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INTRODUCTION

West River Electric Association (WREA) is providing this handbook of service specifications and drawings. This handbook is intended to be used when bidding, installing, or upgrading service entrances in WREA service territory. If specifications cannot be followed, then prior approval shall be obtained from WREA before proceeding.

This handbook does not take precedence or redefine requirements in any Codes. Please consult with authority having jurisdiction in project area for compliance requirements. All installations shall comply with NEC, NESC, and any applicable codes.

WREA may update this booklet as deemed necessary at any time. For questions, please contact the staking personnel in the Rapid City office.

Last updated 01/01/2025

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West River Electric Association

Service can be started after these items are completed by Member/Contractor

- Provide service description and information (i.e. pump, irrigation, seasonal, residential, commercial, type of heat, demand controller, etc.)
- Provide service requirements including voltage, amperage and number of phases
- Provide 911 address of new service
- Provide courthouse copy of plat and deed for service location
- If crossing neighbor's property, provide courthouse copy of neighbor's plat and deed
- Complete WREA new service application and new membership form
- Provide a photo ID
- Complete signatures on all required easements
- Complete and sign "Line Extension Agreement"
- Make applicable payments such as service charge, line extension costs, or aid of construction
- Pay either a deposit or have good credit reference with another utility or acceptable credit per a credit bureau check
- Remove trees or vegetation required by WREA
- Contact other utilities and coordinate installation of other utilities with WREA
- Contact SD One Call, 811 or 1-800-781-7474
- Supply approved trench, bedding, and backfill at appropriate times
- Inspection or wiring permit
- Wiring certificate and permit for temporary service at WREA office

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DATE
01/25

MEMBER/CONTRACTOR NEW SERVICE
CHECKLIST



**West River Electric
Association, Inc.**
Your Touchstone Energy® Cooperative

DRAWING NUMBER
CHECK-1

PERMANENT SERVICE REQUIREMENTS

This list applies to all PERM drawings on the following pages:

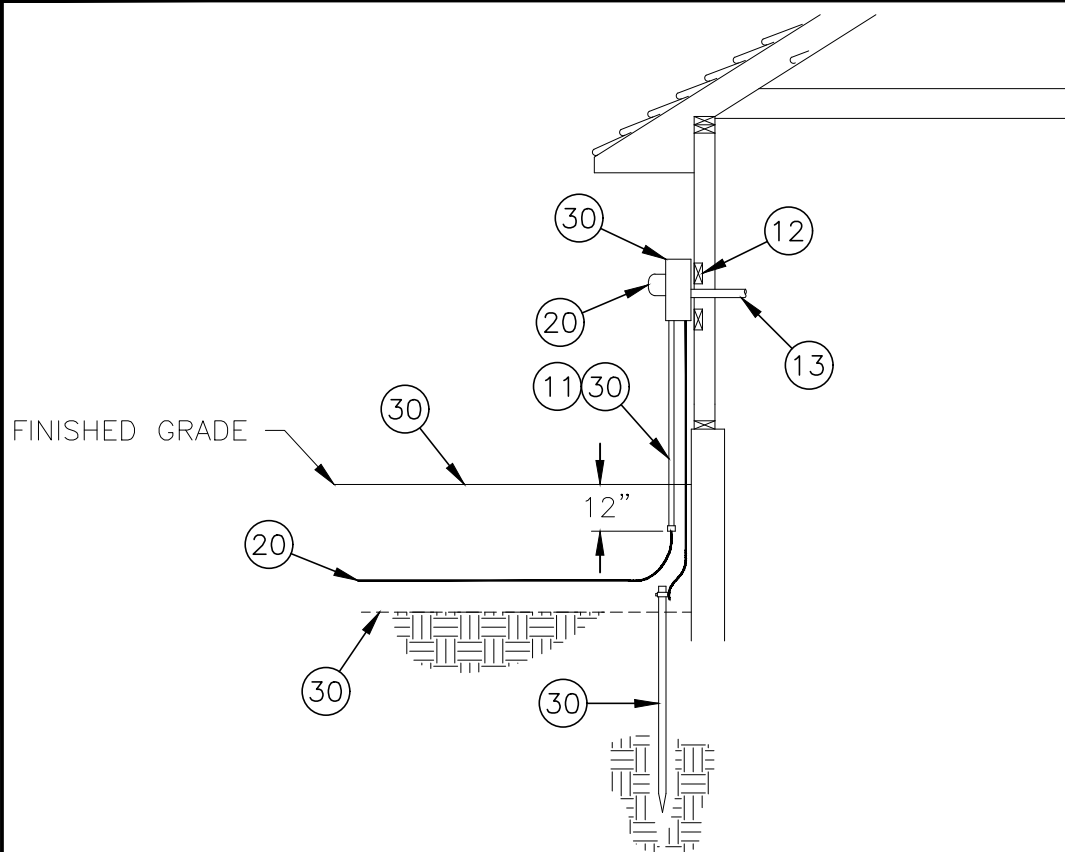
1. Member/Contractor new service checklist in this booklet completed
2. Member/Contractor is urged to make early contact with WREA for permanent service.
3. WREA will connect the service after copy of the State wiring certificate and/or City inspection is on file.
4. Permanent service location shall be determined and approved by WREA staking personnel and will vary depending on multiple factors.
5. Permanent service shall be located where the meter will be protected from damage.
6. Equipment shall be located according to clearance requirements found in this booklet. Should relocation be necessary, the cost shall be the responsibility of the Member/Contractor.
7. Member/Contractor owned metering equipment, switching devices, conduits, conductors, luminaries, etc. shall not be mounted to WREA poles.
8. Three phase services will, at the option of WREA, be CT metered provided by Contractor/Member.
9. Overhead permanent services shall be supported on a WREA approved pole, wall, or structure. The maximum service drop length from WREA's pole to the service will be dependent upon conductor size. Consult WREA's staking department to determine the maximum distance.
10. Standard voltage is 120/240V for single phase and 120/208V or 277/480V for three phase.
11. No delta connected three phase services are allowed
12. For the following drawings, a number in a bubble "##" references to the note at the bottom of the page.

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REQUIREMENTS
PERMANENT SERVICE REQUIREMENTS



DRAWING NUMBER PERM-1



NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. If paved area is adjacent to building foundation, the conduit must be installed beyond the pavement. All elbows shall be long sweep variety.
11. WREA will flag route for secondary trenching for Member/Contractor to provide.
12. Adequate framing for anchoring meter can to structure. Minimum 2 horizontal 2x4 blocks installed behind sheathing as shown.
13. Connection to Member/Contractor panel from bottom lugs in the meter can
14. Underground service line shall be backfilled before energizing service

20. WREA will furnish and install:
 - a. Meter
 - b. Secondary wire from WREA transformer to meter

30. Member/Contractor shall furnish and install
 - a. Meter can and mounting
 - b. Grounding with driven ground rod
 - c. All service conduit 3" minimum schedule 80 with slip sleeve
 - d. Trench, clean backfill, and conduit as required in this handbook

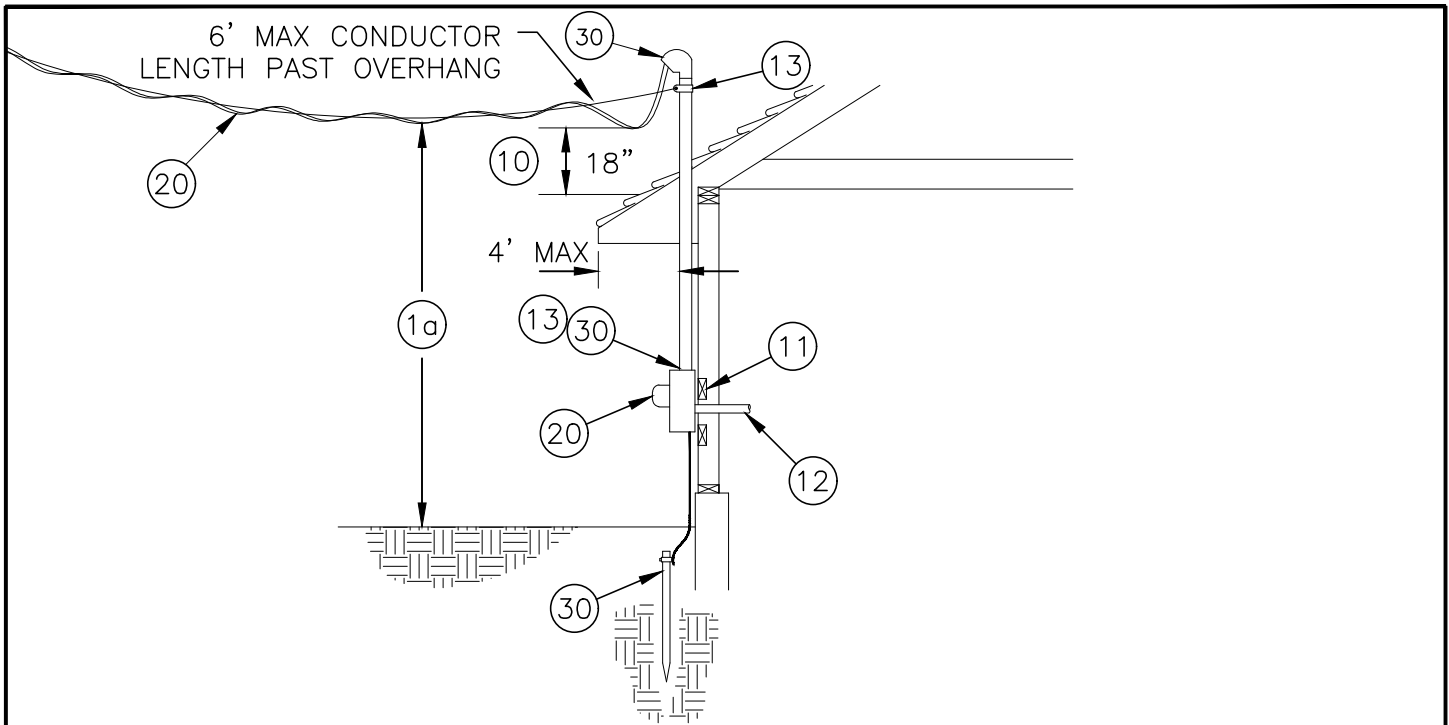
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0-320 AMP UNDERGROUND
PERMANENT SERVICE



DRAWING NUMBER
PERM-2



(NOT TO SCALE)

NOTES:

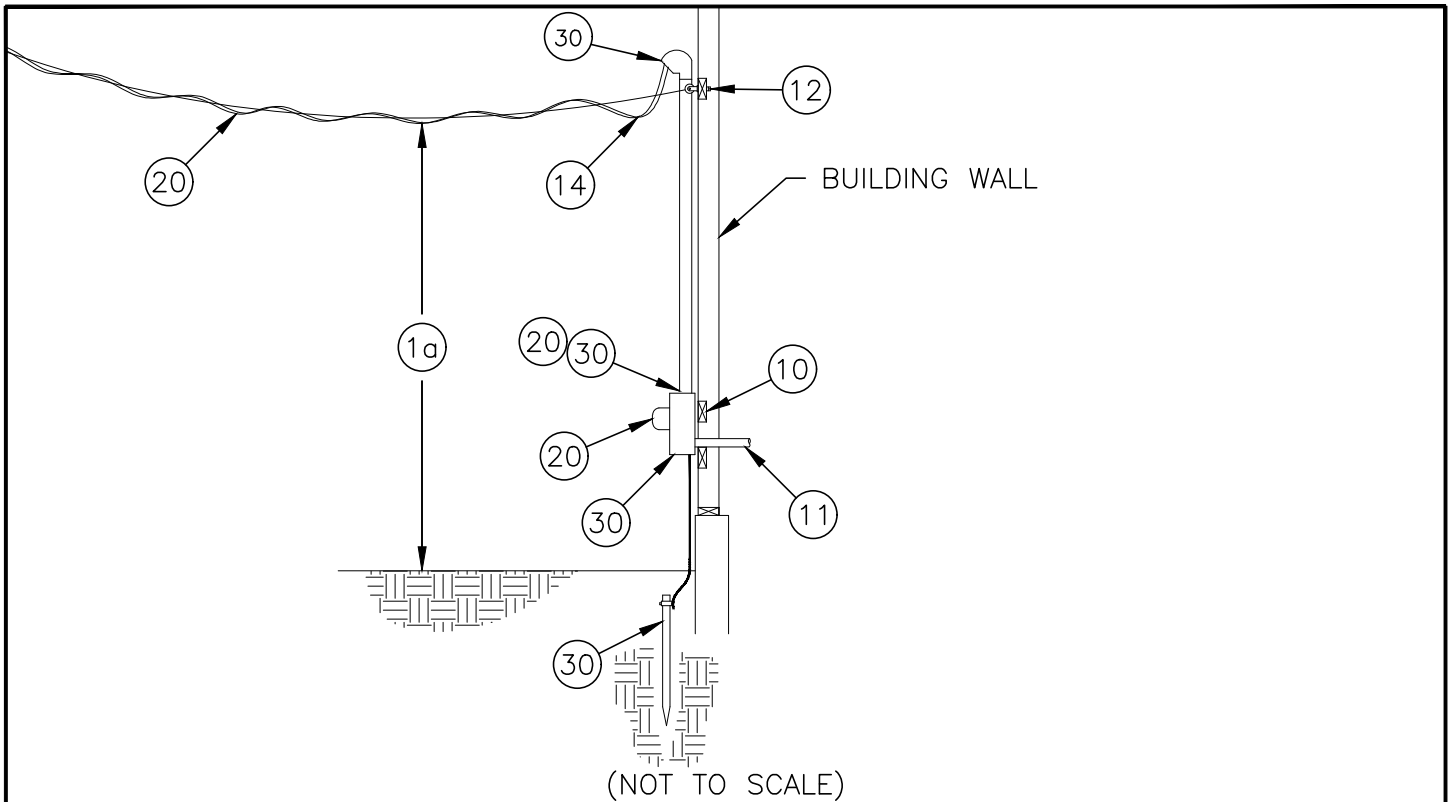
1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER

10. Cable drip loop must be at least 18" above roof when installed above an overhang roof penetration. Conductors shall not exceed 6' in length and 4' horizontally past the overhang
11. Adequate framing for anchoring meter can to structure. Minimum 2 horizontal 2x4 blocks installed behind sheathing as shown.
12. Connection to Member/Contractor panel from bottom lugs in the meter can
13. Member/Contractor to provide 2" rigid galvanized steel conduit attachment of adequate strength below weatherhead and directly above hub identified for service entrance equipment with no conduit couplings

20. WREA will furnish and install:
 - a. Meter
 - b. Secondary wire from WREA transformer to mast/weatherhead

30. Member/Contractor shall furnish and install
 - a. Meter can and mounting
 - b. Grounding with driven ground rod
 - c. Weatherhead
 - d. All 2" steel service entrance conduit 2"
 - e. Wire in conduit with 18" of length outside of weatherhead

APPROVED BY MS DATE 01/25	0-320 AMP OVERHEAD PERMANENT SERVICE	 West River Electric Association, Inc. <small>Your Touchstone Energy® Cooperative</small>	DRAWING NUMBER PERM-3
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NOTES:

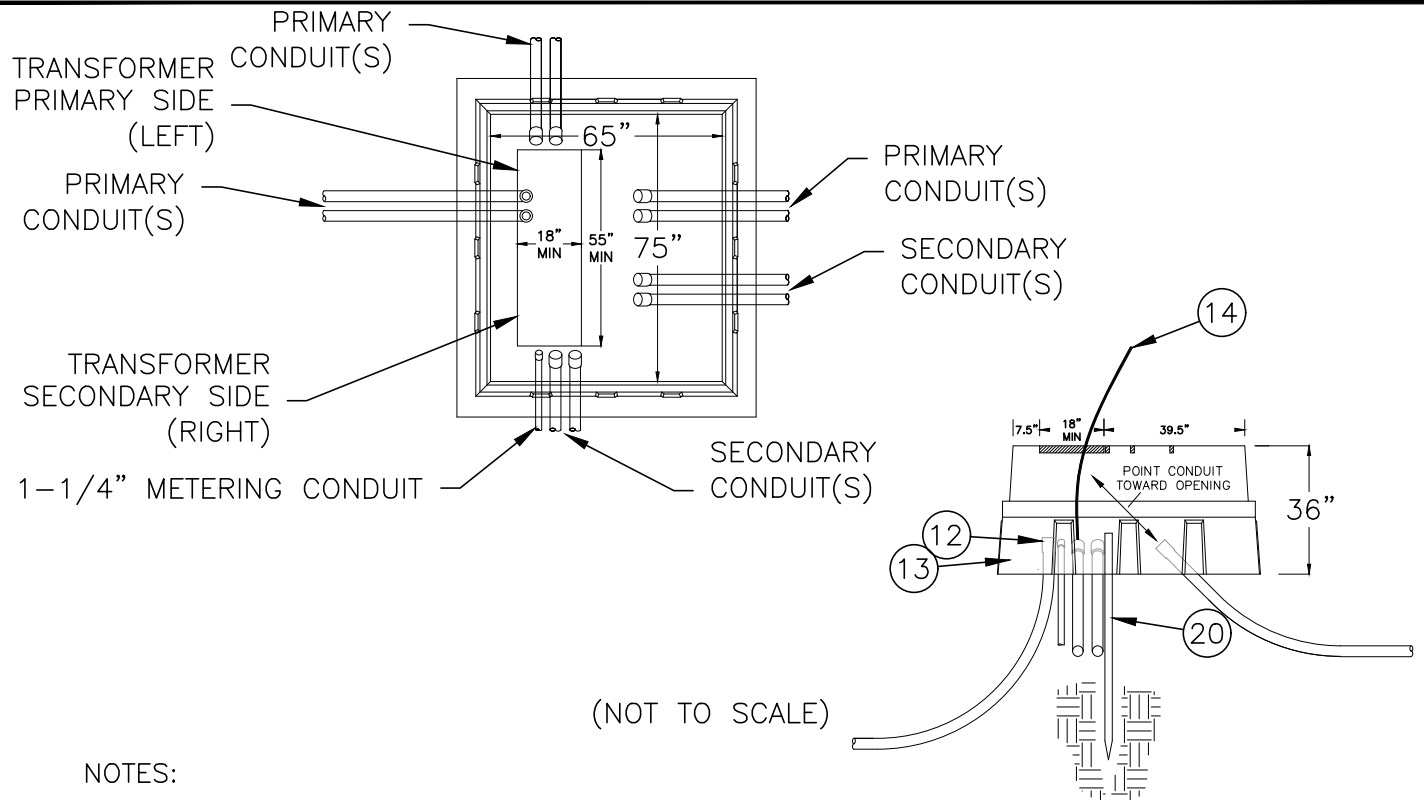
1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER

10. Adequate framing for anchoring meter can to structure. Minimum 2 horizontal 2x4 blocks installed behind sheathing as shown.
11. Connection to Member/Contractor panel from bottom lugs in the meter can
12. Member/Contractor to provide insulated deadend with 1/2" eye bolt that fastens with nut and washer inside structure
13. Weatherhead must be located above and within 12" of the point of attachment to the structure
14. Drip loop must be installed

20. WREA will furnish and install:
 - a. Meter
 - b. Secondary wire from WREA transformer to mast/weatherhead

30. Member/Contractor shall furnish and install
 - a. Meter can and mounting
 - b. Grounding with driven ground rod
 - c. Weatherhead
 - d. All 2" steel service entrance conduit 2"
 - e. Wire in conduit with 18" of length outside of weatherhead

APPROVED BY MS DATE 01/25	0-320 AMP OVERHEAD TO STRUCTURE PERMANENT SERVICE	 West River Electric Association, Inc. <small>Your Touchstone Energy® Cooperative</small>	DRAWING NUMBER PERM-4
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NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. PAD
 - e. TRENCH

10. Transformer will be 75-1,500 kVA, maximum 6 connections per phase
11. Meter shall not be mounted to or in the transformer cabinet
12. Bell ends shall be installed on all conduits
13. Conduits shall be exposed 4" to 6" inside transformer pad
14. Member/Contractor shall extend secondary wires 7' above transformer pad with a maximum of six wires per phase with maximum size of 750 kcmil copper or aluminum.

20. WREA will furnish and install:
 - a. Transformer
 - b. Primary cable to transformer
 - c. Grounding of transformer
 - d. Transformer secondary lugs

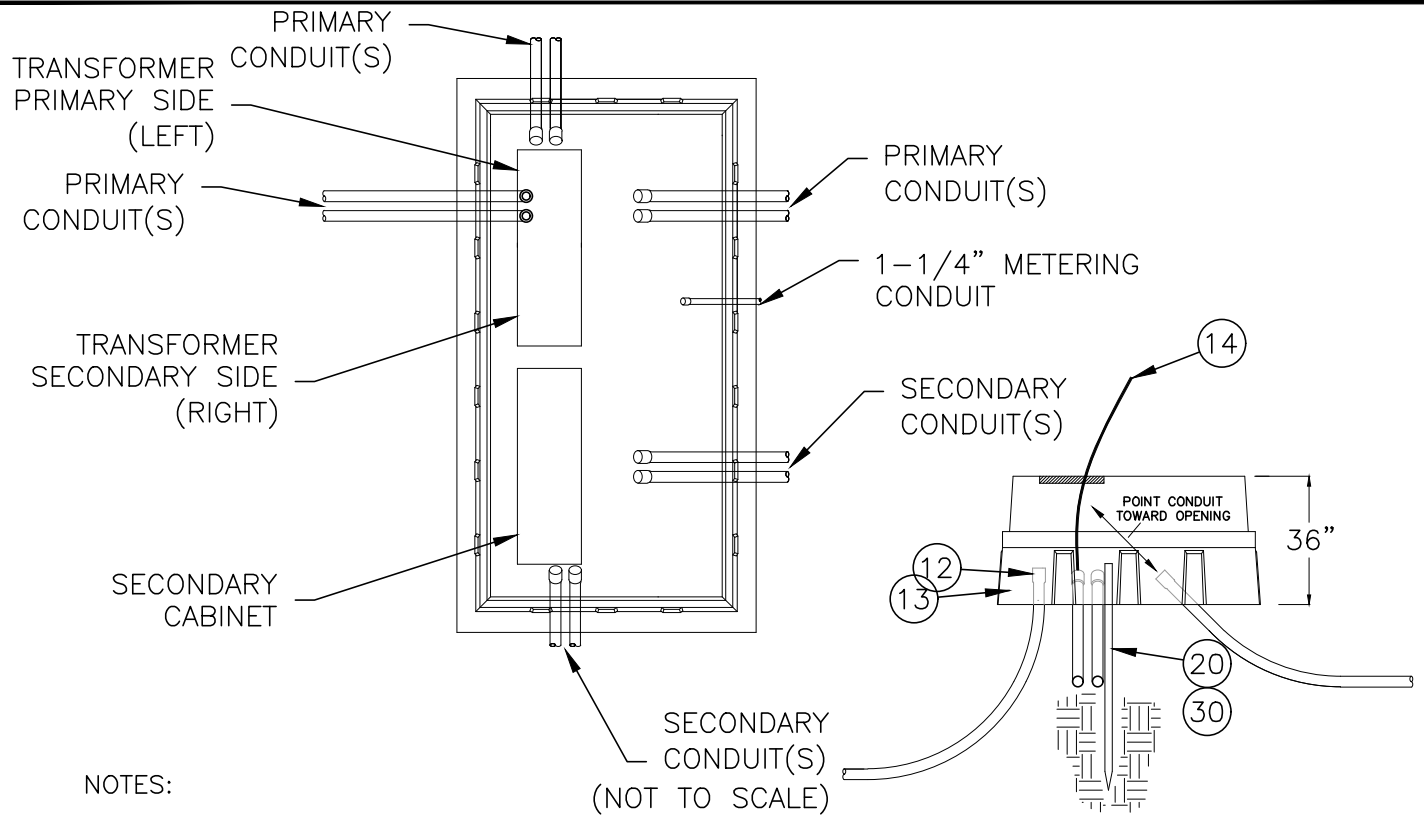
30. Member/Contractor shall furnish and install
 - a. Transformer base purchased from WREA
 - b. Trenching and backfilling
 - c. All conduits
 - d. All conductors and equipment past transformer secondary lugs

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3Ø TRANSFORMER PAD
PERMANENT SERVICE



DRAWING NUMBER
PERM-5



NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. PAD
 - e. TRENCH

10. Transformer will be 75-1,500 kVA, maximum 6 connections per phase
11. Meter shall not be mounted to or in the transformer cabinet
12. Bell ends shall be installed on all conduits
13. Conduits shall be exposed 4" to 6" inside transformer pad
14. Member/Contractor shall extend secondary wires 7' above transformer pad with a maximum of six wires per phase with maximum size of 750 kcmil copper or aluminum.

20. WREA will furnish and install:
 - a. Transformer
 - b. Primary cable to transformer
 - c. Grounding of transformer
 - d. Transformer secondary lugs

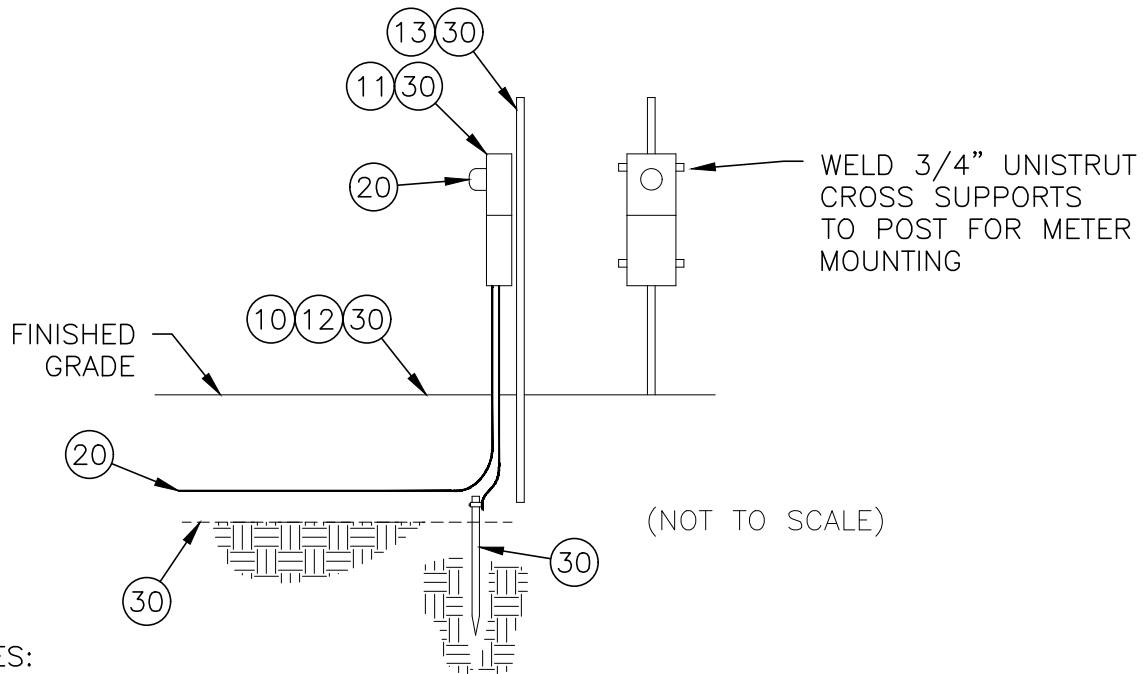
30. Member/Contractor shall furnish and install
 - a. Transformer and secondary cabinet base purchased from WREA
 - b. Secondary cabinet
 - c. Grounding of secondary cabinet
 - d. Trenching and backfilling
 - e. All conduits
 - f. All conductors and equipment past transformer secondary lugs

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3Ø TRANSFORMER WITH SECONDARY PAD
PERMANENT SERVICE



DRAWING NUMBER
PERM-6



NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Service shall be
 - a. WREA approved
 - b. 200-320 amp no ct metering
 - c. 400 amp and above ct metered
 - d. Commercial & 320A meters shall have mechanical bypass
12. Underground service line shall be backfilled before energizing service
13. 3" rigid galvanized pipe or 3" square tubing (1/4" min wall thickness) painted gray

20. WREA will furnish and install:
 - a. Secondary wire from WREA transformer to meter for 320A and below. Larger amp services Member provided secondary wire
 - b. Meter

30. Member/Contractor shall furnish and install
 - a. Meter rack and mounting
 - b. Grounding with driven ground rod
 - c. Trench, clean backfill, and conduit as explained in this booklet
 - d. All conduit, conductors, and equipment past meter

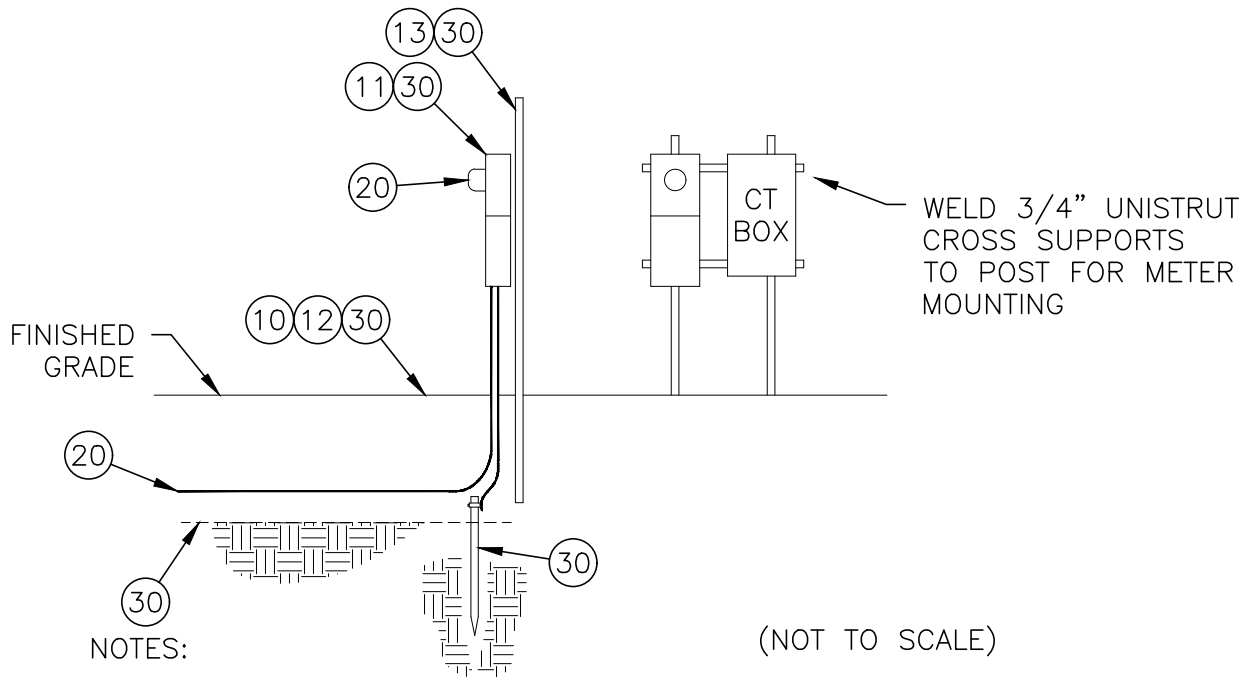
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DATE
01/25

SINGLE PHASE STEEL POST
PERMANENT SERVICE



DRAWING NUMBER
PERM-7



1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Service shall be
 - a. WREA approved
 - b. Over 200 amp ct metered
 - c. Any 480V service shall be instrument rated
 - d. Commercial meters shall have mechanical bypass
12. Underground service line shall be backfilled before energizing service
13. 3" rigid galvanized pipe or 3" square tubing (1/4" min wall thickness) painted gray

20. WREA will furnish and install:
 - a. Secondary wire from WREA transformer to meter for single phase. Three phase Member provided secondary wire.
 - b. Meter
 - c. CTs

30. Member/Contractor shall furnish and install
 - a. Meter rack and mounting
 - b. Grounding with driven ground rod
 - c. Trench, clean backfill, and conduit as explained in this booklet
 - d. All conduit, conductors, and equipment past meter

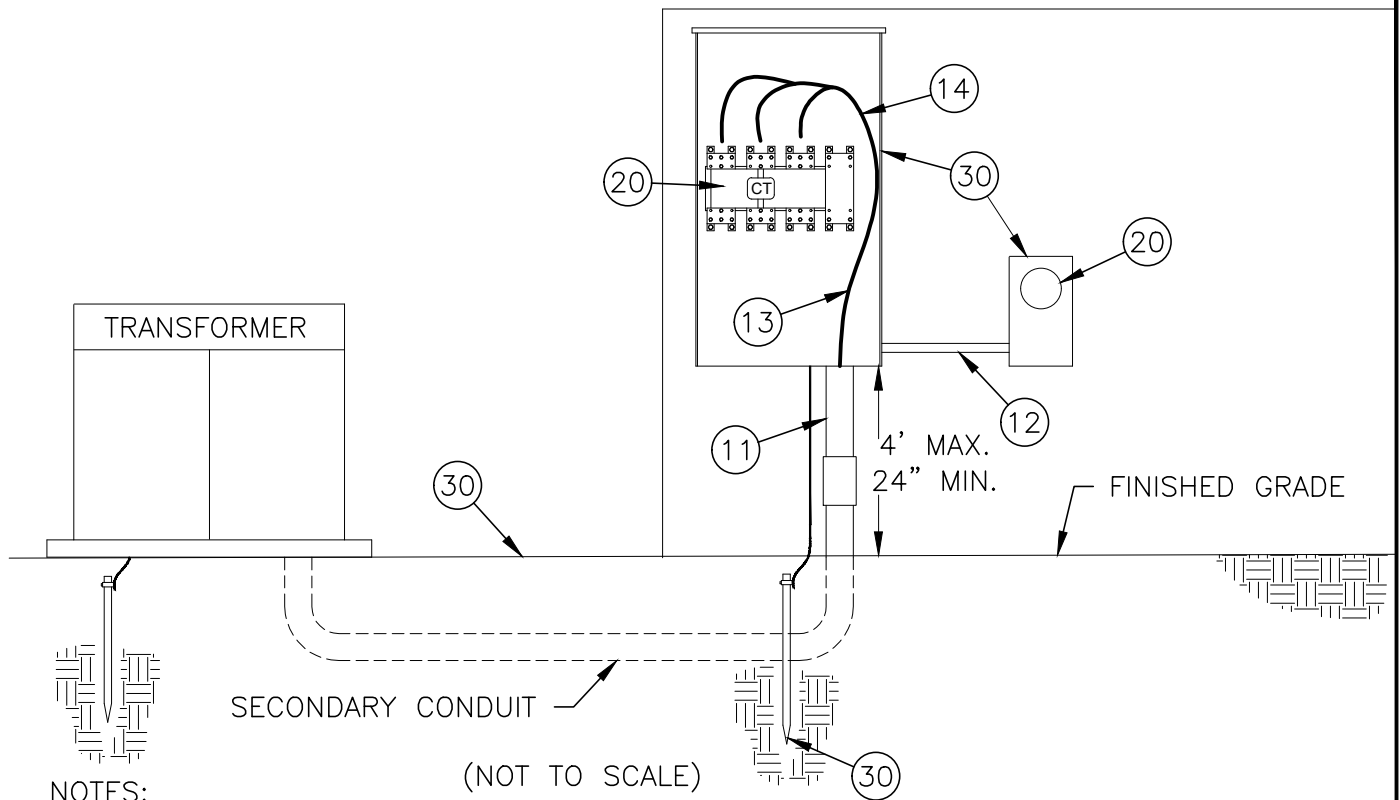
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DATE
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THREE PHASE STEEL POST
PERMANENT SERVICE



DRAWING NUMBER
PERM-8



NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. CT metering is required on:
 - a. Single phase loads 400 Amps & above
 - b. Three phase loads above 200 Amps
 - c. 480 Volt service
11. Service entrance conductors shall pass directly from transformer to CT cabinet (i.e. no intermediate cabinets)
12. 1-1/4" GRC or EMT bonded
13. Conductors shall pass behind bus or CT
14. White dot on CTs shall be incoming line from transformer
15. Underground service line shall be backfilled before energizing service

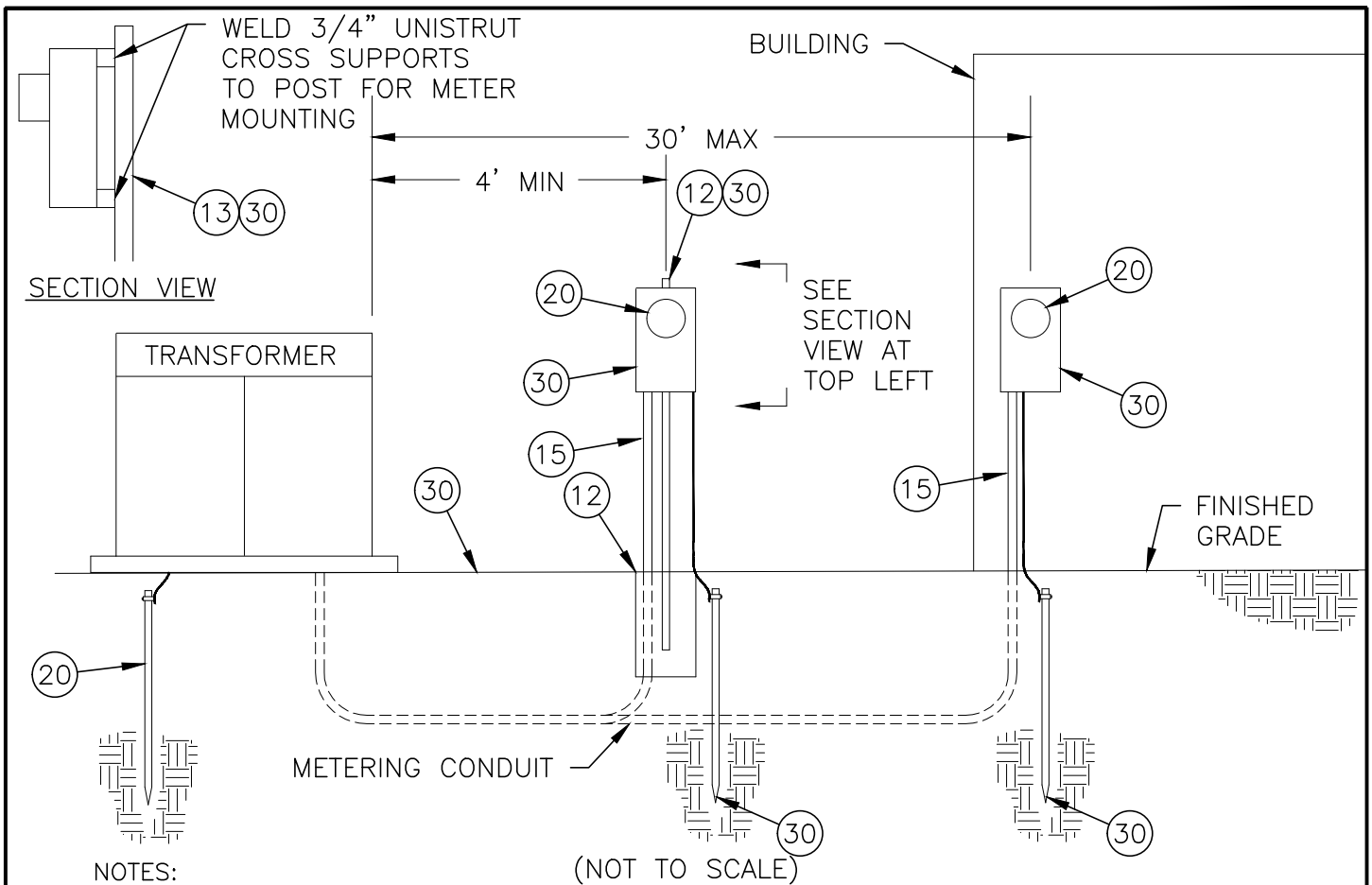
20. WREA to furnish and install:
 - d. Meter
 - e. Furnish CTs
30. Member/Contractor to furnish and install
 - a. CT cabinet and meter can purchased from WREA
 - b. Installation of CTs
 - c. Meter can mounting
 - d. Grounding with driven ground rod
 - e. All conduit, conductors, and equipment past transformer secondary lugs

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CT CABINET METERING
PERMANENT SERVICE



DRAWING NUMBER PERM-9



1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. GUARD
 - b. METER
 - c. TRENCH
 - d. CLEARANCES

10. Transformer shall be for single service only
11. Meter shall not be mounted to or in the transformer cabinet
12. Meter is preferred to be mounted to building. If distance between transformer and building exceed 30', meter pedestal set in concrete shall be used.
13. 3" rigid galvanized pipe or 3" square tubing (1/4" min wall thickness) painted gray
14. Underground service line shall be backfilled before energizing service
15. Metering conduit 1-1/4" PVC below grade and 1-1/4" GRC or EMT above grade.

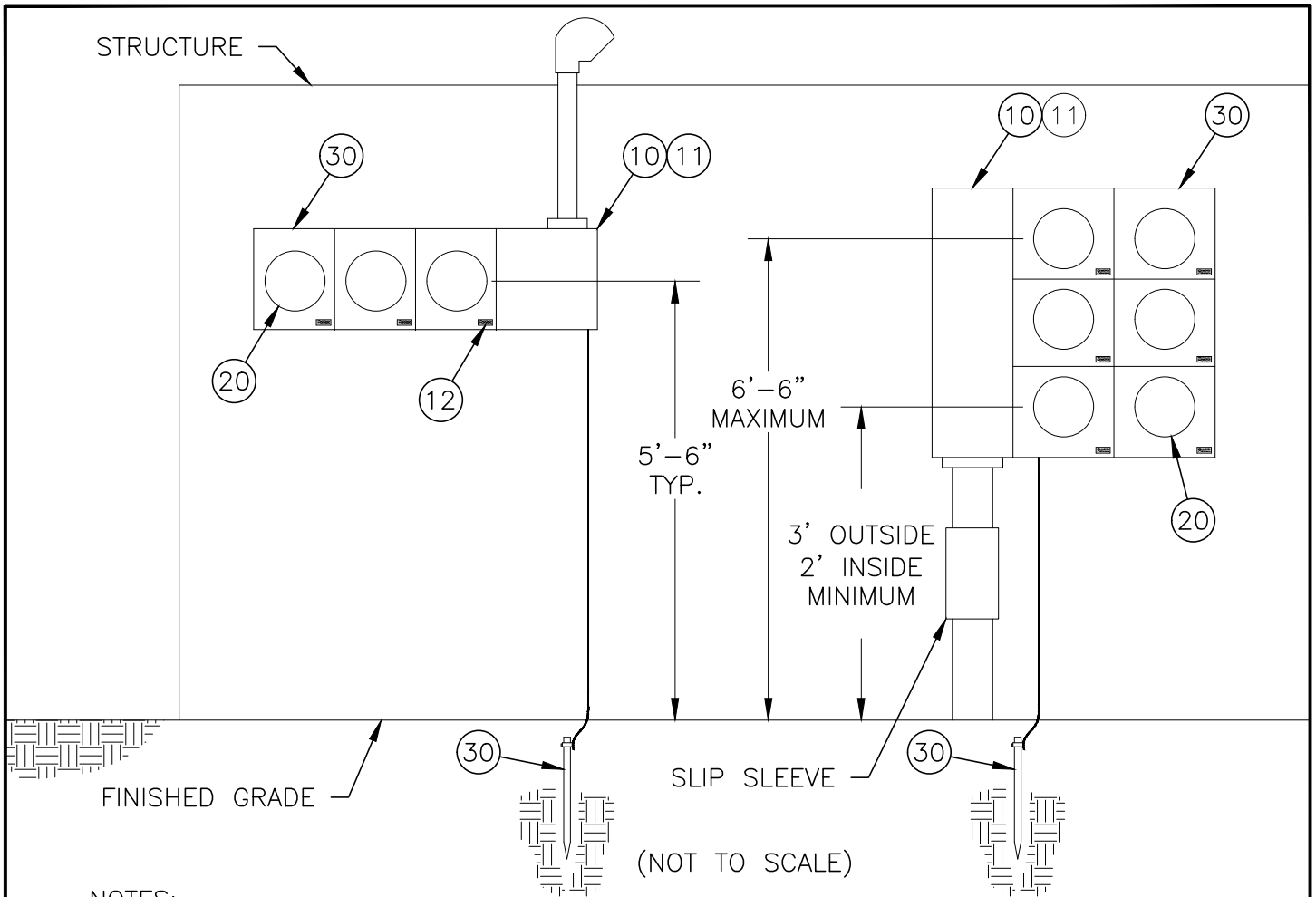
20. WREA to furnish and install:
 - a. Transformer Grounding
 - b. CT Cabinet
30. Member/Contractor to furnish and install
 - a. Meter can
 - b. Meter, 9S & 4S meter purchased from WREA installed by contractor
 - c. Meter can mounting
 - d. Grounding with driven ground rod
 - e. All conduit, conductors, and equipment past transformer secondary lugs

APPROVED BY MS DATE 01/25

CT'S IN TRANSFORMER METERING
PERMANENT SERVICE



DRAWING NUMBER
PERM-10



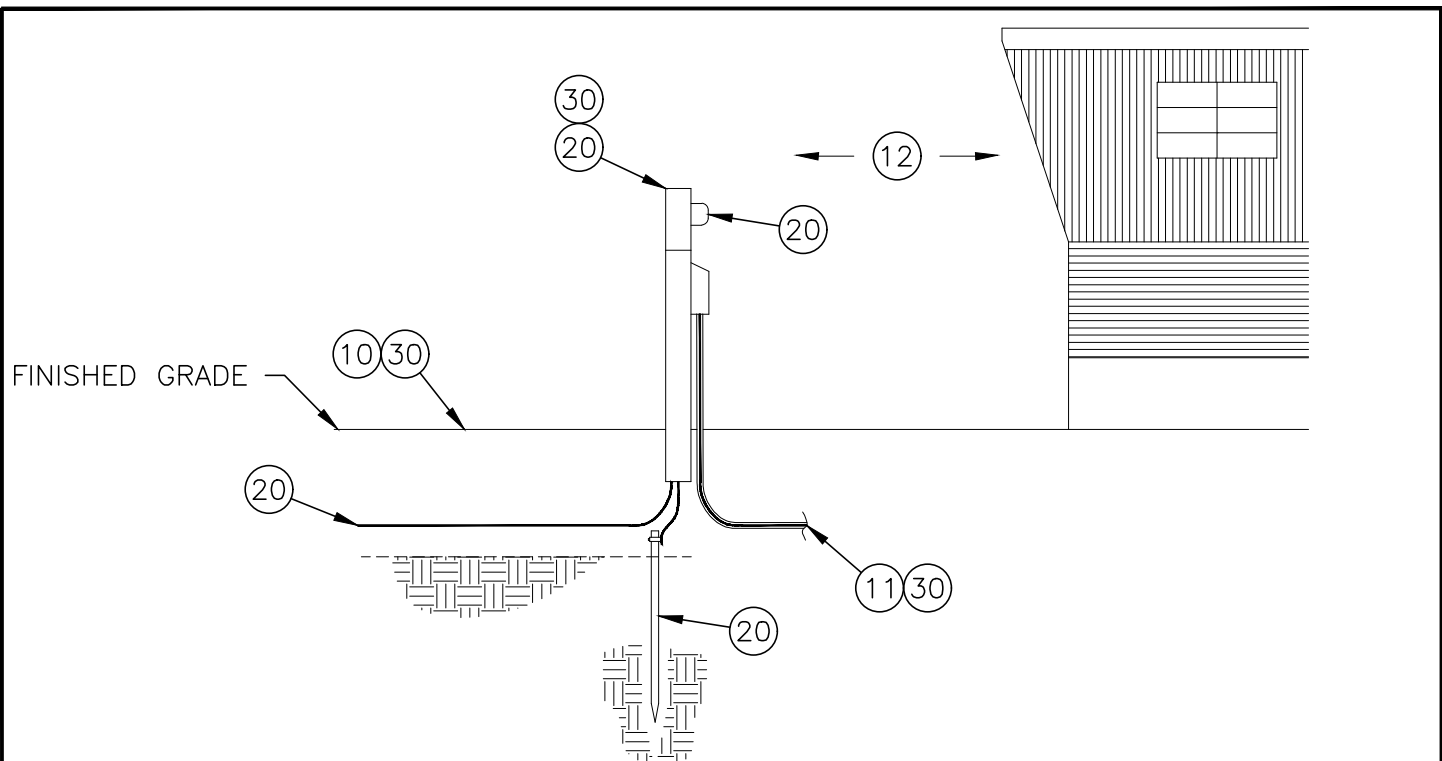
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NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. Locking provisions provided and utilized after energization
11. Lever operated bypass shall be installed on all commercial sockets
12. Permanently affixed identification tags shall be installed
13. Meter modules shall be approved by WREA
14. CT compartments and/or swichtgear shall be approved by WREA
15. Meter modules shall be mounted between 24" and 78" to centerline from finished grade as shown above Single meter height shall be mounted per METER REQUIREMENTS drawings in this booklet.

20. WREA will furnish and install:
 - a. Meters
30. Member/Contractor shall furnish and install
 - a. Meter modules
 - b. Meter mounting as described in PERMANENT SERVICE in this booklet
 - c. Grounding with driven ground rod
 - d. Secondary wire from WREA transformer to meter
 - e. All conduit, conductors, and equipment past meter



NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Mobile home feeder cable shall be adequately protected and sized.
12. Mobile home shall be located at least 5' and no more than 30' from meter pedestal. Meter not allowed to be attached to mobile home unless prior approval from WREA.
13. Underground service line shall be backfilled before energizing service

20. WREA will:
 - a. Furnish and install meter pedestal
 - b. Furnish and install secondary wire from WREA transformer to meter
 - c. Furnish and install ground rod and grounding
 - d. Furnish and install meter

30. Member/Contractor shall
 - a. Furnish and install mobile home feeder cable
 - b. Furnish and install trench, clean backfill, and conduit as explained in this booklet

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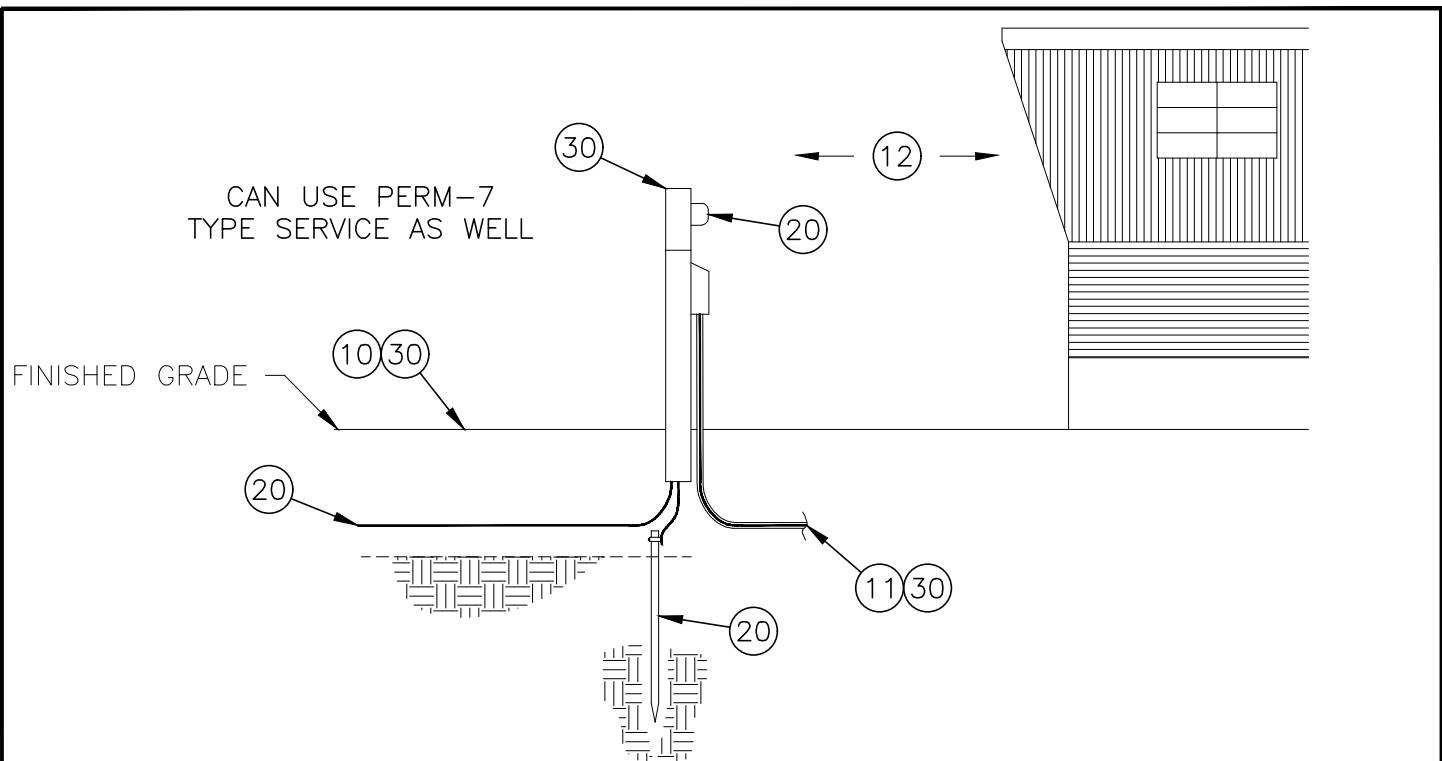
DATE
01/25

MOBILE HOME
PERMANENT SERVICE



West River Electric
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Your Touchstone Energy® Cooperative

DRAWING NUMBER
PERM-12



NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Mobile home feeder cable shall be adequately protected and sized.
12. Mobile home shall be located at least 5' and no more than 30' from meter pedestal. Meter not allowed to be attached to mobile home unless prior approval from WREA.
13. Underground service line shall be backfilled before energizing service

20. WREA will:
 - a. Furnish and install secondary wire from WREA transformer to meter
 - b. Furnish and install meter

30. Member/Contractor shall
 - a. Furnish and install meter pedestal or metering point
 - b. Furnish and install ground rod and grounding
 - c. Furnish and install mobile home feeder cable
 - d. Furnish and install trench, clean backfill, and conduit as explained in this booklet

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MS

DATE
01/25

MOBILE HOME PARK
PERMANENT SERVICE



**West River Electric
Association, Inc.**
Your Touchstone Energy® Cooperative

DRAWING NUMBER
PERM-13

TEMPORARY SERVICE REQUIREMENTS

1. Checklist in this booklet completed
2. Member/Contractor is urged to make early contact with WREA for temporary service.
3. WREA will connect the service after copy of the State wiring certificate and/or City inspection is on file.
4. Temporary service for construction work must be located where the meter will be protected from damage and usable throughout the construction period. Should relocation be necessary, the cost shall be the responsibility of the Member/Contractor.
5. Member/Contractor owned metering equipment, switching devices, conduits, conductors, luminaries, etc. shall not be mounted to WREA poles.
6. Standard voltage is 120/240V for single phase and 120/208V or 277/480V for three phase.
7. No delta connected three phase services are allowed
8. For the following drawings, a number in a bubble "##" references to the note at the bottom of the page.

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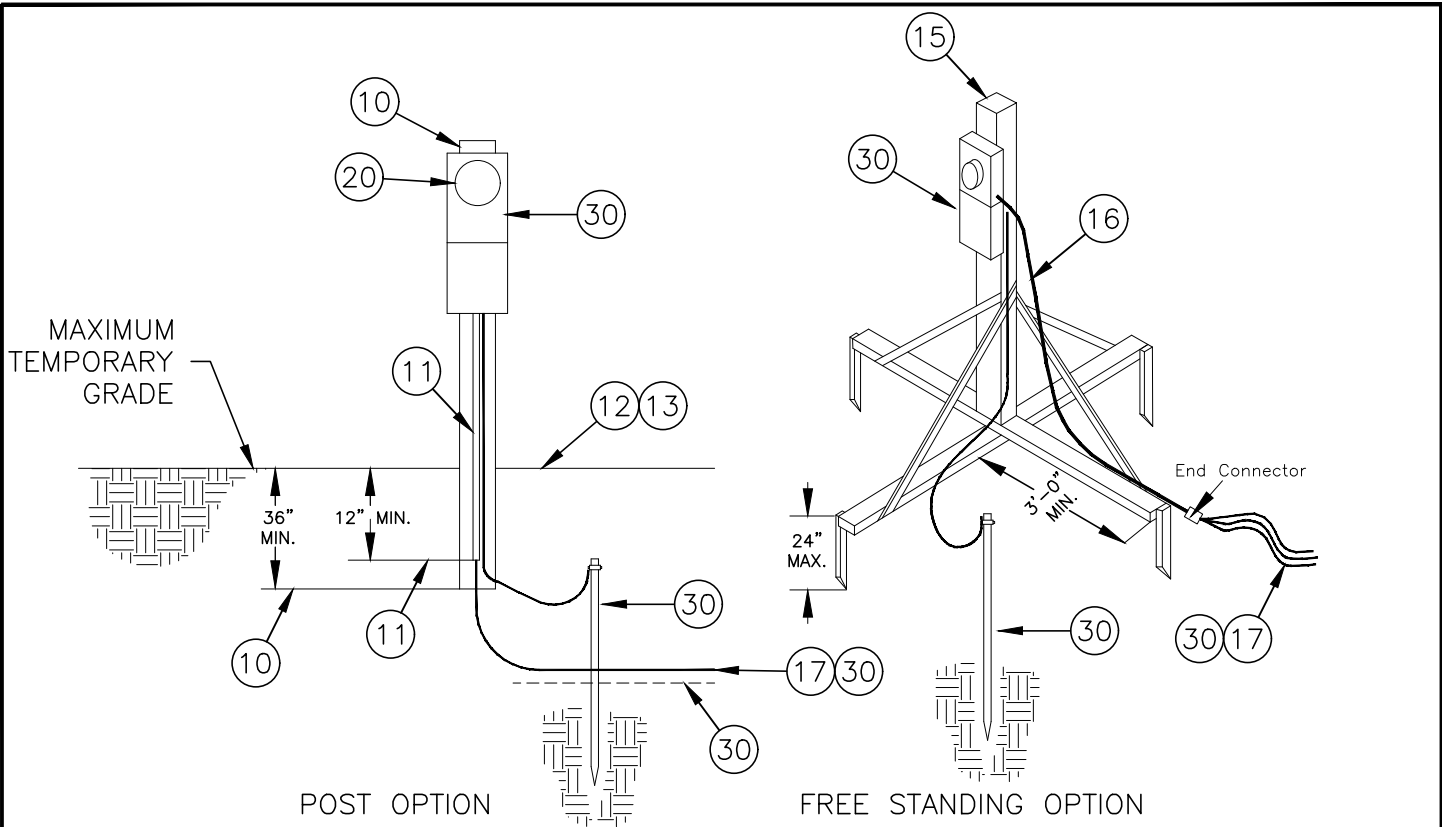
REQUIREMENTS
TEMPORARY SERVICE



**West River Electric
Association, Inc.**

Your Touchstone Energy® Cooperative 

DRAWING NUMBER
TEMP-1



NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. Pressure treated 4x6 wood post and installed as shown above
11. Post conduit 2" PVC and installed as shown above
12. WREA will flag trench route to service for Member/Contractor to provide.
13. Underground service line shall be backfilled before energizing service
14. All underground temporary meter loops shall be located at the transformer or secondary service wire on the lot line.
15. Free standing pedestal must be adequately braced and anchored with minimum 4x4 post. This pedestal will be used with pad mount transformer.
16. Qty. 4 #6 minimum conductors installed in 1-1/2" liquid tight flexible conduit. 8' min. and 12' max. length between meter and transformer
17. 48" conductor tails left for pad mount transformer or secondary junction box connections by WREA.

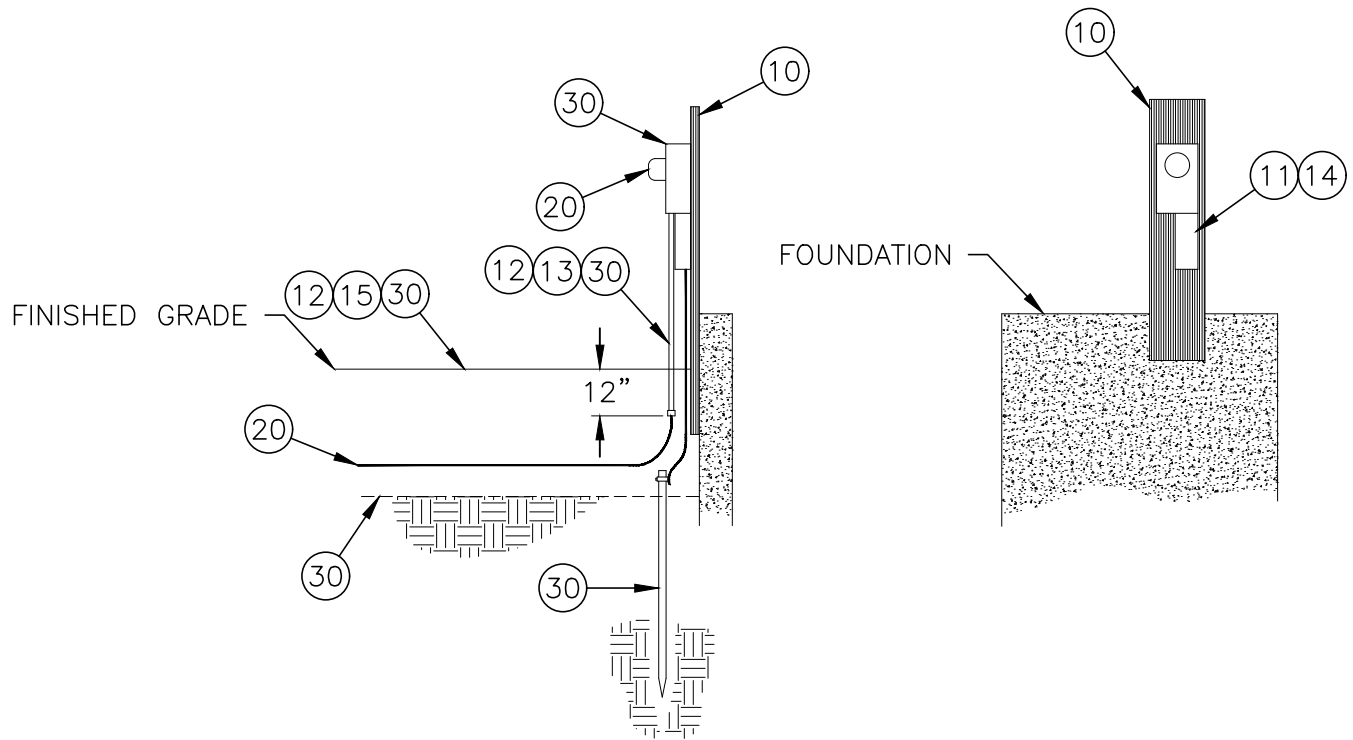
20. WREA will furnish and install:
 - a. Meter
 - b. Transformer or secondary junction box connection, no secondary conductors
30. Member/Contractor shall furnish and install
 - a. Meter pedestal
 - b. Meter mounting
 - c. Grounding with driven ground rod
 - d. Secondary wire from WREA transformer or secondary junction box to meter
 - e. Trench, clean backfill, and conduit as explained in this booklet

APPROVED BY MS DATE 01/25

UNDERGROUND METER MOUNTING
TEMPORARY SERVICE



DRAWING NUMBER
TEMP-2



(NOT TO SCALE)

NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER
 - d. TRENCH

10. Temporary 2"x12" plank attached to foundation
11. Temporary breakers and outlets, remove and plug hole in meter when permanent service is installed
12. If paved area is adjacent to building foundation, the conduit must be installed beyond the pavement. All elbows shall be long sweep variety.
13. WREA will flag route for secondary trenching for Member/Contractor to provide.
14. Connection to Member/Contractor temporary panel from bottom lugs in the meter can
15. Underground service line shall be backfilled before energizing service
16. Meter shall be securely attached to final structure after temporary plank is removed

20. WREA will furnish and install:
 - a. Meter
 - b. Secondary wire from WREA transformer to meter

30. Member/Contractor shall furnish and install
 - a. Meter can and mounting
 - b. Grounding with driven ground rod
 - c. All service conduit 3" minimum schedule 80 with slip sleeve
 - d. Trench, clean backfill, and conduit as required in this handbook

THREE PHASE OR HIGH VOLTAGE PRIMARY NOTES

(P) CONDUIT SHALL BE:

HDPE BLACK ENDLESS WITH 3 RED STRIPS OR PVC SCHEDULE 40 (SCHEDULE 80 UNDER ROAD RIGHT OF WAY)

- 4' BURIED DEPTH
- 6" CONDUIT FOR 3 PHASE 3" FOR SINGLE PHASE

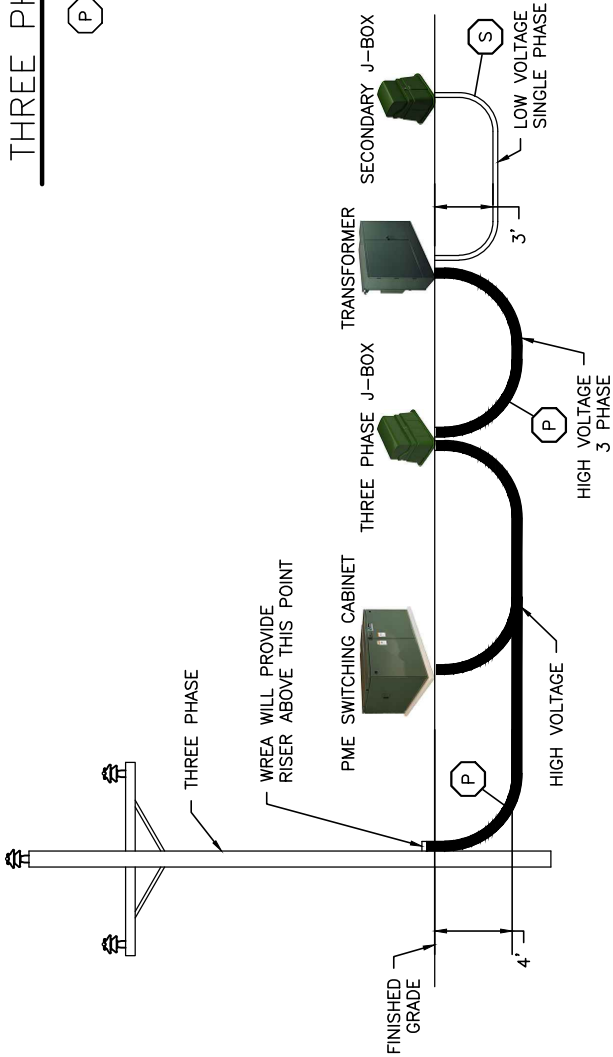
CONTRACTOR SHALL INSTALL:

- PVC COUPLINGS EPOXIED TO THE ENDS OF EACH CONDUIT
- 1/2" 1,200 LB MINIMUM MULE TAPE AT EACH END OF CONDUIT
- CONDUIT END WITH PULL TAPE EXTENDED 4-8" ABOVE FINAL GRADE
- 48" RADIUS FIBERGLASS SWEEPS FOR 90° AND 45° CORNERS



PLUG WITH PULL TAB INSTALLED UNDER CONDUIT CAP WITH TAPE

MULE TAPE



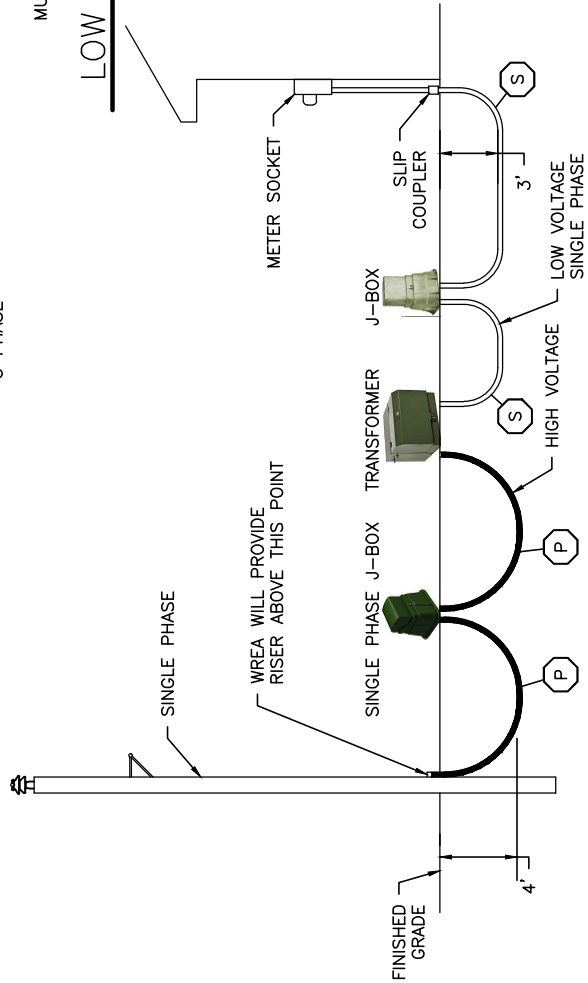
LOW VOLTAGE SINGLE PHASE SECONDARY NOTES

(S) CONDUIT SHALL BE:

- 3" PVC SCHEDULE 40 (SCHEDULE 80 UNDER ROAD RIGHT OF WAY)
- 3' BURIED DEPTH
- LESS THAN 250' IN LENGTH AND NO MORE THAN 270" IN BENDS

CONTRACTOR SHALL INSTALL:

- BELL ENDS ON END OF EACH CONDUIT
- 24" RADIUS PVC SWEEPS. IF CONDUIT IS LONGER THAN 150' OR HAS 270" IN BENDS WILL NEED FIBERGLASS SWEEPS



APPROVED BY MS DATE 01/25

CONDUIT DEPTH CONTRACTOR DRAWING



DRAWING NUMBER CONDUIT-1

METER REQUIREMENTS

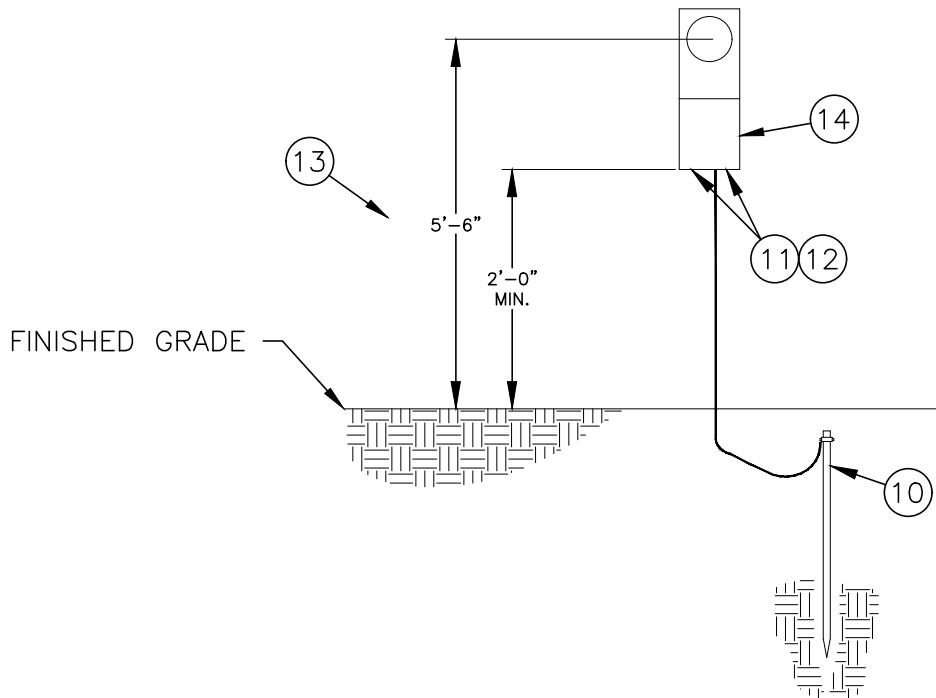
1. Checklist in this booklet completed
2. Meter can must be ringless type, WREA approved, and installed level in all directions
3. All meter sockets shall be rated 200 amp unless WREA approves otherwise
4. Member/Contractor disconnect equipment must be weatherproof and covered when inspected
5. All meters shall be outside of buildings and accessible to WREA employees.
6. Meter base and conduit must be securely attached to temporary or permanent structures including street light services.
7. Commercial or 320 amps meter service shall have a lever bypass socket.
8. West River Electric will supply the 9S and 4S instrumnet meter bases at cost. All current metering will be done at 120 volts. See CT cabinet drawings in this booklet.
9. All elbows shall be of the long sweep type when conduit is used on the line side of meter
10. Service disconnect shall be installed on the load side or adjacent to the meter housing if a self contained meter housing is not attached to a building. Both the disconnect and conductor on the load side shall be Member/Contractor furnished and maintained.
11. All conduits shall be schedule 80 above grade
12. When using a multiple meter housing, the service shall be clearly marked and securely attached to the meter socket.
13. All risers shall have slip sleeve installed.
14. For the following drawings, a number in a bubble "##" references to the note at the bottom of the page.

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METER CAN
METER REQUIREMENTS



DRAWING NUMBER METER-1



NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. CLEARANCES
 - b. GUARD
 - c. METER

10. 8' long 5/8" diameter ground rod shall be driven not laid in the ditch
11. Conduit shall come into the bottom of meter can on right or left side not in the center.
12. Protective bushing required on all conduit ends above or below grade
13. Meter height shall be as shown
14. Disconnect

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METER CAN INSTALLATION
METER REQUIREMENTS



DRAWING NUMBER
METER-2

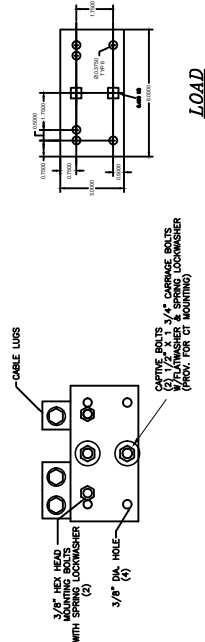
- GENERAL NOTES**
- 1- CURRENT TRANSFORMER CABINET COMPLIES WITH NATIONAL ELECTRICAL CODE. DOOR HAS (3) HINGES WITH A PADLOCK & 7/16" LOCKING HASP HOLE.
 - 2- 14 GA. GALV. STEEL MOUNTING PAN WITH 1 3/8" INSULATOR SUPPORTS FOR BUS WORK.
 - 3- CENTER TO CENTER FOR MOUNTING POWER CO. CT'S
 - 4- 3/8" LUG MOUNTING BOLTS (1) 10-24NC OR (2) 3/8"x14-#6 CABLE CONNECTION LUG (UP TO MAX.) SEE LUGS
 - 5- NEUTRAL OR GROUNDED CONDUCTOR PROVIDED WITH (1) 10-24NC BOLT & A35 LUG FOR NEUTRAL TAP.
 - 6- CENTER POTION - IS NOT REQUIRED IF SERVICE IS 19.2KV.
 - 7- SHIPPING LINK/ TEMPORARY SUPPORT INSTALLED ON EACH PHASE AT 600VAC WITH NO CABLE BRACING REQUIRED.
- * ALL CABINETS ARE ETL LABELED FOR TYPE-3R APPLICATION PER U.L. 50 AND U.L. 414 STANDARDS. MEET ALL NATIONAL ELECTRICAL CODES & NEMA STANDARDS.

STANDARD ACCESSORIES:

- WIND CATCH ON EXTERIOR DOOR
- MOUNTING HARDWARE FOR UTILITY CURRENT TRANSFORMERS.
- INSULATOR SUPPORTS FOR BUS WORK.
- A35 LUG FOR NEUTRAL TAP
- LUGS PROVIDED ON TOP PADS ONLY (LOAD SIDE)
- UTILITY SUPPLIES THE LUGS FOR BOTTOM PADS (LINE SIDE)



"INSTALL SHIPPING LINKS"

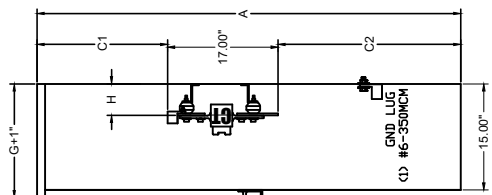


PHASE BUS PAD DETAILS

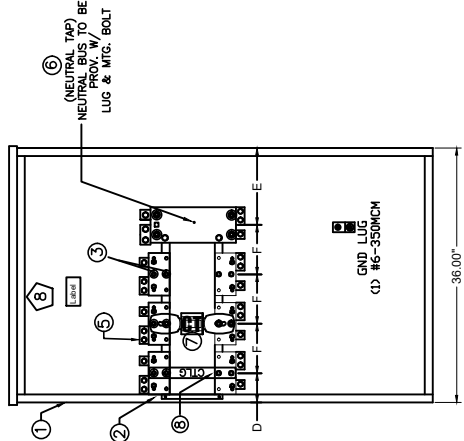
APPROVED FOR LINE & LOAD CONDUCTORS TO ENTER AND EXIT SAME END OF ENCLOSURE

NOTE: FOR SINGLE PHASE UNITS, OMIT BØ BUS ASSEMBLY

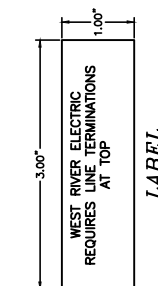
- NOTES:
1. WREA WILL PROVIDE CT'S. MEMBER/CONTRACTOR SHALL INSTALL



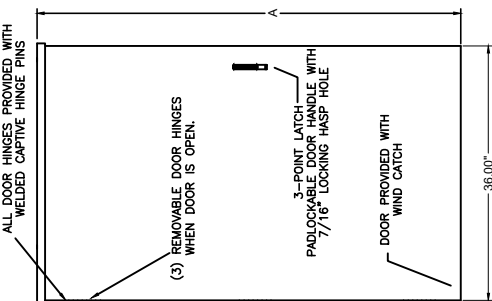
SIDE VIEW



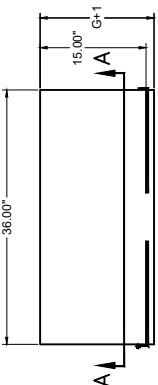
SECTION VIEW A-A



LABEL



FRONT VIEW



PLAN VIEW

* CT CABINET APPROVED FOR WEST RIVER ELECTRIC WITH ADDITION OF CTL2 BUS LINKS INSTALLED ON EACH PHASE. 400A CABINET REQUIRES QTY. 1 CTL-2 PER Ø 800A CABINET REQUIRES QTY. 3 CTL-2 PER Ø

AMPACITY	LUGS	MINIMUM DIMENSION								CATALOG NUMBER			
		A	B	C1	C2	D	E	F	G	H	CABINET	1Ø CABINET	
400	1	48"	36"	11.00"	21.00"	4.125"	10.50"	7"	15"	4.5"	CR4BSL	BHCT14-4TM	BHCT14-3TM
600/800	2/3	48"	36"	11.00"	21.00"	4.125"	10.50"	7"	15"	4.5"	CR4BSL	BHCT68-4TM	BHCT68-3TM

FOR NAME: WEST RIVER ELECTRIC
METERING TRANSFORMER CABINET
APPROVAL DRAWING

DATE: 03/24/20
DRAWN BY: JTK
CHECKED BY: [blank]
SCALE: NTS

WEST RIVER ELECTRIC
MINNEAPOLIS, MINNESOTA
PHONE: (763) 551-1555 FAX: (763) 551-9275

TITLE: 400/800 AMP. 3Ø BUS LINKS CURRENT TRANSFORMER CABINET
DRAWING NUMBER: BHCT14-8TM
SHEET: 1 OF 1

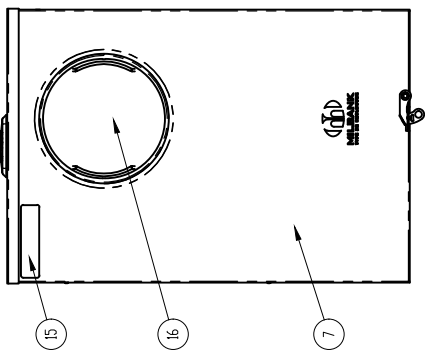
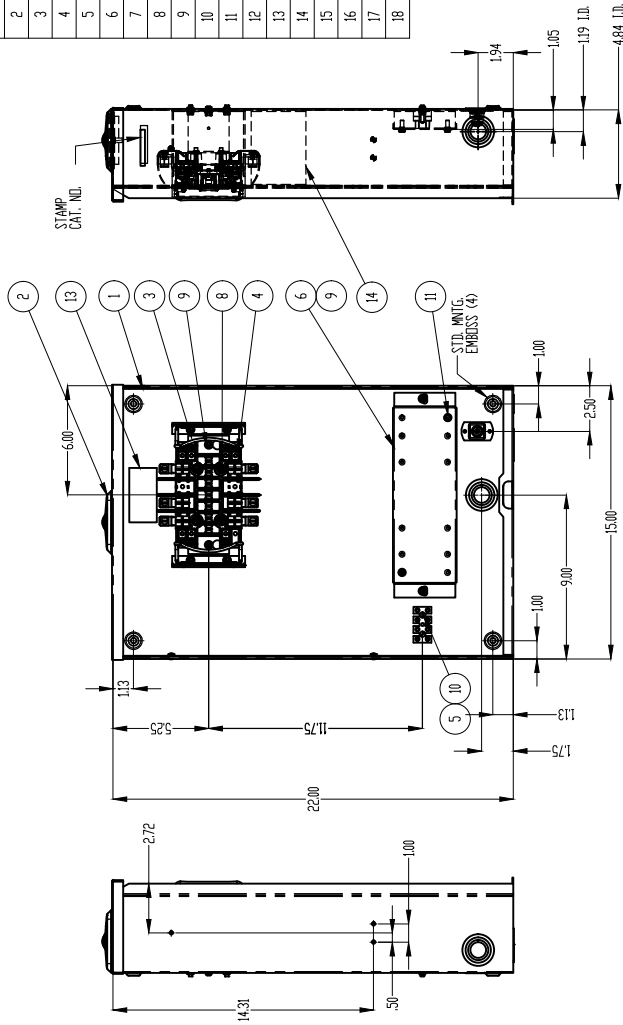
APPROVED BY: MS
DATE: 01/25

WREA APPROVED CT CABINET METER REQUIREMENTS

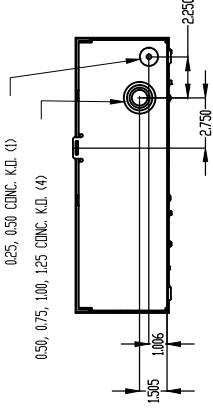
West River Electric Association, Inc.
Your Touchstone Energy® Cooperative

DRAWING NUMBER: METER-3

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	1167973	SHELL WELDMENT
2	1	1028222	CLOSING PLATE ASSY
3	1	1153700	BRIDGE
4	1	1026536	NO BYPASS BLOCK ASSY.
5	1	1138903	4 POS. TERM. CONN.
6	1	1159186	T/S BRIDGE
7	1	1153698	FRONT ASSY.
8	4	1025353	SCREW 10-32 x 1
9	8	1000183	SCREW 12-24 x 5/16
10	2	1022084	SCREW 8-32 x 3/4
11	2	1001311	SHW-SC 10-32 .5 SR ST
12	1	N/A	STAMP CAT. NO.
13	1	1000044	LABEL, HUB OPENING
14	1	1153701	LABEL, INSTRUMENT TRANSFORMER
15	1	1000064	LABEL, DANGER
16	1	1000158	PAD WIREMAN 8.37 x 7.50
17	2	1212980	RISER ASSY 4.78 HEIGHT
18	1	1172462	CARTON 1-PER ANDT SHOWN



PRODUCTION NOTES:
 1) SCREW 1022084 TO BE INSTALLED FINGER TIGHT ONLY. IF TERMINAL STRIP NOT INSTALLED.
 2) SCREW 1001311 TO BE INSTALLED FINGER TIGHT ONLY. INSTALL PLASTIC BACKER STRIP TO TERMINAL CONNECTOR WHICH IS SUPPLIED WITH WIRING HARNESS. WHEN WIRING HARNESS IS USED, THE WIRES ARE ROUTED INTO THE TOP OF THE 4 POS. TERM. CONNECTOR.
 3) SCREW 1022084 TO BE INSTALLED FINGER TIGHT ONLY. IF TERMINAL STRIP NOT INSTALLED.
 4) WHEN WIRING HARNESS IS USED, THE WIRES ARE ROUTED INTO THE TOP OF THE 4 POS. TERM. CONNECTOR.



SUFFIX	CUSTOMER	QUANTITY
-NTS	WEST RIVER ELECTRIC	0
-TSTRIP	TWO SOCKETS TWO METERS	1

MILBANK ENERGY WORKS
 KANSAS CITY, MO USA
 THIS SWITCH ENCLOSURE IS NOT TO BE OPENED.
 RINGLESS, 1-PC. COVER

Material: 16 GA. GALV. STEEL
 Shear/Dr. No.: MILBANK LIGHT GRAY
 Part No.: 21271
 U.S. EA.

Scale: NTS
 Date: 1/2/14

Ordering No.: SC4726-XL (-) 131M
 Customer: (SEE CHART)
 Drawing No.: 4726-101

Sheet: 1 of 1

NOTES:
 1. WREA WILL SELL METER CAN TO MEMBER/CONTRACTOR AT SPECIFIED COST

APPROVED BY: MS
 DATE: 01/25

WREA APPROVED METER CAN METER REQUIREMENTS



DRAWING NUMBER
 METER-4

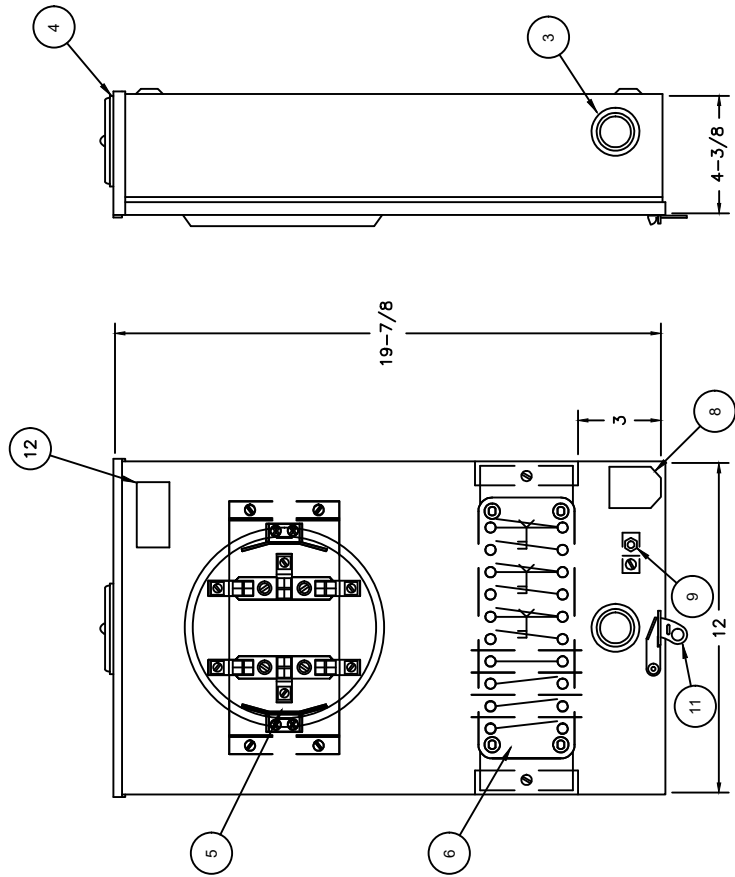
THE DESIGN AND CONSTRUCTION OF THIS PRODUCT SHALL BE THE RESPONSIBILITY OF THE MEMBER/CONTRACTOR. THE MEMBER/CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE MEMBER/CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.

APPROVED BY: MS
DATE: 01/25

CT METER CAN WITH TEST SWITCHES METER REQUIREMENTS



DRAWING NUMBER
METER-5



- FEATURES:**
1. MATERIAL: 16GA G-90 GALVANIZED STEEL
 2. FINISH: GRAY POWDER COAT (MUNSELL 70 5.0B6 7.0/0.4)
 3. KNOCKOUTS:
 - (3) 3/4" * 1" * 1-1/4" BACK PAN (1 EA SIDE, 1 CENTERED)
 - (3) 3/4" * 1" * 1-1/4" BOTTOM
 - (1) 1/4" DIA * 5/8" DIA * 1/2" KO IN BOTTOM
 4. HUB OPENING W/HUB CLOSURE PLATE
 5. 6-TERM BLOCK W/SURGE BRACKET ASSY
 6. 110W1268-1BTSTE 10-POLE TEST SWITCH, TIN, NO COVER (UL)
 7. PRE-WIRED PER WH-1650
 8. HIGH VOLTAGE WARNING LABEL
 9. #2 - 14 ILSCO CONNECTOR FOR GROUND
 10. 3/16" DEEP MOUNTING EMBOSSEMENTS WITH 5/16" DIA KO (4 PROVIDED)
 11. STN STL HASP & SWINGING LATCH W/WIRE SEAL OR PADLOCKING CAPABILITIES
 12. UL LISTING LABEL

APPROVED
 BY: _____
 DATE: _____
 RETURN (1) COPY TO:
 BROOKS LIPS
 ENGINEERING DEPT
 IRON, MI

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REV	DESCRIPTION	DATE
1	CHG TS TO TIN, NO COVER	4/23/2020

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
FRANCHISE	TERMS	ANGLS	DATE
19-1/2	4-1/2	1/2"	4/17/2020
30.4	30.4	30.4	30.4
30.4	30.4	30.4	30.4
30.4	30.4	30.4	30.4
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

DESCRIPTION	DATE	REV
10-TERMINAL BLOCK W/ SURGE BRACKET ASSY	4/17/2020	B
10-POLE TEST SWITCH AND 6-TERM BLOCK, UL RAD 200408		B
6-TERM BLOCK, UL RAD 200408		B
6-TERM BLOCK, UL RAD 200408		B
6-TERM BLOCK, UL RAD 200408		B

NOTES:
 1. WREA WILL SELL METER CAN TO MEMBER/CONTRACTOR AT SPECIFIED COST

DEFINITIONS:

Electric Utilities:

Power, lighting, telephone, cable t.v., signal circuits, etc...

Non-electric Utilities:

Water, gas, sewer, storm drains, etc...

Approved Conduit Bedding Material:

4" of sand, fines, or clean dirt around each conduit free of rocks with proper moisture levels

Approved Conduit:

- a. HDPE black endless with 3 red stipes
- b. PVC
 - Schedule 40 for under open ground
 - Schedule 80 for under roadways
- c. SIZE
 - 3" for residential services
 - 6" for three phase services
- d. Bends
 - Primary conduit to use fiberglass 48" sweeps on all corners
 - Residential to use fiberglass 24" radius sweeps on all corners if length exceeds 150'
 - Maximum of 270° of turns (e.g. three right turns)
- d. Length
 - Residential secondary maximum length of 250'

Approved Pull Tape:

Minimum 1/2" width, 1,200lb in strength

Adequate Trench Compaction:

Follow project geotechnical evaluation for procedures and recommendations to achieve proper compaction to avoid settling. If geotechnical evaluation is not available, Member/Contractor shall use compaction methods to ensure the trench does not settle. Using compaction machinery, loose lifts no greater than 6", and proper moisture levels should provide acceptable results.

NOTES:

1. Member/Contractor shall follow all trenching and excavation local, state, and federal OSHA regulations regarding safe work practices.
2. Before digging, Member/Contractor shall locate underground utilities and verify clearances by contacting One Call of South Dakota at 811 or 1-800-781-7474 if calling from out of state.
3. WREA will flag all trench routes to be followed before excavation.
4. Secondary trench shall run at a right angle from the meter socket for at least 6' before turning 90 degrees.
5. LB elbows not allowed on the line side conduit
6. All corners shall be of the long sweep variety
7. Slip sleeves are required on all PVC risers
8. Maintain 6' of separation from building footing, water and sewer lines
9. Curb and gutter shall be installed prior to utility installation
10. Final grading shall be completed before underground utilities are installed
11. WREA will provide conduit plan with number and size of conduits needed for each project.
12. Approved Pull Tape shall be installed in all conduits with care taken to ensure pull tape is free to pull
13. Conduit ends shall be sealed with plug and pull tabs and extend 4" to 8" above final grade or be marked with a conduit marker
14. WREA will inspect trench before backfilling. Member/Contractor responsible for re-excavating if inspection not completed in time.
15. Compaction machinery shall not be used within 6" of conduits
16. All primary trenches shall be backfilled before services can be energized.

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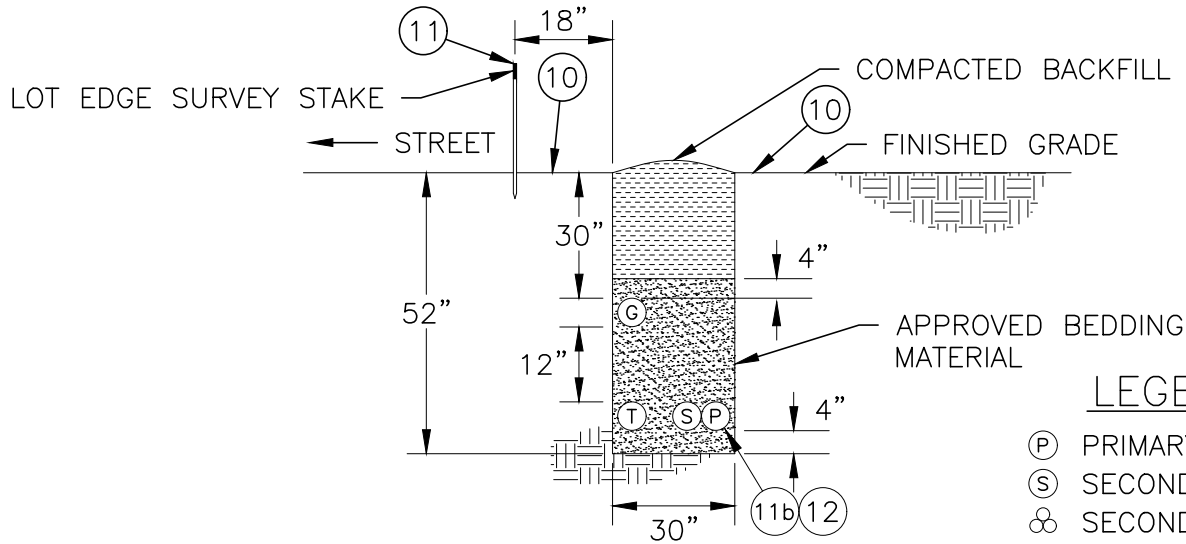
DATE
01/25

URD CABLE AND TRENCHING
TRENCH REQUIREMENTS



DRAWING NUMBER
TRENCH-1

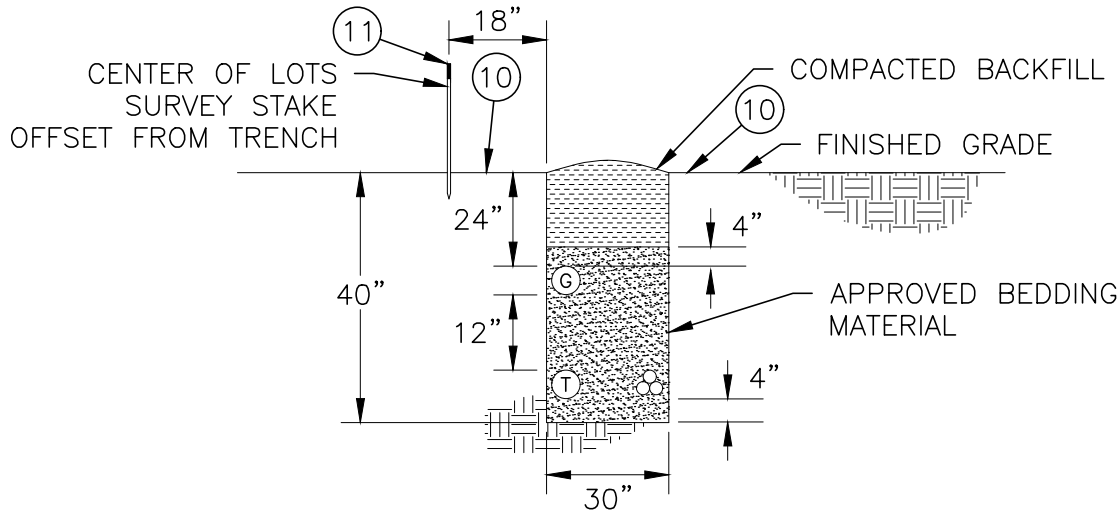
PRIMARY UTILITY TRENCH



LEGEND

- (P) PRIMARY CONDUIT
- (S) SECONDARY CONDUIT
- (C) SECONDARY CABLE
- (T) PHONE & TV
- (G) GAS

SECONDARY TRENCH



(NOT TO SCALE)

NOTES:

1. The pages listed below must also be followed when using this page. For example, read "TRENCH-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. TRENCH
10. Member/Contractor shall allow adequate space along and around the trench for personnel to access and work during construction.
11. Member/Contractor shall furnish and install:
 - a. Survey of lot corners by Professional Land Surveyor
 - b. Approved Conduits
 - c. Trench excavation
 - d. Approved Conduit Bedding Material
 - e. Adequate Trench Compaction
12. Primary conduit shall be installed always to the outside of the trench

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MS

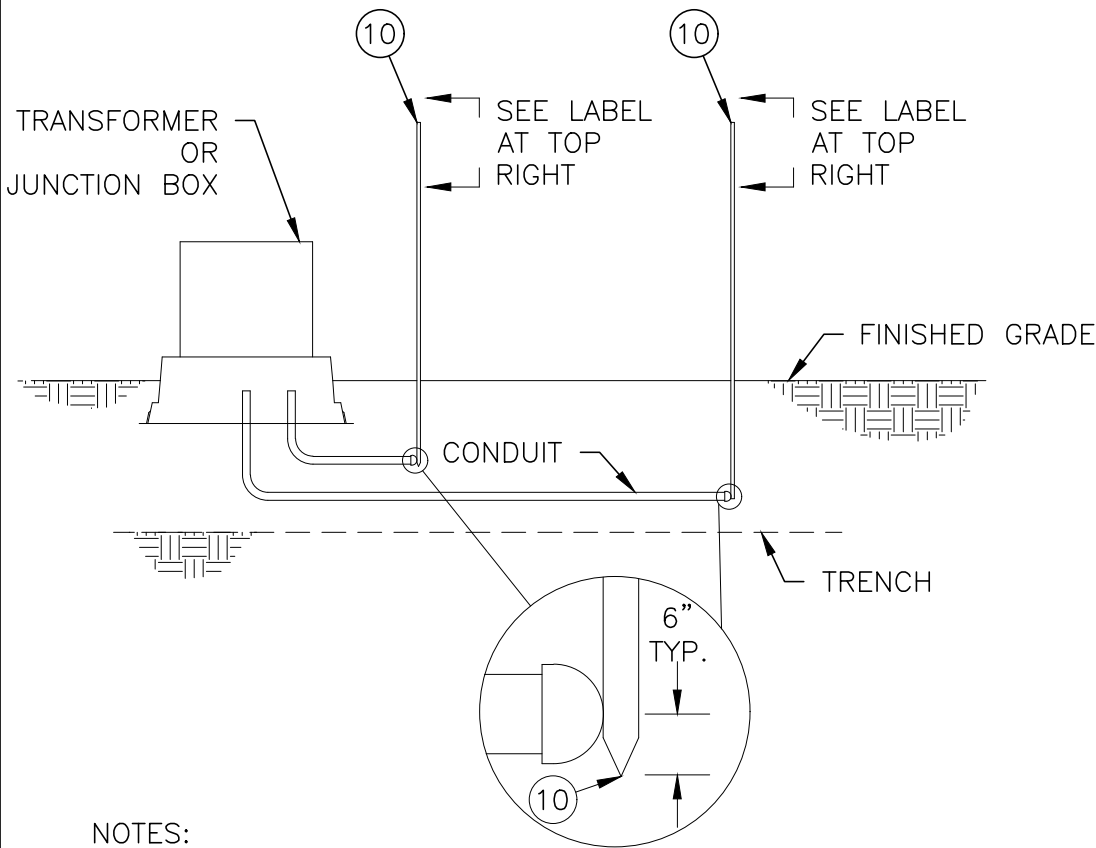
DATE
01/25

TYPICAL TRENCH PROFILE
TRENCH REQUIREMENTS



West River Electric
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DRAWING NUMBER
TRENCH-2



NOTES:

1. The pages listed below must also be followed when using this page. For example, read "TRENCH-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. TRENCH

10. WREA will furnish red fiberglass service stub markers
11. WREA will inspect conduits and install markers when trench is opened
12. Member/Contractor shall maintain marker location during backfill

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DATE
01/25

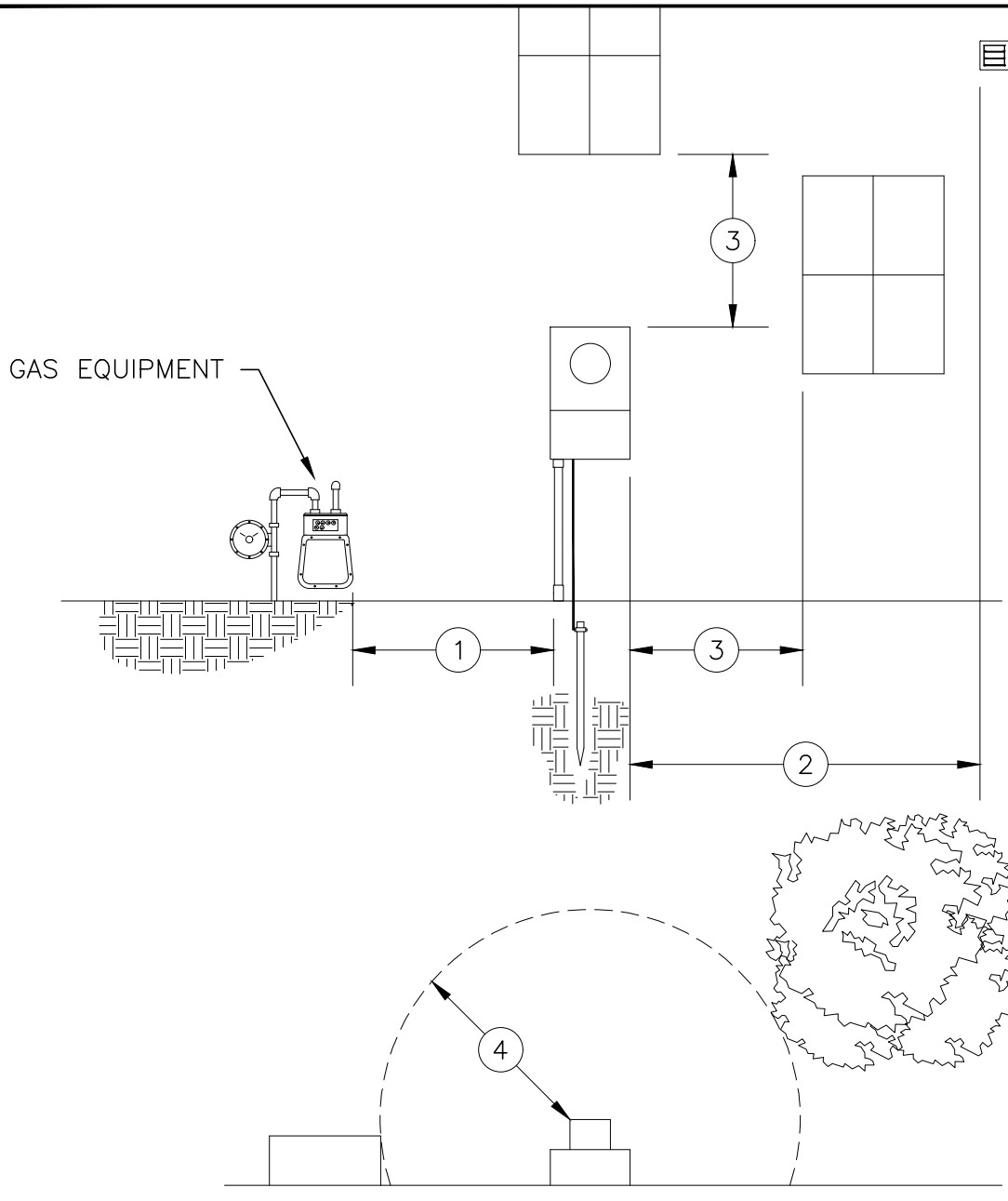
CONDUIT MARKER
TRENCH REQUIREMENTS



West River Electric
Association, Inc.

Your Touchstone Energy® Cooperative

DRAWING NUMBER
TRENCH-3



(NOT TO SCALE)

Meter shall not be closer than the dimensions given.

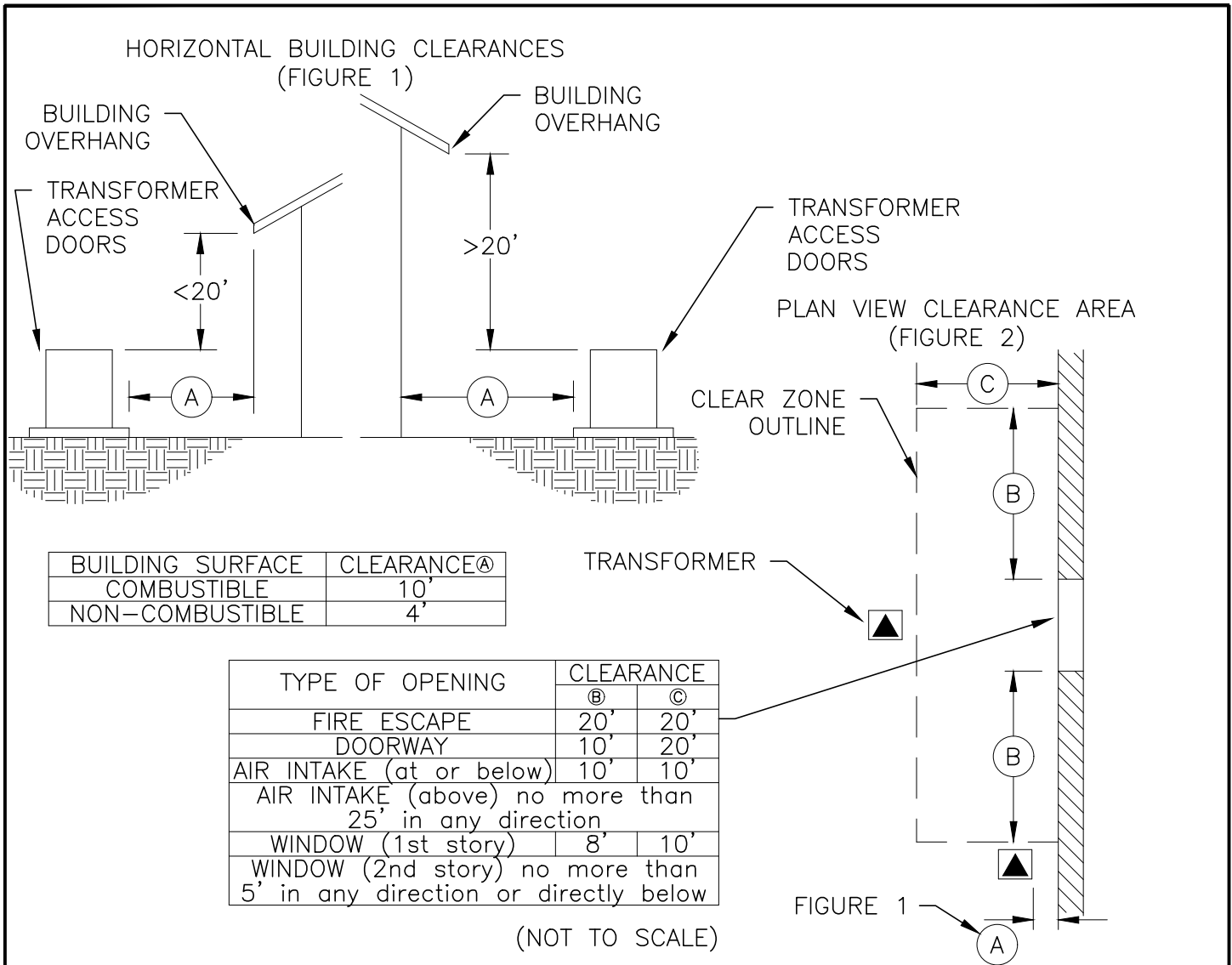
1. 3' – Measured horizontally from any gas equipment
2. 3' – Measured horizontally from any air vents, downspouts, or anything that may drip water/moisture from above
3. 3' – From any structure opening (e.g. window, door, air intake, etc..)
4. 3' – All directions from any obstruction (e.g. shrubs, A/C equipment, etc.)
5. Meter shall not be enclosed inside buildings, porches, or anywhere which inhibits access to WREA personnel
6. Meter shall not be located under or over decks

APPROVED BY MS	DATE 01/25
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METER
CLEARANCE REQUIREMENTS



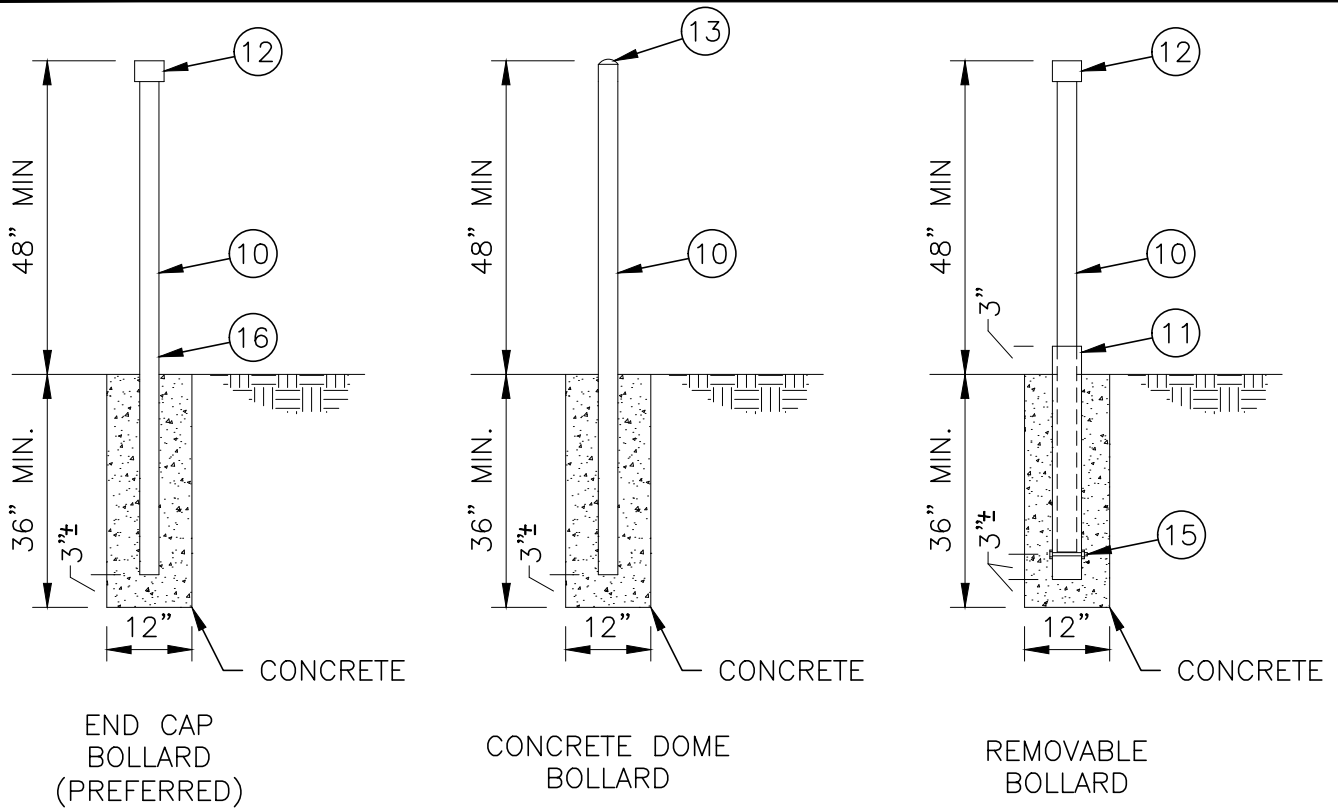
DRAWING NUMBER CLEARANCES-1



Notes:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. GUARD
 - b. CLEARANCES

10. Transformers shall be located in areas:
 - a. Easily accessible to WREA personnel and equipment
 - b. Protected from landslides, flooding, land movement, etc...
11. Member/Contractor shall not install any fencing, enclosures, retaining walls, etc. around transformer without contacting WREA for approval.
12. Member/Contractor shall install and maintaining safeguards for transformer (e.g. retaining walls, bollards, etc...)
13. Transformer shall have 10' of working space directly in front of the doors free and clear of items at all times.
14. Transformer shall have greater than the minimum clearances shown in figures 1 and 2.
15. Transformer shall not be located within 5' of fire or water hydrants



Notes:

The pages listed below must also be followed when using this page. For example, read "GUARD-1" and any other pages that start with these names (note: there may be multiple pages in each):

a. GUARD

- 10. 6" standard galvanized pipe
- 11. 6"+ standard galvanized pipe for removable bollard to set into
- 12. End cap
- 13. Concrete dome top, pipe shall be free of sharp edges
- 14. Removable bollard filled with cured concrete before installation, approximate weight 150 lbs
- 15. 3/4" galvanized bolt to set removable bollard height
- 16. Drill weep holes as needed to avoid pipe burst from water freezing
- 17. Bollards shall be yellow

APPROVED BY
MS

DATE
01/25

BOLLARD CONSTRUCTION
GUARDING REQUIREMENTS

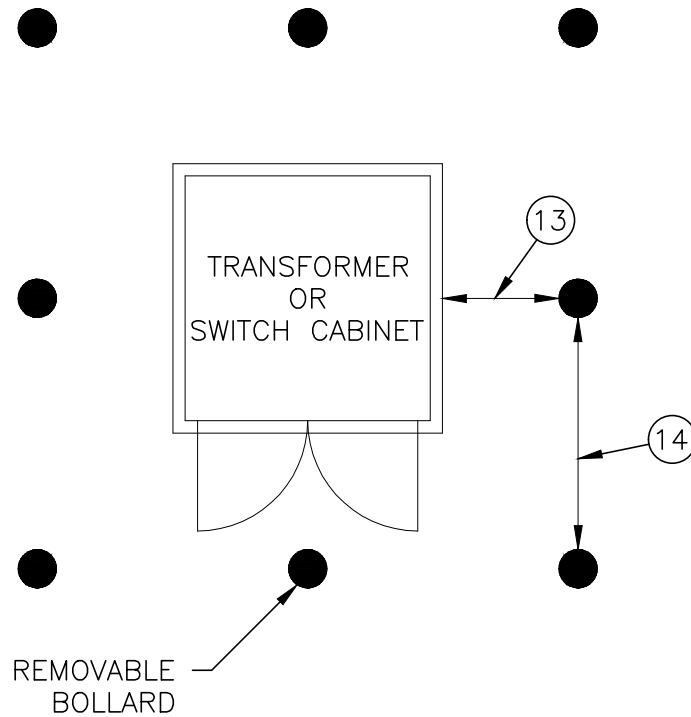


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Your Touchstone Energy Cooperative

DRAWING NUMBER

GUARD-1



(NOT TO SCALE)

Notes:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. GUARD
 - b. CLEARANCES
10. Any equipment located in areas close to or adjacent to vehicle traffic shall be protected by bollard
11. Member/Contractor shall provide protection at the request of and which is acceptable to WREA.
12. Bollards shall be removable if they prevent WREA from accessing equipment, interfere with operation of equipment doors, or at the request of WREA.
13. Bollards shall be installed 2' from the equipment
14. Bollards shall not exceed 5' spacing
15. Building walls will provide acceptable guarding if located consistent with bollard requirements above
16. Square faced street curb parallel to normal traffic flow will provide acceptable guarding if equipment is located 6' or more behind the curb.
17. Bollards shall be 4' or greater from any fire hydrant

APPROVED BY
MS

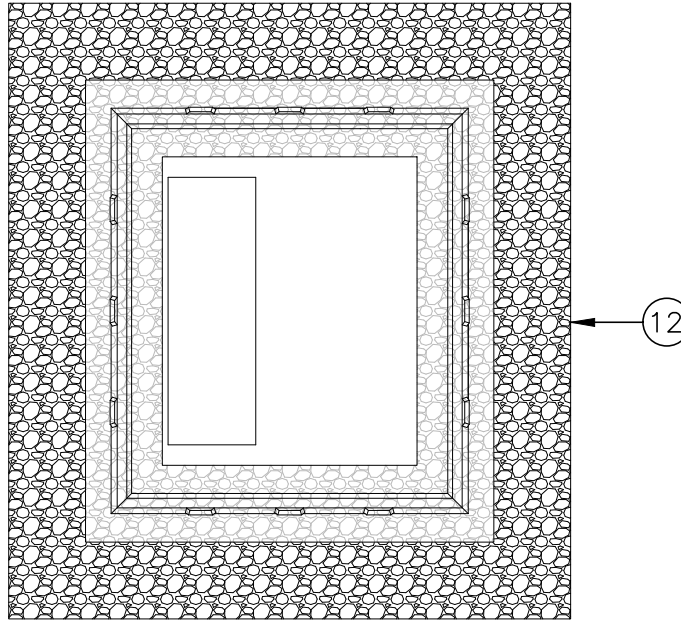
DATE
01/25

BOLLARD PLACEMENT
GUARDING REQUIREMENTS

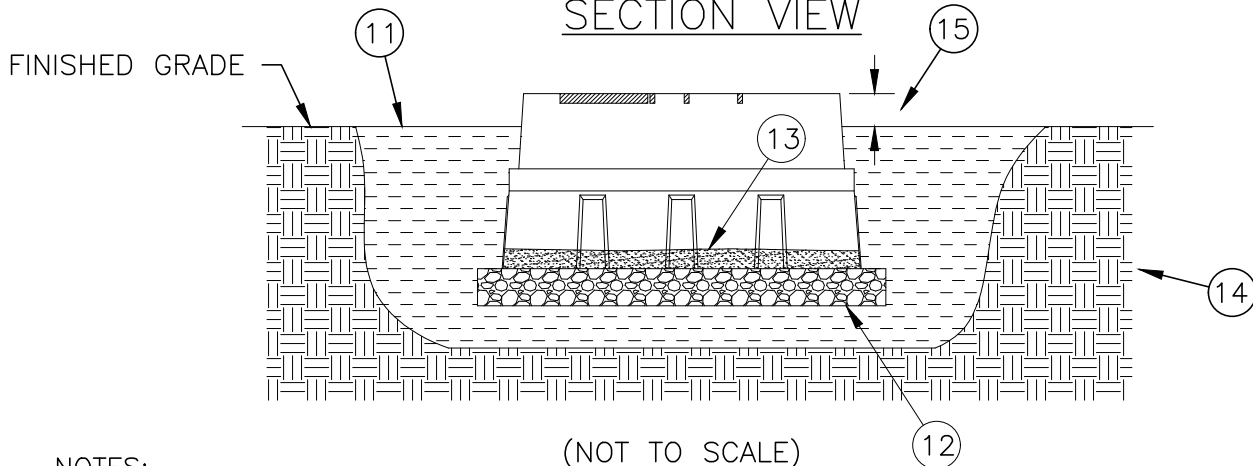


DRAWING NUMBER
GUARD-2

PLAN VIEW



SECTION VIEW



NOTES:

1. The pages listed below must also be followed when using this page. For example, read "TRENCH-1" and any other pages that start with these names (note: there may be multiple pages in each):
 - a. TRENCH

10. Member/Contractor shall achieve proper compaction in and around pad to avoid settling.
11. Compacted fill
12. 8" compacted base course 12" wide around the edge of pad
13. 4" engineered fill
14. Undisturbed soils
15. 3" to 15" of pad exposed depending on size of pad (consult with WREA for desired elevation)

APPROVED BY MS	DATE 01/25
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TYPICAL BASEMENT INSTALLATION
PAD REQUIREMENTS



DRAWING NUMBER
PAD-1