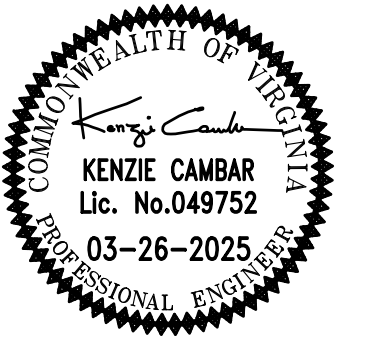


# HERITAGE HIGH SCHOOL

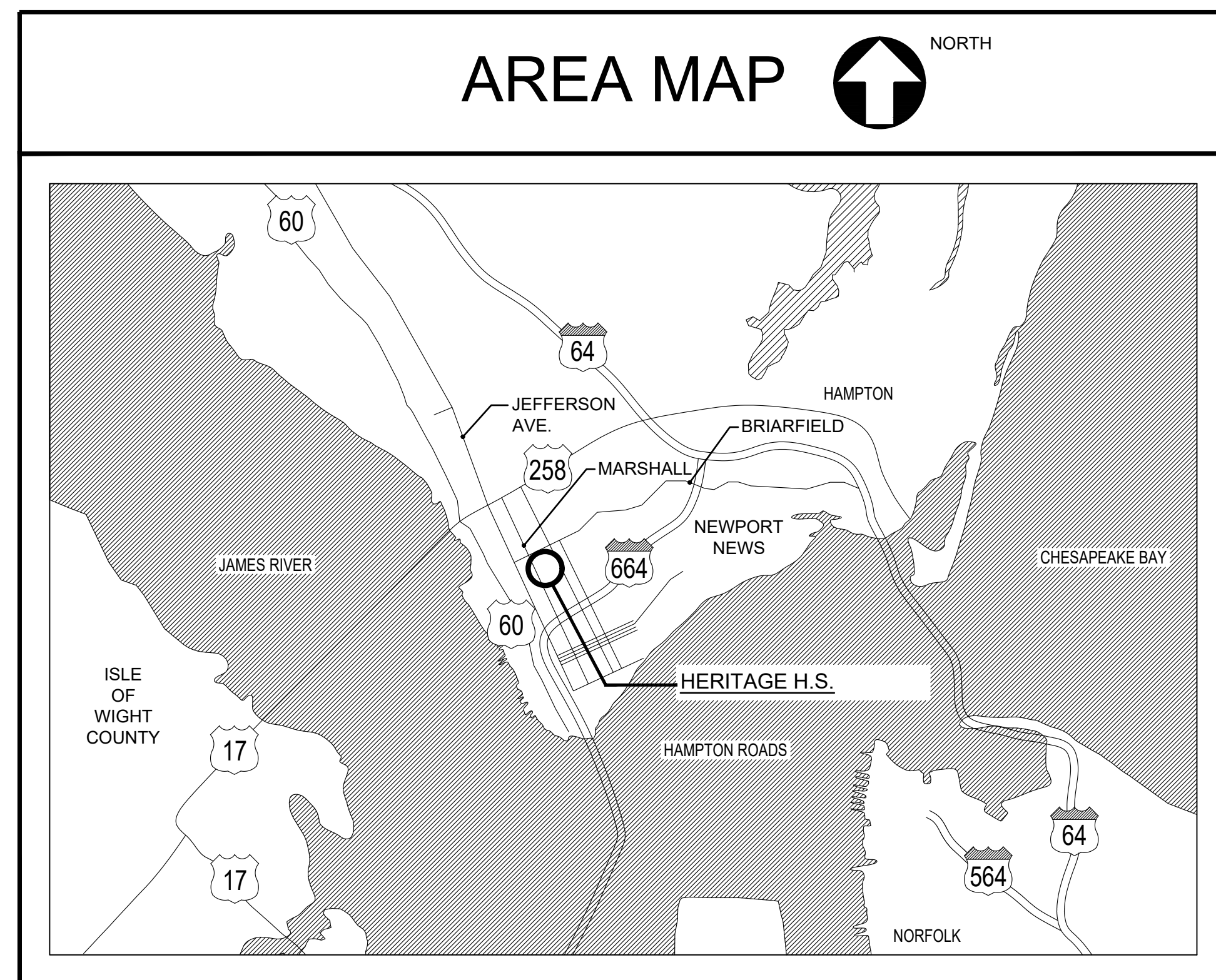
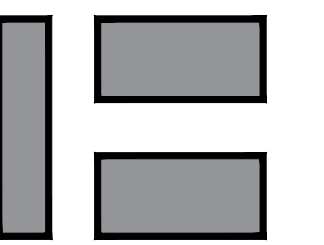
## MAIN SWITCHBOARDS REPLACEMENT

### NEWPORT NEWS PUBLIC SCHOOLS

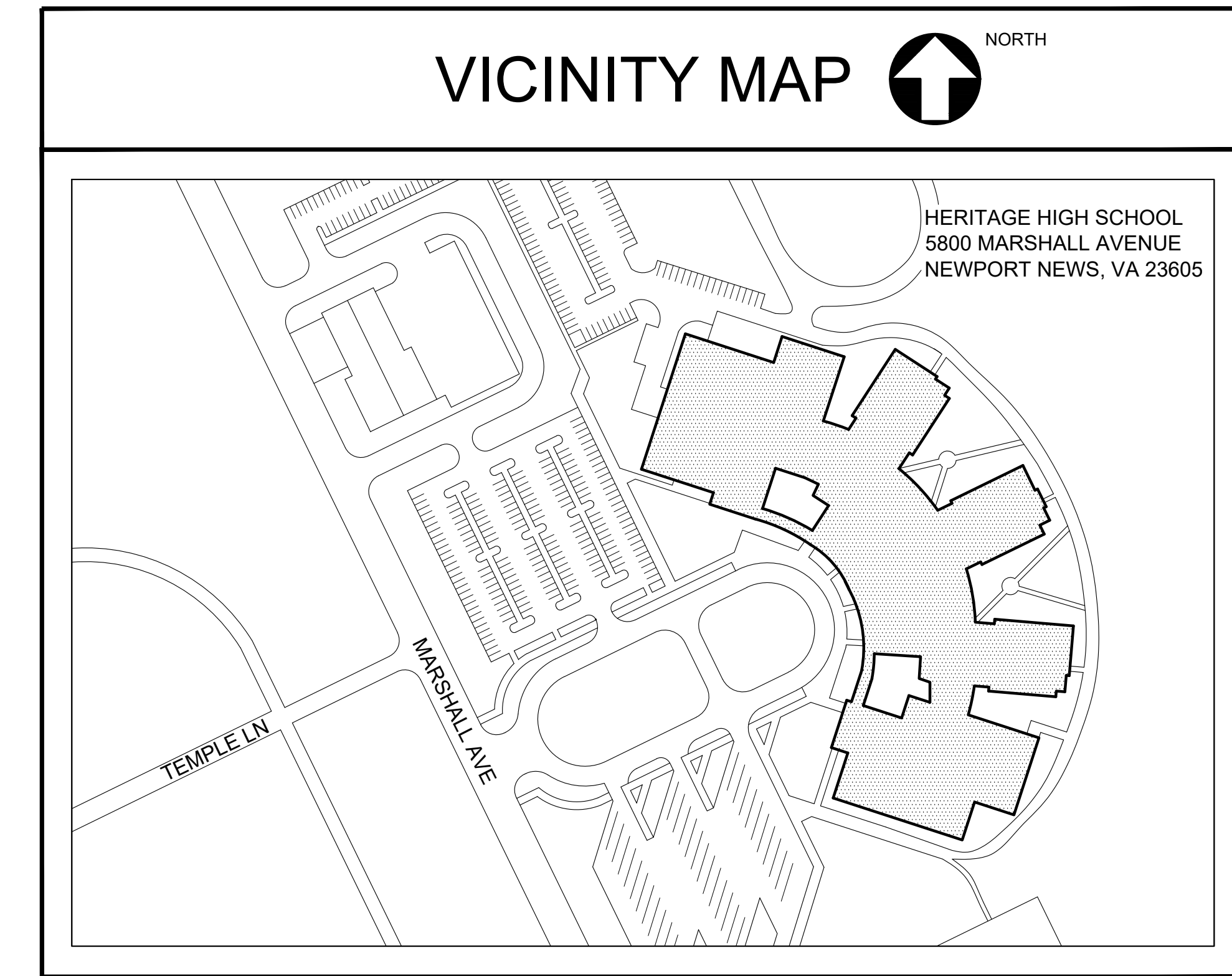
IFB # 018-0-2025/SB  
 THOMPSON CONSULTING ENGINEERS PROJECT NO. 21-163



**THOMPSON**  
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 HAMPTON, VA 23666  
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 PROJECT NUMBER: 21-163



BUILDING CODE SUMMARY	
•	CURRENT BUILDING CODE: VIRGINIA UNIFORM STATEWIDE BUILDING CODE 2021 EDITION.
•	CURRENT BUILDING CODE: VIRGINIA REHABILITATION CODE 2021 EDITION.
•	USE GROUP CLASSIFICATION: EDUCATION GROUP E.
•	CONSTRUCTION TYPE: TYPE 2B, NON COMBUSTIBLE - SPRINKLED BUILDING.



DRAWING INDEX	
SHEET NO.	DRAWING TITLES
T0.1	TITLE SHEET
E0.1	ELECTRICAL LEGEND, ABBREVIATIONS, NOTES AND SCHEDULES
E1.1	ELECTRICAL FLOOR PLANS, DETAILS AND NOTES
E1.2	SWITCHBOARD SECTION PHOTOGRAPHS AND NOTES

HERITAGE HIGH SCHOOL MAIN SWITCHBOARDS REPLACEMENT  
 NEWPORT NEWS PUBLIC SCHOOLS

VIRGINIA

NEWPORT NEWS












TITLE SHEET

COMM. NO: 21-163  
 DESIGNED BY: DWC  
 DRAWN BY: MWH  
 CHECKED BY: KC

T0.1

DATE: 03/26/2025

**ELECTRICAL LEGEND:**

-  DISCONNECT SWITCH
-  PANELBOARD, 208Y/120 VOLT
-  PANELBOARD, 480Y/277 VOLT
-  DRY TYPE TRANSFORMER
-  CONDUIT RUN EXPOSED
-  CONDUIT RUN CONCEALED BELOW GRADE.
-  BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT. RUN CONCEALED ABOVE CEILING, IN WALL, BELOW FLOOR SLAB OR UNDERGROUND. NO TICK MARKS INDICATES 2 #12 CONDUCTORS & 1 # 12 GND., IN [1/2"] [3/4"] CONDUIT, U.O.N. TICK MARKS, WHEN SHOWN, INDICATE NUMBER OF CONDUCTORS IF OTHER THAN THREE: (7) INDICATES GROUNDING CONDUCTOR. REFER TO PANELBOARD SCHEDULES FOR CONDUCTOR SIZES LARGER THAN #12.
-  GROUND
-  INDICATES CIRCUIT BREAKER NUMBER IN SWITCHBOARD
-  DEMOLITION NOTE INDICATOR
-  NEW WORK NOTE INDICATOR

**ABBREVIATIONS:**

- A, AMP AMPERAGE
- ATS AUTOMATIC TRANSFER SWITCH
- CATV CABLE TELEVISION
- C/T CURRENT TRANSFORMER
- DE DOMINION ENERGY
- GFR GROUND FAULT RELAY
- GND GROUND
- HVAC HEATING VENTILATION AIR CONDITIONING
- KAIC KILO-AMPERE INTERRUPTING CAPACITY
- MDS MAIN DISTRIBUTION SWITCHBOARD
- N.E.C. NATIONAL ELECTRICAL CODE
- P POLE
- PFR PHASE FAILURE RELAY
- Ø PHASE
- SEC SECTION
- SPD SURGE PROTECTIVE DEVICE
- T.B.B. TELEPHONE BACKBOARD
- U.O.N. UNLESS OTHERWISE NOTED
- V VOLT
- W WIRE
- XFMR TRANSFORMER
- Y WYE

**GENERAL NOTES:**

1. PERFORM ALL REQUIRED DEMOLITION TO COMPLY WITH THE SCOPE AND INTENT OF THE PROJECT.
2. VERIFY ALL CIRCUITS SAVED DURING DEMOLITION FOR REUSE AS TO WIRE SIZE AND POINT OF ORIGIN.
3. EXERCISE CARE IN REMOVING MATERIAL AND EQUIPMENT DURING DEMOLITION. REPAIR ALL DAMAGE TO EXISTING SURFACES OR EXISTING EQUIPMENT TO REMAIN TO THE SATISFACTION OF THE ENGINEER AND OWNER AT NO ADDITIONAL COST TO THE OWNER.
4. PROVIDE THE OWNER WITH FIRST RIGHT OF REFUSAL FOR ALL ELECTRICAL EQUIPMENT BEING REMOVED AS A PART OF THIS CONTRACT AND NOT SCHEDULED FOR REINSTALLATION. ALL ELECTRICAL EQUIPMENT NOT TURNED OVER TO THE OWNER SHALL BECOME THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
5. WHERE THE TERM "BRANCH CIRCUITRY" IS USED ON THESE DRAWINGS, IT IS TO BE CONSTRUED TO MEAN CONDUIT AND CONDUCTORS.
6. PROVIDE NEW BAKELITE LABELS FOR ALL BRANCH CIRCUITS IN MAIN DISTRIBUTION SWITCHBOARDS MDS1 AND MDS2.
7. EXISTING CONDITIONS ILLUSTRATED HAVE BEEN DETERMINED FROM ORIGINAL CONSTRUCTION DOCUMENTS AND LIMITED NON-INVASIVE FIELD INVESTIGATION. CONTRACTOR SHALL INVESTIGATE FIELD CONDITIONS PRIOR TO COMMENCEMENT OF WORK. COORDINATE AND MAKE ADJUSTMENTS AS NECESSARY.
8. VERIFY PHASE ROTATION OF EXISTING SYSTEM WITH "DE" AND EQUIPMENT TO BE RECONNECTED PRIOR TO REMOVAL.
9. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER TO SERVE PANEL "E" IN THE MAIN ELECTRICAL ROOM FOR THE DURATION OF THE POWER OUTAGE REQUIRED TO REPLACE BOTH SWITCHBOARDS.

**MAIN DISTRIBUTION SWITCHBOARD (MDS1)**

4000 AMP - 480Y/277 VOLT - 3Ø - 4W UL SERVICE ENTRANCE RATED PROVIDE WITH 4000 AMP 100% FULLY RATED MAIN CIRCUIT BREAKER WITH SHORT CIRCUIT CURRENT RATING OF 100 KAIC. EACH DISTRIBUTION SECTION SHALL BE FULLY BUSSED. ④

CKT. No.	TO FEED	BREAKER RATING	BREAKER FRAME	FEEDER		
				CONDUIT	WIRE	GROUND
1	SSWB A ②	2500A-3P	2500 AMP	EXISTING	EXISTING	EXISTING
2	SPD ③	60A-3P	100 AMP	1-1/4"	4 #6	1 #8
3	PANEL "K1"	225A-3P	225 AMP	EXISTING	EXISTING	EXISTING
4	PANEL "HE1"	225A-3P	225 AMP	EXISTING	EXISTING	EXISTING
5	PANEL "E" VIA ATS	250A-3P	400 AMP	EXISTING	EXISTING	EXISTING
6	PANEL "HE2"	600A-3P	600 AMP	EXISTING	EXISTING	EXISTING
7	PANEL "K2" ①	400A-3P	400 AMP	EXISTING	EXISTING	EXISTING
8	PANEL "HM"	225A-3P	225 AMP	EXISTING	EXISTING	EXISTING
9	PANELS "K3" & "K4" VIA XFMR "TK1"	175A-3P	225 AMP	EXISTING	EXISTING	EXISTING

**NOTES:**

- ① PROVIDE WITH SHUNT TRIP TYPE CIRCUIT BREAKER. COORDINATE OPERATING COIL VOLTAGE WITH EXISTING KITCHEN HOOD CONTROL PANEL.
- ② PROVIDE 100% DUTY RATED CIRCUIT BREAKER.
- ③ PROVIDE SPD IN ACCORDANCE WITH SPECIFICATION SECTION 264313.
- ④ PROVIDE BUS BAR EXTENSIONS ON THE LINE SIDE OF THE C/T COMPARTMENT TO CONNECT FOUR (4) SETS OF 350-KCMIL CONDUCTORS FOR THE EXISTING PHOTOVOLTAIC SYSTEM ON THE ROOF.

**MAIN DISTRIBUTION SWITCHBOARD (MDS2)**

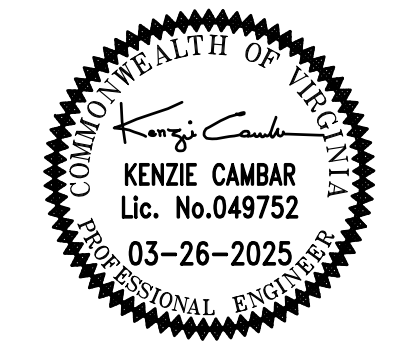
4000 AMP - 480Y/277 VOLT - 3Ø - 4W UL SERVICE ENTRANCE RATED PROVIDE WITH 4000 AMP 100% FULLY RATED MAIN CIRCUIT BREAKER WITH SHORT CIRCUIT CURRENT RATING OF 100 KAIC. EACH DISTRIBUTION SECTION SHALL BE FULLY BUSSED.

CKT. No.	TO FEED	BREAKER RATING	BREAKER FRAME	FEEDER		
				CONDUIT	WIRE	GROUND
1	SPD ①	60	100	1-1/4"	4 #4	1 #8
2	PANEL HF1	1200	1200	EXISTING	EXISTING	EXISTING
3	SSWBB	2500	2500	EXISTING	EXISTING	EXISTING
4	SSWBC	2500	2500	EXISTING	EXISTING	EXISTING

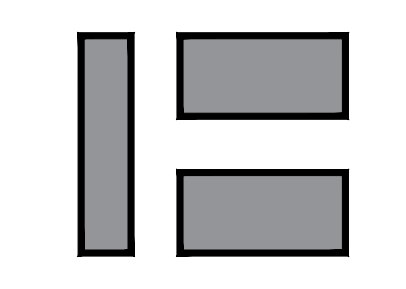
**NOTES:**

- ① PROVIDE SPD IN ACCORDANCE WITH SPECIFICATION SECTION 264313

THE CONTRACTOR SHALL INCLUDE IN HIS/HER BID THE HIRING OF THE "SEAM GROUP" TO PROVIDE SHORT CIRCUIT, COORDINATION STUDY, ARC FLASH HAZARD ANALYSIS, AND ARC FLASH LABELS. THE CONTRACTOR SHALL CONTACT JUSTIN SANDERS justin.sanders1@us.abb.com (1-765-418-7112) AT THE "SEAM GROUP" PRIOR TO PROCURING A CONTRACT FOR THIS PROJECT. THE SHORT CIRCUIT, COORDINATION STUDY, AND ARC FLASH HAZARD ANALYSIS SHALL BE PROVIDED FOR ALL NEW POWER DISTRIBUTION EQUIPMENT, ALL EXISTING HVAC EQUIPMENT, AND ALL EXISTING POWER DISTRIBUTION EQUIPMENT AFFECTED BY THE SCOPE OF THIS CONTRACT. THE ARC FLASH EQUIPMENT LABELS SHALL BE UV PROTECTED TYPE, FURNISHED BY THE SEAM GROUP, AND INSTALLED ON THE EQUIPMENT BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE SEAM GROUP AND PROVIDE THE REQUIRED DATA (POWER EQUIPMENT SHOP DRAWINGS, FEEDERS INFORMATION [TYPE, LENGTH, AND SIZES], AND EXISTING POWER COMPANY TRANSFORMER INFORMATION TO THE SEAM GROUP TO PERFORM THE STUDY AND ARC FLASH ANALYSIS. THE STUDY AND ANALYSIS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO SUBMITTING POWER DISTRIBUTION EQUIPMENT SHOP DRAWINGS. THE CONTRACTOR SHALL SUBMIT A HARD COPY ALONG WITH AN ELECTRONIC COPY OF THE FINAL STUDY PRODUCED BY THE SEAM GROUP TO THE OWNER.



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PROJECT NUMBER: 21-163



HERITAGE HIGH SCHOOL MAIN SWITCHBOARDS REPLACEMENT

NEWPORT NEWS PUBLIC SCHOOLS

VIRGINIA

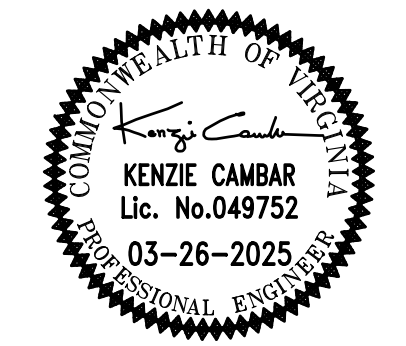
NEWPORT NEWS

ELECTRICAL LEGEND, ABBREVIATIONS, NOTES AND SCHEDULES

COMM. NO.: 21-163  
DESIGNED BY: DWC  
DRAWN BY: MWH  
CHECKED BY: KC

**E0.1**

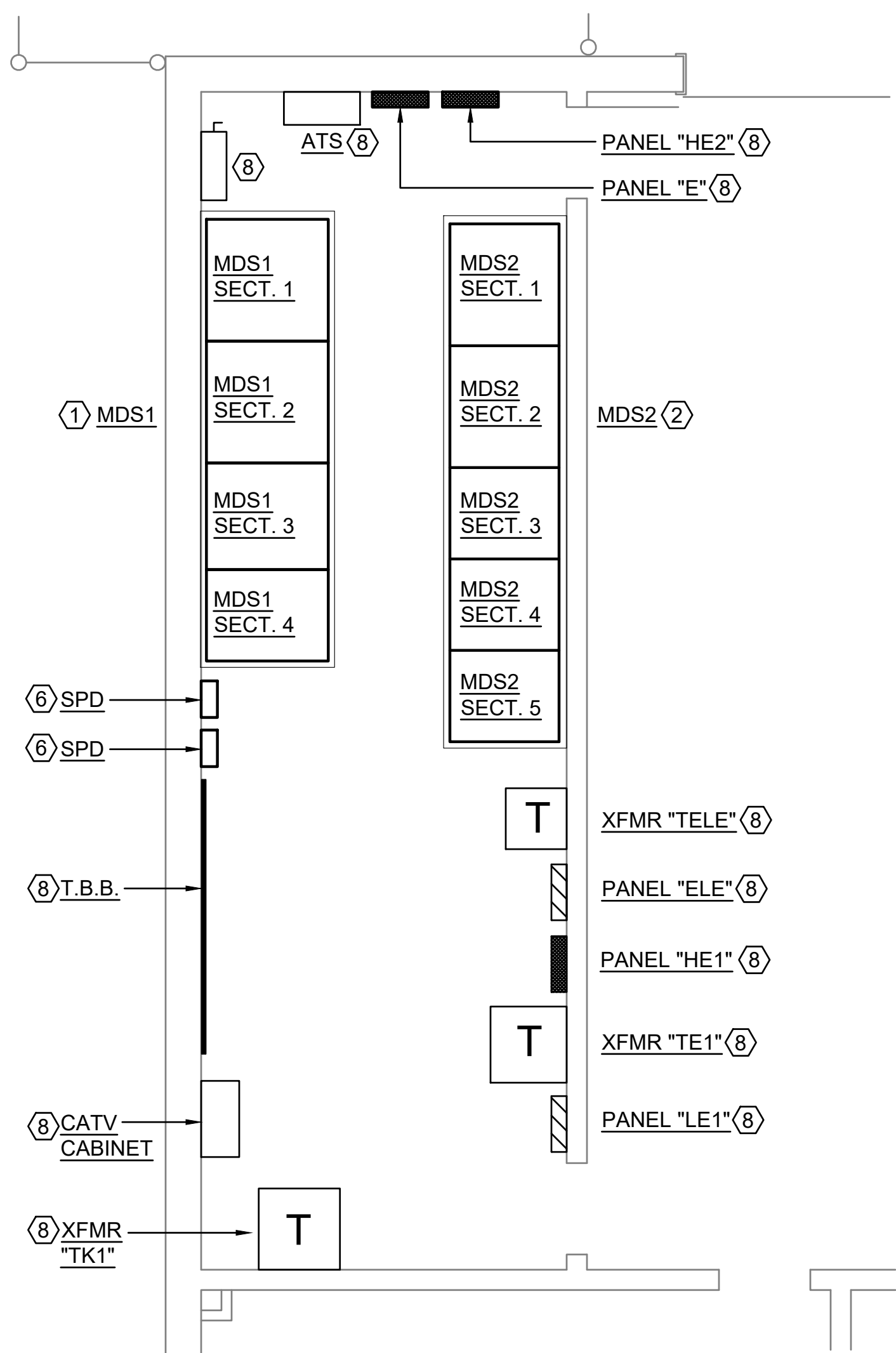
DATE: 03/26/2025



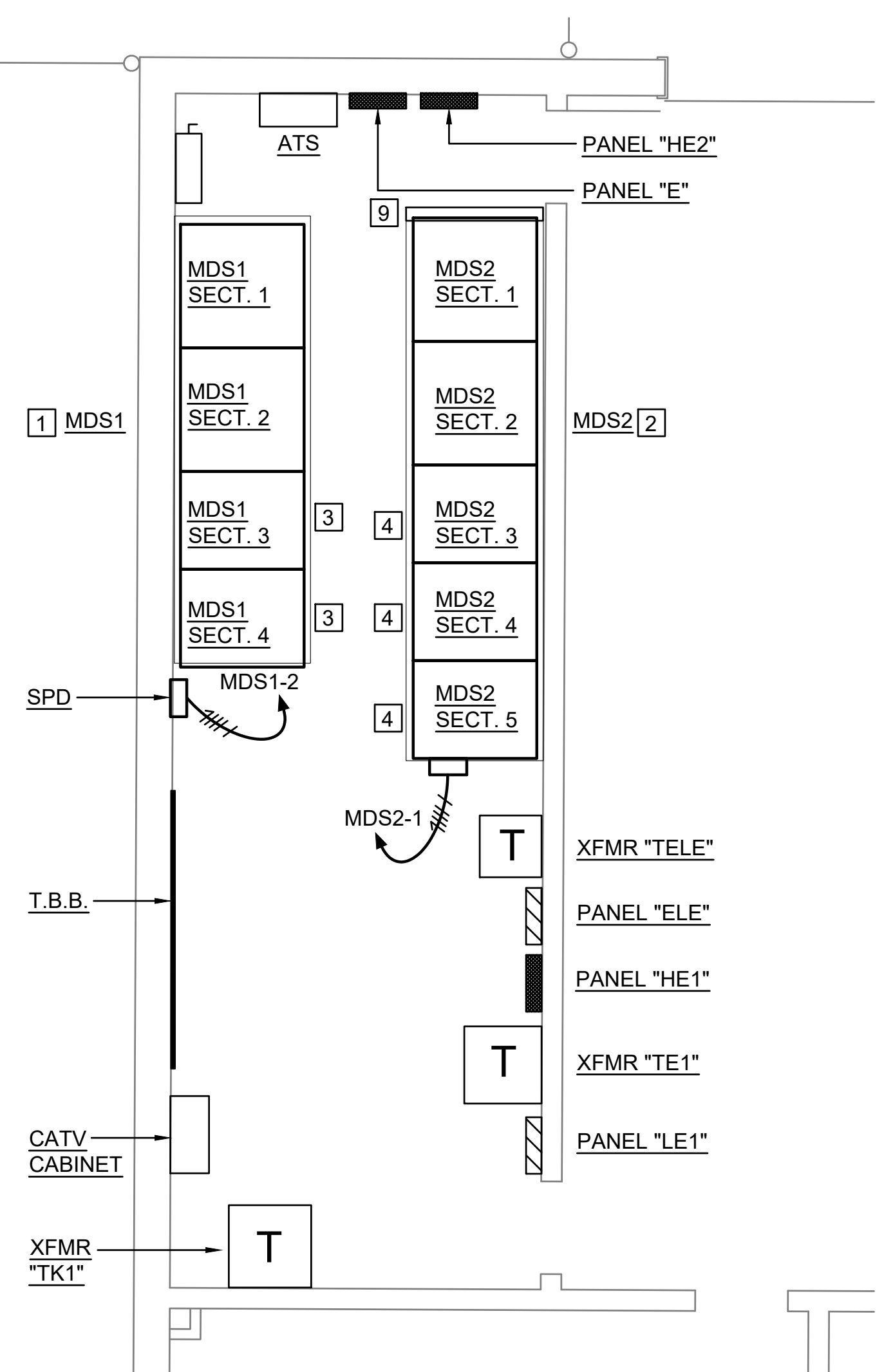
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PROJECT NUMBER: 21-163

**HERITAGE HIGH SCHOOL MAIN SWITCHBOARDS REPLACEMENT**  
NEWPORT NEWS PUBLIC SCHOOLS  
VIRGINIA  
ELECTRICAL FLOOR PLANS, DETAILS AND NOTES

NEWPORT NEWS  
COMM. NO: 21-163  
DESIGNED BY: DWC  
DRAWN BY: MWH  
CHECKED BY: KC  
**E1.1**  
DATE: 03/26/2025



**PARTIAL DEMOLITION FLOOR PLAN**  
SCALE 1/4" = 1'-0"



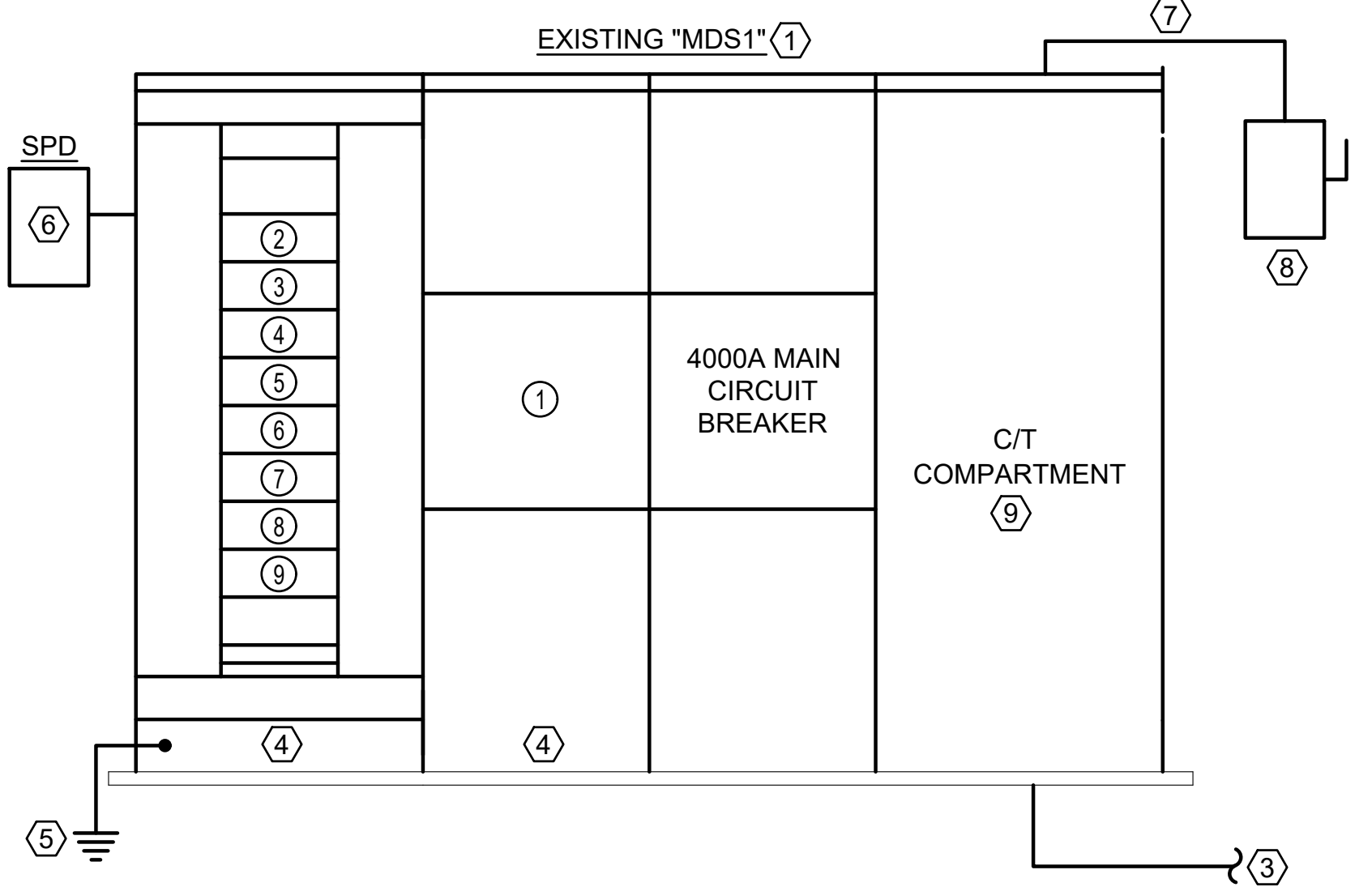
**PARTIAL NEW WORK FLOOR PLAN**  
SCALE 1/4" = 1'-0"

**DEMOLITION NOTES:** (THIS DRAWING ONLY)

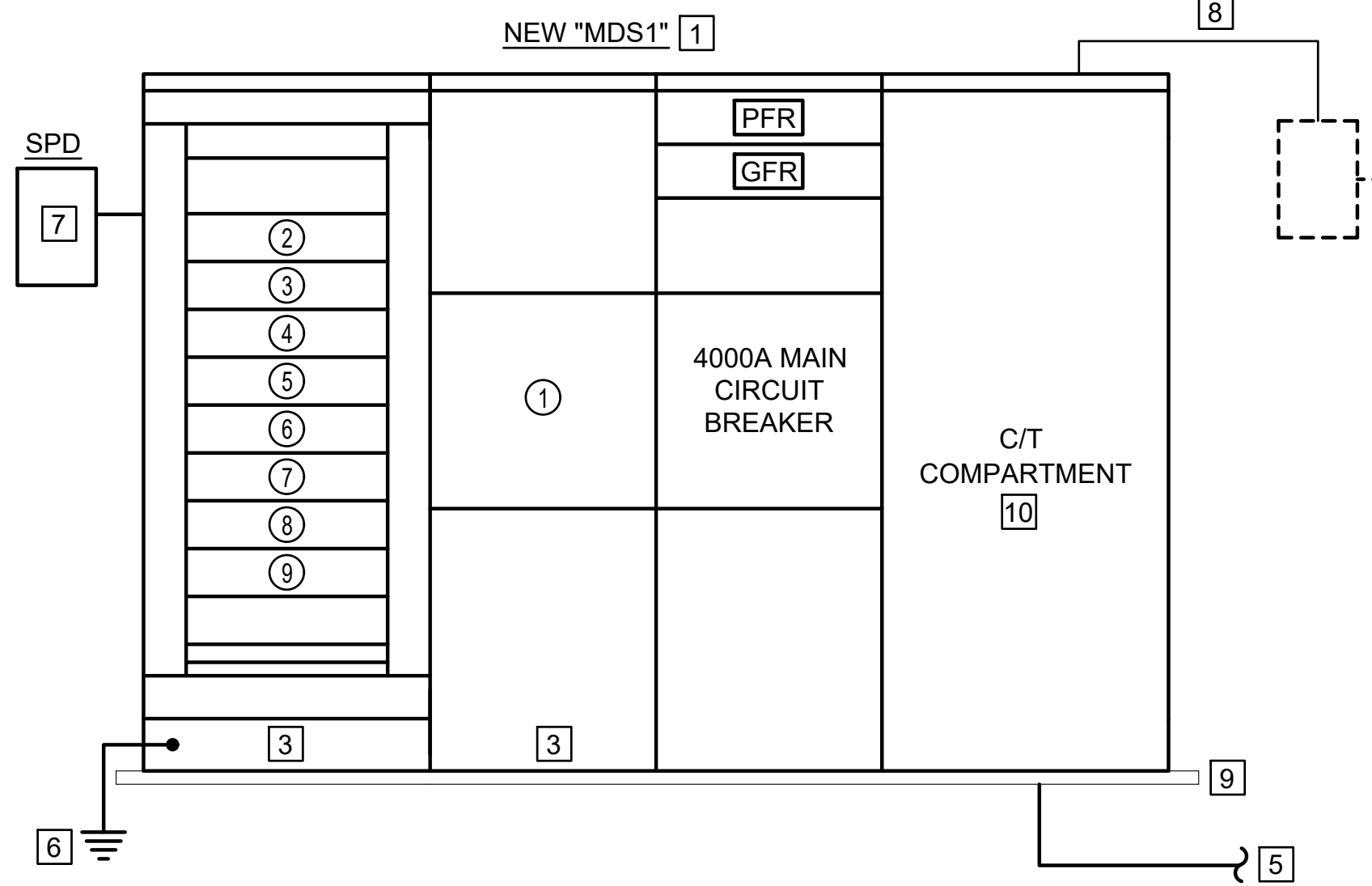
- ① DISCONNECT AND REMOVE 4000A, 480Y/277V, 3Ø, 4 WIRE MAIN DISTRIBUTION SWITCHBOARD NO. 1 "MDS1". COORDINATE THE REMOVAL OF CT'S FROM THE CT COMPARTMENT AND DISCONNECTION OF THE EXISTING SERVICE ENTRANCE CONDUCTORS SERVING "MDS1" WITH "DE". VERIFY PHASE ROTATION OF EXISTING SYSTEM WITH "DE" AND EQUIPMENT TO BE RECONNECTED PRIOR TO REMOVAL.
- ② DISCONNECT AND REMOVE 4000A, 480Y/277V, 3Ø, 4 WIRE MAIN DISTRIBUTION SWITCHBOARD NO. 2 "MDS2". COORDINATE THE REMOVAL OF CT'S FROM THE CT COMPARTMENT AND DISCONNECTION OF THE EXISTING SERVICE ENTRANCE CONDUCTORS SERVING "MDS2" WITH "DE". VERIFY PHASE ROTATION OF EXISTING SYSTEM WITH "DE" AND EQUIPMENT TO BE RECONNECTED PRIOR TO REMOVAL.
- ③ COORDINATE THE REMOVAL AND REINSTALLATION OF SERVICE ENTRANCE CONDUCTORS AND METERING WITH "DE".
- ④ DISCONNECT FEEDERS FROM EXISTING CIRCUIT BREAKERS. TAG CONDUCTORS AND SAVE FOR REUSE U.O.N.
- ⑤ DISCONNECT SERVICE GROUNDS AND SAVE CONDUCTORS FOR REUSE.
- ⑥ REMOVE SPD AND BRANCH CIRCUIT BACK TO CIRCUIT BREAKER IN SWITCHBOARD.
- ⑦ DISCONNECT BRANCH CIRCUIT SERVING DISCONNECT SWITCH AND SAVE FOR REUSE.
- ⑧ EXISTING ELECTRICAL EQUIPMENT TO REMAIN.
- ⑨ COORDINATE DISCONNECTION AND REMOVAL OF EXISTING PHOTOVOLTAIC SYSTEM CONDUCTORS AND CONDUITS WITH THE OWNER AND THEIR PHOTOVOLTAIC SYSTEM VENDOR (SUN TRIBE SOLAR).

**NEW WORK NOTES:** (THIS DRAWING ONLY)

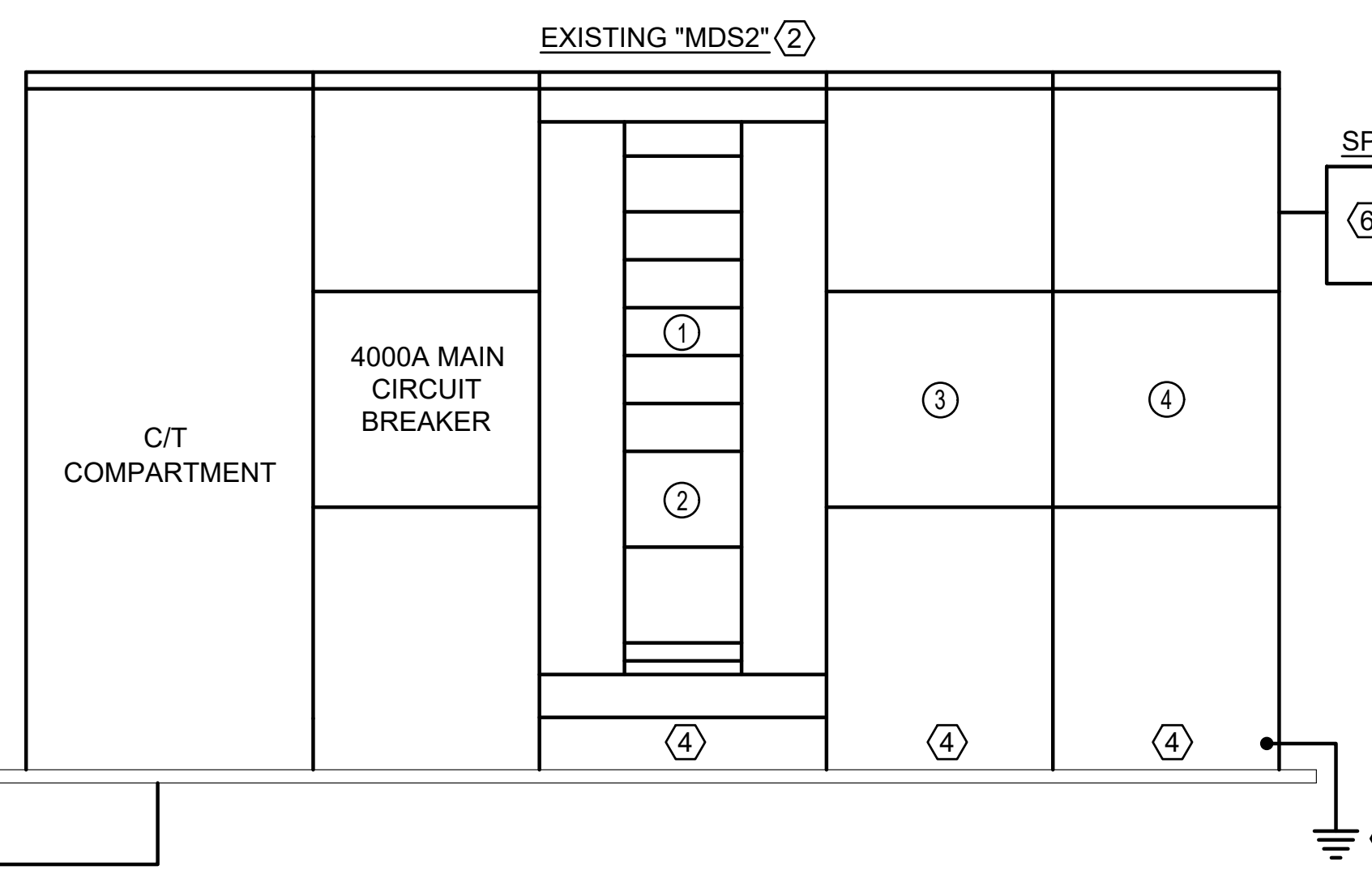
- ① PROVIDE NEW MAIN DISTRIBUTION "MDS1" IN ACCORDANCE WITH THE MAIN DISTRIBUTION SWITCHBOARD SCHEDULE ON THIS DRAWING E0.1 AND SPECIFICATION SECTION 262413.
- ② PROVIDE NEW MAIN DISTRIBUTION "MDS2" IN ACCORDANCE WITH THE MAIN DISTRIBUTION SWITCHBOARD SCHEDULE ON THIS DRAWING E0.1 AND SPECIFICATION SECTION 262413.
- ③ RECONNECT ALL EXISTING BRANCH CIRCUIT FEEDER CONDUCTORS SAVED DURING DEMOLITION TO NEW BRANCH CIRCUIT BREAKERS IN NEW "MDS1". EXTEND BRANCH CIRCUITRY AS REQUIRED USING THE SAME CABLE SIZE AND TYPE AS EXISTING. MAKE SPLICES WITH COMPRESSION SLEEVES. INSULATE SPLICES TO MATCH OR EXCEED INSULATION VALUE ON THE EXISTING CONDUCTORS.
- ④ RECONNECT ALL EXISTING BRANCH CIRCUIT FEEDER CONDUCTORS SAVED DURING DEMOLITION TO NEW BRANCH CIRCUIT BREAKERS IN NEW "MDS1". EXTEND BRANCH CIRCUITRY AS REQUIRED USING THE SAME CABLE SIZE AND TYPE AS EXISTING. MAKE SPLICES WITH COMPRESSION SLEEVES. INSULATE SPLICES TO MATCH OR EXCEED INSULATION VALUE ON THE EXISTING CONDUCTORS.
- ⑤ COORDINATE RECONNECTION OF EXISTING SERVICE ENTRANCE CONDUCTORS AND METERING CONDUCTORS WITH DE.
- ⑥ RECONNECT SERVICE GROUND SAVED DURING DEMOLITION TO NEW SWITCHBOARD.
- ⑦ PROVIDE NEW SPD IN ACCORDANCE WITH SPECIFICATION SECTION 264313.
- ⑧ REUSE AND EXTEND EXISTING BRANCH CIRCUIT SAVED DURING DEMOLITION AND CONNECT TO NEW SWITCHBOARD.
- ⑨ EXTEND EXISTING SWITCHBOARD PAD TO SUPPORT THE END OF THE NEW SWITCHBOARD. MATCH PAD THICKNESS, EXTENSION AROUND THE SWITCHBOARD AND CHAMFER OF THE EXISTING PAD.
- ⑩ COORDINATE RECONNECTION OF EXISTING PHOTOVOLTAIC SYSTEM CONDUCTORS AND CONDUITS SAVED DURING DEMOLITION TO THE NEW SWITCHBOARD THE OWNER AND THEIR PHOTOVOLTAIC SYSTEM VENDOR (SUN TRIBE SOLAR).



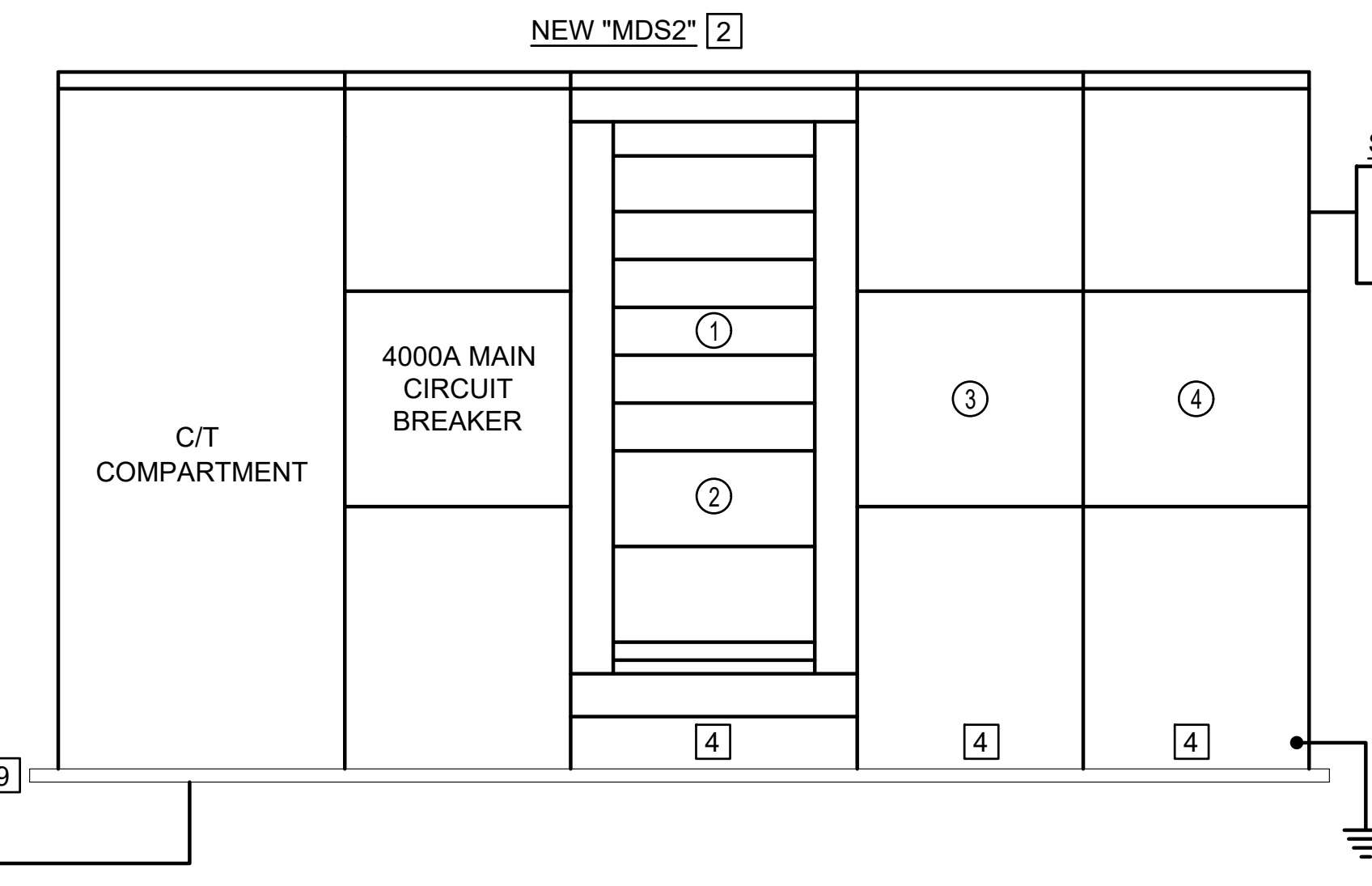
**EXISTING MAIN DISTRIBUTION SWITCHBOARD NO. 1 "MDS1" - DEMOLITION DETAIL**  
NOT TO SCALE



**NEW MAIN DISTRIBUTION SWITCHBOARD NO. 1 "MDS1" - NEW WORK DETAIL**  
NOT TO SCALE

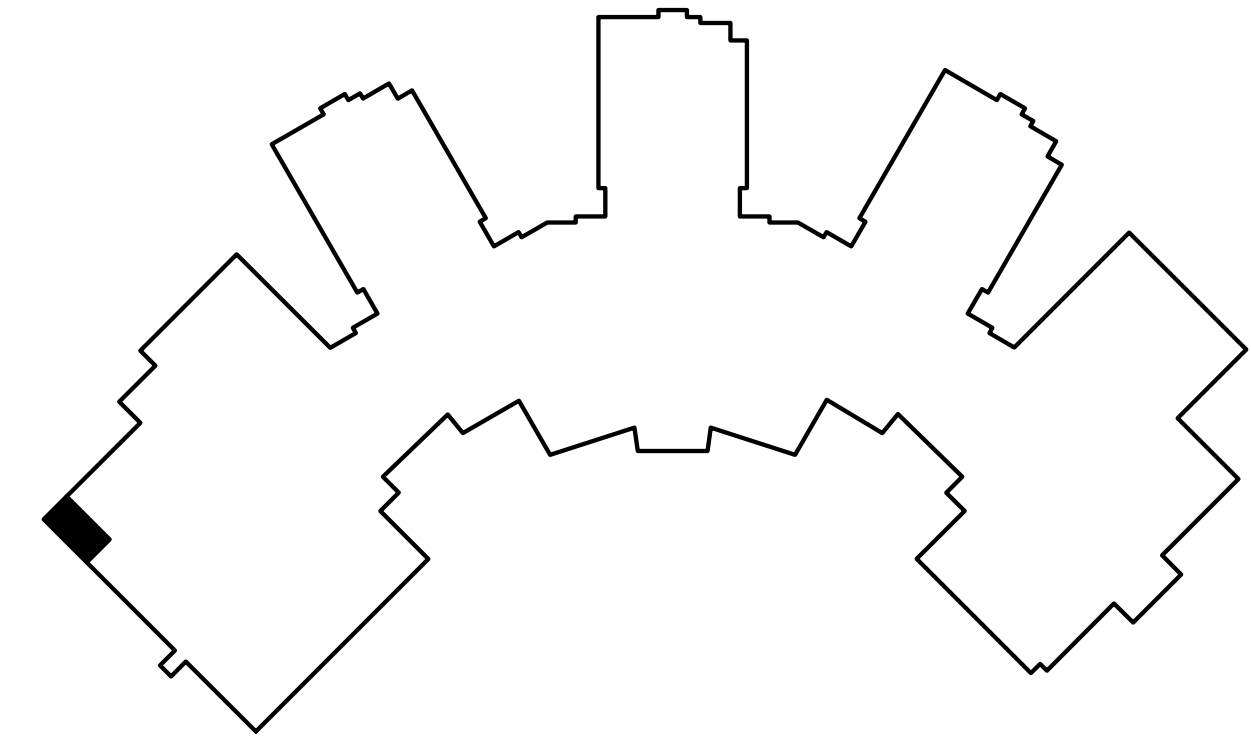


**EXISTING MAIN DISTRIBUTION SWITCHBOARD NO. 2 "MDS2" - DEMOLITION DETAIL**  
NOT TO SCALE



**NEW MAIN DISTRIBUTION SWITCHBOARD NO. 2 "MDS2" - NEW WORK DETAIL**  
NOT TO SCALE

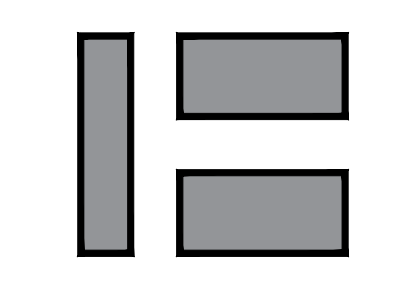
NOTE: EXISTING CONDITIONS ILLUSTRATED HAVE BEEN DETERMINED FROM ORIGINAL CONSTRUCTION DOCUMENTS AND LIMITED NON-INVASIVE FIELD INVESTIGATION. THE CONTRACTOR SHALL INVESTIGATE FIELD CONDITIONS PRIOR TO COMMENCEMENT OF WORK, COORDINATE AND MAKE ADJUSTMENTS AS NECESSARY.



**KEY PLAN**  
NOT TO SCALE



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HERITAGE HIGH SCHOOL MAIN SWITCHBOARDS REPLACEMENT  
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SWITCHBOARD SECTION PHOTOGRAPHS AND NOTES

COMM. NO: 21-163  
 DESIGNED BY: DWC  
 DRAWN BY: DWC  
 CHECKED BY: KC

**E1.2**

DATE: 03/26/2025



**MDS1 - SECTION 4A** [4] [10]  
 SCALE 1/4" = 1'-0"



**MDS1 - SECTION 3** [3] [10]  
 SCALE 1/4" = 1'-0"



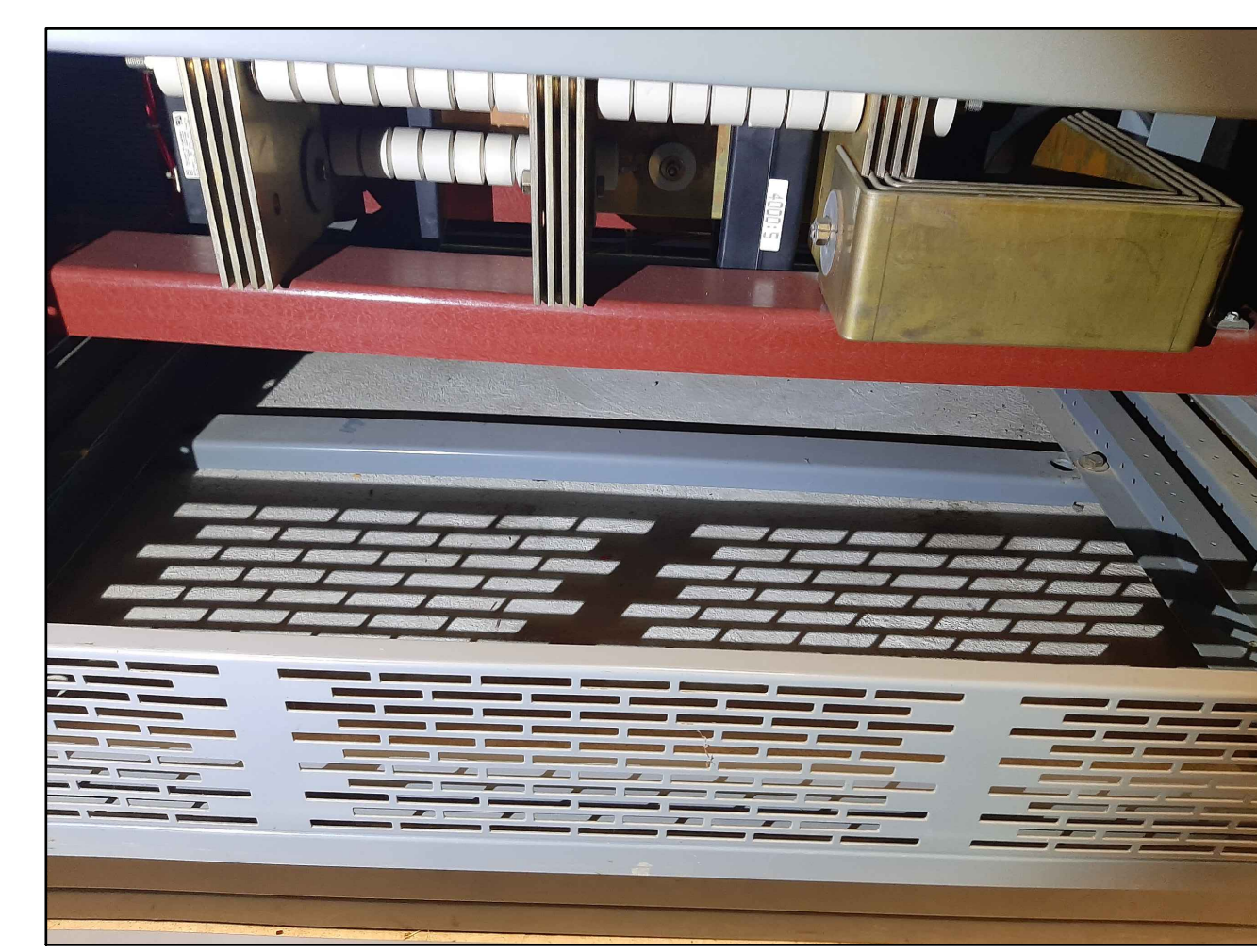
**MDS1 - SECTION 2** [2] [10]  
 SCALE 1/4" = 1'-0"



**MDS1 - SECTION 1** [1] [10]  
 SCALE 1/4" = 1'-0"



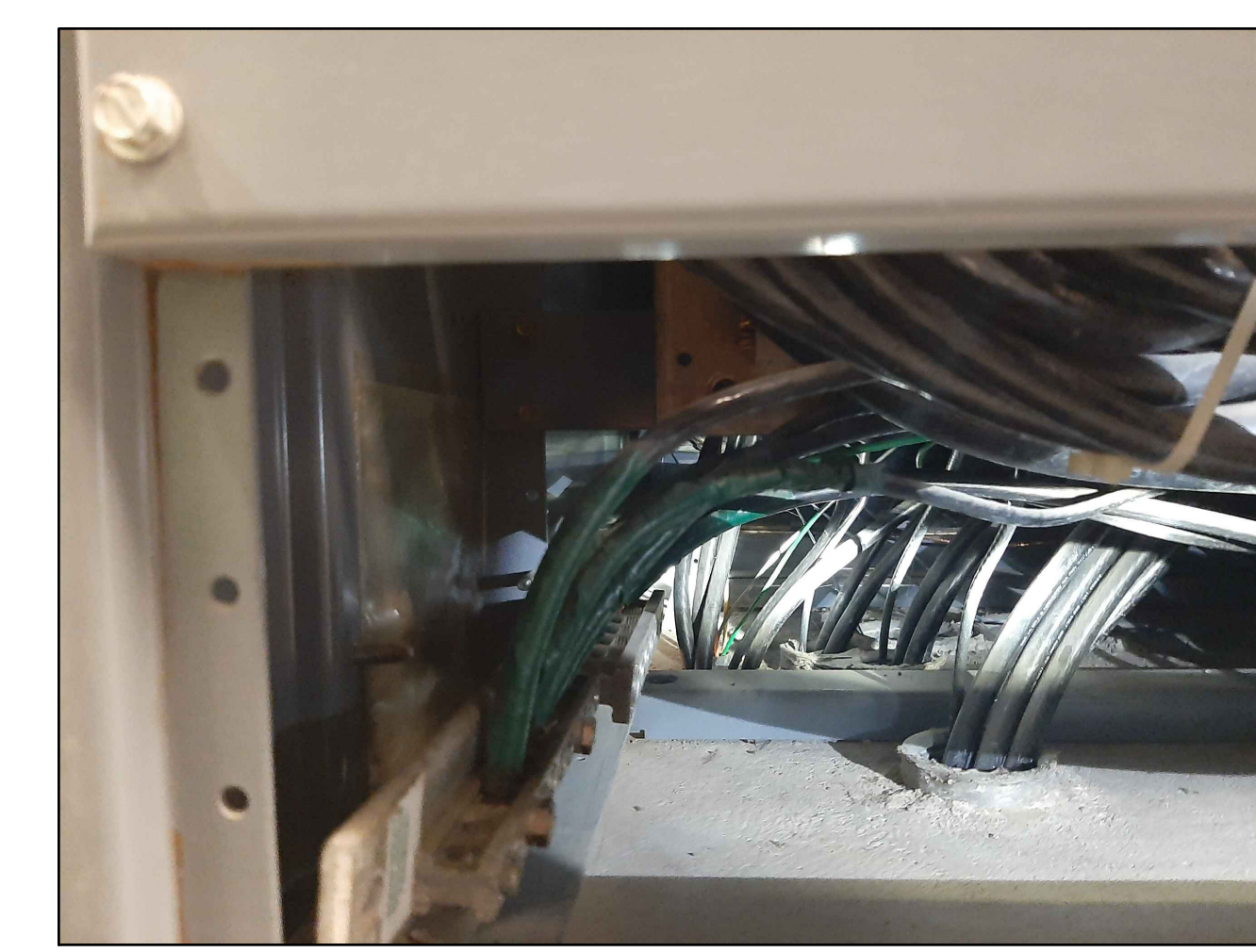
**MDS2 - SECTION 3A** [7] [10]  
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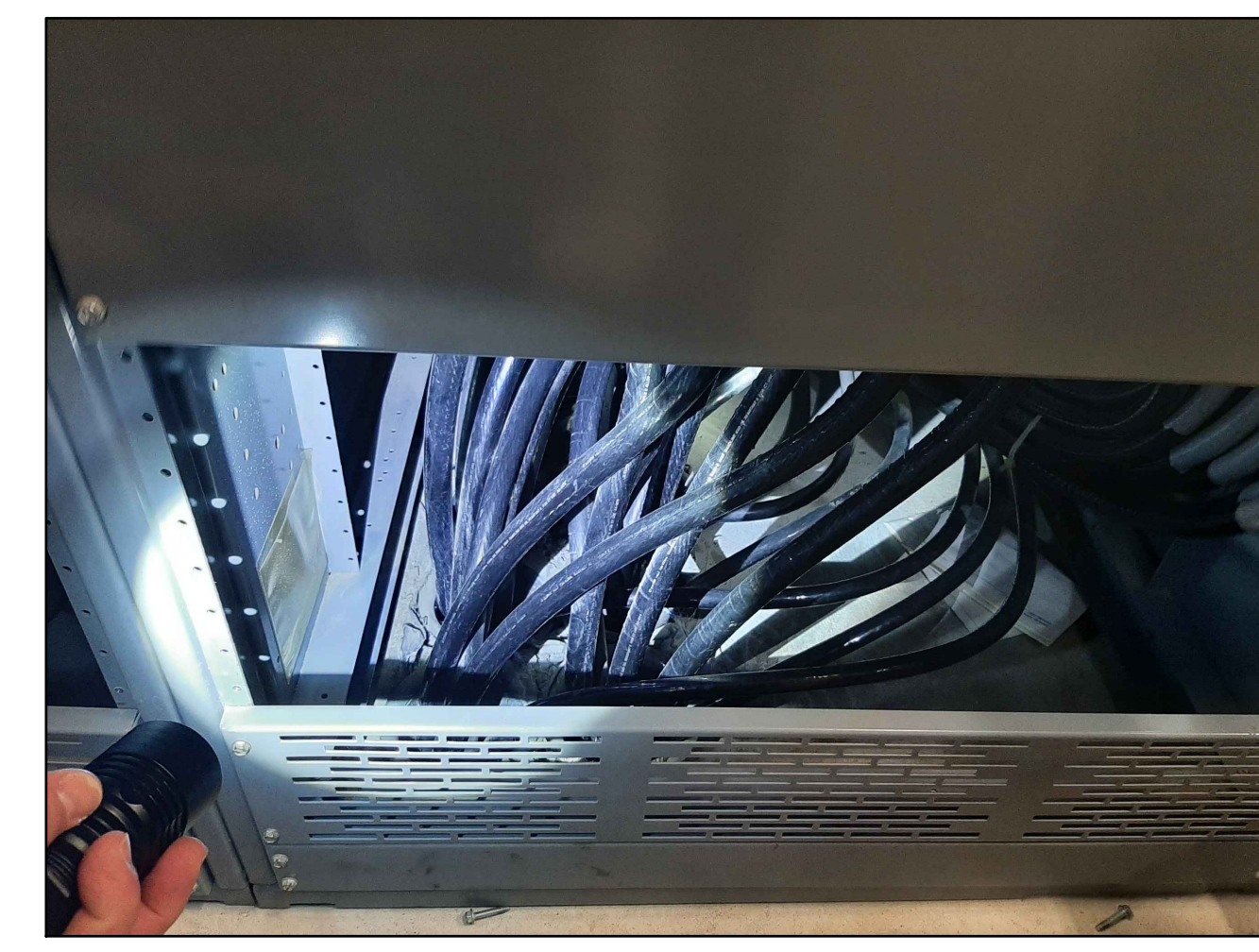
**MDS2 - SECTION 2** [6] [10]  
 SCALE 1/4" = 1'-0"



**MDS2 - SECTION 1** [5] [10]  
 SCALE 1/4" = 1'-0"



**MDS1 - SECTION 4B** [4] [10]  
 SCALE 1/4" = 1'-0"



**MDS2 - SECTION 5** [9] [10]  
 SCALE 1/4" = 1'-0"



**MDS2 - SECTION 4** [8] [10]  
 SCALE 1/4" = 1'-0"



**MDS2 - SECTION 3B** [7] [10]  
 SCALE 1/4" = 1'-0"

- NEW WORK NOTES:** (THIS DRAWING ONLY)
- [1] EXISTING MDS1 - SECTION 1 IS 48" WIDE X 48" DEEP.
  - [2] EXISTING MDS1 - SECTION 2 IS 48" WIDE X 48" DEEP.
  - [3] EXISTING MDS1 - SECTION 3 IS 42" WIDE X 48" DEEP.
  - [4] EXISTING MDS1 - SECTION 4 IS 36" WIDE X 48" DEEP.
  - [5] EXISTING MDS2 - SECTION 1 IS 48" WIDE X 48" DEEP.
  - [6] EXISTING MDS2 - SECTION 2 IS 48" WIDE X 48" DEEP.
  - [7] EXISTING MDS2 - SECTION 3 IS 36" WIDE X 48" DEEP.
  - [8] EXISTING MDS2 - SECTION 4 IS 36" WIDE X 48" DEEP.
  - [9] EXISTING MDS2 - SECTION 5 IS 36" WIDE X 48" DEEP.
  - [10] THE CONTRACTOR SHALL PROVIDE THE SWITCHBOARD MANUFACTURER WITH ACCURATE SECTION DIMENSIONS AND CONDUIT LOCATIONS FOR ALL SECTIONS OF BOTH SWITCHBOARDS. THE NEW SWITCHBOARDS MUST NOT INTERFERE WITH EXISTING CONDUIT LOCATIONS.