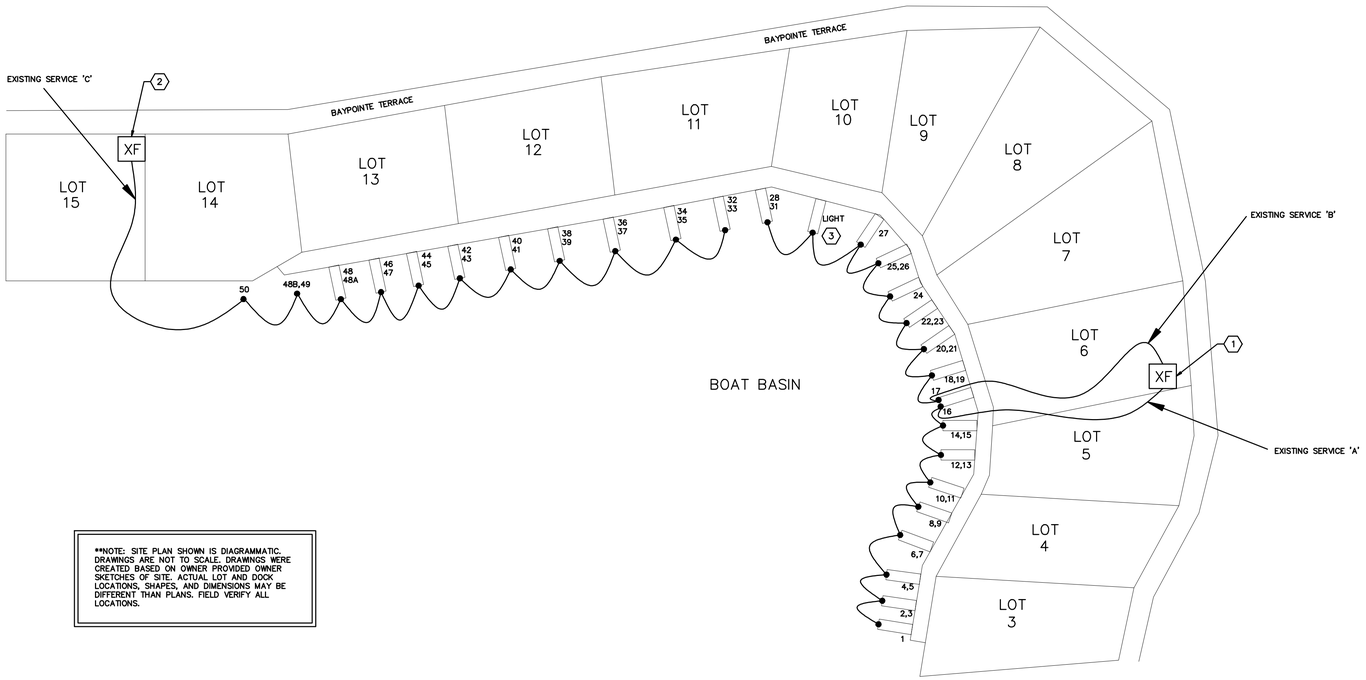
EXISTING SITE PLAN

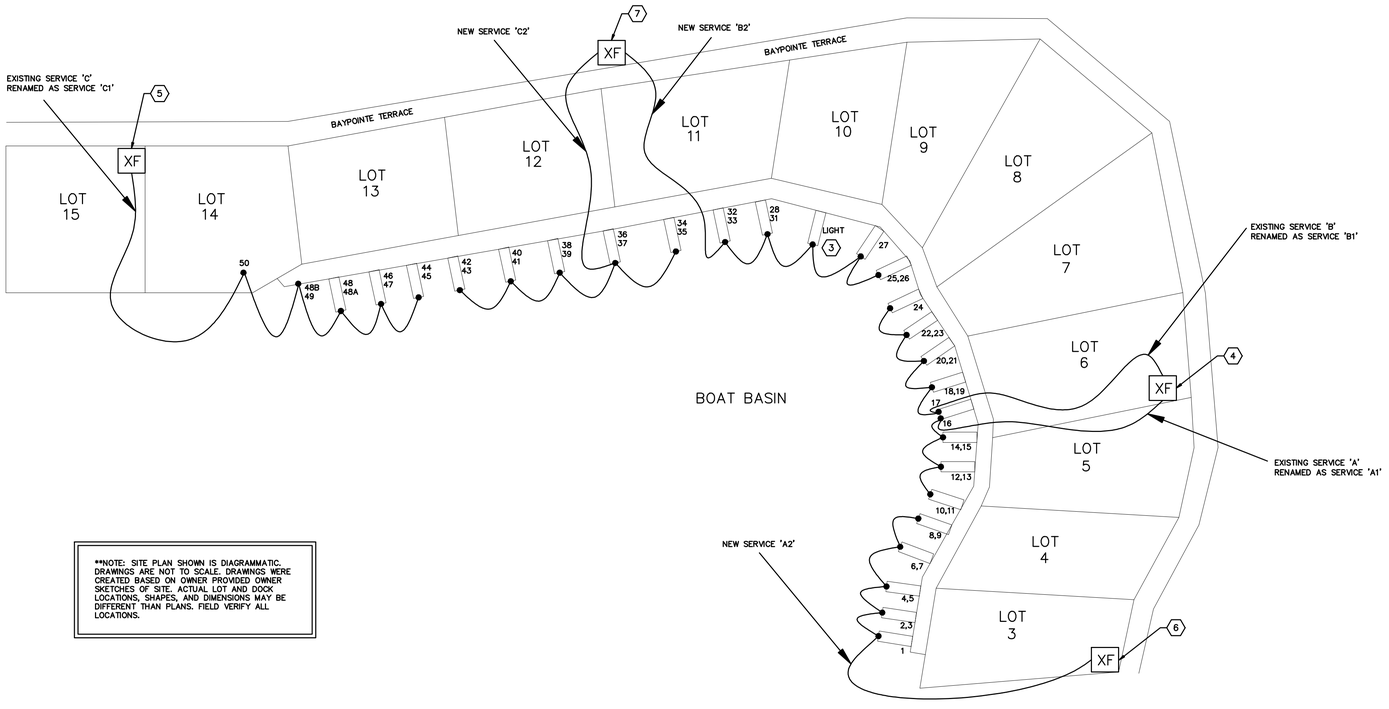


**NOTE: SITE PLAN SHOWN IS DIAGRAMMATIC. DRAWINGS ARE NOT TO SCALE. DRAWINGS WERE CREATED BASED ON OWNER PROVIDED OWNER SKETCHES OF SITE. ACTUAL LOT AND DOCK LOCATIONS, SHAPES, AND DIMENSIONS MAY BE DIFFERENT THAN PLANS. FIELD VERIFY ALL LOCATIONS.

KEYED NOTES

1. EXISTING UTILITY TRANSFORMER. COORDINATE EXACT LOCATION WITH FP&L. EXISTING SERVICE 'A' AND 'B' ARE TO BE MODIFIED. SEE PROPOSED SITE PLAN FOR NEW SERVICES AND MODIFICATIONS TO EXISTING SERVICES.
2. EXISTING UTILITY TRANSFORMER. COORDINATE EXACT LOCATION WITH FP&L. EXISTING SERVICE 'C' IS TO BE MODIFIED. SEE PROPOSED SITE PLAN FOR NEW SERVICES AND MODIFICATIONS TO EXISTING SERVICES.
3. EXISTING PEDESTAL WITH LIGHT ONLY.
4. EXISTING UTILITY TRANSFORMER TO PROVIDE SERVICE 'A1' AND 'B1' SERVING SLIPS 10 THROUGH 24. DISCONNECTS USED FOR EXISTING SERVICES 'A' AND 'B' ARE TO BE REUSED. SEE SINGLE LINE FOR CONDUIT AND CONDUCTOR SIZES. CONTRACTOR SHALL PROVIDE AND INSTALL ALL LABOR AND COMPONENTS REQUIRED FOR A COMPLETE WORKING SYSTEM.
5. EXISTING UTILITY TRANSFORMER TO PROVIDE SERVICE 'C1' SERVING SLIPS 44 THROUGH 50. DISCONNECT USED FOR EXISTING SERVICES 'C' ARE TO BE REUSED. SEE SINGLE LINE FOR CONDUIT AND CONDUCTOR SIZES. CONTRACTOR SHALL PROVIDE AND INSTALL ALL LABOR AND COMPONENTS REQUIRED FOR A COMPLETE WORKING SYSTEM.
6. EXISTING UTILITY TRANSFORMER TO PROVIDE SERVICE 'A2' SERVING SLIPS 1 THROUGH 9. CONTRACTOR TO PROVIDE NEW NEMA 3R DISCONNECT AS INDICATED ON SINGLE LINE DIAGRAM. SEE SINGLE LINE FOR CONDUIT AND CONDUCTOR SIZES. CONTRACTOR SHALL PROVIDE AND INSTALL ALL LABOR AND COMPONENTS REQUIRED FOR A COMPLETE WORKING SYSTEM.
7. EXISTING UTILITY TRANSFORMER TO PROVIDE SERVICE 'C2' AND 'B2' SERVING SLIPS 33 THROUGH 43. CONTRACTOR TO PROVIDE (2) NEW NEMA 3R DISCONNECTS AS INDICATED ON SINGLE LINE DIAGRAM. SEE SINGLE LINE FOR CONDUIT AND CONDUCTOR SIZES. CONTRACTOR SHALL PROVIDE AND INSTALL ALL LABOR AND COMPONENTS REQUIRED FOR A COMPLETE WORKING SYSTEM.

PROPOSED SITE PLAN



**NOTE: SITE PLAN SHOWN IS DIAGRAMMATIC. DRAWINGS ARE NOT TO SCALE. DRAWINGS WERE CREATED BASED ON OWNER PROVIDED OWNER SKETCHES OF SITE. ACTUAL LOT AND DOCK LOCATIONS, SHAPES, AND DIMENSIONS MAY BE DIFFERENT THAN PLANS. FIELD VERIFY ALL LOCATIONS.

GENERAL NOTES

GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS

1. DRAWINGS ARE BASED ON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO THE ARCHITECT/ ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.
2. EXISTING TO REMAIN ELECTRICAL CIRCUITRY DOWNSTREAM AND UPSTREAM OF DEMOLISHED DEVICES SHALL BE MAINTAINED. PROVIDE ALL ELECTRICAL COMPONENTS (BOXES, CONDUIT, WIRING, ETC...) AS REQUIRED.
3. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO CUT, CAPTURE AND EXTEND OR REROUTE EXISTING CONDUITS AND CONDUCTORS AS REQUIRED.
4. DO NOT SCALE FROM THESE DRAWINGS.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
6. WIRE SIZE SHALL BE INCREASED IN SIZE FOR VOLTAGE DROP, E.G SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
7. WHERE NON-FUSED DISCONNECT IS NOT PROVIDED "WITHIN SIGHT" OF MOTOR, FEEDER (AND/OR BRANCH CIRCUIT) OVER-CURRENT DEVICE SERVING SUCH MOTOR SHALL HAVE APPROVED "LOCKED-OFF" PROVISION.

ELECTRICAL – SITE PLAN

SCALE: N.T.S.

FORNEY ENGINEERING, INC.
MECHANICAL & ELECTRICAL CONSULTING ENGINEERS
5213 FOURTH AVE. CIRCLE EAST. BRADENTON, FL. 34208 C.O.A. #4049
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HARBOUR LANDING ESTATES YACHT BASIN ELECTRICAL DESIGN
12314 BAYPOINTE TERRACE
CORTEZ, FL 34215

TO THE BEST OF MY KNOWLEDGE, SAID PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES.

BY _____
PHILIP J. FEIKEMA P.E.
65083

DATE: _____

S E A L

REV. #	DATE

JOB NO. : 07-2046
DATE : 6-22-07
DRAWN BY : JMM
CHECKED BY : PF
SHEET No. :
E1

SERVICE "A1" SUMMARY

Slip #	# OF 20A RECEPTACLES	# OF 30A RECEPTACLES	# OF 50A RECEPTACLES	BREAKERS	LIFT MOTORS	METER
10	0	1	0	N/A	N/A	No
11	0	1	0	20/2 AND 30/1 AND 15/1	(2) 1HP	YES
12	0	1	1	50/2 AND 30/1 AND20/1	N/A	YES
13	1	1	0	30/1 AND 20/1	(2) 3/4HP	YES
14	1	1	0	30/1 AND 20/2	(2) 1HP	YES
15	0	2	0	30/1 AND 30/1 AND 15/2	(2) 3/4HP	YES
16	1	1	0	30/1 AND 20/1 AND 15/1	(2) 3/4HP	YES

*NOTE: ALL BREAKERS AND PEDESTALS IN TABLE ARE EXISTING OR TO BE PROVIDED BY OWNER. ADDITIONAL 30A RECEPTACLE IS INCLUDED FOR #10 FOR FUTURE USE.

SERVICE "A2" SUMMARY

Slip #	# OF 20A RECEPTACLES	# OF 30A RECEPTACLES	# OF 50A RECEPTACLES	BREAKERS	LIFT MOTORS	METER
1	0	1	0	30/1	N/A	No
2	0	1	0	20/1	(2) 3/4HP	YES
3	0	1	0	N/A	N/A	No
4	0	1	0	30/1	N/A	No
5	0	1	0	30/1	N/A	No
6	1	1	0	20/2 AND 30/1	(2) 1HP	YES
7	0	1	0	N/A	N/A	No
8	1	1	0	20/2 AND 30/1	(2) 1HP	YES
9	0	1	0	30/1	N/A	YES

*NOTE: ALL BREAKERS AND PEDESTALS IN TABLE ARE EXISTING OR TO BE PROVIDED BY OWNER. ADDITIONAL 30A RECEPTACLES ARE INCLUDED FOR #2, #3, #7, AND #10 FOR FUTURE USE.

KEYED NOTES

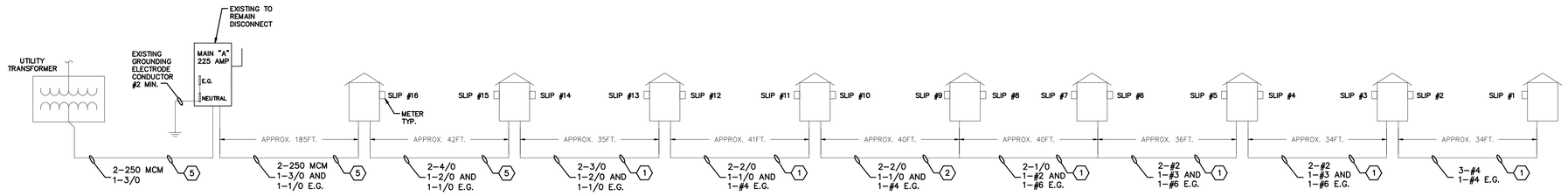
1. EXISTING CIRCUIT TO BE REMOVED. MAINTAIN EXISTING CONDUIT FOR NEW CONDUCTORS. SEE PROPOSED SERVICE SINGLE LINE DIAGRAMS.
2. REMOVE CONDUCTORS BETWEEN SLIP 9 AND SLIP 10. CONDUIT TO REMAIN. SEAL OFF BOTH ENDS OF CONDUIT BY APPROVED METHODS.
3. CONTRACTOR TO PROVIDE AND INSTALL (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU AND (1) #4 E.G. IN EXISTING CONDUIT BETWEEN SLIPS. CONTRACTOR TO VERIFY THAT CONDUIT IS AT LEAST 2" IN DIAMETER TO COMPLY WITH NEC FILL REQUIREMENTS. REPORT ANY DISCREPENCIES TO ENGINEER. CONTRACTOR MAY REUSE REMOVED COPPER IF CONDUCTORS ARE NOT DAMAGED AND ARE OF SPECIFIED SIZE. CONTRACTOR SHALL INCLUDE THE REUSE OF EXISTING ADEQUATELY SIZED CONDUCTORS IN BID.
4. CONTRACTOR TO PROVIDE AND INSTALL (1) 2-1/2" CONDUIT WITH (2) 250MCM THWN/THNN CU AND (1) 3/0 THWN/THNN CU AND (1) #2 E.G. CU BETWEEN NEW DISCONNECT AND PEDESTAL AT SLIP #1 BENEATH PROPERTY LINE BETWEEN LOT #2 AND LOT #3.
5. EXISTING CIRCUIT AND CONDUCTORS TO REMAIN.
6. CONTRACTOR TO PROVIDE AND INSTALL (1) 2-1/2" CONDUIT WITH (2) 250MCM THWN/THNN CU AND (1) 3/0 THWN/THNN CU BETWEEN UTILITY TRANSFORMER AND NEW DISCONNECT. COORDINATE EXACT LOCATION OF TRANSFORMER AND INSTALLATION OF NEW CONDUCTORS WITH UTILITY COMPANY.
7. PROVIDE AND INSTALL NEW 42KAIC, NEMA 3R, 400A DISCONNECT WITH INTEGRAL 225A FUSE ON 6X6 CONCRETE POST DRIVEN INTO GROUND NEAR UTILITY TRANSFORMER. COORDINATE EXACT DISCONNECT AND POST LOCATION WITH AUTHORITY HAVING JURISDICTION. ESTABLISH GROUND AND NEUTRAL BOND AT DISCONNECT. PROVIDE AND INSTALL GROUNDING SYSTEM AS INDICATED ON SINGLE LINE.

GENERAL NOTES

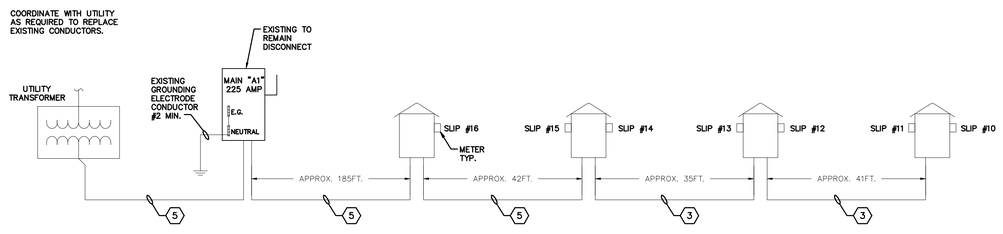
GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS

1. DRAWINGS ARE BASED ON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO THE ARCHITECT/ ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.
2. EXISTING TO REMAIN ELECTRICAL CIRCUITRY DOWNSTREAM AND UPSTREAM OF DEMOLISHED DEVICES SHALL BE MAINTAINED. PROVIDE ALL ELECTRICAL COMPONENTS (BOXES, CONDUIT, WIRING, ETC...) AS REQUIRED.
3. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO CUT, CAPTURE AND EXTEND OR REROUTE EXISTING CONDUITS AND CONDUCTORS AS REQUIRED.
4. DO NOT SCALE FROM THESE DRAWINGS.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
6. WIRE SIZE SHALL BE INCREASED IN SIZE FOR VOLTAGE DROP, E.G SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
7. WHERE NON-FUSED DISCONNECT IS NOT PROVIDED "WITHIN SIGHT" OF MOTOR, FEEDER (AND/OR BRANCH CIRCUIT) OVER-CURRENT DEVICE SERVING SUCH MOTOR SHALL HAVE APPROVED "LOCKED-OFF" PROVISION.
8. CUTTING AND PATCHING MAY BE REQUIRED TO COMPLETE WORK. ALL CUTTING AND PATCHING SHALL BE DONE BY APPROVED METHODS. PATCHING TO BE COMPLETED TO OWNER'S STANDARDS. COORDINATE WITH OWNER.

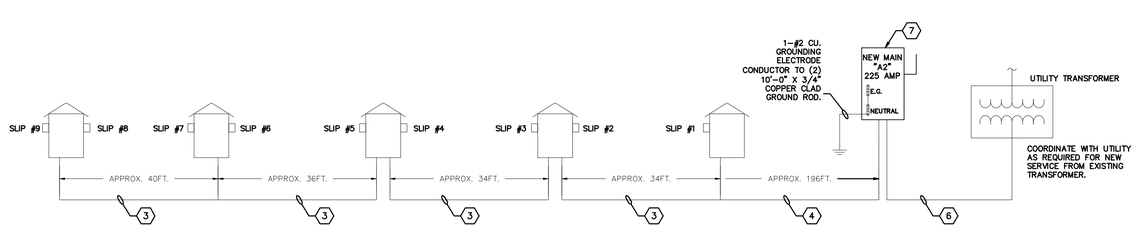
EXISTING SERVICE 'A'



PROPOSED SERVICE 'A1'



PROPOSED SERVICE 'A2'



ELECTRICAL- SERVICE A1 & A2 SINGLE LINE

SCALE: N.T.S.

FORNEY ENGINEERING, INC.
MECHANICAL & ELECTRICAL CONSULTING ENGINEERS
5213 FOURTH AVE. CIRCLE EAST. BRADENTON, FL. 34208 C.O.A. #4049
PHONE (941) 748-5884 FAX (941) 747-6240 E-MAIL fei@forneyengineering.com

HARBOUR LANDING ESTATES
YACHT BASIN ELECTRICAL
DESIGN
12314 BAYPOINTE TERRACE
CORTEZ, FL 34215

TO THE BEST OF MY KNOWLEDGE, SAID PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES.

BY: _____
PHILIP J. FEKEMA P.E.
65083

DATE: _____

SEAL

REV. #	DATE

JOB NO. : 07-2046
DATE : 6-22-07
DRAWN BY : JMM
CHECKED BY : PF
SHEET No. :
E2

Feb 23, 2007 - 3:10pm
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SERVICE "B1" SUMMARY

Slip #	# OF 20A RECEPTACLES	# OF 30A RECEPTACLES	# OF 50A RECEPTACLES	BREAKERS	LIFT MOTORS	METER
17	0	2	0	30/1 AND 30/1	N/A	YES
18	0	1	0	30/1	(2) 3/4HP	YES
19	1	1	0	30/1	(2) 3/4HP	YES
20	0	1	0	30/1	N/A	NO
21	1	1	0	30/1 AND 20/1	(2) 3/4HP	NO
22	0	1	0	50/2	N/A	YES
23	0	1	0	N/A	(2) 3/4HP	NO
24	0	2	0	30/1 AND 15/2 AND 30/1	(2) 3/4HP	YES

*NOTE: ALL BREAKERS AND PEDESTALS IN TABLE ARE EXISTING OR TO BE PROVIDED BY OWNER. ADDITIONAL 30A RECEPTACLES ARE INCLUDED FOR #22 AND #23 FOR FUTURE USE.

SERVICE "B2" SUMMARY

Slip #	# OF 20A RECEPTACLES	# OF 30A RECEPTACLES	# OF 50A RECEPTACLES	BREAKERS	LIFT MOTORS	METER
25	0	1	0	30/1 AND 20/1	(2) 3/4HP	YES
26	1	1	0	15/2	(2) 1HP	YES
27	0	1	1	50/2 AND 30/1	N/A	YES
LIGHT	0	0	0	3-AMP RESET	N/A	NO
28	0	2	0	30/1	N/A	YES
31	0	1	0	30/1	N/A	NO
32	0	2	0	30/1 AND 15/2 AND 30/1	N/A	YES
33	0	1	0	20/1	(2) 3/4HP	YES

*NOTE: ALL BREAKERS AND PEDESTALS IN TABLE ARE EXISTING OR TO BE PROVIDED BY OWNER. ADDITIONAL 30A RECEPTACLES ARE INCLUDED FOR #26, #33, AND #31 FOR FUTURE USE.

GENERAL NOTES

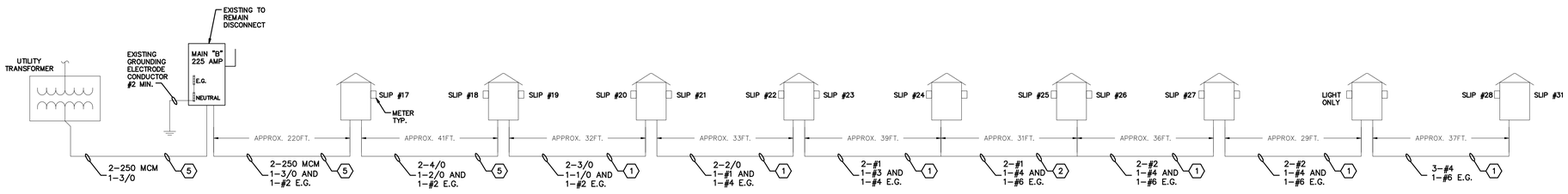
GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS

1. DRAWINGS ARE BASED ON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO THE ARCHITECT/ ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.
2. EXISTING TO REMAIN ELECTRICAL CIRCUITRY DOWNSTREAM AND UPSTREAM OF DEMOLISHED DEVICES SHALL BE MAINTAINED. PROVIDE ALL ELECTRICAL COMPONENTS (BOXES, CONDUIT, WIRING, ETC...) AS REQUIRED.
3. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO CUT, CAPTURE AND EXTEND OR REROUTE EXISTING CONDUITS AND CONDUCTORS AS REQUIRED.
4. DO NOT SCALE FROM THESE DRAWINGS.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
6. WIRE SIZE SHALL BE INCREASED IN SIZE FOR VOLTAGE DROP, E.G SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
7. WHERE NON-FUSED DISCONNECT IS NOT PROVIDED "WITHIN SIGHT" OF MOTOR, FEEDER (AND/OR BRANCH CIRCUIT) OVER-CURRENT DEVICE SERVING SUCH MOTOR SHALL HAVE APPROVED "LOCKED-OFF" PROVISION.
8. CUTTING AND PATCHING MAY BE REQUIRED TO COMPLETE WORK. ALL CUTTING AND PATCHING SHALL BE DONE BY APPROVED METHODS. PATCHING TO BE COMPLETED TO OWNER'S STANDARDS. COORDINATE WITH OWNER.

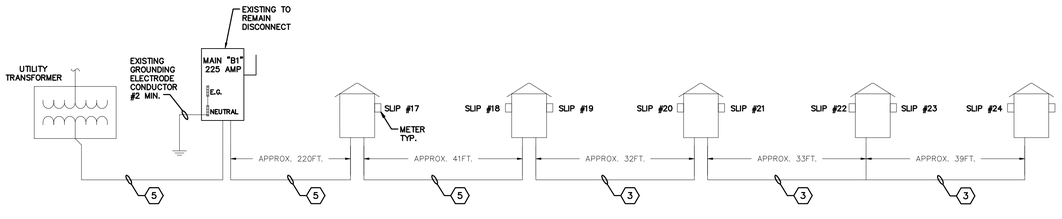
KEYED NOTES

1. EXISTING CIRCUIT TO BE REMOVED. MAINTAIN EXISTING CONDUIT FOR NEW CONDUCTORS. SEE PROPOSED SERVICE SINGLE LINE DIAGRAMS.
2. REMOVE CONDUCTORS BETWEEN SLIP 24 AND SLIP 25. CONDUIT TO REMAIN. SEAL OFF BOTH ENDS OF CONDUIT BY APPROVED METHODS.
3. CONTRACTOR TO PROVIDE AND INSTALL (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU AND (1) #4 E.G. IN EXISTING CONDUIT BETWEEN SLIPS. CONTRACTOR TO VERIFY THAT CONDUIT IS AT LEAST 2" IN DIAMETER TO COMPLY WITH NEC FILL REQUIREMENTS. REPORT ANY DISCREPENCIES TO ENGINEER. CONTRACTOR MAY REUSE REMOVED COPPER IF CONDUCTORS ARE NOT DAMAGED AND ARE OF SPECIFIED SIZE. CONTRACTOR SHALL INCLUDE THE REUSE OF EXISTING ADEQUATELY SIZED CONDUCTORS IN BID.
4. CONTRACTOR TO PROVIDE AND INSTALL (1) 2" CONDUIT WITH (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU AND (1) #2 E.G. CU BETWEEN NEW DISCONNECT AND PEDESTAL AT SLIP #33 BENEATH PROPERTY LINE BETWEEN LOT #11 AND LOT #12.
5. EXISTING CIRCUIT AND CONDUCTORS TO REMAIN.
6. CONTRACTOR TO PROVIDE AND INSTALL (1) 2" CONDUIT WITH (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU BETWEEN UTILITY TRANSFORMER AND NEW DISCONNECT. COORDINATE EXACT LOCATION OF TRANSFORMER AND INSTALLATION OF NEW CONDUCTORS WITH UTILITY COMPANY.
7. PROVIDE AND INSTALL NEW 42KAIC, NEMA 3R, 200A DISCONNECT WITH INTEGRAL 200A FUSE ON 6X6 CONCRETE POST DRIVEN INTO GROUND NEAR UTILITY TRANSFORMER. COORDINATE EXACT DISCONNECT AND POST LOCATION WITH AUTHORITY HAVING JURISDICTION. ESTABLISH GROUND AND NEUTRAL BOND AT DISCONNECT. PROVIDE AND INSTALL GROUNDING SYSTEM AS INDICATED ON SINGLE LINE.
8. CONTRACTOR TO PROVIDE AND INSTALL (1) 2" CONDUIT WITH (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU AND (1) #4 E.G. BETWEEN SLIPS AS SHOWN. COORDINATE EXACT ROUTING OF CONDUIT WITH OWNER. INSTALLATION MAY REQUIRE CUTTING AND PATCHING. COORDINATE EXACT METHODS WITH OWNER PRIOR TO BID. PEDESTAL WAS PART OF EXISTING SERVICE 'C'. CONNECT TO NEW SERVICE 'B2' AS SHOWN.

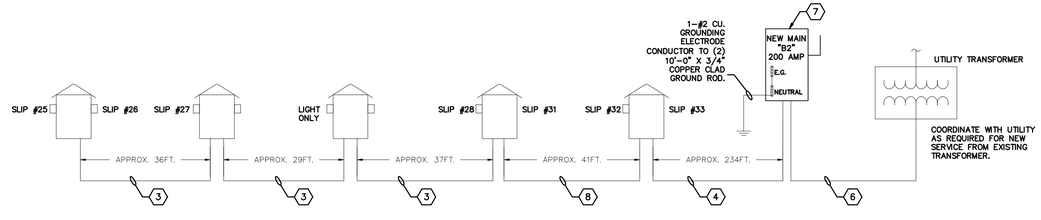
EXISTING SERVICE 'B'



PROPOSED SERVICE 'B1'



PROPOSED SERVICE 'B2'



ELECTRICAL SERVICE B1 & B2 SINGLE LINE

SCALE: N.T.S.

FORNEY ENGINEERING, INC.
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TO THE BEST OF MY KNOWLEDGE, SAID PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES.

BY: PHILIP J. FEIKEMA P.E. 65083

DATE:

SEAL

REV. #	DATE

JOB NO. : 07-2046
DATE : 6-22-07
DRAWN BY : JMM
CHECKED BY : PF
SHEET No. :
E3

SERVICE "C1" SUMMARY

Slip #	# OF 20A RECEPTACLES	# OF 30A RECEPTACLES	# OF 50A RECEPTACLES	BREAKERS	LIFT MOTORS	METER
44	1	1	0	30/1 AND 20/1 AND 15/1	(2) 3/4HP	YES
45	1	1	0	30/1 AND 20/1	(2) 3/4HP	YES
46	1	1	0	20/1	(2) 3/4HP	YES
47	0	2	0	30/1 AND 30/1	N/A	YES
48	0	1	0	30/1	N/A	YES
48A	0	1	0	30/1	N/A	YES
48B	0	1	1	30/1 AND 50/2	N/A	YES
49	0	1	0	30/1	N/A	YES
50	0	1	0	30/1	N/A	NO

*NOTE: ALL BREAKERS AND PEDESTALS IN TABLE ARE EXISTING OR TO BE PROVIDED BY OWNER. (1) ADDITIONAL 30A RECEPTACLE INLCLUDED FOR #46 FOR FUTURE USE.

SERVICE "C2" SUMMARY

Slip #	# OF 20A RECEPTACLES	# OF 30A RECEPTACLES	# OF 50A RECEPTACLES	BREAKERS	LIFT MOTORS	METER
34	0	0	0	N/A	N/A	NO
35	1	2	0	30/1 AND 30/1 AND 15/2	(2) 1HP	YES
36	0	1	0	30/1	N/A	NO
37	0	1	0	30/1	N/A	NO
38	0	0	1	50/2	N/A	YES
39	1	1	0	30/1 AND 15/2 AND 20/1	(2) 3/4HP	YES
40	0	1	0	30/1	N/A	YES
41	0	1	0	30/1	N/A	NO
42	1	1	0	30/1 AND 15/1 AND 20/1	(2) 3/4HP	YES
43	0	1	0	30/1	N/A	YES

*NOTE: ALL BREAKERS AND PEDESTALS IN TABLE ARE EXISTING OR TO BE PROVIDED BY OWNER. (2) ADDITIONAL 30A RECEPTACLES INCLUDED FOR #34 AND #38 FOR FUTURE USE.

GENERAL NOTES

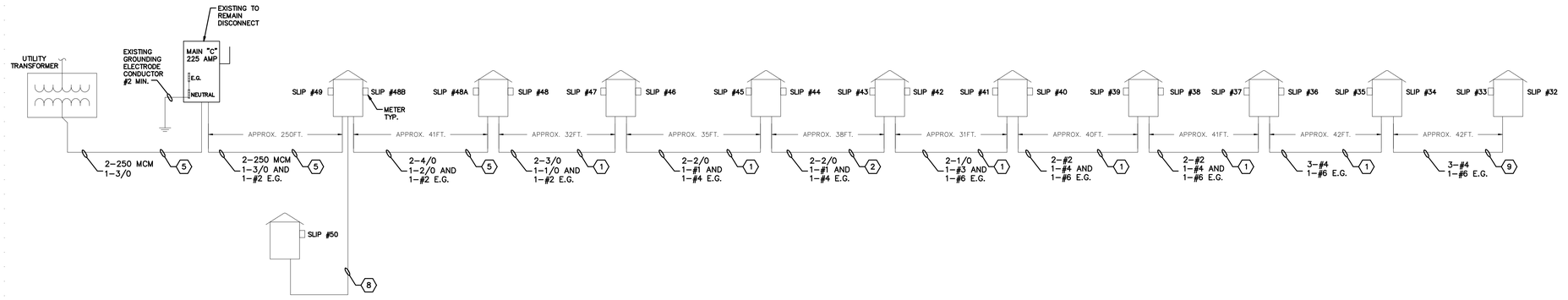
GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS

1. DRAWINGS ARE BASED ON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO THE ARCHITECT/ ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.
2. EXISTING TO REMAIN ELECTRICAL CIRCUITRY DOWNSTREAM AND UPSTREAM OF DEMOLISHED DEVICES SHALL BE MAINTAINED. PROVIDE ALL ELECTRICAL COMPONENTS (BOXES, CONDUIT, WIRING, ETC...) AS REQUIRED.
3. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO CUT, CAPTURE AND EXTEND OR REROUTE EXISTING CONDUITS AND CONDUCTORS AS REQUIRED.
4. DO NOT SCALE FROM THESE DRAWINGS.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
6. WIRE SIZE SHALL BE INCREASED IN SIZE FOR VOLTAGE DROP, E.G SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
7. WHERE NON-FUSED DISCONNECT IS NOT PROVIDED "WITHIN SIGHT" OF MOTOR, FEEDER (AND/OR BRANCH CIRCUIT) OVER-CURRENT DEVICE SERVING SUCH MOTOR SHALL HAVE APPROVED "LOCKED-OFF" PROVISION.
8. CUTTING AND PATCHING MAY BE REQUIRED TO COMPLETE WORK. ALL CUTTING AND PATCHING SHALL BE DONE BY APPROVED METHODS. PATCHING TO BE COMPLETED TO OWNER'S STANDARDS. COORDINATE WITH OWNER.

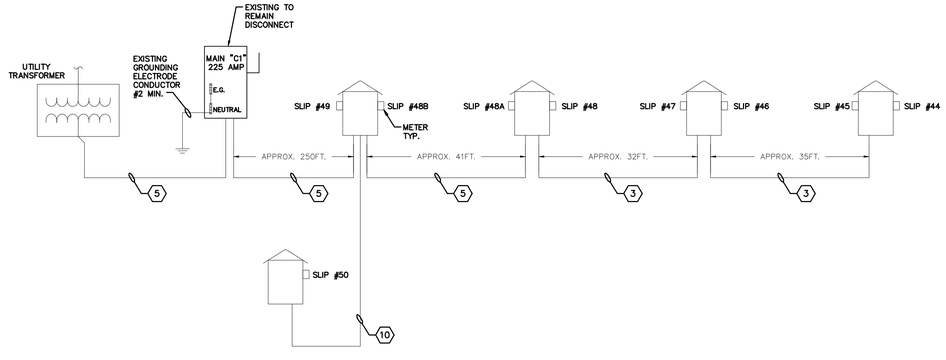
KEYED NOTES

1. EXISTING CIRCUIT TO BE REMOVED. MAINTAIN EXISTING CONDUIT FOR NEW CONDUCTORS. SEE PROPOSED SERVICE SINGLE LINE DIAGRAMS.
2. REMOVE CONDUCTORS BETWEEN SLIP #3 AND SLIP #4. CONDUIT TO REMAIN. SEAL OFF BOTH ENDS OF CONDUIT BY APPROVED METHODS.
3. CONTRACTOR TO PROVIDE AND INSTALL (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU AND (1) #4 E.G. IN EXISTING CONDUIT BETWEEN SLIPS. CONTRACTOR TO VERIFY THAT CONDUIT IS AT LEAST 2" IN DIAMETER TO COMPLY WITH NEC FILL REQUIREMENTS. REPORT ANY DISCREPENCIES TO ENGINEER. CONTRACTOR MAY REUSE REMOVED COPPER IF CONDUCTORS ARE NOT DAMAGED AND ARE OF SPECIFIED SIZE. CONTRACTOR SHALL INCLUDE THE REUSE OF EXISTING ADEQUATELY SIZED CONDUCTORS IN BID.
4. CONTRACTOR TO PROVIDE AND INSTALL (1) 2-1/2" CONDUIT WITH (2) 250 THWN/THNN CU AND (1) 4/0 THWN/THNN CU AND (1) #2 E.G. CU BETWEEN NEW DISCONNECT AND PEDESTAL AT SLIP #36 AND #37 BENEATH PROPERTY LINE BETWEEN LOT #11 AND LOT #12.
5. EXISTING CIRCUIT AND CONDUCTORS TO REMAIN.
6. CONTRACTOR TO PROVIDE AND INSTALL (1) 2-1/2" CONDUIT WITH (2) 250 THWN/THNN CU AND (1) 3/0 THWN/THNN CU BETWEEN UTILITY TRANSFORMER AND NEW DISCONNECT. COORDINATE EXACT LOCATION OF TRANSFORMER AND INSTALLATION OF NEW CONDUCTORS WITH UTILITY COMPANY.
7. PROVIDE AND INSTALL NEW 42KAIC, NEMA 3R, 400A DISCONNECT WITH INTEGRAL 250A FUSE ON 6X6 CONCRETE POST DRIVEN INTO GROUND NEAR UTILITY TRANSFORMER. COORDINATE EXACT DISCONNECT AND POST LOCATION WITH AUTHORITY HAVING JURISDICTION. ESTABLISH GROUND AND NEUTRAL BOND AT DISCONNECT. PROVIDE AND INSTALL GROUNDING SYSTEM AS INDICATED ON SINGLE LINE.
8. CONTRACTOR SHALL REMOVE EXISTING CONDUIT AND CONDUCTORS FEEDING PEDESTAL FOR SLIP #50. CUTTING AND PATCHING MAY BE REQUIRED. ALL CUTTING AND PATCHING SHALL BE DONE BY APPROVED METHODS. PATCHING TO BE COMPLETED TO OWNER'S STANDARDS. COORDINATE WITH OWNER.
9. REMOVE CONDUCTORS BETWEEN SLIP #34 AND SLIP #33. CONDUIT TO REMAIN. SEAL OFF BOTH ENDS OF CONDUIT BY APPROVED METHODS. POWER TO PEDESTAL FOR SLIP #33 AND #32 WILL BE PROVIDED FROM NEW SERVICE "B2".
10. CONTRACTOR TO PROVIDE AND INSTALL (1) 2" CONDUIT WITH (2) 4/0 THWN/THNN CU AND (1) 2/0 THWN/THNN CU AND (1) #2 E.G. CU FROM PEDESTAL AT SLIP #49 AND #48B TO EXISTING PEDESTAL #50. UTILIZE EXISTING ROUTE FROM DEMOLISHED CONDUCTORS AND CONDUIT. SEE KEYED NOTE 8.
11. CONTRACTOR TO PROVIDE AND INSTALL (2) 250 THWN/THNN CU AND (1) 3/0 THWN/THNN CU AND (1) #4 E.G. CU IN EXISTING CONDUIT BETWEEN SLIPS. CONTRACTOR TO VERIFY THAT CONDUIT IS AT LEAST 2" IN DIAMETER TO COMPLY WITH NEC FILL REQUIREMENTS. REPORT ANY DISCREPENCIES TO ENGINEER. CONTRACTOR MAY REUSE REMOVED COPPER IF CONDUCTORS ARE NOT DAMAGED AND ARE OF SPECIFIED SIZE. CONTRACTOR SHALL INCLUDE THE REUSE OF EXISTING ADEQUATELY SIZED CONDUCTORS IN BID.

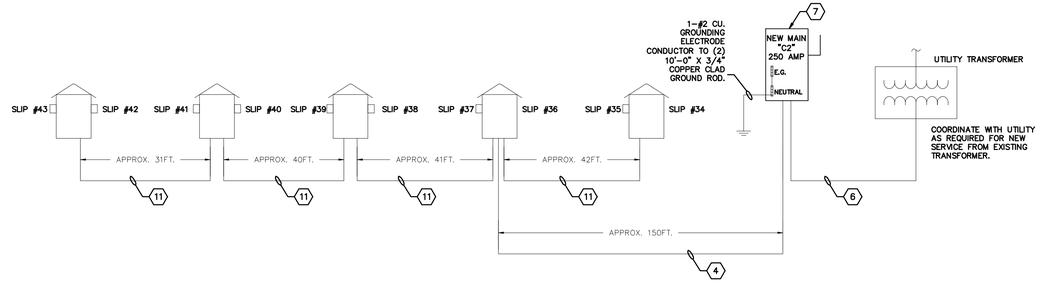
EXISTING SERVICE 'C'



PROPOSED SERVICE 'C1'



PROPOSED SERVICE 'C2'



ELECTRICAL – SERVICE C1 & C2 SINGLE LINE

SCALE: N.T.S.

FORNEY ENGINEERING, INC.
MECHANICAL & ELECTRICAL CONSULTING ENGINEERS
5213 FOURTH AVE. CIRCLE EAST BRADENTON, FL. 34208 C.O.A. #4049
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HARBOUR LANDING ESTATES
YACHT BASIN ELECTRICAL DESIGN
12314 BAYPOINTE TERRACE
CORTEZ, FL 34215

TO THE BEST OF MY KNOWLEDGE, SAID PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES.

BY: PHILIP J. FEIKEMA P.E. 65083

DATE:

SEAL

REV. #	DATE

JOB NO. : 07-2046
DATE : 6-22-07
DRAWN BY : JMM
CHECKED BY : PF
SHEET No. :
E4

PROPOSED SERVICE "A1"

SLIP#	20A RECEPTACLES			50A RECEPTACLES			30A RECEPTACLES			MOTOR LOADS				
#	#	VOLTAGE	va	#	voltage	va	#	voltage	va	size	#	voltage	amps	va
10	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
11	0	120	0	0	240	0	2	120	7200	1hp	2	240	8.4	4032
12	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
13	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
14	1	120	180	0	240	0	2	120	7200	1hp	2	240	8.4	4032
15	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
16	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
	TOTAL VA		540	TOTAL VA		0	TOTAL VA		50400				TOTAL VA	17280
										TOTAL MOTOR VA (65% DIVERSITY):				11232

CONNECTED RECEPT LOAD:	50940	VA
MINUS SMALLER VA RECEPTS:	7200	VA (NEC TABLE 555.12 NOTE #1)
	43740	VA
DEMAND FACTOR (14 RECEPTS):	0.8	VA
CALCULATED RECEPT LOAD:	34992	VA
ADD MOTOR LOAD (65%)	11232	VA
ADD 25% LARGEST MOTOR:	504	VA
	46728	VA
DEMAND FACTOR :	0.9	VA (NEC TABLE 555.12 NOTE #2)
TOTAL CALCULATED LOAD:	42055.2	VA
TOTAL SERVICE DEMAND:	175.23	AMPS

**TABLE INCLUDES PROVISIONS FOR FUTURE RECEPTACLES AT EACH PEDESTAL

PROPOSED SERVICE "A2"

SLIP#	20A RECEPTACLES			50A RECEPTACLES			30A RECEPTACLES			MOTOR LOADS				
#	#	VOLTAGE	va	#	voltage	va	#	voltage	va	size	#	voltage	amps	va
1	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
2	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	8.4	4032
3	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
4	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
5	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
6	1	120	180	0	240	0	2	120	7200	1 hp	2	240	6.4	3072
7	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
8	1	120	180	0	240	0	2	120	7200	1 hp	2	240	6.4	3072
9	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
	TOTAL VA		360	TOTAL VA		0	TOTAL VA		64800				TOTAL VA	10176
										TOTAL MOTOR VA (65% DIVERSITY):				6614.4

CONNECTED RECEPT LOAD:	65160	VA
MINUS SMALLER VA RECEPTS:	7200	VA (NEC TABLE 555.12 NOTE #1)
	57960	VA
DEMAND FACTOR (18 RECEPTS):	0.7	VA
CALCULATED RECEPT LOAD:	40572	VA
ADD MOTOR LOAD (65%)	6614	VA
ADD 25% LARGEST MOTOR:	504	VA
	47690	VA
DEMAND FACTOR :	0.9	VA (NEC TABLE 555.12 NOTE #2)
TOTAL CALCULATED LOAD:	42921.36	VA
TOTAL SERVICE DEMAND:	178.839	

**TABLE INCLUDES PROVISIONS FOR FUTURE RECEPTACLES AT EACH PEDESTAL

PROPOSED SERVICE "B1"

SLIP#	20A RECEPTACLES			50A RECEPTACLES			30A RECEPTACLES			MOTOR LOADS				
#	#	VOLTAGE	va	#	voltage	va	#	voltage	va	size	#	voltage	amps	va
17	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
18	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
19	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
20	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
21	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
22	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
23	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
24	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
	TOTAL VA		360	TOTAL VA		0	TOTAL VA		57600				TOTAL VA	15360
										TOTAL MOTOR VA (65% DIVERSITY):				9984

CONNECTED RECEPT LOAD:	57960	VA
MINUS SMALLER VA RECEPTS:	7200	VA (NEC TABLE 555.12 NOTE #1)
	50760	VA
DEMAND FACTOR (16 RECEPTS):	0.7	VA
CALCULATED RECEPT LOAD:	35532	VA
ADD MOTOR LOAD (65%)	9984	VA
ADD 25% LARGEST MOTOR:	504	VA
	46020	VA
DEMAND FACTOR :	0.9	VA (NEC TABLE 555.12 NOTE #2)
TOTAL CALCULATED LOAD:	41418	VA
TOTAL SERVICE DEMAND:	172.575	AMPS

**TABLE INCLUDES PROVISIONS FOR FUTURE RECEPTACLES AT EACH PEDESTAL

PROPOSED SERVICE "B2"

SLIP#	20A RECEPTACLES			50A RECEPTACLES			30A RECEPTACLES			MOTOR LOADS				
#	#	VOLTAGE	va	#	voltage	va	#	voltage	va	size	#	voltage	amps	va
25	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
26	1	120	180	0	240	0	2	120	7200	1 hp	2	240	8.4	4032
27	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
LIGHT	0	120	0	0	240	0	0	120	0	N/A	0	240	0	0
28	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
31	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
32	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
33	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
	TOTAL VA		180	TOTAL VA		0	TOTAL VA		50400				TOTAL VA	10176
										TOTAL MOTOR VA (65% DIVERSITY):				6614.4

CONNECTED RECEPT LOAD:	50580	VA
MINUS SMALLER VA RECEPTS:	7200	VA (NEC TABLE 555.12 NOTE #1)
	43380	VA
DEMAND FACTOR (14 RECEPTS):	0.8	VA
CALCULATED RECEPT LOAD:	34704	VA
ADD MOTOR LOAD (65%)	6614	VA
ADD 25% LARGEST MOTOR:	504	VA
	41822	VA
DEMAND FACTOR :	0.9	VA (NEC TABLE 555.12 NOTE #2)
SUBTOTAL CALCULATED LOAD:	37640.16	VA
LIGHT (125%):	37.5	VA
TOTAL CALCULATED LOAD:	37677.66	
TOTAL SERVICE DEMAND:	156.99025	

**TABLE INCLUDES PROVISIONS FOR FUTURE RECEPTACLES AT EACH PEDESTAL

PROPOSED SERVICE "C1"

SLIP#	20A RECEPTACLES			50A RECEPTACLES			30A RECEPTACLES			MOTOR LOADS				
#	#	VOLTAGE	va	#	voltage	va	#	voltage	va	size	#	voltage	amps	va
44	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
45	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
46	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
47	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
48	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
48A	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
48B	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
49	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
50	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
	TOTAL VA		540	TOTAL VA		0	TOTAL VA		64800				TOTAL VA	9216
										TOTAL MOTOR VA (65% DIVERSITY):				5990.4

CONNECTED RECEPT LOAD:	65340	VA
MINUS SMALLER VA RECEPTS:	0	VA (NEC TABLE 555.12 NOTE #1)
	65340	VA
DEMAND FACTOR (18 RECEPTS):	0.7	VA
CALCULATED RECEPT LOAD:	45738	VA
ADD MOTOR LOAD (65%)	5990	VA
ADD 25% LARGEST MOTOR:	504	VA
	52232	VA
DEMAND FACTOR :	0.9	VA (NEC TABLE 555.12 NOTE #2)
TOTAL CALCULATED LOAD:	47009.16	VA
TOTAL SERVICE DEMAND:	195.8715	AMPS

**TABLE INCLUDES PROVISIONS FOR FUTURE RECEPTACLES AT EACH PEDESTAL

PROPOSED SERVICE "C2"

SLIP#	20A RECEPTACLES			50A RECEPTACLES			30A RECEPTACLES			MOTOR LOADS				
#	#	VOLTAGE	va	#	voltage	va	#	voltage	va	size	#	voltage	amps	va
34	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
35	1	120	180	0	240	0	2	120	7200	1 hp	2	240	8.4	4032
36	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
37	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
38	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
39	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
40	0	120	0	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
41	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
42	1	120	180	0	240	0	2	120	7200	3/4 hp	2	240	6.4	3072
43	0	120	0	0	240	0	2	120	7200	N/A	0	240	0	0
	TOTAL VA		540	TOTAL VA		0	TOTAL VA		72000				TOTAL VA	13248
										TOTAL MOTOR VA (65% DIVERSITY):				8611.2

CONNECTED RECEPT LOAD:	72540	VA
MINUS SMALLER VA RECEPTS:	0	VA (NEC TABLE 555.12 NOTE #1)
	72540	VA
DEMAND FACTOR (20 RECEPTS):	0.7	VA
CALCULATED RECEPT LOAD:	50778	VA
ADD MOTOR LOAD (65%)	8611	VA
ADD 25% LARGEST MOTOR:	504	VA
	59893	VA
DEMAND FACTOR :	0.9	VA (NEC TABLE 555.12 NOTE #2)
TOTAL CALCULATED LOAD:	53903.88	VA
TOTAL SERVICE DEMAND:	224.5995	

**TABLE INCLUDES PROVISIONS FOR FUTURE RECEPTACLES AT EACH PEDESTAL

VOLTAGE DROP (SERVICE A2)

K-VALUE	CURRENT	DISTANCE	CIRCULAR MILS	VOLTAGE DROP
12.9	179	15	250000	0.3
12.9	179	196	250000	3.6
12.9	179	144	211600	3.1
		TOTAL VOLTAGE DROP:		7.0
		% VOLTAGE DROP:		2.93%

VOLTAGE DROP (SERVICE A1)

K-VALUE	CURRENT	DISTANCE	CIRCULAR MILS	VOLTAGE DROP
12.9	175	10	250000	0.2
12.9	175	220	250000	4.0
12.9	175	136	211600	2.9
		TOTAL VOLTAGE DROP:		7.1
		% VOLTAGE DROP:		2.94%

VOLTAGE DROP (SERVICE B1)

K-VALUE	CURRENT	DISTANCE	CIRCULAR MILS	VOLTAGE DROP
12.9	173	10	250000	0.2
12.9	173	220	250000	3.9
12.9	173	145	211600	3.1
		TOTAL VOLTAGE DROP:		7.2
		% VOLTAGE DROP:		2.99%

VOLTAGE DROP (SERVICE B2)

K-VALUE	CURRENT	DISTANCE	CIRCULAR MILS	VOLTAGE DROP
12.9	157	12	211600	0.2
12.9	157	234	211600	4.5
12.9	157	143	211600	2.7
		TOTAL VOLTAGE DROP:		7.4
		% VOLTAGE DROP:		3.10%

VOLTAGE DROP (SERVICE C2)

K-VALUE	CURRENT	DISTANCE	CIRCULAR MILS	VOLTAGE DROP
12.9	225	12	250000	0.3
12.9	225	150	250000	3.6
12.9	225	154	250000	3.8
		TOTAL VOLTAGE DROP:		7.3
		% VOLTAGE DROP:		3.06%

VOLTAGE DROP (SERVICE C1)

K-VALUE	CURRENT	DISTANCE	CIRCULAR MILS	VOLTAGE DROP
12.9	196	12	250000	0.2
12.9	196	250	250000	5.1
12.9	196	149	211600	3.6
		TOTAL VOLTAGE DROP:		8.9
		% VOLTAGE DROP:		3.69%

ESTIMATED FAULT CURRENT ANALYSIS
NEW SERVICE A2

CONDUCTOR LENGTH " L"		15
CONDUCTOR C-VALUE "C"		13500
ESTIMATED XF "SCA"		40094
PHASE FACTOR "PF"		1
VOLTAGE "V"		240
SHORT CIRCUIT AMPS ESTIMATED AT SERVICE ENTRANCE	= 1 / (1 + (PF * L* SCA / (C * V))) * SCA	
ESITMATED FAULT CURRENT =		33817 AMPS

ESTIMATED FAULT CURRENT ANALYSIS
NEW SERVICE B2

CONDUCTOR LENGTH " L"		12
CONDUCTOR C-VALUE "C"		13500
ESTIMATED XF "SCA"		40094
PHASE FACTOR "PF"		1
VOLTAGE "V"		240
SHORT CIRCUIT AMPS ESTIMATED AT SERVICE ENTRANCE	= 1 / (1 + (PF * L* SCA / (C * V))) * SCA	
ESITMATED FAULT CURRENT =		34910 AMPS

ESTIMATED FAULT CURRENT ANALYSIS
NEW SERVICE C2

CONDUCTOR LENGTH " L"		12
CONDUCTOR C-VALUE "C"		13500
ESTIMATED XF "SCA"		40094
PHASE FACTOR "PF"		1
VOLTAGE "V"		240
SHORT CIRCUIT AMPS ESTIMATED AT SERVICE ENTRANCE	= 1 / (1 + (PF * L* SCA / (C * V))) * SCA	
ESITMATED FAULT CURRENT =		34910 AMPS

ELECTRICAL – CALCULATIONS

SCALE: N.T.S.

FORNEY ENGINEERING, INC.
MECHANICAL & ELECTRICAL CONSULTING ENGINEERS
5213 FOURTH AVE. CIRCLE EAST. BRADENTON, FL. 34208 C.O.A. #4049
PHONE (941) 749-5884 FAX (941) 747-6240 E-MAIL fei@forneyengineering.com

HARBOUR LANDING ESTATES
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TO THE BEST OF MY KNOWLEDGE, SAID PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES.

BY _____
PHILIP J. FEIKEMA P.E.
65083

DATE: _____

SEAL

REV. #	DATE

JOB NO. :
DATE : 6-22-07
DRAWN BY : JMM
CHECKED BY : PF
SHEET No. :
E5

SCOPE OF WORK AND GENERAL CONDITIONS:

THE SCOPE OF WORK SPECIFIED HEREIN CONSISTS OF PROVIDING (DEFINED AS FURNISH AND INSTALL) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE THE ELECTRICAL AND RELATED WORK INDICATED ON THE DRAWINGS, AS SPECIFIED HEREIN AND SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT. ELECTRICAL WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- CIRCUIT BREAKERS
- DISCONNECT SWITCHES
- GROUNDING
- RACEWAY FOR POWER DISTRIBUTION
- CONDUCTORS FOR POWER DISTRIBUTION
- CONNECTION OF EXISTING PEDESTALS, EXISTING ELECTRICAL EQUIPMENT.
- FINAL ACCEPTANCE/WARRANTY
- RECORD DRAWINGS

ITEMS SPECIFIED HEREIN, SHOWN ON THE DRAWINGS, AND/OR REASONABLY INTERPRETED FROM THE DRAWINGS THAT ARE NECESSARY TO COMPLETE THE ELECTRICAL WORK SHALL BE PROVIDED BY THIS DIVISION, WHETHER ITEM IS SPECIFICALLY SHOWN OR NOT.

GENERAL:

CONTRACTOR SHALL BECOME THOROUGHLY ACQUAINTED WITH THE PROJECT SITE (e.g. EXISTING CONDITIONS) AND THE ENTIRE CONSTRUCTION DOCUMENTS PACKAGE (e.g. ELECTRICAL DRAWINGS AND SPECIFICATIONS) BEFORE BID SUBMISSION. WORK OF THE ELECTRICAL CONTRACTOR MUST BE COORDINATED WITH THE WORK OF ALL TRADES.

INTENT:

THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO DESCRIBE THAT COMPLETE ELECTRICAL AND CONDUIT RACEWAY SYSTEMS ARE REQUIRED. HOWEVER, THE WORK SHALL BE COMPLETE EVEN THOUGH ITEMS MAY NOT BE SPECIFICALLY CALLED FOR OR SHOWN. INSTALLATIONS SHALL MEET ALL GOVERNING CODES, SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND ALL AGENCIES HAVING JURISDICTION.

PERMITS, TAXES, FEES:

CONTRACTOR SHALL OBTAIN ALL GOVERNMENTAL PERMITS, PAY ALL SALES TAXES AND OTHER ASSOCIATED FEES INCLUDING COSTS FOR UTILITY CONNECTIONS, REQUIRED TO PERFORM THE INTENDED ELECTRICAL WORK. CONTRACTOR SHALL FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION. CONTRACTOR SHALL OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR ELECTRICAL WORK AND DELIVER SAME TO THE OWNER AND ARCHITECT BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ALL LABOR, MATERIALS, SERVICES, APPARATUS, OR DRAWINGS NECESSARY TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS, WHETHER OR NOT SHOWN ON DRAWINGS AND/OR SPECIFIED.

ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE FOLLOWING:

- NATIONAL ELECTRIC CODE
- APPLICABLE STATE AND LOCAL CODES
- NATIONAL BUREAU OF FIRE UNDERWRITERS
- REGULATIONS OF THE SERVING UTILITY COMPANIES

ALL MATERIAL AND EQUIPMENT PROVIDED FOR THE ELECTRICAL WORK SHALL BEAR THE APPROVAL LABEL, OR SHALL BE LISTED, BY UNDERWRITERS' LABORATORIES, INC.

MEASUREMENTS:

SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCY BETWEEN ACTUAL MEASUREMENTS AND THOSE INDICATED ON THE DRAWINGS, WHICH PREVENTS FOLLOWING GOOD PRACTICE OR THE INTENT OF THE DRAWINGS AND SPECIFICATIONS, HE SHALL NOTIFY THE ENGINEER THROUGH THE GENERAL CONTRACTOR, AND SHALL NOT PROCEED WITH HIS WORK UNTIL HE HAS RECEIVED INSTRUCTIONS FROM THE ENGINEER. ALL REQUESTS FOR INFORMATION (RFI) SHALL INCLUDE A PROPOSED SOLUTION.

PRIOR TO ROUGH-IN OF EQUIPMENT THE OWNER, ENGINEER RESERVES THE RIGHT TO RELOCATE ANY DISCONNECT, WIRING DEVICE, ETC THREE (3) FEET IN ANY DIRECTION WITHOUT ANY ADDITIONAL CHARGE, FEE, OR CHANGE ORDER.

DRAWINGS:

DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF THE ELECTRICAL EQUIPMENT.

IF DIRECTED BY THE OWNER/ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LOCATIONS OF ELECTRICAL WORK AS NEEDED TO PREVENT CONFLICTS WITH EXISTING CONDITIONS AND FOR PROPER INSTALLATION OF THE WORK.

MATERIAL AND WORKMANSHIP:

ALL MATERIALS AND APPARATUS REQUIRED FOR ELECTRICAL WORK, EXCEPT AS SPECIFICALLY NOTED OTHERWISE, SHALL BE NEW, OF FIRST CLASS QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL AND SHALL BE SO SELECTED AND ARRANGED AS TO FIT PROPERLY. WHERE NO SPECIFIC KIND OR QUALITY OF MATERIAL IS GIVEN, A FIRST CLASS STANDARD ARTICLE, AS APPROVED BY THE ENGINEER, SHALL BE PROVIDED.

CONTRACTOR SHALL PROCURE THE SERVICES OF AN EXPERIENCED SUPERINTENDENT, WHO SHALL BE CONSTANTLY IN CHARGE OF THE INSTALLATION OF THE WORK, TOGETHER WITH ALL SKILLED WORK PERSONNEL, FITTERS, METAL WORKERS, HELPERS, AND LABOR REQUIRED TO UNLOAD, TRANSFER, ERECT, CONNECT, ADJUST, OPERATE AND TEST EACH SYSTEM.

ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. THIS INCLUDES THE PERFORMANCE OF ALL TESTS RECOMMENDED BY THE MANUFACTURER.

CUTTING AND PATCHING:

CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING NECESSARY TO INSTALL ELECTRICAL WORK. PATCHING SHALL MATCH ADJACENT SURFACES AND SHALL MEET THE APPROVAL OF THE OWNER.

NO STRUCTURAL MEMBERS SHALL BE CUT OR MODIFIED IN ANY WAY WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. ANY MODIFICATION SHALL BE DONE IN A MANNER APPROVED BY THE STRUCTURAL ENGINEER.

CIRCUIT BREAKERS:

CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC MOLDED CASE OF FRAME SIZE, NUMBER OF POLES AND TRIP RATINGS AS SHOWN ON THE ELECTRICAL RISER DIAGRAM AND/OR PANEL SCHEDULES. MULTI-POLE BREAKERS SHALL HAVE A SINGLE HANDLE TO TRIP ALL POLES AT ONCE. CIRCUIT BREAKERS SHALL BE FROM THE SAME MANUFACTURER AS THE POWER DISTRIBUTION EQUIPMENT. PROVIDE CIRCUIT BREAKERS WITH GROUND FAULT AND ARC FAULT PROTECTION WHERE REQUIRED.

DISCONNECT SWITCHES:

DISCONNECT SWITCHES SHALL BE U.L. LISTED AND FROM SAME MANUFACTURER AS POWER DISTRIBUTION EQUIPMENT. SWITCH BLADES SHALL BE FULLY VISIBLE IN THE "OFF" POSITION WITH THE DOOR OPEN. ALL CURRENT CARRYING PARTS SHALL BE PLATED TO RESIST CORROSION.

SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK SUCH THAT, DURING NORMAL OPERATION, THE CONTACTS SHALL NOT BE CAPABLE OF BEING RESTRAINED BY THE OPERATING HANDLE AFTER THE CLOSING OR OPENING ACTION OF THE CONTACTS HAS STARTED. THE HANDLE AND MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, WITH POSITIVE PADLOCKING PROVISIONS IN THE "OFF" POSITION.

PROVIDE HEAVY-DUTY, NEMA-3R ENCLOSURE. ENCLOSURES SHALL BE PROVIDED WITH A POST FABRICATION APPLIED GRAY ENAMEL FINISH.

GROUNDING:

PROVIDE BONDING CONNECTION WITH GROUND BUSHING TO CONDUIT FROM DISTRIBUTION PANEL TO THE BREAKERS AND PEDESTALS SERVED.
ALL CONDUIT USED FOR POWER DISTRIBUTION SHALL CONTAIN A GROUND CONDUCTOR. CONDUIT RACEWAY SHALL NOT BE USED IN PLACE OF A GROUND CONDUCTOR.

CONDUIT FOR POWER DISTRIBUTION WIRING:

WIRING FOR POWER DISTRIBUTION SHALL BE INSTALLED IN SCHEDULE 40/80 PVC CONDUIT. PROVIDE THE CONDUIT TYPE INDICATED IN THIS SPECIFICATION WHERE CONDUIT TYPE IS NOT NOTED ON THE DRAWINGS.

SCHEDULE 80 PVC CONDUIT SHALL BE PROVIDED ABOVE GROUND AT EXPOSED INTERIOR AND EXTERIOR LOCATIONS WHERE CONDUIT MAY BE SUBJECTED TO PHYSICAL DAMAGE FROM VEHICLES, MAINTENANCE EQUIPMENT, ETC. PROVIDE LARGE RADIUS ELBOWS FOR ALL SCHEDULE 80 PVC CONDUIT.

SCHEDULE 80 PVC CONDUIT SHALL BE USED FOR UNDERGROUND SERVICE ENTRANCE FEEDERS AND ALL CONDUIT BELOW ROADWAYS U.N.O. ON THE RISER DIAGRAMS AND/OR FLOOR PLANS. PROVIDE LARGE RADIUS ELBOWS FOR ALL SCHEDULE 80 PVC CONDUIT.

SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR ALL UNDERGROUND FEEDERS AND WIRING EXCEPT FOR SERVICE ENTRANCE FEEDERS AND UNDER ROADWAYS. PROVIDE LARGE RADIUS ELBOWS FOR ALL SCHEDULE 40 PVC CONDUIT.

SCHEDULE 40 PVC CONDUIT SHALL NOT BE USED MORE THAN SIX INCHES ABOVE FINISHED GRADE IN INTERIOR OR EXTERIOR LOCATIONS. PVC CONDUIT SHALL TRANSITION TO SCHEDULE 80 PVC CONDUIT NO MORE THAN SIX INCHES ABOVE GRADE.

ALL PVC CONNECTIONS SHALL BE WATERTIGHT.

INSULATING BUSHINGS WITH DOUBLE LOCK-NUTS SHALL BE USED WHEREVER A CONDUIT 1-1/4" DIA OR LARGER ENTERS A BOX, PANEL, DISCONNECT OR ELECTRICAL EQUIPMENT.

CONDUIT SIZES SHOWN ON THE DRAWINGS AND SCHEDULES ARE THE MINIMUM SIZES REQUIRED. LARGER SIZE CONDUIT TO FACILITATE WIRE PULLS, ETC, IS PERMITTED.

CONDUCTORS:

PROVIDE 75 DEGREE CELSIUS (167 DEGREE FAHRENHEIT TYPE THHW, THW, THWN, OR XHHW INSULATED COPPER CONDUCTORS RATED AT 600V FOR POWER DISTRIBUTION WIRING. CONDUIT WIRE FILL SHOWN ON THE DRAWINGS AND FEEDER SCHEDULES ARE BASED ON TYPE THW WIRE UNLESS NOTED OTHERWISE.

CONDUCTORS UP TO AND INCLUDING No. 10 AWG SHALL BE SOLID AND CONDUCTORS No. 8 AWG AND LARGER SHALL BE STRANDED. MINIMUM CONDUCTOR SIZE SHALL BE No.12 AWG. CONDUCTORS SHALL BE CONTINUOUS BETWEEN EQUIPMENT AND DEVICES. SPLICES ARE TO BE MADE ONLY IN ACCESSIBLE JUNCTION OR OUTLET BOXES AND SHOULD BE KEPT TO A MINIMUM. SPLICES ON No.12 AND No.10 WIRE SHALL BE MADE WITH PRESSURE CONNECTORS CAPABLE OF CARRYING FULL WIRE CAPACITY. SPLICES ON No.8 WIRE AND LARGER SHALL BE MADE WITH SOLDERLESS LUGS WRAPPED WITH BOTH RUBBER AND PLASTIC ELECTRICAL TAPE. CONNECTIONS TO FIXED EQUIPMENT TERMINALS ARE TO BE MADE WITH SOLDERLESS LUGS.

PROJECT CLOSE-OUT:

TESTING: FINAL TESTS SHALL BE MADE WHEN WORK HAS BEEN COMPLETED. PROVIDE COPY OF FINAL TEST TO OWNER/ ENGINEER. WHEN REQUESTED, THE CONTRACTOR SHALL CONDUCT REQUIRED OPERATING TEST(S) IN THE PRESENCE OF THE ENGINEER AND OTHER AUTHORIZED PERSONS.

TESTS SHALL DEMONSTRATE THAT THE SYSTEM FUNCTIONS PROPERLY THROUGHOUT, THAT IT IS FREE FROM SHORTS, AND THAT ALL REQUIREMENTS HEREIN HAVE BEEN COMPLIED WITH. CONTRACTOR SHALL PROVIDE ALL NECESSARY INSTRUMENTS AND PERSONNEL FOR TESTS AND THE OWNER WILL SUPPLY THE CURRENT. TESTS SHALL BE AS PRESCRIBED BY THE AUTHORITY HAVING JURISDICTION AND ENGINEER AND SHALL INCLUDE MEGGER TESTS IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS.

FINAL ACCEPTANCE:

AFTER TESTING, A FINAL INSPECTION SHALL BE MADE BY THE OWNER/ ENGINEER AND OTHER AUTHORIZED PERSONS WITH THE CONTRACTOR. THE INSPECTION SHALL INCLUDE, BUT NOT BE LIMITED TO, CHECK THAT ALL WORK HAS BEEN PERFORMED IN PROFESSIONAL MANNER.

FINAL ACCEPTANCE OF THE PROJECT SHALL NOT PREJUDICE THE OWNER'S RIGHT TO REQUIRE REPLACEMENT AND/OR REPAIR OF ANY DEFECTIVE WORK OR MATERIALS.

WARRANTY:

ALL PARTS, MATERIALS, EQUIPMENT AND LABOR FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BEAR A ONE (1) YEAR, NO COST TO THE OWNER, WARRANTY FROM THE DATE OF FINAL ACCEPTANCE. CONTRACTOR SHALL PROVIDE ALL OF THE ABOVE WARRANTY REQUIREMENTS IN A WRITTEN STATEMENT ALONG WITH EQUIPMENT MANUFACTURER'S WARRANTIES.

RECORD DRAWINGS:

CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ACTUAL CONDITIONS INCLUDING DEVICE LOCATIONS AND CONDUIT RUNS. CONTRACTOR SHALL PROVIDE OWNER WITH A REPRODUCIBLE SET OF "AS BUILT" PLANS SHOWING THE COMPLETE ELECTRICAL AS INSTALLED (AS BUILT DRAWINGS). THE SCALE ON THESE AS BUILT DRAWINGS SHALL BE NO SMALLER THAN 1"=20'-0".

END OF SPECS

ELECTRICAL – SPECIFICATIONS

SCALE: N.T.S.

FORNEY ENGINEERING, INC.
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HARBOUR LANDING ESTATES
YACHT BASIN ELECTRICAL
DESIGN
12314 BAYPOINTE TERRACE
CORTEZ, FL 34215

TO THE BEST OF MY KNOWLEDGE, SAID PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES.

BY _____
PHILIP J. FEIKEMA P.E.
65083

DATE: _____

S E A L

REV. #	DATE

JOB NO. :
DATE : 6-22-07
DRAWN BY : JMM
CHECKED BY : PF
SHEET No. :
E6