, 65KAIC



- CIRCUIT SCHEDULE**
- [1] (3) #750, #2G
IN EXISTING CONDUIT
 - [2] (3) #750, #2G
12/#12 CONTROL WIRE
IN EXISTING CONDUIT

- TYPICAL OF ALL RECEPTACLE MULTI-FUNCTION RELAYS**
- (51) CURVE = INVERSE
PICKUP = 6.0 (480A)
TIME DIAL = 2.0
 - (50) INST. PICKUP = 20.0 (1600A)
 - (67) CURVE = INVERSE
PICKUP = 0.5 (40A)
TIME DIAL = 1.0
DIRECTION = REVERSE
 - (59) CURVE = DEFINITE TIME
PICKUP =
 - (27) CURVE = DEFINITE TIME
PICKUP =
 - (47) INST. TRIP ON REVERSE PHASE SEQUENCE

FILENAME: E-605_436331.dwg PLOT DATE: 4/30/2012

<p>ELECTRICAL ONE LINE DIAGRAM SUBSTATION #4</p>	<p>3011 S.W. Williston Road Gainesville, FL 32608 EB0000072 AAC001992</p>	<p>NAVY MOLE ELECTRICAL KEY WEST, FLORIDA NAVAL FACILITIES ENGINEERING COMMAND SOUTH DIVISION - CHARLSTON, SOUTH CAROLINA</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	REVISION				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>BY</th> <th>APVD</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	BY	APVD			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DR</th> <th>CHK</th> <th>APVD</th> </tr> <tr> <td>J BARTON</td> <td>R HAMMETT</td> <td>J BARTON</td> </tr> </table>	DR	CHK	APVD	J BARTON	R HAMMETT	J BARTON	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DSGN</th> <th>DR</th> <th>CHK</th> <th>APVD</th> </tr> <tr> <td>J BARTON</td> <td>R HAMMETT</td> <td>J BARTON</td> <td>J BARTON</td> </tr> </table>	DSGN	DR	CHK	APVD	J BARTON	R HAMMETT	J BARTON	J BARTON	<p>Jack S. Barton, P.E. Fla. P.E. No. 42467</p>
	NO.	DATE	REVISION																												
BY	APVD																														
DR	CHK	APVD																													
J BARTON	R HAMMETT	J BARTON																													
DSGN	DR	CHK	APVD																												
J BARTON	R HAMMETT	J BARTON	J BARTON																												
<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING</p> <p>DATE: APRIL 2012 PROJ: 436331 DWG: E-605</p>						<p>REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL.</p> <p style="text-align: right;">© CH2M HILL 2011. ALL RIGHTS RESERVED.</p>																									