

# MARBLE MOUNTAIN STEADY BROOK, NL

PRJT#: 1272-20



## HIGH VOLTAGE RADAR INSTALLATION

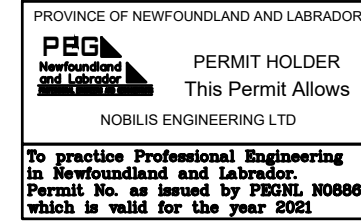
### Nobils Engineering Inc.

15 MARCELLE AVENUE  
CORNER BROOK, NL  
A2H 2V8

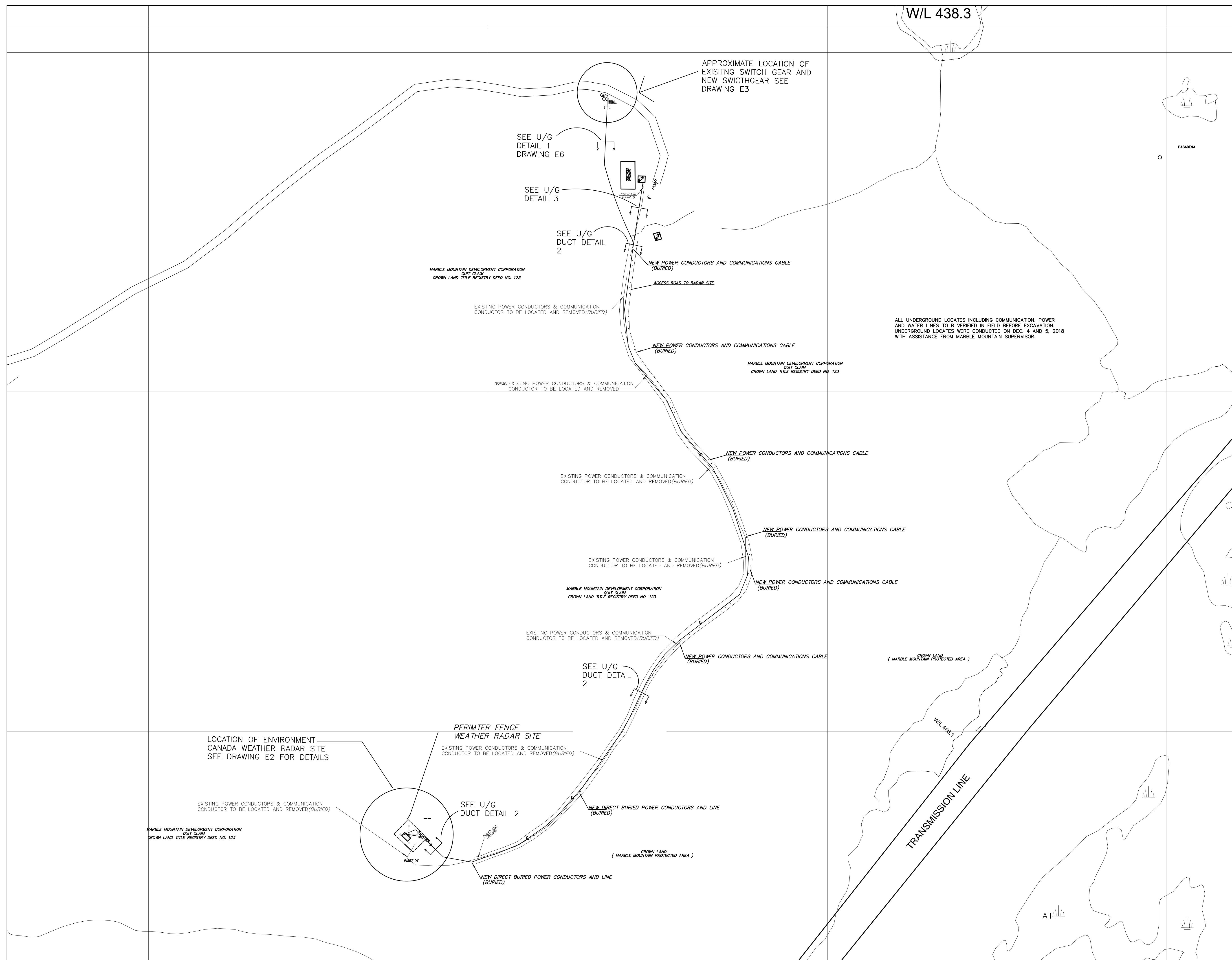
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### List of Drawings

- 00 COVER
- E1 SITE DRAWING
- E2 XFMR LOCATION & SITE DETAILS
- E3 SWITCHGEAR SITE DETAILS
- E4 SWITCHGEAR DETAILS
- E5 ELECTRICAL SINGLE LINE
- E6 U/G DETAILS
- E6.1 XFMR PAD & BOLLARD DETAILS



ISSUED FOR TENDER  
JUL. 13 2021



**NOTES**

1. CONTRACTOR IS RESPONSIBLE TO ENSURE ALL WORK ADHERES TO SAFETY REGULATIONS, BUILDING CODES & CONSTRUCTION BEST PRACTICES; MUNICIPAL REGULATIONS, AND MATERIAL MANUFACTURER INSTALLATION SPECIFICATIONS.
  2. DO NOT SCALE DRAWINGS.
  3. CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE BEFORE PROCEEDING WITH THIS WORK.
  4. DISPOSAL AND HAULING OF ALL EXISTING MATERIALS AND DEBRIS TO BE INCLUDED.
- **WORKING AROUND OR NEAR POWER LINES:** CONTRACTOR IS RESPONSIBLE TO FOLLOW GUIDE LINES SET BY OCCUPATIONAL HEALTH AND SAFETY REGULATIONS, CONSOLIDATED NEWFOUNDLAND REGULATION 1165/96.
  - CONTRACTORS, TAKE THESE THREE STEPS AROUND POWER LINES:
    - a. LOCATE NEARBY OVERHEAD AND UNDERGROUND LINES. CONTACT NEWFOUNDLAND POWER BEFORE STARTING WORK, AND ASK IF SAFETY MEASURES CAN BE TAKEN.
    - b. SHOW OTHERS THE LINES, AND WARN OF THEIR DANGER.
    - c. KEEP YOUR DISTANCE. ASK NEWFOUNDLAND POWER & OR NELCOR FOR LINE VOLTAGES AND SAFE CLEARANCES FOR BOOMS, LADDERS AND OTHER EQUIPMENT.
    - d. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION(S) OF THE CANADIAN ELECTRICAL CODE, THE NATIONAL BUILDING CODE AND THE AUTHORITIES HAVING JURISDICTION.

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No.	Description	Date	By
2	ISSUED FOR TENDER	07.13.21	MR
1	ISSUED FOR REVIEW	05.12.21	MR

**REVISIONS**

<p><b>Stamp</b></p>	<p><b>Permit</b></p>
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**Project Title**  
 MARBLE MOUNTAIN  
 HIGH VOLTAGE INSTALLATION  
 TO RADAR STATION

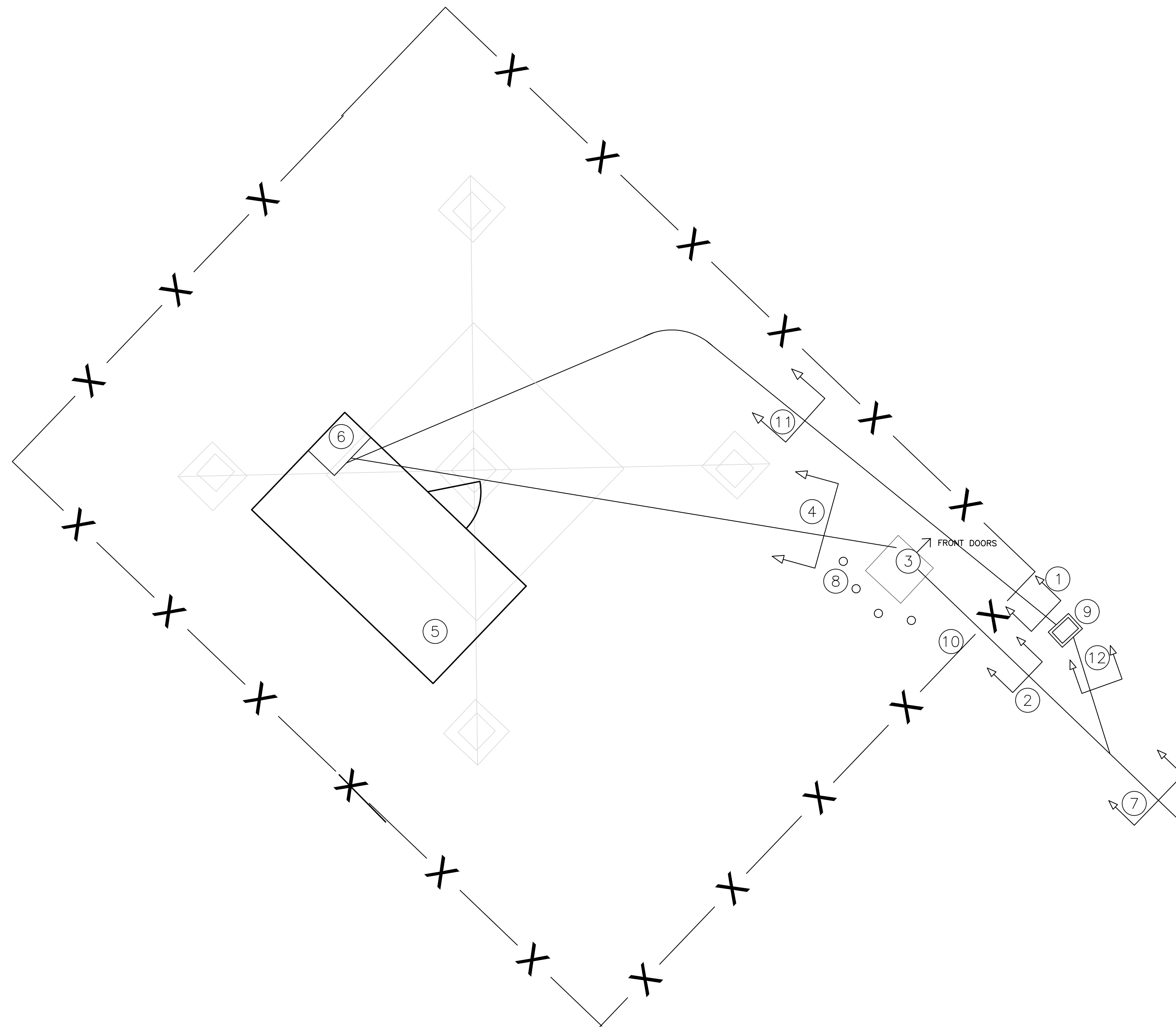
**Drawing Title**  
 ELECTRICAL SITE DRAWING

<b>Dwn. By</b> MJR	<b>Chk. By</b> MJR
<b>Date</b> MAY 12, 2021	<b>Scale</b> 1:1000
<b>Proj. No.</b> 1272-20	<b>Sheet No.</b> E1
	<b>Rev. No.</b> 1

- ① NEW U/G CONDUIT ENCSASED IN CONCRETE FROM 6' BEFORE TO 6' AFTER THE FENCE. C/W COMMUNICATION CONDUCTOR SEE DETAIL 5 ON DRAWING E6
- ② NEW U/G CONDUITS ENCASED IN CONCRETE FROM 6' BEFORE TO 6' AFTER THE FENCE C/W POWER CONDUCTORS SEE DETAIL 4 ON DRAWING E6
- ③ NEW TRANSFORMER & PAD SEE DETAIL 1 ON DRAWING E6.1
- ④ NEW U/G CONDUITS; C/W 120/240V CONDUCTORS FROM TRANSFORMER TO ELECTRICAL ROOM IN COMM'S BLDG. SEE DETAIL 3.2 ON DWG. E6
- ⑤ NEW COMM'S BLDG.
- ⑥ ELECTRICAL RM IN COMM'S BLDG.
- ⑦ NEW DIRECT BURIED CONDUCTORS SEE DETAIL 2 ON DRAWING E6
- ⑧ NEW FOUR BOLLARDS SEE DETAIL 4 ON DRAWING E6.1
- ⑨ NEW HUBBELL QUAZITE H20 13X24, TOP FLUSH WITH GROUND SURFACE. FOR COMMICATON CONDUCTORS
- ⑩ CONDUITS PASSING UNDER FENCE SHALL BE LOCATED EQUAL DISTANCE FROM FENCE POSTS. COORDINATE ON SITE WITH CIVIL SITE CONTRACTOR
- ⑪ NEW U/G CONDUIT EMBEDDED IN SAND. C/W COMMUNICATION CONDUCTOR SEE DETAIL 3.2 ON DRAWING E6
- ⑫ COMMUNICATIONS CONDUCTORS EMBEDDED IN SAND. SEE DETAIL 3 ON DRAWING E6

SYMBOL LEGEND

— X — —> CHAIN LINK FENCE



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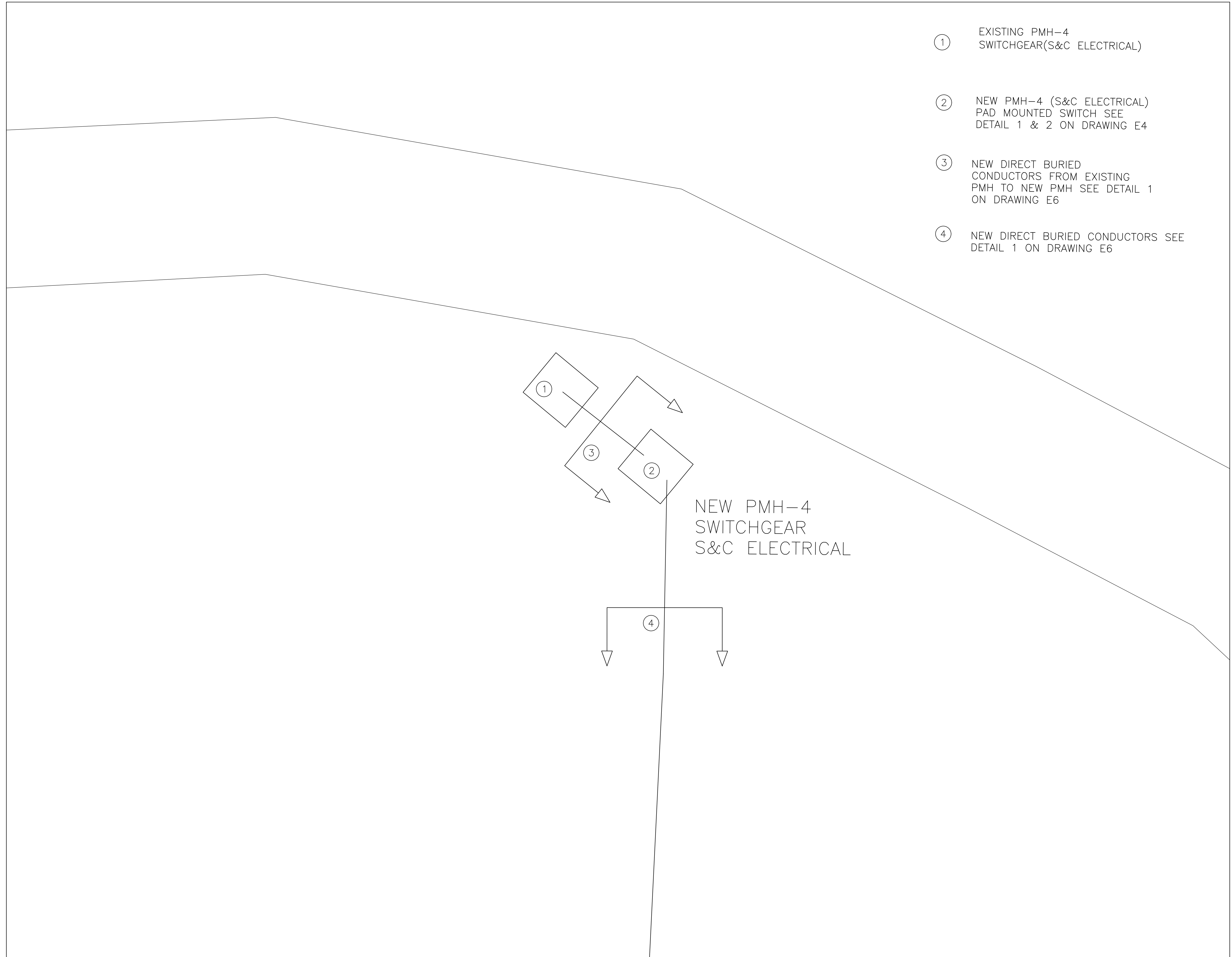
REVISIONS

<p><b>Stamp</b></p>	<p><b>Permit</b></p>
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**Project Title**  
MARBLE MOUNTAIN  
HIGH VOLTAGE INSTALLATION  
TO RADAR STATION

**Drawing Title**  
XFMR LOCATION &  
RADAR SITE DETAILS

<b>Dwn. By</b> MJR	<b>Chk. By</b> MJR
<b>Date</b> MAY 12, 2021	<b>Scale</b> 1:20
<b>Proj. No.</b> 1272-20	<b>Sheet No.</b> E2
<b>Rev. No.</b> 1	



- ① EXISTING PMH-4 SWITCHGEAR(S&C ELECTRICAL)
- ② NEW PMH-4 (S&C ELECTRICAL) PAD MOUNTED SWITCH SEE DETAIL 1 & 2 ON DRAWING E4
- ③ NEW DIRECT BURIED CONDUCTORS FROM EXISTING PMH TO NEW PMH SEE DETAIL 1 ON DRAWING E6
- ④ NEW DIRECT BURIED CONDUCTORS SEE DETAIL 1 ON DRAWING E6

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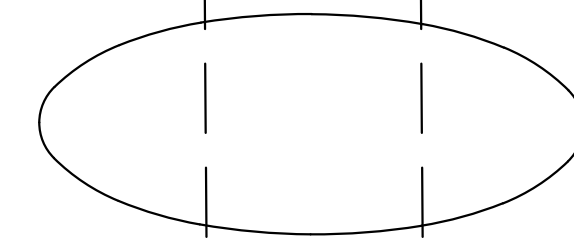
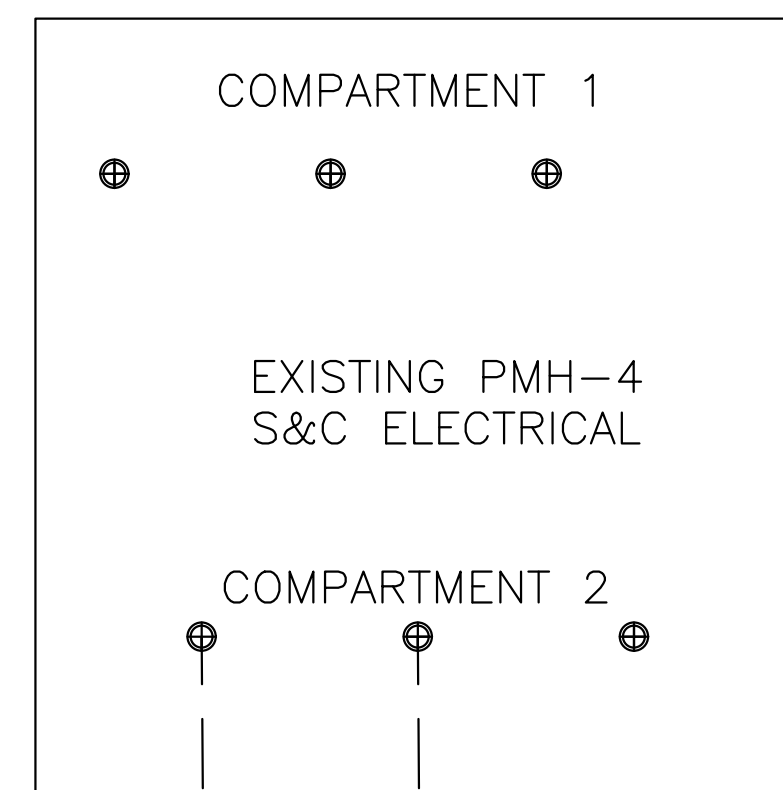
**REVISIONS**

<b>Stamp</b> 	<b>Permit</b> 
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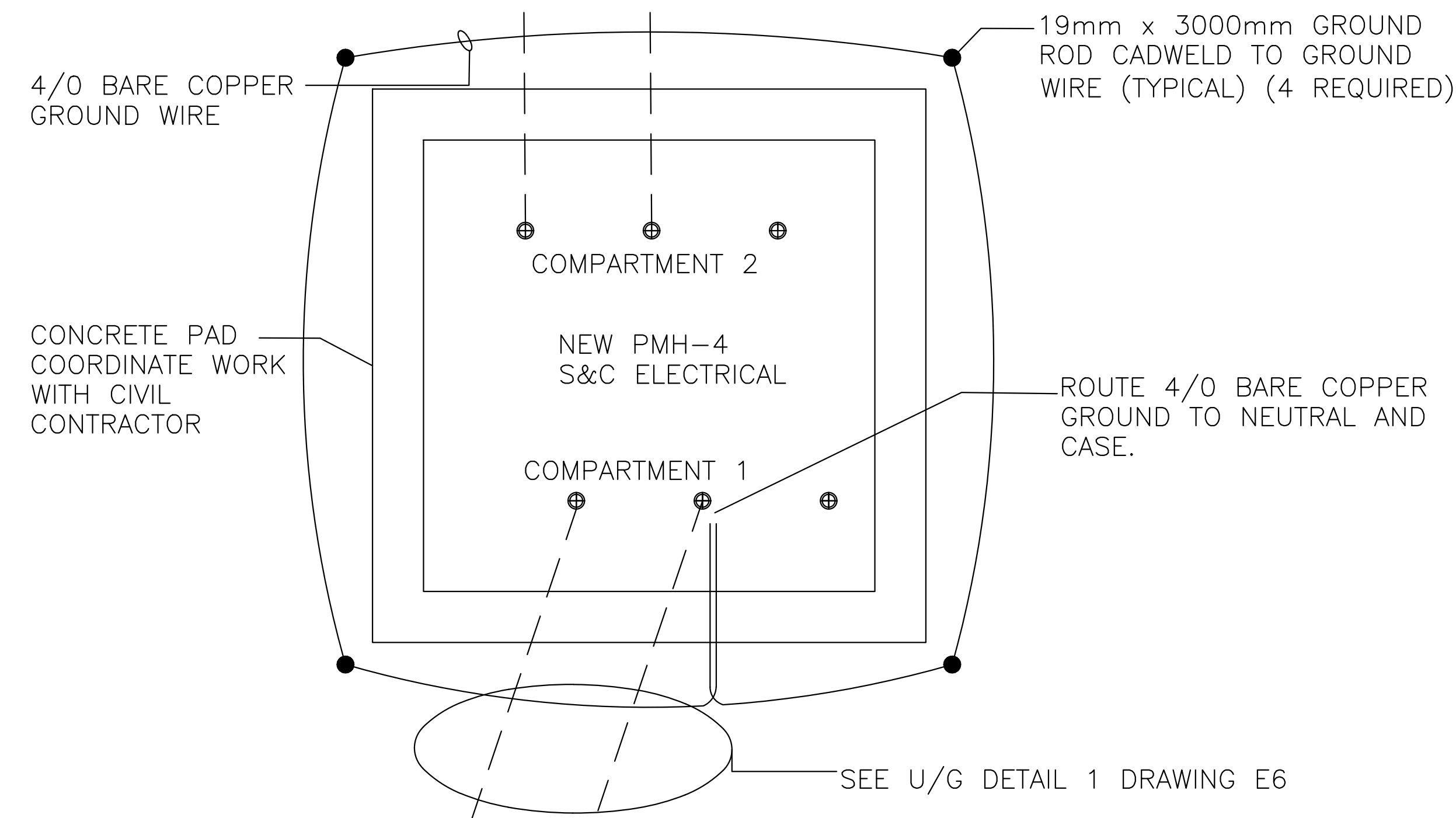
**Project Title**  
 MARBLE MOUNTAIN  
 HIGH VOLTAGE INSTALLATION  
 TO RADAR STATION

**Drawing Title**  
 SWITCHGEAR  
 SITE DETAILS

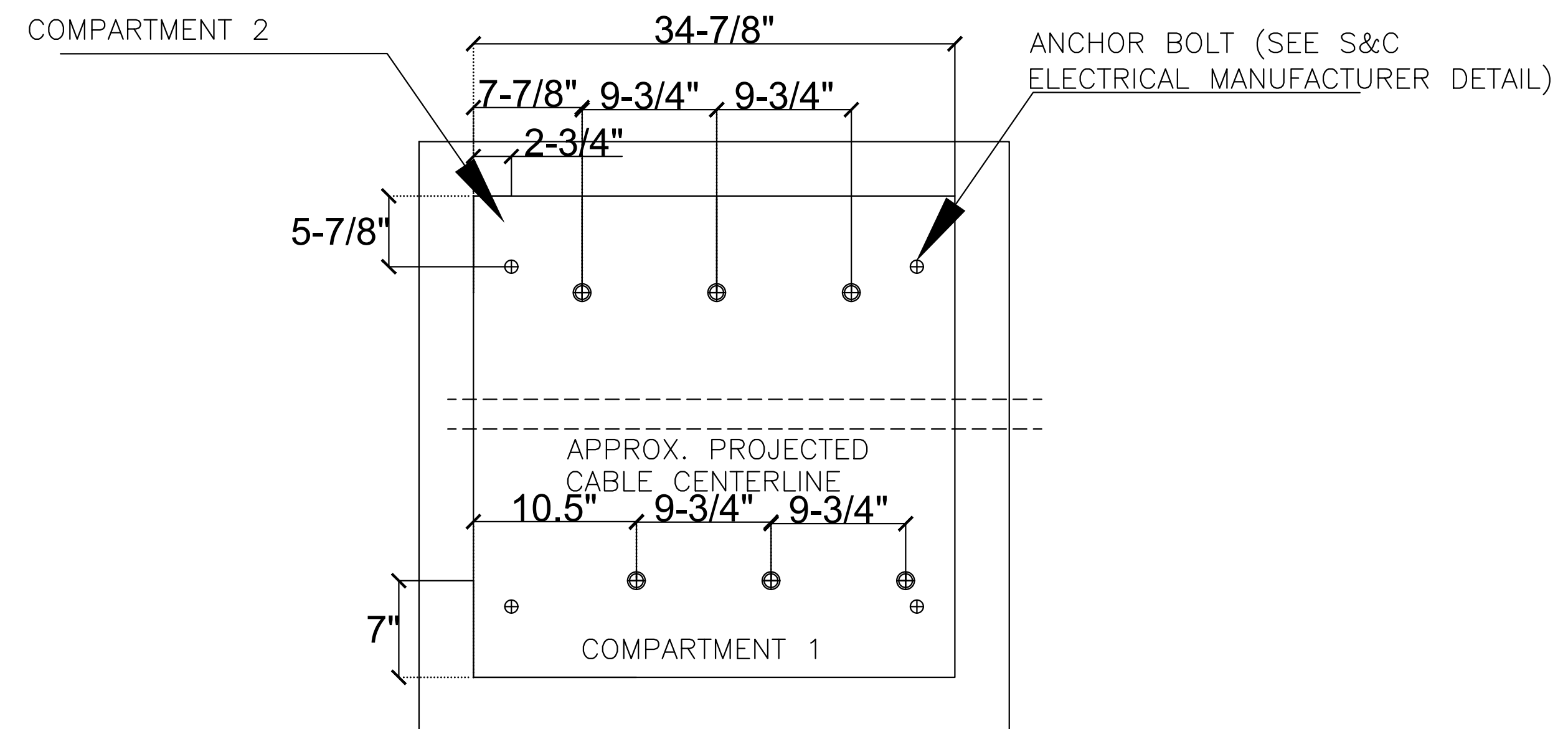
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<b>Date</b> MAY 12, 2021	<b>Scale</b> 1:20
<b>Proj. No.</b> 1272-20	<b>Sheet No.</b> E3
<b>Rev. No.</b> 1	



SEE U/G DETAIL 1 DRAWING E6



SWITCHGEAR - DETAIL 1  
NTS



ANCHOR BOLT PLAN  
SWITCHGEAR - DETAIL 2  
NTS

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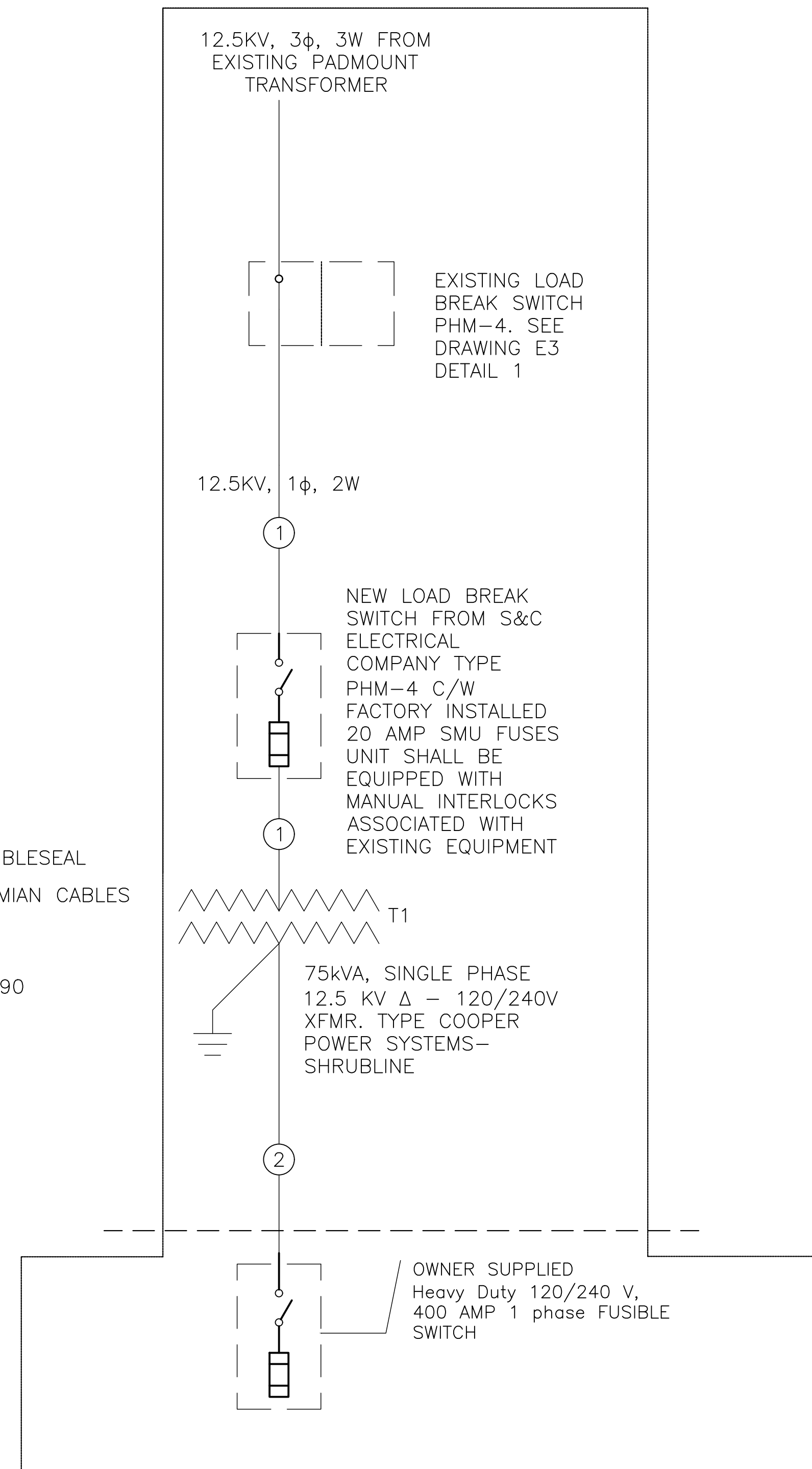
REVISIONS

Stamp	Permit

**Project Title**  
MARBLE MOUNTAIN  
HIGH VOLTAGE  
INSTALLATION TO RADAR  
STATION

**Drawing Title**  
SWITCHGEAR DETAILS

<b>Dwn. By</b> MJR	<b>Chk. By</b> MJR
<b>Date</b> APRIL 29, 2021	<b>Scale</b> NTS
<b>Proj. No.</b> 1272-20	<b>Sheet No.</b> E4
	<b>Rev. No.</b> 1



**FEEDER SCHEDULE:**

- ① 2// RUNS OF 15kV 1/0 AWG DOUBLESEAL CONDUCTORS FABRICATED BY PRYSMIAN CABLES OR EQUIVALENT
- ② 3/C 500 MCM AWG COPPER RWU90 & #1 TW GND IN 100 mm RIGID PVC CONDUIT.

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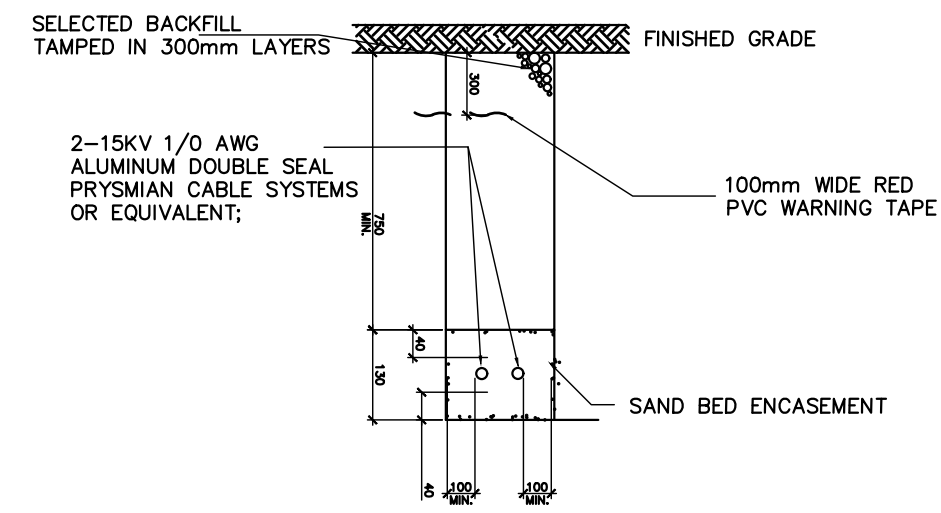
**Project Title**  
MARBLE MOUNTAIN  
HIGH VOLTAGE INSTALLATION  
TO RADAR STATION

**Drawing Title**  
ELECTRICAL  
SINGLE LINE

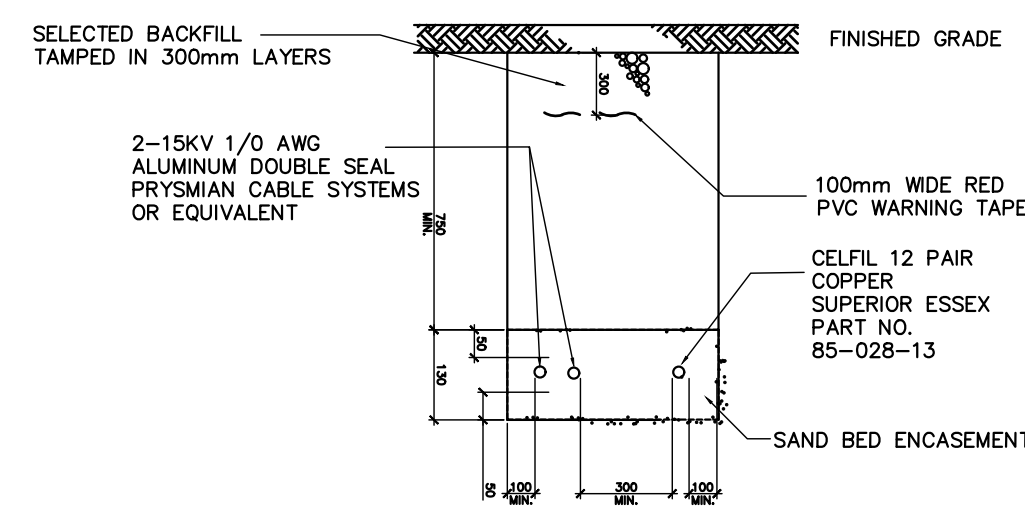
**Dwn. By** MJR      **Chk. By** MJR

**Date** MAY 12, 2021      **Scale** NTS

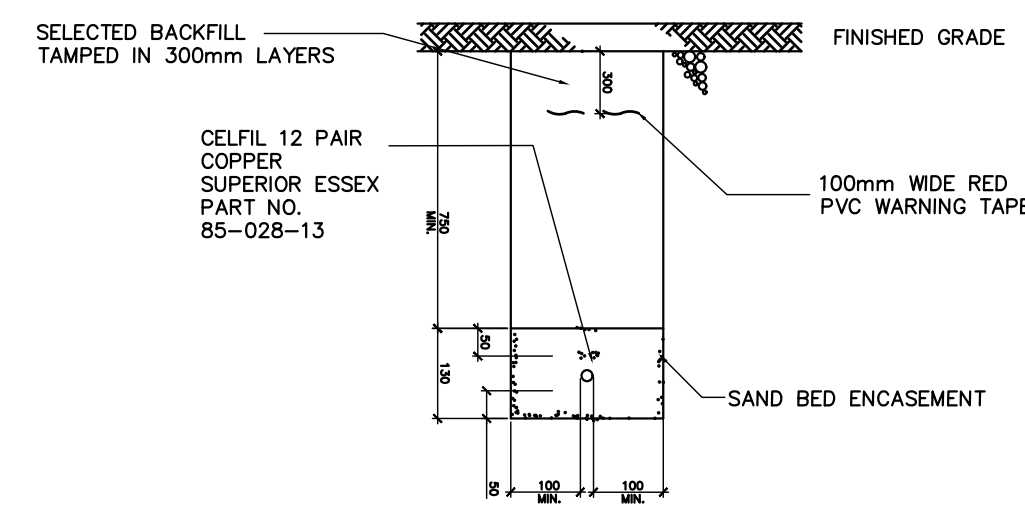
**Proj. No.** 1272-20      **Sheet No.** E5      **Rev. No.** 1



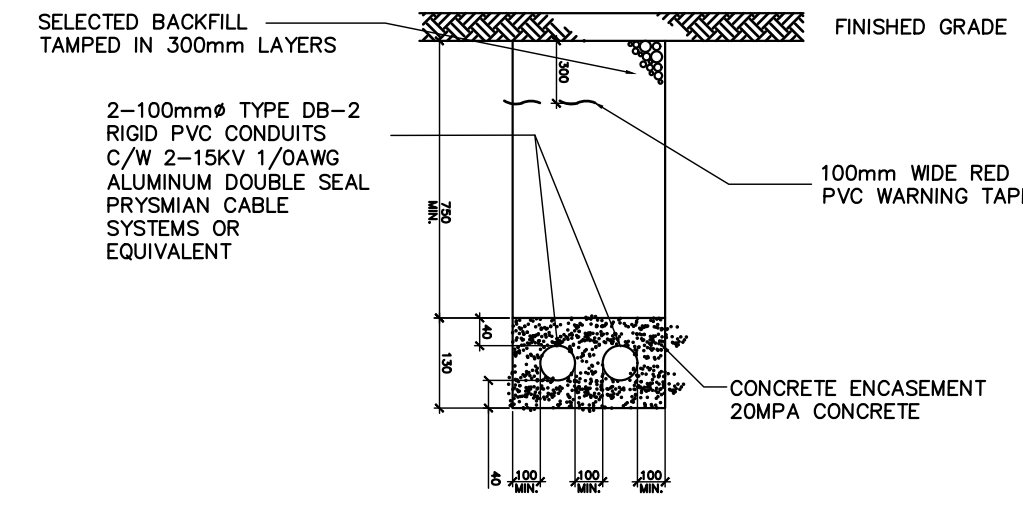
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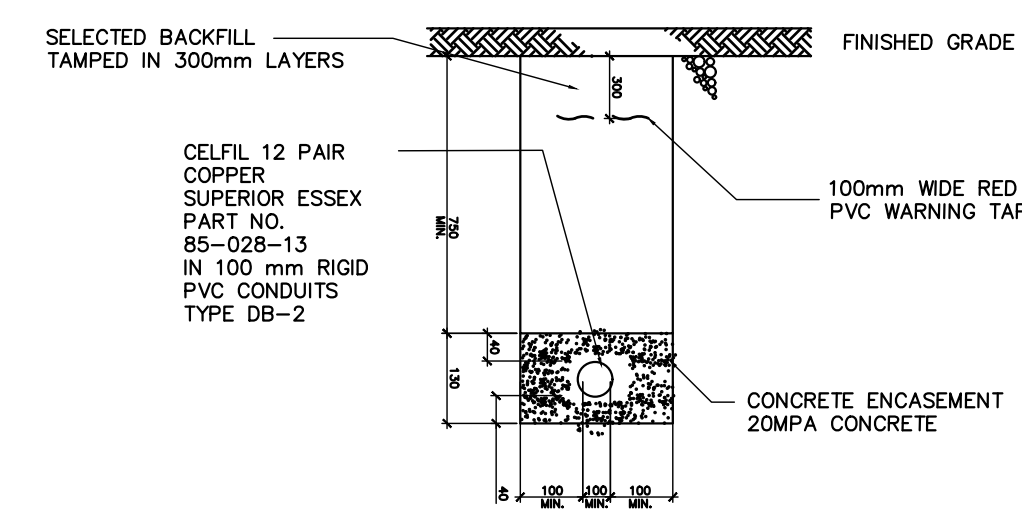
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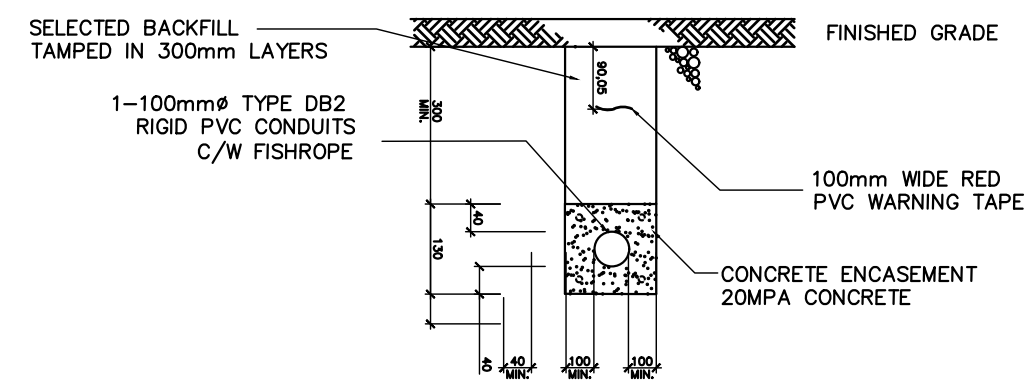
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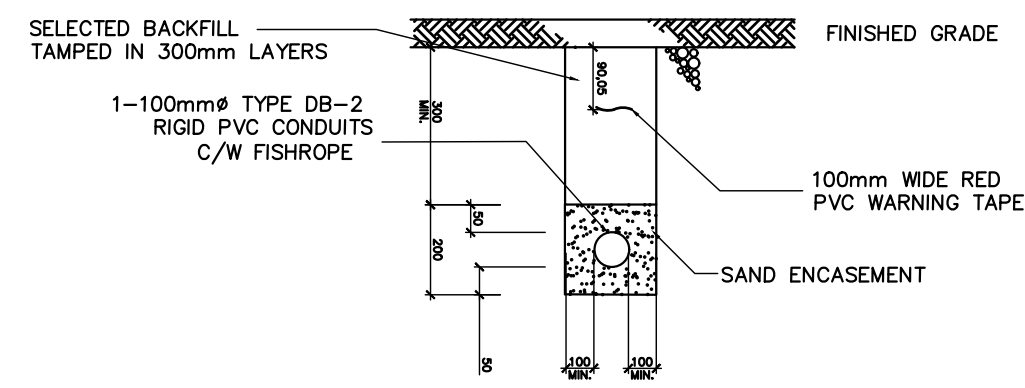
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NTS



U/G DUCT SECTION - DETAIL 5  
NTS



U/G DUCT SECTION - DETAIL 3.1  
NTS



U/G DUCT SECTION - DETAIL 3.2  
NTS

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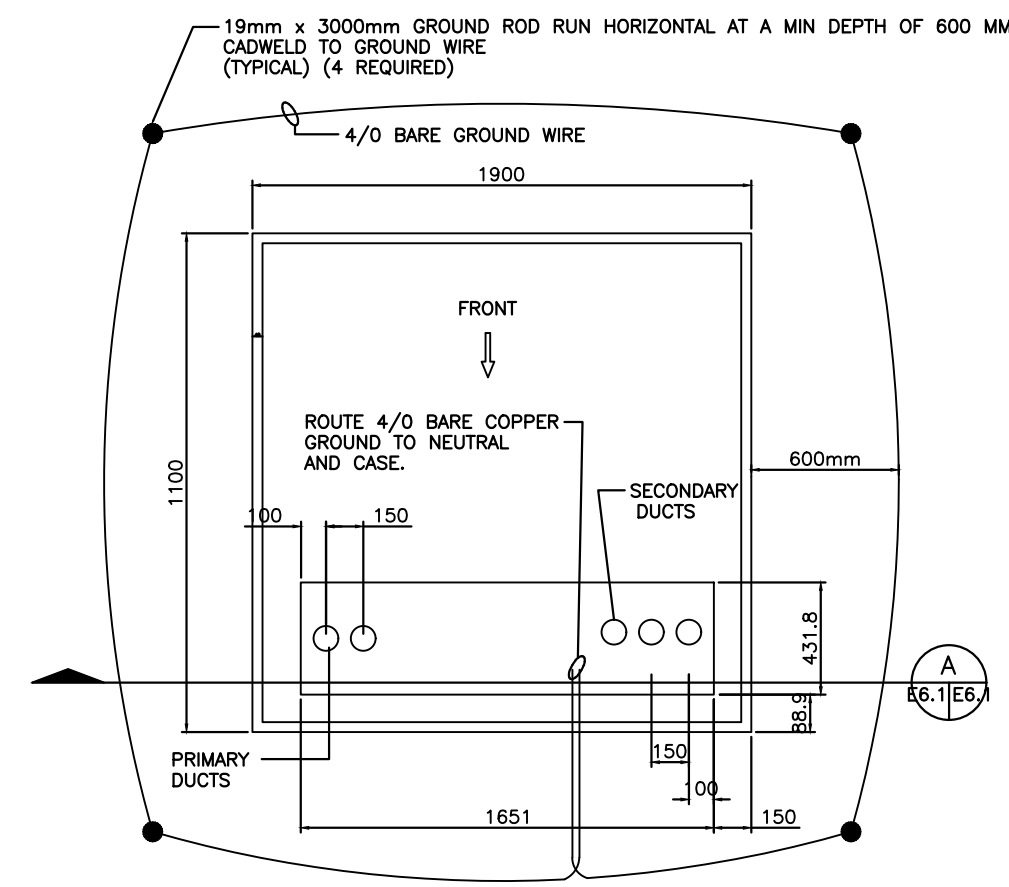
**REVISIONS**

Stamp	Permit

**Project Title**  
 MARBLE MOUNTAIN  
 HIGH VOLTAGE  
 INSTALLATION TO RADAR  
 STATION

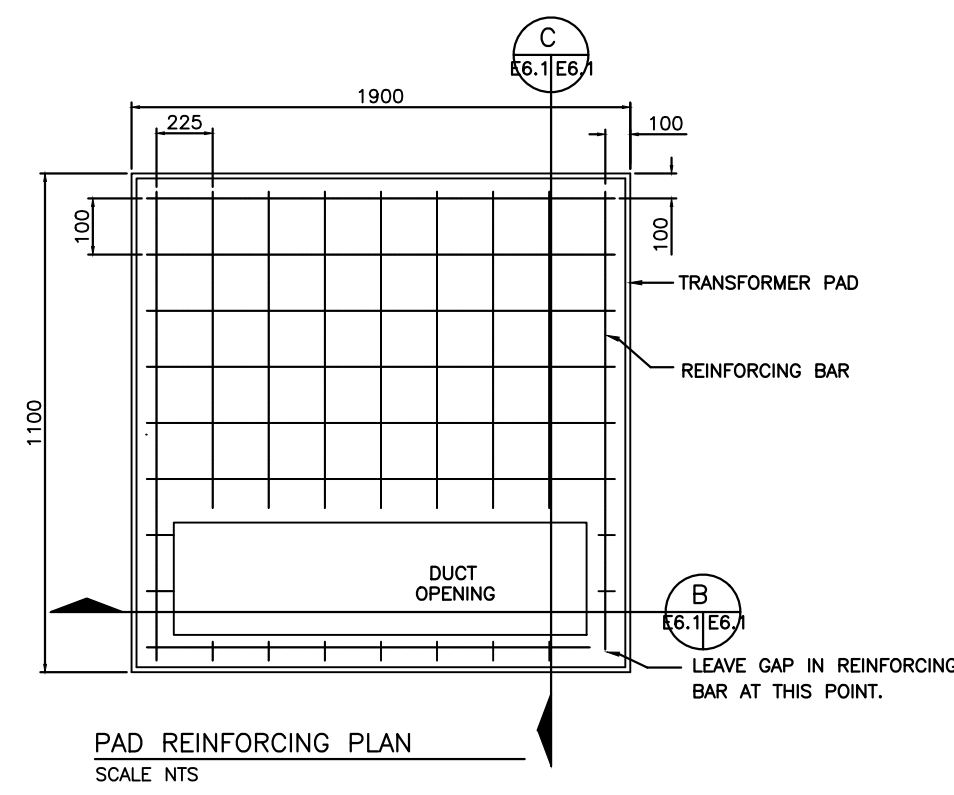
**Drawing Title**  
 U/G DETAILS

<b>Dwn. By</b> MJR	<b>Chk. By</b> MJR
<b>Date</b> APRIL 29, 2021	<b>Scale</b> NTS
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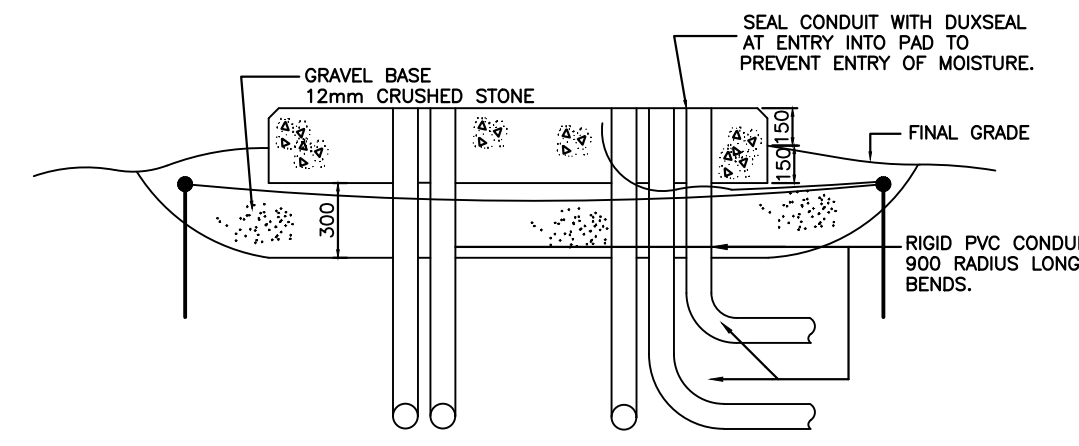


**TRANSFORMER PLAN**  
SCALE NTS

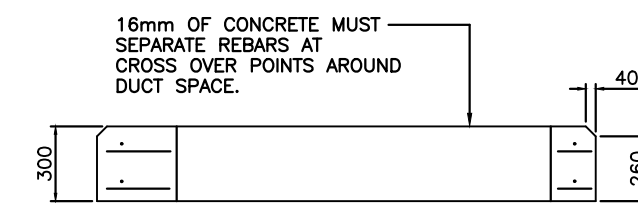
- INSTALL 4/0 BARE STRANDED COPPER GROUND WIRE IN ONE CONTINUOUS LENGTH TO FORM LOOP AROUND THE PAD AND COME UP THROUGH VOID IN PAD. MINIMUM BURIAL DEPTH TO BE 600mm. LEAVE SUFFICIENT SLACK (1.5m) IN GROUND WIRE FOR CONNECTION TO TRANSFORMER.
- GROUND WIRE TO CROSS OVER AND BE CONNECTED AT THIS POINT WITH CONNECTOR APPROVED FOR DIRECT BURIAL.
- BOLLARDS SHALL BE PLACED SO AS NOT TO OBSTRUCT OPERATION OF THE DOORS OR TRANSFORMER COMPONENTS.
- WHERE BOLLARDS ARE REQUIRED, THEY SHALL BE INSTALLED A MINIMUM OF 1000mm FROM THE TRANSFORMER PAD.
- THE GROUND WIRE LOOP SHALL BE INSTALLED OUTSIDE THE BOLLARDS AT 1500mm FROM THE TRANSFORMER PAD.
- PVC CONDUIT, OR EQUIVALENT, MUST BE INSTALLED TO INSULATE THE STEEL PIPE AND PREVENT TRANSFER OF TOUCH POTENTIAL IN THE EVENT OF A FAULT.
- TRANSFORMER PAD SHALL NOT BE CONSTRUCTED UNTIL DISTRIBUTION TRANSFORMER SHOP DRAWINGS HAVE BEEN REVIEWED FOR PAD DESIGN DETAILS.



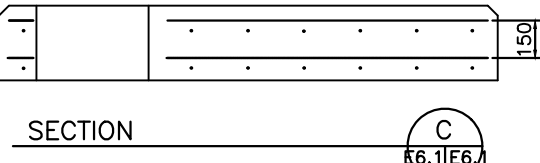
**PAD REINFORCING PLAN**  
SCALE NTS



**SECTION A-A**  
SCALE NTS



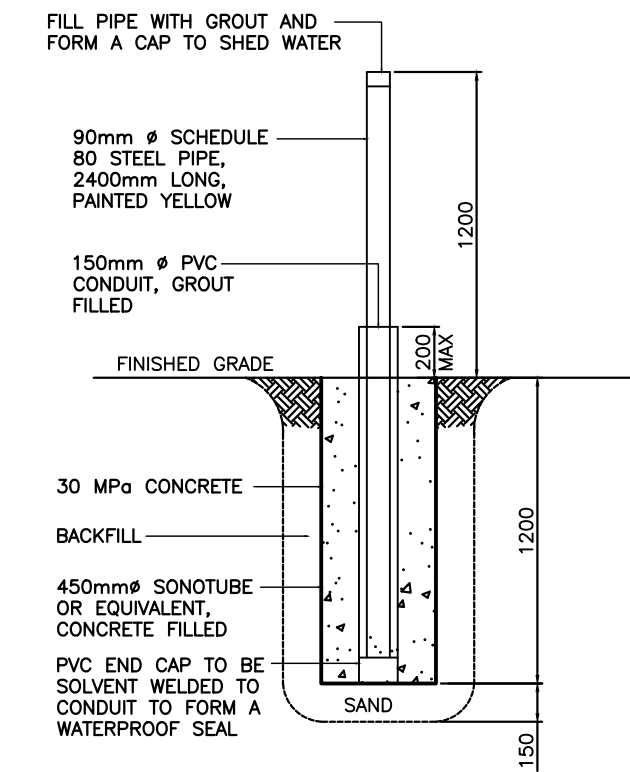
**SECTION B-B**  
SCALE NTS



**SECTION C-C**  
SCALE NTS

**PADMOUNT TRANSFORMER NOTES:**

- CONCRETE TO HAVE A 28 DAY SPECIFIED STRENGTH OF 28 MPA WITH MAXIMUM AGGREGATE SIZE OF 40mm AND MAXIMUM SLUMP OF 50mm.
- REINFORCING BARS SHALL BE 16mm (#15) DEFORMED INTERMEDIATE GRADE BILLET STEEL.
- CONCRETE SURFACE TO BE LEVEL AND HAVE A SMOOTH FINISH TO ALLOW WATER RUN OFF.
- REINFORCING BARS MUST NOT FORM A COMPLETE MAGNETIC PATH AROUND SPACE LEFT FOR CABLES AND DUCTS. A GAP SHALL BE PROVIDED IN THE REINFORCING BARS AS SHOWN.
- INSTALL 4/0 BARE COPPER GROUND WIRE IN ONE CONTINUOUS LENGTH TO FORM LOOP AROUND THE PAD AND COME UP THROUGH VOID IN PAD. MINIMUM BURIAL DEPTH TO BE 600mm. LEAVE SUFFICIENT SLACK (1.5m) IN GROUND WIRE FOR CONNECTION TO TRANSFORMER.
- ALL DIMENSIONS ARE GIVEN IN MILLIMETERS.
- INSTALLATION SHALL BE IN ACCORDANCE WITH NEWFOUNDLAND POWER DISTRIBUTION STANDARDS 28-4, 28-5, 28-6.



NOTE:  
1. PVC CONDUIT OR EQUIVALENT, MUST BE INSTALLED TO INSULATE THE STEEL PIPE AND PREVENT TRANSFER OF TOUCH POTENTIAL IN THE EVENT OF A FAULT.

**BOLLARD DETAIL**  
SCALE NTS

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- DISPOSAL AND HAULING OF ALL EXISTING MATERIALS AND DEBRIS TO BE INCLUDED.
- ALL GROUND & CONCRETE FORMING SHALL BE PERFORMED BY CIVIL CONTRACTOR. COORDINATE ALL REQUIRED WORK WITH CIVIL CONTRACTOR
- WORKING AROUND OR NEAR POWER LINES.** CONTRACTOR IS RESPONSIBLE TO FOLLOW GUIDE LINES SET BY OCCUPATIONAL HEALTH AND SAFETY REGULATIONS, CONSOLIDATED NEWFOUNDLAND REGULATION 1165/96.
- CONTRACTORS, TAKE THESE THREE STEPS AROUND POWER LINES:
  - LOCATE NEARBY OVERHEAD AND UNDERGROUND LINES. CONTACT NEWFOUNDLAND POWER BEFORE STARTING WORK, AND ASK IF SAFETY MEASURES CAN BE TAKEN.
  - SHOW OTHERS THE LINES, AND WARN OF THEIR DANGER.
  - KEEP YOUR DISTANCE. ASK NEWFOUNDLAND POWER & OR NELCOR FOR LINE VOLTAGES AND SAFE CLEARANCES FOR BOOMS, LADDERS AND OTHER EQUIPMENT.
- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION(S) OF THE CANADIAN ELECTRICAL CODE, THE NATIONAL BUILDING CODE AND THE AUTHORITIES HAVING JURISDICTION.

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No.	Description	Date	By
2	ISSUED FOR TENDER	07.15.21	MR
1	ISSUED FOR REVIEW	05.12.21	MR

**REVISIONS**

<b>Stamp</b>	<b>Permit</b>

**Project Title**  
MARBLE MOUNTAIN  
HIGH VOLTAGE  
INSTALLATION TO RADAR  
STATION

**Drawing Title**  
XFMR PAD &  
BOLLARD DETAILS

<b>Dwn. By</b> MJR	<b>Chk. By</b> MJR
<b>Date</b> APRIL 29, 2021	<b>Scale</b> NTS
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