

HANCOCK WIND PROJECT

T22 MD & T16 MD, HANCOCK COUNTY, MAINE

ELECTRICAL COLLECTOR SYSTEM

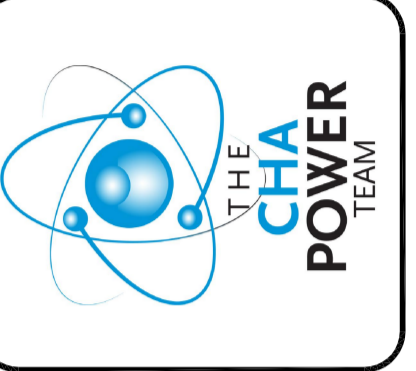
DECEMBER 2012

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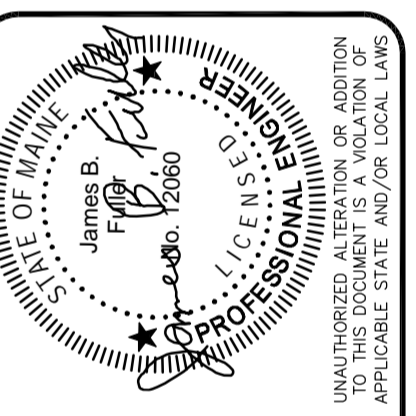
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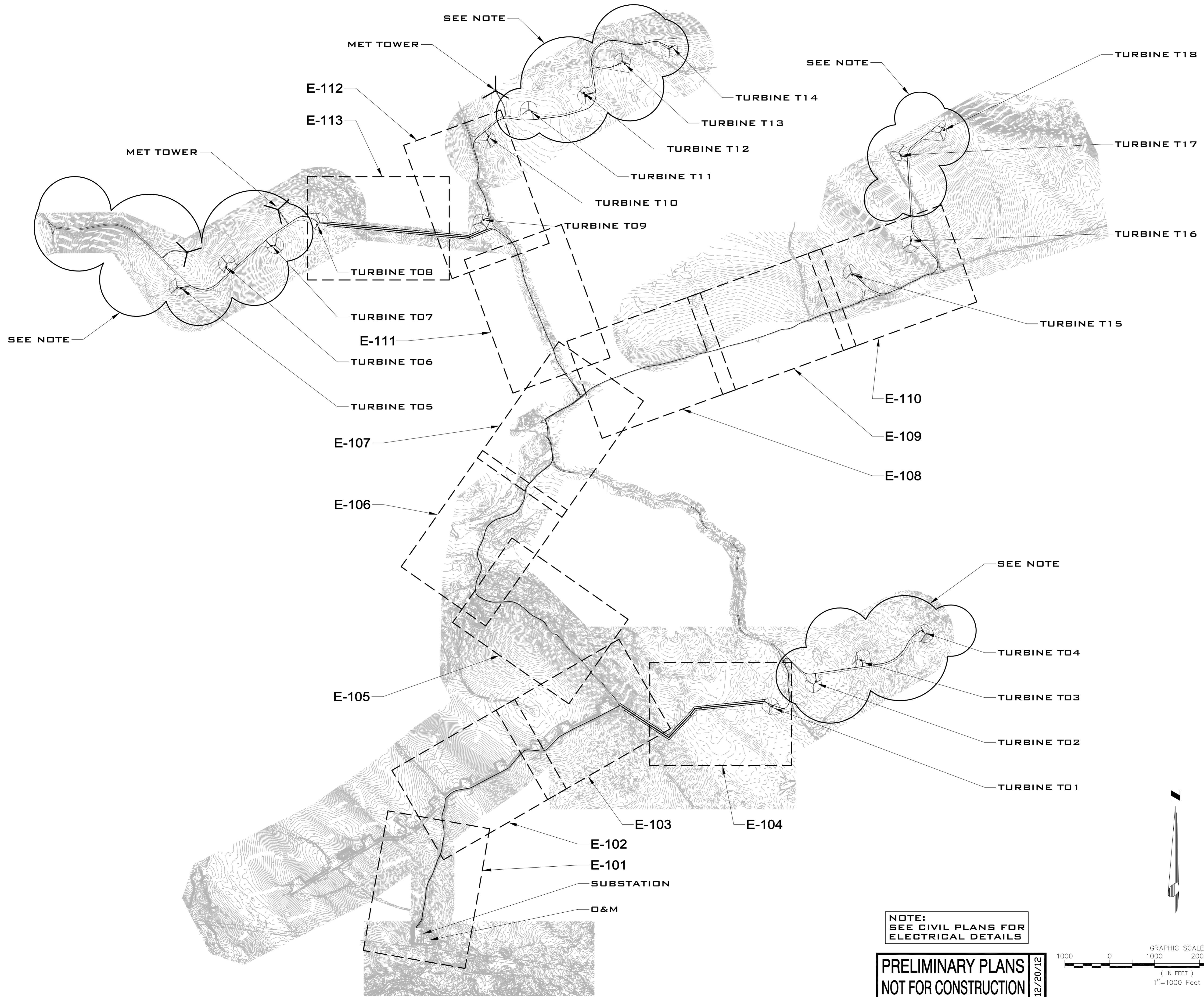



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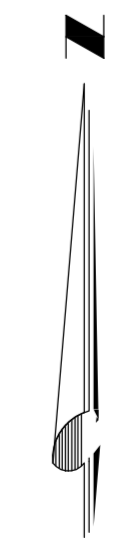
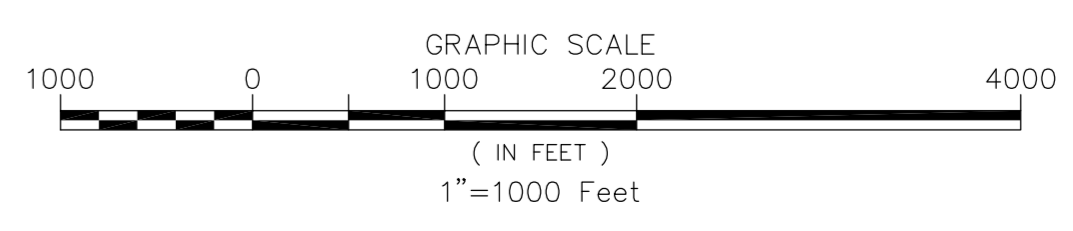
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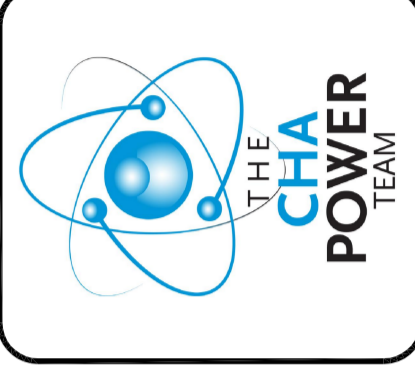


NOTE:
 SEE CIVIL PLANS FOR
 ELECTRICAL DETAILS

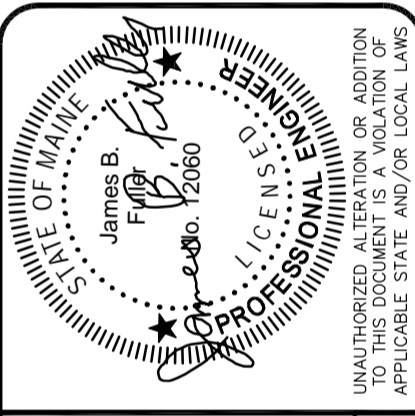
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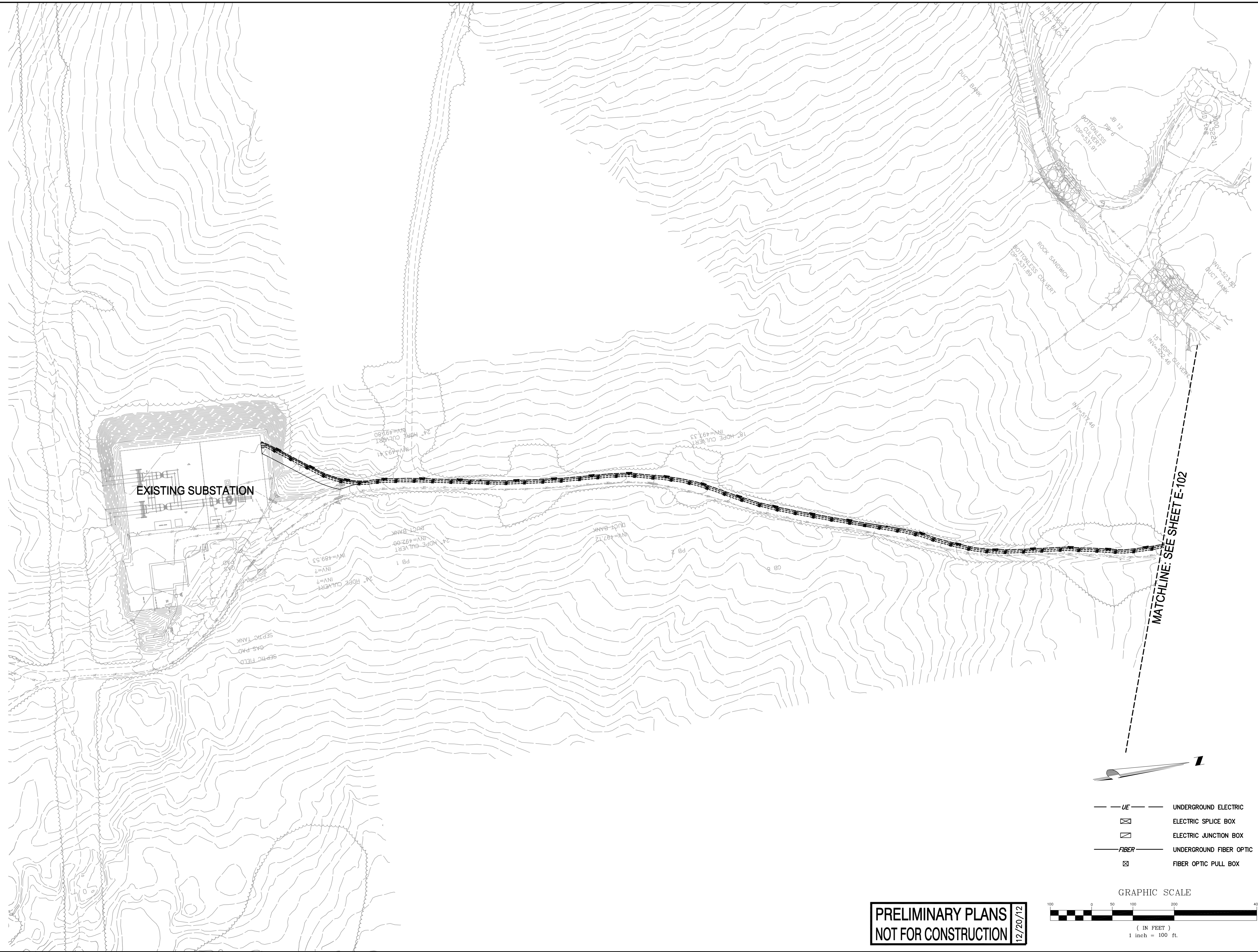
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HANCOCK WIND PROJECT
 SHEET INDEX - ELECTRICAL
 COLLECTOR SYSTEM

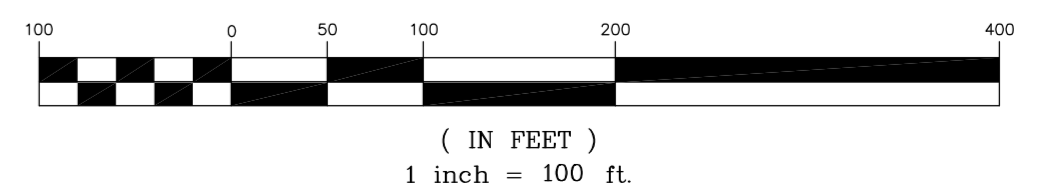
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E-100

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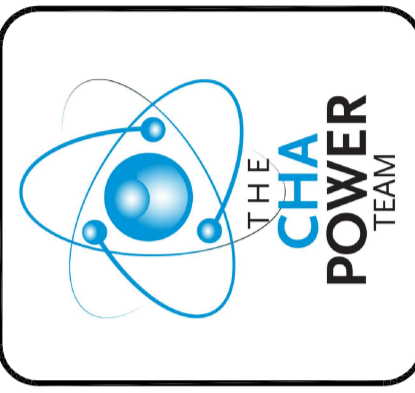


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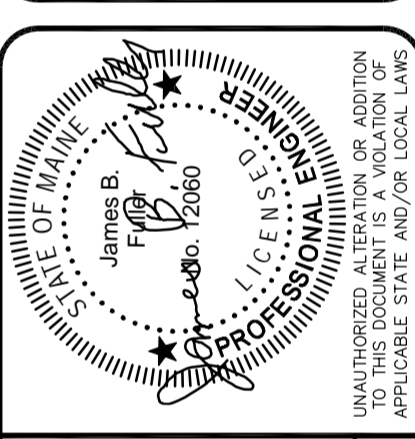



- UE — UNDERGROUND ELECTRIC
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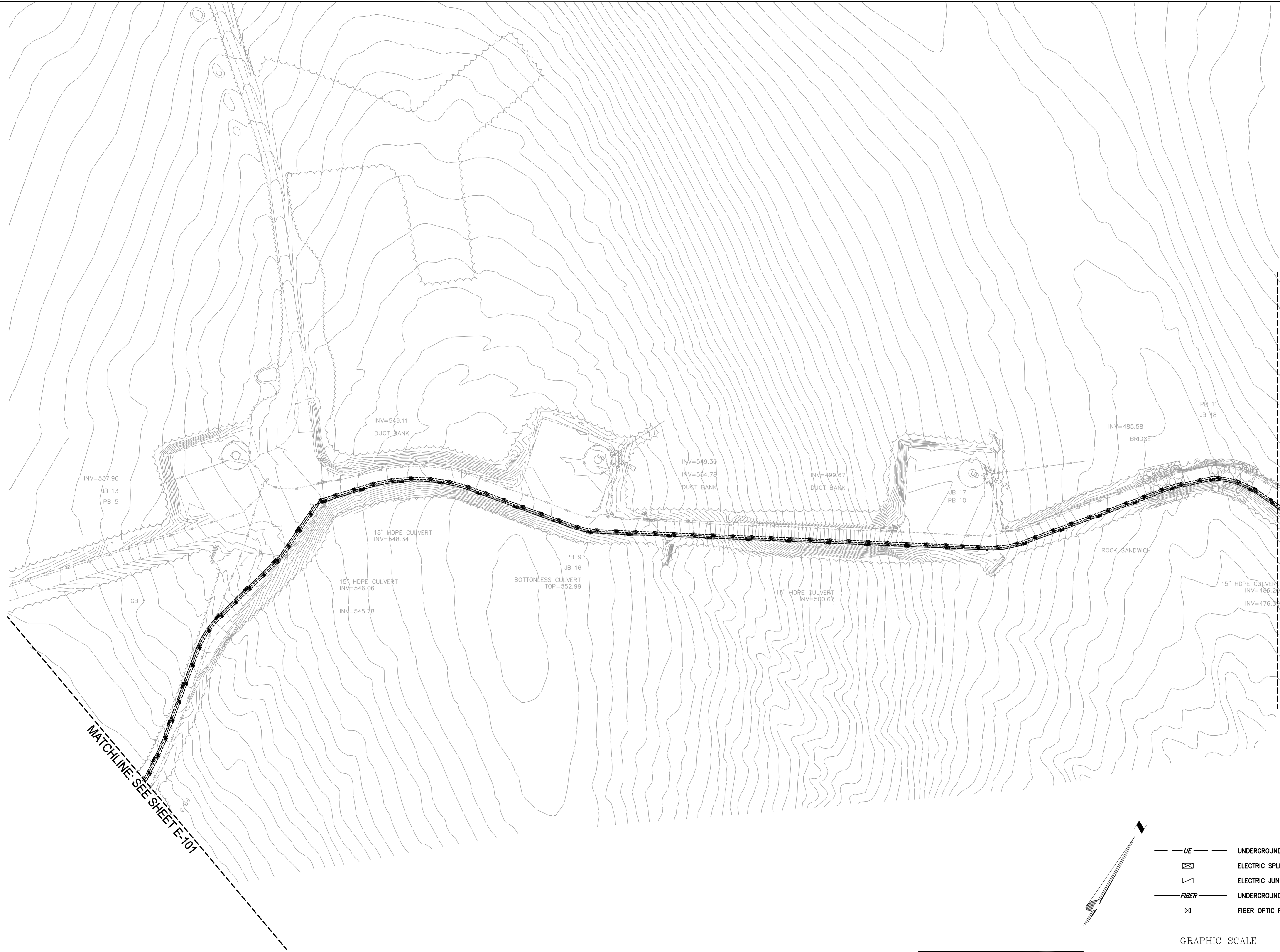



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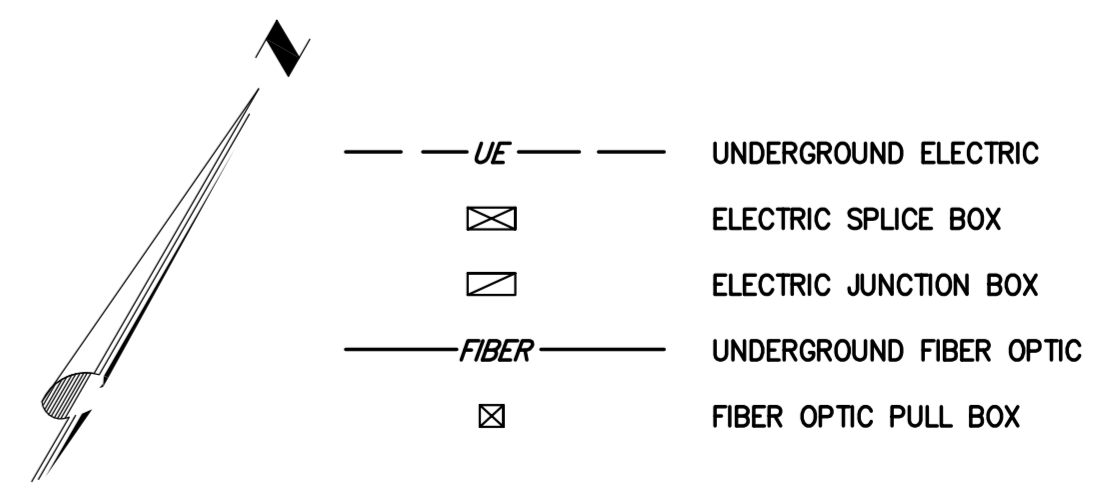
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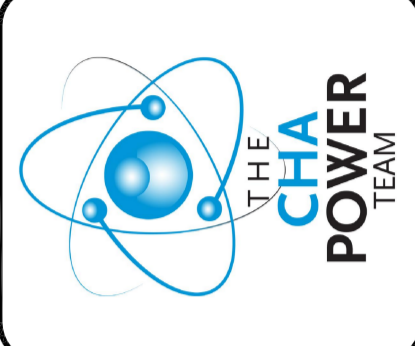
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MATCHLINE: SEE SHEET E-103

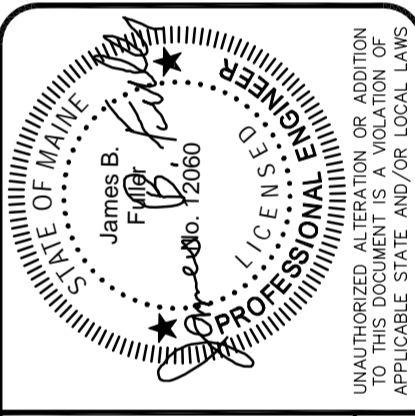



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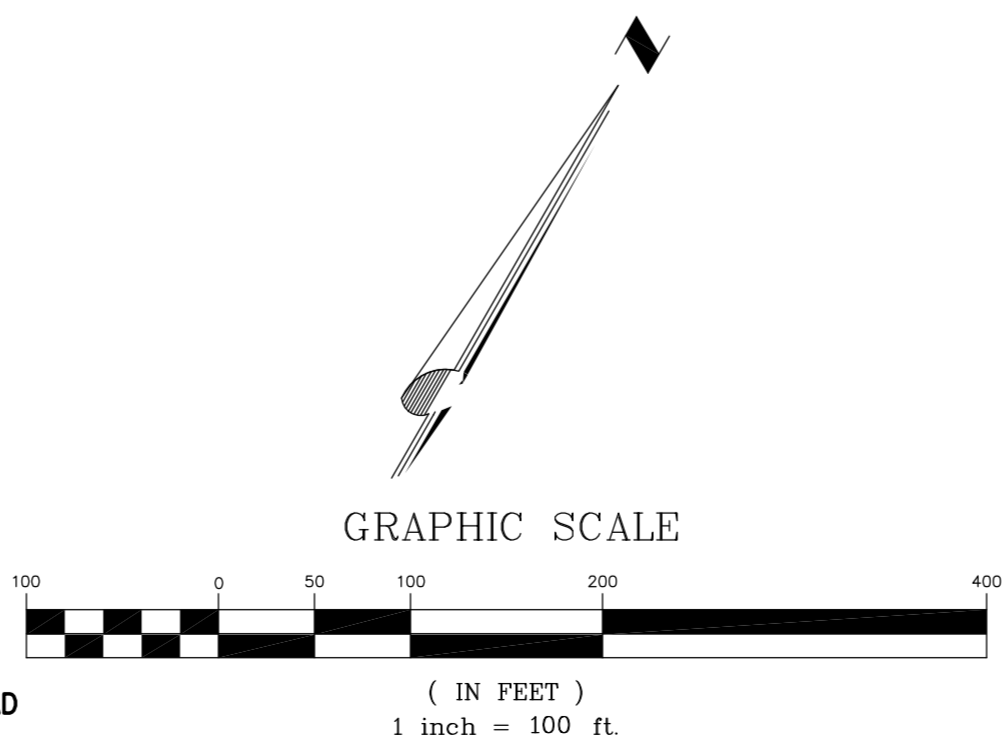
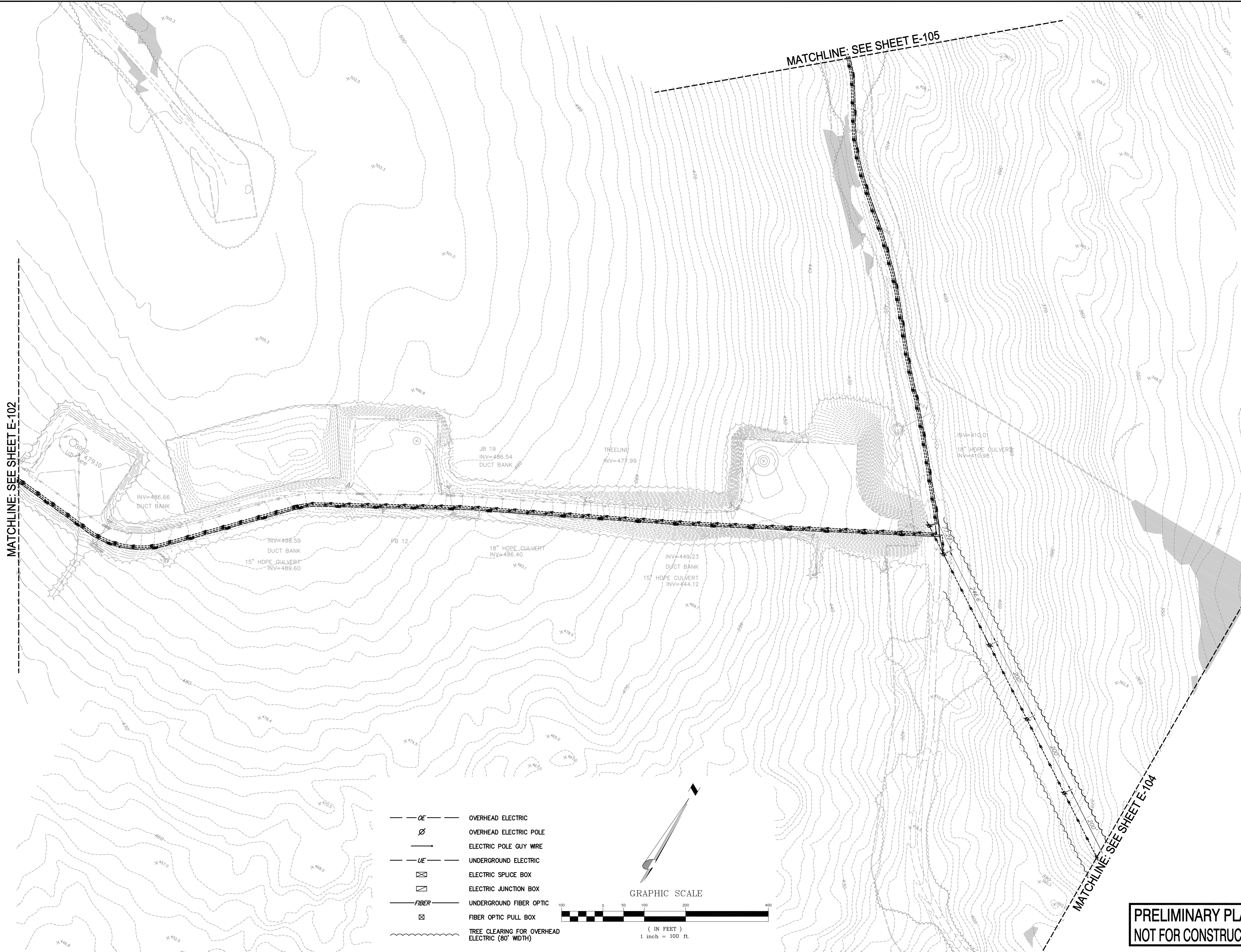



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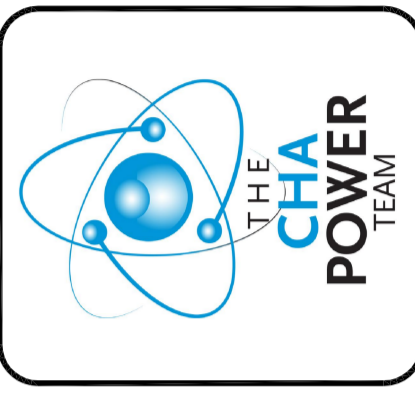
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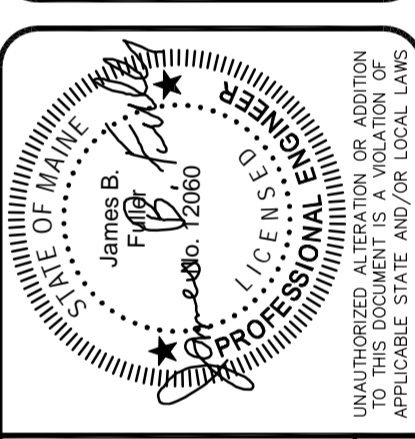


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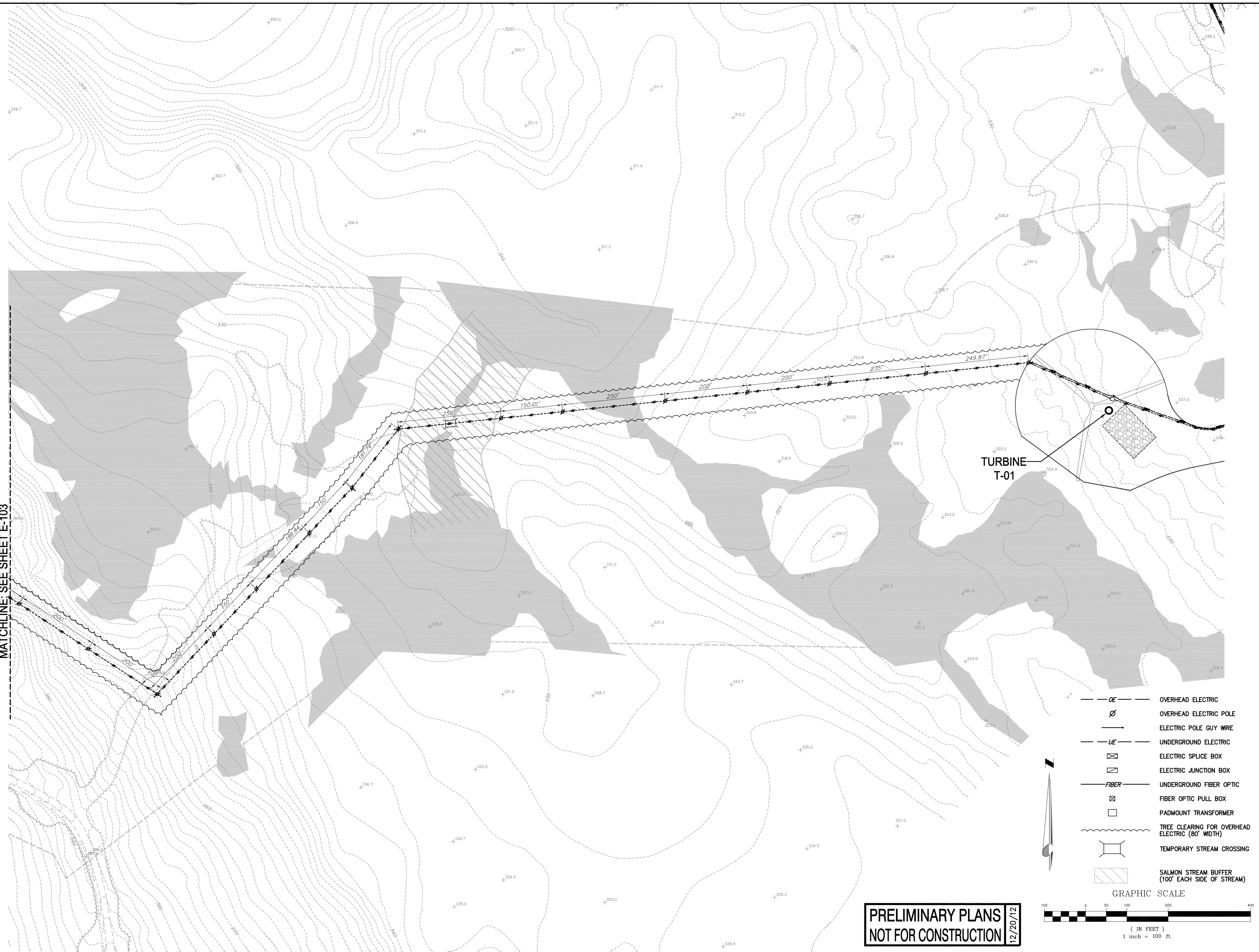
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E-103

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MATCHLINE: SEE SHEET E-103



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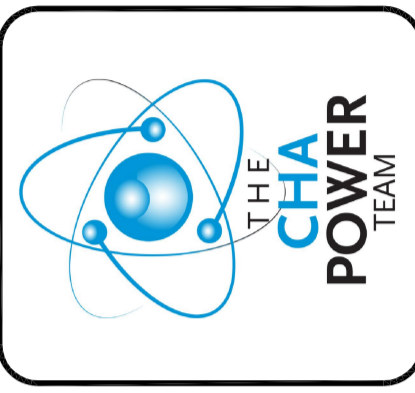
LEGEND

- O E — OVERHEAD ELECTRIC
- ∅ OVERHEAD ELECTRIC POLE
- | — ELECTRIC POLE GUY WIRE
- - - U E - - - UNDERGROUND ELECTRIC
- ⊠ ELECTRIC SPlice BOX
- ⊞ ELECTRIC JUNCTION BOX
- - - FIBER - - - UNDERGROUND FIBER OPTIC
- ⊞ FIBER OPTIC PULL BOX
- PADMOUNT TRANSFORMER
- ~~~~~ TREE CLEARING FOR OVERHEAD ELECTRIC (80' WIDTH)
- ⊞ TEMPORARY STREAM CROSSING
- ▨ SALMON STREAM BUFFER (100' EACH SIDE OF STREAM)

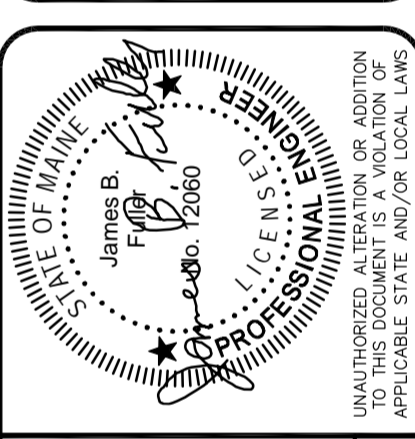
GRAPHIC SCALE

(IN FEET)
 1 inch = 100 ft.

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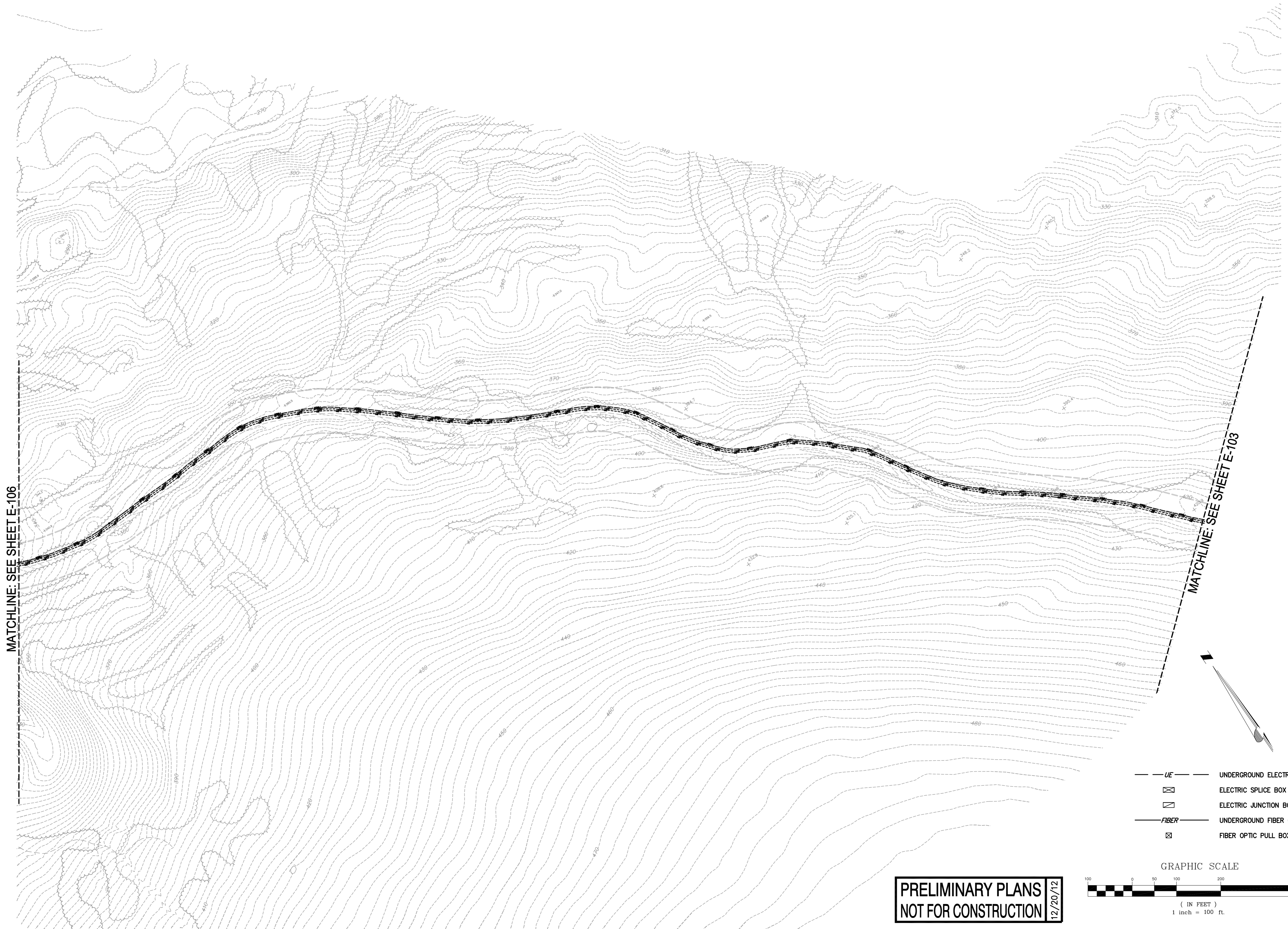
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E-104

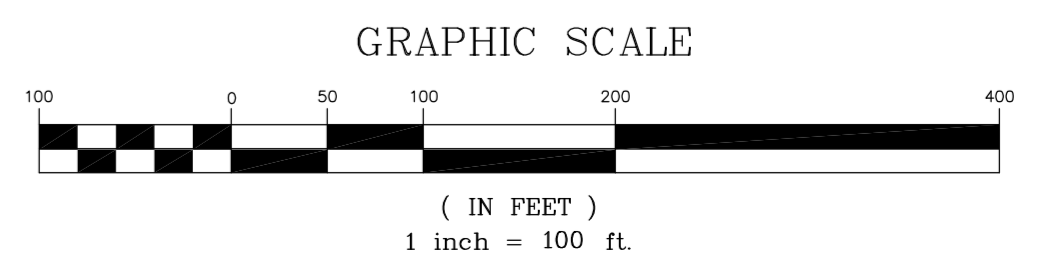
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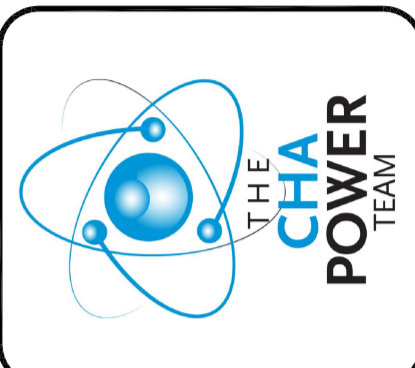
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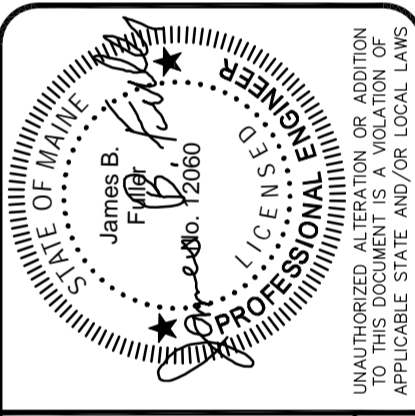


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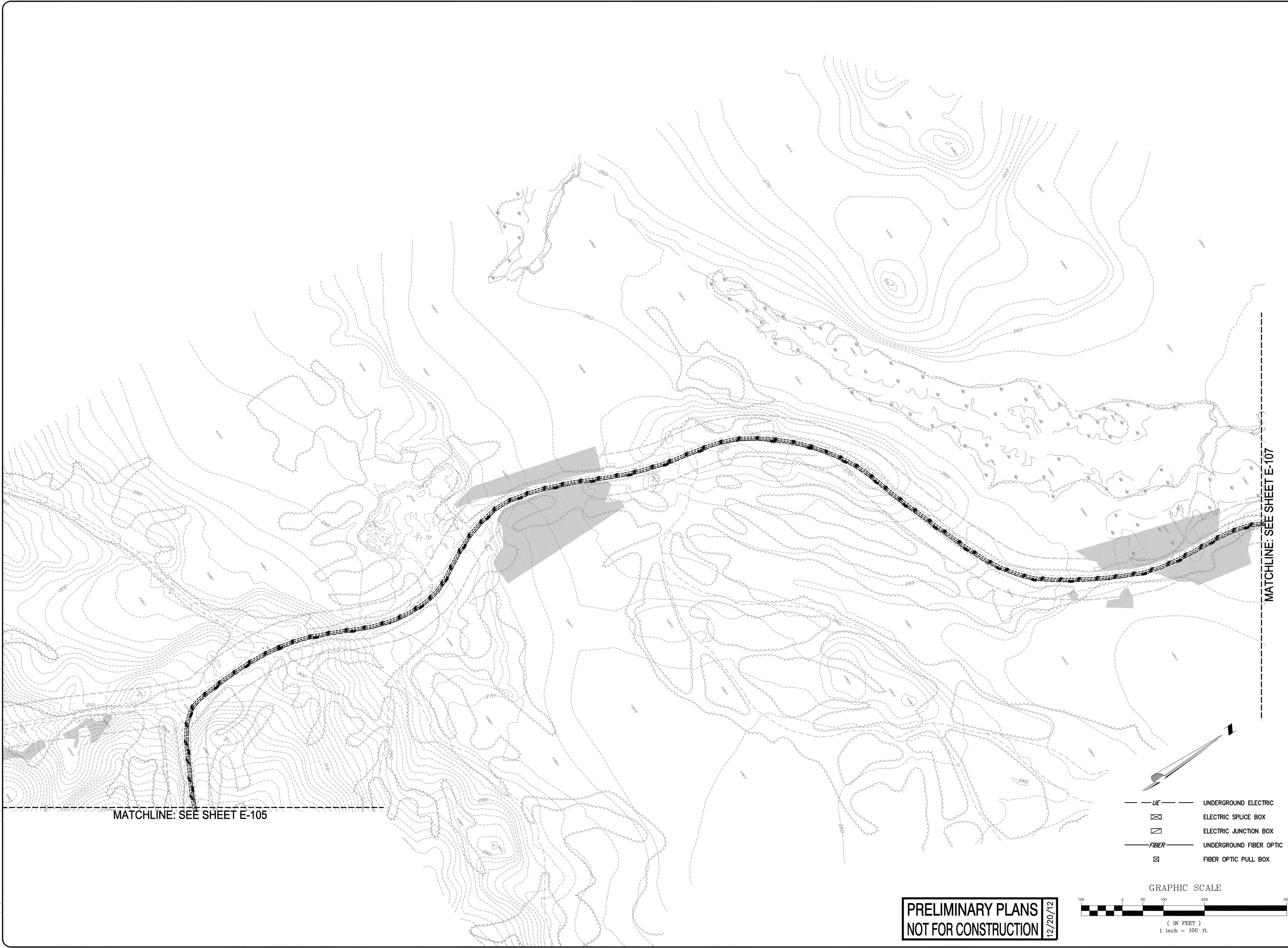
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HANCOCK WIND PROJECT
 ELECTRICAL COLLECTOR SYSTEM

Issue Date: 12/20/12 Project No.: 24709 Scale: AS NOTED

E-105

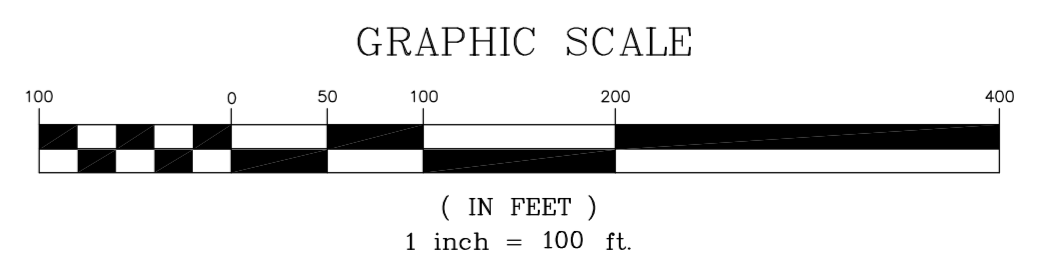
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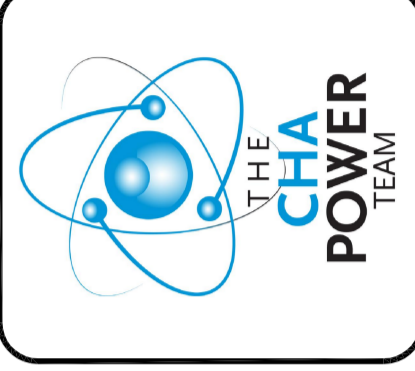
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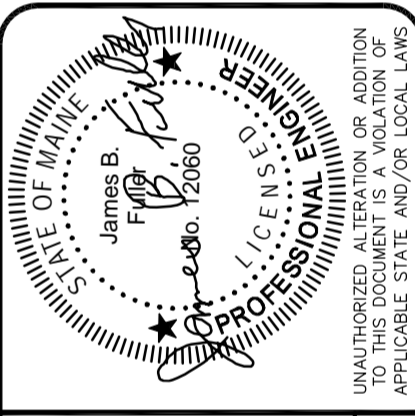


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E-106

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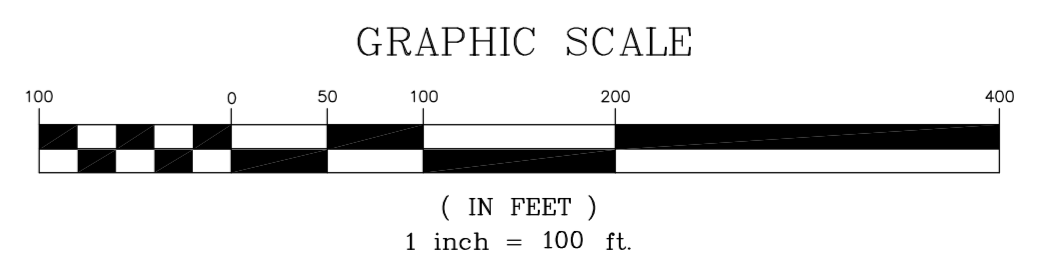
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MATCHLINE: SEE SHEET E-111

MATCHLINE: SEE SHEET E-108

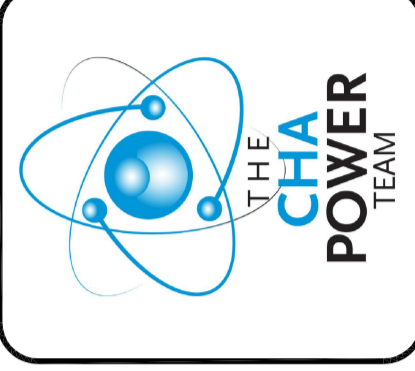


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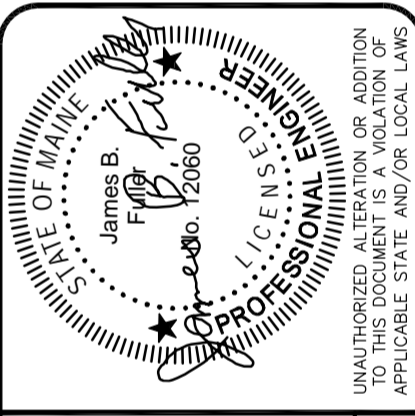


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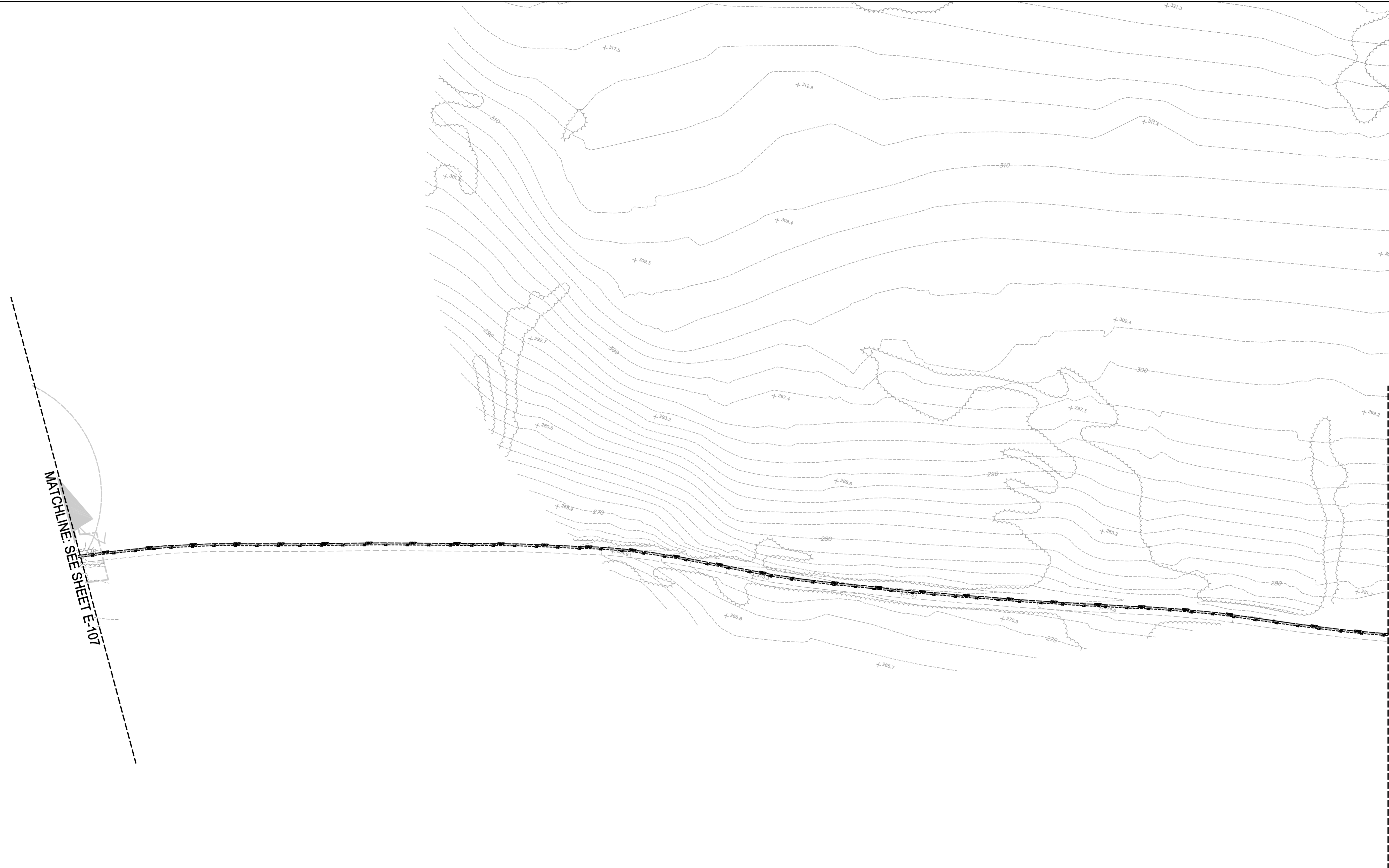
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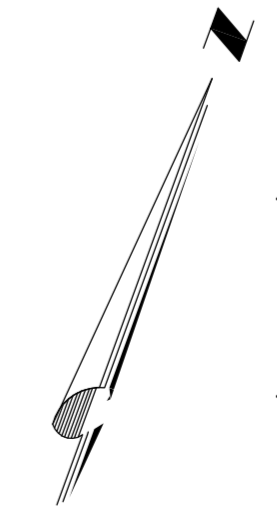
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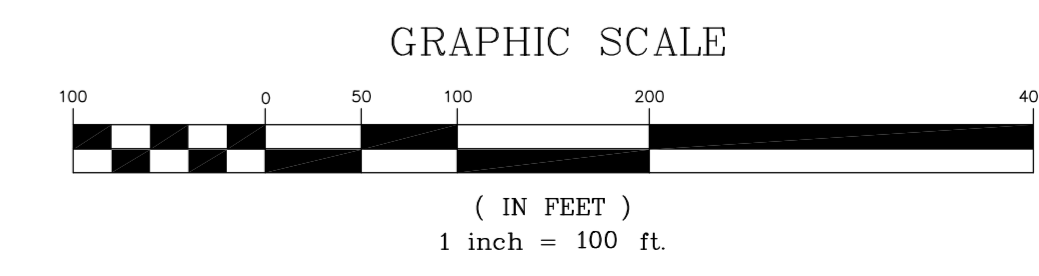


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MATCHLINE: SEE SHEET E-109

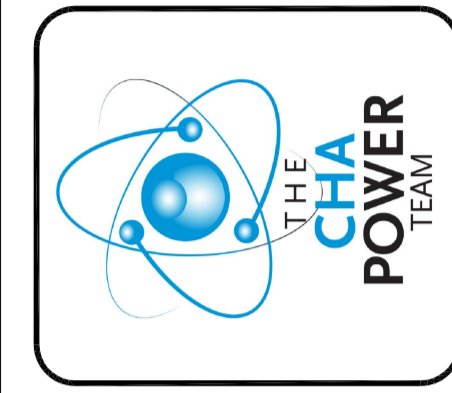


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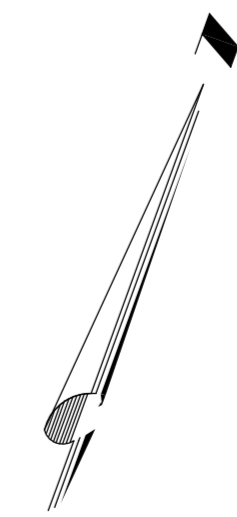
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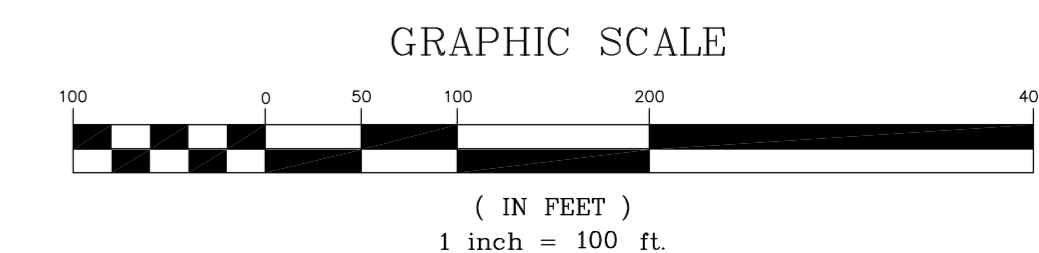
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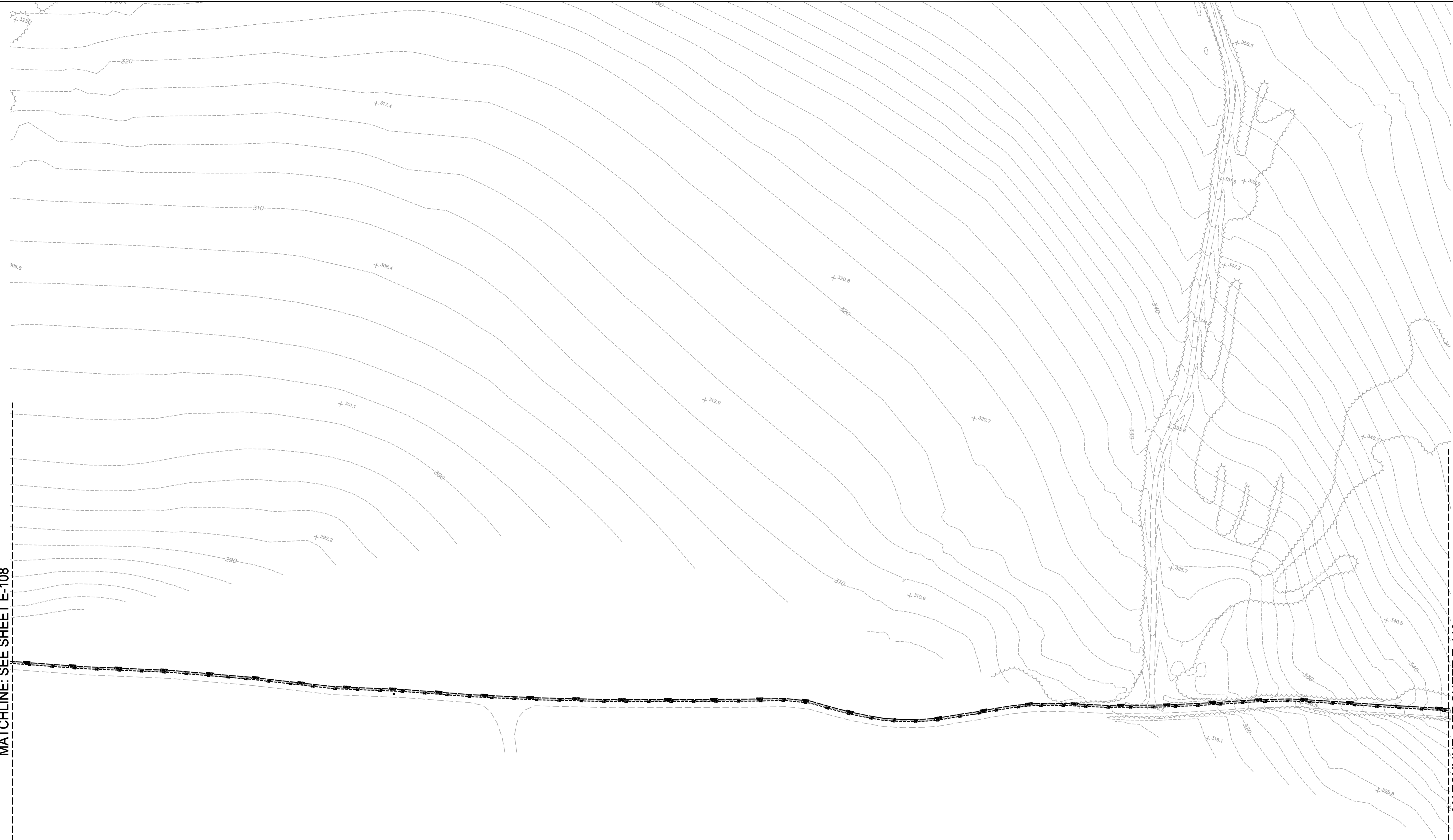
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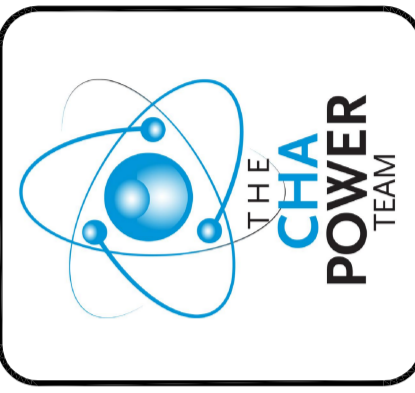
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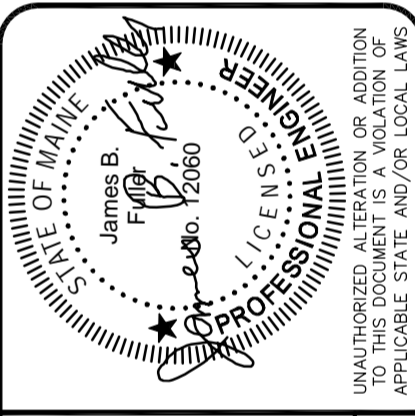
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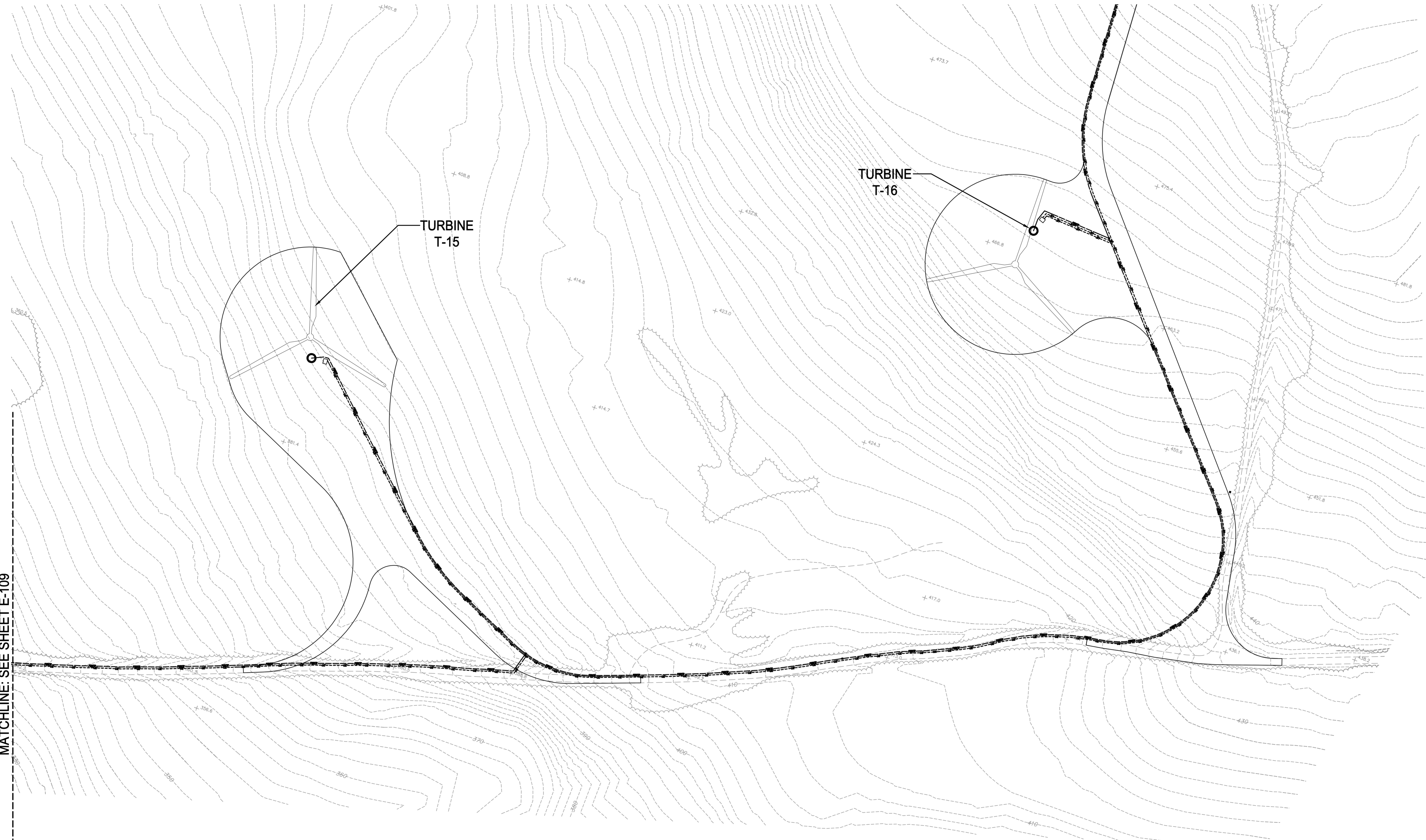
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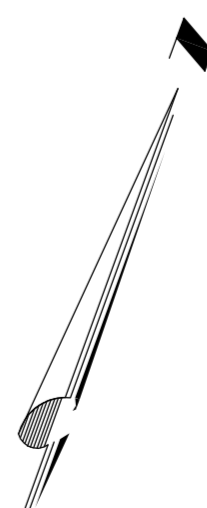
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E-109

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MATCHLINE: SEE SHEET E-109

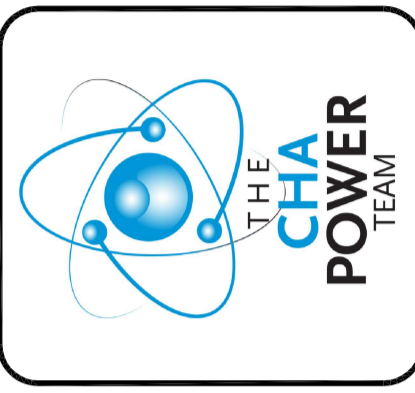




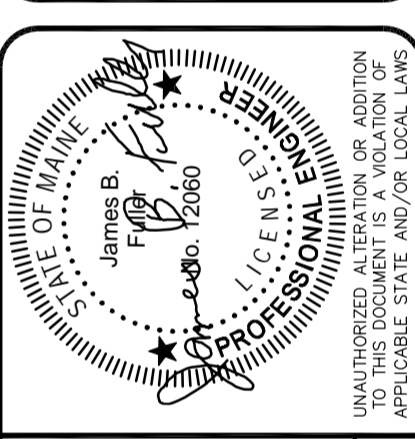
 — UE — UNDERGROUND ELECTRIC
 ELECTRIC SPLICE BOX
 ELECTRIC JUNCTION BOX
 — FIBER — UNDERGROUND FIBER OPTIC
 FIBER OPTIC SPLICE BOX
 PADMOUNT TRANSFORMER
 GRAPHIC SCALE

 (IN FEET)
 1 inch = 100 ft.


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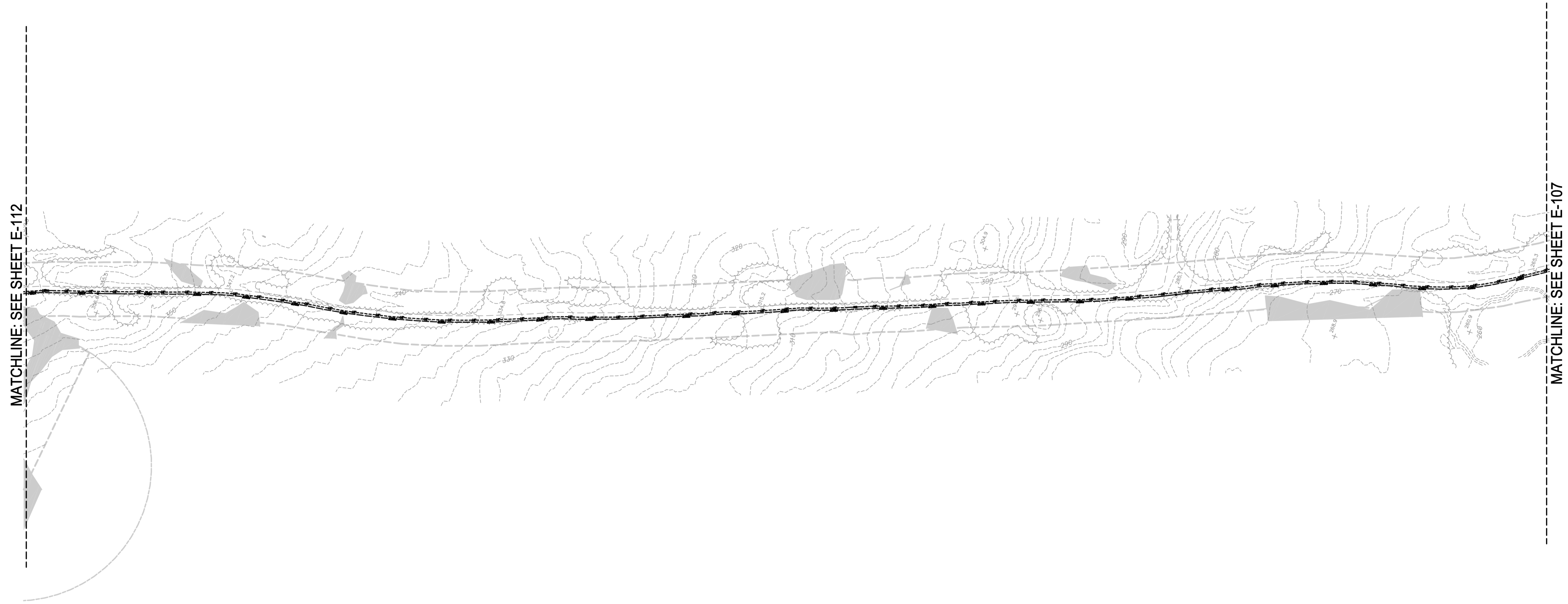
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HANCOCK WIND PROJECT
 ELECTRICAL COLLECTOR SYSTEM
 Issue Date: 12/20/12 Project No.: 24709 Scale: AS NOTED

E-110

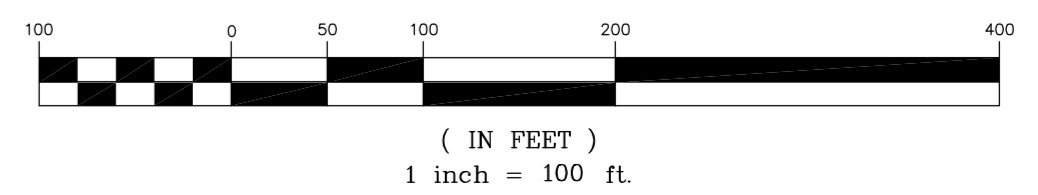


MATCHLINE: SEE SHEET E-112

MATCHLINE: SEE SHEET E-107

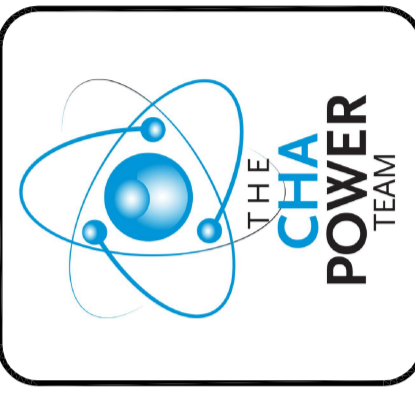
- UE — UNDERGROUND ELECTRIC
- ☒ ELECTRIC SPLICE BOX
- ☒ ELECTRIC JUNCTION BOX
- FIBER — UNDERGROUND FIBER OPTIC
- ☒ FIBER OPTIC PULL BOX

GRAPHIC SCALE

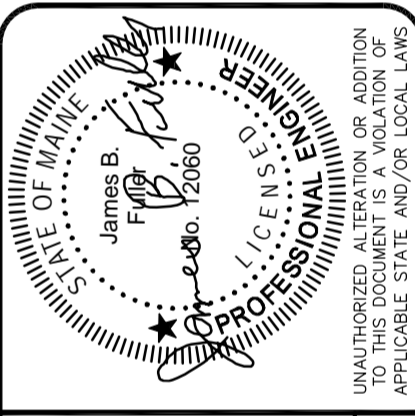



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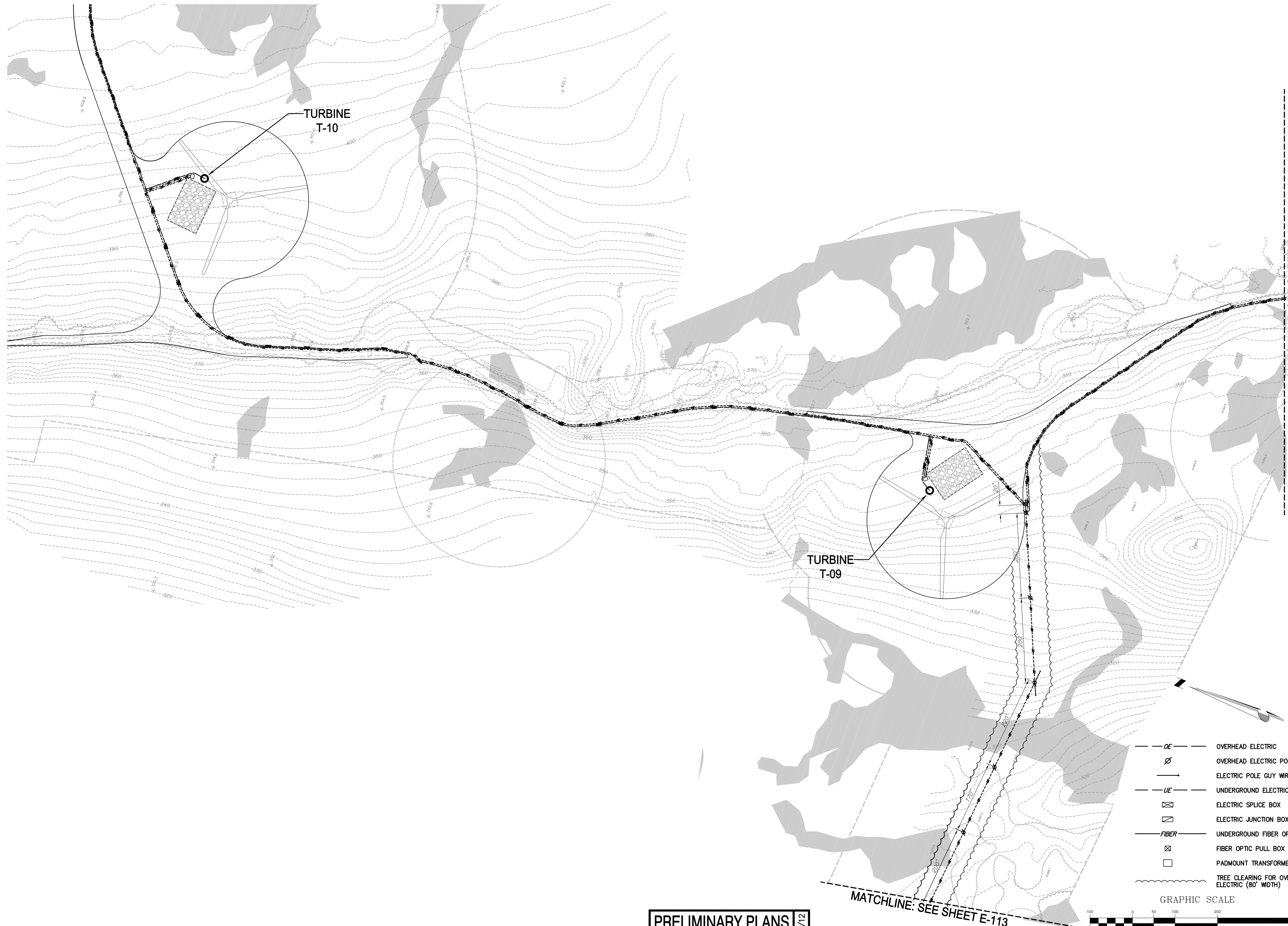



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E-111

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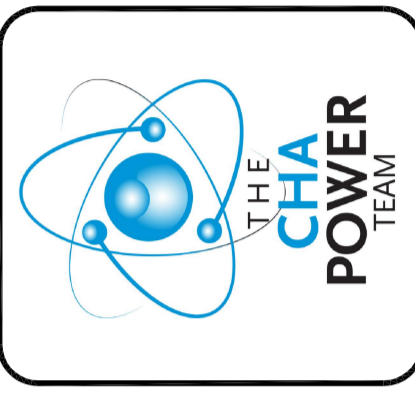
MATCHLINE: SEE SHEET E-113

	OVERHEAD ELECTRIC
	OVERHEAD ELECTRIC POLE
	ELECTRIC POLE GUY WIRE
	UNDERGROUND ELECTRIC
	ELECTRIC SPLICE BOX
	ELECTRIC JUNCTION BOX
	UNDERGROUND FIBER OPTIC
	FIBER OPTIC PULL BOX
	PADMOUNT TRANSFORMER
	TREE CLEARING FOR OVERHEAD ELECTRIC (80' WIDTH)

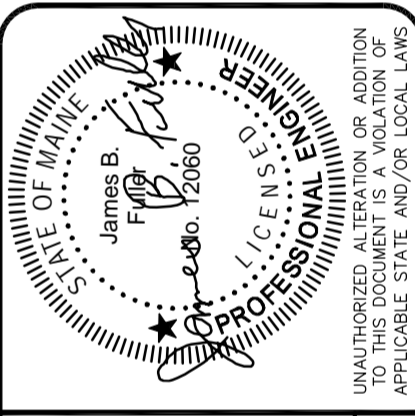
GRAPHIC SCALE
 (IN FEET)
 1 inch = 100 ft.

MATCHLINE: SEE SHEET E-111

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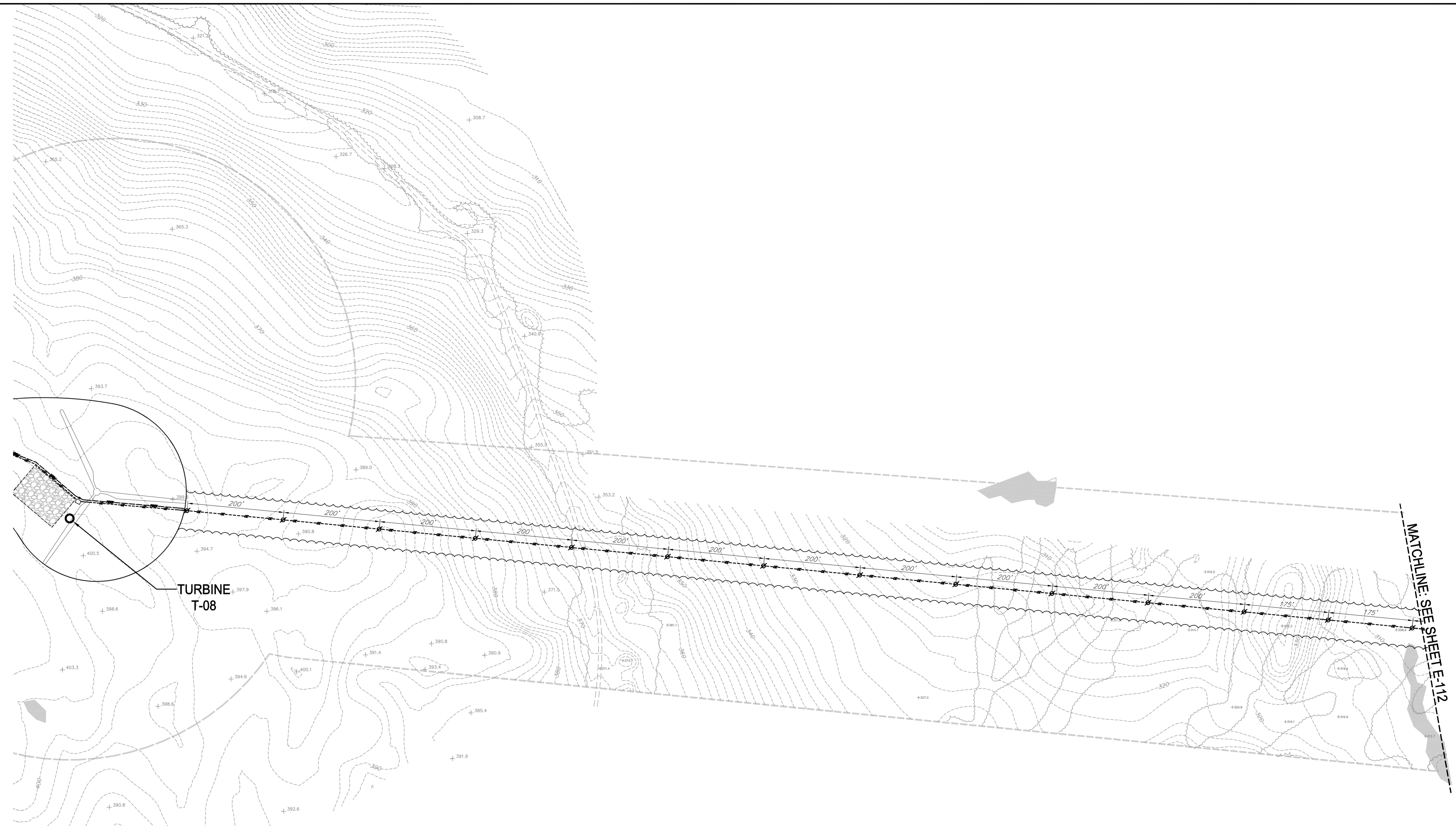
Designed: TJT | Drawn: TSH | Checked: JBF

HANCOCK WIND PROJECT
 ELECTRICAL COLLECTOR SYSTEM

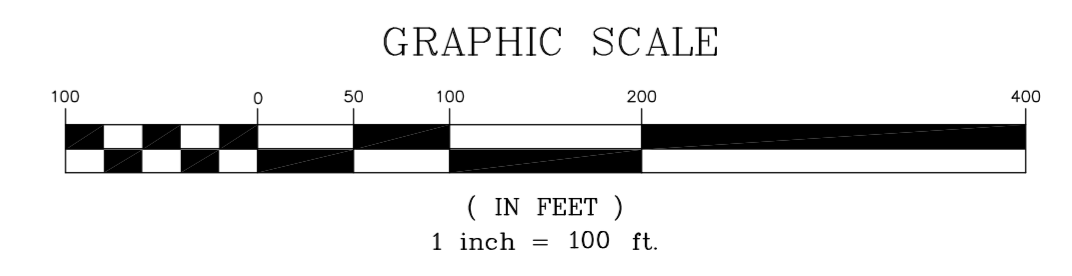
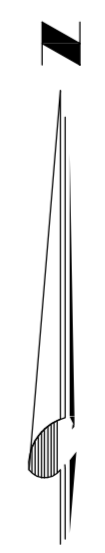
Issue Date: 12/20/12 | Project No.: 24709 | Scale: AS NOTED

E-112

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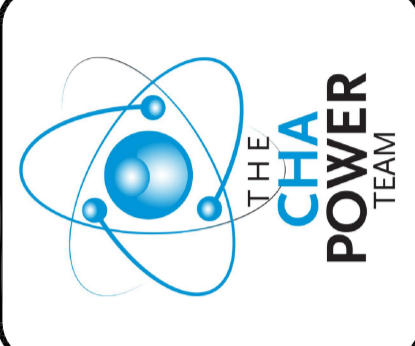


- OE — OVERHEAD ELECTRIC
- Ø OVERHEAD ELECTRIC POLE
- | — ELECTRIC POLE GUY WIRE
- UE — UNDERGROUND ELECTRIC
- ⊠ ELECTRIC SPLICE BOX
- ⊡ ELECTRIC JUNCTION BOX
- FIBER — UNDERGROUND FIBER OPTIC
- ⊠ FIBER OPTIC PULL BOX
- PADMOUNT TRANSFORMER
- ~~~~~ TREE CLEARING FOR OVERHEAD ELECTRIC (80' WIDTH)

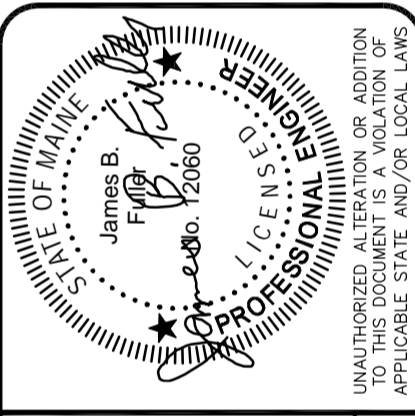



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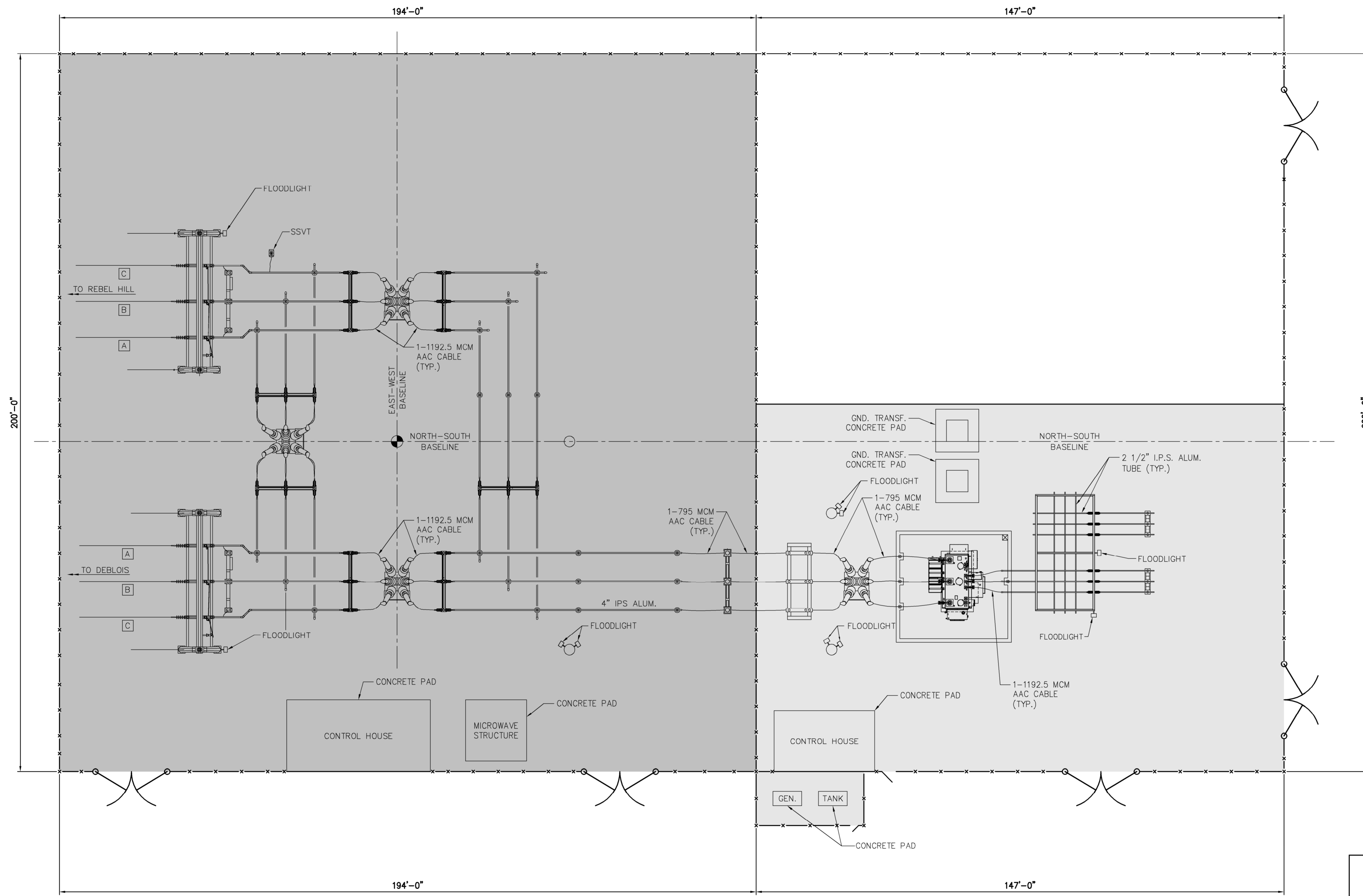



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 ELECTRICAL COLLECTOR SYSTEM
 Issue Date: 12/20/12 Project No.: 24709 Scale: AS NOTED

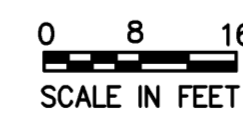
E-113

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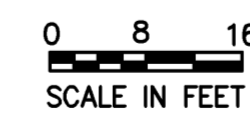
BULL HILL SWITCHYARD PLAN VIEW

SCALE: 1/16"=1'-0"



BULL HILL COLLECTOR SUBSTATION PLAN VIEW

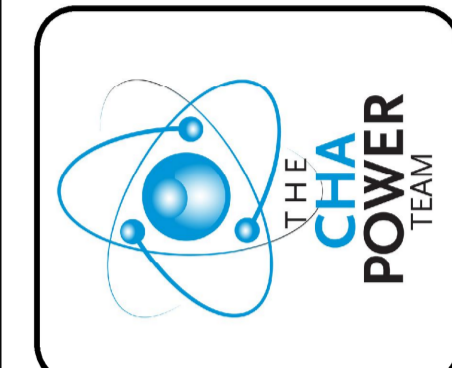
SCALE: 1/16"=1'-0"



- AREA FOR PROPOSED HANCOCK WIND COLLECTOR SUBSTATION
- EXISTING BULL HILL COLLECTOR SUBSTATION
- EXISTING BHE SWITCHYARD

**PRELIMINARY PLANS
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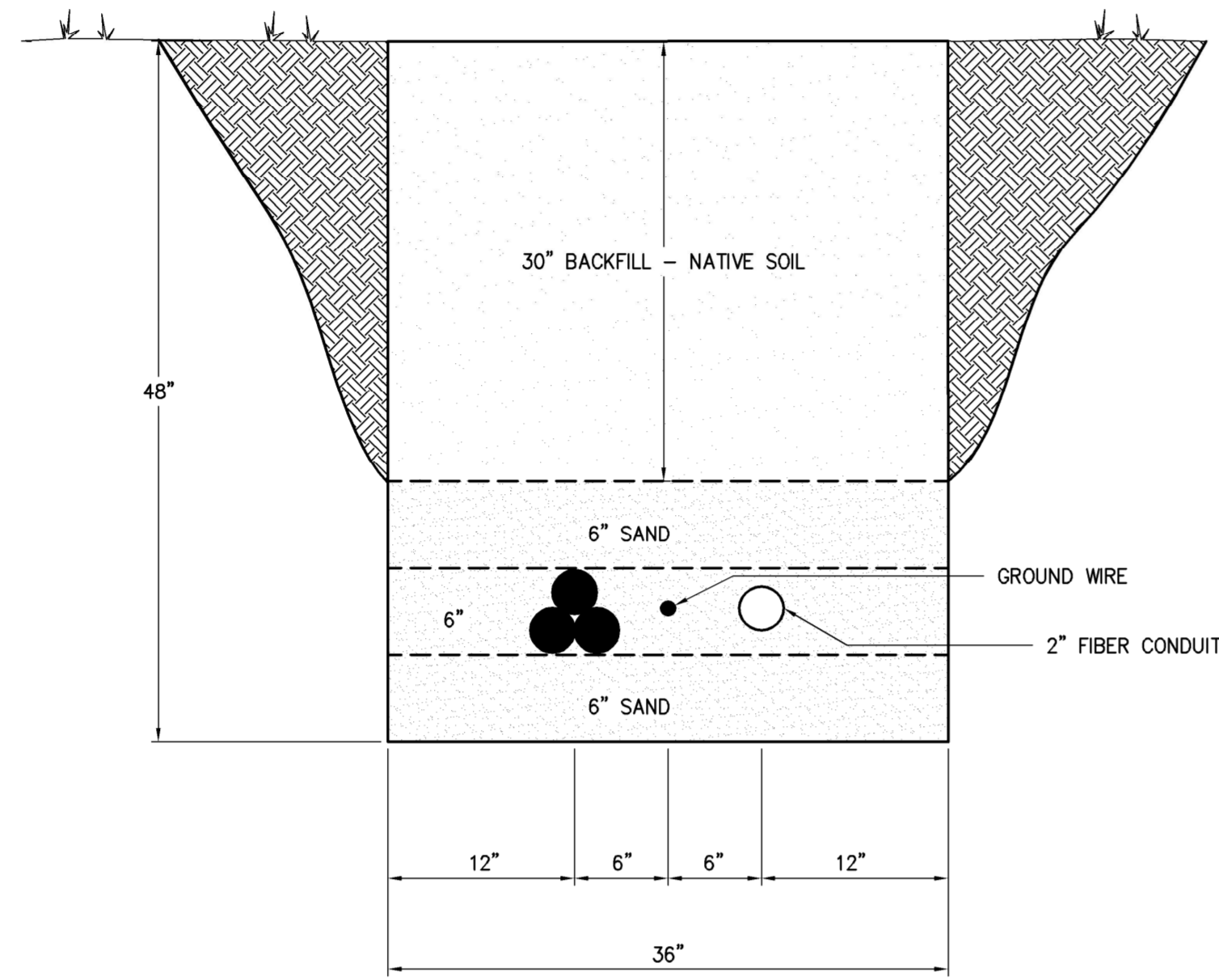


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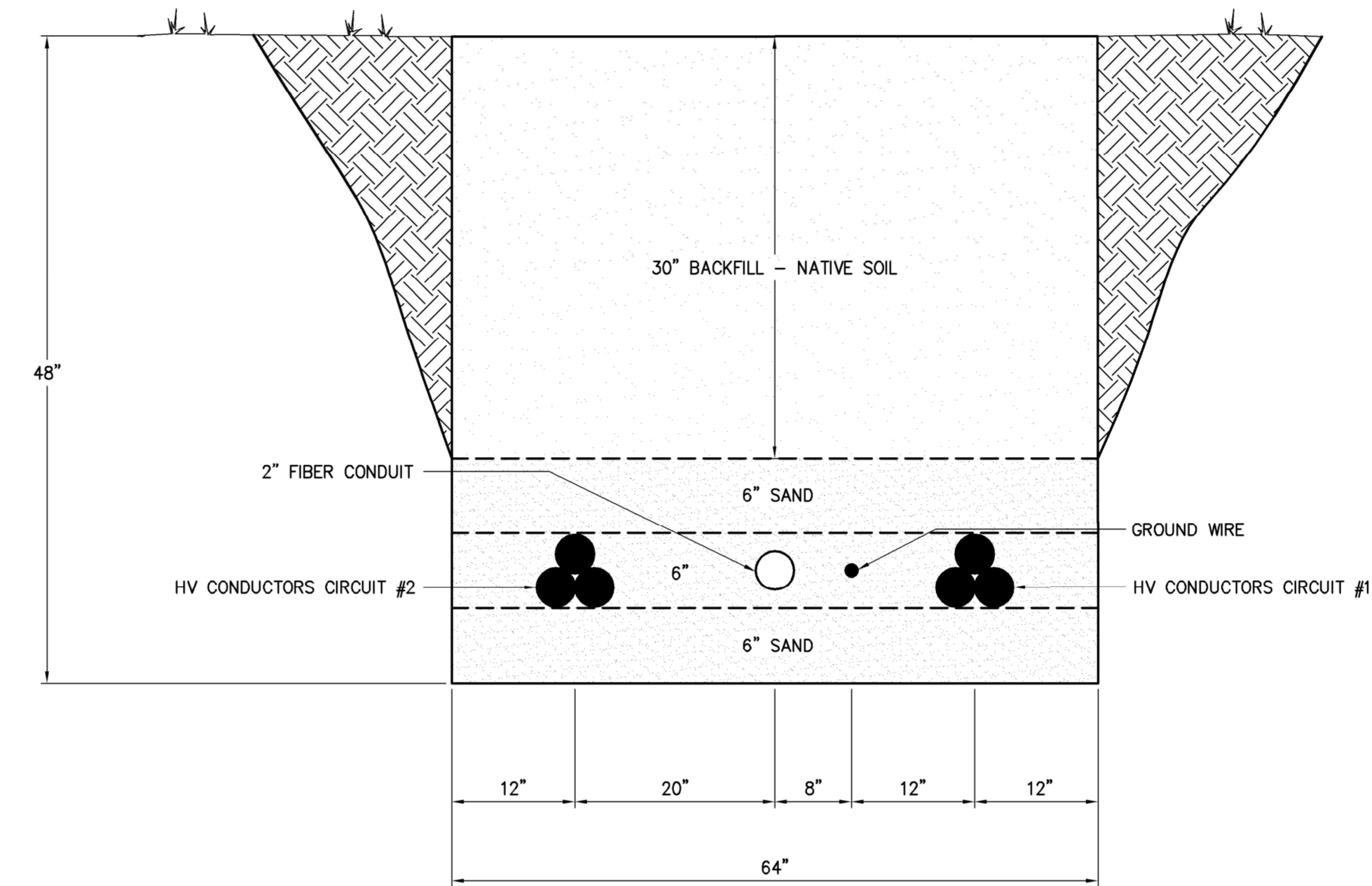
HANCOCK WIND PROJECT
PRELIMINARY SUBSTATION LAYOUT
 Issue Date: 12/20/12 Project No.: 24709 Scale: AS NOTED

E-601

File: V:\PROJECTS\WV\W3\24799\CADD\ACAD\E-701 DIRECT BURIAL TRENCH DETAILS.DWG
 Saved: 12/14/2012 3:36:55 PM Plotter: 12/19/2012 2:45:26 PM User: tocosino, jberner, LoriStevellby, 3995



1 TYPICAL DIRECT BURIAL TRENCH DETAIL – SINGLE CIRCUIT
 NOT TO SCALE



2 TYPICAL DIRECT BURIAL TRENCH DETAIL – TWO CIRCUITS
 NOT TO SCALE

NOTES FOR DIRECT BURIED CABLES AND CONDUITS

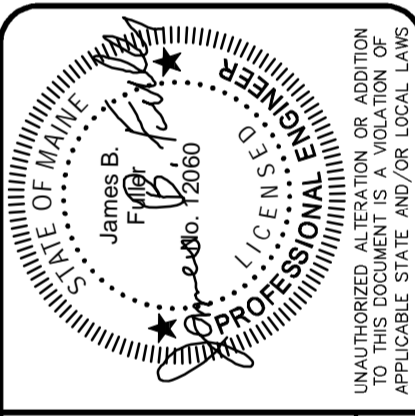
1. BACKFILL TRENCH AND ALLOW TO SETTLE. BACK BLADE TRENCH AFTER SEVERAL WEEKS AND RESTORE.
2. PROVIDE 6' WIDE DETECTABLE UNDERGROUND UTILITY MARKING TAPES, INSTALLED AT A DEPTH OF 28" DIRECTLY ABOVE THE ELECTRIC CABLES AND COMMUNICATIONS CONDUIT FOR THE ENTIRE LENGTH:
 - RED TAPE LABELED 'DANGER – BURIED HIGH VOLTAGE CABLE BELOW'
 - ORANGE TAPE LABELED 'CAUTION BURIED COMMUNICATION LINE BELOW'
3. A BEDDING OF 6" SAND SHALL BE USED AS A CUSHION FOR THE BOTTOM OF THE OPEN CABLE TRENCH. THE CABLE SURFACE SHALL BE COVERED WITH 6" OF SAND.
4. ELECTRIC CABLES SHALL BE INSTALLED DIRECT BURIED AT ALL LOCATIONS, EXCEPT AS NOTED OTHERWISE.
5. CABLE SHALL BE ARRANGED IN A TREFOIL CONFIGURATION AND TIE WRAPPED TOGETHER EVERY 6 FEET.
6. A STRANDED #4/0 AWC BARE COPPER GROUND WIRE SHALL BE INSTALLED, RUNNING ALONG THE MEDIUM VOLTAGE ELECTRIC CABLES. THE GROUND CABLE SHALL BE BONDED AT ALL SPLICES, JUNCTIONS AND TOWER GROUND GRIDS. ALL UNDERGROUND CONNECTIONS TO THE GROUND WIRE SHALL BE BY BURNDY HYGROUND COMPRESSION CONNECTIONS. THE GROUND WIRE IS TO BE INSTALLED OUTSIDE OF CONDUITS.
7. THE MINIMUM BENDING RADIUS FOR ALL TRENCHES SHALL BE 60'.
8. FIBER OPTIC COMMUNICATION CABLE SHALL BE INSTALLED IN 2" PVC CONDUIT WITH HANDHOLES SPACED APPROXIMATELY EVERY 1,000 FEET APART. MAINTAIN 12" SEPARATION BETWEEN 35KV CABLES AND FIBER OPTIC.

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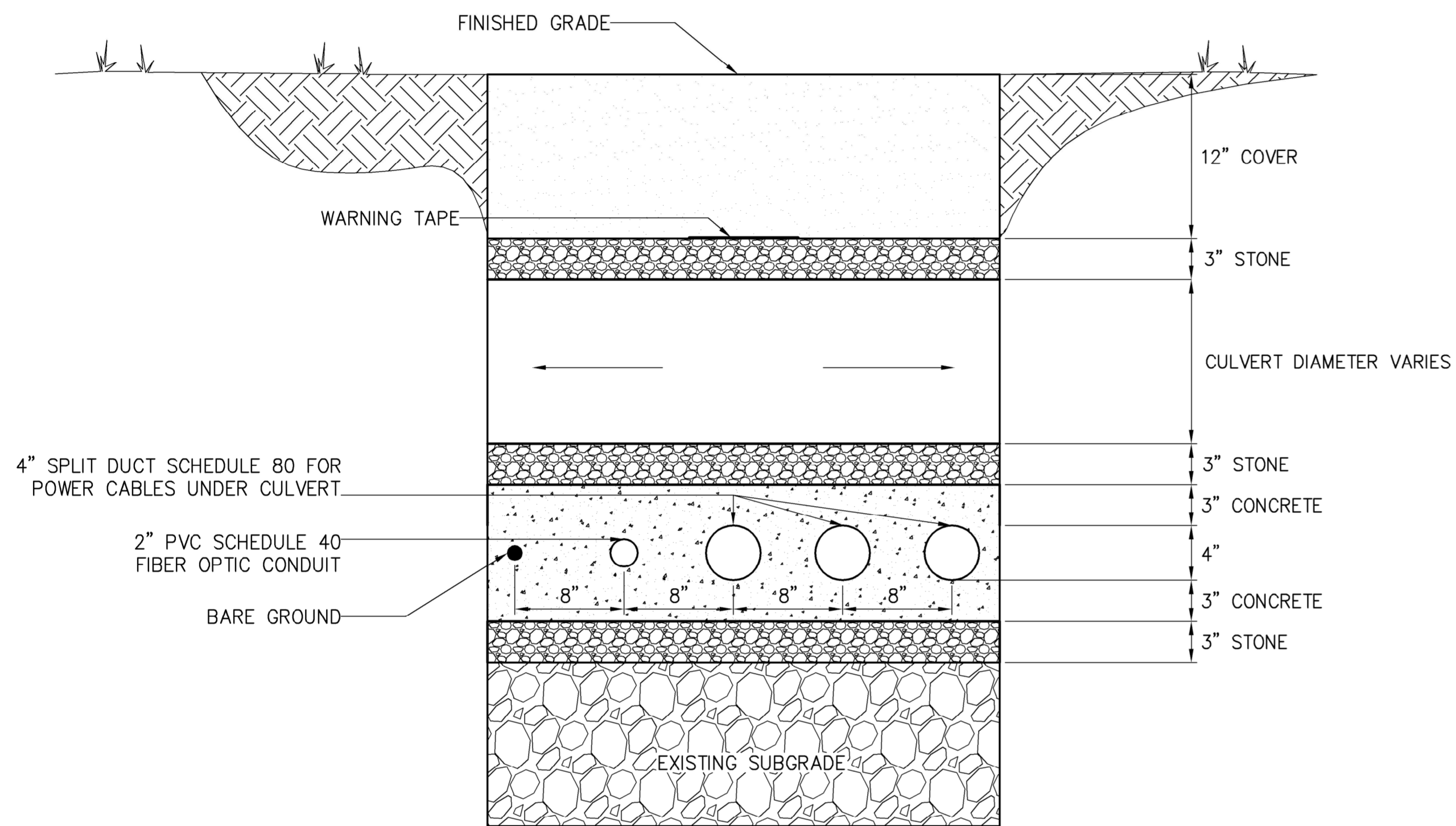
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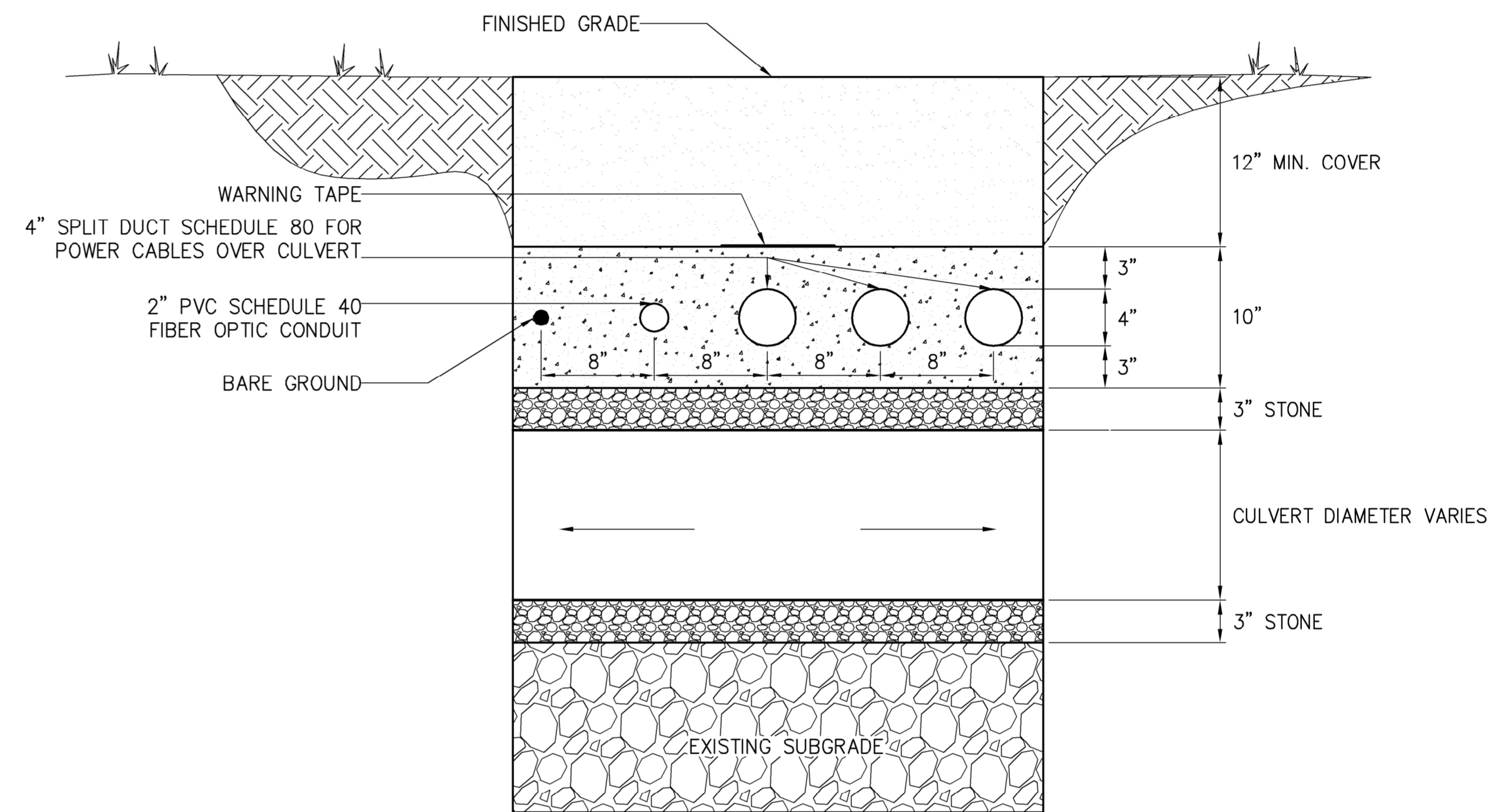
HANCOCK WIND PROJECT
 DIRECT BURIAL TRENCH DETAILS
 Issue Date: 12/20/12 | Project No.: 24709 | Scale: AS NOTED

E-701

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 Saved: 12/14/2012 3:32:34 PM Plotted: 12/19/2012 2:51:09 PM User: Tascimo, James, LastSavedBy: 3983



1 TYPICAL CABLE & CONDUIT CROSSING UNDER CULVERT DETAIL
 1 1/2" = 1'-0"



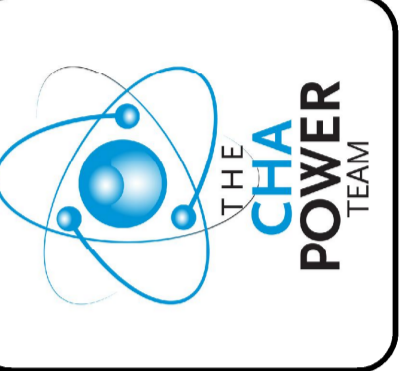
2 TYPICAL CABLE & CONDUIT CROSSING OVER CULVERT DETAIL
 1 1/2" = 1'-0"

NOTES:

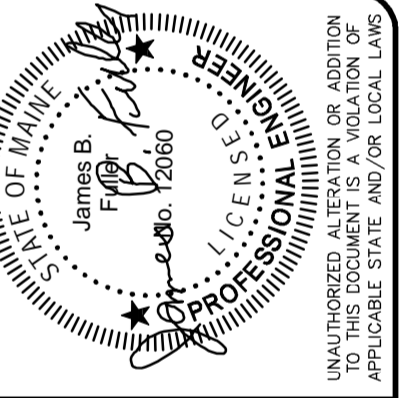
1. MAINTAIN 12" MINIMUM CLEAR DISTANCE FROM ALL FOREIGN SYSTEMS.

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HANCOCK WIND PROJECT
 CULVERT CROSSING CABLE TRENCH
 DETAILS

Issue Date: 12/20/12 | Project No.: 24709 | Scale: AS NOTED

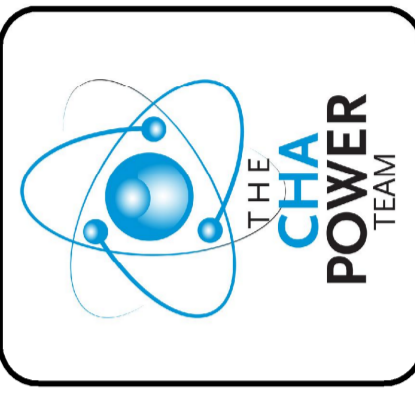
E-702

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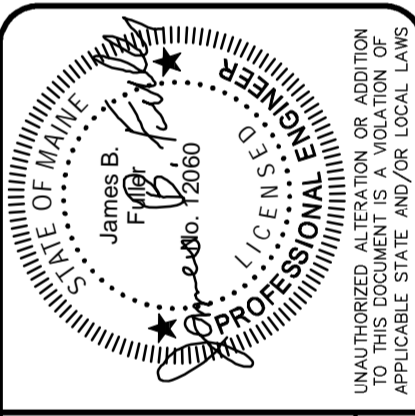
GENERAL NOTES

1. INSULATE ALL 34.5KV EQUIPMENT INCLUDING, BUT NOT LIMITED TO: JUMPERS, SWITCHES, ARRESTORS, AND DEAD-ENDS.
2. TO THE EXTENT PRACTICABLE, STRUCTURES WILL BE DESIGNED WITH REFERENCE TO THE GUIDELINES SET FORTH IN THE AMIAN POWER LINE INTERACTION COMMITTEE DOCUMENT (APLIC) "SUGGESTED PRACTICES FOR AMIAN PROTECTION ON POWER LINES: THE STATE OF THE ART IN 2006"

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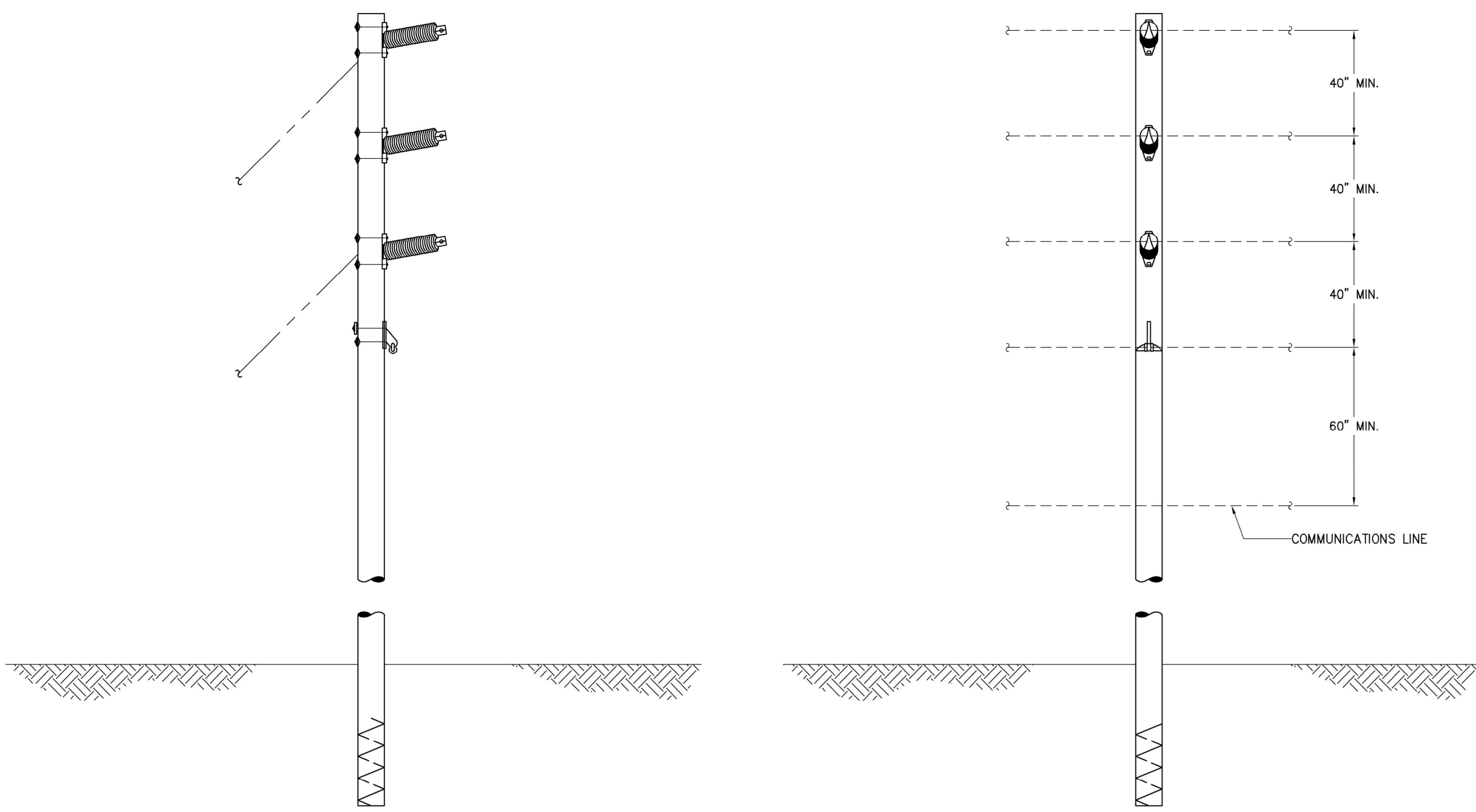
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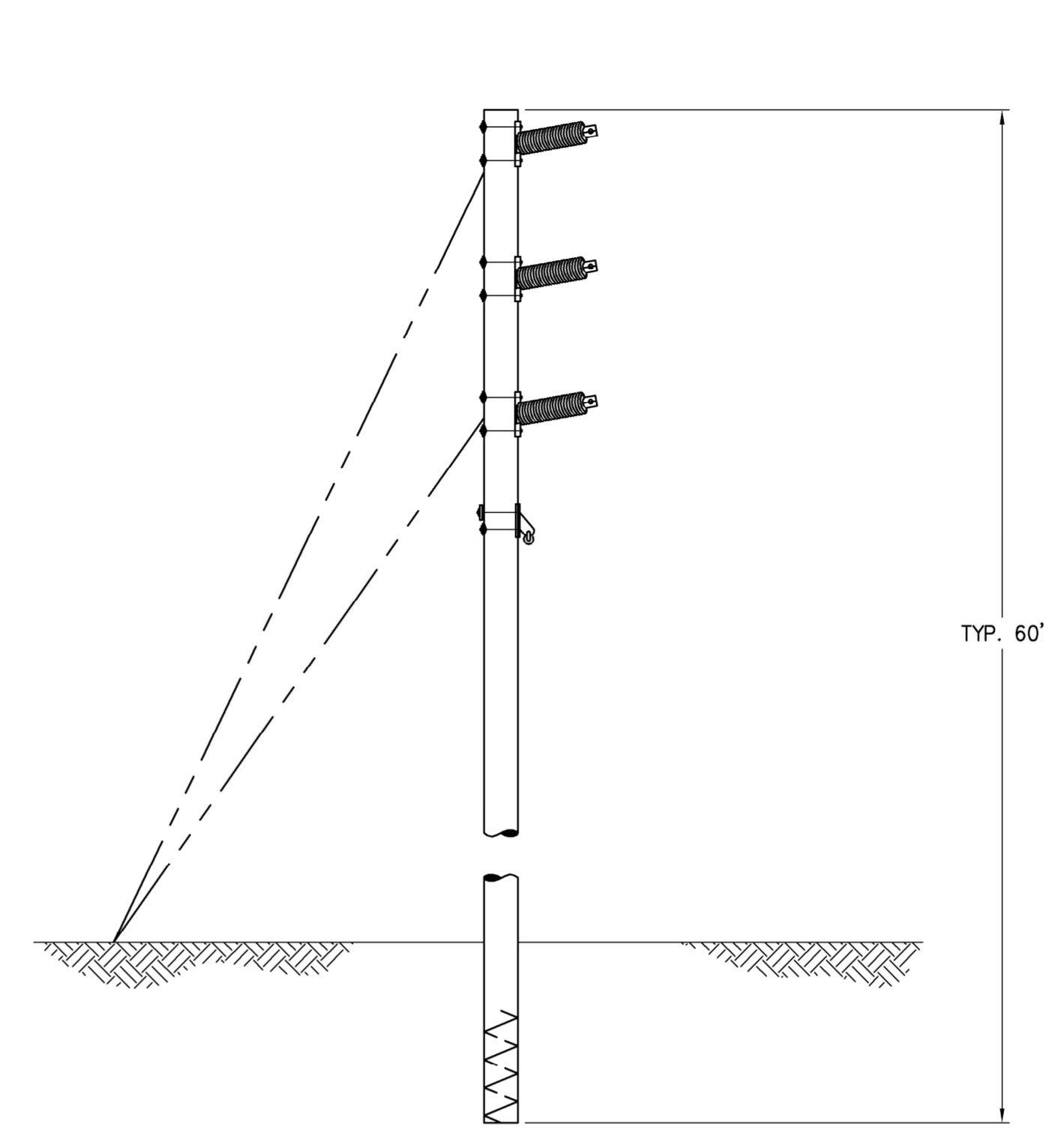
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HANCOCK WIND PROJECT
 TRANSMISSION LINE POLE
 DETAILS
 Issue Date: 12/20/12 Project No.: 24709 Scale: AS NOTED

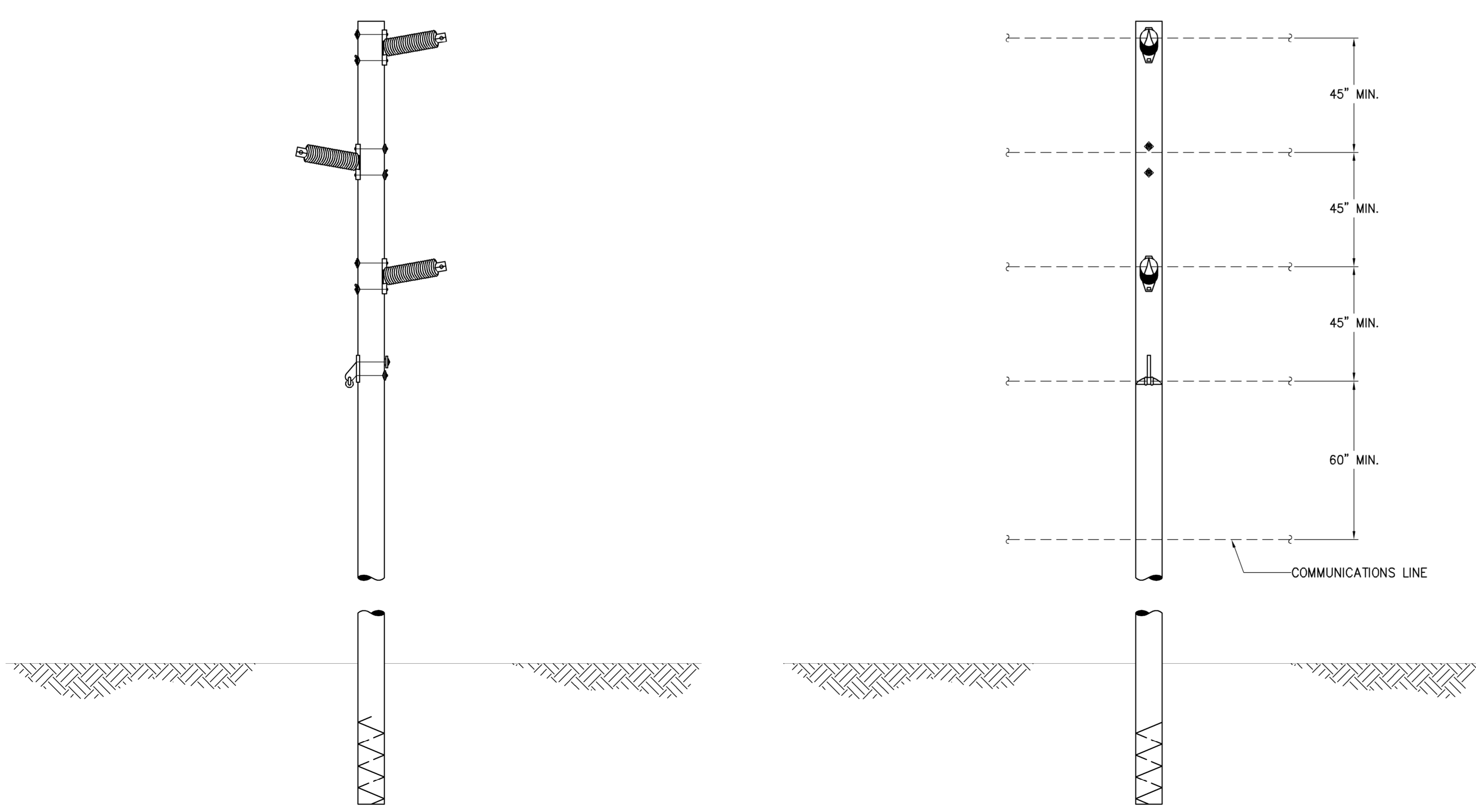
E-703



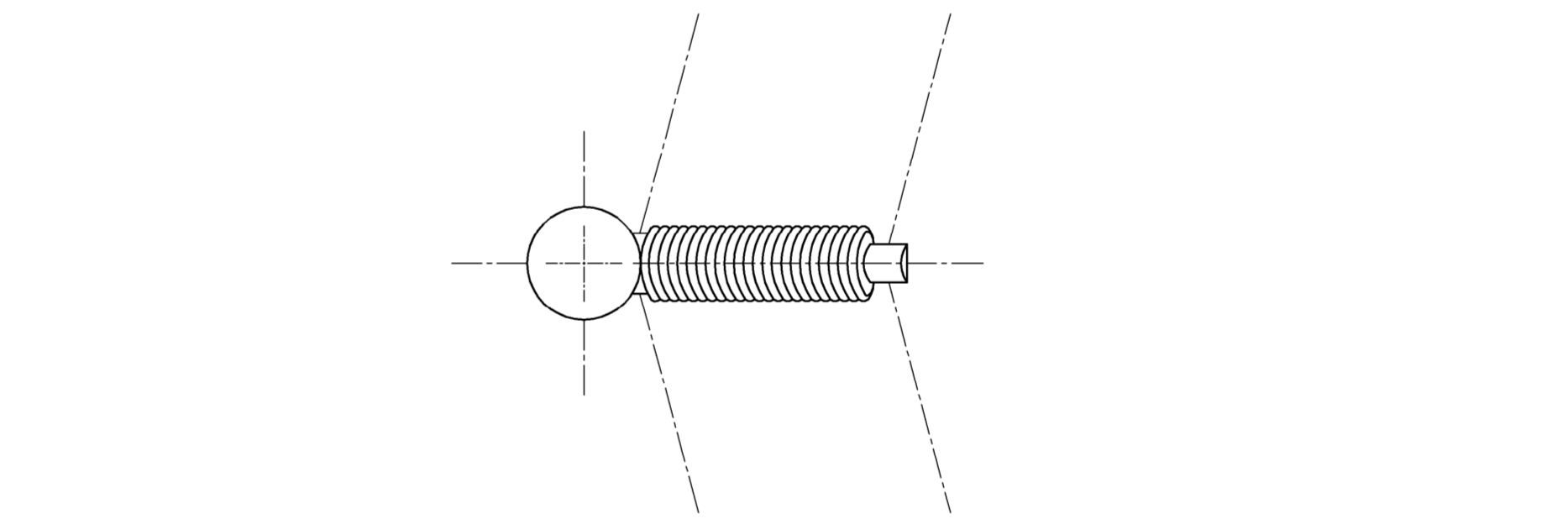
1 TYPICAL SMALL ANGLE HORIZONTAL LINE POLE (34.5kV) – ELEVATION VIEW
 NOT TO SCALE



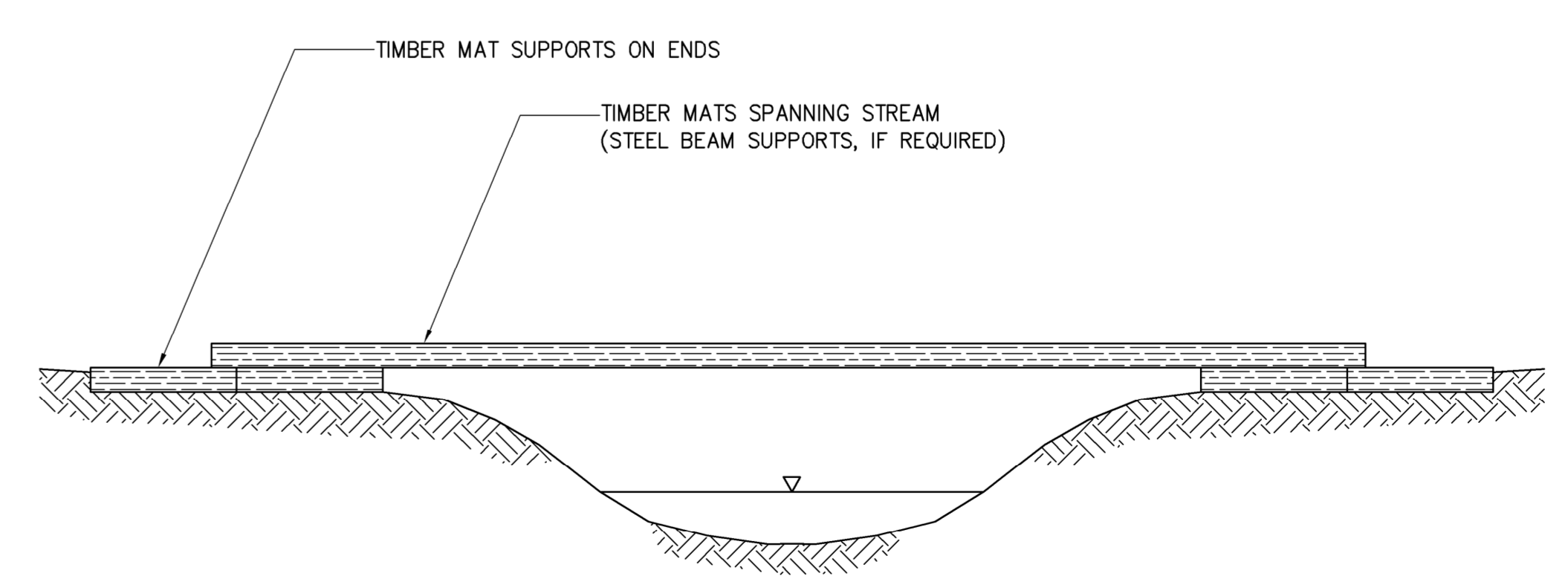
TYP. 60'



2 TYPICAL TANGENT HORIZONTAL LINE POLE (34.5kV) – ELEVATION VIEW
 NOT TO SCALE

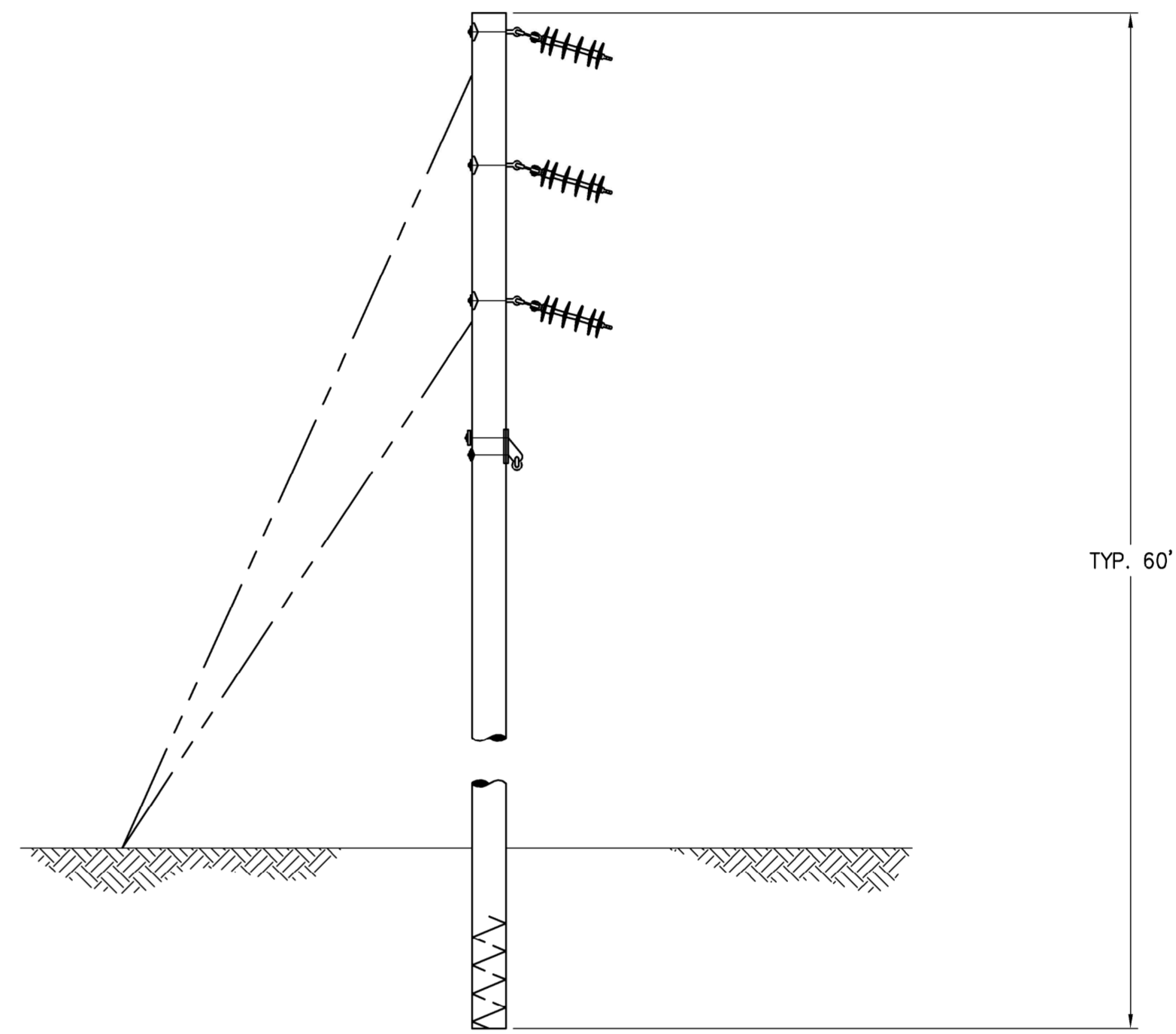
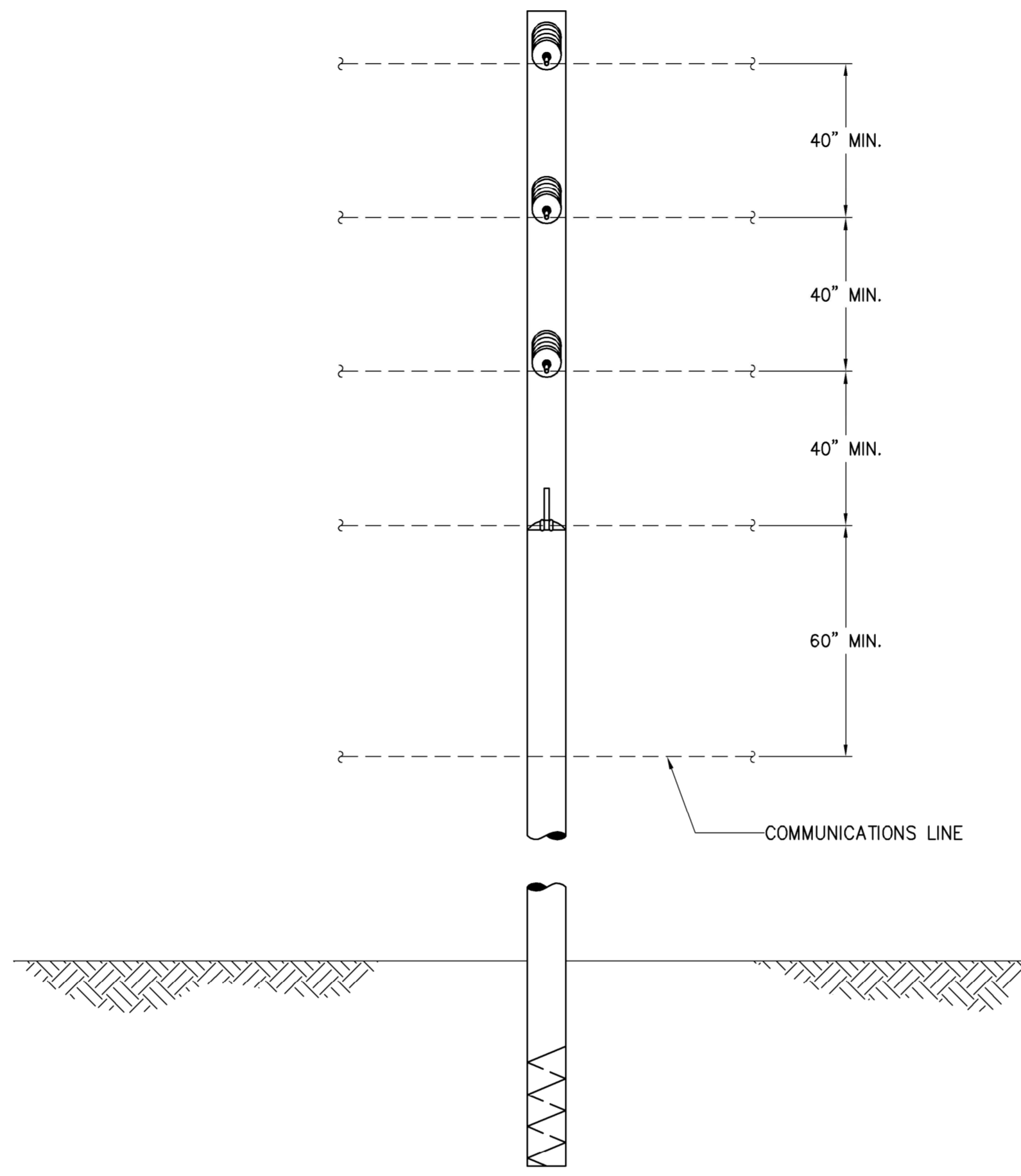
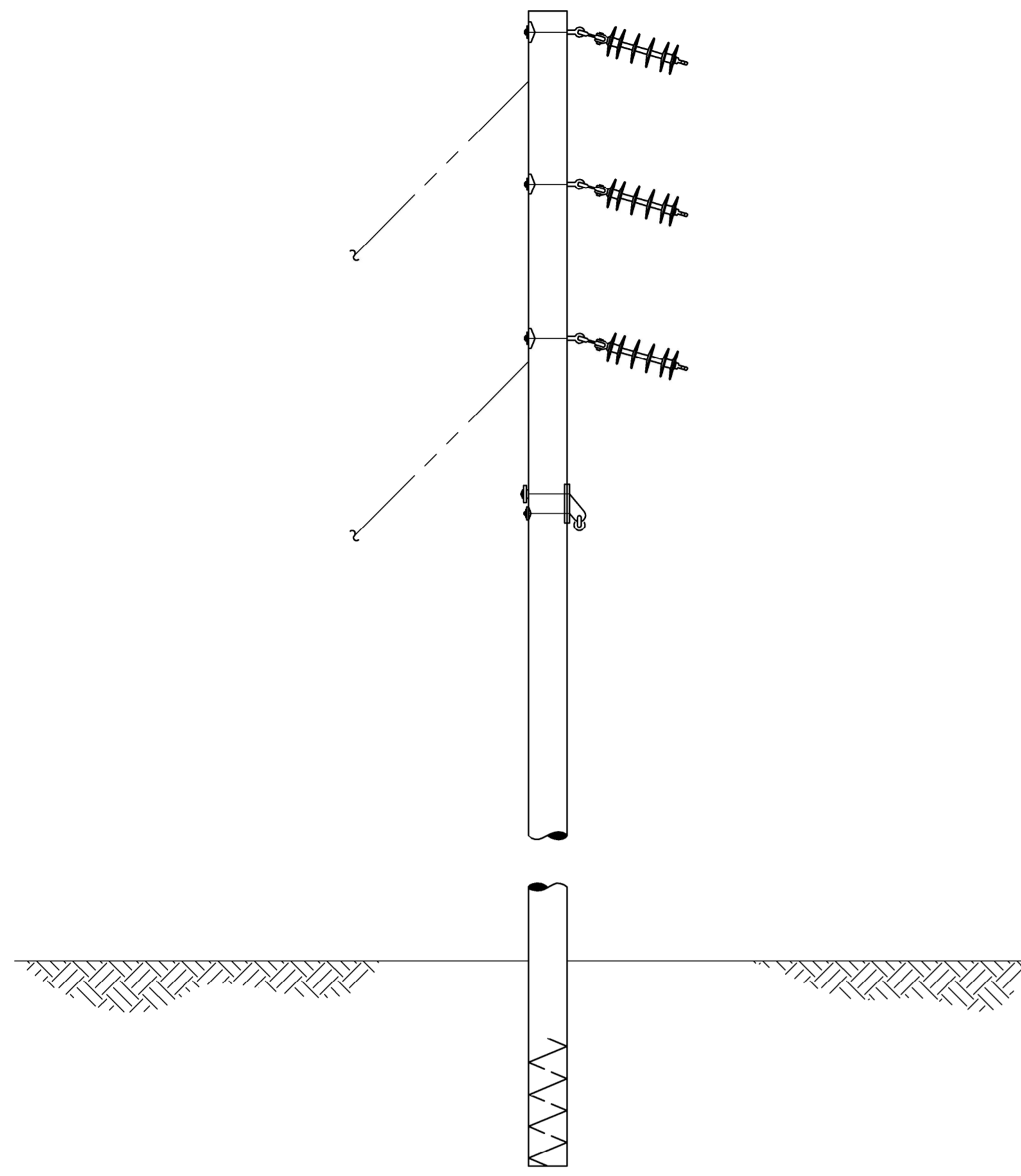


3 TYPICAL SMALL ANGLE HORIZONTAL LINE POLE (34.5kV) – PLAN VIEW
 NOT TO SCALE

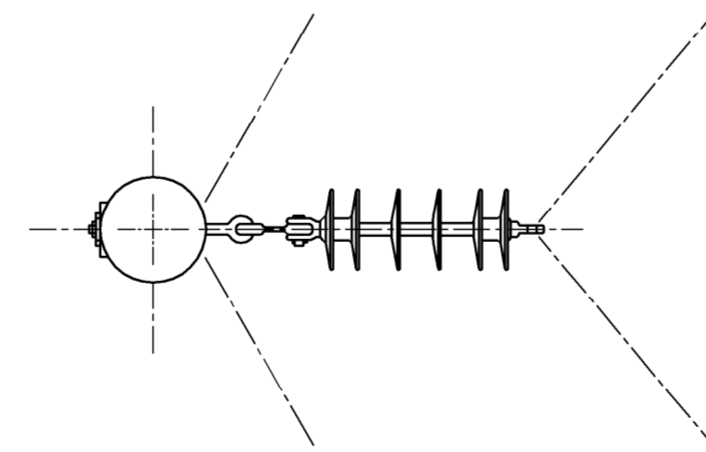


4 TYPICAL TIMBER MAT STREAM CROSSING
 NOT TO SCALE

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1 TYPICAL MEDIUM AND LARGE ANGLE POLE (34.5kV) – ELEVATION VIEW
 NOT TO SCALE

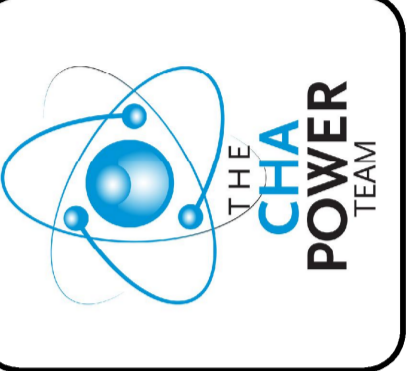


2 TYPICAL MEDIUM AND LARGE ANGLE POLE (34.5kV) – PLAN VIEW
 NOT TO SCALE

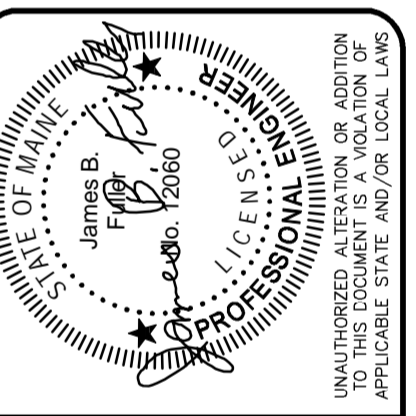
GENERAL NOTES

- INSULATE ALL 34.5KV EQUIPMENT INCLUDING, BUT NOT LIMITED TO: JUMPERS, SWITCHES, ARRESTORS, AND DEAD-ENDS.
- TO THE EXTENT PRACTICABLE, STRUCTURES WILL BE DESIGNED WITH REFERENCE TO THE GUIDELINES SET FORTH IN THE AMAN POWER LINE INTERACTION COMMITTEE DOCUMENT (APLIC) "SUGGESTED PRACTICES FOR AVIAN PROTECTION ON POWER LINES: THE STATE OF THE ART IN 2006"

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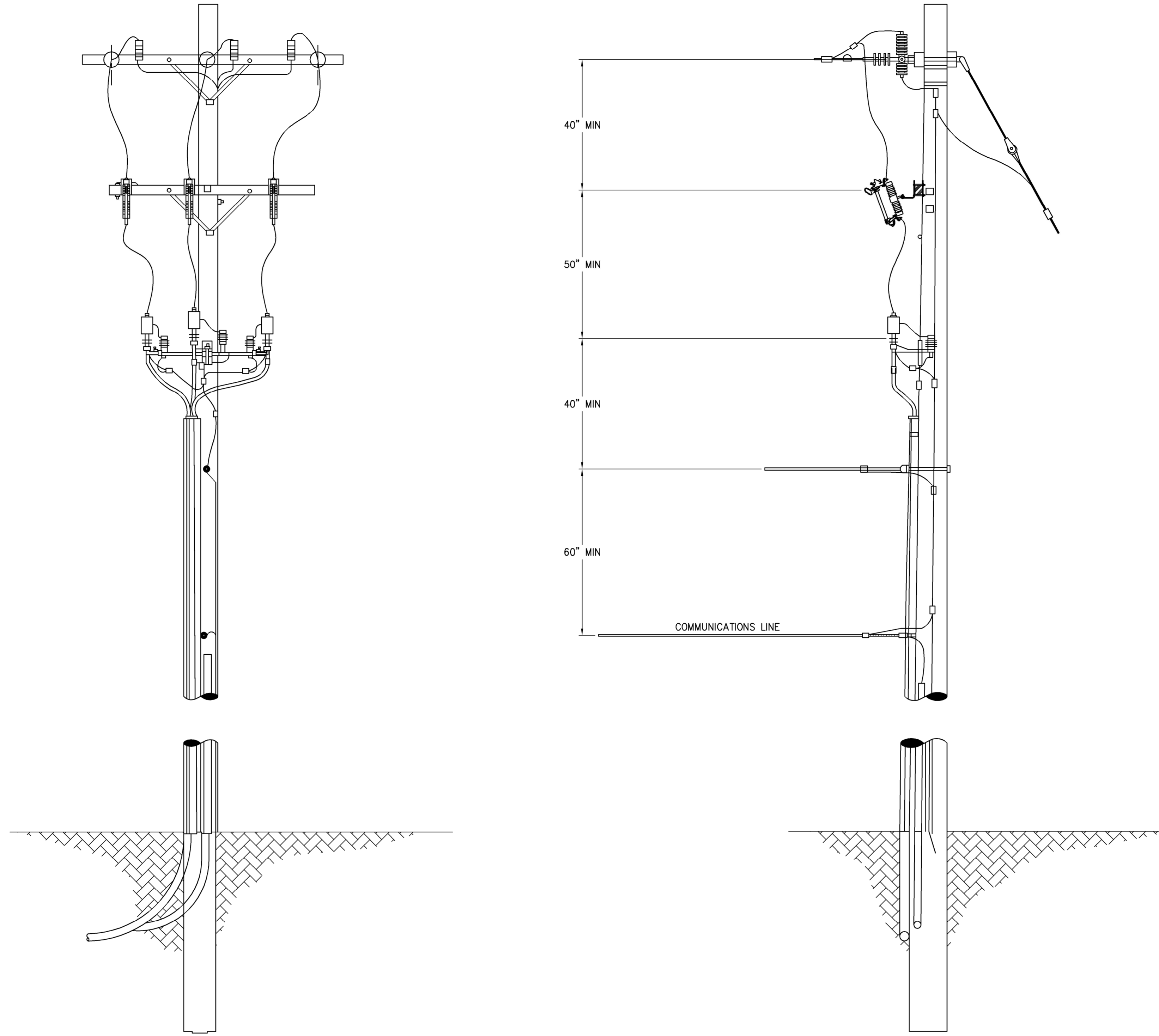


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 TRANSMISSION LINE POLE
 DETAILS
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 Designed: TJT | Drawn: JDT | Checked: JBF

**PRELIMINARY PLANS
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E-704

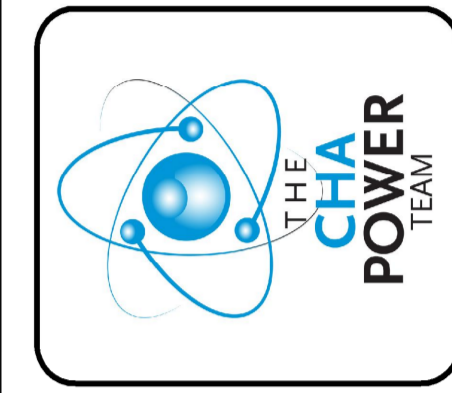


1 TYPICAL RISER POLE DETAILS (34.5kV)
 NOT TO SCALE

- GENERAL NOTES**
1. INSULATE ALL 34.5KV EQUIPMENT INCLUDING, BUT NOT LIMITED TO: JUMPERS, SWITCHES, ARRESTORS, AND DEAD-ENDS.
 2. TO THE EXTENT PRACTICABLE, STRUCTURES WILL BE DESIGNED WITH REFERENCE TO THE GUIDELINES SET FORTH IN THE AVIAN POWER LINE INTERACTION COMMITTEE DOCUMENT (APLIC) "SUGGESTED PRACTICES FOR AVIAN PROTECTION ON POWER LINES: THE STATE OF THE ART IN 2006"

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RISER POLE DETAILS

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E-705