FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	58	69

ELECTRICAL SYMBOLS

- Existing Flood Light To Be Removed
- Existing Post Light To Be Removed
- Post Light
- Existing Ceiling Luminaire
- Ceiling Luminaire
- Existing Wall Luminaire
- Existing Ceiling Fluorescent Luminaire To Be Removed
- Ceiling LED Luminaire
- Ceiling LED Luminiare With Emergency Battery Pack
- Existing Track To Be Removed
- Ceiling Exit Light, Blackened Segments Indicates Illuminated Sides And Arrows Indicates Direction
- Existing Wall Exit Light To Be Removed
- Existing Switch To Be Removed
- Existing Ceiling Occupancy Sensor To Be Removed
- Ceiling Occupancy Sensor, Dual Technology Type
- Wall Occupancy Sensor, Dual Technology Type, +4'-0" To Top Of The Device Plate
- Existing Duplex Convenience Outlet To Be Removed
- Duplex Convenience Outlet, 3W20A, Grounding Type, +18" To Bottom Of Device Plate Unless Otherwise Noted
- Existing Duplex Convenience GFI Outlet To Be Removed
- Duplex Convenience Outlet, 3W20A, Ground Fault Interrupter Type, +18" To Bottom Of Device Plate Unless Otherwise Noted
- Existing Special Outlet To Be Removed
- Power Pole
- Equipment Connection
- Existing Water Heater Connection To Be Removed
- Existing Wall Junction Box To Be Removed
- Ceiling Junction Box, 4-11/16" Square Minimum
- Existing Transformer To Be Removed
- Existing Panelboard To Be Removed
- Existing Panelboard
- Panelboard
- Existing Telephone Cabinet
- Existing Telephone/Data Outlet To Be Removed
- Telephone/Data Outlet, +18" To Bottom Of Device Plate Unless Otherwise Noted

- Existing Fire Alarm Manual Station To Be Removed
- Fire Alarm Manual Station, +48" To Top Of Device Plate
- Existing Fire Alarm Audible Device To Be Removed
- Fire Alarm Audible Device/Flashing Light, +80"
- Addressable Fire Alarm Zone Monitor
- Addressable Fire Alarm Automatic Smoke Detector
- Existing Fire Alarm Panel To Be Removed
- Fire Alarm Panel
- Duct Smoke Detector
- Fire Smoke Damper
- Motorized Damper
- Existing Motor Outlet To Be Removed
- Motor Outlet
- Existing Motor Controller To Be Removed
- Motor Controller
- Existing Safety Switch To Be Removed
- Safety Switch
- WP — Weatherproof
- MCA — Minimum Circuit Amperes
- AHJ — Authority Having Jurisdiction
- A — Luminiare Designation, Type "A" Indicated

- Wiring In Existing Raceway
- Wiring In Existing Raceway To Be Removed
- —x—EOH—x— Existing Overhead Wiring To Be Removed
- ——OH—— Overhead Wiring
- Wiring In Exposed Raceway
- Wiring In Raceway Concealed Underground Or Below Grade
- Wiring In Raceway Concealed In Wall Or Ceiling
- ——M—— Wiring In Surface Metal Molding
- Wiring In Flexible Raceway

Notes:

1. Any circuit with no further designation indicates a two wire circuit. Circuits with additional wires are indicated as follows: —//—, 3 wires; —///—, 4 wires, etc.
2. Ground wire per National Electrical Code indicated as follows: —⏚—.
3. All exposed conduit and boxes shall be painted to match adjacent wall or ceiling surrounding.

City And County Of Honolulu
Revised Ordinance Chapter 32,
Honolulu County Code 1990, As Ammended

To the best of my knowledge, this project's design substantially conforms to the Building Energy Conservation Code for:

_____ Building Component System
__X__ Electrical Component System
_____ Mechanical Component System

Signature: _____ Date: April 2016
Name: Clayton C. Y. Pang, P. E.
Title: Principal
License No.: 4145-E

Building Energy Efficiency Standard Calculations

Exterior Lighting Power Allowance	1,482 W	Installed	1,112 W
Interior Lighting Power Allowance	7,424 W	Installed	5,336 W

CLAYTON C. Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2016
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

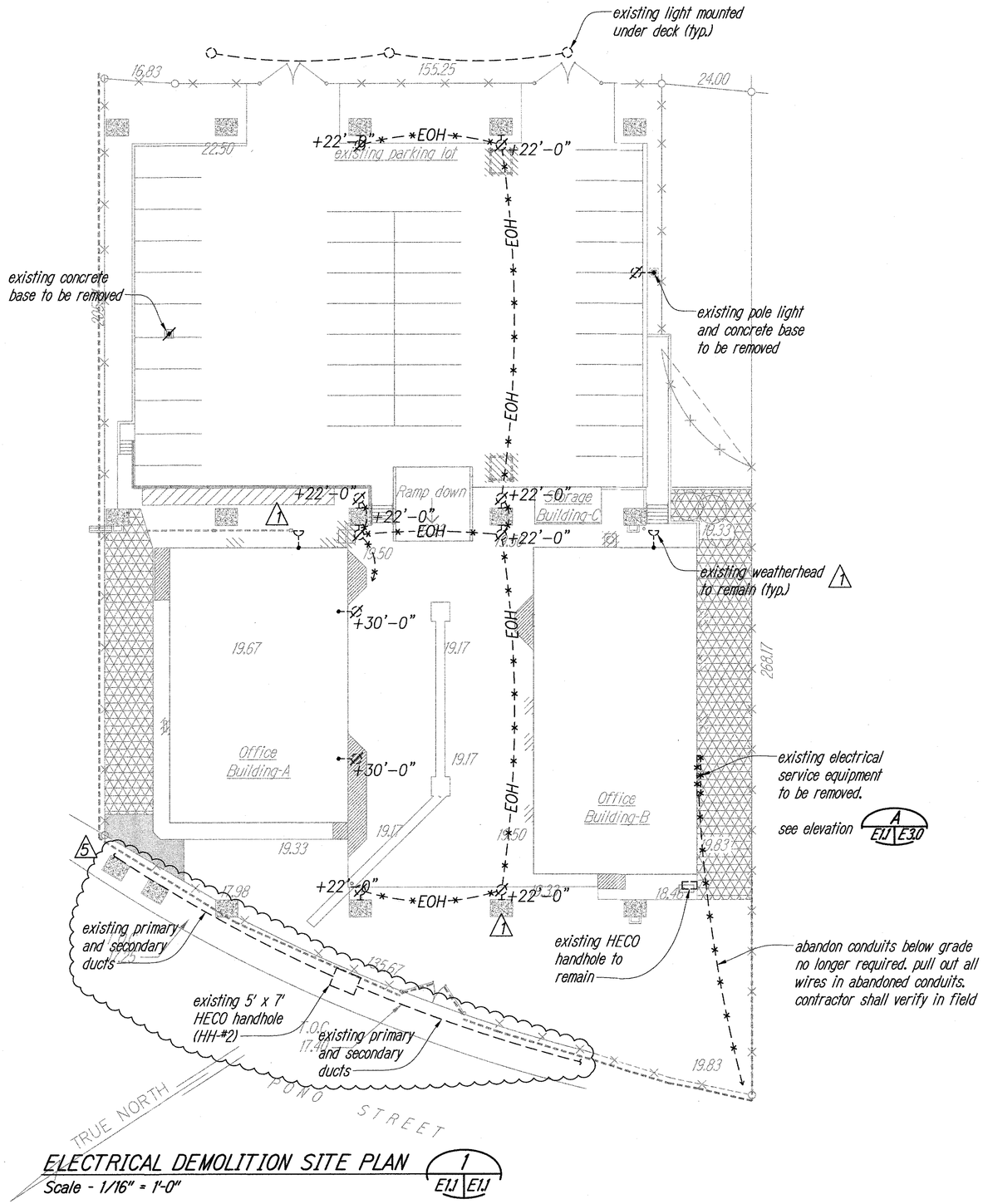
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SYMBOLS, ENERGY EFFICIENCY CALCULATIONS
MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R
Scale: As Noted Date: April, 2016

SHEET No. E1.0 OF 69 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.O.ADD.59	69



ELECTRICAL DEMOLITION SITE PLAN 1 E1.1 | E1.1

Scale - 1/16" = 1'-0"

DEMOLITION NOTES

1. Existing plans do not indicate complete existing wiring conditions. Contractor shall verify existing conditions prior to start of work.
2. Before any wiring is cut, Contractor shall verify usage of wiring to be cut to assure that services required are not discontinued. Provide additional wiring devices and other accessories to ensure continuity of service to other parts of installation to remain.
3. Remove all existing wiring not to remain in service.
4. Remove all conduits no longer required.
5. Phase work to assure continuity of electrical, telephone and signal services to parts of facilities that will remain in use.
6. Remove all existing lighting fixtures, receptacles and switches indicated to be removed or no longer required. Blank outlets and plug all holes in boxes and cabinets.
7. Deliver all salvageable material as determined by Engineer at no additional cost to Owner. Pack material in boxes. Coil all cables and tie.
8. Abandon conduits below grade no longer required. Pull out all wires in abandoned conduits.
9. Return all removed light fixtures to Owner. Deliver items and stack in location as determined by Engineer. Dispose of fixtures that are not retained.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

8' 0 10' 20' 30' 40'

1/16" = 1'-0"

DATE	REVISION
4/12/2017	5 Revise HECO Ductline
6/1/2016	1 Revise Site Demolition Work

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DEMOLITION SITE PLAN, DEMOLITION NOTES

MOTOR VEHICLE SAFETY OFFICE RENOVATION

Project No. HWY-0-02-08R

Scale: As Noted Date: April, 2016

SHEET No. E1.1 OF 69 SHEETS

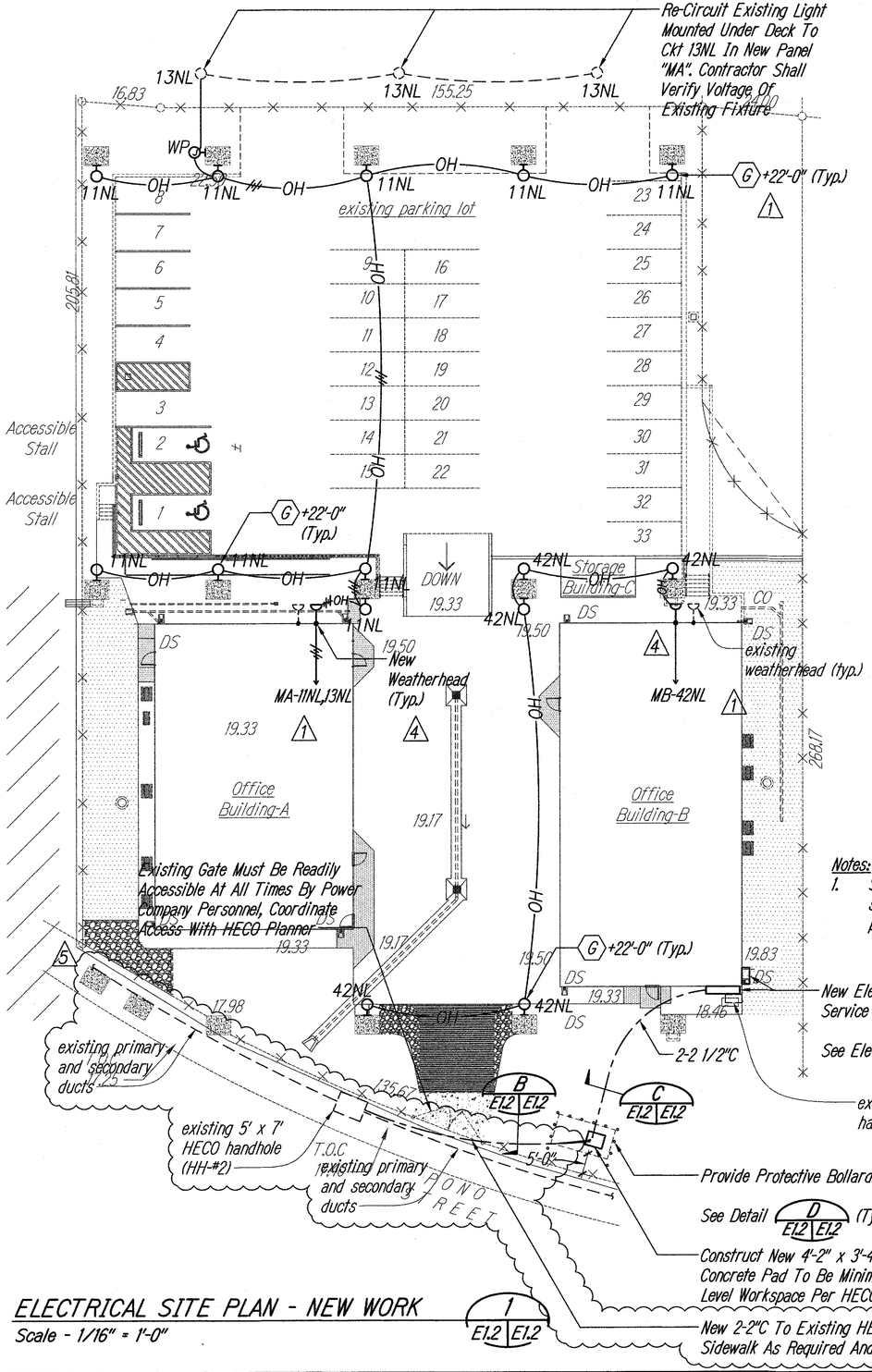
TRUE NORTH

LICENSED PROFESSIONAL ENGINEER No. 4145-E HAWAII, U.S.A. CLAYTON C.Y. PANG

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

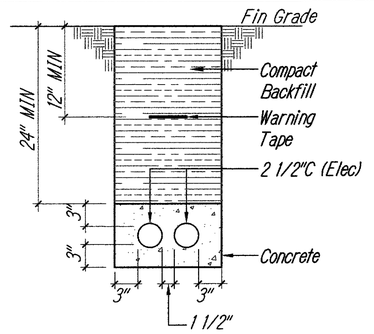
C.O.ADD.59

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.O.ADD.60	69



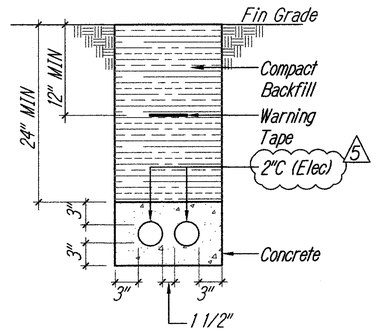
ELECTRICAL SITE PLAN - NEW WORK 1 E1.2 E1.2

Scale - 1/16" = 1'-0"



DUCT SECTION C E1.2 E1.2

Scale - NTS

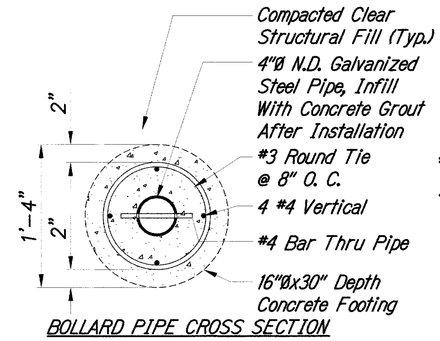


DUCT SECTION B E1.2 E1.2

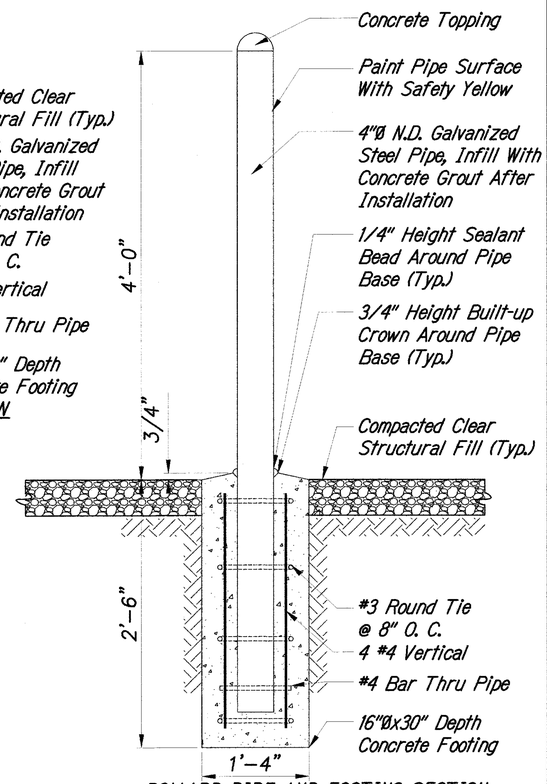
Scale - NTS

Notes:

1. Sawcut existing concrete slab as required and patch to match existing.



BOLLARD PIPE CROSS SECTION



BOLLARD PIPE AND FOOTING SECTION

TYPICAL BOLLARD AND CONCRETE FOOTING DETAIL D E1.2 E1.2

Scale: 1-1/2" = 1'-0"

8' 0 10' 20' 30' 40'

1/16" = 1'-0"

DATE	REVISION
4/12/2017	5 Revise HECO Ductline
3/6/2017	4 Add Weatherheads
1/9/2017	3 Revise Transformer Location, Add Bollards

TRUE NORTH

C.LAYTON C.Y.PANG LICENSED PROFESSIONAL ENGINEER No. 4145-E HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SITE PLAN - NEW WORK, POST LIGHT DETAIL, DUCT SECTIONS

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R

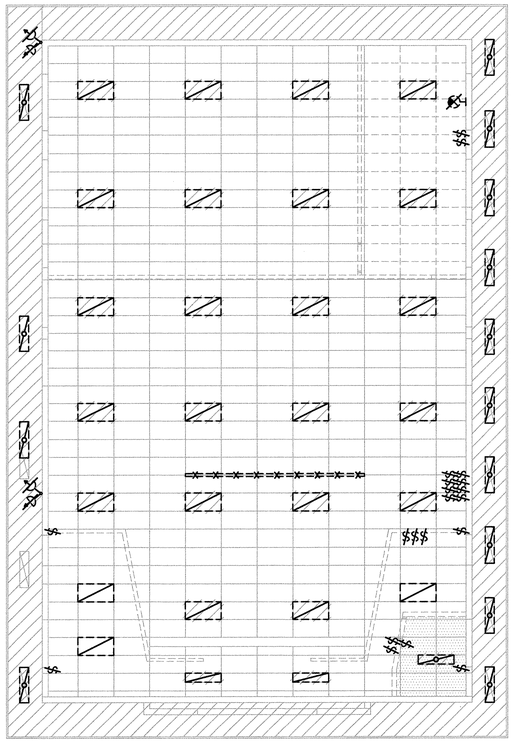
Scale: As Noted Date: April, 2016

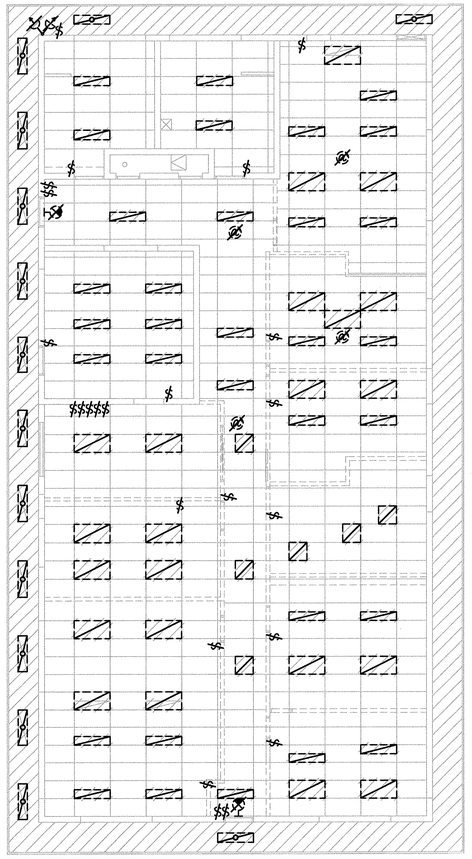
SHEET No. E1.2 OF 69 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
NOTE BOOK
No.

C.O.ADD.60

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	61	69





ORIGINAL PLANS	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

BUILDING 'A'
LIGHTING DEMOLITION PLAN (1 / E2.1 | E2.1)
Scale - 1/8" = 1'-0"

BUILDING 'B'
LIGHTING DEMOLITION PLAN (2 / E2.1 | E2.1)
Scale - 1/8" = 1'-0"

TRUE NORTH

4' 0 5' 10' 15' 20'
1/8" = 1'-0"

CLAYTON C.Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2016
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

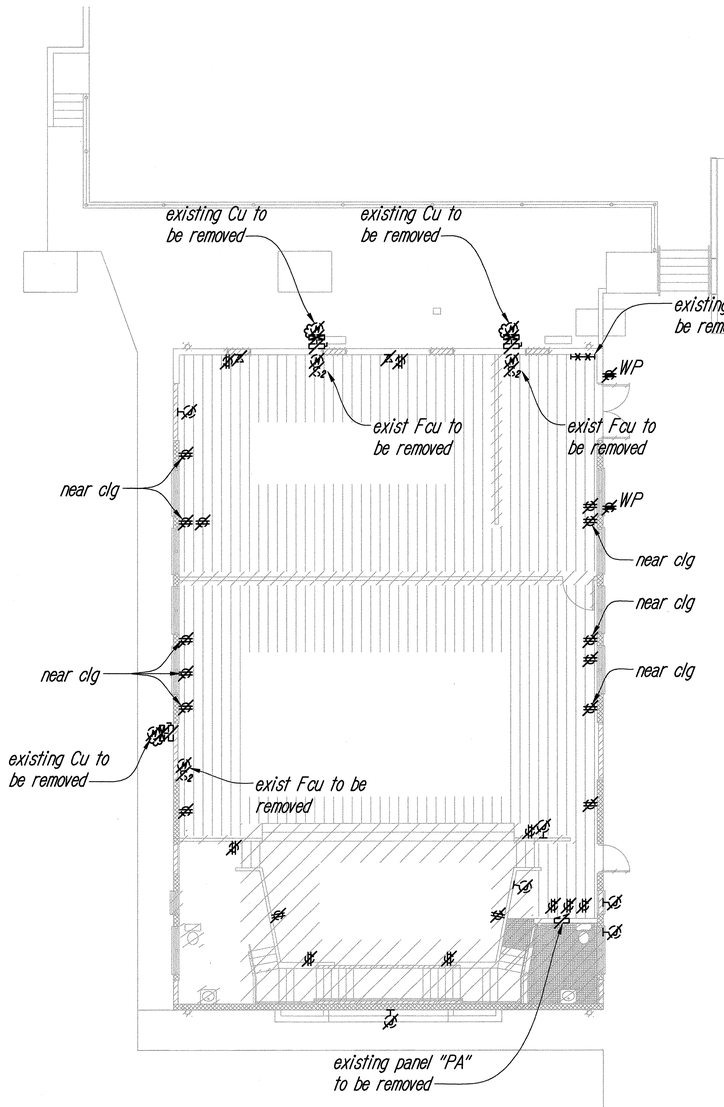
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

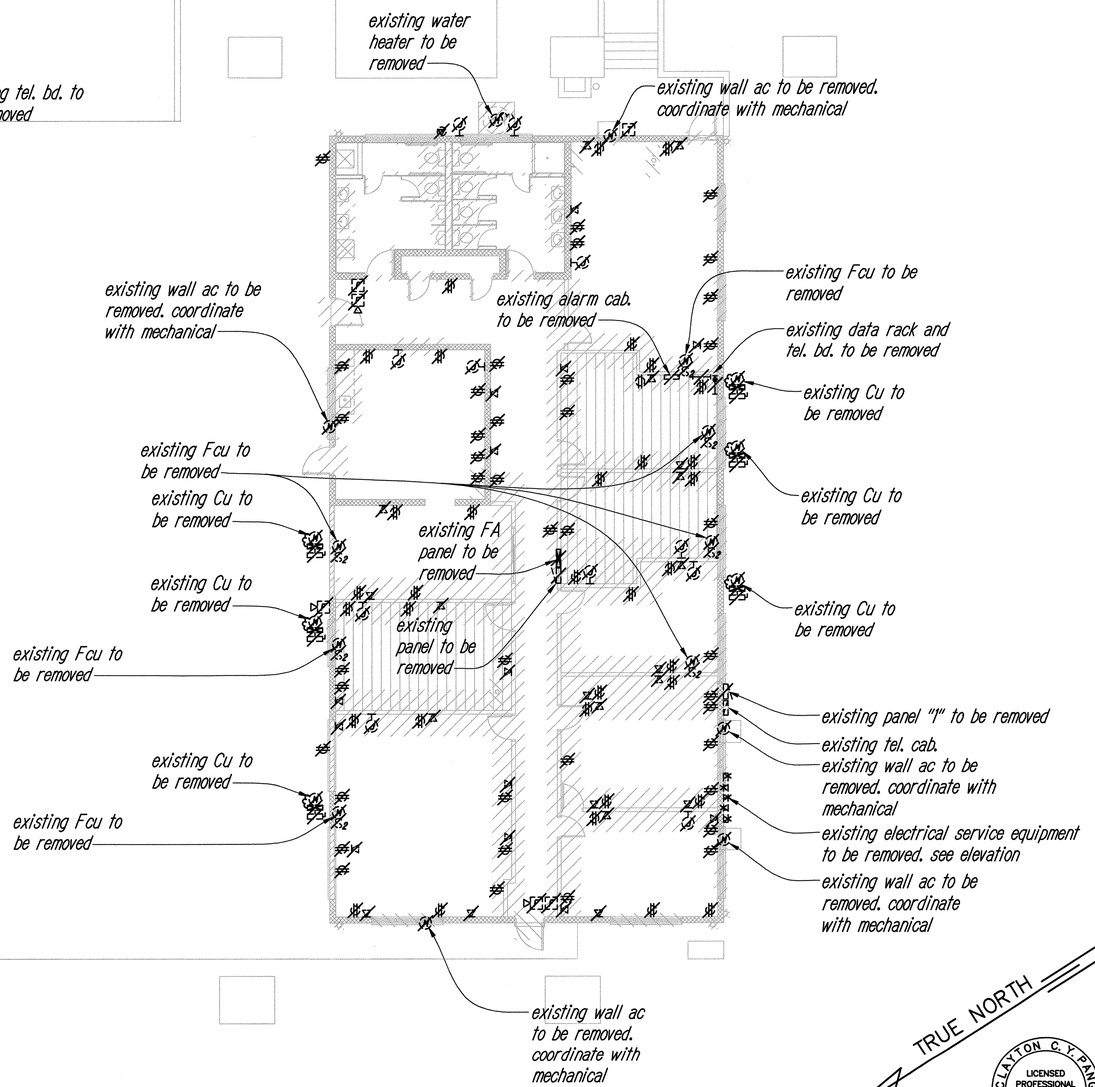
BUILDING 'A' & 'B' LIGHTING DEMOLITION PLANS

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R
Scale: As Noted Date: April, 2016

SHEET No. E2.1 OF 69 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	62	69





TRUE NORTH

4' 0 5' 10' 15' 20'
1/8" = 1'-0"

BUILDING 'A' POWER AND SIGNAL DEMOLITION PLAN
Scale - 1/8" = 1'-0"
1 E2.2 | E2.2

BUILDING 'B' POWER AND SIGNAL DEMOLITION PLAN
Scale - 1/8" = 1'-0"
2 E2.2 | E2.2

ORIGINAL PLANS
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
NOTE BOOK
No.

CLAYTON C.Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2016
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

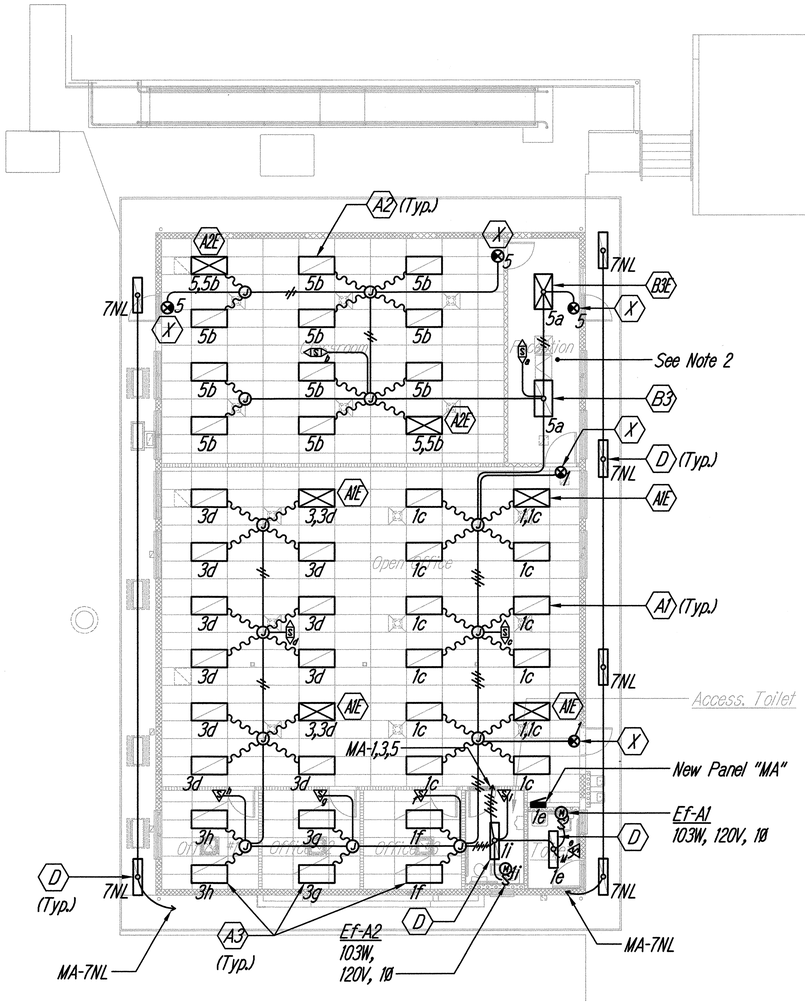
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

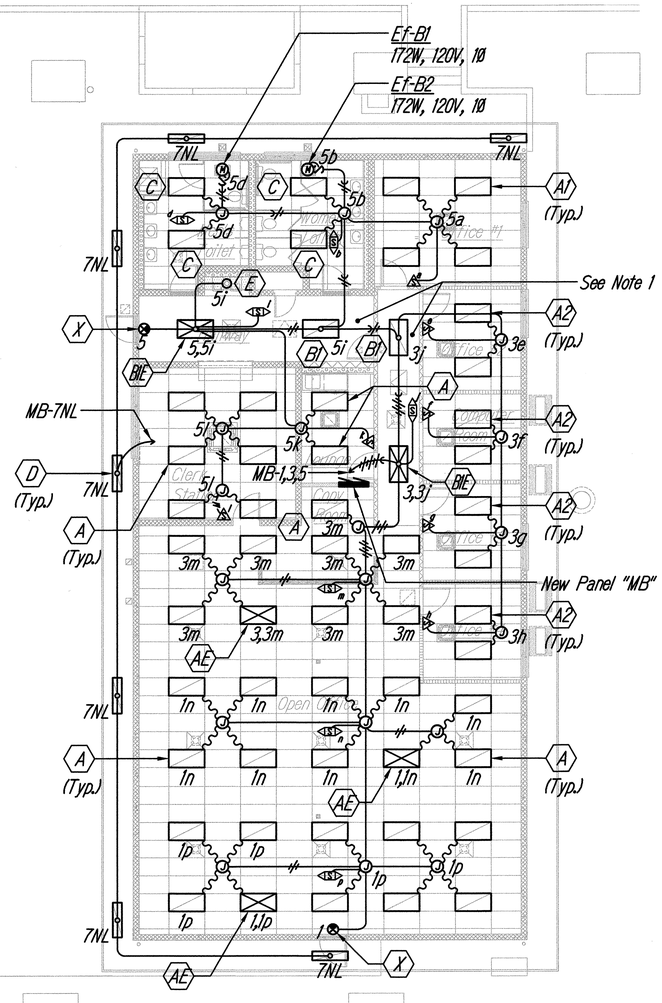
BUILDING 'A' & 'B' POWER AND SIGNAL DEMOLITION PLANS

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R
Scale: As Noted Date: April, 2016

SHEET No. E2.2 OF 69 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	63	69





Notes:

1. Provide fire stopping material around all conduits penetrating through Hallway walls/ceiling.
2. Provide fire stopping material around all conduits penetrating through Reception walls/ceiling.

LUMINAIRE SCHEDULE

TYPE	LAMP	DESCRIPTION
A	41W LED	Columbia LSER24-40LWG-C-EU Or Equal
AE	41W LED	Columbia LSER24-40LWG-C-EU-ELLI4 Or Equal
A1	52W LED	Columbia LSER24-40MLG-C-EU Or Equal
A1E	52W LED	Columbia LSER24-40MLG-C-EU-ELLI4 Or Equal
A2	62W LED	Columbia LSER24-40HLG-C-EU Or Equal
A2E	62W LED	Columbia LSER24-40HLG-C-EU-ELLI4 Or Equal
A3	82W LED	Columbia LSER24-40VLG-C-EU Or Equal
B1	52W LED	Columbia LSER24-40MLSM-C-EU Or Equal
B1E	52W LED	Columbia LSER24-40MLSM-C-EU-ELLI4 Or Equal
B3	82W LED	Columbia LSER24-40VLSM-C-EU Or Equal
B3E	82W LED	Columbia LSER24-40VLSM-C-EU-ELLI4 Or Equal
C	39W LED	Columbia LJT24-40LWG-FS-AI2-EU Or Equal
D	39W LED	Columbia LJT14-40MLG-FSAI2-EU With FK14 Or Equal
E	25W LED	Luminaire LED APX13-25W HP-4000K-120-FL-WHT Or Equal
G	130W LED	Kim AR-3-E35-120L-4K-120-DB Or Equal
X	LED	Dual-Lite LX-U-R-W-E Or Equal

BUILDING 'A'
LIGHTING PLAN - NEW WORK — 1 (E2.3 | E2.3)
Scale - 1/8" = 1'-0"

BUILDING 'B'
LIGHTING PLAN - NEW WORK — 2 (E2.3 | E2.3)
Scale - 1/8" = 1'-0"

TRUE NORTH

4' 0 5' 10' 15' 20'
1/8" = 1'-0"

ORIGINAL PLAN
SURVEY PLOTTED BY — DATE
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
NOTE BOOK
No.

CLAYTON C.Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

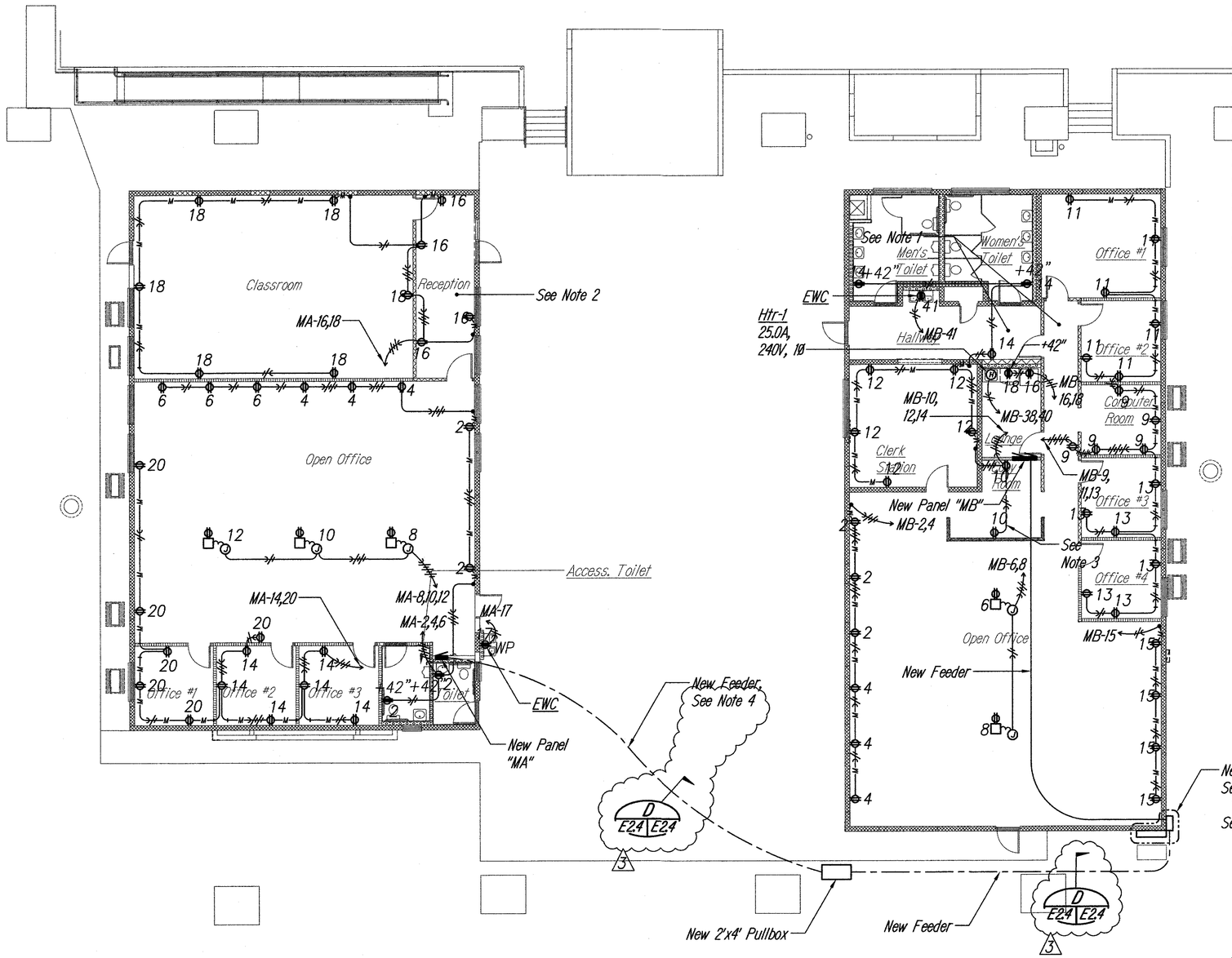
BUILDING 'A' & 'B' LIGHTING PLANS - NEW WORK, LUMINAIRE SCHEDULE

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R

Scale: As Noted — Date: April, 2016

SHEET No. E2.3 OF 69 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.O.ADD.64	69

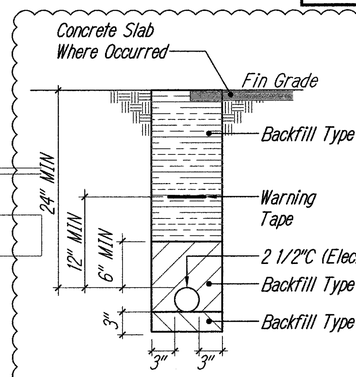


BUILDING 'A'
POWER PLAN - NEW WORK
Scale - 1/8" = 1'-0"

1 E2.4 E2.4

BUILDING 'B'
POWER PLAN - NEW WORK
Scale - 1/8" = 1'-0"

2 E2.4 E2.4



Backfill Notes:

Type "A": Beach sand, earth, or earth & gravel. The maximum rock size shall be 1" and the mixture shall contain no more than 50 percent by volume of rock particles.

Type "B": Beach sand, earth, or earth & gravel. If earth & gravel mixture, must pass a 1/2" mesh screen and contain not more than 20 percent by volume of rock particles.

Type "C": If the normal material in the bottom of the trench is not type "B" an additional 3" shall be excavated and type "B" backfill shall be provided.

DUCT SECTION
Scale - NTS

D E2.4 E2.4

3

Notes:

1. Provide fire stopping material around all conduits penetrating through Hallway walls/ceiling.
2. Provide fire stopping material around all conduits penetrating through Reception walls/ceilings.
3. Contractor shall sawcut existing concrete floor for installation of new conduit and patch to match existing.
4. Sawcut existing concrete slab as required and patch to match existing.

3

4' 0 5' 10' 15' 20'

1/8" = 1'-0"

DATE	REVISION
1/9/2017	3 Add Duct Section

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BUILDING 'A' & 'B' POWER PLANS - NEW WORK

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R

Scale: As Noted Date: April, 2016

SHEET No. E2.4 OF 69 SHEETS

C.O.ADD.64

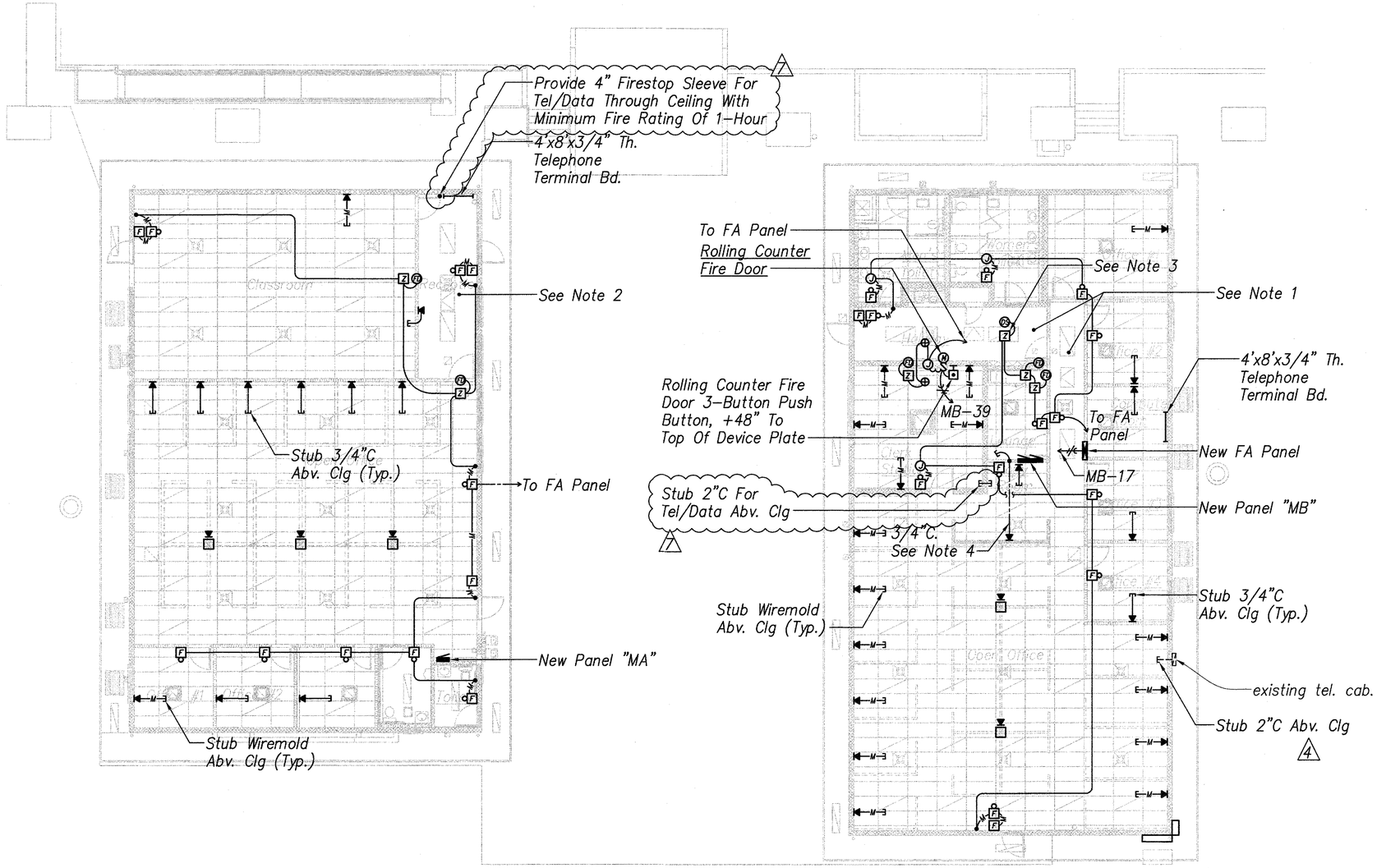
ORIGINAL PLANS — SURVEY PLOTTED BY — DRAWN BY — TRACED BY — DESIGNED BY — QUANTITIES BY — CHECKED BY — DATE

NOTE BOOK — No.

LICENSED PROFESSIONAL ENGINEER No. 4145-E
CLAYTON C.Y. PANG
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.O.65	69



Notes:

1. Provide fire stopping material around all conduits penetrating through Hallway walls/ceiling.
2. Provide fire stopping material around all conduits penetrating through Reception walls/ceiling.
3. Provide minimum 1 hour fire rated ceiling access panel as required.
4. Contractor shall sawcut existing concrete floor for installation of new conduit and patch to match existing.

4' 0 5' 10' 15' 20'

1/8" = 1'-0"

BUILDING 'A' SIGNAL
SIGNAL PLAN - NEW WORK (1) E2.5 | E2.5
Scale - 1/8" = 1'-0"

BUILDING 'B'
SIGNAL PLAN - NEW WORK (2) E2.5 | E2.5
Scale - 1/8" = 1'-0"

TRUE NORTH

ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

DATE	REVISION
1/23/2018	7 Add Telecom Sleeves
3/6/2017	4 Add 2"C Stub At Telecom Cabinet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BUILDING 'A' & 'B' SIGNAL PLANS - NEW WORK

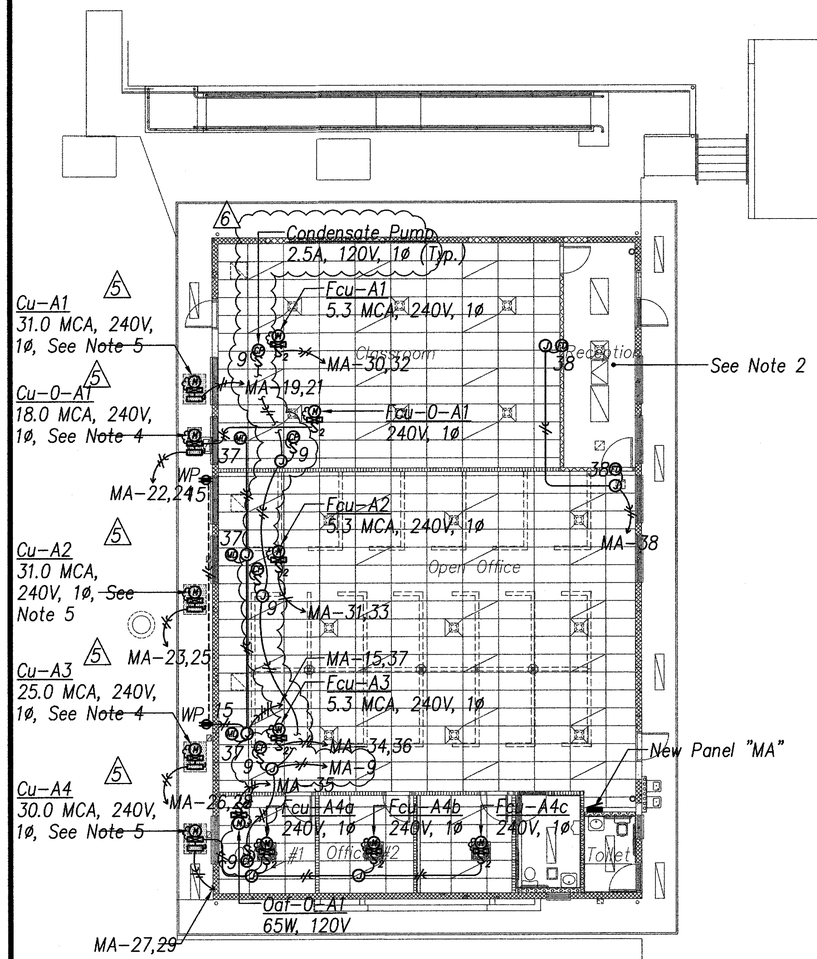
MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R

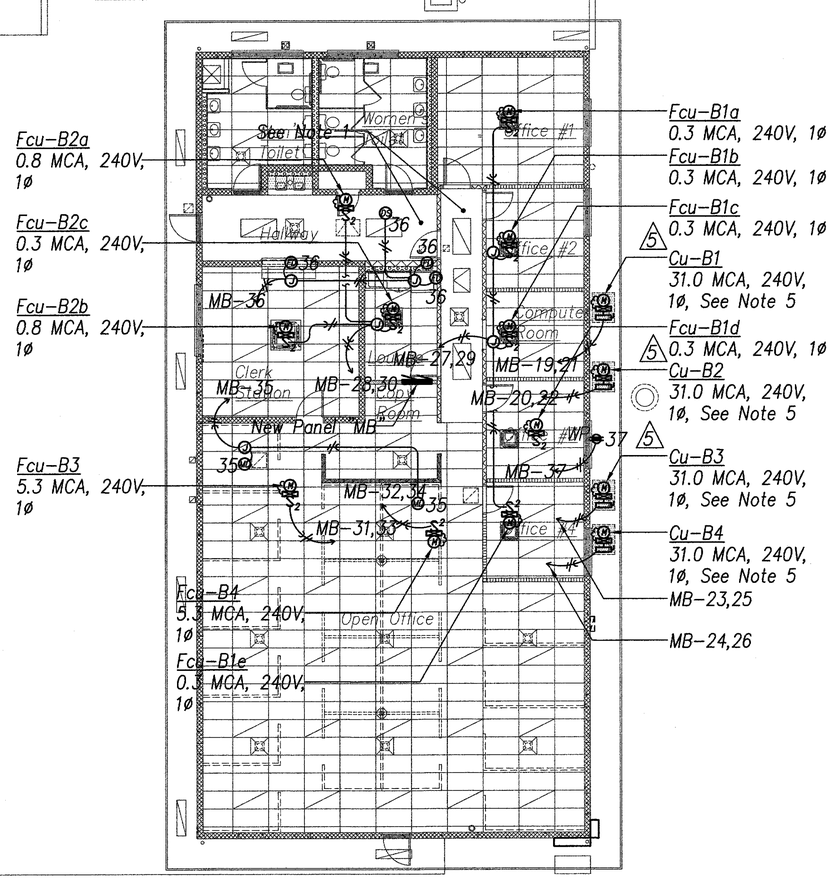
Scale: As Noted Date: April, 2016

CLAYTON C.Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.0.66	69





Notes:

1. Provide fire stopping material around all conduits penetrating through Hallway walls/ceiling.
2. Provide fire stopping material around all conduits penetrating through Reception walls/ceiling.
3. Contractor shall verify exact location of all equipment with Mechanical prior to rough-in.
4. Provide 2P30A NF SW, NEMA 3R.
5. Provide 2P60A NF SW, NEMA 3R.

4' 0 5' 10' 15' 20'
1/8" = 1'-0"

BUILDING 'A' MECHANICAL EQUIPMENT CONNECTION POWER PLAN – NEW WORK (1)
Scale – 1/8" = 1'-0"
E2.6 | E2.6

BUILDING 'B' MECHANICAL EQUIPMENT CONNECTION POWER PLAN – NEW WORK (2)
Scale – 1/8" = 1'-0"
E2.6 | E2.6

TRUE NORTH

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

11/17/17	6 Add Condensate Pumps
4/12/2017	5 Revise CU Required Amps
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BUILDING 'A' & 'B' MECHANICAL EQUIPMENT CONNECTION POWER PLANS – NEW WORK

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R

Scale: As Noted Date: April, 2016

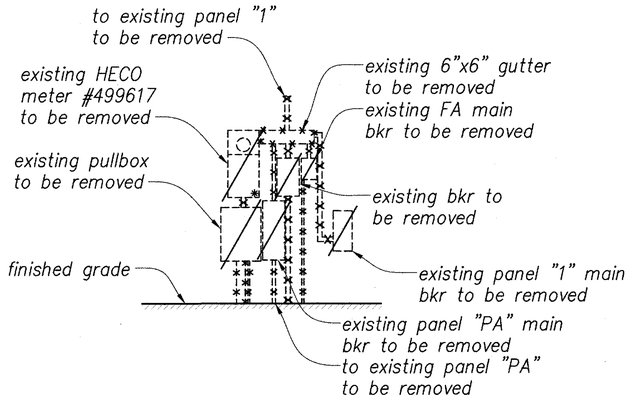
CLAYTON C. Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SHEET No. E2.6 OF 69 SHEETS

C.0.66

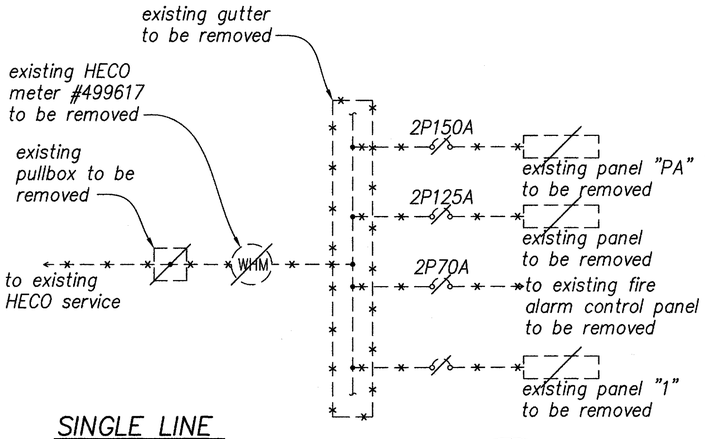
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.O.ADD.67	69



ELECTRICAL SERVICE EQUIPMENT ELEVATION – DEMOLITION WORK

Scale – 3/8" = 1'–0"

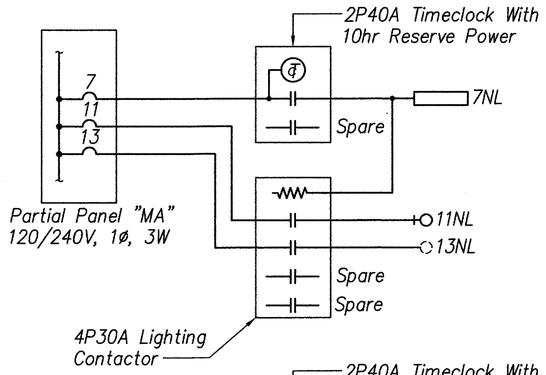
A E1.1 E3.0



SINGLE LINE DIAGRAM – DEMOLITION WORK

Scale – NTS

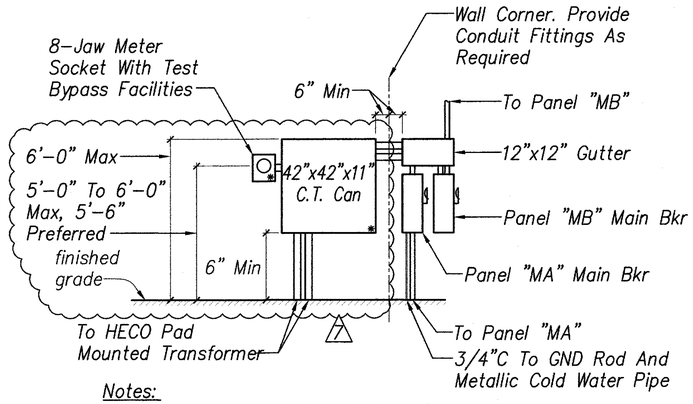
A E3.0 E3.0



NIGHT LIGHT CONTROL WIRING DIAGRAM

Scale – NTS

E E3.0 E3.0



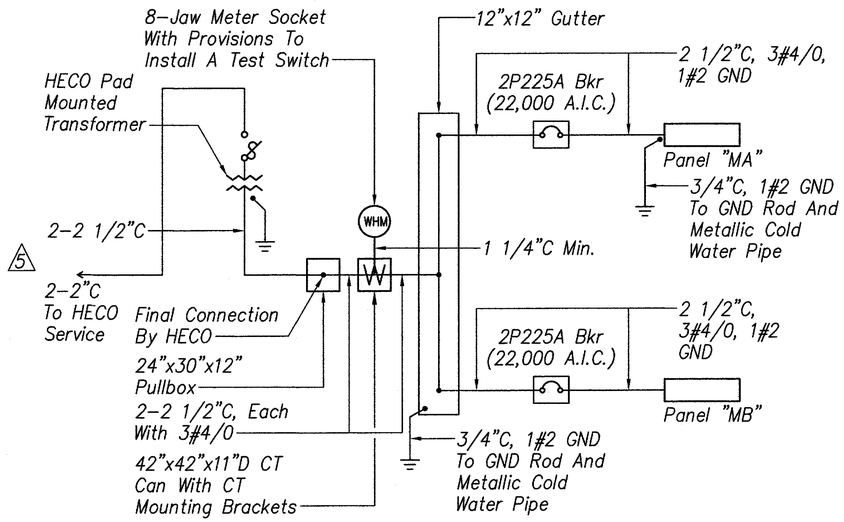
Notes:

1. All enclosures shall be NEMA 3R.
2. ✱ – Indicates sealable enclosure.
3. Provide permanent identification labels for all meter sockets to identify the unit or space served.
4. Provide a minimum of 4 feet clear and level workspace clearance in front of metering and service equipment.

ELECTRICAL SERVICE EQUIPMENT ELEVATION – NEW WORK

Scale – 3/8" = 1'–0"

B E1.2,E2.4 E3.0



SINGLE LINE DIAGRAM – NEW WORK

Scale – NTS

B E3.0 E3.0

12' 0 15' 30' 45' 60'

3/8" = 1'–0"

DATE	REVISION
1/23/2018	7 Revise Service Equipment
4/12/2017	5 Revise HECO Ductline
6/1/2016	1 Revise Night Light Control Wiring Diagram

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SERVICE EQUIPMENT ELEVATIONS, DIAGRAMS

MOTOR VEHICLE SAFETY OFFICE RENOVATION

Project No. HWY-0-02-08R

Scale: As Noted Date: April, 2016

CLAYTON C. Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145–E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SHEET No. E3.0 OF 69 SHEETS

ORIGINAL PLAN | NOTE BOOK | No.
SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

C.O.ADD.67

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	C.O.68	69

New Panel "MA" 240/120 Volts 1ø, 3WSN
3P225A Main Breaker Branch Breaker I.C. 22,000 Amps
Flush, 20" Wide Cabinet, Industrial Bolted

CKT NO.	BKR	LOAD	KVA L1	KVA L2	WIRE
1	1P20A	Lights/Ef-A1/EF-A2	1.1		12
2		Recep	1.0		
3		Lights		1.0	
4		Recep		1.0	
5		Lights	0.9		
6		Recep	1.0		
7		Lights - NL		0.7	10
8		Recep		1.0	12
9		Condensate Pumps	1.5		10
10		Recep	1.0		12
11		Lights - Courtyard NL		0.9	6
12		Recep		1.0	12
13		Lights - Under Deck NL	1.0		6
14		Recep	1.0		12
15		Recep		0.4	
16		Recep		1.0	
17		Recep - EWC	1.0		
18		Recep	1.0		
19,21	2P40A	Cu-A1	3.0	3.0	8
20	1P20A	Recep		1.0	12
22,24	2P30A	Cu-0-A1	1.7	1.7	10
23,25	2P40A	Cu-A2	3.0	3.0	8
26,28	2P40A	Cu-A3	2.4	2.4	8
27,29	2P40A	Cu-A4	2.9	2.9	8
30,32	2P15A	Fcu-A1	0.6	0.6	12
31,33	2P15A	Fcu-A2	0.6	0.6	12
34,36	2P15A	Fcu-A3	0.6	0.6	12
35	1P20A	Oaf-0-A1	0.1		12
37	1P20A	Motorized Dampers		0.6	12
38		Fire Smoke Dampers		0.4	12
39		Spare			
40					
41					
42					
		TOTALS :	25.4	23.8	

New Panel "MB" 240/120 Volts 1ø, 3WSN
225A Main Lugs Only Branch Breaker I.C. 22,000 Amps
Flush, 2-20" Wide Cabinet, Industrial Bolted

CKT NO.	BKR	LOAD	KVA L1	KVA L2	WIRE
1	1P20A	Lights	0.8		12
2		Recep	1.0		
3		Lights		0.8	
4		Recep		1.0	
5		Lights/Ef-B1/Ef-B2	0.9		
6		Recep	1.0		
7		Lights - NL		0.6	10
8		Recep		1.0	12
9			1.0		
10			1.0		
11				1.0	
12				1.0	
13			1.0		
14			1.0		
15				1.0	
16				1.0	
17		FA Panel	1.0		
18		Recep	1.0		
19,21	2P40A	Cu-B1	3.0	3.0	8
20,22	2P40A	Cu-B2	3.0	3.0	8
23,25	2P40A	Cu-B3	3.0	3.0	8
24,26	2P40A	Cu-B4	3.0	3.0	8
27,29	2P15A	Fcu-B1a/Fcu-B1b/Fcu-B1c/Fcu-B1d/Fcu-B1e	0.2	0.2	12
28,30	2P15A	Fcu-B2a/Fcu-B2b/Fcu-B2c	0.2	0.2	12

New Panel "MB" (Continued)

CKT NO.	BKR	LOAD	KVA L1	KVA L2	WIRE
31,33	2P15A	Fcu-B3	0.6	0.6	12
32,34	2P15A	Fcu-B4	0.6	0.6	12
35	1P20A	Motorized Dampers	0.4		12
36		Fire Smoke Dampers, Duct Smoke Detector	0.8		
37		Recep		0.2	
38,40	2P30A	Htr-1	3.0	3.0	8
39	1P20A	Rolling Counter Fire Door	1.5		12
41	1P20A	Recep - EWC		1.0	12
42		Lights - Courtyard NL		0.5	6
43		Spare			
44					
45					
46					
47					
48					
49	1P	P F B			
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
		TOTALS :	29.0	25.7	

DATE	REVISION
11/17/17	6 Add Condensate Pumps
4/12/2017	5 Revise Panel Schedules For Revised CU's

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PANEL SCHEDULES

MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R

Scale: As Noted Date: April, 2016

CLAYTON C.Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SHEET No. E3.1 OF 69 SHEETS

C.O.68

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-08R	2016	69	69

FIRE ALARM NOTES

1. (2) - Indicates number of #14 wires, 2-wires indicated.

Detection, Alarm, and Communication Systems

2. 13.7.1.1 Where building fire alarm systems or automatic fire detectors are required by other sections of this code, they shall be provided and installed in accordance with NFPA 70, NFPA 72, National Fire Alarm Code, and Section 13.7. 2012 NFPA 1.

3. 13.7.1.3 ALI apparatus requiring rewinding or resetting to maintain normal operation shall be rewound or reset as promptly as possible after each test and alarm. All test signals received shall be recorded to indicate date, time, and type. [72:10.5.4]

4. 13.7.1.4 The provisions of section 13.7 shall apply only where specifically required by another section of this code. [101:9.6.1.1]
13.7.1.4.1 Fire detection, alarm, and communication systems installed to make use of an alternative permitted by this code shall be considered required systems and shall meet the provisions of this code applicable to required systems. [101:9.6.1.2]
13.7.1.4.3* To ensure operational integrity, the fire alarm system shall have an approved maintenance and testing program complying with the applicable requirements of section 13.4 and 13.7. [101:9.6.1.5]
13.7.1.4.4* Where a required fire alarm system is out of service for more than 4 hours in a 24-hour period, the AHJ shall be notified, and the building shall be evacuated or an approved fire watch shall be provided for all parties left unprotected by the shutdown until the fire alarm system has been returned to service. [101:0.6.1.6]
13.7.1.4.5 For the purposes of this code, a complete fire alarm system shall provide functions for initiation, notification, and control, which shall perform as follows:

   (1) The initiation function provides the input signal to the system.
   (2) The notification function is the means by which the system advises that human action is required in response to a particular condition.
   (3) The control function provides output to control building equipment to enhance protection of life. [101:9.6.1.7]

5. 13.7.1.4.9.8 Audibility. The alarm signal shall be a distinctive sound, which is not used for any other purpose other than the fire alarm. Alarm-signaling devices shall produce a sound that exceeds the prevailing equivalent sound level in the room or space by 15 decibels minimum, or exceeds any maximum sound level with a duration of 60 seconds minimum by 5 decibels minimum, whichever is louder. Sound levels for alarm signals shall be 120 decibels Maximum. 2012 NFPA 1, amended.
Ensure audibility is met through all occupiable areas and spaces. This will be thoroughly checked at time of alarm acceptance test.

Approval and Acceptance

6. 13.7.3.2.1.2 Before requesting final approval of the installation, if required by the AHJ, the installing contractor shall furnish a written statement that the system has been installed in accordance with approved plans and tested in accordance with the manufacturer's specifications and the appropriate NFPA requirements. [72:4.5.1.2]
13.7.3.2.1.3* The record of completion form, Figure 4.5.2.1 of NFPA 72, shall be permitted to be a part of the written statement required in 13.7.3.2.1.2. When more than one contractor has been responsible for the installation, each contractor shall complete the portions of the form for which that contractor had responsibility.
13.7.3.2.1.4 The record of completion form, Figure 4.5.2.1 of NFPA 72 shall be permitted to be a part of the documents that support the requirements of 13.7.3.2.1.3. 2012 NFPA 1.

Manual Fire Alarm Boxes

7. 13.7.1.4.7.3 A manual fire alarm box shall be provided in the natural exit access path near each required exit from an area, unless modified by another section of this code.
13.7.1.4.7.4* Additional manual fire alarm boxes shall be located so that, on any given floor in any part of the building, no horizontal distance on that floor exceeding 200 ft (670m) shall need to be traversed to reach a manual fire alarm box. [9.6.2.4]
13.7.3.3.6 Manual fire alarm boxes shall be located within 5 ft (1.5m) of the exit doorway opening at each exit on each floor. The location of manual fire alarm boxes may be modified by the AHJ. 2012 NFPA 1, amended.

Notification Devices

8. 13.7.1.4.9.5 Unless otherwise provided in 13.7.1.4.9.5.1 through 13.7.1.4.9.5.6, notification signals for occupants to evacuate shall be audible and visible signals in accordance with NFPA 72 and ICC/ANSI A117.1, American Standard for Accessible and Usable Buildings and Facilities, or other means of notification acceptable to the AHJ shall be provided. NFPA 1 2012, Chapter 13 as amended.
9. 13.7.1.4.9.5.1 Areas not subject to occupancy by persons who are hearing impaired shall not be required to comply with the provisions for visible signals. NFPA 1 2012, Chapter 13 as amended.

Fire alarm system design, installation, testing and maintenance shall be in accordance with NFPA 72, National Fire Alarm Code, NFPA 1, 2012 and NFPA 101.

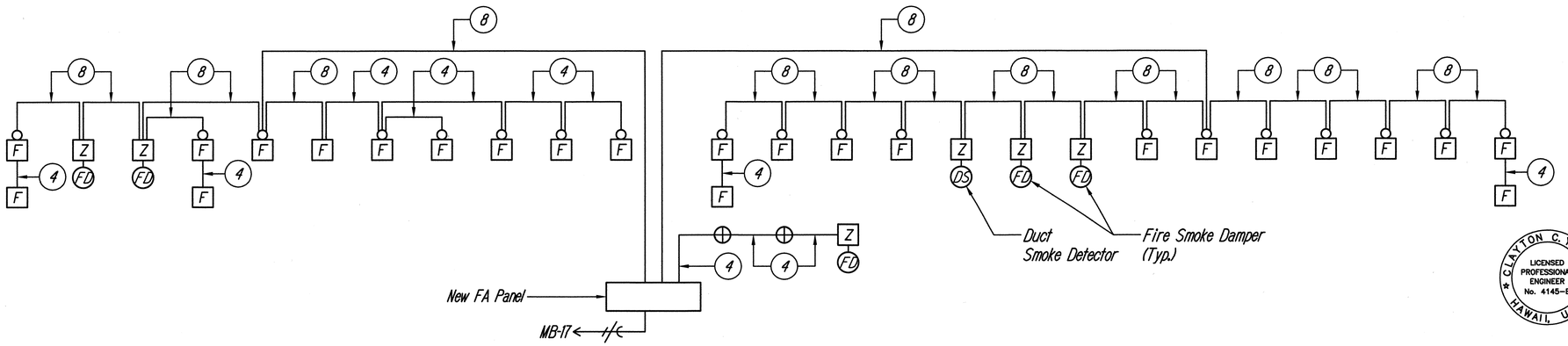
10. Chapter 4 Fundamentals of Fire Alarm Systems
4.4.1.4.2 Mechanical protection 4.4.1.4.2.2 circuit disconnection means should have a red marking, shall be accessible only to authorized personnel and shall be identified as "Fire Alarm Circuit".
4.4.1.4.3 The location of the circuit disconnect means shall be permanently marked at the fire alarm control panel.
10.5.3.3 Service Personnel
Service personnel shall be qualified in the maintenance and servicing of systems addressed within the scope of the code. Qualified personnel shall include, but not be limited to, one or more of the following:

   1) Personnel who are factory trained and certified for the specific type and brand of system being serviced.
   2) Personnel who are certified by a nationally recognized certification organization acceptable to the Authority Having Jurisdiction.
   3) Personnel, either individually or through their affiliation with an organization that is registered, licensed, or certified by a state or local authority to perform service on systems addressed within the scope of this code.

13.7.1.4.3 TO ensure operational integrity, the fire alarm system shall have an approved maintenance and testing program complying with the applicable requirements of Sections 13.4 and 13.7. [101:9.6.1.5]

Section 18-5.2 Retention of Plans

10. One set of approved plans, specifications, and computations shall be retained by the building official for a period of not less than 90 days from date of completion of the work covered therein, and one set of approved plans shall be returned by the applicant, and said set shall be kept on the site of the building or work at all times during which the owkr authorized therby is in progress. Sec. 19-5.2 R.O. 1978 (1983 ED.); Am. Ord. 93-59



FIRE ALARM RISER DIAGRAM

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

CLAYTON C. Y. PANG
LICENSED PROFESSIONAL ENGINEER
No. 4145-E
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2018
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FIRE ALARM RISER DIAGRAM,
FIRE ALARM NOTES
MOTOR VEHICLE SAFETY OFFICE RENOVATION
Project No. HWY-0-02-08R
Scale: As Noted Date: April, 2016

SHEET No. E3.2 OF 69 SHEETS