



# Underground Installation Guide

Revised April 1, 2024

## Underground Installation Guide

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## Updates to this Edition 04/1/2024

<b><u>Drawing Name / Description</u></b>	<b><u>Changes</u></b>
Duct Installation Specifications	Added note 4G specifying minimum spacing requirements of gas and water lines to MTE infrastructure.
1S	Updated ditch depth requirements and added note providing guidance for minimum cover.
2S	Updated ditch depth requirements and added note providing guidance for minimum cover.
2C	Revised Dimensions displayed and added note providing guidance for minimum cover.
3C	Revised Dimensions displayed and added note providing guidance for minimum cover.
4C	Revised Dimensions displayed and added note providing guidance for minimum cover.
6C-2	Revised Dimensions displayed and added note providing guidance for minimum cover.
9C	Revised Dimensions displayed and added note providing guidance for minimum cover.
12C	Revised Dimensions displayed and added note providing guidance for minimum cover.
COM-7	Revised drawing to call for XL secondary boxes.
Appendix B	Updates to approved materials and manufacturers.

# Duct System Installation Specifications

## SCOPE

The project consists of the installation of the complete underground duct system for both primary and secondary voltages, including conduit, pull boxes, sectors ground sleeves, equipment pads, riser poles, hand holes, etc., necessary for the installation of MTE's underground primary cables, secondary cables, MTE communication (comm) cables, and other associated MTE equipment and apparatus.

1. The developer shall be responsible for furnishing all labor, materials, and equipment necessary for:
  - A. Excavation, backfill, concrete and/or gravel encasement required for all ditches.
  - B. Duct banks and conduit installation including PVC spacers systems (conduit chairs) and pull strings.
  - C. Pad mounted equipment concrete pads.
  - D. Secondary junction boxes
  - E. Manholes
  - F. Transformer Box Pads
  - G. Sector Ground Sleeves
  - H. Primary pull boxes
  - I. Street lighting, as shown in the MTE Streetlight Manual
  - J. MTE Comm hand holes including "flowerpots" and MTE comm conduit
2. In addition to the above, the developer shall be responsible for all surveying for the placement of MTE's lines and equipment, and for all electrical easements required at no cost to MTE.
3. MTE shall furnish drawings showing specific locations, quantities, sizes, encasement, and/or other requirements. Said drawings are a part of these specifications and are equally important to the success of the project.
4. Specific Material/Equipment Specifications:
  - A. Manholes:
    - a. Manhole excavation and backfill requirements are shown on drawings "MH-3 sh 2" and "OMH-3 sh2." Strict adherence to these requirements is critical.
    - b. The developer should give MTE a minimum of 24-hours of notice prior to setting manholes for MTE to schedule a crew to install manhole grounding and sump wells prior to backfill and to schedule an inspector to be present during the setting of manholes
    - c. Elevations for manholes are critical. The maximum throat allowed is 24". The minimum is 6".
    - d. The developer shall follow manufacturer's recommendations when setting manholes. Proper slings and attachments are vital to the integrity of the manhole. Damaged manholes will not be accepted.
    - e. See drawing "MH-3" or "OMH-3" for manufacturing details on manholes.
    - f. Care shall be taken when placing manholes to align parallel to the street, thereby facilitating conduit installation.
    - g. The first manhole, downline from the riser pole, shall be installed no more than fifty (50) feet from the pole, with the riser elbow(s) pointed in line with the duct bank conduits.

- h. Manholes shall be spaced no further than six hundred (600) feet apart unless written authorization is given by the MTE Support Engineer for that area.
- i. Conduits shall extend from the manhole pre-manufactured “knockout” holes on the sidewalls of the manhole. Careful planning and consideration should be given to verify that electric conduits shall not interfere with existing or proposed utilities, storm drains etc.

#### B. Duct Banks:

- a. Primary duct bank details are included in the drawings. See Primary Ditch Details "2C", "3C", "4C", "6C-2", "9C", "12C", "4G", or "2G" for ditch details. MTE Engineering will specify the duct bank to be used. Small aluminum primary cable in conduit shall be encased in gravel per Ditch Detail drawing "2G". All primary cable installations and feeders larger than No. 4/0 aluminum shall be encased in concrete per the Ditch Details Drawing that is specified by MTE. Any exceptions to this policy must be approved by the MTE Vice President of Engineering. Ditch Detail “2G” shows the installation of an MTE communications conduit is in the same ditch with MTE's primary cable.
- b. Concrete duct banks shall be 3000 psi or greater with, maximum coarse aggregate size of ¾". Concrete shall have enough slump to flow to the bottom of the form and not wet enough to float the conduit.
- c. Flowable fill is not permitted
- d. If there is 10' or less distance between a manhole and riser pole or switch foundation, concrete encasement of the conduit is not required.
- e. The secondary conduit ditch details are shown on Secondary Ditch Details "1S" and "2S". Cover required is shown on details.
- f. The duct bank must be inspected by MTE prior to concrete or gravel encasement and prior to backfill. Call 877-886-8362 or request the inspection online at [www.mte.com/ConstructionStandards](http://www.mte.com/ConstructionStandards) at least 24 hours prior to needing inspection.
- g. All completely underground primary conduit shall be schedule 40 if encased in gravel or if encased in concrete, but elbows shall be schedule 80. See MTE Engineering for size conduit and encasement requirements. See Secondary Ditch Details for secondary conduit requirements.
- h. The primary duct bank should be straight and as level as practical. No sharp bends or dips will be allowed. Conduit banks shall be supported a minimum of every seven (7) feet by PVC spacer system (conduit chairs). See the Approved Material List for MTE approved PVC spacer systems. Ducts should drain into manholes.
- i. Caps of the proper size and type shall be installed on all conduits not terminating in manholes, switches, hand holes, flower pots, or other such equipment. Conduit shall be ~~dn~~ dirt and rock free.
- j. In some instances, excavation at specific apparatus must be deeper than the typical ditch detail drawings show. In such cases, the developer should begin sloping the ditch deeper a minimum distance of 20' away from the apparatus in question. No sharp bends will be accepted. Primary duct banks shall not be heated.
- k. Conduit bank should enter rectangular manholes as shown on “MH-3 sh 3”.
- l. Conduit must be installed to enter manhole perpendicular to manhole. (Note that manhole may not be parallel with the street in all cases; therefore, care must be taken to align conduit for perpendicular entrance to manholes.) Misaligned conduit banks will not be accepted.
- m. Secondary or service lateral conduit ditch details are shown on Secondary Ditch Detail "1S" or "2S". No sharp bends will be allowed. Horizontal bending radius must be no less than 6' and limited to one (1) per run. Conduit road crossings must be planned to avoid

sharp bends for conduit serving building sites. MTE inspectors will reject road crossings not taking this into account.

- n. Pull strings shall be installed in all conduits.
- o. MTE Communications (Comm) conduit shall be installed in the same manner as the primary and secondary conduit. Elbows are not required for the HDPE conduit. The MTE comm conduit may be installed in the same ditches as the primary and secondary conduit. MTE Comm conduit shall be as specified HDPE SDR 13.5 orange with red stripes when placed in an open primary ditch. If the conduit is being installed by boring, then SDR 11 shall be used. MTE Comm conduit in secondary ditches can be schedule 40 PVC.

#### C. Concrete Equipment Pads:

- a. Concrete equipment pads (such as switch, transformer, etc.) must be inspected by MTE prior to concrete pouring. Call MTE at 1-877-886-8362 or online at [www.mte.com/ConstructionStandards](http://www.mte.com/ConstructionStandards) to request pad inspection.
- b. Concrete pads shall rest on gravels installed according to the details found elsewhere in the drawings.
- c. Detailed drawings of required concrete pads will be furnished by MTE to the developer as a part of the plans and specifications. (See "PAD NO. 10" and "PAD NO. 11" for switch pad details, and "PAD NO. 1" or "PAD NO. 5" for transformer pad details. See "PAD NO. 12 for primary metering cabinet.)

#### D. Riser Poles

- a. At riser poles (see drawing RP-1), the developer shall furnish and install all conduit and conduit elbows required from the ditch up to and including one foot above the first bracket. MTE will install additional conduit sections and brackets for each riser required. Prior to any digging within three (3) feet of MTE's poles, MTE shall be contacted 24 hours in advance to arrange for an MTE inspector to be present during excavation and backfill closer than three (3) feet from poles.

#### E. Secondary Box Pedestals:

- a. Overhead primary/underground secondary developments:  
When required by MTE engineers, a secondary box pedestal shall be installed near the base of each transformer pole and additional secondary box, pedestals shall be installed on property lines on both sides of the street as specified by MTE Engineering. (See drawing SBP-1, - 2). These pedestals shall have schedule 40 PVC conduits (number and size as required by MTE) running under the street between them, with 90-degree, 24" radius schedule 80 PVC elbows turning up into the pedestals. The developer shall install one (1) 90-degree, 24" radius schedule 80 PVC elbow for each lot to be served from the appropriate pedestal. The schedule 80 PVC elbows shall be connected to a 10' section of schedule 40 PVC and turned in the direction of their respective building sites. Secondary box size will be designated by the MTE engineer. A list of approved boxes is found in Appendix "B".
- b. Completely underground developments:  
In developments with pad mounted transformers (PMT), secondary pull boxes shall be installed across the street from the PMT as specified by MTE Engineering, and secondary pull boxes will be required on the same side of the road as required by MTE Engineering (See drawings SBP-2, -3).  
Schedule 40 PVC conduits (number and size as required by MTE engineers) shall extend from the PMT secondary compartment area to the pullbox. In addition, the developer shall install one (1) 90-degree, 24" radius schedule 80 (was 40) PVC elbow for each lot to be

served from the PMT secondary compartment or the pull box. These elbows shall be turned in the direction of their respective building sites. Secondary box size will be designated by the MTE engineer. A list of approved boxes is found in Appendix "B".

F. MTE Communications Hand Holes

a. MTE Communication hand holes shall be installed as specified by MTE Engineering. A hand hole shall be installed in place of a flowerpot at all multimeter locations. See SBP-1 and SBP-2 for examples of layouts. Use sheet 2 of those drawings as examples for installing comm pull boxes. All MTE comm pull boxes shall be installed a minimum of three (3) feet from any above ground piece of MTE equipment for example: transformer, switch, sector, pole, etc.

G. Proximity to Water and Gas Lines

a. All MTE infrastructure including but not limited to conduits, manholes, box pads, and pull boxes must have a minimum horizontal separation of 36" from gas and water lines.

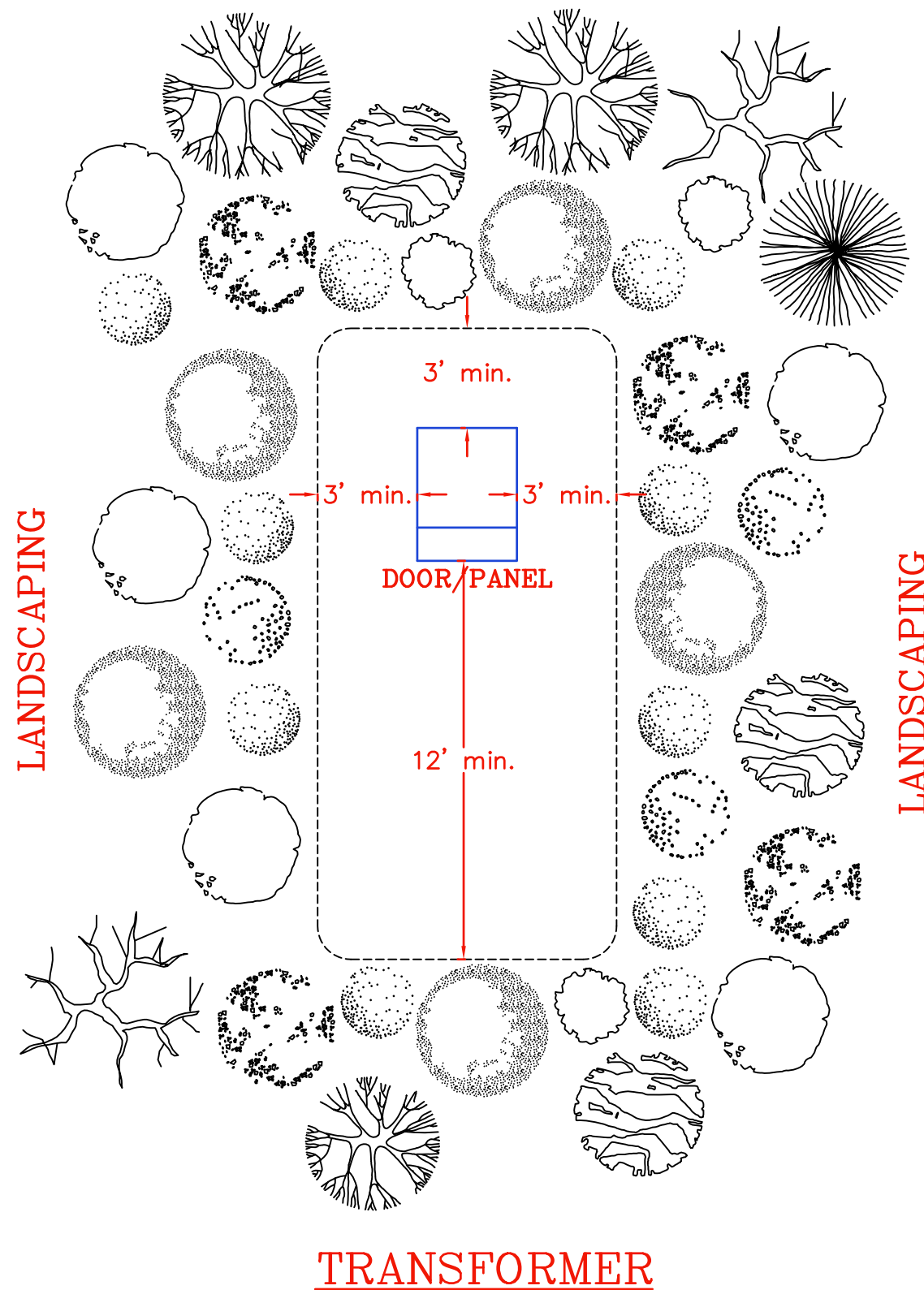
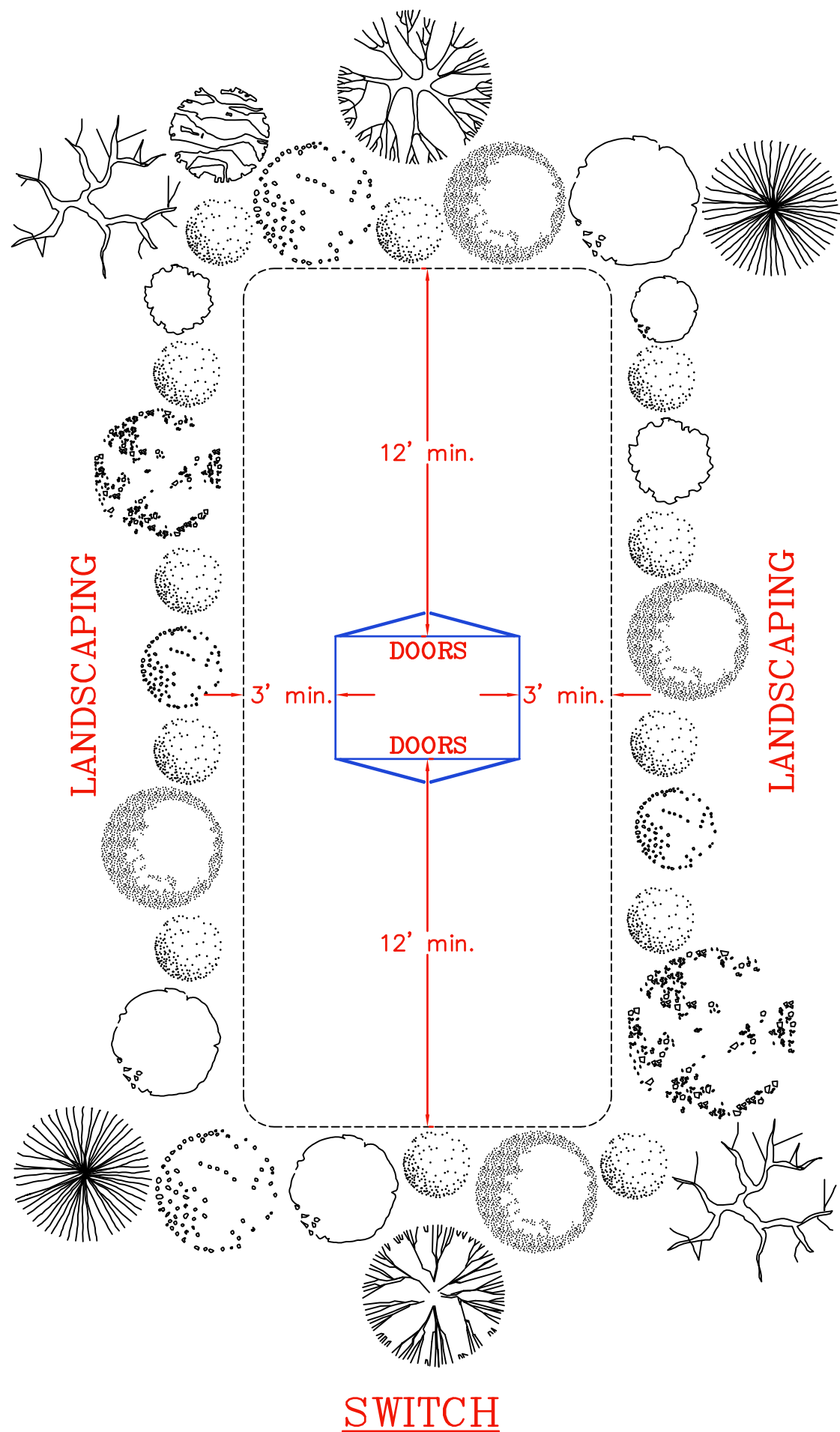
5. Miscellaneous Requirements:

- A. Any changes to these plans and specifications must have the approval of MTE's Engineering Services Manager.
- B. Inspections by MTE are vital to the acceptability of the duct system by MTE prior to MTE's installation of cable and other electrical apparatus. MTE operations' inspectors must be assured that the duct system is installed to MTE's duct specifications before such apparatus can be installed. It is therefore, extremely important for all installations to be inspected in a timely manner, as outlined elsewhere in these specifications.
- C. Particular attention should be given (for safety reasons) to the sloping of banks in ditches or other excavation deeper than five feet. Detailed drawings may not show applicable local, state, and federal laws, codes and regulations ("Applicable Laws"), including OSHA, due to variations in field conditions, such as soil types. Nevertheless, the developer is solely responsible for its compliance with all Applicable Laws. MTE has no responsibility to identify any Applicable Laws for developer and will not in any way be responsible or liable for developer's failure to comply with all Applicable Laws.



## Request for Location of Underground Facilities

1. Before beginning any excavation operation, each person responsible for such excavation shall serve written or telephonic notice of intent to excavate to Tennessee One Call (811) at least three (3) working days prior to the actual date of excavation, but not more than fifteen (15) full working days prior to such time.
2. Should a period of time of fifteen (15) working days from the actual date specified to start excavation expire without the excavation begin completed, the person responsible for such excavation shall notify Tennessee One Call of intent for additional excavation. Such notification must take place a minimum of three (3) working days prior to the expiration of original fifteen- (15) working-day period.
3. The written or telephone notice required shall contain the name, address, and telephone number of the person responsible for excavation; and the starting date, type of excavation to be done, specific location of excavation, and whether or not explosives are to be used.
4. The location of proposed area of excavation should be designated by marking such area with “Safety Orange” color-coded stakes and “Safety White” identifications on the roadway, or other marking devices.
5. The appropriate location of MTE underground facilities does not include a designation of location as to depth below the surface of the ground. Excavators must use reasonable care to ascertain for themselves the exact depth of the underground facilities. If after so ascertaining, the excavator learns that the excavation is likely to interfere with the operation of MTE facilities, he/she must contact MTE to make other arrangements.
6. In the event of an emergency, MTE may be contacted at any time. “Emergency” means an imminent danger to life, health, or property.
7. MTE will use “Safety Red” to mark its facilities.



NOTE:

LANDSCAPING AROUND THE PAD IS PERMITTED. HOWEVER, NO TREES, BUSHES, OR SHRUBBERY SHOULD BE PLANTED WITHIN TWELVE (12) FEET OF THE SIDES OF PAD-MOUNTED EQUIPMENT THAT HAVE DOORS OR ACCESS COVERS THAT MUST BE OPENED. ON THE SIDES OF THE EQUIPMENT THAT DO NOT HAVE DOORS OR ACCESS COVERS, TREES, BUSHES, AND SHRUBBERY SHOULD BE PLANTED AT LEAST THREE (3) FEET AWAY. SMALL PLANTS AND FLOWERS THAT DO NOT REQUIRE USE OF CHAINSAWS SAWS OR OTHER SIMILAR EQUIPMENT TO REMOVE ARE PERMITTED CLOSER TO THE PAD BUT MAY BE DAMAGED OR DESTROYED IF MAINTENANCE IS REQUIRED TO BE PERFORMED ON THE PAD-MOUNTED EQUIPMENT.



**PADMOUNTED  
EQUIPMENT R.O.W.**

DRAWING NUMBER:

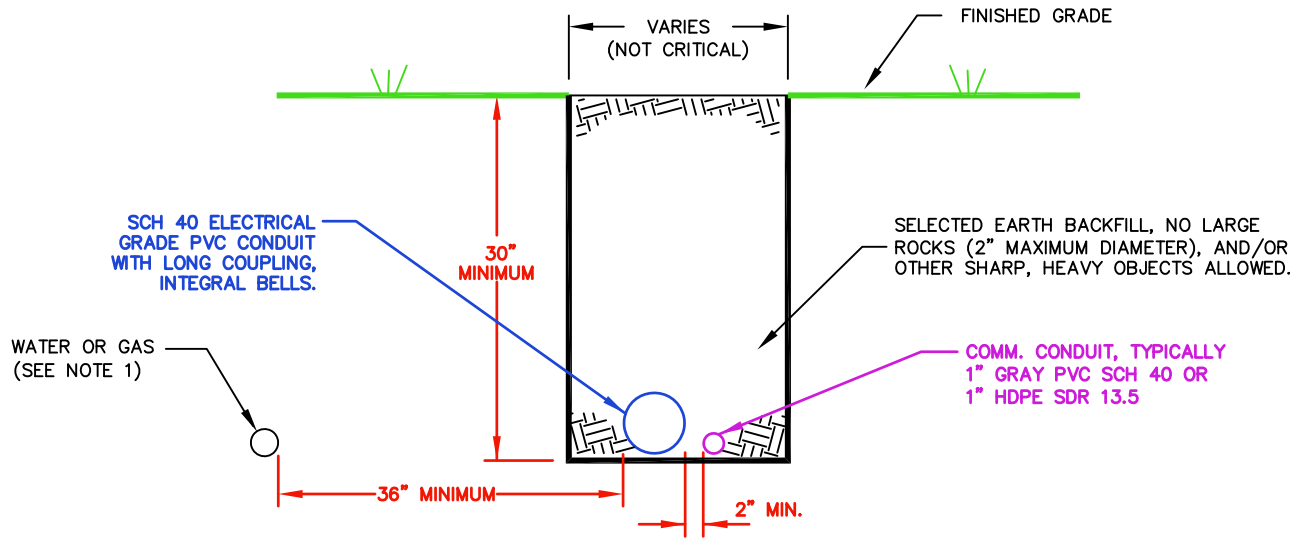
**ROW-1**

REVISED DATE:

OCT. 11, 2012


SCALE: NONE

SHEET: 1 OF 1

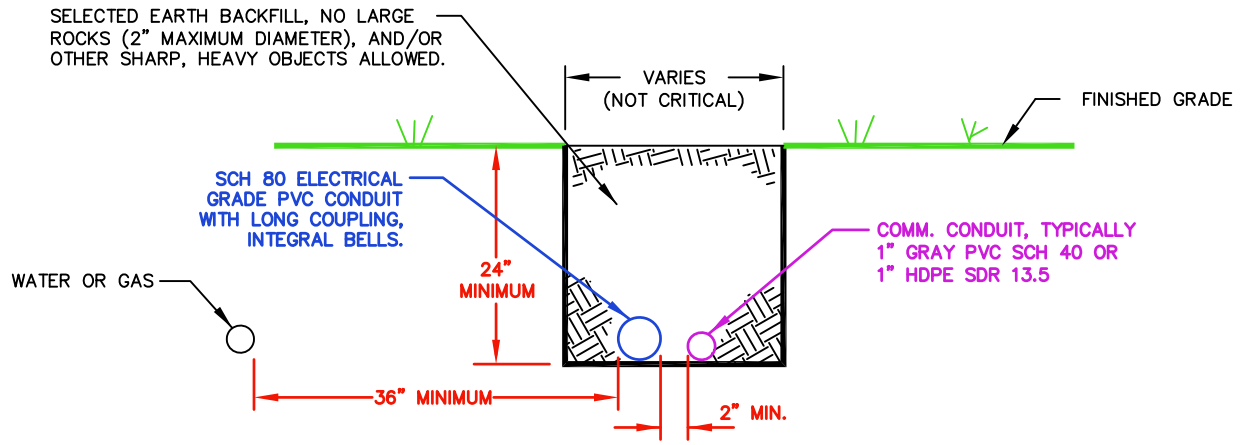


**Notes:**

1. Conduits run horizontal to water or gas lines must have a minimum 36" horizontal separation.
2. Telephone or cable utility minimum separation from MTE ducts shall be either:
  - a.) 36" parallel
  - b.) 12" vertical
3. All foreign utility perpendicular crossings must have 12" minimum separation from MTE ducts.
4. PVC Conduit shall be gray schedule 40 with long integral bells. The size and number as specified by MTE and indicated on the plans. Long couplings defined as 6" or longer for 3" conduit shall be used as necessary.
5. Comm conduit to be gray schedule 40 PVC or HDPE SDR 13.5 orange with red stripe. Use only approved couplings from Appendix B of MTE UIG.
6. No sharp bends will be allowed. Horizontal bends must be greater than 6' radius. Contractor should plan runs to building sites such that no sharp bends will be necessary to serve the building.
7. Install Jetline pull string with minimum 200 lb tensile strength in each conduit.
8. If above not practical, then options shown on secondary ditch detail 2S may be used.
9. Developer/owner is responsible for providing MTE a clean and obstruction free conduit system.
10. Multiple family units require the minimum conduit requirements:
  - Townhomes:
    - Up to 5 units - one (1) conduit to the gang base.
    - 6 units or larger - two (2) conduits to the gang base.
  - Apartments:
    - 1 to 11 units - one (1) 3" conduit to each gang base.
    - 12 to 36 units - two (2) 3" conduits to each gang base.
  - Two (2) 3" conduits for all road crossings
11. Uppermost electrical conduit shall have no less than 24" of cover to surface / ground line.

	
<p><b>SECONDARY DITCH DETAIL</b></p>	
<p><b>DRAWING NUMBER:</b></p> <p style="font-size: 2em; text-align: center;">1S</p>	<p><b>REVISED DATE:</b> APRIL 1, 2024</p> <hr/> <p><b>SCALE:</b> <u>  NONE  </u></p> <hr/> <p><b>SHEET:</b> <u>  1  </u> OF <u>  1  </u></p>


**THE FOLLOWING OPTION IS ALLOWED AT DISCRETION OF MTE ENGINEERING  
WHERE ROCK WILL NOT ALLOW DRAWING 1S TO WORK.**

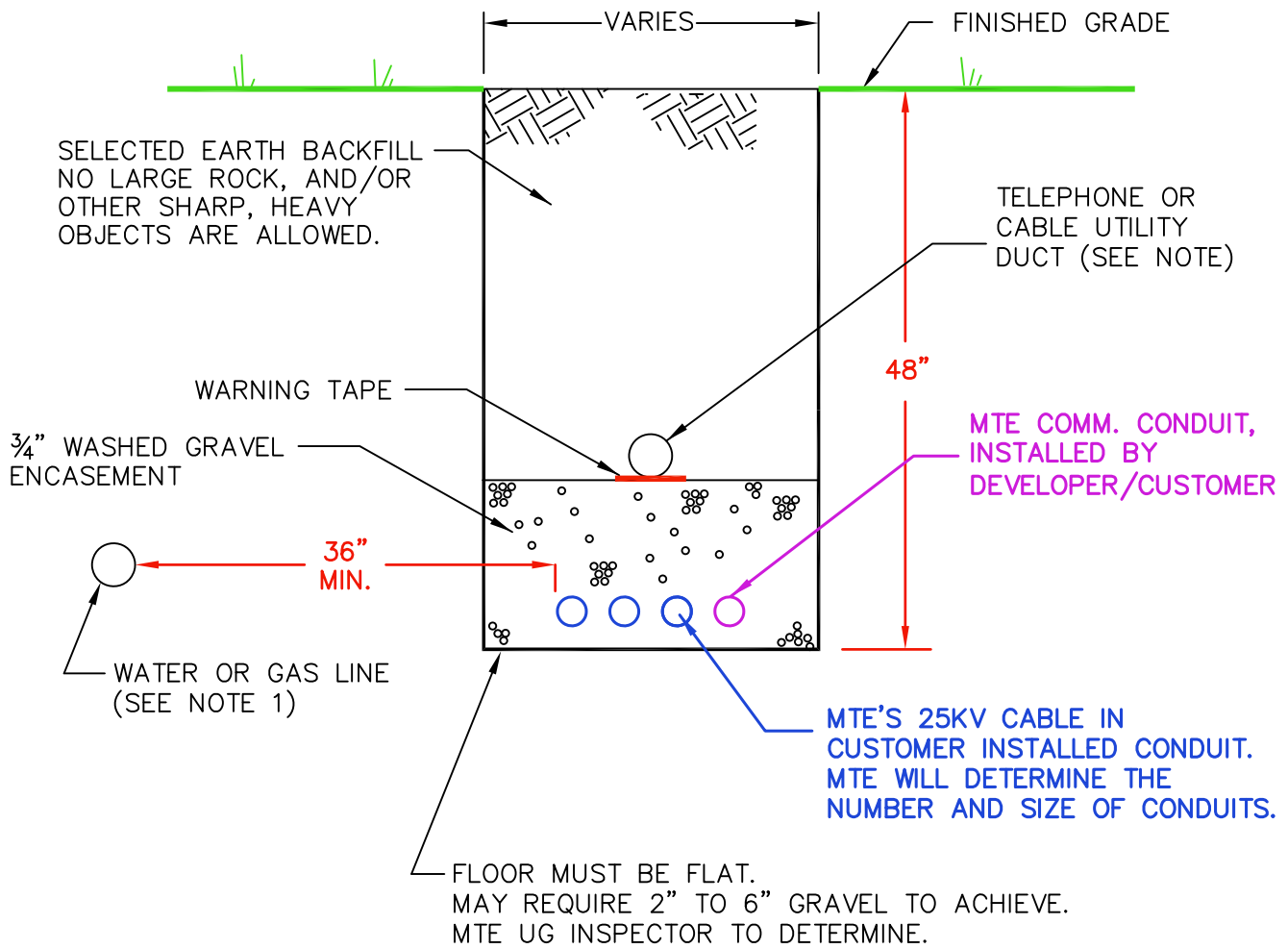


**SECONDARY DITCH DETAIL**

**NOTES:**


1. Use secondary ditch detail 1S where practical; the above option only if detail 1S is not practical.
2. Conduits run horizontal to water or gas lines must have a minimum 36" horizontal separation.
3. Telephone or cable utility minimum separation from MTE ducts shall be either:
  - a.) 36" parallel
  - b.) 12" vertical
4. All foreign utility perpendicular crossings must have 12" minimum separation from MTE ducts.
5. PVC Conduit shall be gray schedule 40 with long integral bells. The size and number as specified by MTE and indicated on the plans. Long couplings defined as 6" or longer for 3" conduit shall be used as necessary.
6. Comm conduit to be gray schedule 40 PVC or HDPE SDR 13.5 orange with red stripe. Use only approved couplings from Appendix B of MTE UIG.
7. No sharp bends will be allowed. Horizontal bends must be greater than 6' radius. Contractor should plan runs to building sites such that no sharp bends will be necessary to serve the building.
8. Install Jetline pull string with minimum 200 lb tensile strength in each conduit.
9. Long couplings defined as 6" or longer for 3" conduit shall be used as necessary.
10. Developer/owner is responsible for providing MTE a clean and obstruction free conduit system.
11. Multiple family units require the minimum conduit requirements:
  - Townhomes:
    - Up to 5 units – one (1) conduit to the gang base.
    - 6 units or larger – two (2) conduits to the gang base.
  - Apartments:
    - 1 to 11 units – one (1) 3" conduit to each gang base.
    - 12 to 36 units – two (2) 3" conduits to each gang base.
  - Two (2) 3" conduits for all road crossings.
12. Uppermost electrical conduit shall have no less than 18" of cover to surface / ground line.

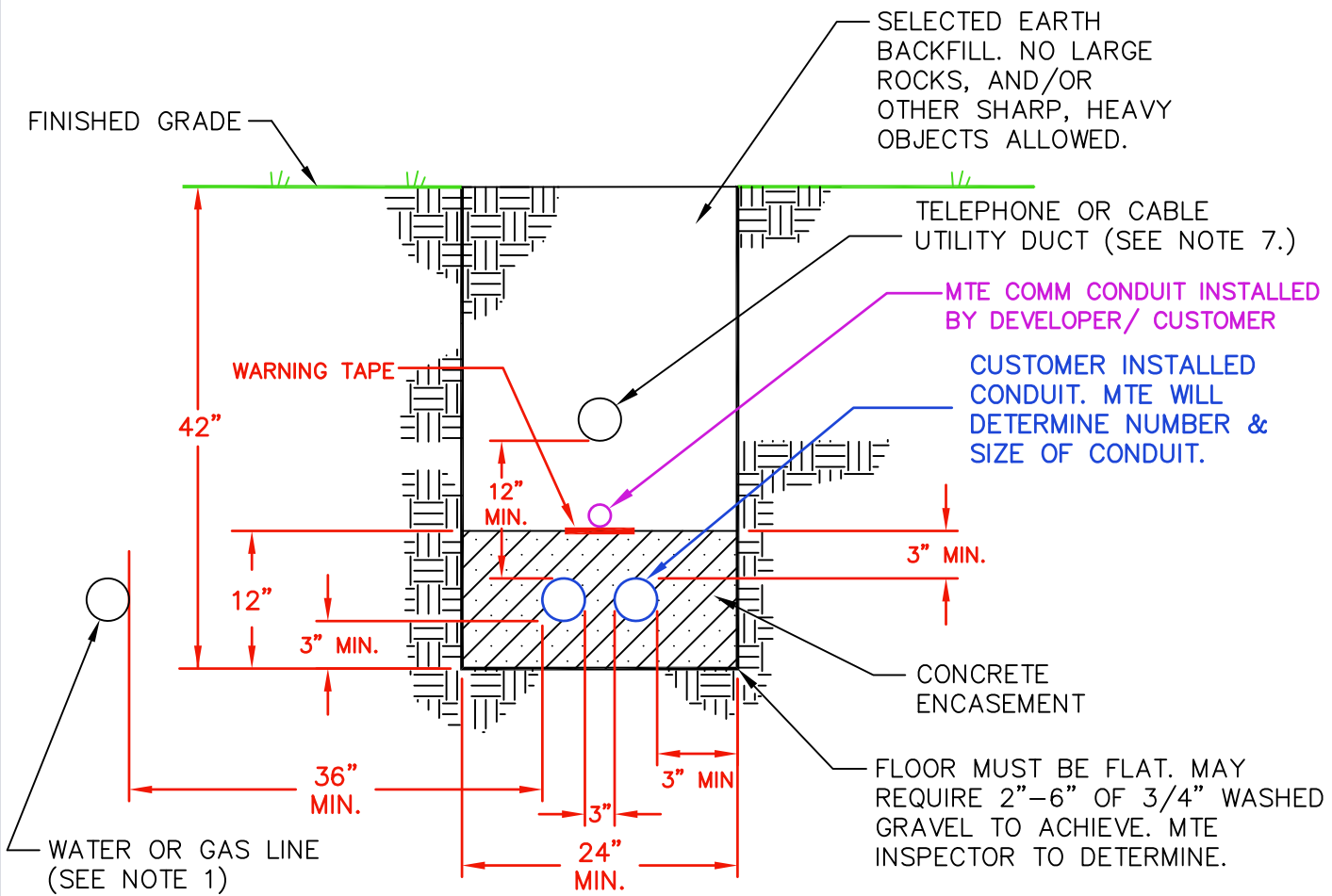
	
<p><b>SECONDARY DITCH DETAIL</b></p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; text-align: center;">2S</p>	<p>REVISED DATE:</p> <p style="text-align: center;">APRIL 1, 2024</p> <hr/> <p>SCALE: <u>  NONE  </u></p> <hr/> <p>SHEET: <u>  1  </u> OF <u>  1  </u></p>



**Notes:**


1. Conduits run horizontal to water or gas lines must have a minimum 36" horizontal separation.
2. Telephone or cable utility minimum separation from MTE ducts shall be either:
  - a.) 36" parallel
  - b.) 12" vertical
3. All foreign utility perpendicular crossings must have 12" minimum separation from MTE ducts.
4. Electrical conduit shall be gray PVC schedule 40 with long integral bells. The size and number as specified by MTE and indicated on the plans. Long couplings as defined in Appendix B shall be used as necessary. Comm conduit shall be 2" HDPE SDR 13.5, orange with red stripe, for main comm line and mulit-drop conduits. Comm conduit is 1" PVC sch. 40 for single drops.
5. Install Jetline pull string with minimum 200 lb tensile strength in each conduit.
6. Omit telephone or catv utility duct requirement if not being installed.
7. If conductor is not to be initially installed in the duct bank, a #14 thhn cu tracer wire shall be installed inside one of the interior conduits or center conduit if an odd number of conduits are installed. If one end of the conduit is just a stub out 10 feet or longer, the tracer wire shall be bent back to the outside of the conduit and securely taped such that the wire can't be pulled out easily. There shall be 10' tails left in all enclosures for MTE to connect to ground. See MTE local engineering for questions.
8. Developer/owner is responsible for providing MTE a clean and obstruction free conduit system.

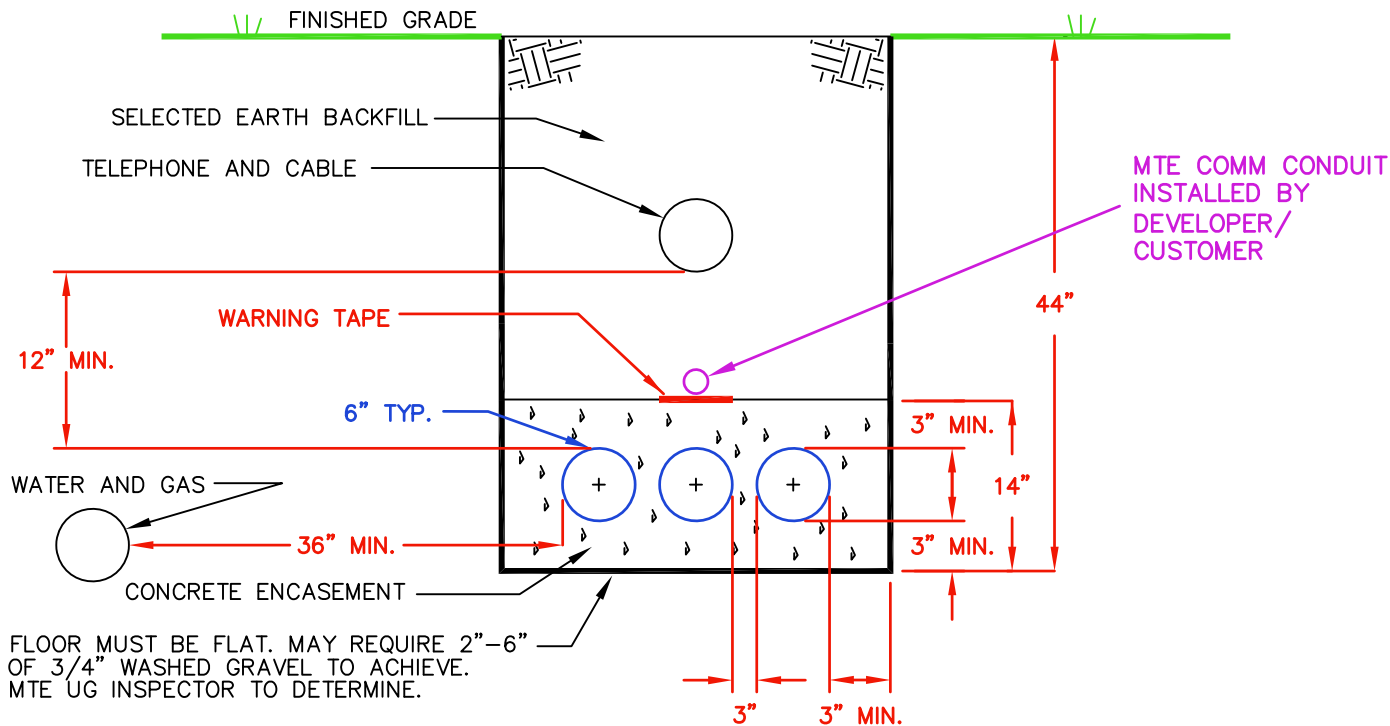
	
<p><b>PRIMARY DITCH DETAIL</b></p>	
<p><b>DRAWING NUMBER:</b></p> <p style="font-size: 2em; text-align: center;">2G</p>	<p><b>REVISED DATE:</b> JAN. 2, 2023</p> <p><b>SCALE:</b> <u>NONE</u></p> <p><b>SHEET:</b> <u>1</u> OF <u>1</u></p>



**NOTES:**

1. CONDUITS RUN HORIZONTAL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" HORIZONTAL SEPARATION.
2. TELEPHONE OR CABLE UTILITY MINIMUM SEPARATION FROM MTE DUCTS SHALL BE EITHER:
  - a) 36" PARALLEL
  - b) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTE DUCTS.
4. ELECTRICAL CONDUIT SHALL BE GRAY PVC SCHEDULE 40 WITH LONG INTEGRAL BELLS. THE SIZE AND NUMBER AS SPECIFIED BY MTE AND INDICATED ON THE PLANS. LONG COUPLINGS AS DEFINED IN APPENDIX B SHALL BE USED AS NECESSARY. COMM CONDUITS SHALL BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE FOR MAIN COMM LINE AND MULTI-DROP SERVICE. COMM CONDUIT IS 1" PVC SCH 40 FOR SINGLE DROPS.
5. CONDUIT SHALL BE SUPPORTED WITH APPROVED DUCT SPACERS AT REGULAR INTERVALS NOT EXCEEDING 7'-0". SEE APPENDIX B FOR APPROVED SPACERS.
6. A MINIMUM OF 3" OF CONCRETE IS REQUIRED AROUND DUCT BANK WITH 3" SEPARATION BETWEEN CONDUITS.
7. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
8. OMIT TELEPHONE OR CABLE UTILITY DUCT REQUIREMENTS IF NOT BEING INSTALLED.
9. IF CONDUCTOR IS NOT TO BE INITIALLY INSTALLED IN THE DUCT BANK, A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL ENCLOSURES FOR MTE TO CONNECT TO GROUND. SEE MTE LOCAL ENGINEERING FOR QUESTIONS.
10. DEVELOPER/OWNER IS RESPONSIBLE FOR PROVIDING MTE A CLEAN AND OBSTRUCTION FREE CONDUIT SYSTEM.
11. UPPERMOST ELECTRICAL CONDUIT SHALL HAVE NO LESS THAN 33" OF COVER TO SURFACE / GROUND LINE.

	
<p><b>PRIMARY DITCH DETAIL</b></p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; text-align: center;">2C</p>	<p>REVISED DATE:</p> <p style="text-align: center;">APRIL 1, 2024</p> <hr/> <p>SCALE: <u>NONE</u></p> <hr/> <p>SHEET: <u>1</u> OF <u>1</u></p>



**NOTES:**

1. CONDUITS RUN PARALLEL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" SEPARATION.
2. TELEPHONE OR CABLE UTILITY SEPARATION FROM MTE DUCTS SHALL BE EITHER:
  - a.) 36" PARALLEL
  - b.) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTE DUCTS.
4. ELECTRICAL CONDUIT SHALL BE GRAY PVC SCHEDULE 40 WITH LONG INTEGRAL BELLS. THE SIZE AND NUMBER AS SPECIFIED BY MTE AND INDICATED ON THE PLANS. LONG COUPLINGS AS DEFINED IN APPENDIX B SHALL BE USED AS NECESSARY. COMM CONDUITS SHALL BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE FOR MAIN COMM LINE AND MULTI-DROP SERVICE. COMM CONDUIT IS 1" PVC SCH 40 FOR SINGLE DROPS.
5. CONDUIT SHALL BE SUPPORTED WITH APPROVED DUCT SPACERS AT REGULAR INTERVALS NOT EXCEEDING 7'-0". SEE APPENDIX B FOR APPROVED SPACERS.
6. A MINIMUM OF 3" OF CONCRETE IS REQUIRED AROUND DUCT BANK.
7. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
8. CONCRETE SHALL BE MIXED WITH RED DYE.
9. IF CONDUCTOR IS NOT TO BE INITIALLY INSTALLED IN THE DUCT BANK, A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL ENCLOSURES FOR MTE TO CONNECT TO GROUND. SEE MTE LOCAL ENGINEERING FOR QUESTIONS.
10. DEVELOPER IS RESPONSIBLE FOR PROVIDING MTE A CLEAN AND OBSTRUCTION FREE CONDUIT SYSTEM.
11. UPPERMOST ELECTRICAL CONDUIT SHALL HAVE NO LESS THAN 33" OF COVER TO SURFACE / GROUND LINE.



**PRIMARY DITCH  
DETAIL**

(3 CONDUITS 6" TYPICAL)

DRAWING NUMBER:

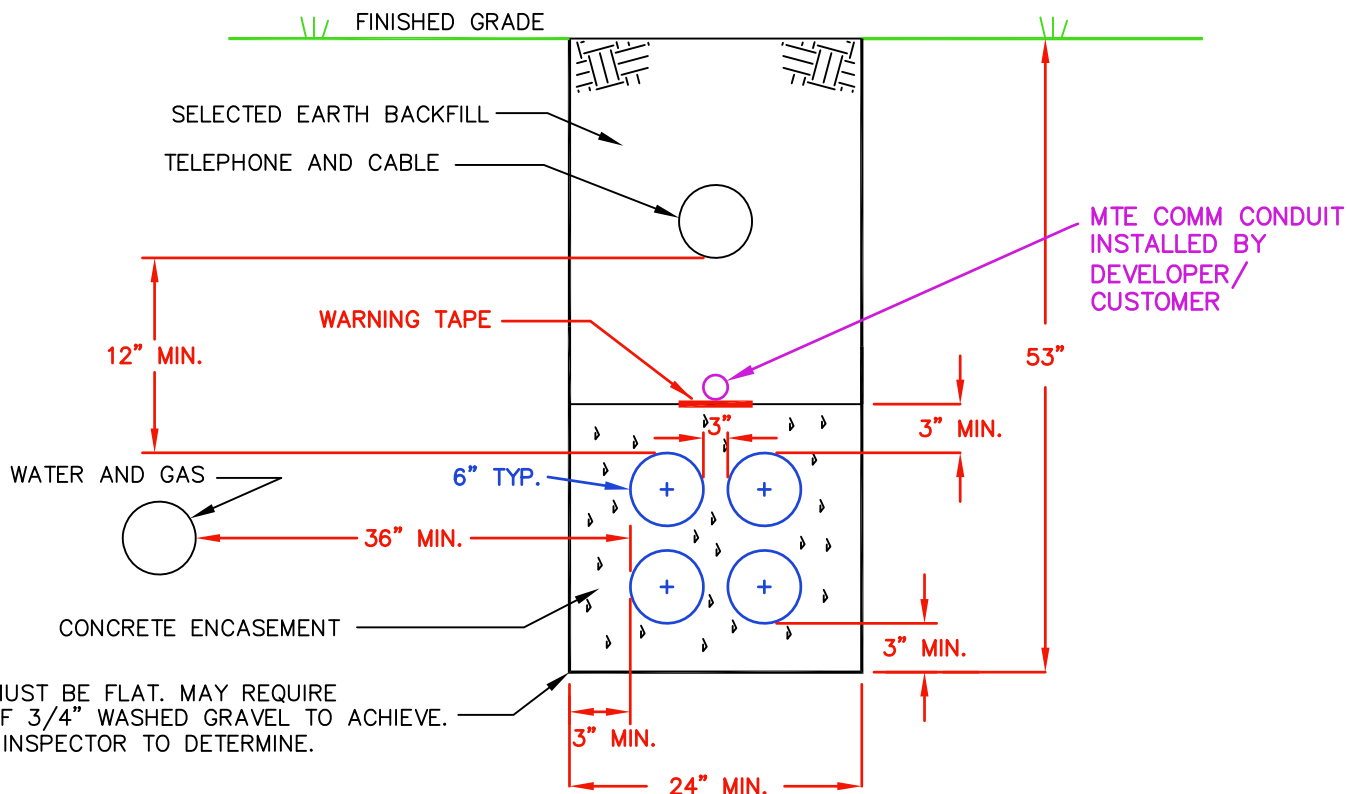
3C

REVISED DATE:

APRIL 1, 2024

SCALE: NONE


SHEET: 1 OF 1



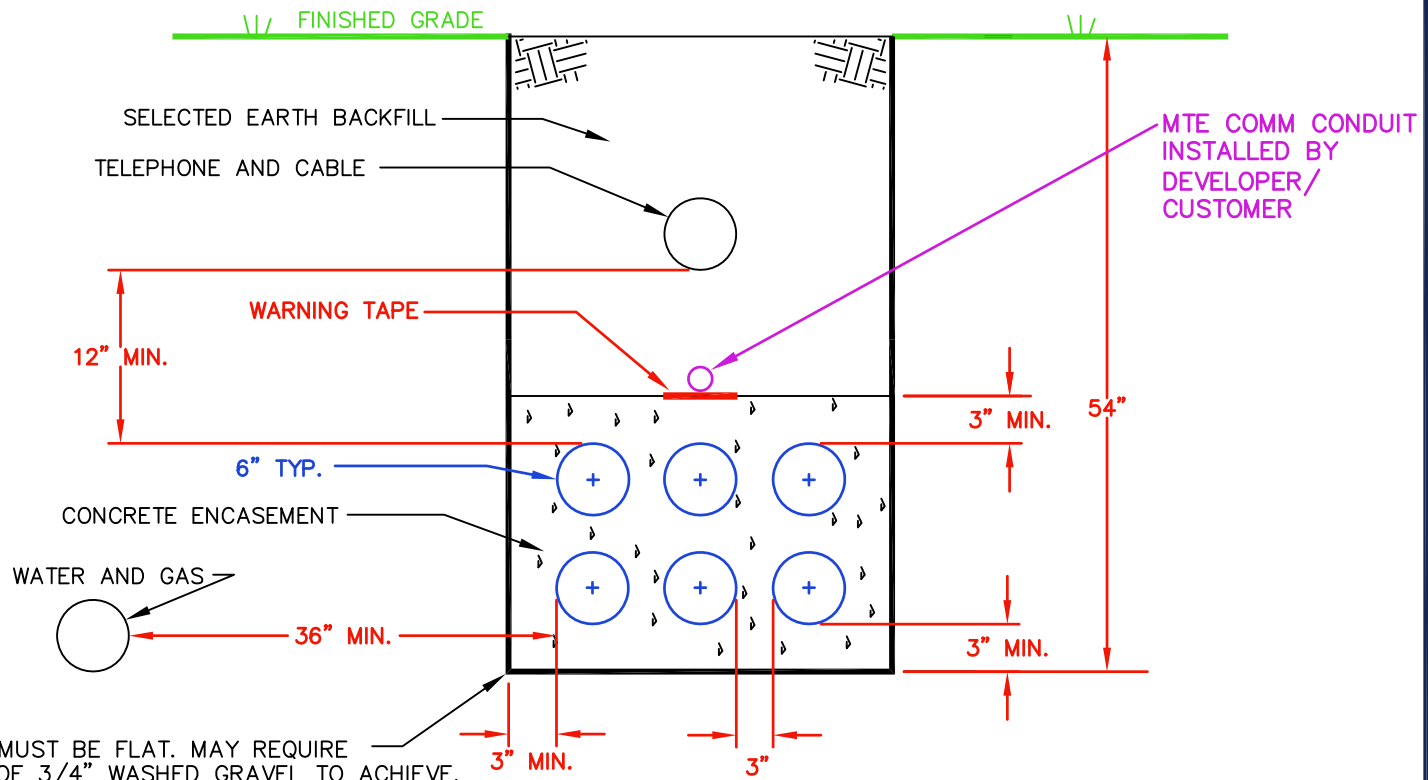
FLOOR MUST BE FLAT. MAY REQUIRE 2"–6" OF 3/4" WASHED GRAVEL TO ACHIEVE. MTE UG INSPECTOR TO DETERMINE.

**NOTES:**

1. CONDUITS RUN HORIZONTAL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" HORIZONTAL SEPARATION.
2. TELEPHONE OR CABLE UTILITY MINIMUM SEPARATION FROM MTE DUCTS SHALL BE EITHER:
  - a) 36" PARALLEL
  - b) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTE DUCTS.
4. ELECTRICAL CONDUIT SHALL BE GRAY PVC SCHEDULE 40 WITH LONG INTEGRAL BELLS. THE SIZE AND NUMBER AS SPECIFIED BY MTE AND INDICATED ON THE PLANS. LONG COUPLINGS AS DEFINED IN APPENDIX B SHALL BE USED AS NECESSARY. COMM CONDUITS SHALL BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE FOR MAIN COMM LINE AND MULTI-DROP SERVICE. COMM CONDUIT IS 1" PVC SCH 40 FOR SINGLE DROPS.
5. CONDUIT SHALL BE SUPPORTED BY APPROVED DUCT SPACERS AT REGULAR INTERVALS NOT EXCEEDING 7'-0". SEE APPENDIX B FOR APPROVED SPACERS.
6. A MINIMUM OF 3" OF CONCRETE IS REQUIRED AROUND DUCT BANK.
7. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
8. CONCRETE SHALL BE MIXED WITH RED DYE.
9. IF CONDUCTOR IS NOT TO BE INITIALLY INSTALLED IN THE DUCT BANK, A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL ENCLOSURES FOR MTE TO CONNECT TO GROUND. SEE MTE LOCAL ENGINEERING FOR QUESTIONS.
10. DEVELOPER IS RESPONSIBLE FOR PROVIDING MTE A CLEAN AND OBSTRUCTION FREE CONDUIT SYSTEM.
11. UPPERMOST ELECTRICAL CONDUIT SHALL HAVE NO LESS THAN 33" OF COVER TO SURFACE / GROUND LINE.

	
<p><b>PRIMARY DITCH DETAIL</b></p> <p>(4 CONDUITS 6" TYPICAL)</p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; text-align: center;">4C</p>	<p>REVISED DATE:</p> <p style="text-align: center;">APRIL 1, 2024</p> <hr/> <p>SCALE: <u>  NONE  </u></p> <hr/> <p>SHEET: <u>  1  </u> OF <u>  1  </u></p>




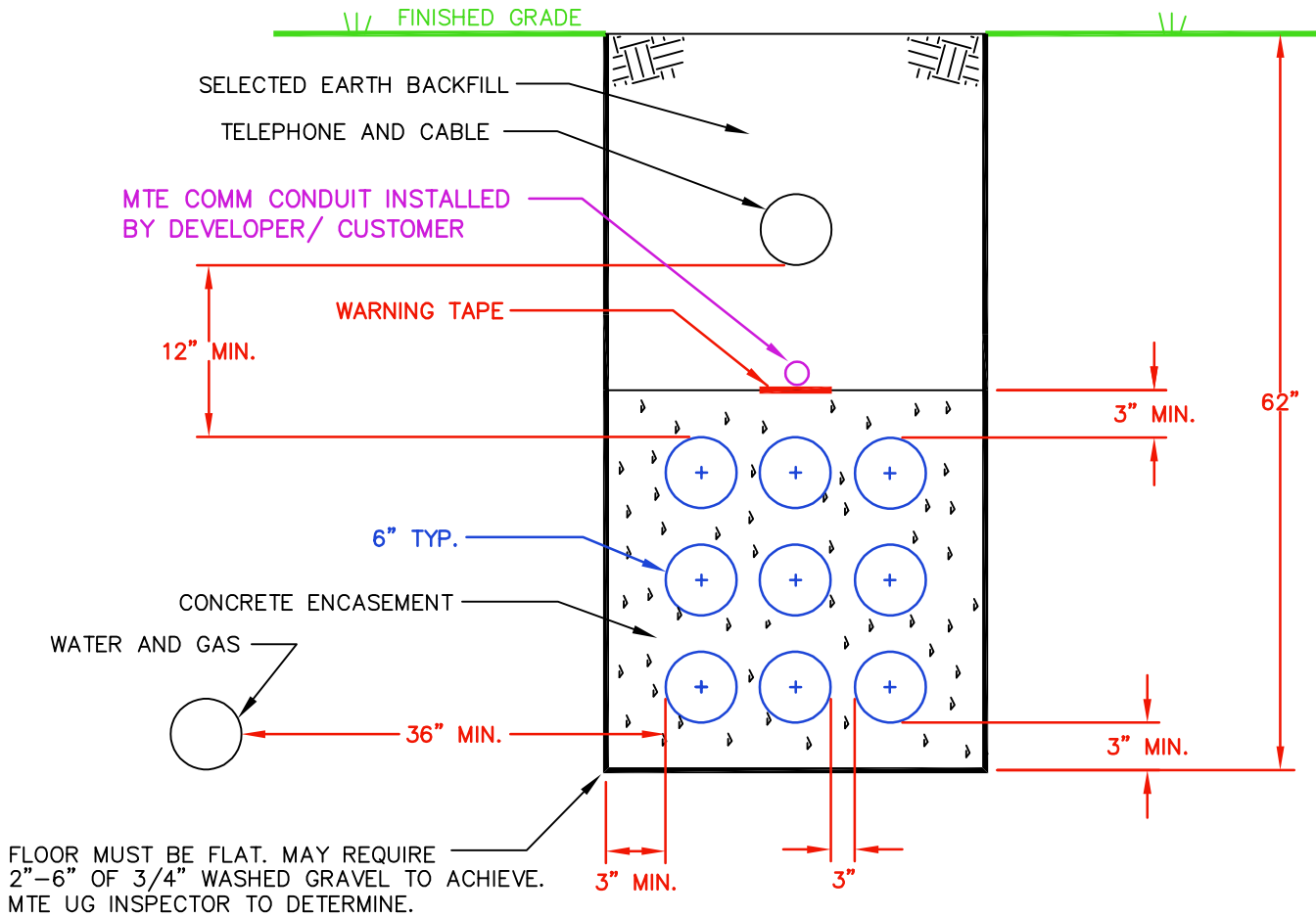


FLOOR MUST BE FLAT. MAY REQUIRE 2"–6" OF 3/4" WASHED GRAVEL TO ACHIEVE. MTE UG INSPECTOR TO DETERMINE.

**NOTES:**


1. CONDUITS RUN HORIZONTAL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" HORIZONTAL SEPARATION.
2. TELEPHONE OR CABLE UTILITY MINIMUM SEPARATION FROM MTE DUCTS SHALL BE EITHER:
  - a) 36" PARALLEL
  - b) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTE DUCTS.
4. ELECTRICAL CONDUIT SHALL BE GRAY PVC SCHEDULE 40 WITH LONG INTEGRAL BELLS. THE SIZE AND NUMBER AS SPECIFIED BY MTE AND INDICATED ON THE PLANS. LONG COUPLINGS AS DEFINED IN APPENDIX B SHALL BE USED AS NECESSARY. COMM CONDUITS SHALL BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE FOR MAIN COMM LINE AND MULTI-DROP SERVICE. COMM CONDUIT IS 1" PVC SCH 40 FOR SINGLE DROPS.
5. CONDUITS SHALL BE SUPPORTED WITH APPROVED DUCT SPACERS AT REGULAR INTERVALS NOT EXCEEDING 7'-0". SEE APPENDIX B FOR APPROVED SPACERS.
6. A MINIMUM OF 3" OF CONCRETE IS REQUIRED AROUND DUCT BANK.
7. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
8. CONCRETE SHALL BE MIXED WITH RED DYE.
9. IF CONDUCTOR IS NOT TO BE INITIALLY INSTALLED IN THE DUCT BANK, A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL ENCLOSURES FOR MTE TO CONNECT TO GROUND. SEE MTE LOCAL ENGINEERING FOR QUESTIONS.
10. DEVELOPER IS RESPONSIBLE FOR PROVIDING MTE A CLEAN AND OBSTRUCTION FREE CONDUIT SYSTEM.
11. UPPERMOST ELECTRICAL CONDUIT SHALL HAVE NO LESS THAN 33" OF COVER TO SURFACE / GROUND LINE.

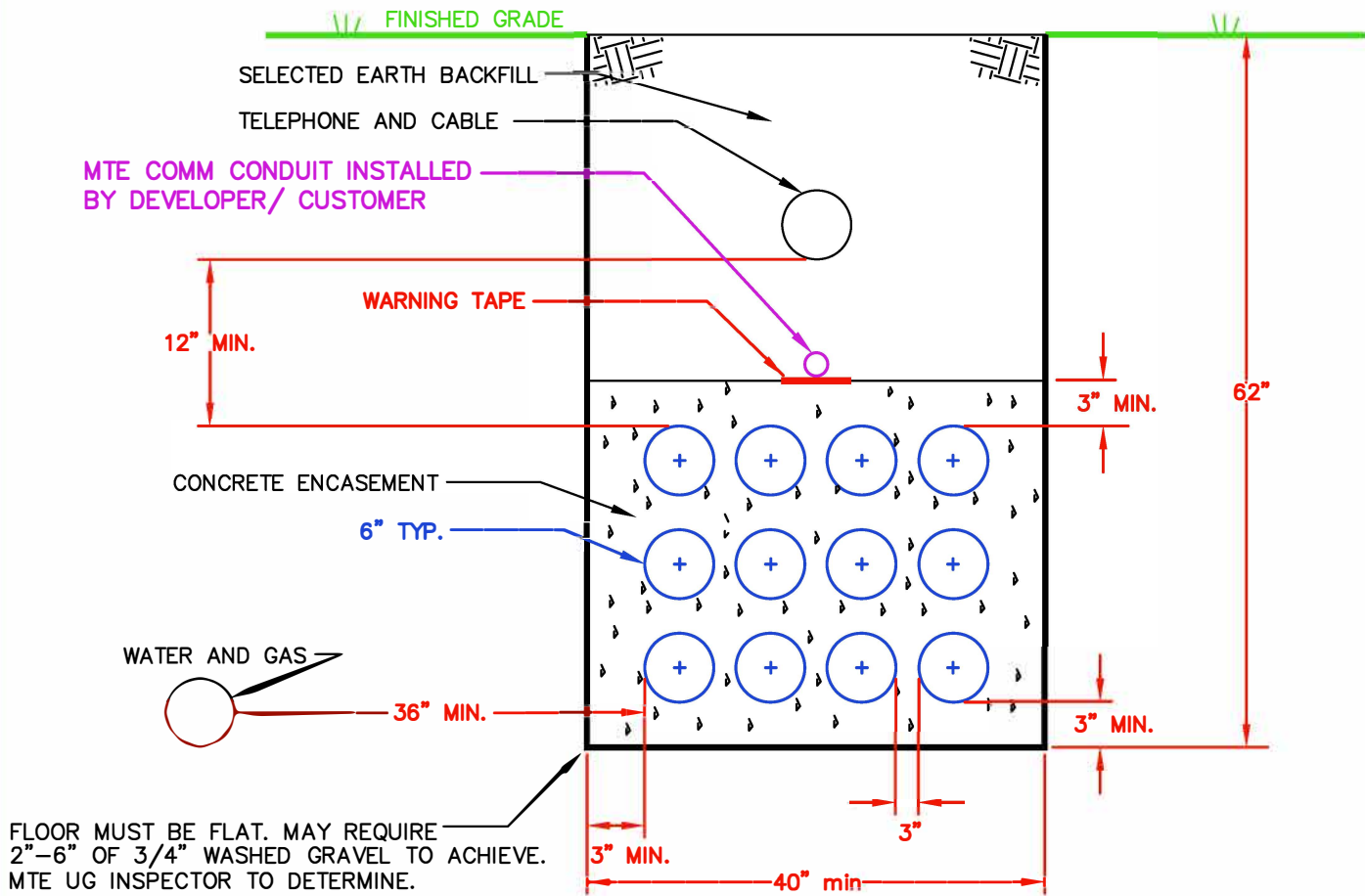
	
<p><b>PRIMARY DITCH DETAIL</b> (6 CONDUITS)</p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; text-align: center;">6C-2</p>	<p>REVISED DATE:</p> <p style="text-align: center;">APRIL 1, 2024</p> <hr/> <p>SCALE: <u>NONE</u></p> <hr/> <p>SHEET: <u>1</u> OF <u>1</u></p>



**NOTES:**

1. CONDUITS RUN HORIZONTAL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" HORIZONTAL SEPARATION.
2. TELEPHONE OR CABLE UTILITY MINIMUM SEPARATION FROM MTE DUCTS SHALL BE EITHER:
  - a) 36" PARALLEL
  - b) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTE DUCTS.
4. ELECTRICAL CONDUIT SHALL BE GRAY PVC SCHEDULE 40 WITH LONG INTEGRAL BELLS. THE SIZE AND NUMBER AS SPECIFIED BY MTE AND INDICATED ON THE PLANS. LONG COUPLINGS AS DEFINED IN APPENDIX B SHALL BE USED AS NECESSARY. COMM CONDUITS SHALL BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE FOR MAIN COMM LINE AND MULTI-DROP SERVICE. COMM CONDUIT IS 1" PVC SCH 40 FOR SINGLE DROPS.
5. CONDUITS SHALL BE SUPPORTED WITH APPROVED DUCT SPACERS AT REGULAR INTERVALS NOT EXCEEDING 7'-0". SEE APPENDIX B FOR APPROVED SPACERS.
6. A MINIMUM OF 3" OF CONCRETE IS REQUIRED AROUND DUCT BANK.
7. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
8. CONCRETE SHALL BE MIXED WITH RED DYE.
9. IF CONDUCTOR IS NOT TO BE INITIALLY INSTALLED IN THE DUCT BANK, A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL ENCLOSURES FOR MTE TO CONNECT TO GROUND. SEE MTE LOCAL ENGINEERING FOR QUESTIONS.
10. DEVELOPER IS RESPONSIBLE FOR PROVIDING MTE A CLEAN AND OBSTRUCTION FREE CONDUIT SYSTEM.
11. UPPERMOST ELECTRICAL CONDUIT SHALL HAVE NO LESS THAN 33" OF COVER TO SURFACE / GROUND LINE.


	
<p><b>PRIMARY DITCH DETAIL</b></p> <p>(9 CONDUITS)</p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; text-align: center;">9C</p>	<p>REVISED DATE:</p> <p style="text-align: center;">APRIL 1, 2024</p> <hr/> <p>SCALE: <u>  NONE  </u></p> <hr/> <p>SHEET: <u>  1  </u> OF <u>  1  </u></p>



FLOOR MUST BE FLAT. MAY REQUIRE 2"–6" OF 3/4" WASHED GRAVEL TO ACHIEVE. MTE UG INSPECTOR TO DETERMINE.

**NOTES:**

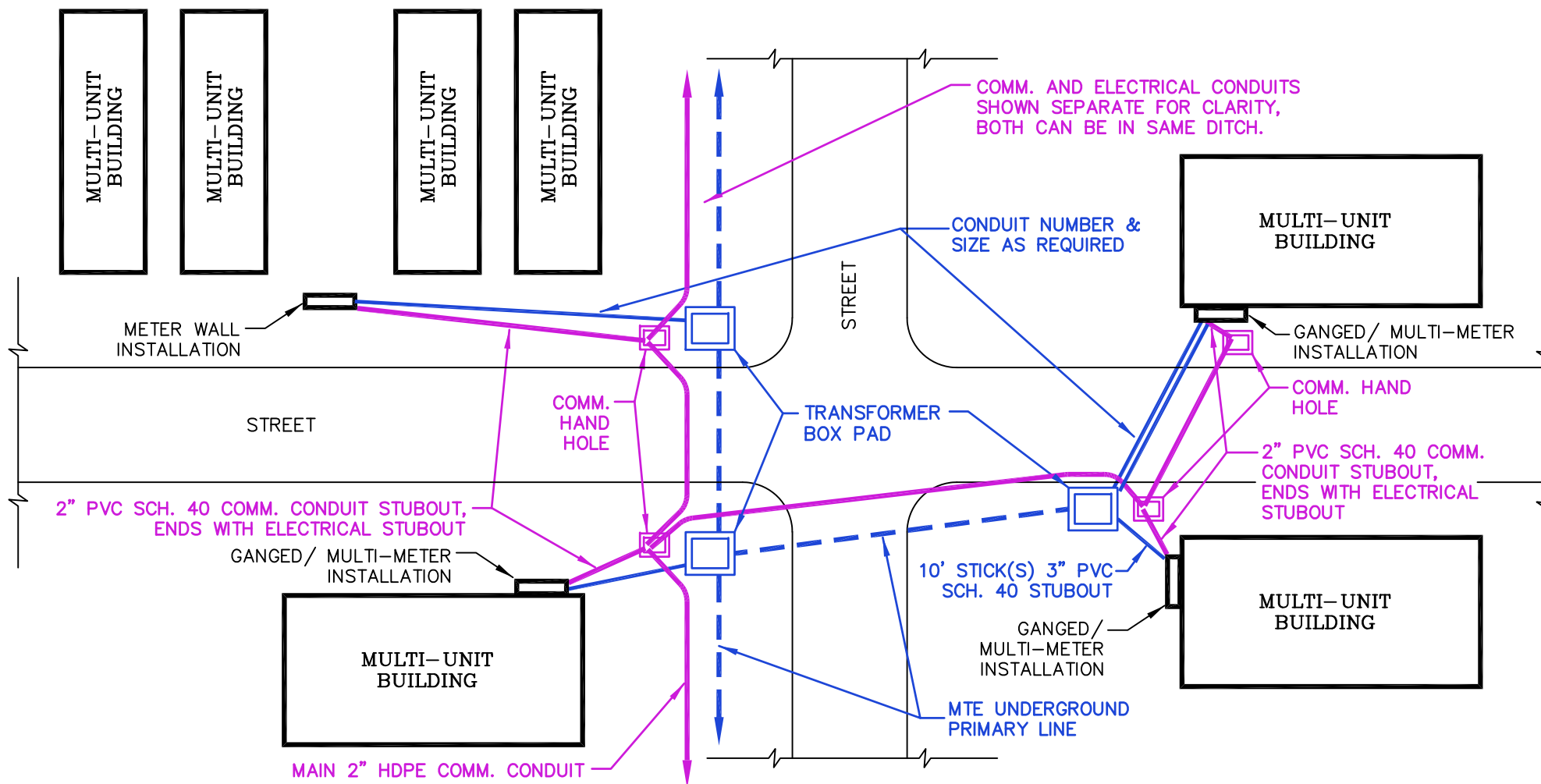
1. CONDUITS RUN HORIZONTAL TO WATER OR GAS LINES MUST HAVE A MINIMUM 36" HORIZONTAL SEPARATION.
2. TELEPHONE OR CABLE UTILITY MINIMUM SEPARATION FROM MTE DUCTS SHALL BE EITHER:
  - a) 36" PARALLEL
  - b) 12" VERTICAL
3. ALL FOREIGN UTILITY PERPENDICULAR CROSSINGS MUST HAVE 12" MINIMUM SEPARATION FROM MTE DUCTS.
4. ELECTRICAL CONDUIT SHALL BE GRAY PVC SCHEDULE 40 WITH LONG INTEGRAL BELLS. THE SIZE AND NUMBER AS SPECIFIED BY MTE AND INDICATED ON THE PLANS. LONG COUPLINGS AS DEFINED IN APPENDIX B SHALL BE USED AS NECESSARY. COMM CONDUITS SHALL BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE FOR MAIN COMM LINE AND MULTI-DROP SERVICE. COMM CONDUIT IS 1" PVC SCH 40 FOR SINGLE DROPS.
5. CONDUITS SHALL BE SUPPORTED WITH APPROVED DUCT SPACERS AT REGULAR INTERVALS NOT EXCEEDING 7'-0". SEE APPENDIX B FOR APPROVED SPACERS.
6. A MINIMUM OF 3" OF CONCRETE IS REQUIRED AROUND DUCT BANK.
7. INSTALL JETLINE PULL STRING WITH MINIMUM 200 LB TENSILE STRENGTH IN EACH CONDUIT.
8. CONCRETE SHALL BE MIXED WITH RED DYE.
9. IF CONDUCTOR IS NOT TO BE INITIALLY INSTALLED IN THE DUCT BANK, A #14 THHN CU TRACER WIRE SHALL BE INSTALLED INSIDE ONE OF THE INTERIOR CONDUITS OR CENTER CONDUIT IF AN ODD NUMBER OF CONDUITS ARE INSTALLED. IF ONE END OF THE CONDUIT IS JUST A STUB OUT 10 FEET OR LONGER, THE TRACER WIRE SHALL BE BENT BACK TO THE OUTSIDE OF THE CONDUIT AND SECURELY TAPED SUCH THAT THE WIRE CAN'T BE PULLED OUT EASILY. THERE SHALL BE 10' TAILS LEFT IN ALL ENCLOSURES FOR MTE TO CONNECT TO GROUND. SEE MTE LOCAL ENGINEERING FOR QUESTIONS.
10. DEVELOPER IS RESPONSIBLE FOR PROVIDING MTE A CLEAN AND OBSTRUCTION FREE CONDUIT SYSTEM.
11. UPPERMOST ELECTRICAL CONDUIT SHALL HAVE NO LESS THAN 33" OF COVER TO SURFACE / GROUND LINE.

	
<p><b>PRIMARY DITCH DETAIL</b> (12 CONDUITS)</p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; text-align: center;">12C</p>	<p>REVISED DATE:</p> <p style="text-align: center;">APRIL 1, 2024</p> <hr/> <p>SCALE: <u>  NONE  </u></p> <hr/> <p>SHEET: <u>  1  </u> OF <u>  1  </u></p>

**EXAMPLE OF GENERIC LAYOUT; CONSULT WITH MTE ENGINEERING FOR SPECIFIC DEVELOPMENT LAYOUT.**

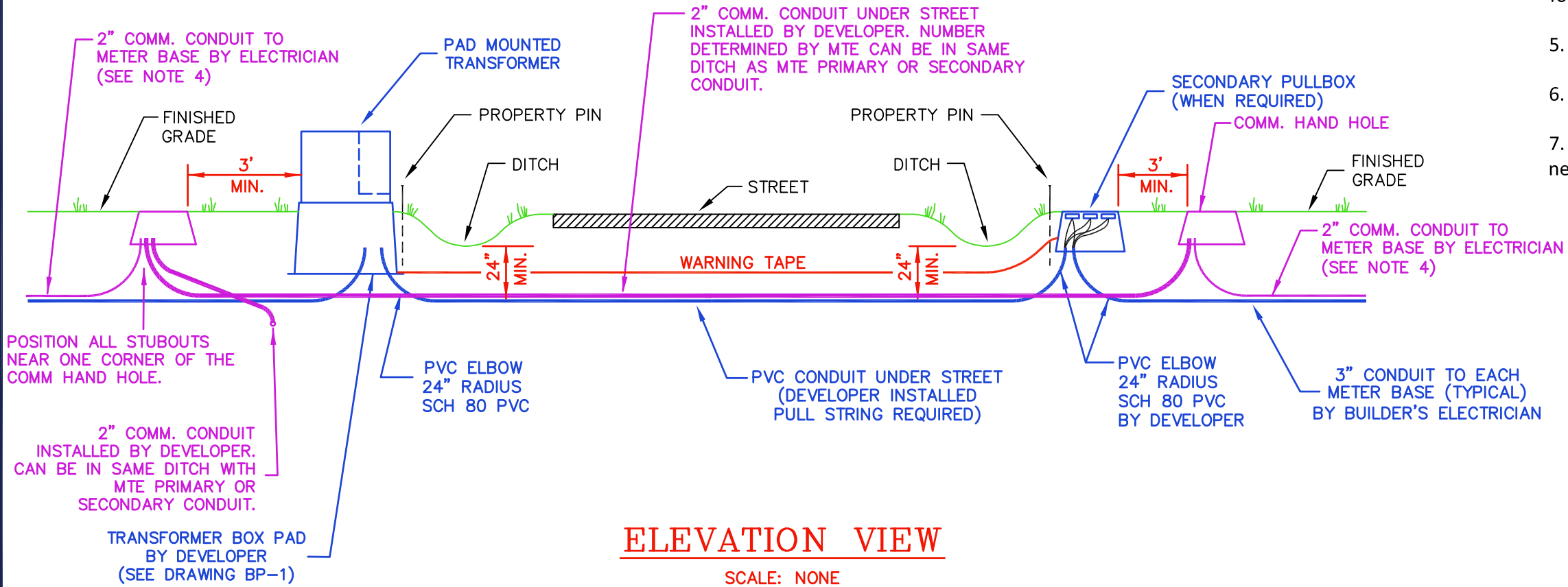
Notes:

1. Developer to furnish and install secondary pullboxes as well as comm hand holes. (Location, Manufacturer, and Catalog Number as specified by MTE Engineering - see Appendix "B")
2. Developer to furnish and install transformer box pad and PVC (sch 40) electrical conduit from boxpad to pullbox (number and size as required by MTE). Developer to furnish and install comm hand holes and necessary HDPE SDR 13.5 or schedule 40 PVC comm conduit between comm hand holes (number, type, and size as required by MTE). Transformer boxpads and comm hand holes shall be as specified by MTE - see Appendix B.
3. Developer to install 3" elbow(s) (24" radius, sch. 80) and 10' sub out of schedule 40 conduit, quantity to be specified by MTE Engineering design layout, out of the appropriate boxpad and pullbox, aim the conduit toward the building site. A 2" PVC schedule 40 comm conduit shall be run from the comm hand hole and be stubbed out to the same location as the service conduit. A pull string is to be installed in each conduit with the end of each conduit taped to keep out dirt. Mark the end of the conduit above grade to locate in the future.
4. The builder's electrician shall install the 3" schedule 40 PVC electrical conduit and 2" PVC comm conduit with glued cap from the stub outs to the meter bases. (See Note 3 above and drawings ESG-2 and ESG-3 in MTE's Electrical Service Guidelines for more information.)
5. Refer to drawing MMI-1, Sheet 2, for more details.
6. All elbows to be schedule 80 PVC.
7. Long couplings as defined in Appendix B shall be used as necessary when splicing the gray electrical conduit.




**PLAN VIEW**

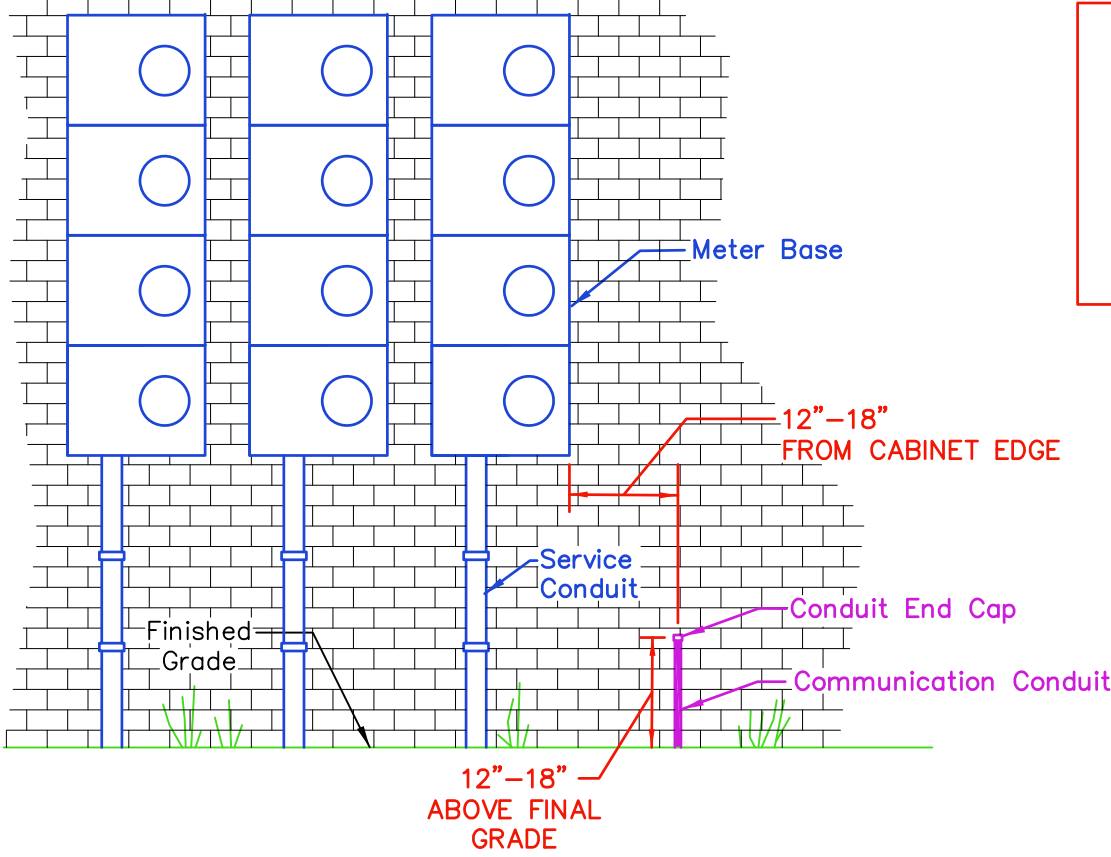
SCALE: NONE



**ELEVATION VIEW**

SCALE: NONE

	
<b>GANGED / MULTI-METER INSTALLATIONS</b> (UNDERGROUND PRIMARY - UNDERGROUND SERVICE)	
DRAWING NUMBER:	REVISED DATE:
MMI-1	OCT. 2, 2023
SCALE: <u>NONE</u>	
SHEET: <u>1</u> OF <u>2</u>	



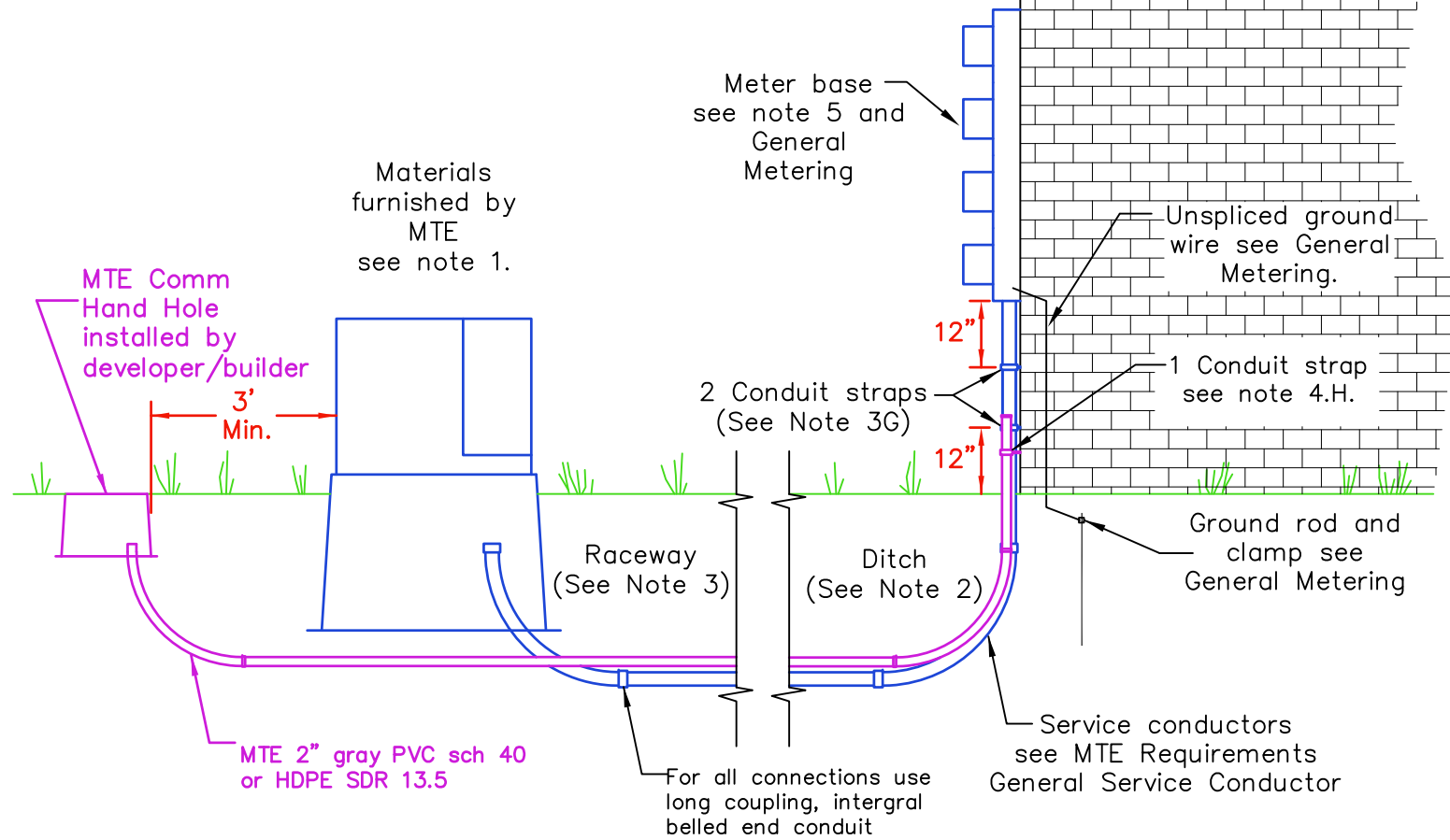
**Caution!**


Before digging, Call  
TN-1-CALL (1-800-351-1111 or  
811) to determine location of  
underground facilities. Hand-dig  
ditch within 5 feet of  
transformer.

**Notes:**

\*Be sure to call Tennessee One Call before digging or opening ditches: 1-800-351-1111 or 811

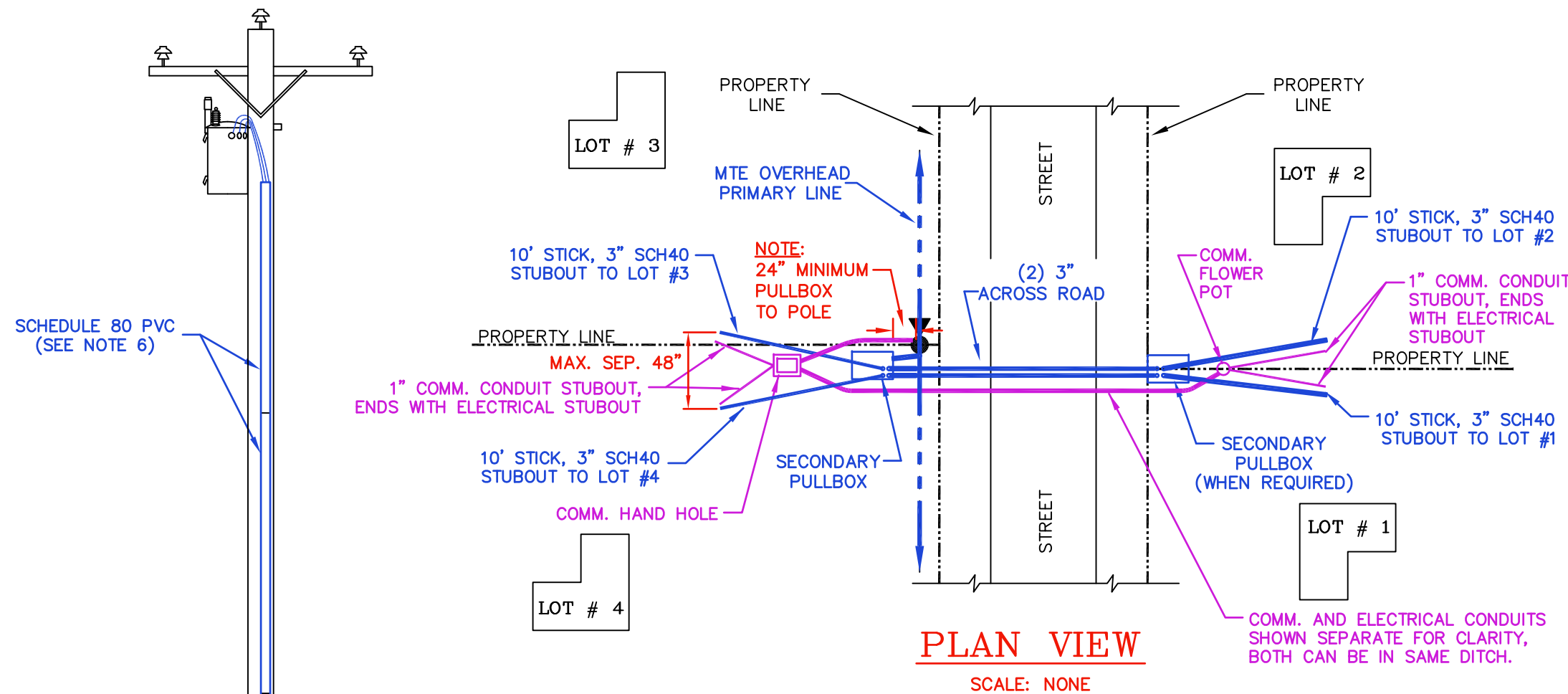
1. MTE will furnish and install the following materials:
  - A. Service conductor from transformer to meter base
  - B. Where junction box (not shown) is present, see a MTE engineering representative for specifications.
2. Member will open ditch from transformer to meter location with the following specifications:
  - A. Where ditch length will exceed 150 ft. see a MTE engineering representative prior to opening ditch.
  - B. Hand-dig ditch when within 5 ft. of transformer.
  - C. Depth sufficient to bed conduit with service conductors 24 in. below final grade.
  - D. Where impractical to obtain 24 in. depth, see a MTE engineering representative.
  - E. Member will backfill ditch after inspection by MTE - 24 hr. notice required (call 877-886-8362 or visit [www.MTE.com](http://www.MTE.com) to fill out an online request)
  - F. Before working with the transformer, notify MTE so that MTE representation can be present.
3. Continuous electrical raceway from transformer to meter base will be furnished and installed by member to the following specifications:
  - A. Conduit size and number to be specified by MTE engineering with appropriate fittings and/or bushings as required. For all conduit connections use long, (6" minimum) integral belled end conduit.
  - B. Raceway between elbows is to be either schedule 40 electrical PVC or schedule 80 electrical PVC conduit.
  - C. Elbows are to be schedule 80 electrical PVC with a minimum sweeping radius of 24 inches.
  - D. Conduit extending from meter base to one foot below grade is to be schedule 80 electrical PVC.
  - E. A polyvinyl, non rot or mildew proof, pull string with a minimum breaking strength of 200 pounds is to be installed inside the raceway.
  - F. Under certain loading and/or density conditions, an alternate sized conduit may be used with the approval of MTE district office engineering representative.
  - G. 2 Conduit straps: Place one conduit strap 12" below meter base and place second strap 12" above ground.
  - H. Conduit shall be placed on firm soil throughout the entire run. The bedding below the conduit near the meter base shall be sufficient to prevent settling. Should MTE deem bedding to be insufficient, a 3" PVC expansion coupling shall be required at the meter base. The expansion sleeve shall be located between the two conduit straps as referenced in Note 3G.
4. Continuous comm raceway from comm hand hole to directly below the meter base will be furnished and installed by the member to the following specifications:
  - A. Conduit to be 2" gray PVC sch 40 or HDPE SDR 13.5, along with any appropriate fitting.
  - B. Conduit will run to 12-18" above final grade and beyond outermost meter base edge.
  - C. Wall conduit must have appropriate end cap installed with glue.
  - D. Under certain loading and/or density conditions, an alternative size conduit may be used with the written approval of MTE Engineering.
  - E. Comm conduit should be installed in the same ditch as the electrical conduit. The comm conduit shall meet the same depth and bedding requirements as the electrical conduits.
  - F. A polyvinyl, non-rot or mildew proof, pull string with a minimum breaking strength of 200 pounds is to be installed in the raceway.
  - G. When more than one meter base is present, comm. conduit shall be placed outside either end of meter bases and shall have uninhibited access to 3' x 3' of wall space for additional communication equipment to be installed by MTE.
  - H. Conduit shall be strapped to the pole approximately 12" and 30" above final grade and to house/structure approximately 6" below top of conduit. A minimum of 1/2" stainless steel straps shall be used.
5. MTE approved meter bases of proper size and type shall be furnished and installed by the member. See General Metering Requirements for additional metering information.



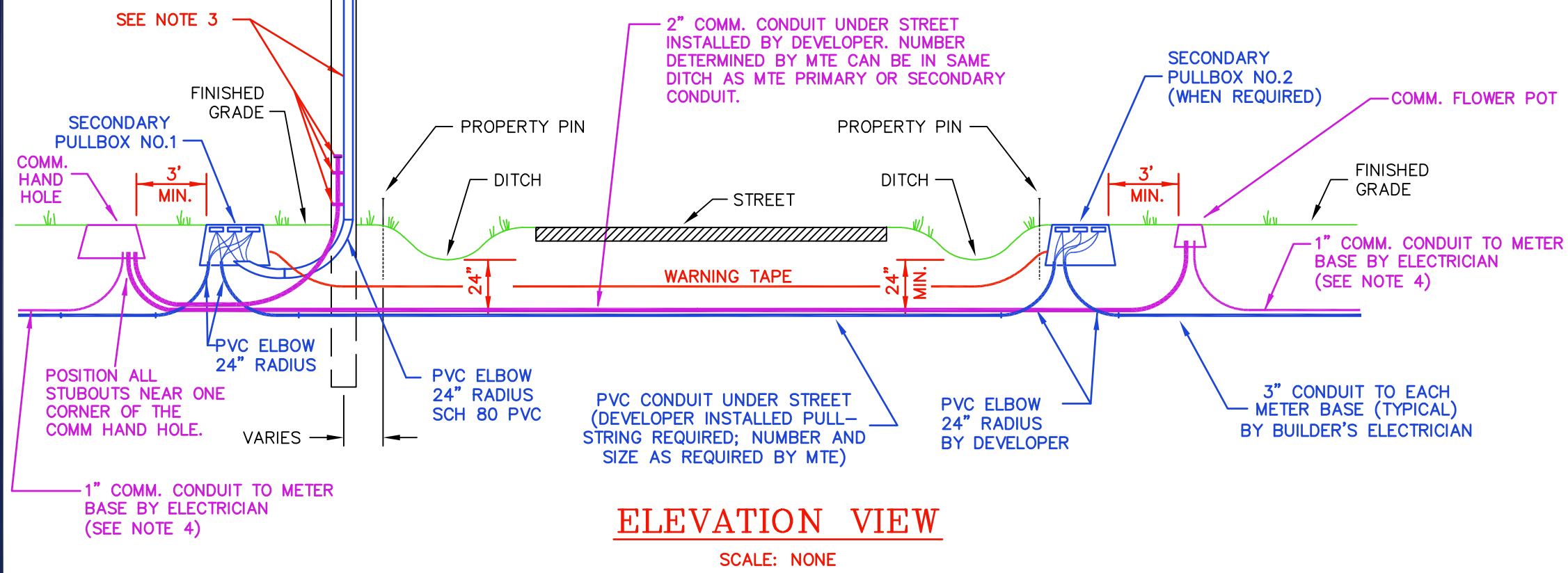
	
<b>GANGED / MULTI-METER INSTALLATIONS</b> (PAD MOUNT TRANSFORMER)	
DRAWING NUMBER:	REVISED DATE:
MMI-1	OCT. 2, 2023
	SCALE: <u>NONE</u>
	SHEET: <u>2</u> OF <u>2</u>

**Notes:**


- Developer to install secondary pullboxes and comm hand holes. (Location, size, manufacturer and catalog number as specified by MTE Engineering - See appendix 'B')
- Developer to install PVC (Sch 40) conduits from pull box Number 1 to pullbox Number 2 when required by MTE Engineering. (Number and size as required by MTE.) Developer to install 2" HDPE (SDR 13.5 orange with red stripes) between comm hand holes as required by MTE Engineering. (Number and size as required by MTE.)
- Developer to furnish and install electric riser conduit and elbow (From pole to secondary pull box.) Riser shall be installed from the elbow up to 12" above lowest MTE installed bracket on service pole. A clean horizontal cut shall be made on the top of the riser conduit. Developer to furnish and install comm conduit to be run 3' up pole above final grade. A minimum of 1/2" stainless steel straps shall be used to strap the comm conduit to the pole approximately 12" and 30" above final grade. Pull strings to be included in all conduits. All conduit on the service pole shall have glued on caps.
- Developer to install one (1) 3" elbow (24" radius, sch. 80) and 10' stub out of sch. 40 conduit out of the appropriate pullbox for each lot to be served, aim the conduit toward the building site. A 1" sch. 40 PVC comm conduit shall be run from the comm hand hole and be stubbed out to the same location as the service conduit. A pull string is to be installed in each conduit with the end of each conduit taped to keep out dirt. Mark the end of the conduit above grade to locate in the future.
- The builder's electrician shall install the 3" PVC electrical conduit and 1" PVC comm conduit from the stub outs to the meter bases including pull strings. (See Note 4 above and drawings ESG-2 and ESG-3 in MTE's Electrical Service Guidelines for more information.)
- MTE to install schedule 80 conduit from 1' above lowest bracket on riser pole. (Number and size as required by MTE)
- Refer to Drawing SBP-1, Sheet 2, for more details.
- Long couplings as defined in Appendix B shall be used as necessary when splicing the gray electrical conduit.
- This drawing shows a 'typical' installation for large subdivision lots. Actual installation will vary.
- All elbows shall be schedule 80 PVC.

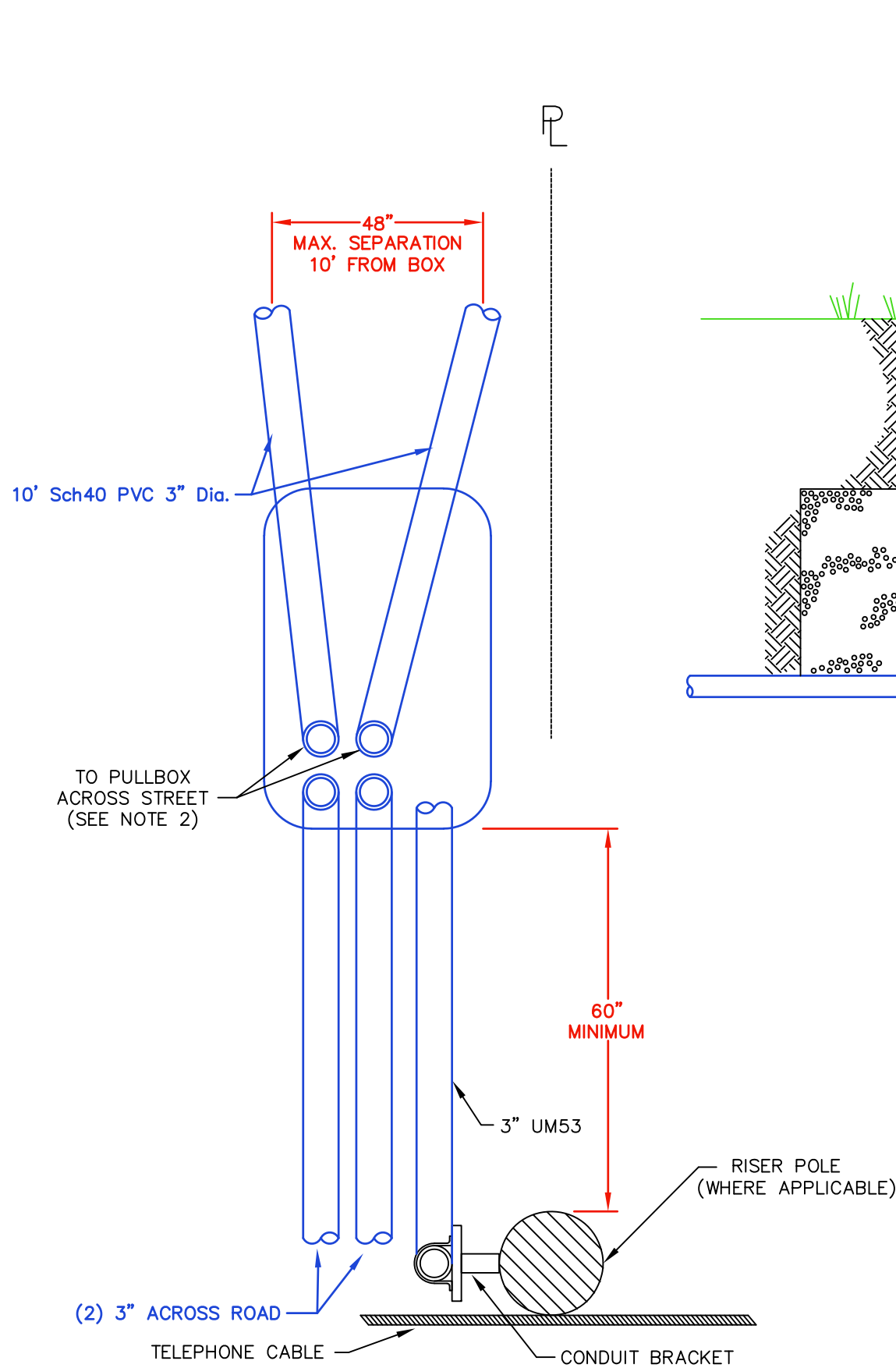


**PLAN VIEW**  
SCALE: NONE

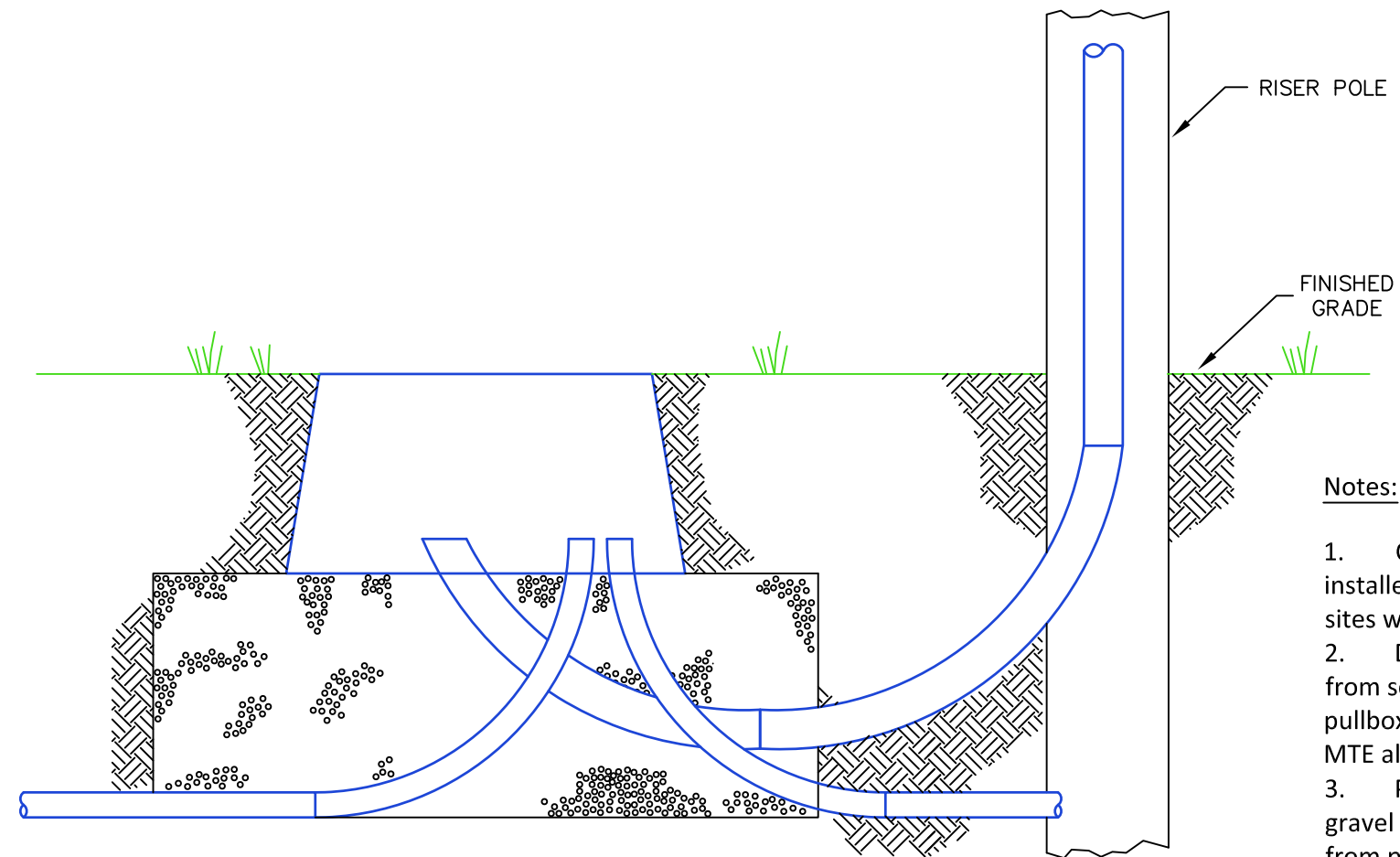


**ELEVATION VIEW**  
SCALE: NONE

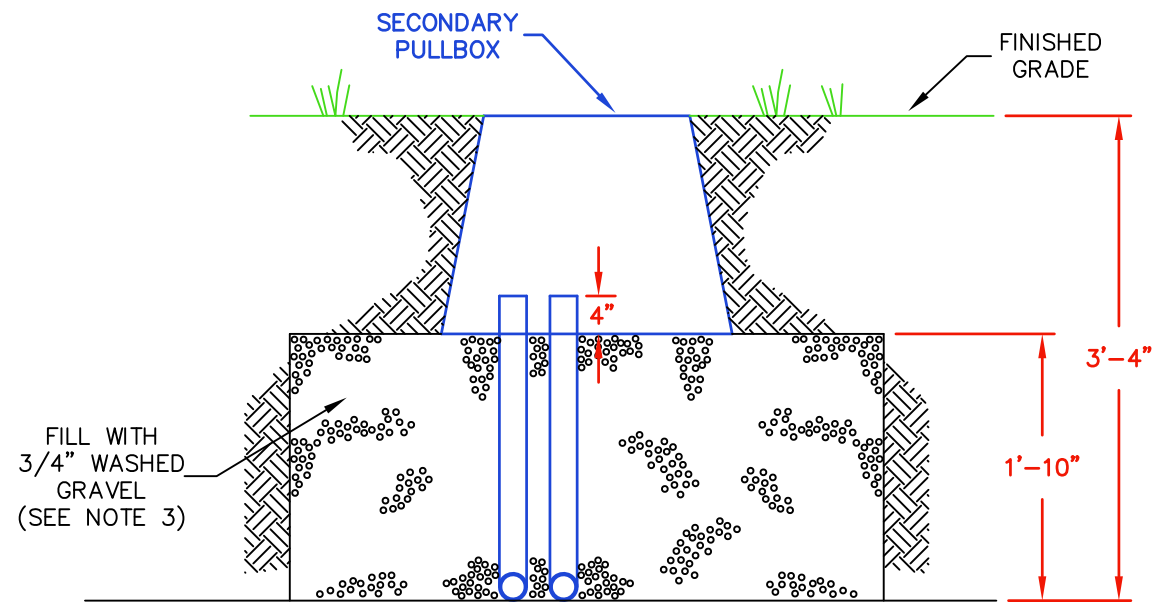
	
<b>SECONDARY PULLBOX INSTALLATION DETAILS</b> (OVERHEAD PRIMARY – UNDERGROUND SERVICE)	
DRAWING NUMBER:	REVISED DATE:
<b>SBP-1</b>	JULY 1, 2023
SCALE: <u>NONE</u>	
SHEET: <u>1</u> OF <u>3</u>	



**PLAN VIEW**  
SCALE: NONE



**SIDE VIEW**  
SCALE: NONE



**FRONT VIEW**  
SCALE: NONE

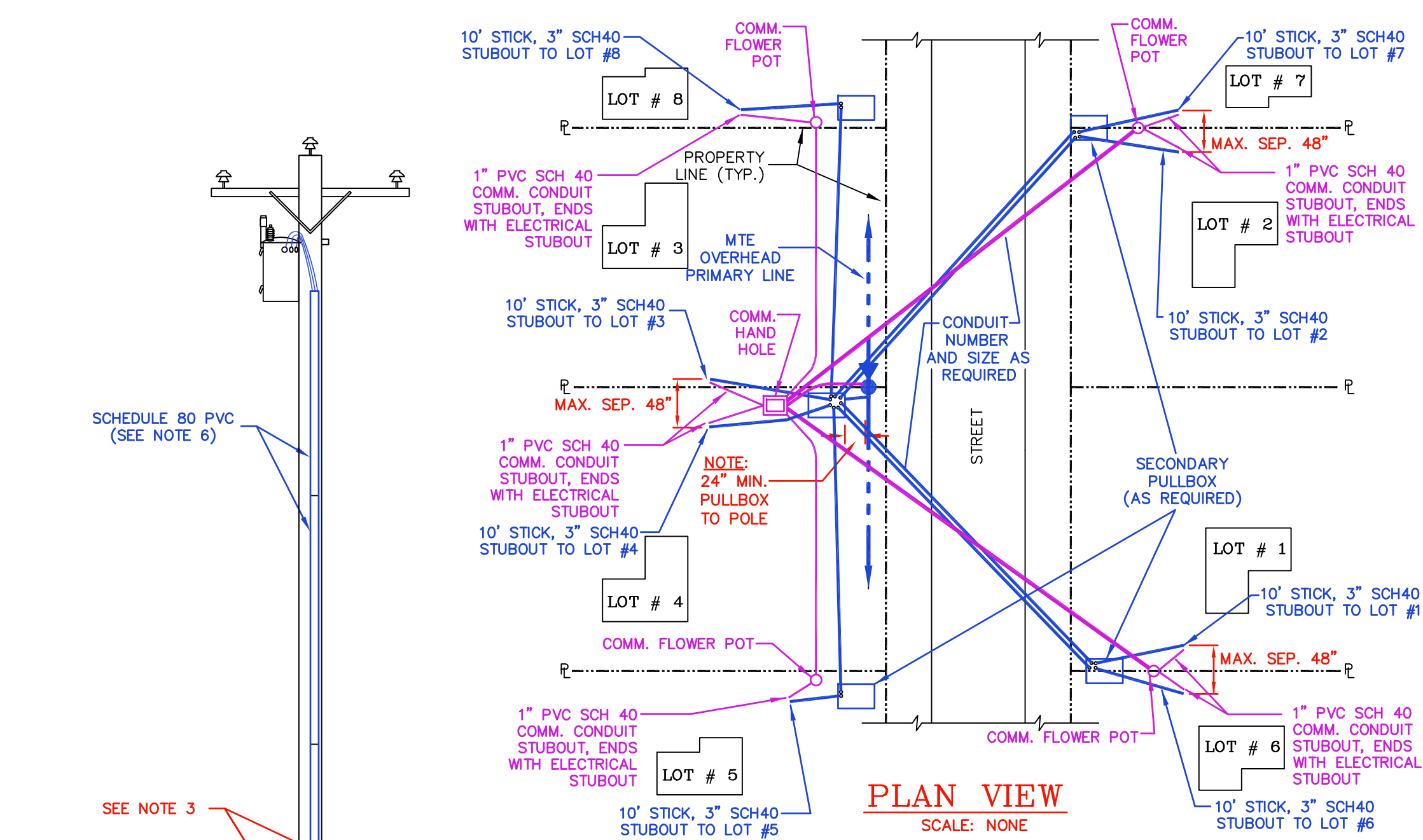
**Notes:**

1. Conduit elbows # 2 and # 3 are 3" PVC 10' section installed by developer and turned out toward building sites with max separation of 48".
2. Developer to install PVC (schedule 40) conduits from secondary pullbox at base of pole to secondary pullbox across street, number and size as required by MTE all elbows to be schedule 80 PVC.
3. Pullbox to be installed on bed of 3/4" washed gravel placed on undisturbed earth with minimum 24" from pole.
4. Refer to drawing SBP-1, Sheet 1 or Sheet 3, for overall plan.

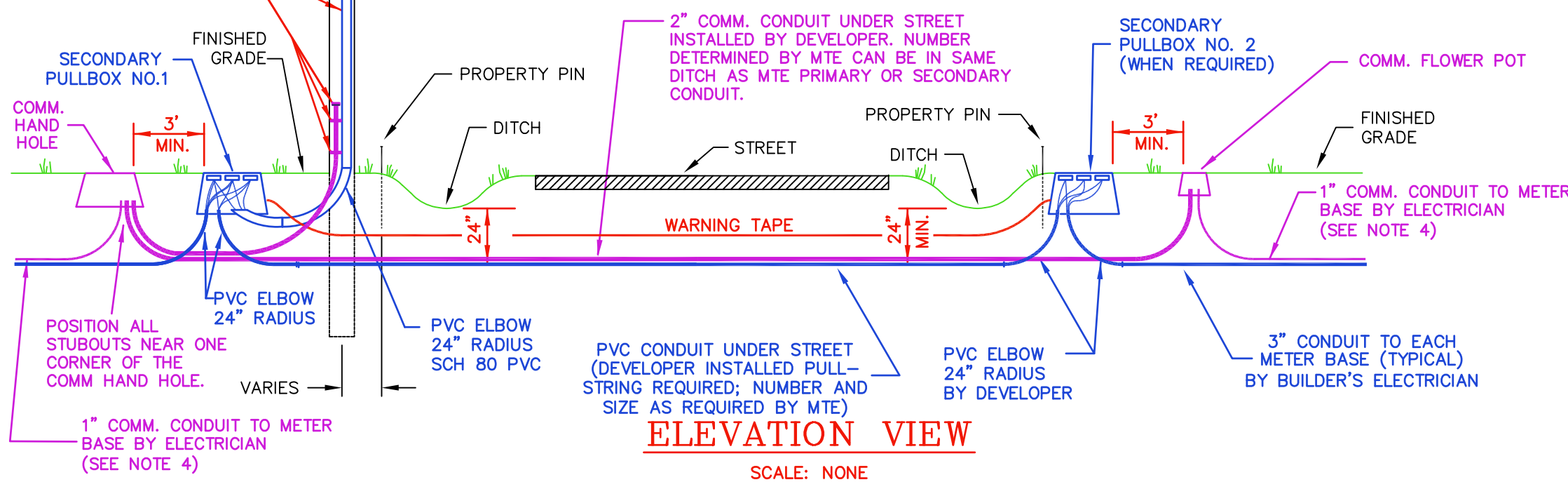


**SECONDARY PULLBOX  
INSTALLATION DETAILS**  
(OVERHEAD PRIMARY - UNDERGROUND SERVICE)

DRAWING NUMBER:	REVISED DATE:
<b>SBP-1</b>	JAN. 3, 2022
	SCALE: NONE
	SHEET: 2 OF 3




**PLAN VIEW**  
SCALE: NONE



**ELEVATION VIEW**  
SCALE: NONE

**Notes:**

- Developer to install secondary pullboxes and comm hand holes. (Location, size, manufacturer and catalog number as specified by MTE Engineering - See appendix 'B')
- Developer to install PVC (Sch 40) conduits from pull box Number 1 to pullbox Number 2 when required by MTE Engineering. (Number and size as required by MTE.) Developer to install conduit between comm hand holes as required by MTE Engineering. (Number, type, and size as required by MTE.)
- Developer to furnish and install first section of electrical riser conduit and elbow (From pole to secondary pull box.) Developer to furnish and install comm conduit to be run 3' up pole above final grade. A minimum of 1/2" stainless steel straps shall be used to strap the comm conduit to the pole approximately 12" and 30" above final grade. Pull strings to be included in all conduits. Caps shall be glued on comm conduits on pole.
- Developer to install one (1) 3" elbow (24" radius, sch. 80) and 10' stub out of sch. 40 conduit out of the appropriate pullbox for each lot to be served, aim the conduit toward the building site. A 1" PVC sch 40 comm conduit shall be run from the comm hand hole and be stubbed out to the same location as the service conduit. A pull string is to be installed in each conduit with the end of each conduit taped to keep out dirt. Mark the end of the conduit above grade to locate in the future.
- The builder's electrician shall install the 3" PVC electrical conduit and 1" PVC sch 40 comm conduit from the stub outs to the meter bases including pull strings. (See Note 4 above and drawings ESG-2 and ESG-3 in MTE's Electrical Service Guidelines for more information.)
- MTE to install schedule 80 conduit from 1' above lowest bracket on riser pole. Number and size as required by MTE.
- Refer to Drawing SBP-1, Sheet 2, for more details.
- Long couplings as defined in Appendix B shall be used as necessary when splicing the gray electrical conduit.
- This drawing shows a 'typical' installation for large subdivision lots. Actual installation will vary.
- All elbows shall be schedule 80 PVC.

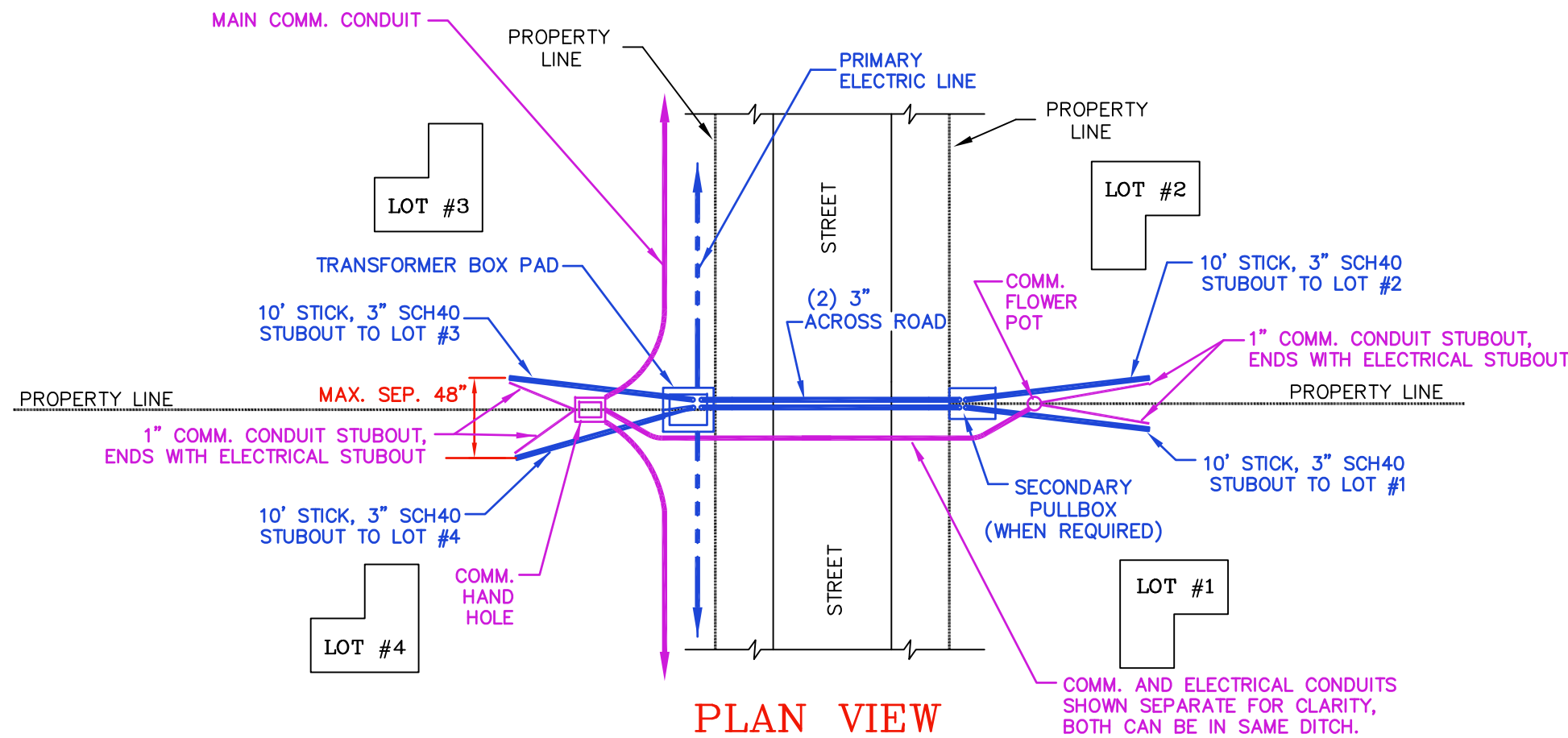
	
<b>SECONDARY PULLBOX INSTALLATION DETAILS</b> (OVERHEAD PRIMARY - UNDERGROUND SERVICE)	
DRAWING NUMBER:	REVISED DATE:
SBP-1	JULY 1, 2023
	SCALE: <u>NONE</u>
	SHEET: <u>3</u> OF <u>3</u>



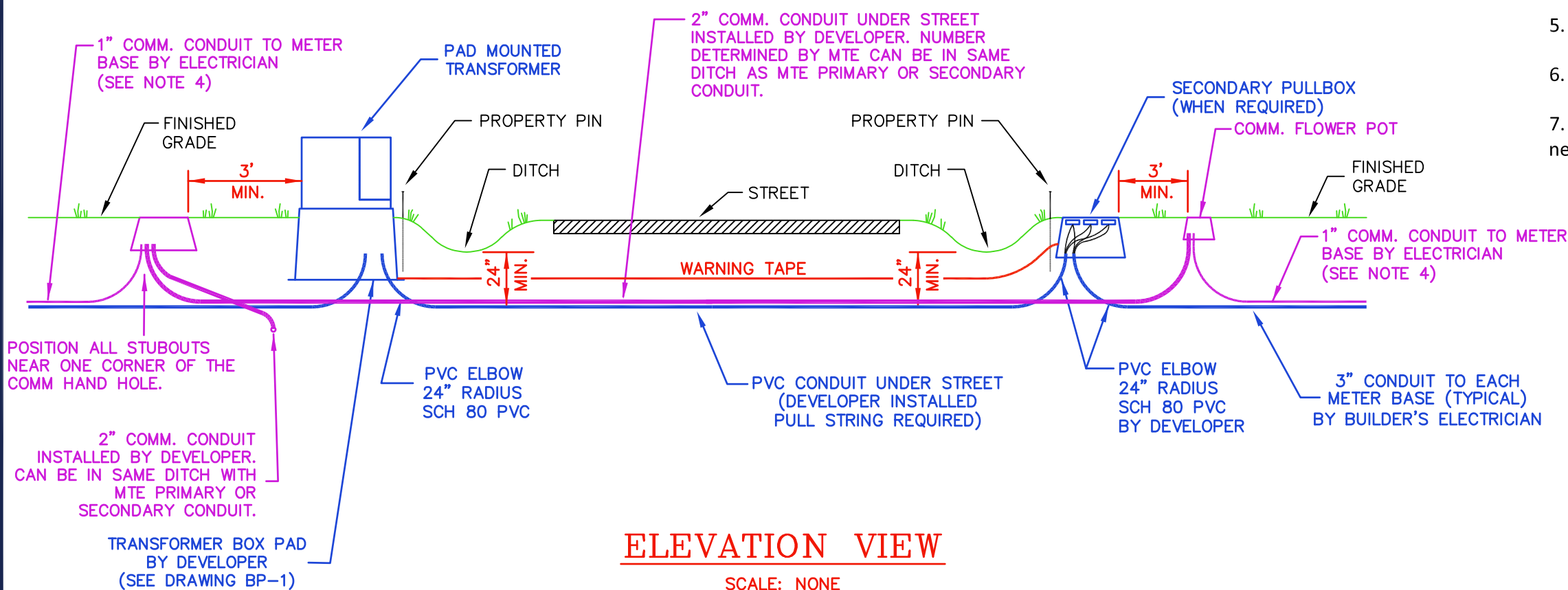
**EXAMPLE OF GENERIC LAYOUT; CONSULT WITH MTE ENGINEERING FOR SPECIFIC DEVELOPMENT LAYOUT.**

Notes:

1. Developer to furnish and install secondary pullboxes as well as comm hand holes. (Location, Manufacturer, and Catalog Number as specified by MTE Engineering - see Appendix "B")
2. Developer to furnish and install transformer box pad and PVC (sch 40) electrical conduit from boxpad to pullbox (number and size as required by MTE). Developer to furnish and install comm hand holes and necessary comm conduit between comm hand holes (number, type, and size as required by MTE). Transformer boxpads and comm hand holes shall be as specified by MTE - see Appendix B.
3. Developer to install one (1) 3" elbow (24" radius, sch. 80) and 10' sub out of sch. 40 conduit out of the appropriate boxpad and pullbox for each lot to be served, aim the conduit toward the building site. A 1" comm conduit shall be run from the comm pullbox and be stubbed out to the same location as the service conduit. A pull string is to be installed in each conduit with the end of each conduit taped to keep out dirt. Mark the end of the conduit above grade to locate in the future.
4. The builder's electrician shall install the 3" sch. 40 PVC electrical conduit and 1" sch. 40 PVC comm conduit from the stub outs to the meter bases. (See Note 3 above and drawings ESG-2 and ESG-3 in MTE's Electrical Service Guidelines for more information.)
5. Refer to drawing SBP-2, Sheet 2, for more details.
6. All elbows to be schedule 80 PVC.
7. Long couplings as defined in Appendix B shall be used as necessary when splicing the gray electrical conduit.



**PLAN VIEW**  
SCALE: NONE



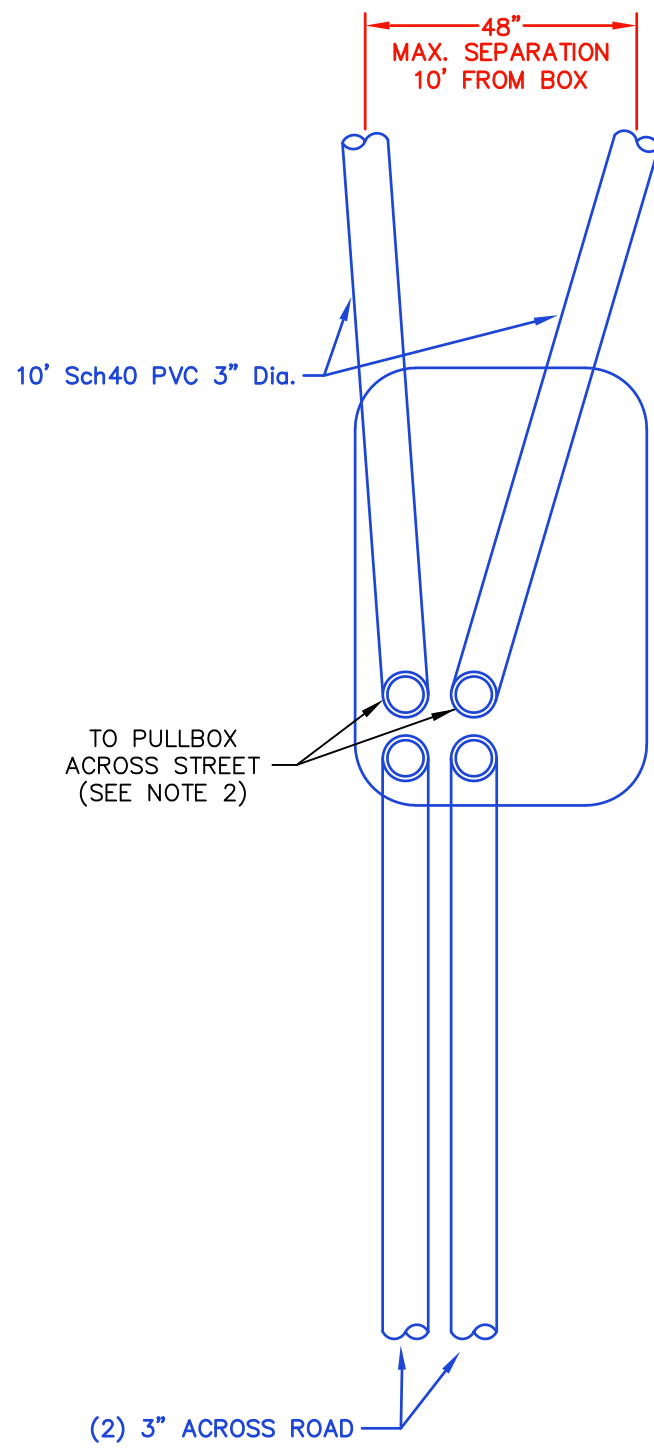
**ELEVATION VIEW**  
SCALE: NONE



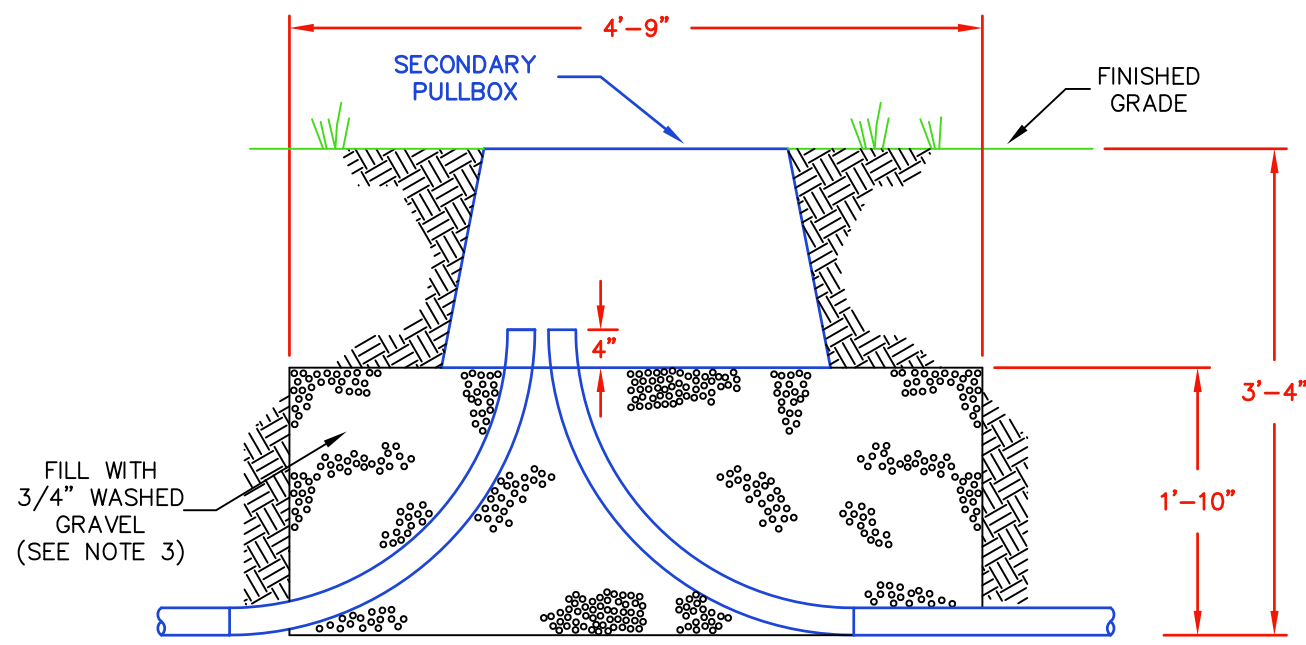
**SECONDARY PULLBOX INSTALLATION DETAILS**

(UNDERGROUND PRIMARY - UNDERGROUND SERVICE)

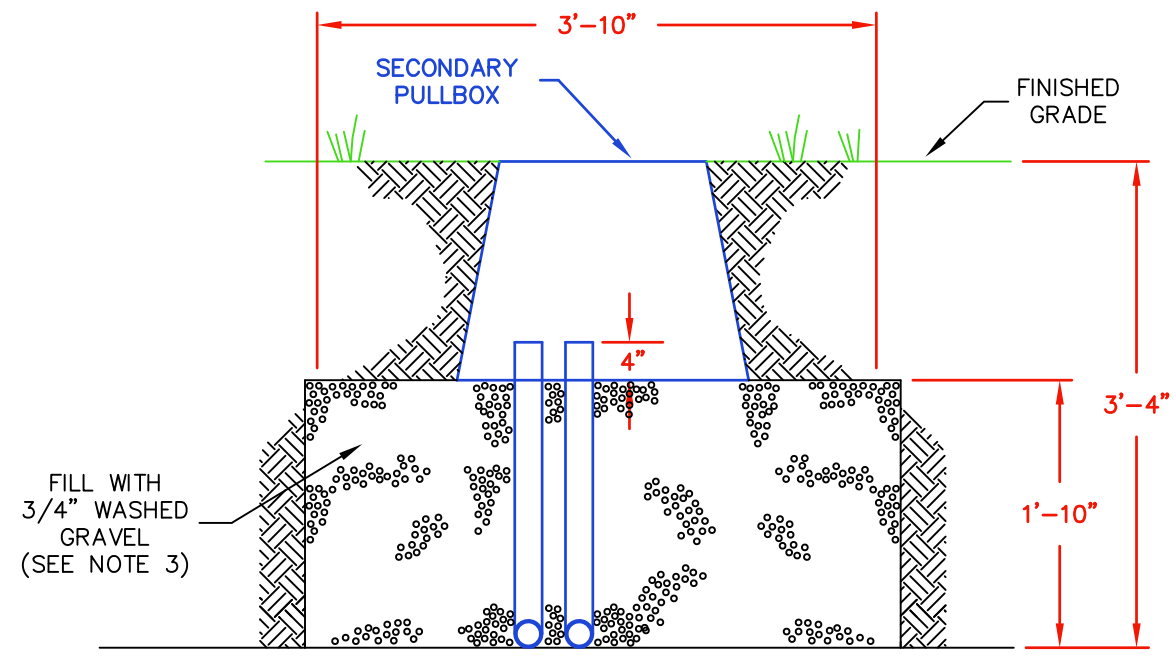
DRAWING NUMBER:	REVISED DATE:
<b>SBP-2</b>	JULY 1, 2023
	SCALE: <u>NONE</u>
	SHEET: <u>1</u> OF <u>3</u>



**PLAN VIEW**  
SCALE: NONE



**SIDE VIEW**  
SCALE: NONE



**FRONT VIEW**  
SCALE: NONE

Notes:

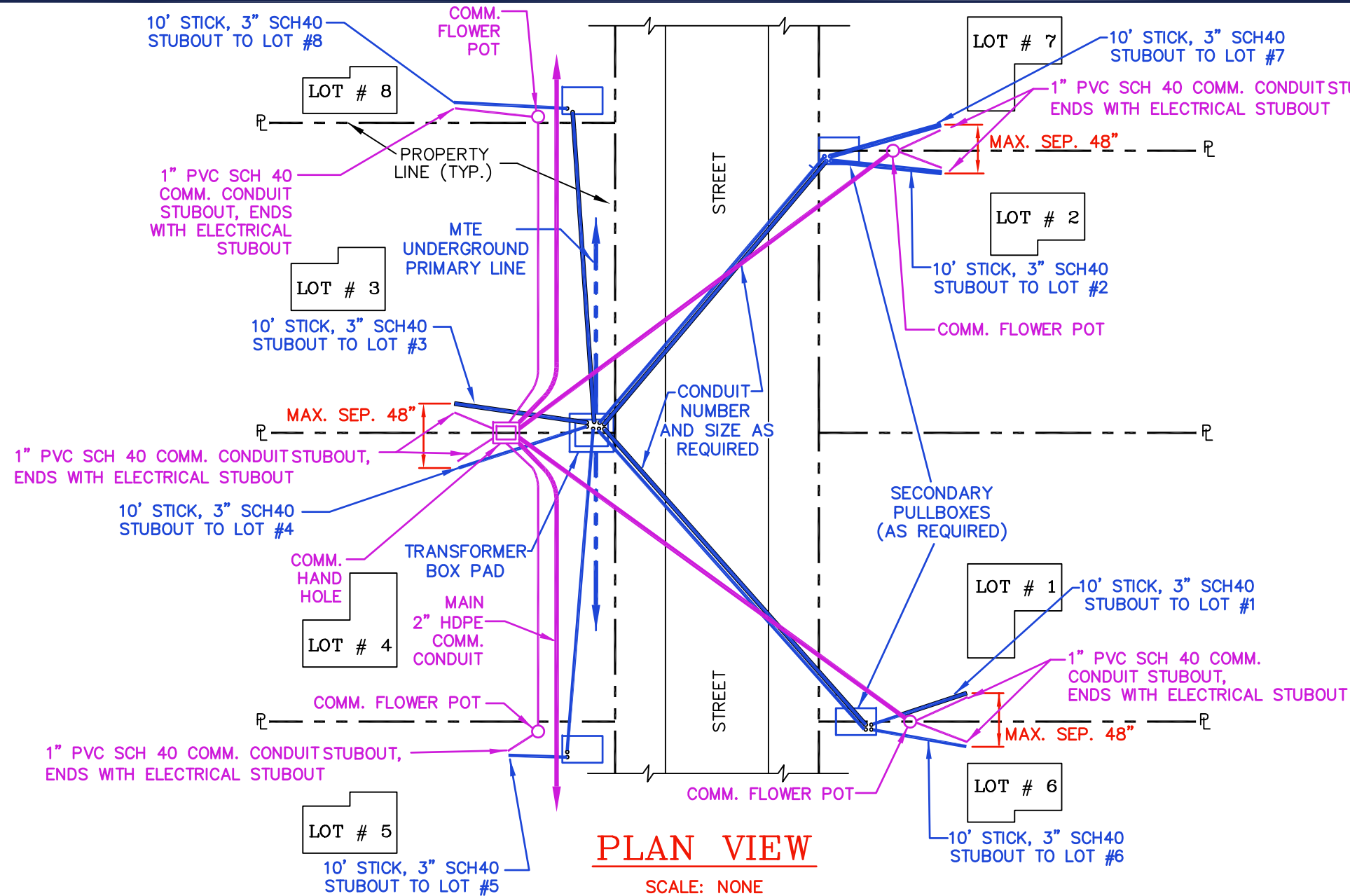
1. Conduit elbows # 2 and # 3 are 3" PVC installed by developer and turned out toward building sites.
2. Developer to install PVC (schedule 40) conduits from pad mounted transformer to secondary pullbox across street or behind transformer, number and size as required by MTE all elbows to be schedule 80 PVC.
3. Pullbox to be installed on bed of 3/4" washed gravel placed on undisturbed earth.
4. Refer to drawing SBP-2, Sheet 1 or Sheet 3, for overall plan.



**SECONDARY PULLBOX  
INSTALLATION DETAILS**  
(UNDERGROUND PRIMARY - UNDERGROUND SERVICE)

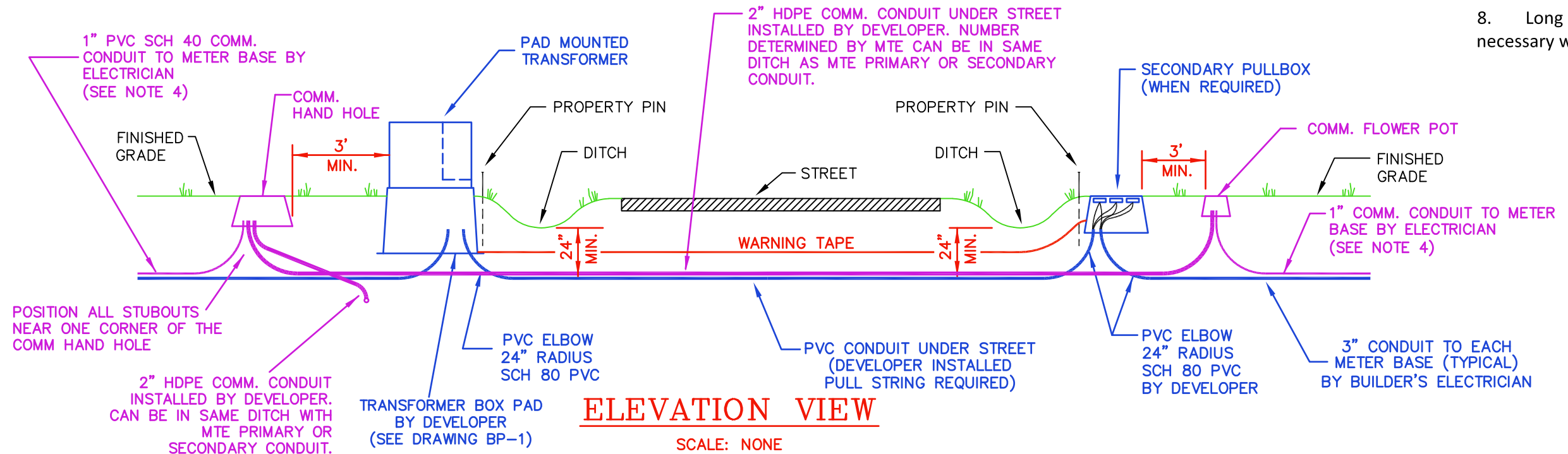
DRAWING NUMBER:	REVISED DATE:
SBP-2	JAN. 3, 2022
	SCALE: NONE
	SHEET: 2 OF 3


**EXAMPLE OF GENERIC LAYOUT; CONSULT WITH MTE ENGINEERING FOR SPECIFIC DEVELOPMENT LAYOUT.**



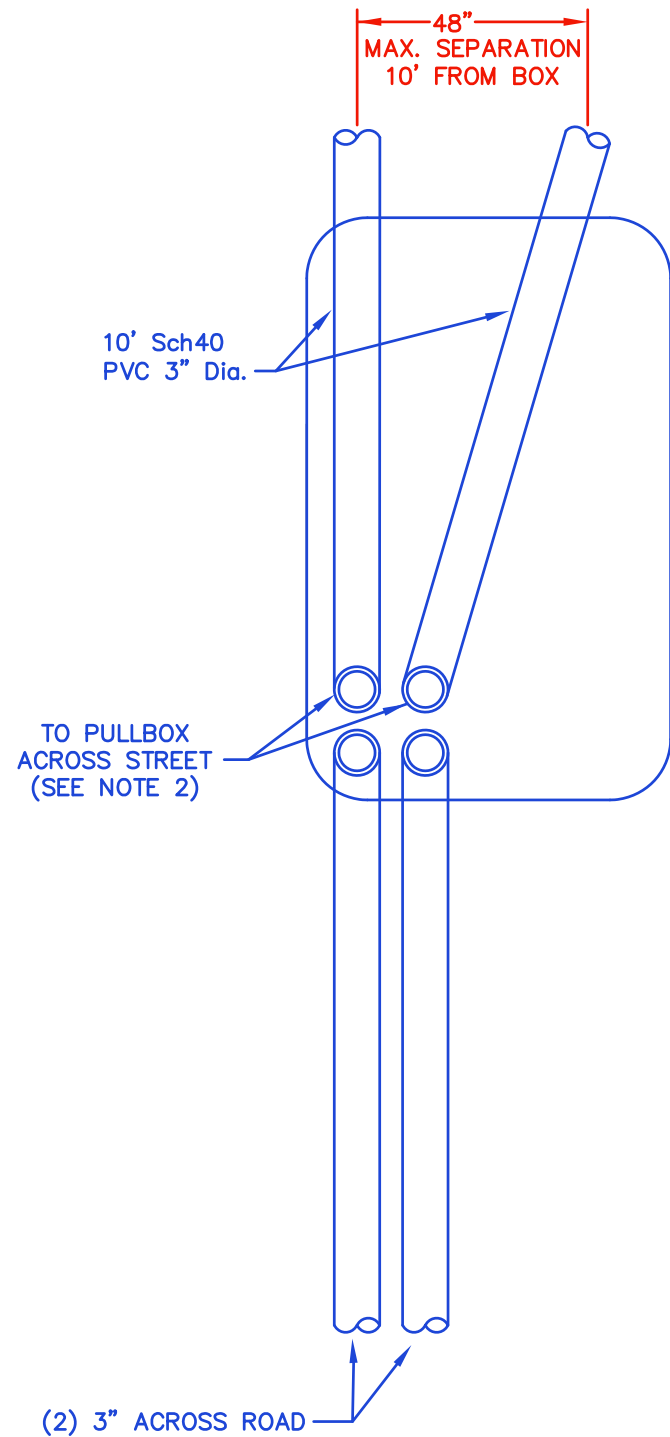
Notes:

1. Developer to furnish and install secondary pullboxes as well as comm hand holes. (Location, Manufacturer, and Catalog Number as specified by MTE Engineering - see Appendix "B")
2. Developer to furnish and install transformer box pad and PVC (sch 40) electrical conduit from boxpad to pullbox (number and size as required by MTE). Developer to furnish and install comm hand holes and necessary HDPE SDR 13.5 comm conduit between comm hand holes (number and size as required by MTE). Transformer Boxpads and comm hand holes shall be as specified by MTE - see Appendix B.
3. Developer to install one (1) 3" elbow (24" radius, sch. 80) and 10' sub out of sch. 40 conduit out of the appropriate boxpad and pullbox for each lot to be served, aim the conduit toward the building site. A 1" PVC sch 40 comm conduit shall be run from the comm hand hole and be stubbed out to the same location as the service conduit. A pull string is to be installed in each conduit with the end of each conduit taped to keep out dirt. Mark the end of the conduit above grade to locate in the future.
4. The builder's electrician shall install the 3" PVC electrical conduit and 1" PVC comm conduit from the stub outs to the meter bases. (See Note 3 above and drawings ESG-2 and ESG-3 in MTE's Electrical Service Guidelines for more information.)
5. Refer to drawing SBP-2, Sheet 2, for more details.
6. Conduit from transformer box pad to pullbox will be specified by MTE for each project.
7. All elbows to be schedule 80 PVC.
8. Long couplings as defined in Appendix B shall be used as necessary when splicing the gray electrical conduit.



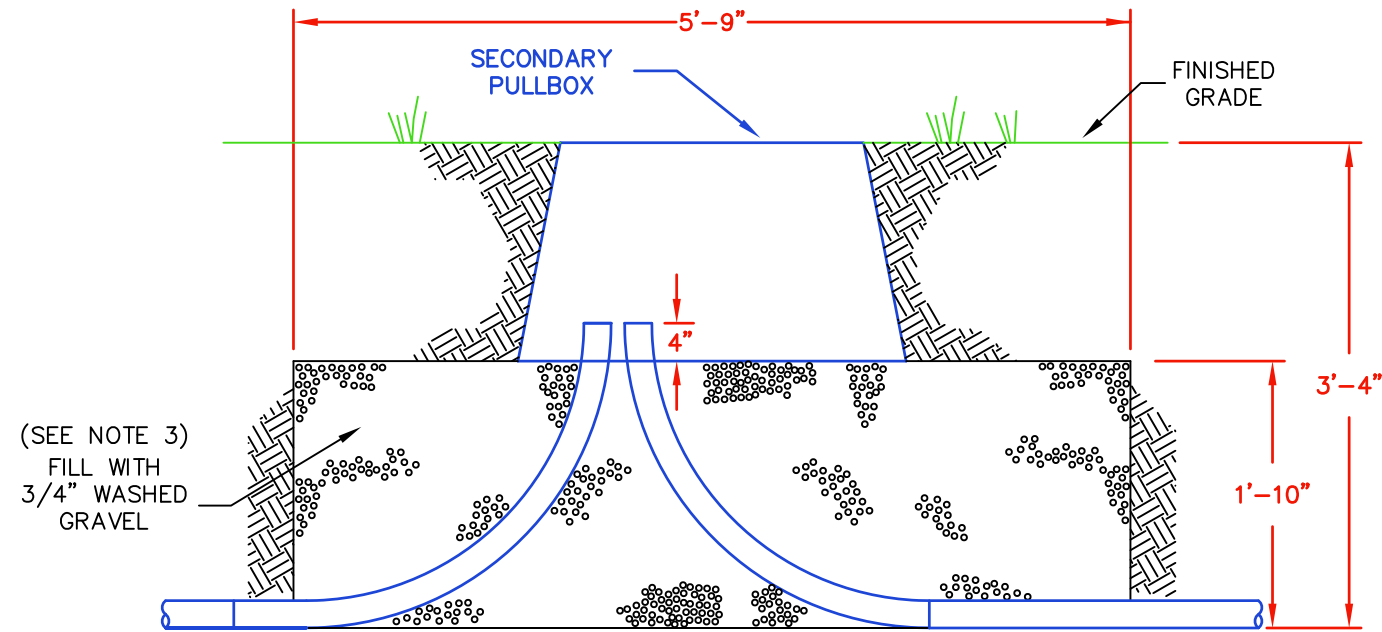
	
<b>SECONDARY PULLBOX INSTALLATION DETAILS</b> (UNDERGROUND PRIMARY - UNDERGROUND SERVICE)	
DRAWING NUMBER:	REVISED DATE:
SBP-2	JULY 1, 2023
	SCALE: <u>NONE</u>
	SHEET: <u>3</u> OF <u>3</u>

R



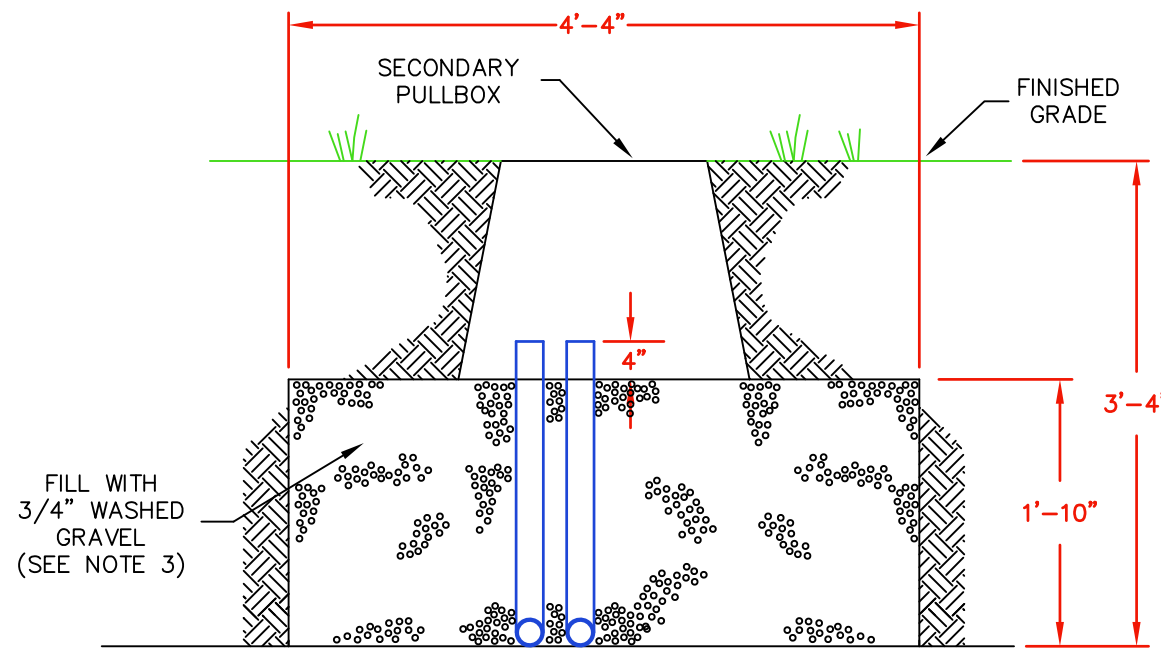
**PLAN VIEW**

SCALE: NONE



**SIDE VIEW**

SCALE: NONE



**FRONT VIEW**

SCALE: NONE

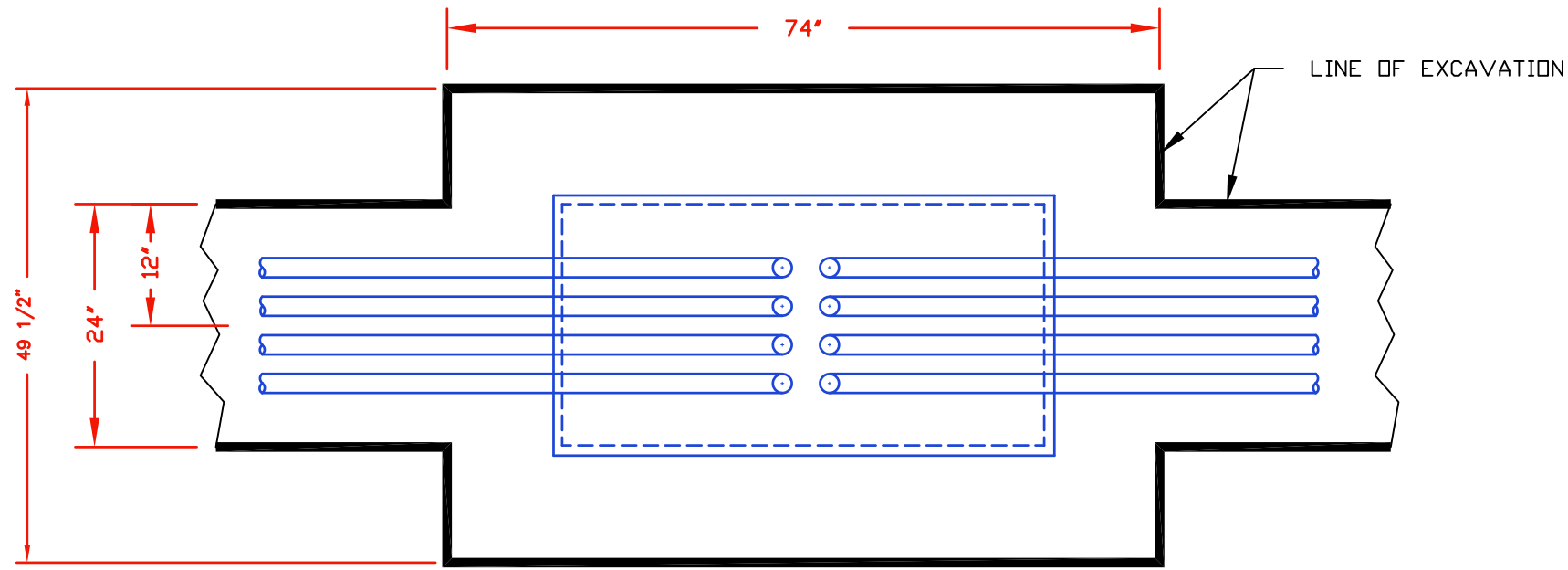
**NOTES:**

1. CONDUIT ELBOWS # 2 AND # 3 ARE 3" PVC INSTALLED BY DEVELOPER AND TURNED OUT TOWARD BUILDING SITES.
2. DEVELOPER TO INSTALL PVC (SCHEDULE 40) CONDUITS FROM PAD MOUNTED TRANSFORMER TO SECONDARY PULLBOX ACROSS STREET OR BEHIND TRANSFORMER, NUMBER AND SIZE AS REQUIRED BY MTE ALL ELBOWS TO BE SCHEDULE 80 PVC.
3. PULLBOX TO BE INSTALLED ON BED OF 3/4" WASHED GRAVEL PLACED ON UNDISTURBED EARTH.
4. REFER TO SHEETS 1 & 3 OF DRAWING SBP-1 OR SBP-2 FOR OVERALL PLAN.

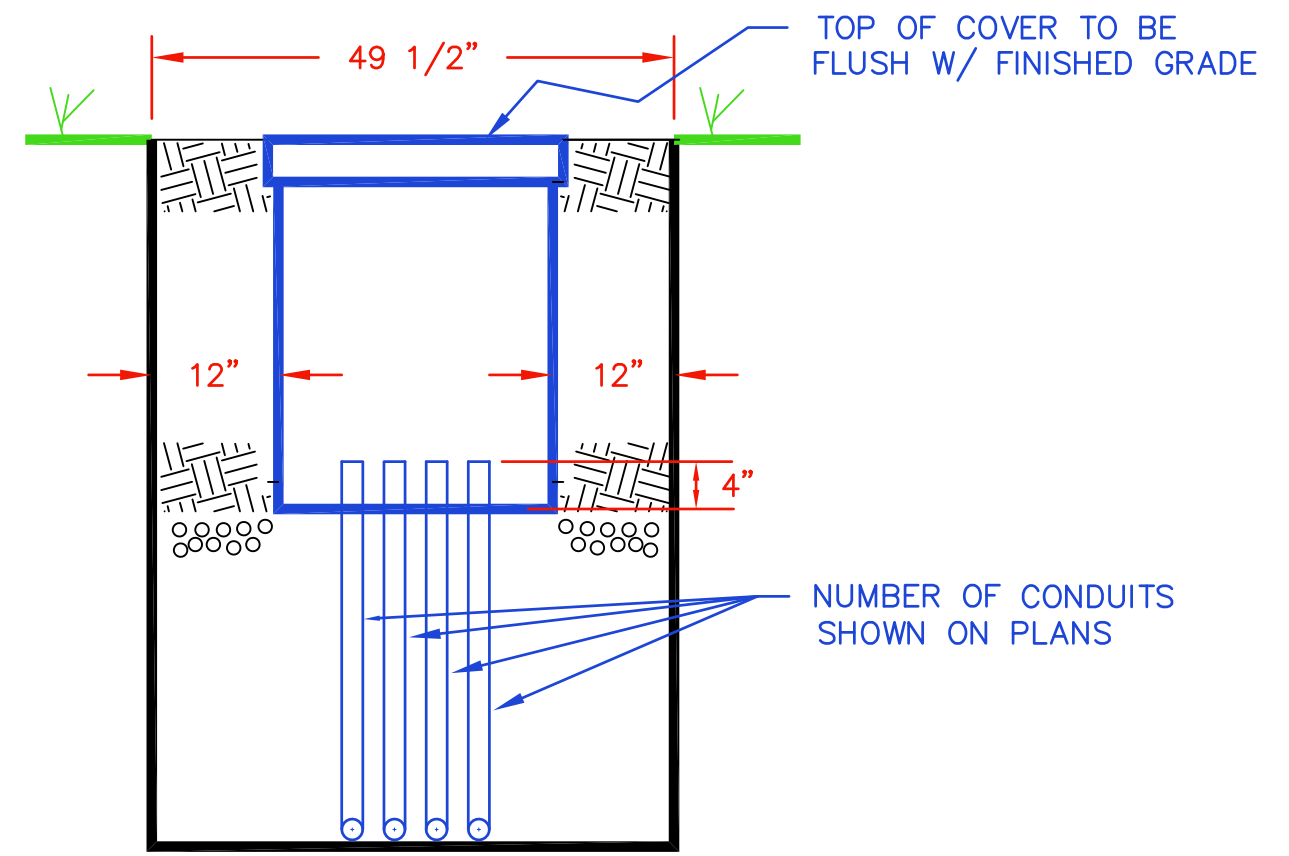


**SECONDARY PULLBOX  
INSTALLATION DETAILS**  
(UNDERGROUND PRIMARY - UNDERGROUND SERVICE)

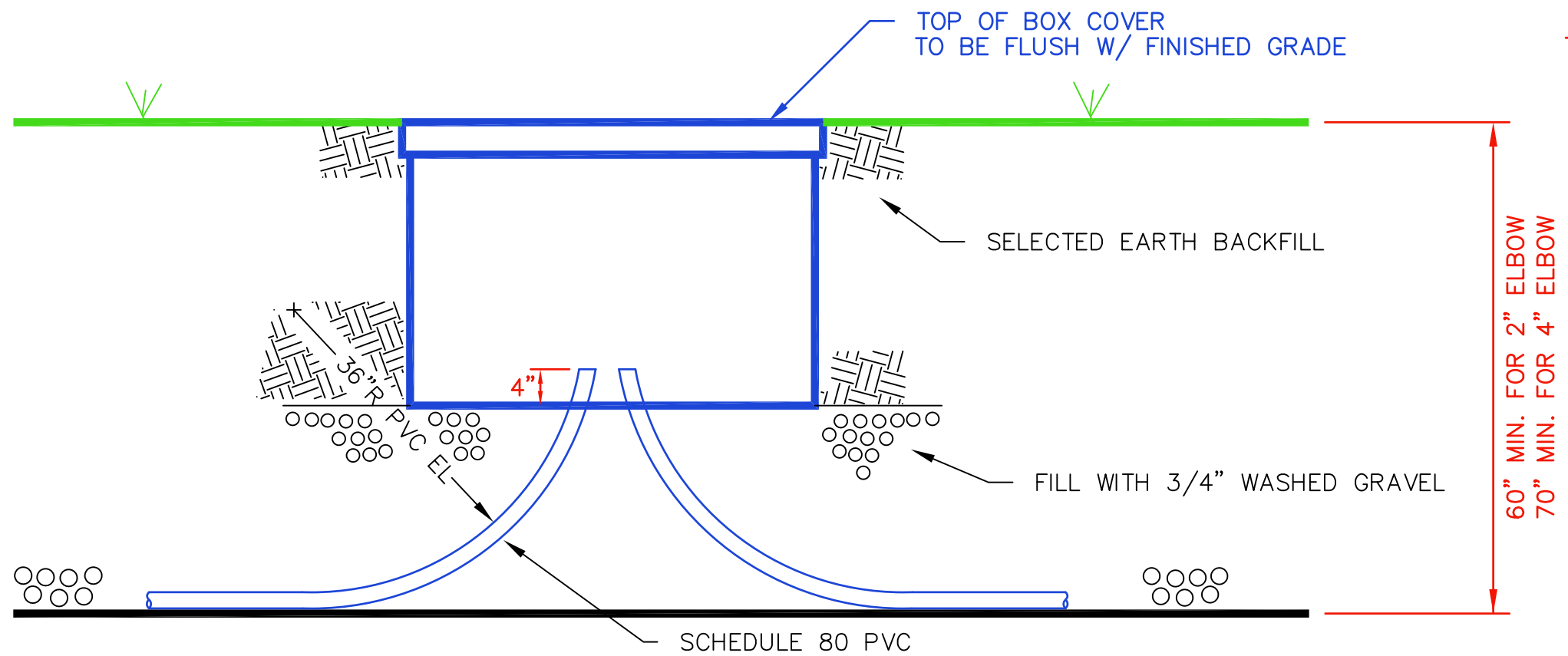
DRAWING NUMBER:	REVISED DATE:
<b>SBP-4</b>	JAN. 3, 2022
	SCALE: NONE
	SHEET: 1 OF 1



PLAN VIEW



END VIEW



SIDE VIEW

NOTES:

1. DEVELOPER SHALL FURNISH AND INSTALL PULLBOX PER MTE SPECIFICATIONS. CATALOG NUMBERS ARE LISTED IN APPENDIX B.
2. SIZE AND NO. CONDUITS SHOWN ON PLANS.
3. ALL CONDUIT ELBOWS SHALL BE CAPPED UPON INSTALLATION.
4. ALL ELBOWS TO BE SCHEDULE 80 PVC.



CONSTRUCTION DETAIL  
48L X 30W X 36D PULL BOX

DRAWING NUMBER:

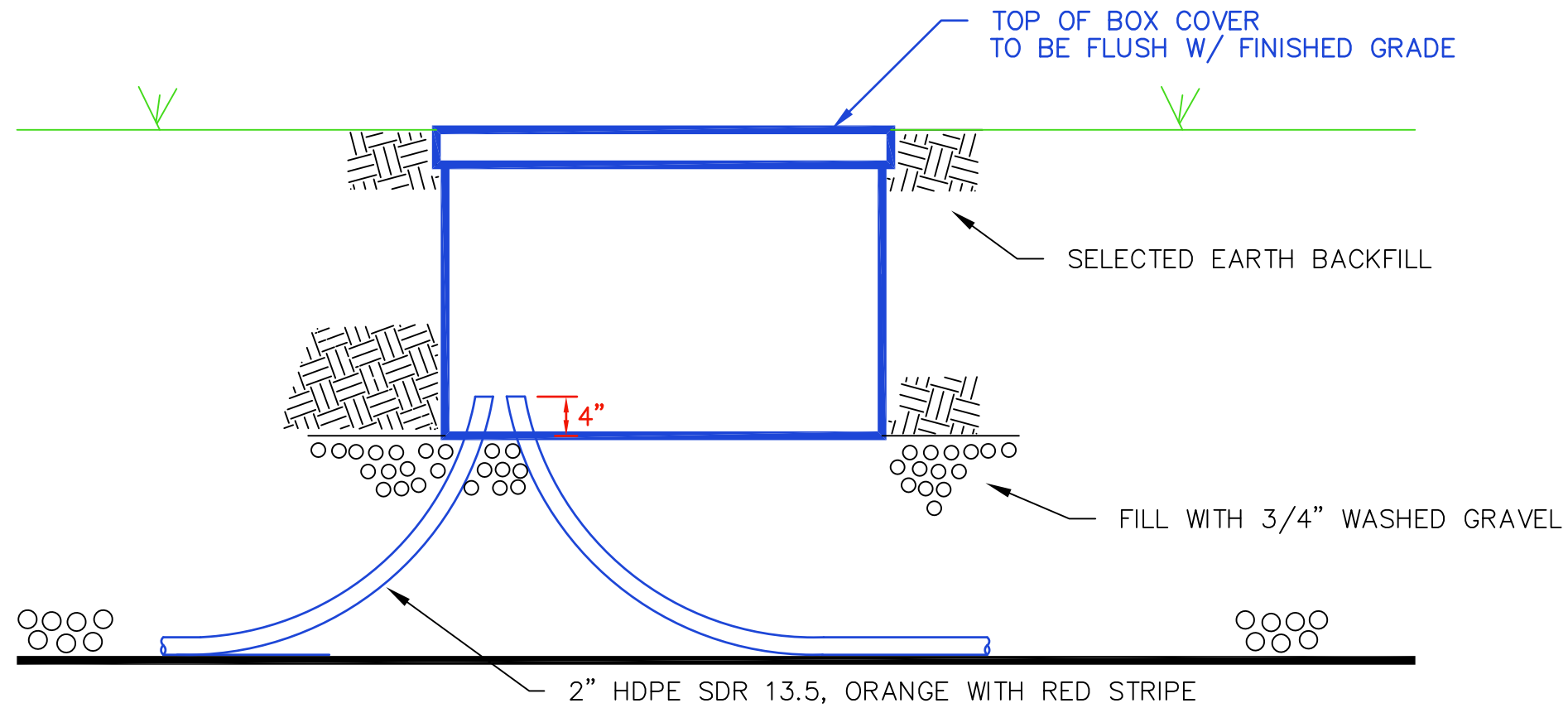
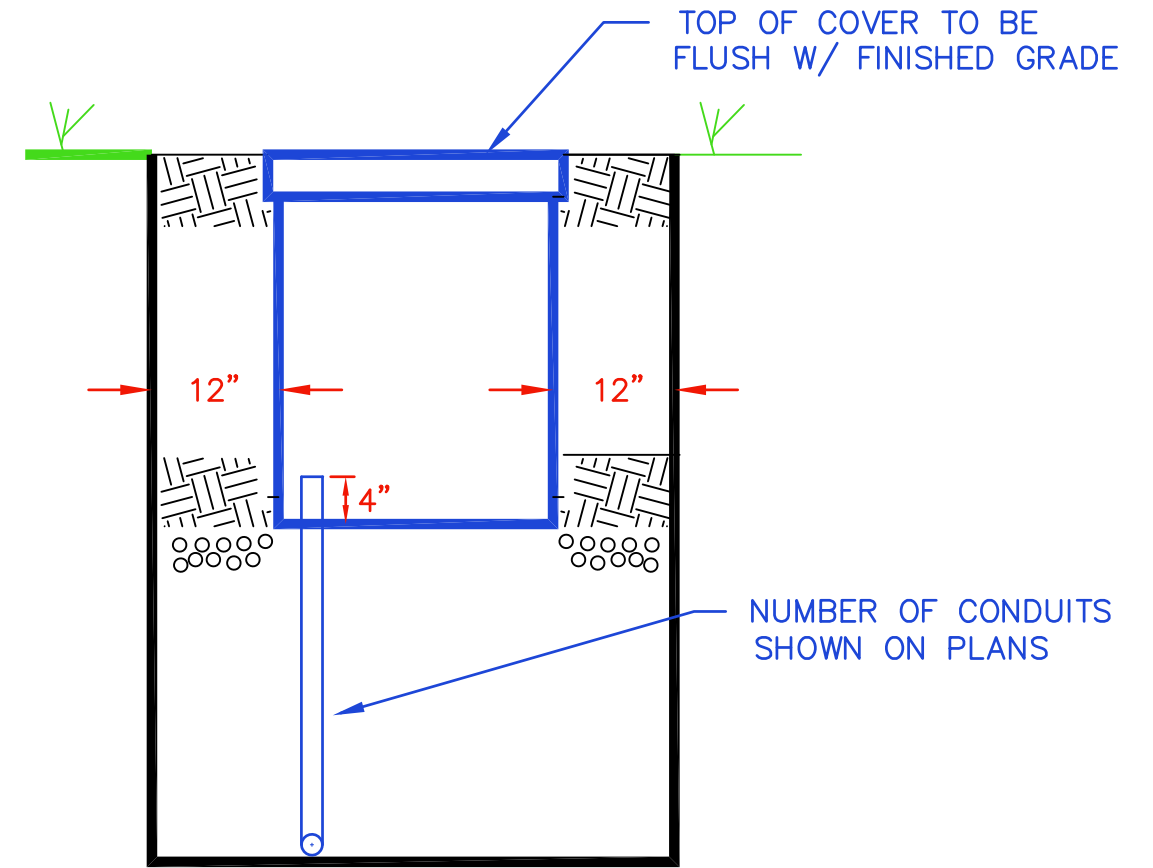
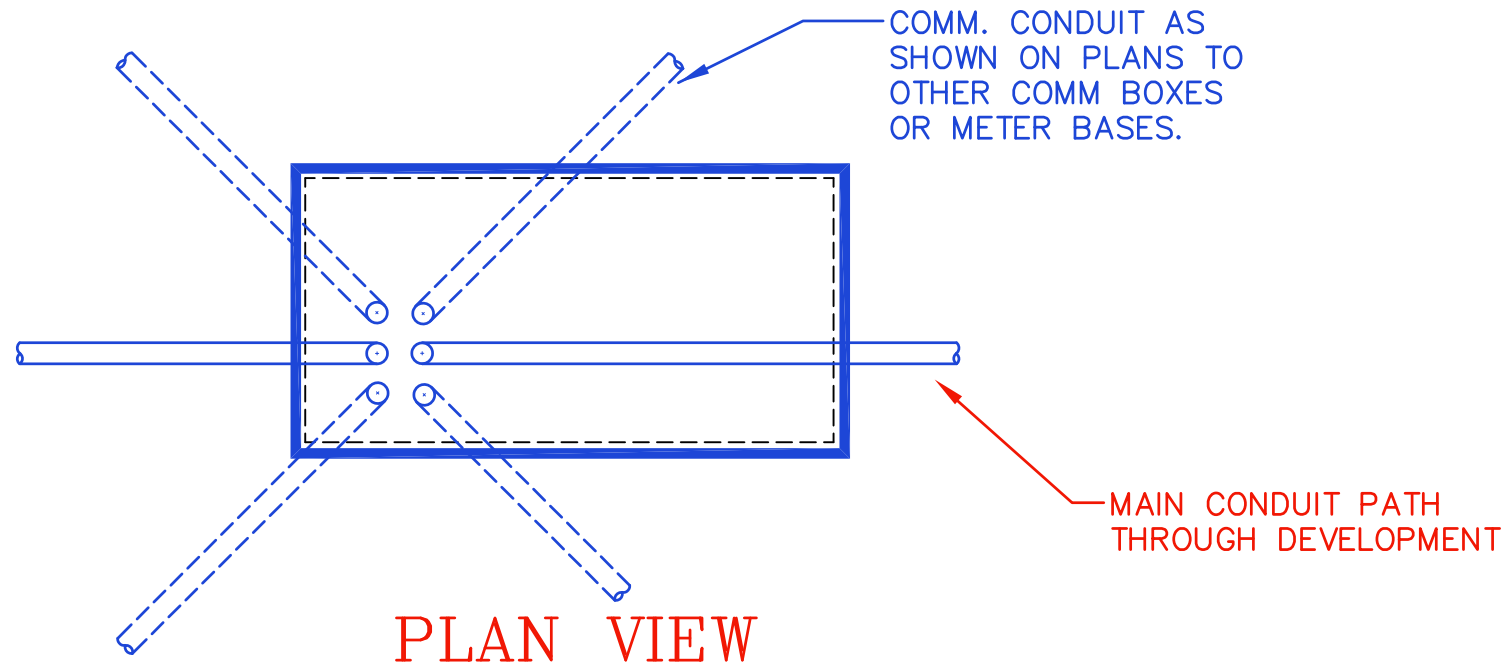
PB-1

REVISED DATE:

JULY 1, 2022

SCALE: NONE

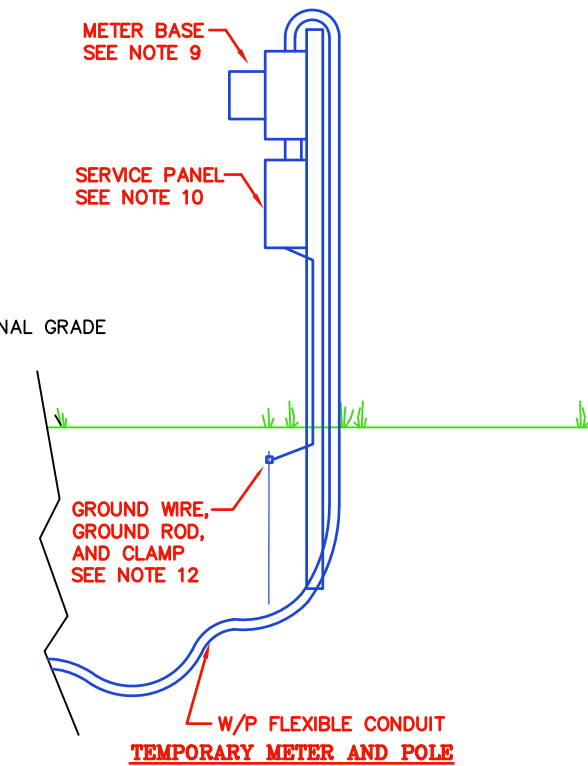
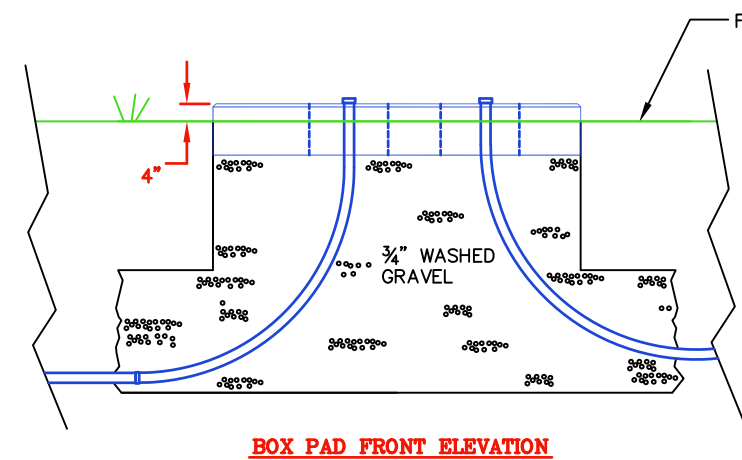
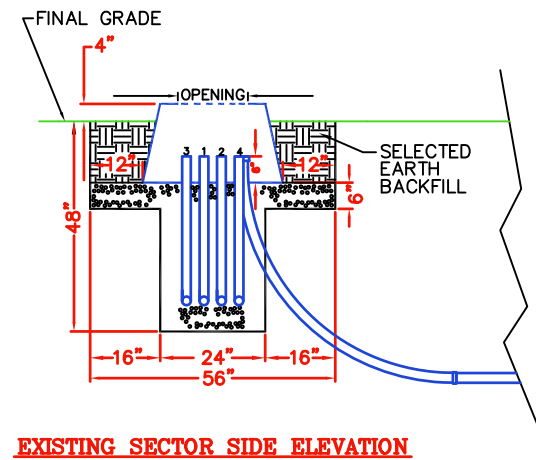
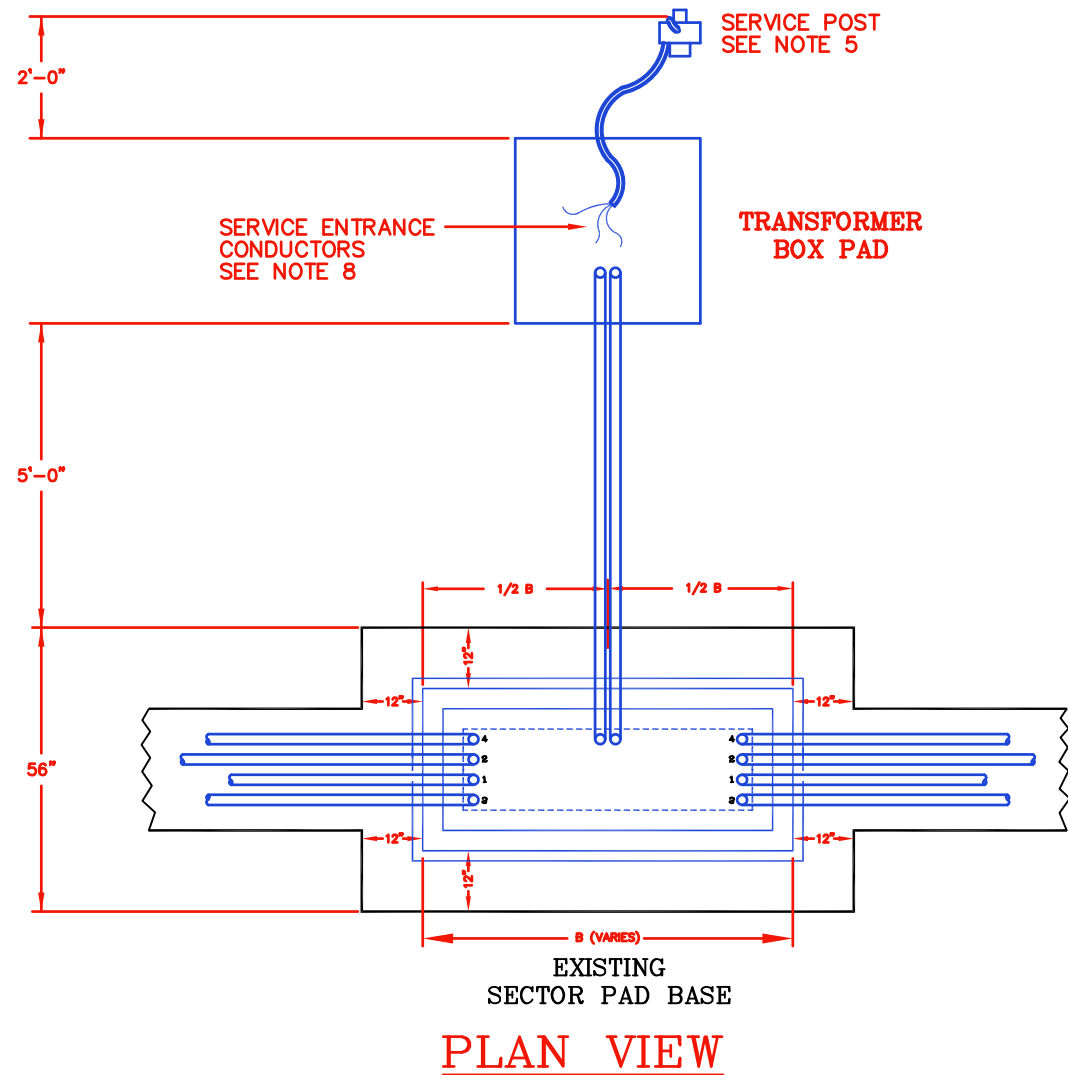
SHEET: 1 OF 1



**NOTES**

1. DEVELOPER SHALL FURNISH AND INSTALL COMM BOXES PER MTE SPECIFICATIONS. CATALOG NUMBERS ARE LISTED IN APPENDIX B.
2. SIZE AND NUMBER CONDUITS SHOWN ON PLANS.
3. FLOWER POTS SHALL HAVE SAME BACKFILL, SPACING AND DEPTH REQUIREMENTS AS SHOWN.

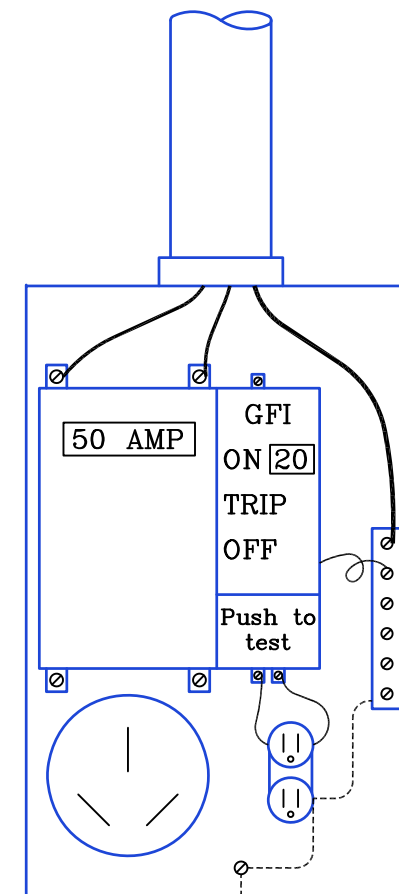
<p>CONSTRUCTION BEDDING DETAIL FOR MTE COMM BOXES</p>	
<p>DRAWING NUMBER: <b>HH-1</b></p>	<p>REVISED DATE: JULY 1, 2023</p>
<p>SCALE: <u>NONE</u></p>	
<p>SHEET: <u>1</u> OF <u>1</u></p>	



**EXISTING SECTOR SIDE ELEVATION**  
**BOX PAD FRONT ELEVATION**  
**SIDE VIEW**

**NOTES:**

1. ALL SECONDARY ELBOWS SHALL BE SCH. 80 PVC, 24"R, 3". ALL PRIMARY ELBOWS SHALL BE SCH 80, 48" R, SIZE SHOWN ON PLANS.
2. MAINTAIN 2" MINIMUM SPACING BETWEEN CONDUIT UNLESS SHOWN GREATER.
3. ALL CONDUIT ELBOWS MUST BE CAPPED UPON INSTALLATION.
4. ALL ELBOWS TO BE SCHEDULE 80 PVC.
5. SERVICE EQUIPMENT AND METER BASE SECURELY FASTENED TO A 4X4 POST SET IN THE GROUND AT A MINIMUM DEPTH OF 2 FEET.
6. LOCATE POST BEHIND RIGHT REAR CORNER OF PAD-MOUNTED TRANSFORMER OR UNDERGROUND SECONDARY BOX. ALLOW 2 FT. CLEARANCE BETWEEN POST AND TRANSFORMER OR SECONDARY BOX. MTE ENGINEER MAY SPOT LOCATION FOR NEW TEMPORARY SERVICE AS WELL AS ADDITIONAL TEMPORARY SERVICES.
7. SERVICE ENTRANCE RACEWAY OF 1 1/4 IN. W/P FLEXIBLE CONDUIT WILL EXTEND FROM THE TOP OF THE METER BASE TO NOT LESS THAN 1 FT. BELOW GRADE AND INTO THE TRANSFORMER BOX PAD.
8. SERVICE ENTRANCE CONDUCTORS, NO. 6 (UF OR USE) UNDERGROUND CABLE WILL EXTEND 7 FT. OUT OF SERVICE ENTRANCE RACEWAY. CONNECTIONS IN TRANSFORMER CABINET OR UNDERGROUND SECONDARY BOX WILL BE MADE BY MTE.
9. METER BASE WILL BE LOCATED BETWEEN 4' AND 6' ABOVE GRADE.
10. A WEATHERPROOF, U.L. LISTED, TEMPORARY SERVICE PANEL WILL BE LOCATED AT THE METER BASE. IN NO CASE WILL THE PANEL BE LESS THAN 2 FT. ABOVE GROUND.
11. 15 AND 20 AMPERE RECEPTACLES WILL HAVE GROUND FAULT PROTECTION FOR PERSONNEL.
12. A GROUND WIRE OF NO. 4 COPPER OR LARGER SHALL BE RAN UNSPLICED FROM METER BASE OR PANEL TO DRIVEN GROUND ROD. AN 8 FT. DRIVEN GROUND ROD BONDED TO GROUND WIRE WITH CLAMP SUITABLE FOR DIRECT SOIL BURIAL WILL BE INSTALLED BELOW GRADE, 6 IN. FROM POST.
13. ALL ELBOWS TO BE SCHEDULE 80 PVC.



**Receptacles SEE NOTE 11**  
**SERVICE PANEL**



**CONSTRUCTION DETAIL  
TEMPORARY SERVICE  
FROM SECTOR AND PAD**

DRAWING NUMBER:

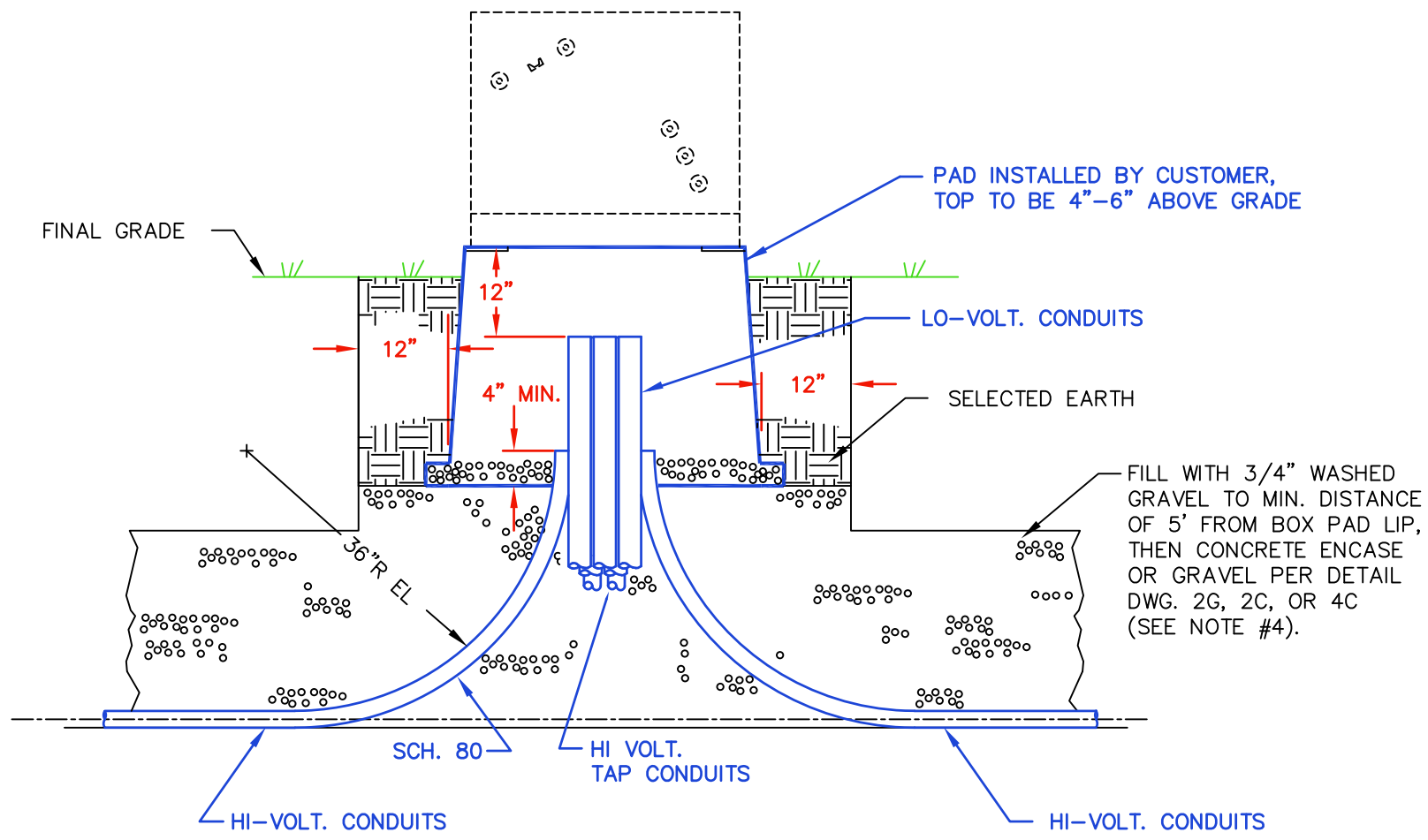
**TS-1**

REVISED DATE:

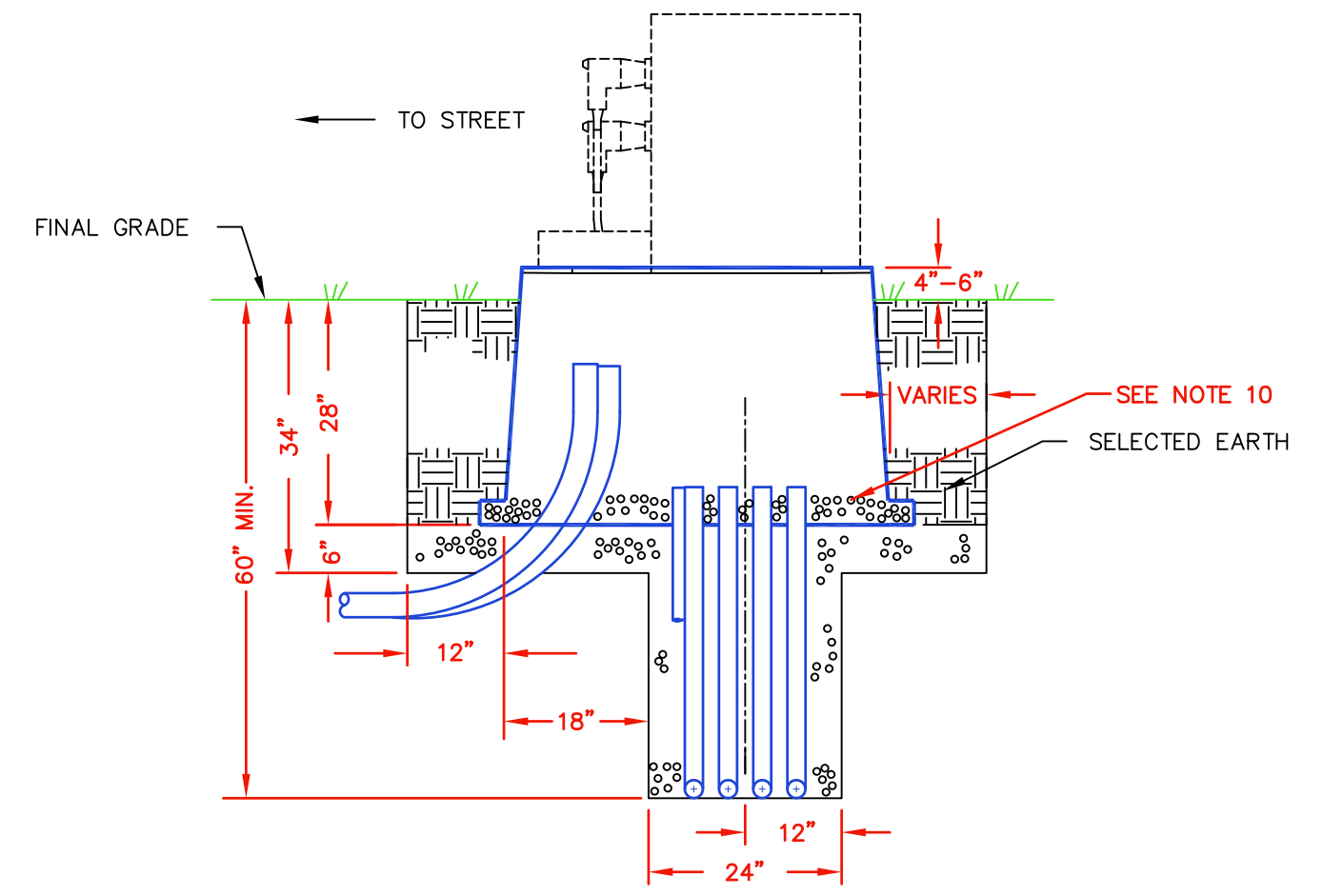
JAN. 3, 2022

SCALE: NONE

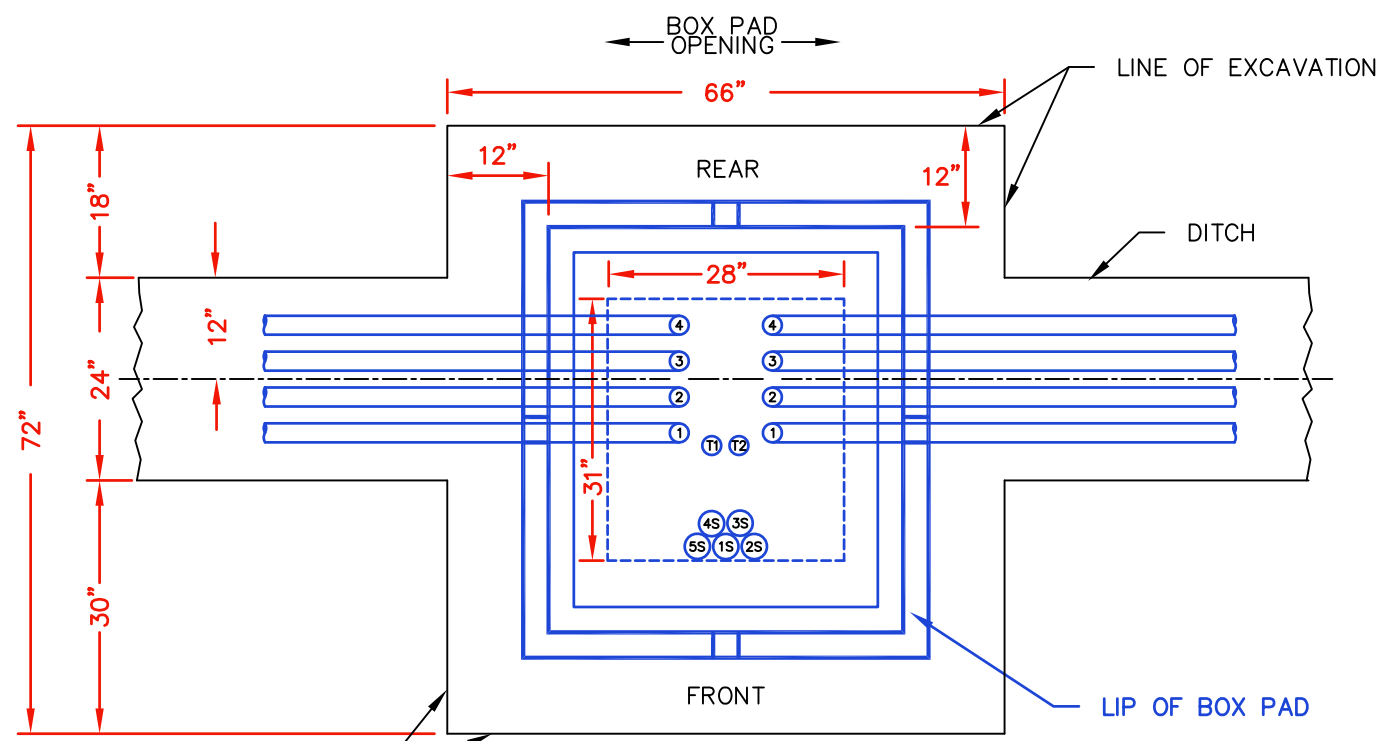
SHEET: 1 OF 1



**BOX PAD FRONT ELEVATION**



**BOX PAD SIDE ELEVATION**



**BOX PAD BASE AND EXCAVATION PLAN**

**NOTES:**

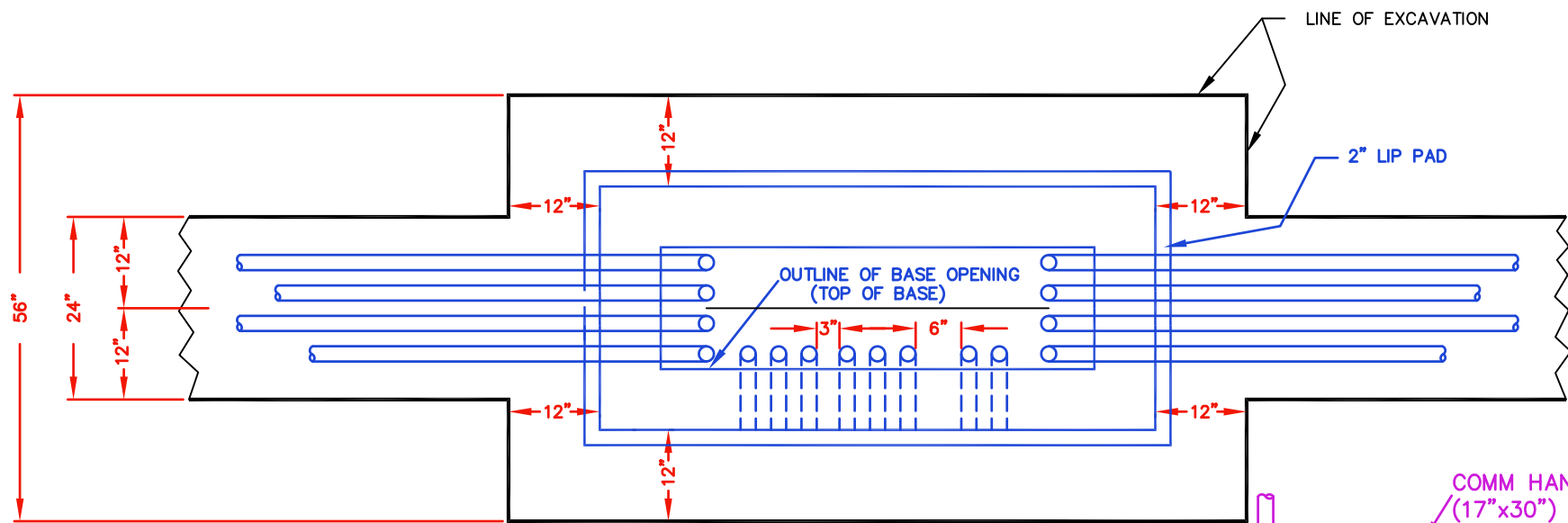
1. DEVELOPER SHALL FURNISH AND INSTALL TRANSFORMER BOX PAD PER MTE SPECIFICATIONS. SEE APPENDIX B FOR APPROVED CATALOG NUMBERS.
2. BASE VIEW SHOWS HIGH-VOLTAGE CONDUITS TURNING UP IN ORDER OF PRIORITY--1, 2, 3, 4, ETC. ; T1, T2 REPRESENT HIGH-VOLTAGE TAP CONDUITS POSITIONS; 1S, 2S, ETC. SHOW RELATIVE POSITIONS OF SECONDARY (LOW-VOLTAGE) CONDUITS. SEE PLANS FOR EXACT NUMBER AND SIZE OF CONDUITS.
3. ALL CONDUIT ELBOWS SHALL BE CAPPED UPON INSTALLATION.
4. BEGINNING AT 5' FROM LIP OF BOX PAD, DITCH SHALL COMPLY WITH DETAIL DWG. 2G, 2C, OR 4C. SEE "DUCT BANK SPECS", SECTION (5)(B)(a) FOR DITCH REQUIREMENTS.
5. TOP OF BOX PAD TO BE 4"-6" ABOVE GRADE.
6. ALL HI-VOLTAGE CONDUITS SHALL TERMINATE A MINIMUM OF 4" ABOVE GRAVEL FILL INSIDE BOX.
7. ALL LO-VOLTAGE CONDUITS SHALL TERMINATE 12" FROM TOP OF BOX PAD.
8. REFER TO DRAWING SBP-2 AND SBP-3 FOR SECONDARY PULL BOX LOCATIONS AND SPECIFICATIONS.
9. ALL ELBOWS TO BE SCHEDULE 80 PVC.
10. PLACE GRAVEL INSIDE BOX PAD SUCH THAT OPENINGS ARE COMPLETELY COVERED.



**CONSTRUCTION DETAIL  
TRANSFORMER BOX PAD**

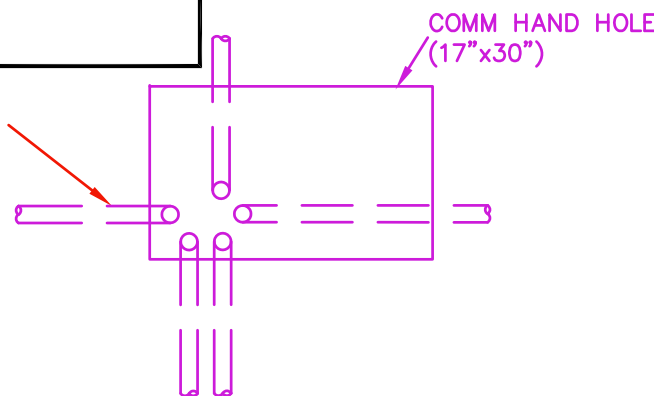
DRAWING NUMBER:	REVISED DATE:
BP-1	JULY 1, 2022
	SCALE: NONE
	SHEET: 1 OF 1





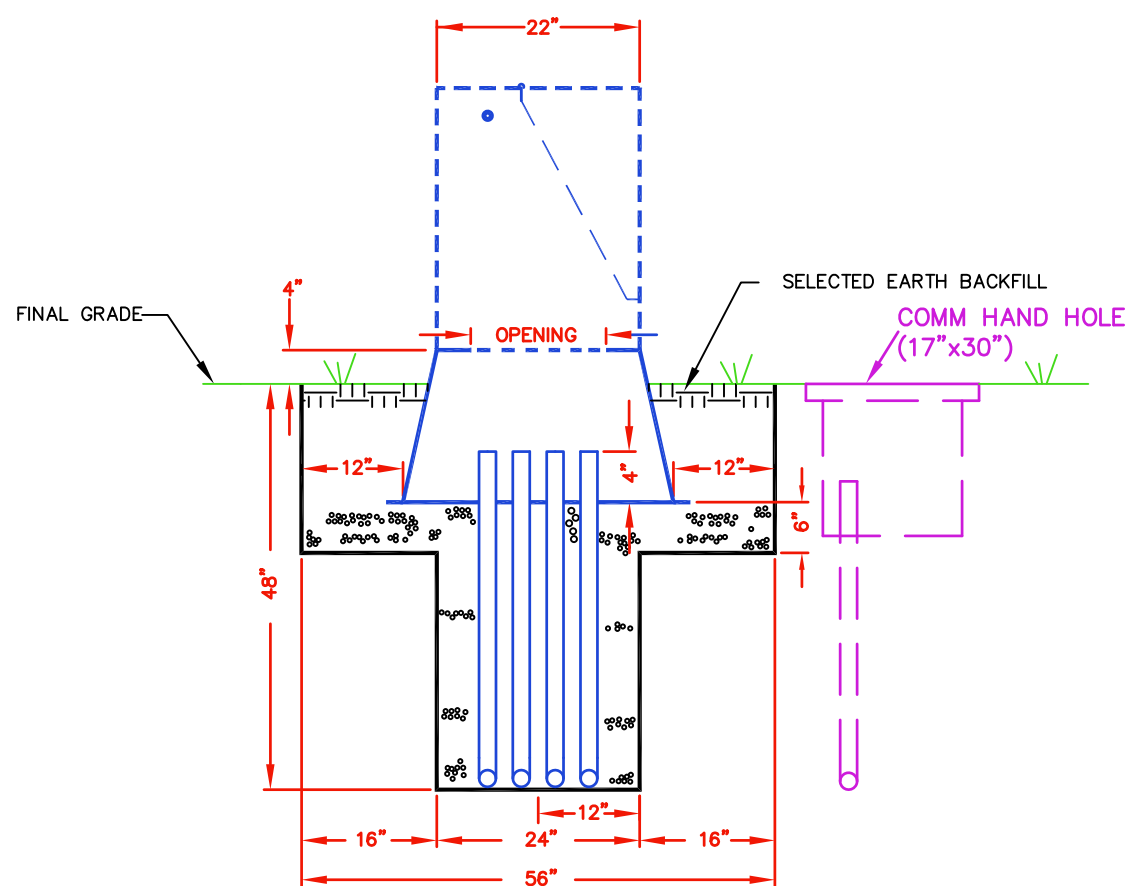
COMM CONDUIT, NUMBER AND DIRECTION AS SPECIFIED BY MTE (SEE NOTE 6)

**SECTOR PAD BASE AND EXCAVATION PLAN**

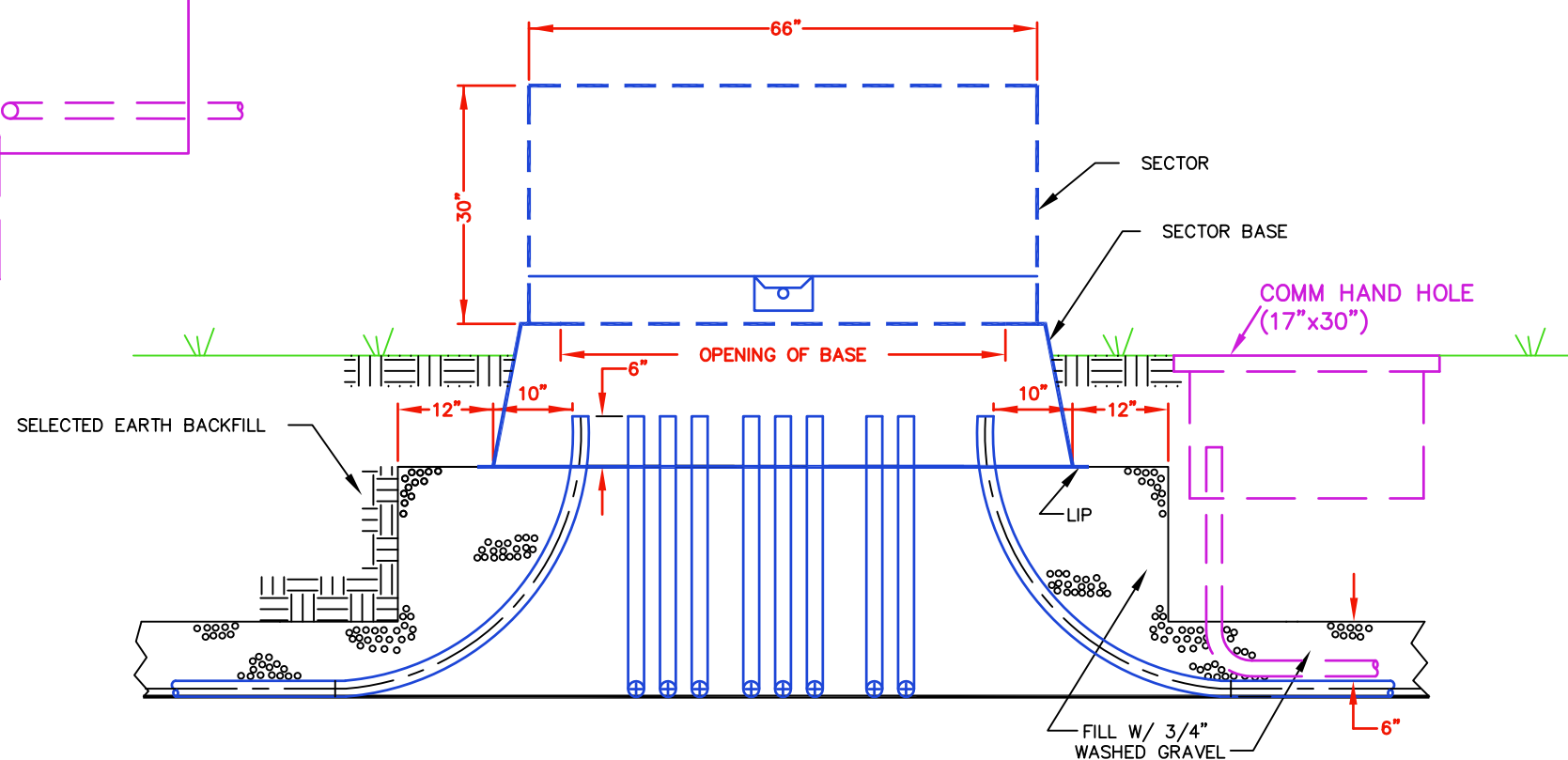


**NOTES:**

1. DEVELOPER SHALL FURNISH AND INSTALL SECTOR PADS PER MTE SPECIFICATIONS. THE PADS SHALL BE FIBERCRETE. PART NUMBERS ARE LISTED IN APPENDIX B.
2. ALL ELBOWS SHALL BE SCH. 80 PVC, 36"R, SIZE SHOWN ON PLANS.
3. MAINTAIN 2" MINIMUM SPACING BETWEEN CONDUIT UNLESS SHOWN GREATER.
4. ALL ELECTRICAL CONDUIT ELBOWS MUST BE CAPPED UPON INSTALLATION.
5. SEE APPENDIX B FOR MANUFACTURER & CATALOG INFORMATION.
6. INSTALL 17" X 30" COMM HAND HOLE AND REQUIRED COMM CONDUIT AS SPECIFIED BY MTE AND INDICATED ON PLAN. IN COMMERCIAL APPLICATIONS, USE HD 17" X 30" COMM HAND HOLE. SEE DRAWING HH-1 FOR HAND HOLE CONSTRUCTION DETAILS.



**SECTOR SIDE ELEVATION**



**SECTOR FRONT ELEVATION**



**CONSTRUCTION DETAIL  
SECTOR AND PAD**

THREE PHASE

DRAWING NUMBER:

S-1

REVISED DATE:

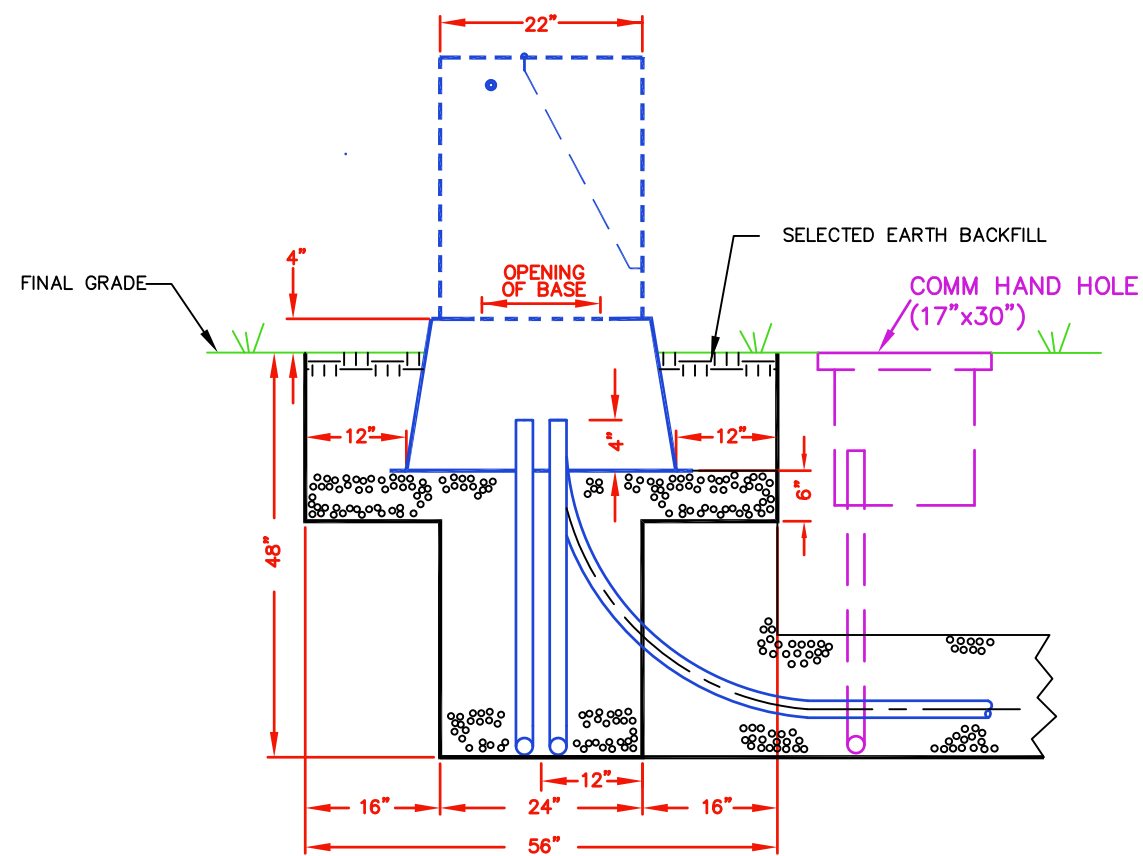
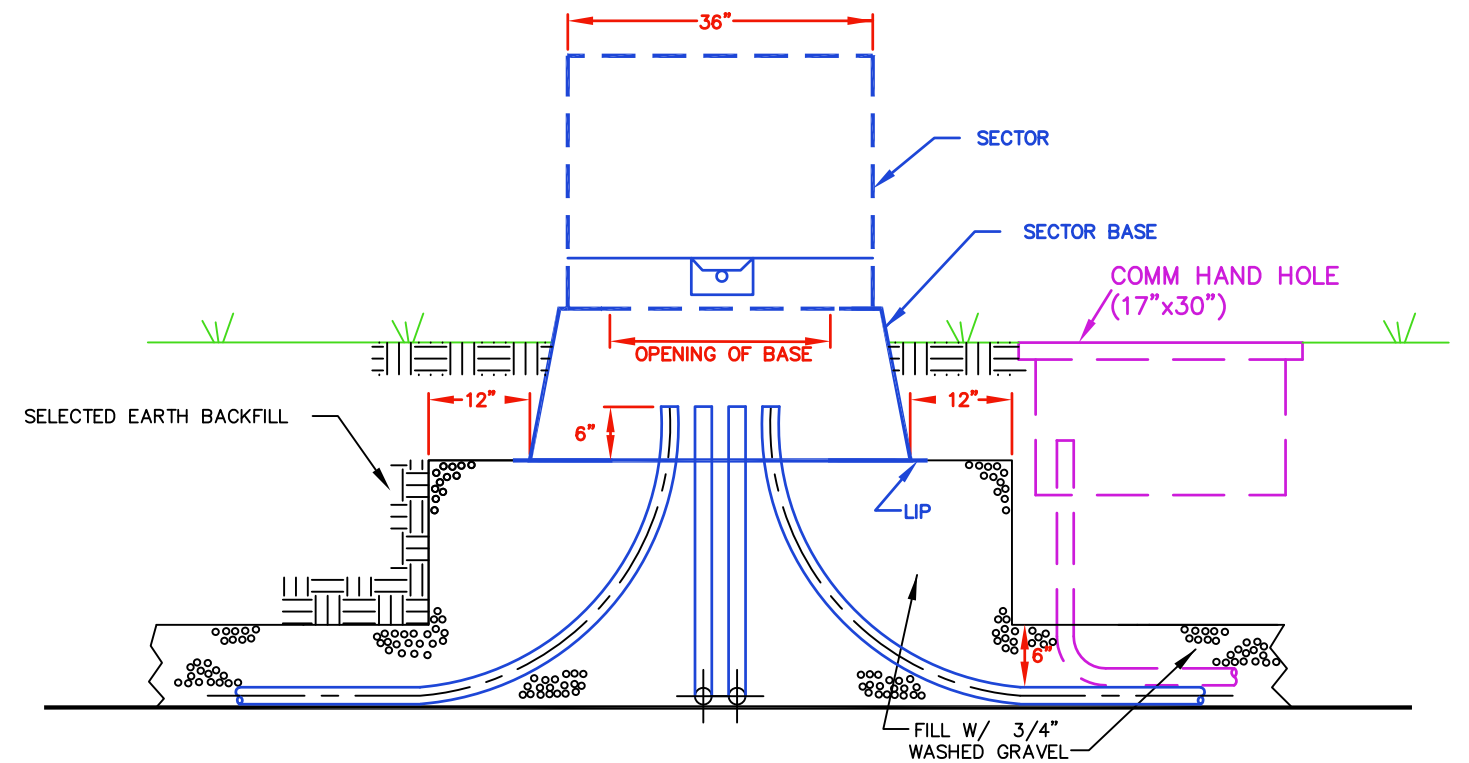
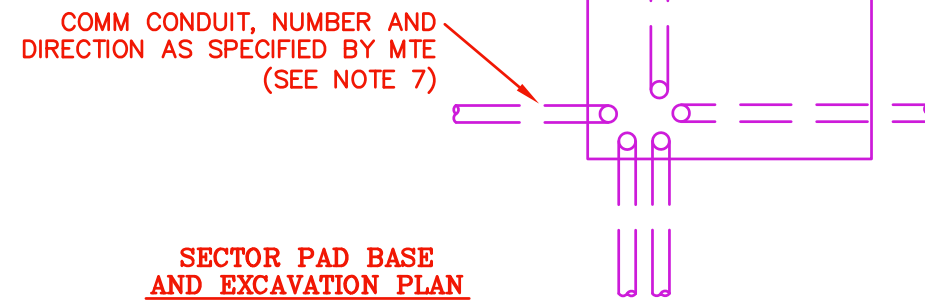
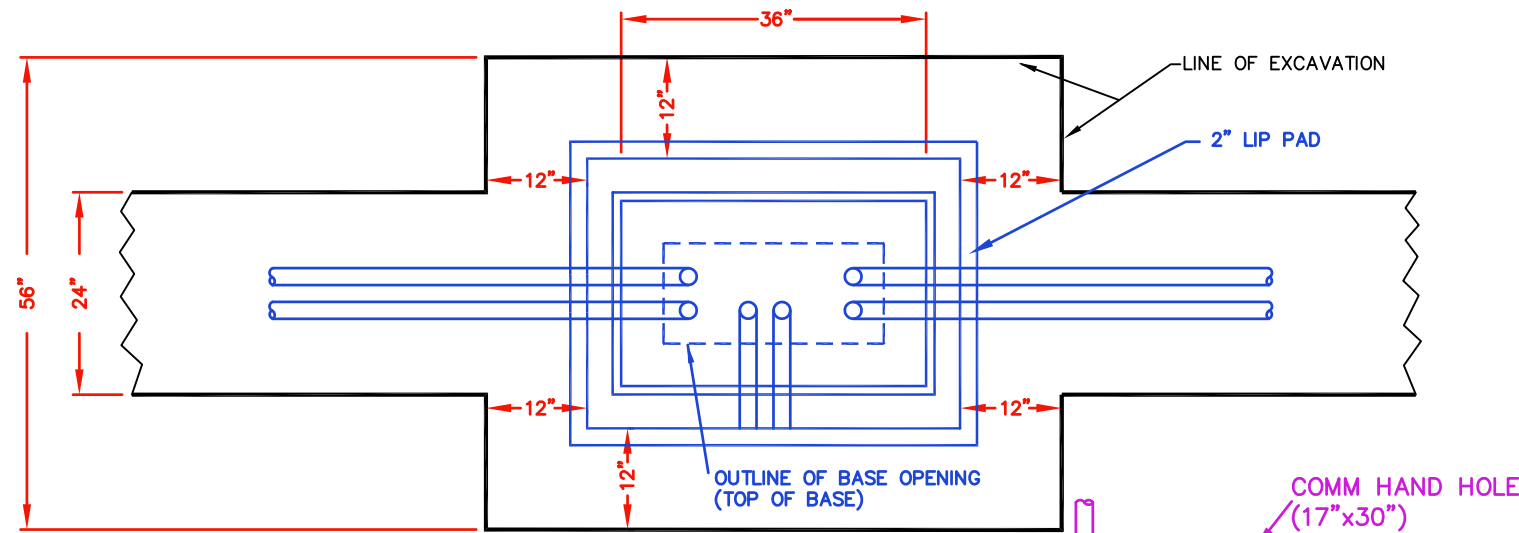
JULY 1, 2023

SCALE: NONE

SHEET: 1 OF 1

**NOTES:**

1. DEVELOPER SHALL FURNISH AND INSTALL SECTOR PADS PER MTE SPECIFICATIONS. THE PADS SHALL BE FIBERCRETE. PART NUMBERS ARE LISTED IN APPENDIX B.
2. ALL ELBOWS SHALL BE SCH. 80 PVC, 36"R, SIZE SHOWN ON PLANS.
3. SEE PLANS FOR EXACT NO. AND SIZE OF CONDUITS.
4. MAINTAIN 2" MINIMUM SPACING BETWEEN CONDUIT UNLESS SHOWN GREATER.
5. ALL ELECTRICAL CONDUIT ELBOWS MUST BE CAPPED UPON INSTALLATION.
6. SEE APPENDIX B FOR MANUFACTURER & CATALOG INFORMATION.
7. INSTALL 17" X 30" COMM HAND HOLE AND REQUIRED COMM CONDUIT AS SPECIFIED BY MTE AND INDICATED ON PLAN. IN COMMERCIAL APPLICATIONS, USE HD 17" X 30" COMM HAND HOLE. SEE DRAWING HH-1 FOR HAND HOLE CONSTRUCTION DETAILS.



**SECTOR SIDE ELEVATION**

**SECTOR FRONT ELEVATION**



**CONSTRUCTION DETAIL  
SECTOR AND PAD**

SINGLE PHASE

DRAWING NUMBER:

S-2

REVISED DATE:

JULY 1, 2023

SCALE: NONE

SHEET: 1 OF 1

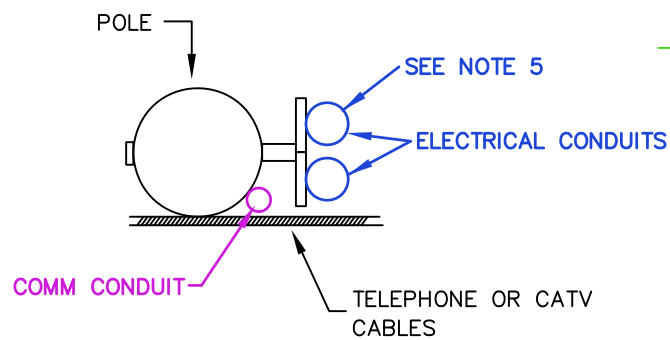
TABLE 1

CONDUIT SIZE	CONDUIT CONTAINING CUSTOMER OWNED WIRING SUPPORT SPACING	CONDUIT CONTAINING MTE OWNED WIRING SUPPORT SPACING
2"	5'	10'
2 1/2" - 3"	6'	10'
3 1/2" - 5"	7'	10'
6"	8'	10'

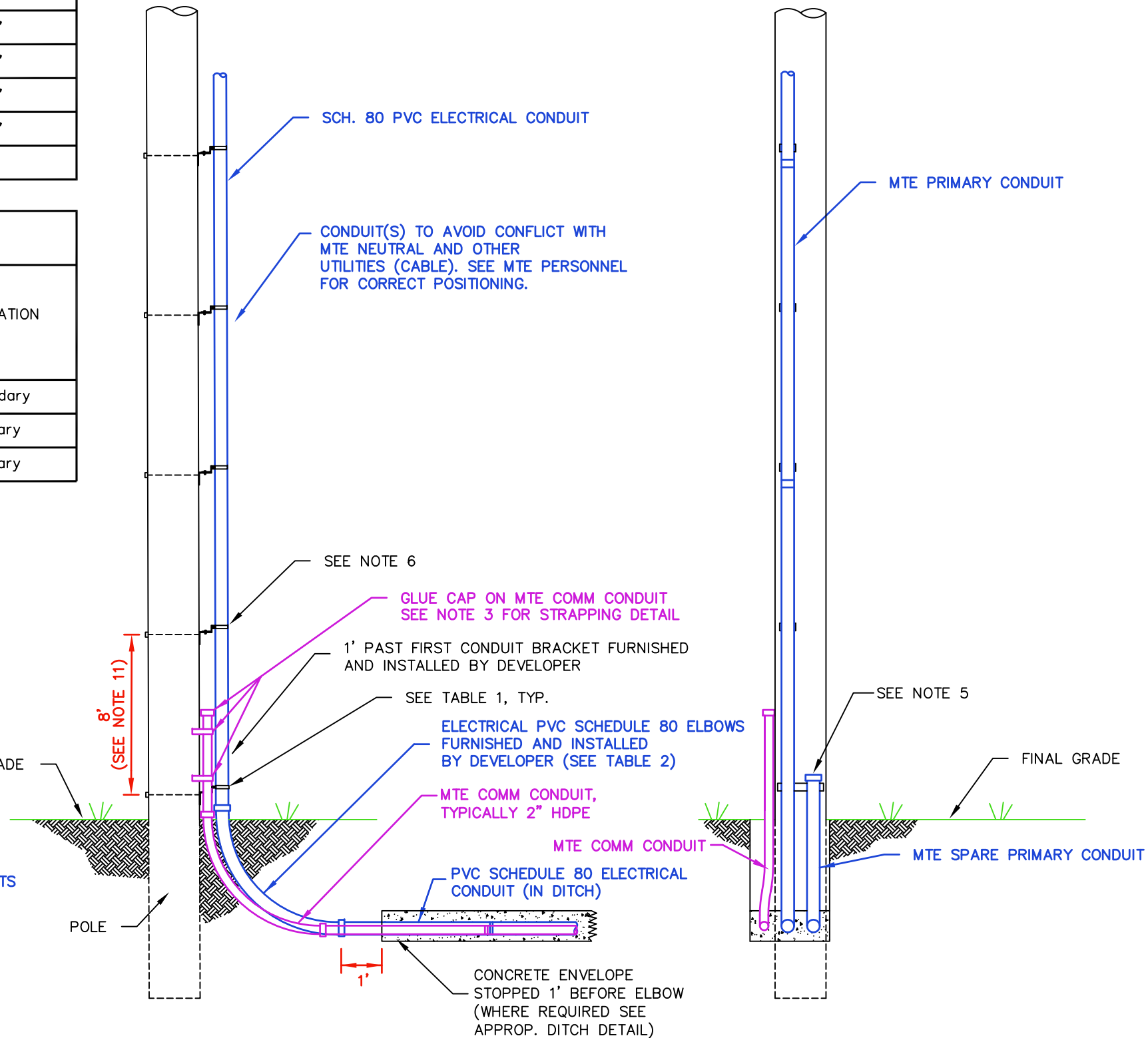
\*\*SPACING SHALL BE WITHIN ± 3"\*\*\*

TABLE 2

CONDUIT SIZE	CONDUIT RADIUS	APPLICATION
3"	24"	Secondary
4" & up	48"	Primary
2"	36"	Primary



PLAN VIEW



SIDE ELEVATION

FRONT ELEVATION

Notes:

1. See ditch details elsewhere in these specifications for ditch dimensions and requirements.
2. Prior to any excavation closer than 3' to the pole, the developer shall provide 24 hours notice to MTE to arrange for MTE inspector to be present during excavation. Work shall be arranged such that the required encasement and backfill will take place the same day as excavation.
3. Developer shall furnish and install schedule 80 PVC riser conduit 12" above the first MTE bracket. Also, glue appropriate cap on top of conduit. All electrical conduit shall meet NEMA TC-2, WC 1094A, and UL651 Specs. Comm conduit shall be furnished and installed by the developer. All 2" comm conduit shall be HDPE SDR 13.5 orange with a red stripe. Comm conduit to be run 3' up pole above final grade. A minimum of 1/2" stainless steel straps shall be used to strap the comm conduit to the pole approximately 12" and 30" above final grade.
4. Above the developer supplied and installed electrical conduit that ends 12" above the lowest bracket, MTE will provided and install the remaining riser conduit.
5. Developer shall glue cap on any spare elbows and all comm conduit. It must be a cap; tape will not be approved.
6. Conduit-to-pole brackets shall standoff conduit 4" from pole and shall be furnished and installed for 1' past lowest conduit bracket of electric riser conduit by the developer. See listed approved materials for the accepted brackets in Appendix B.
7. Conduit in the last 20' of ditch prior to meeting riser pole elbow shall be level in order for riser pole conduit to be plumb.
8. Developer must coordinate specific conduit risers location with MTE before installation is begun.
9. Long couplings as defined in Appendix B shall be used as necessary when splicing the gray electrical conduit.
10. See Table 1 for conduit support spacing.
11. NESC requires 8' between bottom support two brackets.



RISER POLE CONDUIT INSTALLATION (TYPICAL)

DRAWING NUMBER:

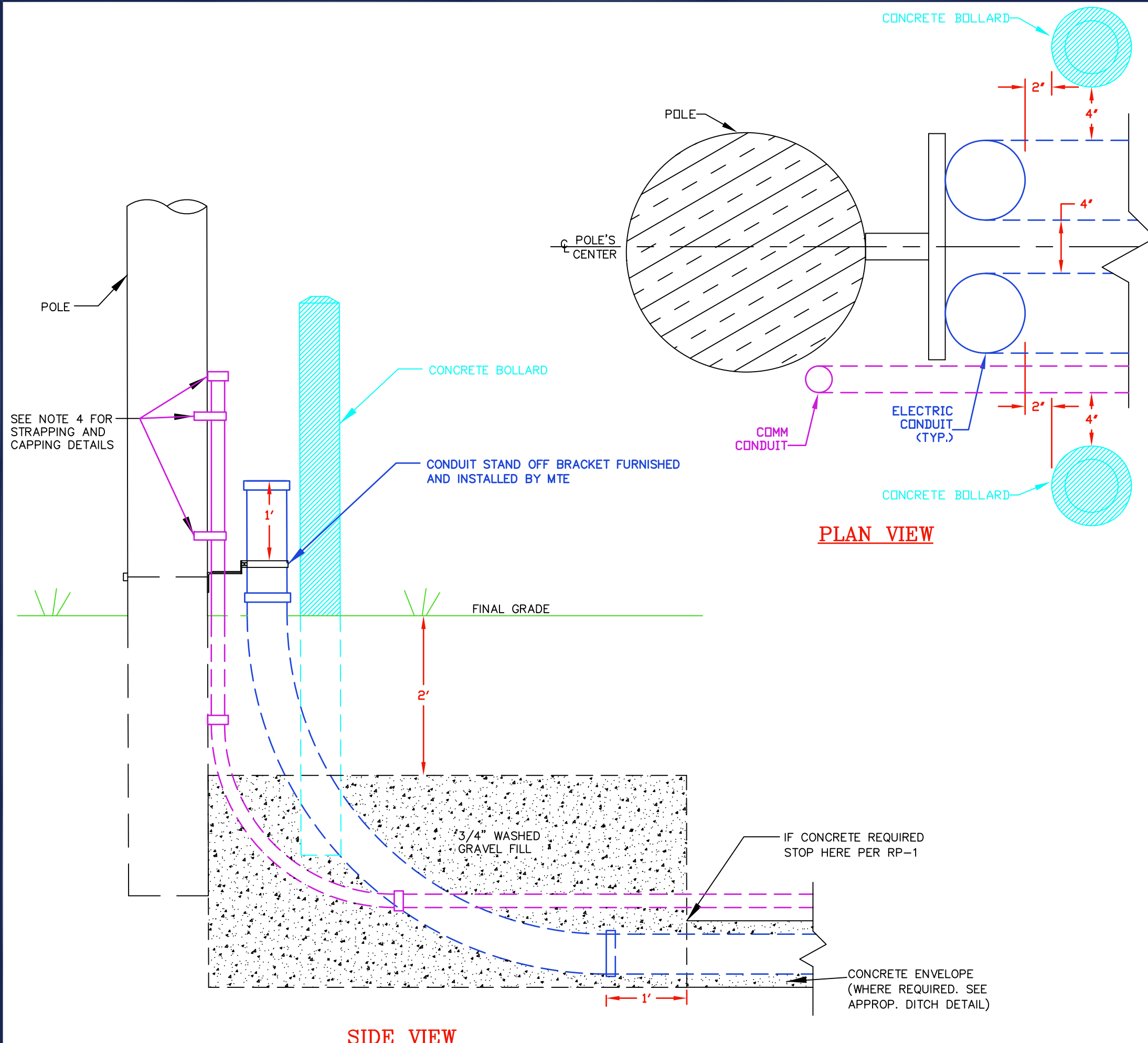
RP-1

REVISED DATE:

JULY 1, 2023


SCALE: NONE

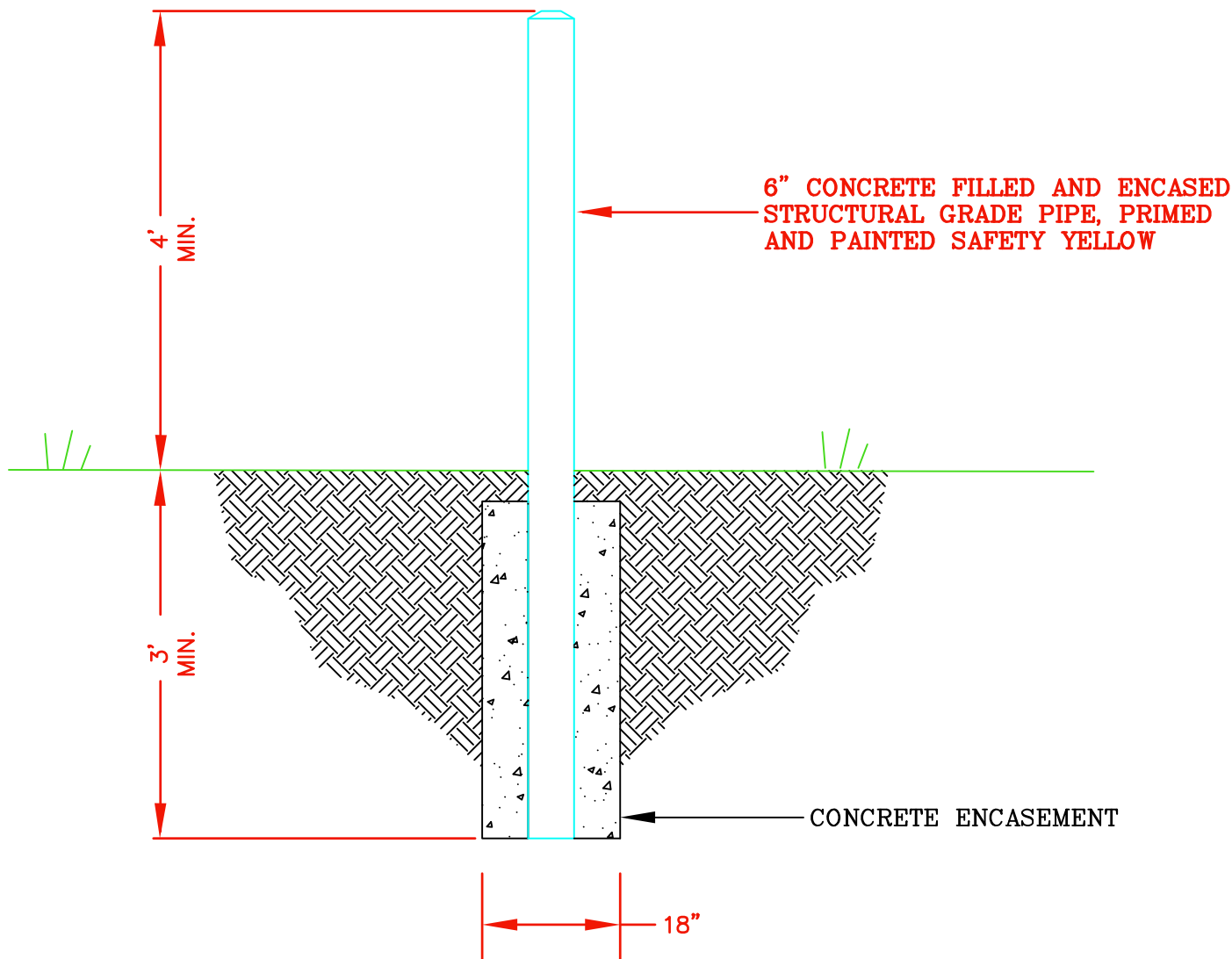
SHEET: 1 OF 1



Notes

1. Maintain a 4" separation between conduits.
2. Each conduit is to be 2" off of the pole's center line. Conductor is to pass between conduits at top of the pole, so this dimension relative to the pole's center line is critical.
3. To be used on all risers that meet one or more of the following criteria:
  - 3.A. Primary services larger than #1/0 aluminum.
  - 3.B. Primary services that are within state right of ways.
  - 3.C. Primary services that exist in areas where damage to the conduit is likely. See MTE engineer for applicability.
4. Developer shall furnish and install schedule 80 electrical PVC riser conduit 12" above the first MTE conduit standoff bracket. Comm conduit to be run 3' up pole above final grade. A minimum of 1/2" stainless steel straps shall be used to strap the comm conduit to the pole approximately 12" and 30" above final grade. Also, glue appropriate cap on top of both conduits.
5. Install bollard as indicated on the drawing. See drawing BD-1 for bollard detail.
6. The quadrants for conduit location shall be determined by MTE personnel.
7. If the number of conduits is greater than 2, see MTE personnel.
8. This is to be used for all feeder circuits and wherever MTE personnel determine conduit is at risk for damage.
9. All elbows shall be sch 80 electrical PVC.

	
<b>CONSTRUCTION DETAIL BOLLARD PROTECTED RISER INSTALLATION (TYPICAL)</b>	
DRAWING NUMBER:  <h1 style="margin: 0;">RP-3</h1>	REVISED DATE: JULY 1, 2023  SCALE: <u>NONE</u>  SHEET: <u>1</u> OF <u>1</u>



**NOTES:**

- 1) CONSULT WITH DISTRICT ENGINEER FOR SPECIFIC PLACEMENT TO VERIFY THAT LOCATION WILL CONFORM TO MTE MAINTENANCE REQUIREMENTS.
- 2) DEPENDING ON THE BOLLARD PLACEMENT, MTE MAY REQUIRE THE BOLLARD TO BE REMOVABLE. THIS MAY BE ACCOMPLISHED BY PLACING A SLEEVE IN THE CONCRETE ENCASEMENT.



**BOLLARD DETAIL**

DRAWING NUMBER:

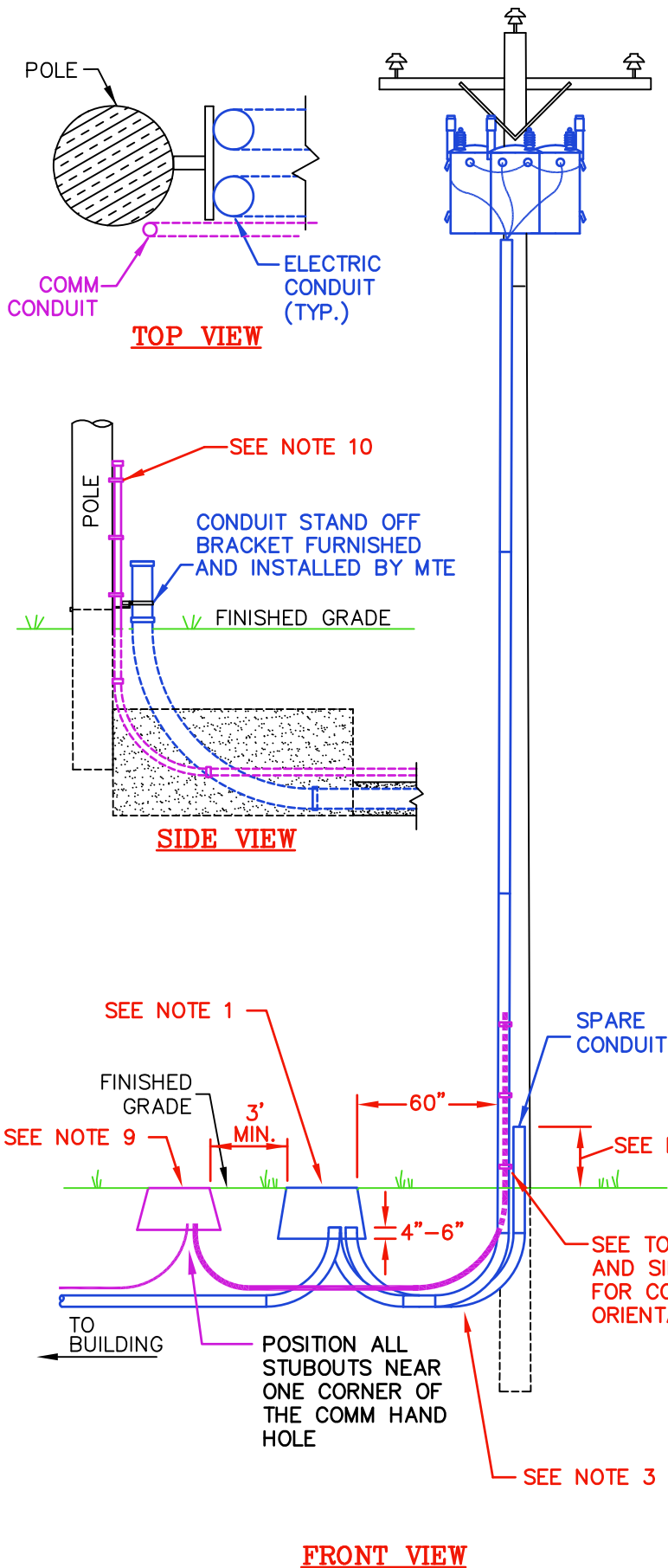
BD-1

REVISED DATE:

JULY 1, 2021

SCALE: NONE

SHEET: 1 OF 1




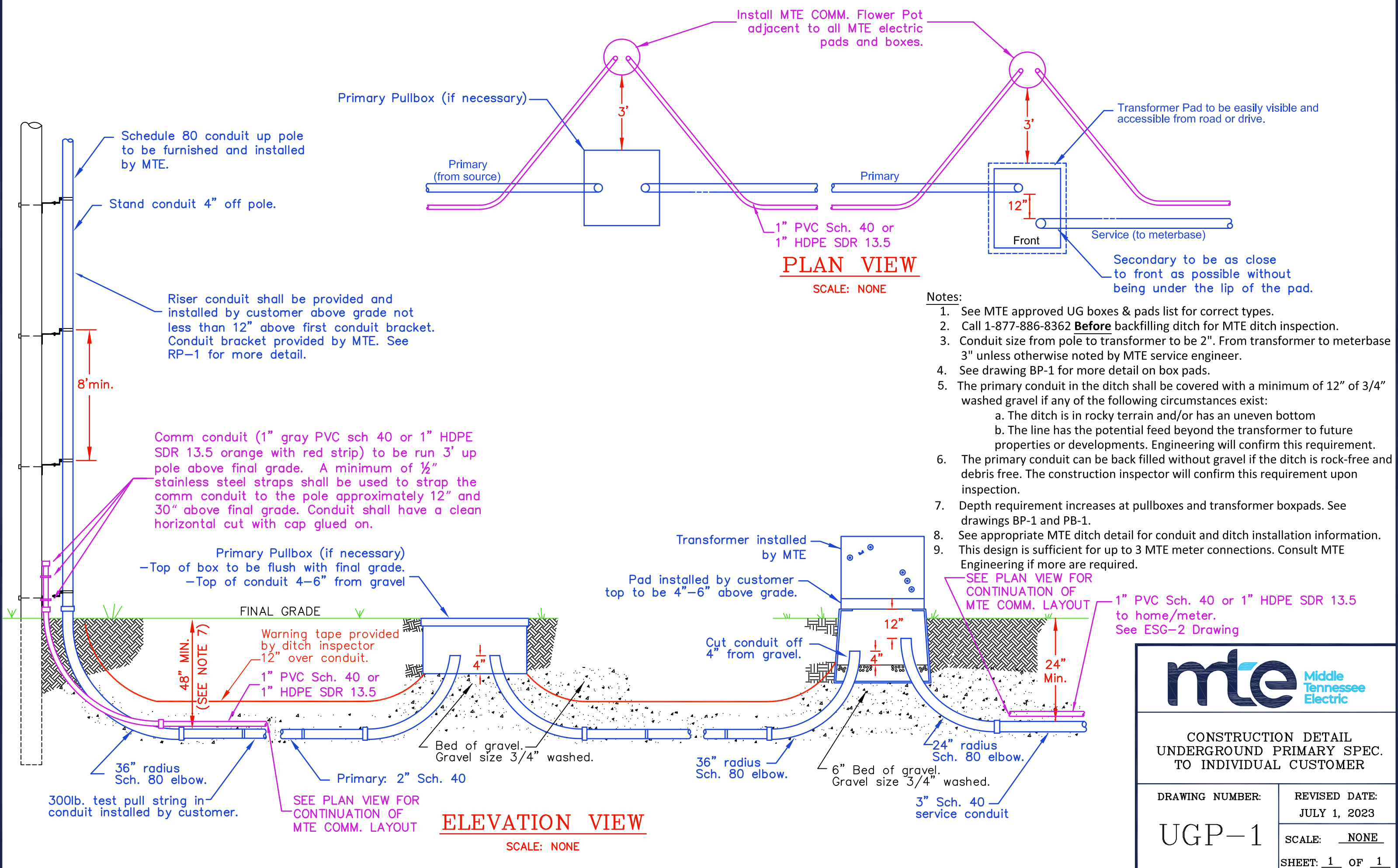
**NOTES:**

- A. Where applicable, all electrical installations shall meet the current National Electric Code requirements.
- B. Conduit risers shall be placed on pole such that no conflict exists between riser and foreign utilities.
- C. Contact MTE personnel for location of meter base. Where applicable, place meter on building.
- D. If Required a material charge as stated in MTE OB-102-N shall be paid before final approval.

**INSTALLATION NOTES:**

- 1. Developer shall purchase and install an MTE approved 30" x 48" x 18" deep secondary pull box as shown.
- 2. Customer shall extend conductor tails 18" minimum above the top of the pull box.
- 3. Developer shall purchase and install two 90° elbows with 24" radius between pull box and pole as shown.
- 4. Conduit size shall be one (1) 4" permanent and one (1) spare 4" schedule 80 PVC unless otherwise approved by MTE Engineering. Long coupling is required for all gray PVC electrical conduits. Long coupling is defined as a 6" minimum coupling for 3" and larger conduit, 4" minimum coupling for 2" conduit.
- 5. Contact MTE for ditch inspection at 1-877-886-8362 Service for approval of pull box and conduit installation. 24-hour notification is required.
- 6. Member shall furnish and install conduit from pullbox up to 12" above lowest MTE installed bracket on service pole. The top of the conduit shall have a clean horizontal cut with cap glued on.
- 7. MTE shall install the remaining sections of conduit riser, straps, conductor, and connectors inside the box after ditch inspection approval.
- 8. All elbows to be Schedule 80 PVC.
- 9. When more than one electrical service is required, developer shall purchase and install an MTE approved 17" x 30" x 18" HD comm hand hole as shown.
- 10. Comm conduit to be 2" HDPE SDR 13.5, orange with red stripe, or 2" SCH 40, grey PVC. Comm conduit to be run 3' up pole above final grade. A minimum of 1/2" stainless steel straps shall be used to strap the comm conduit to the pole approximately 12" and 30" above final grade. Conduit shall have a clean horizontal cut with cap glued on.
- 11. Developer/owner is responsible for providing MTE a clean and obstruction free conduit system.


	
<p><b>COMMERCIAL UNDERGROUND SECONDARY</b></p>	
<p>DRAWING NUMBER:</p> <p style="font-size: 2em; font-weight: bold;">COM-7</p>	<p>REVISED DATE:</p> <p style="font-weight: bold;">APRIL 1, 2024</p> <p>SCALE: <u>NONE</u></p> <p>SHEET: <u>1</u> OF <u>1</u></p>



**PLAN VIEW**  
SCALE: NONE

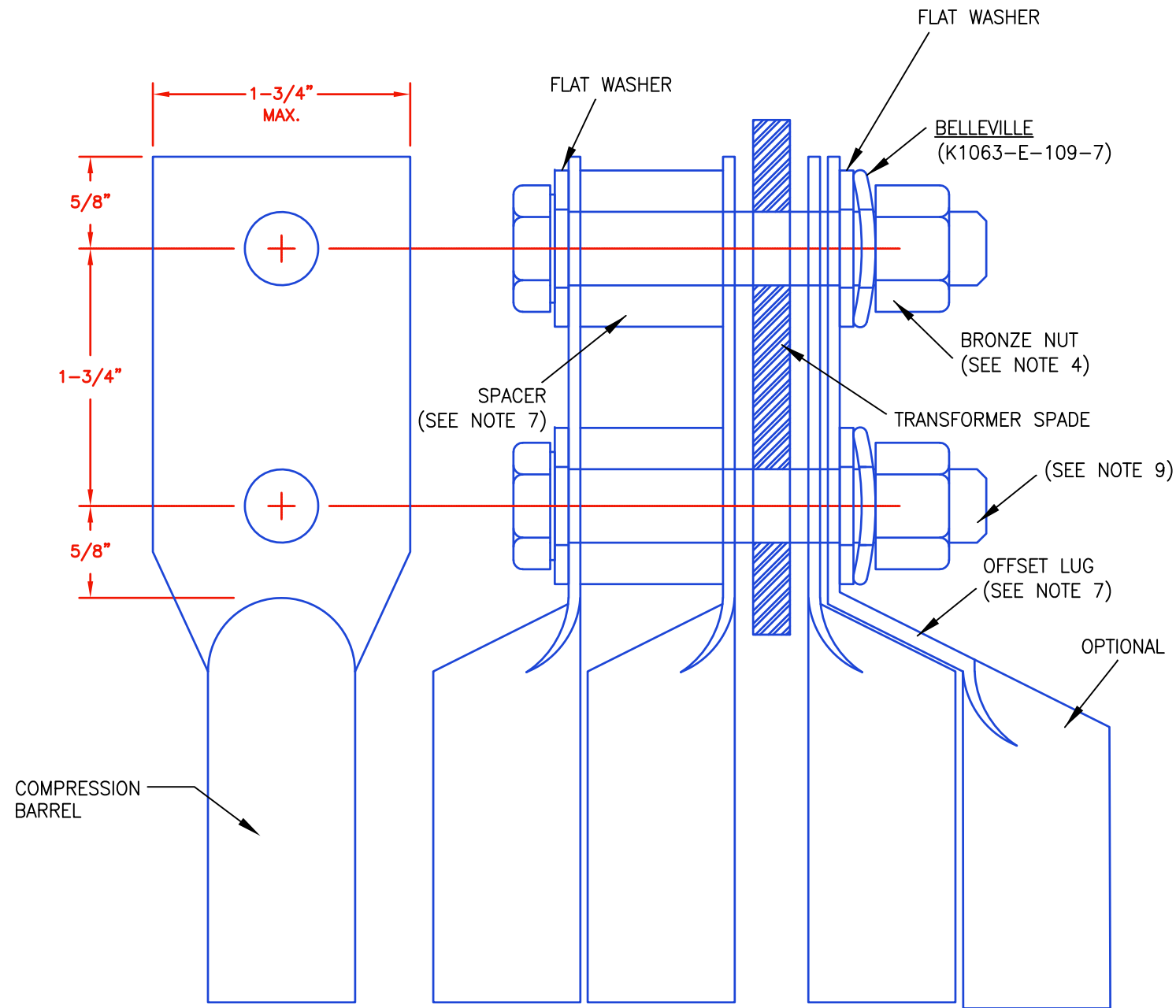
**ELEVATION VIEW**  
SCALE: NONE

- Notes:
1. See MTE approved UG boxes & pads list for correct types.
  2. Call 1-877-886-8362 **Before** backfilling ditch for MTE ditch inspection.
  3. Conduit size from pole to transformer to be 2". From transformer to meterbase 3" unless otherwise noted by MTE service engineer.
  4. See drawing BP-1 for more detail on box pads.
  5. The primary conduit in the ditch shall be covered with a minimum of 12" of 3/4" washed gravel if any of the following circumstances exist:
    - a. The ditch is in rocky terrain and/or has an uneven bottom
    - b. The line has the potential feed beyond the transformer to future properties or developments. Engineering will confirm this requirement.
  6. The primary conduit can be back filled without gravel if the ditch is rock-free and debris free. The construction inspector will confirm this requirement upon inspection.
  7. Depth requirement increases at pullboxes and transformer boxpads. See drawings BP-1 and PB-1.
  8. See appropriate MTE ditch detail for conduit and ditch installation information.
  9. This design is sufficient for up to 3 MTE meter connections. Consult MTE Engineering if more are required.

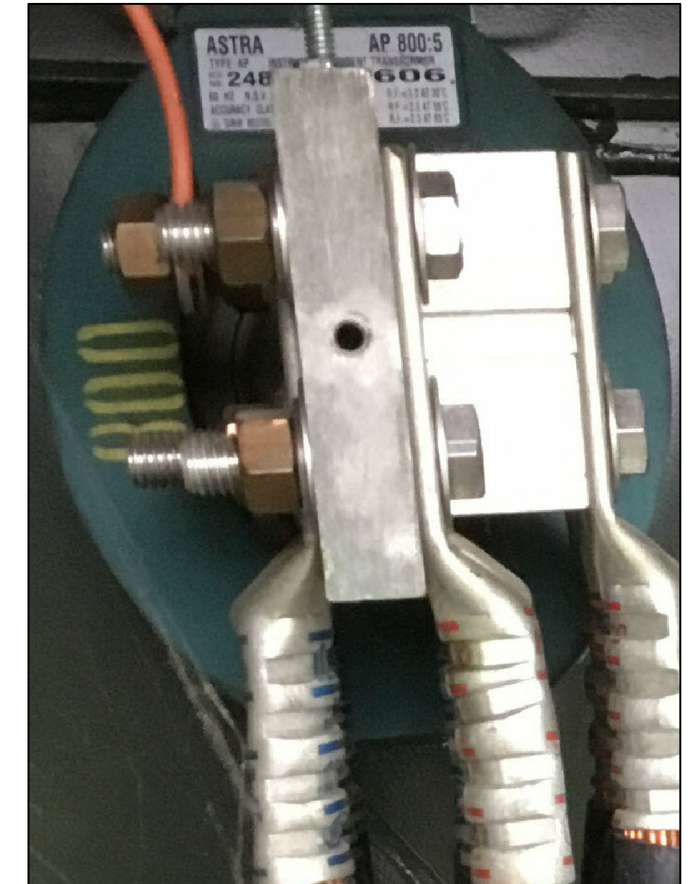


**CONSTRUCTION DETAIL  
UNDERGROUND PRIMARY SPEC.  
TO INDIVIDUAL CUSTOMER**

DRAWING NUMBER: <b>UGP-1</b>	REVISED DATE: JULY 1, 2023
SCALE: <u>  NONE  </u>	
SHEET: <u>  1  </u> OF <u>  1  </u>	



TYPICAL STACKED LUG INSTALLATION



STACKED LUG DETAIL

NOTES:

- 1) NEMA TRIMMED 2 HOLE SPADE CONNECTOR.
- 2) Must be tinned, long barrel, compression terminal lugs.
- 3) Must be compatible with the inserted conductor.
- 4) BOLTS AND WASHERS MUST BE 1/2" STAINLESS STEEL WITH 1/2" BRONZE NUTS.
- 5) Stainless steel bolts must be All-Thread.
- 6) Work back to front.
- 7) Use offset lugs or approved spacer for stacking lugs in cases of insufficient transformer spade capacity.
- 8) See Appendix B for approved material list.
- 9) Bolts shall be sized so that no more than 3/4" of the bolt shall extend past the bronze nut.



SECONDARY CABLE LUGS  
USED IN 3 PHASE  
TRANSFORMERS

DRAWING NUMBER:

LUG  
NO. 1

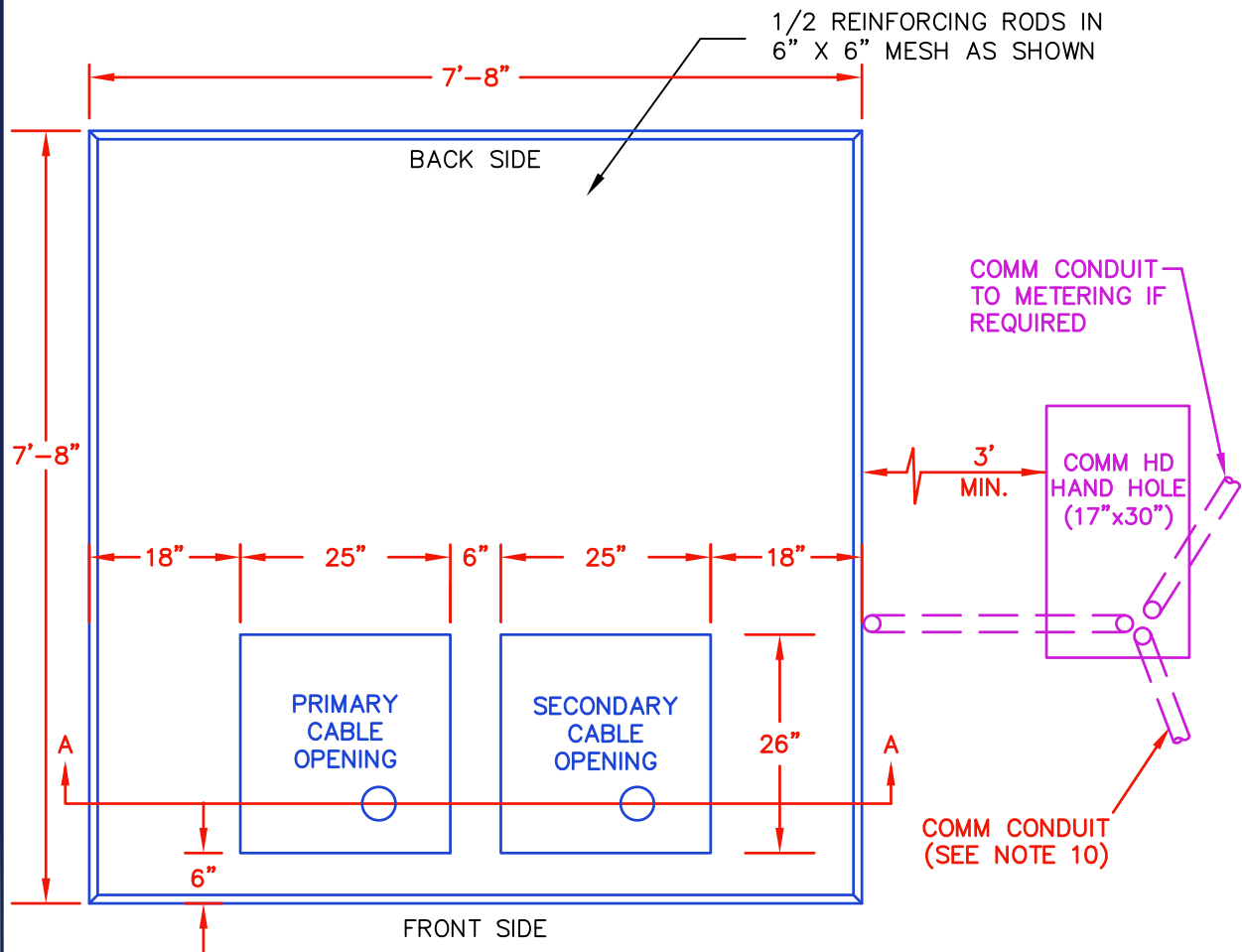
REVISED DATE:

OCT. 2, 2023

SCALE: NONE

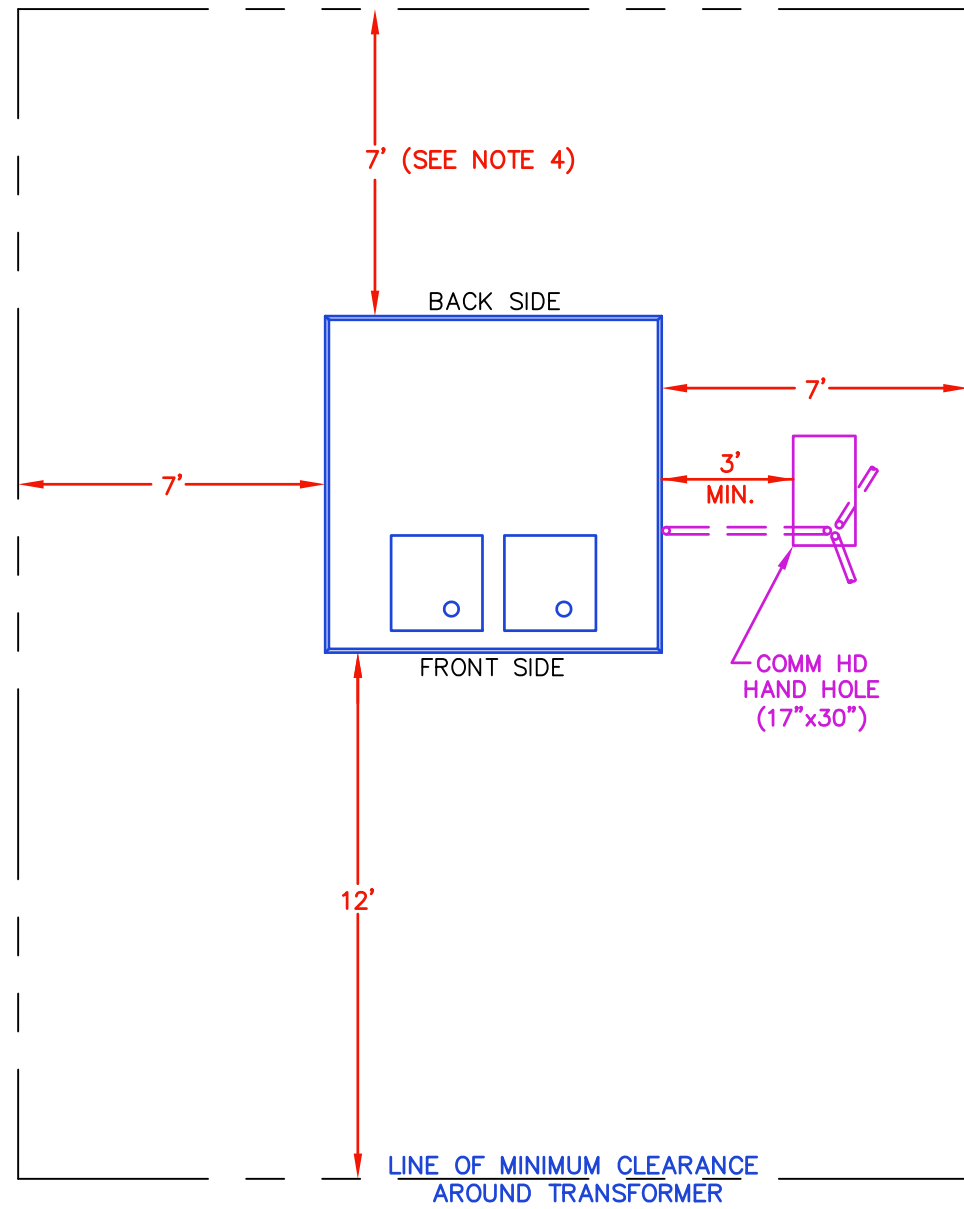
SHEET: 1 OF 1





**DO NOT POUR CONCRETE AROUND CONDUIT. OPENINGS AS SHOWN ARE REQUIRED.**

**TOP VIEW**



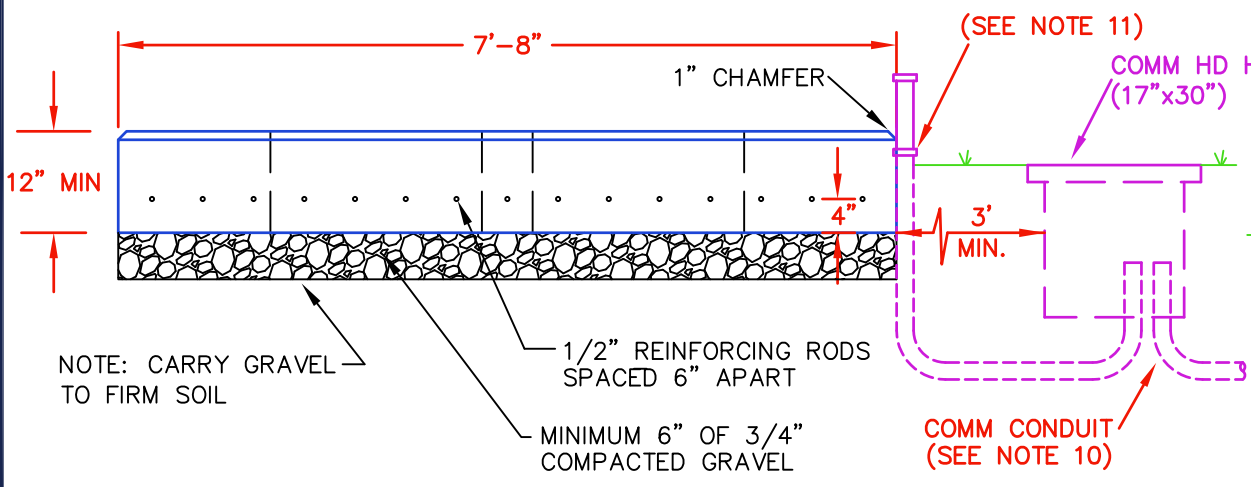
**CLEARANCES**

**NOTES:**

1. OLDCASTLE PAD#MTE 75-2000 KVA IS PREFERRED OVER A POURED IN PLACE FOUNDATION.
2. MAXIMUM NUMBER OF CONDUCTORS PER PHASE SHALL BE 16.
3. OWNER'S CONTRACTOR TO BE RESPONSIBLE FOR ALL UNDERGROUND PRIMARY AND SECONDARY CONDUITS. REFER TO DUCT SPECIFICATIONS FOR MORE DETAILS.
4. PAD SHALL NOT BE LOCATED CLOSER THAN 7'-0" TO A BUILDING OR OTHER OBSTRUCTION, EXCEPT FRONT OF PAD SHALL BE NO CLOSER THAN 12'-0". UNLESS OTHERWISE APPROVED BY MTE ENGINEERING, THE FRONT OF THE PAD SHALL FACE AWAY FROM THE BUILDING OR TOWARD THE ACCESS ROAD. FINAL ORIENTATION TO BE DETERMINED BY MTE ENGINEERING.
5. CUSTOMER TO BE RESPONSIBLE FOR FURNISHING AND INSTALLING CONDUIT FROM THE FIRST 10' VERTICAL SECTION ON THE POLE TO THE TRANSFORMER PAD. CUSTOMER SHALL FURNISH AND MTEMC WILL INSTALL CONDUIT ABOVE THE FIRST 10' SECTION ON THE POLE. SEE MTE DRAWING RP-2.
6. CUSTOMER TO BE RESPONSIBLE FOR PROVISION AND INSTALLATION OF:
  - A. SECONDARY RUNS THROUGH BUILDING WALL INTO THE TRANSFORMER CABINET.
  - B. CONDUCTOR RUNS UP TO LOW VOLTAGE BUSHINGS. LOW VOLTAGE BEING 277/480 OR 120/208 VOLTS.
  - C. CONNECTIONS INSIDE LOW VOLTAGE COMPARTMENTS. REFER TO DRAWING LUG NO.1 FOR FURTHER DETAILS.
7. ALL FIRE AND SAFETY CODES SHALL BE MET CONCERNING THE PLACEMENT OF TRANSFORMERS ADJACENT TO BUILDINGS.
8. AN MTE ENGINEER MUST APPROVE THE ORIENTATION OF THE PAD PRIOR TO CONSTRUCTION.
9. ALL ELBOWS TO BE SCHEDULE 80 PVC.
10. INSTALL COMM CONDUIT TO COMM HD HAND HOLE (17 X 30) AT THREE-PHASE TRANSFORMER PADS. INCLUDE CONDUIT TO METER LOCATION(S). GLUE CAP ON CLEAN CONDUITS FOR STUBOUTS NOT ENCLOSED IN A HAND HOLE OR FLOWER POT. SEE DRAWING HH-1 FOR HAND HOLE CONSTRUCTION DETAILS.
11. CONDUIT TO BE SECURED TO TRANSFORMER PAD USING 1/2" 2 HOLE STAINLESS STEEL CONDUIT STRAP AND CONCRETE ANCHORS.

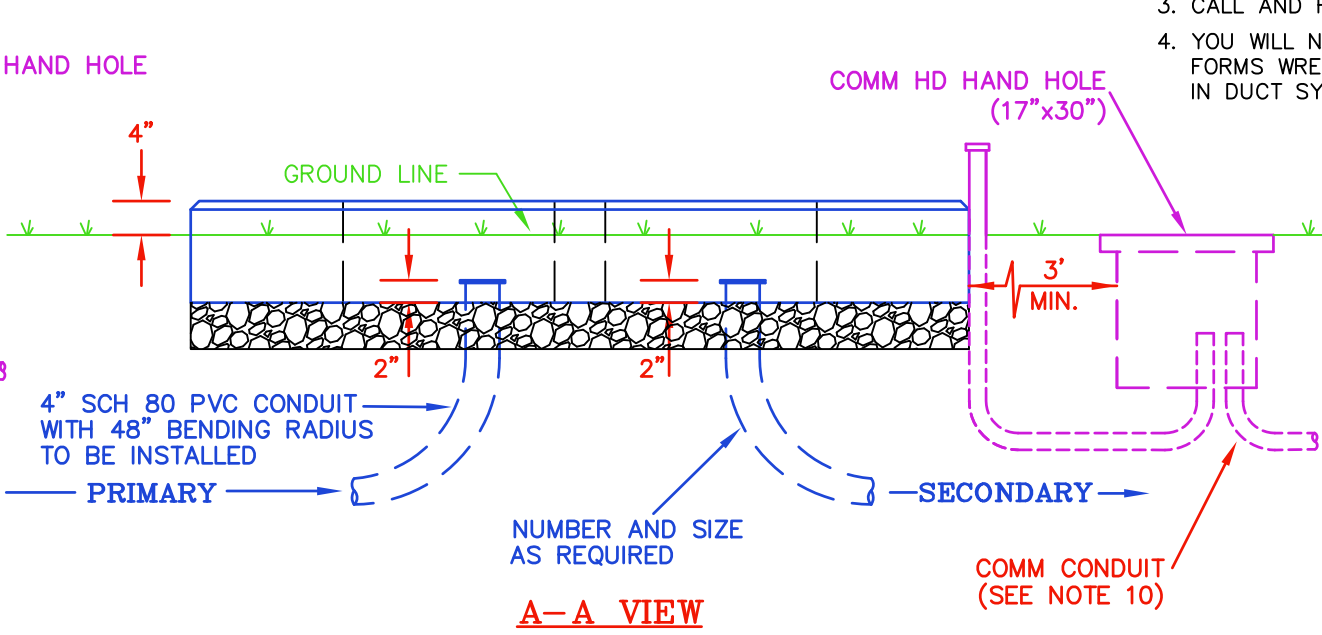
**GENERAL INSPECTION NOTES**

1. GET DITCH AND PVC READY, CALL MTE @ 1-877-886-8362 AND REQUEST INSPECTION
2. FORM 3ø PAD AND CALL FOR INSPECTION
3. CALL AND REQUEST INSPECTION AFTER POURED.
4. YOU WILL NEED A FINAL PAD INSPECTION, THIS WILL INCLUDE: FORMS WRECKED, ACCESS TO SITE, PROPER GRADE, STRINGS IN DUCT SYSTEM, AND METER BASE.



**MINIMUM DESIGN STRENGTH OF 3000 PSI**

**FRONT VIEW**

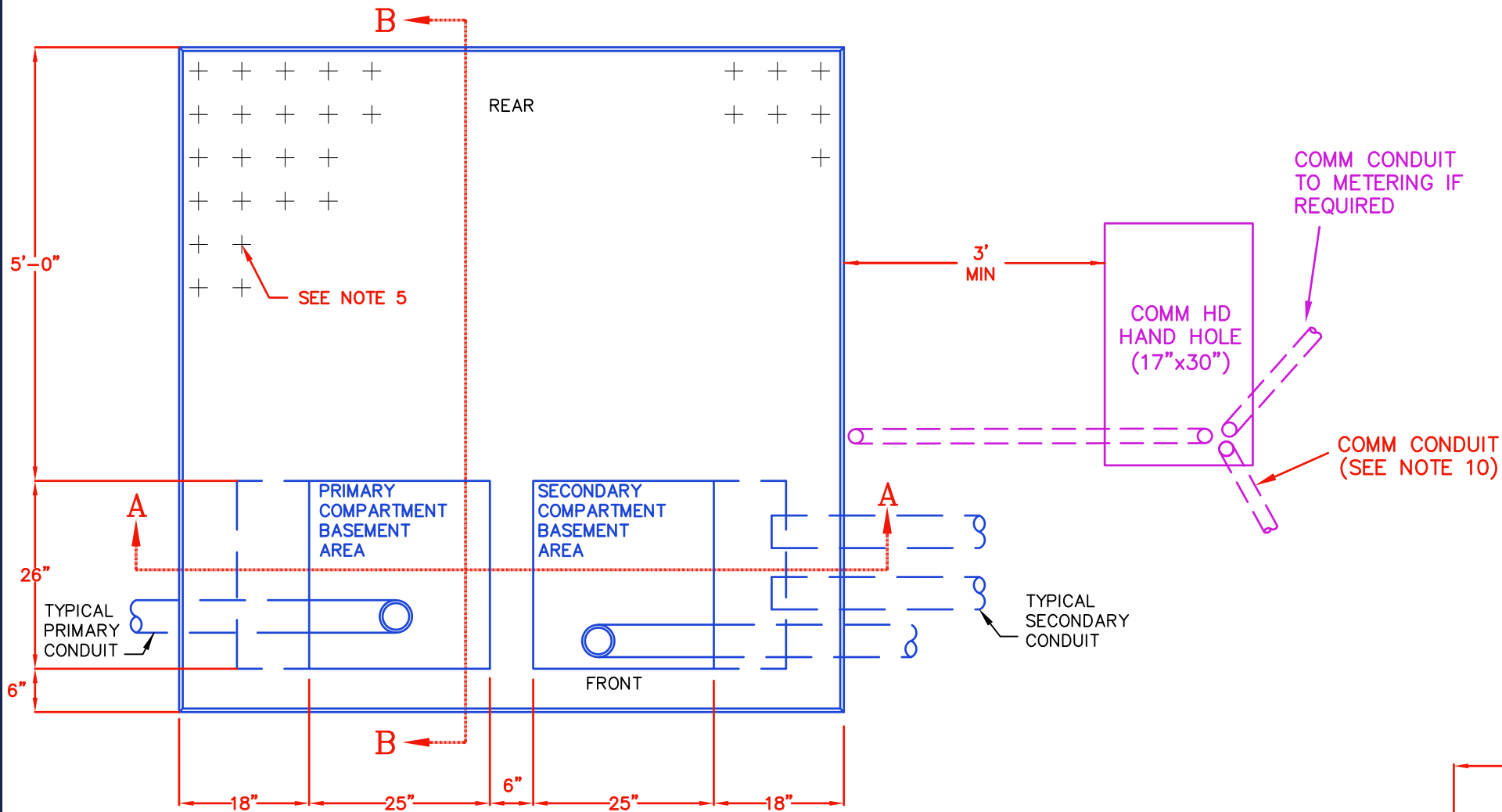


**A-A VIEW**

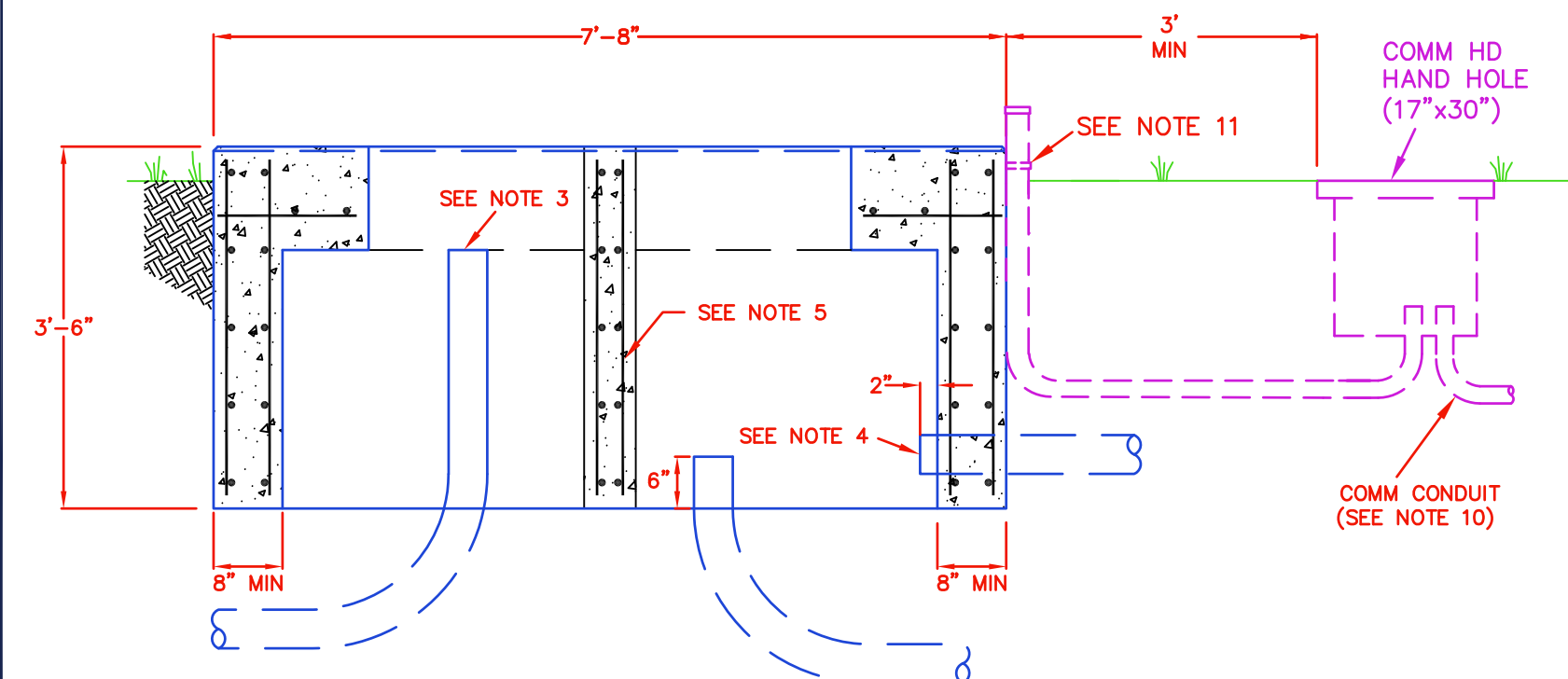


**TRANSFORMER PAD SPECIFICATIONS  
PAD MOUNT TRANSFORMER**

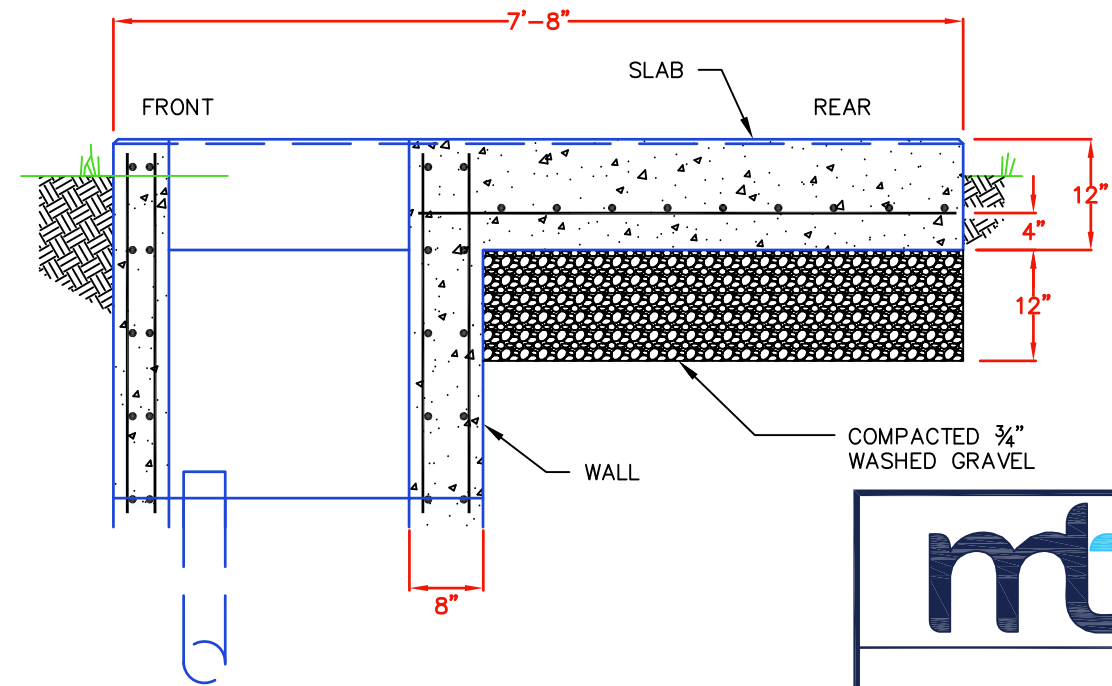
DRAWING NUMBER:	REVISED DATE:
<b>PAD NO. 1</b>	JULY 1, 2023
SCALE:	NONE
SHEET:	1 OF 1



**PLAN VIEW**



**SECTION A-A**



**SECTION B-B**

**NOTES:**

1. OLDCASTLE PRECAST PAD DWG# 384-MTE PAD#5 IS PREFERRED OVER A POURED IN PLACE FOUNDATION.
2. MAXIMUM CONDUCTORS PER PHASE SHALL BE 16.
3. TURN UP PRIMARY COMPARTMENT CONDUIT 12" BELOW SLAB.
4. TURN UP SECONDARY COMPARTMENT CONDUIT 6" ABOVE GRAVEL, UNLESS USING SIDE ENTRY CONDUIT. STOP SECONDARY CONDUITS 2" INSIDE SECONDARY COMPARTMENT IF USING SIDE ENTRY CONDUIT.
5. ALL CONCRETE (BOTH SLAB AND WALL SECTIONS) TO HAVE 1/2" RE-BAR REINFORCEMENT. THE SLAB PORTION SHALL HAVE RE-BAR SPACED IN A 6" MESH, 4" FROM BOTTOM OF SLAB; THE WALL SECTIONS SHALL HAVE VERTICAL RE-BAR LOCATED BETWEEN 1" AND 2" FROM BOTH CONCRETE SURFACES AND HORIZONTAL 1/2" RE-BAR TIES AT NO GREATER THAN 12" APART.
6. CONCRETE SHALL BE 3000 PSI.
7. OWNER'S CONTRACTOR TO BE RESPONSIBLE FOR ALL UNDERGROUND PRIMARY AND SECONDARY CONDUITS. REFER TO DUCT SPECIFICATIONS FOR MORE DETAILS.
8. PAD SHALL NOT BE LOCATED CLOSER THAN 7'-0" TO A BUILDING OR OTHER OBSTRUCTION, EXCEPT FRONT OF PAD SHALL BE NO CLOSER THAN 12'-0". UNLESS OTHERWISE APPROVED BY MTE ENGINEERING, THE FRONT OF THE PAD SHALL FACE AWAY FROM THE BUILDING OR TOWARD THE ACCESS ROAD. FINAL ORIENTATION TO BE DETERMINED BY MTE ENGINEERING.
9. ALL ELBOWS TO BE SCHEDULE 80 PVC.
10. INSTALL COMM CONDUIT TO COMM HD HAND HOLE (17 X 30) AT THREE-PHASE TRANSFORMER PADS. INCLUDE CONDUIT TO METER LOCATION(S) FOR STUBOUTS NOT ENCLOSED IN A HAND HOLE OR FLOWER POT. GLUE CAPS ON CLEAN CONDUIT. SEE DRAWING HH-1 FOR HAND HOLE CONSTRUCTION DETAILS.
11. CONDUIT TO BE SECURED TO TRANSFORMER PAD USING MINIMUM 1/2" 2 HOLE STAINLESS STEEL CONDUIT STRAP AND CONCRETE ANCHORS.



**TRANSFORMER BASEMENT FOUNDATION DETAIL**

DRAWING NUMBER:

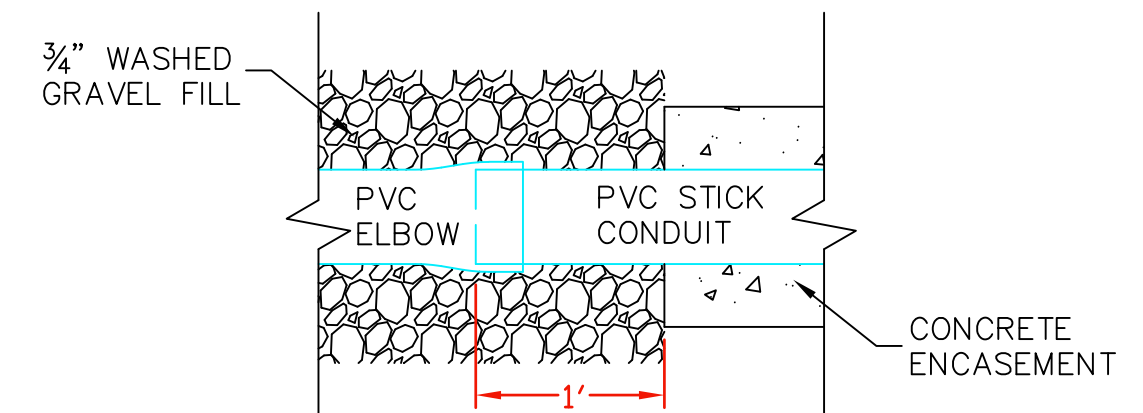
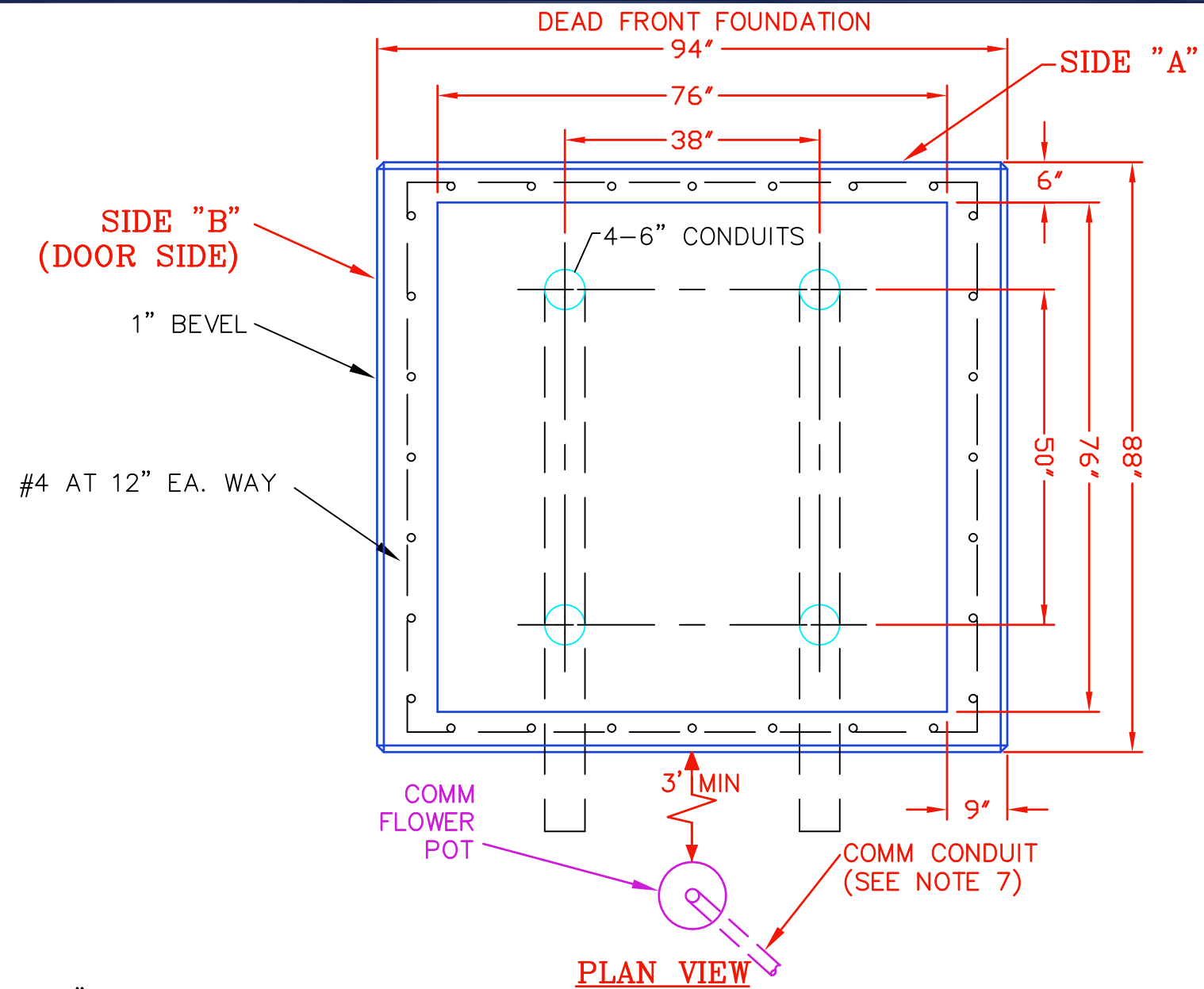
**PAD NO. 5**

REVISED DATE:

JULY 1, 2023

SCALE: NONE

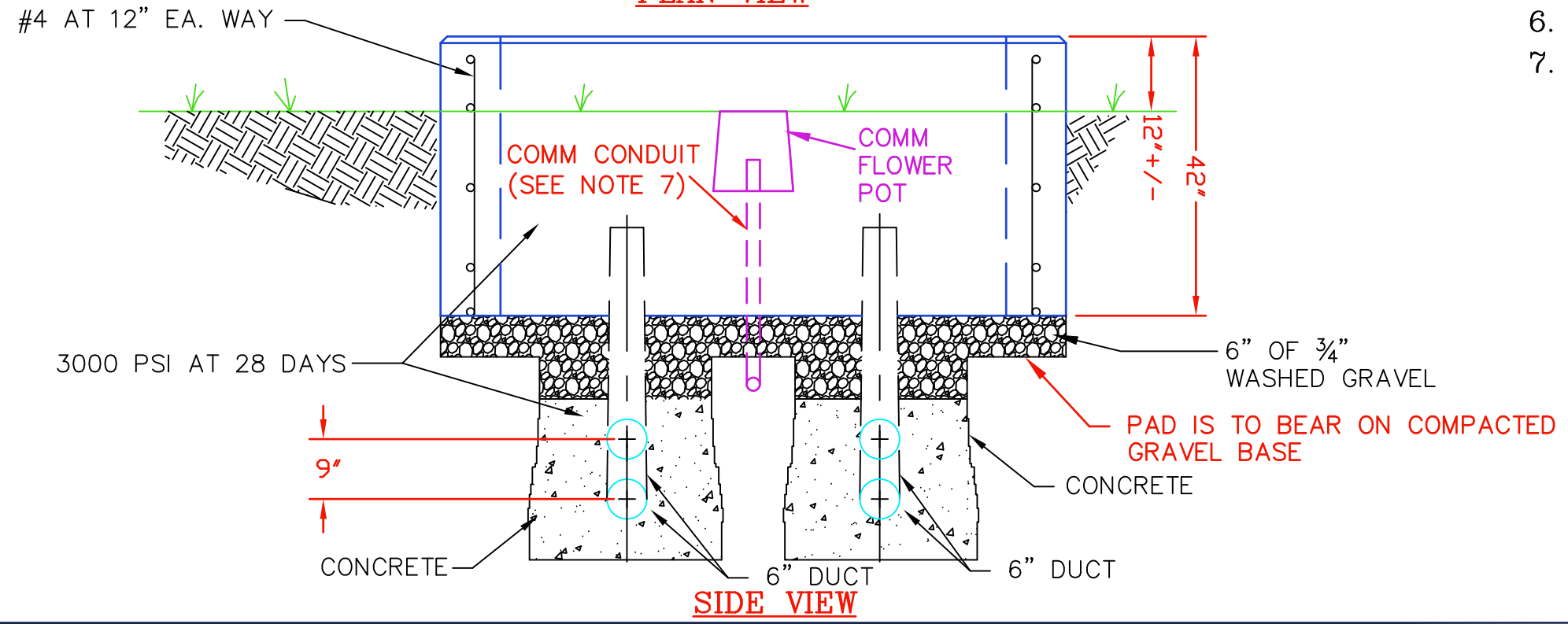
SHEET: 1 OF 1




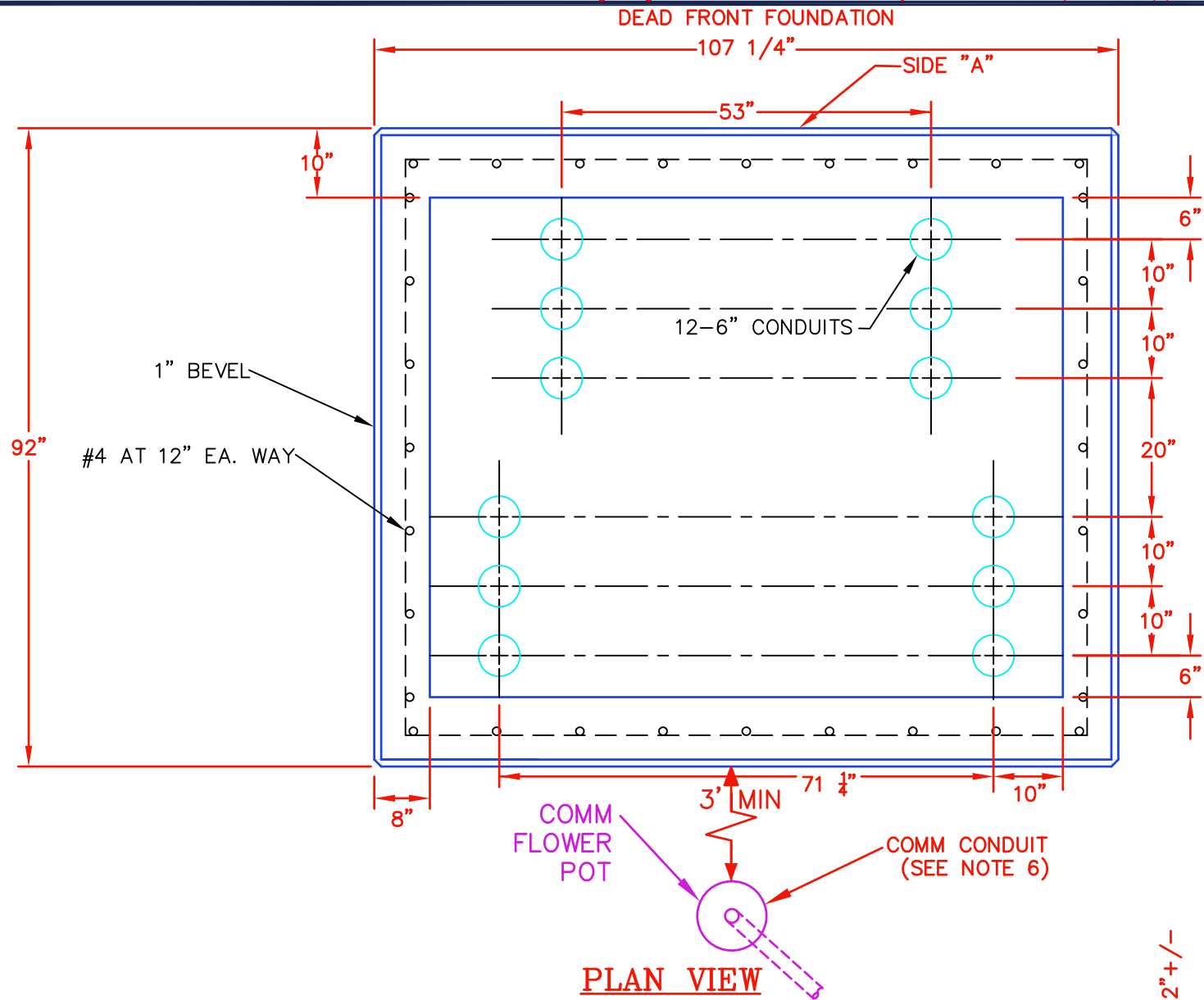
**ELBOW TO STICK TRANSITION DETAIL**

**NOTES:**

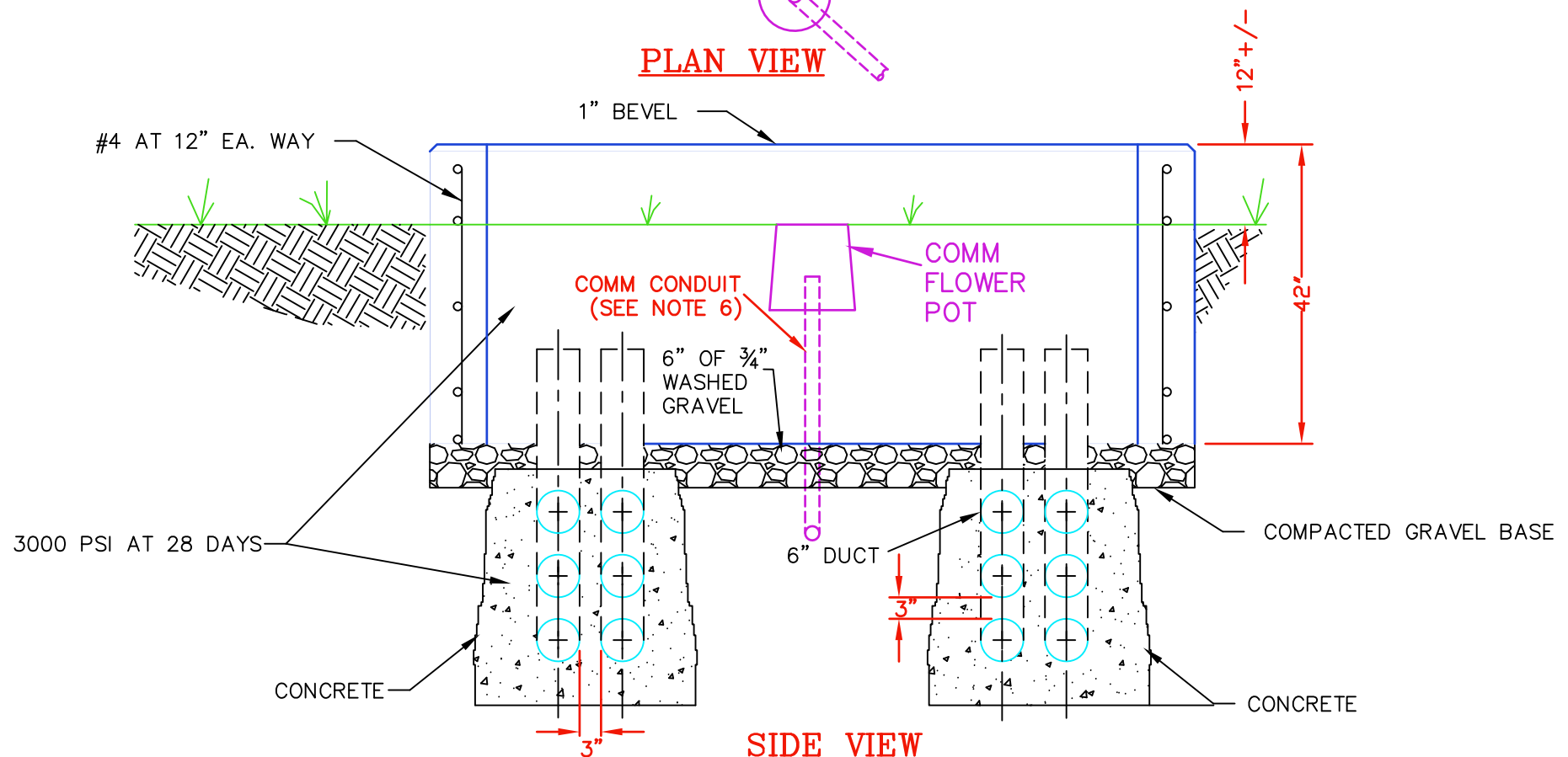
1. OLDCASTLE PRECAST "#384-88x94 MTE PAD#10" IS PREFERRED OVER A POURED IN PLACE FOUNDATION.
2. SIDE "A" TO BE PARALLEL TO STREET.
3. REINFORCEMENT TO HAVE 2" CLEARANCE FROM FACE OF CONCRETE.
4. ELBOWS MUST ENTER PAD IN A VERTICAL ORIENTATION. A DIAGONAL ORIENTATION IS NOT ACCEPTABLE.
5. 6" ELBOWS TO BE 48R, SCH 80 PVC.
6. CALL 1-877-886-8362 FOR INSPECTION.
7. INSTALL COMM CONDUIT TO COMM FLOWER POT AT SWITCH PADS. SEE DRAWING HH-1 FOR CONSTRUCTION DETAILS.



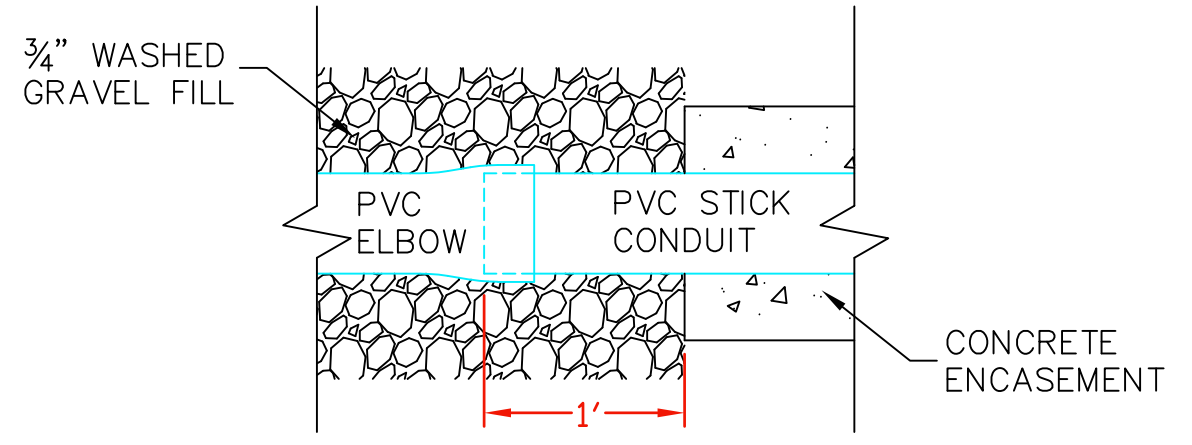
	
SWITCH PAD DETAIL S&C PME 125 BIL 600 AMP STANDARD DRAWING	
DRAWING NUMBER: <h1 style="text-align: center;">PAD NO. 10</h1>	REVISED DATE: JULY 1, 2023  SCALE: <u>NONE</u> SHEET: <u>1</u> OF <u>1</u>



**PLAN VIEW**



**SIDE VIEW**



**ELBOW TO STICK TRANSITION DETAIL**

**NOTES:**

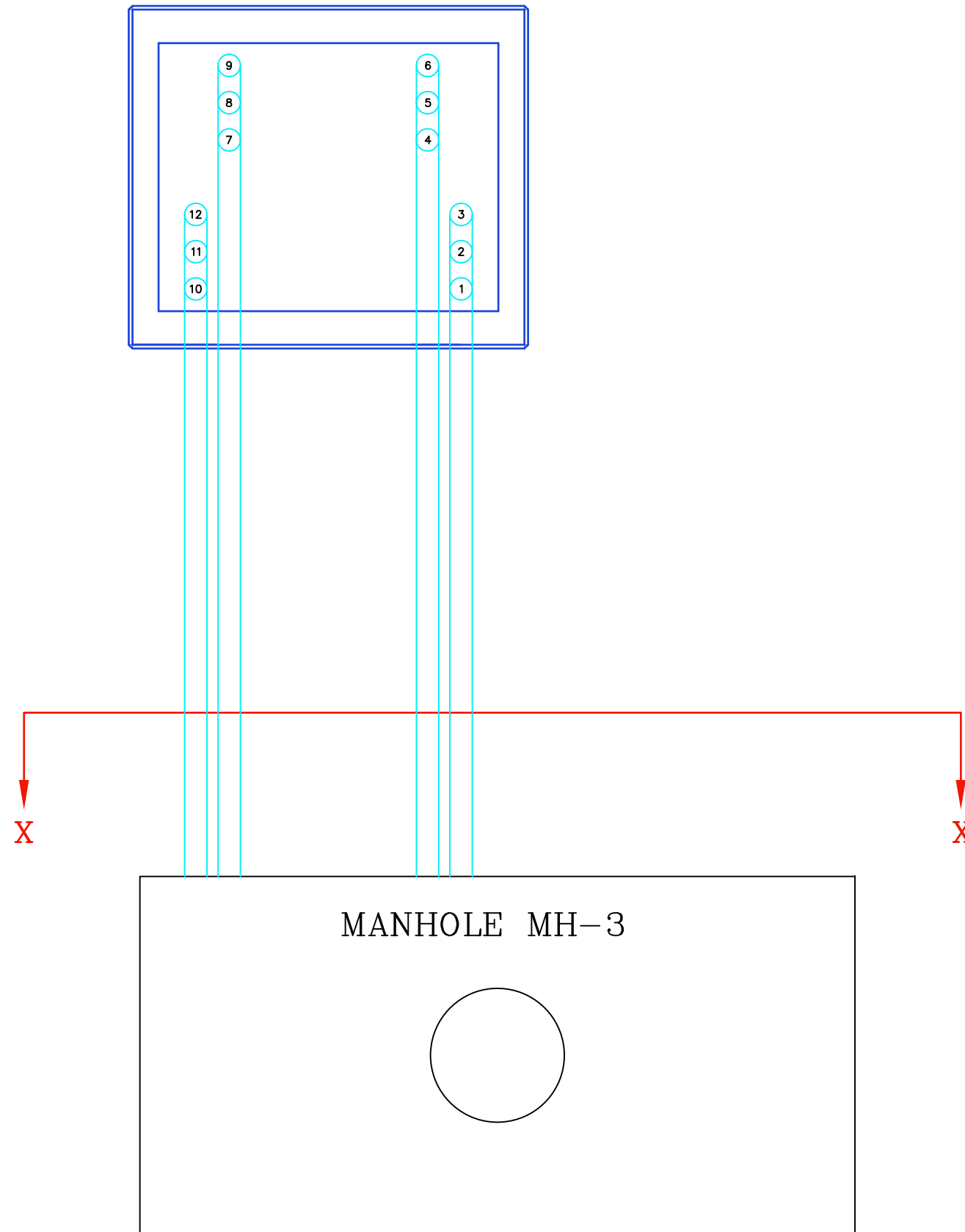
1. OLDCASTLE PRECAST "#384-8'11"x7'8"x3'6" MTE PAD#11" IS PREFERRED OVER A POURED IN PLACE FOUNDATION.
2. SIDE "A" TO BE PARALLEL TO STREET.
3. REINFORCEMENT TO HAVE 2" CLEARANCE FROM FACE OF CONCRETE.
4. ELBOWS MUST ENTER PAD IN A VERTICAL ORIENTATION. A DIAGONAL ORIENTATION IS NOT ACCEPTABLE.
5. 6" ELBOWS TO BE 48R, SCH 80 PVC.
6. INSTALL COMM CONDUIT TO COMM FLOWER POT AT SWITCH PADS. SEE DRAWING HH-1 FOR CONSTRUCTION DETAILS.



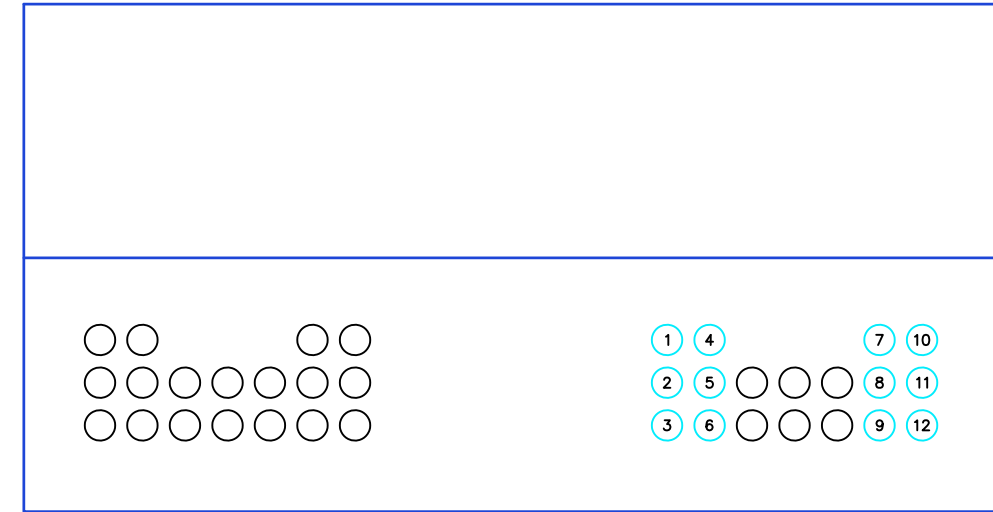
SWITCH PAD DETAIL  
900 AMP  
AIR INSULATED SWITCH  
STANDARD DRAWING

DRAWING NUMBER:  
**PAD  
NO. 11**

REVISED DATE:  
JULY 1, 2023  
SCALE: NONE  
SHEET: 1 OF 2



PAD NO 11. CONDUIT ROLL



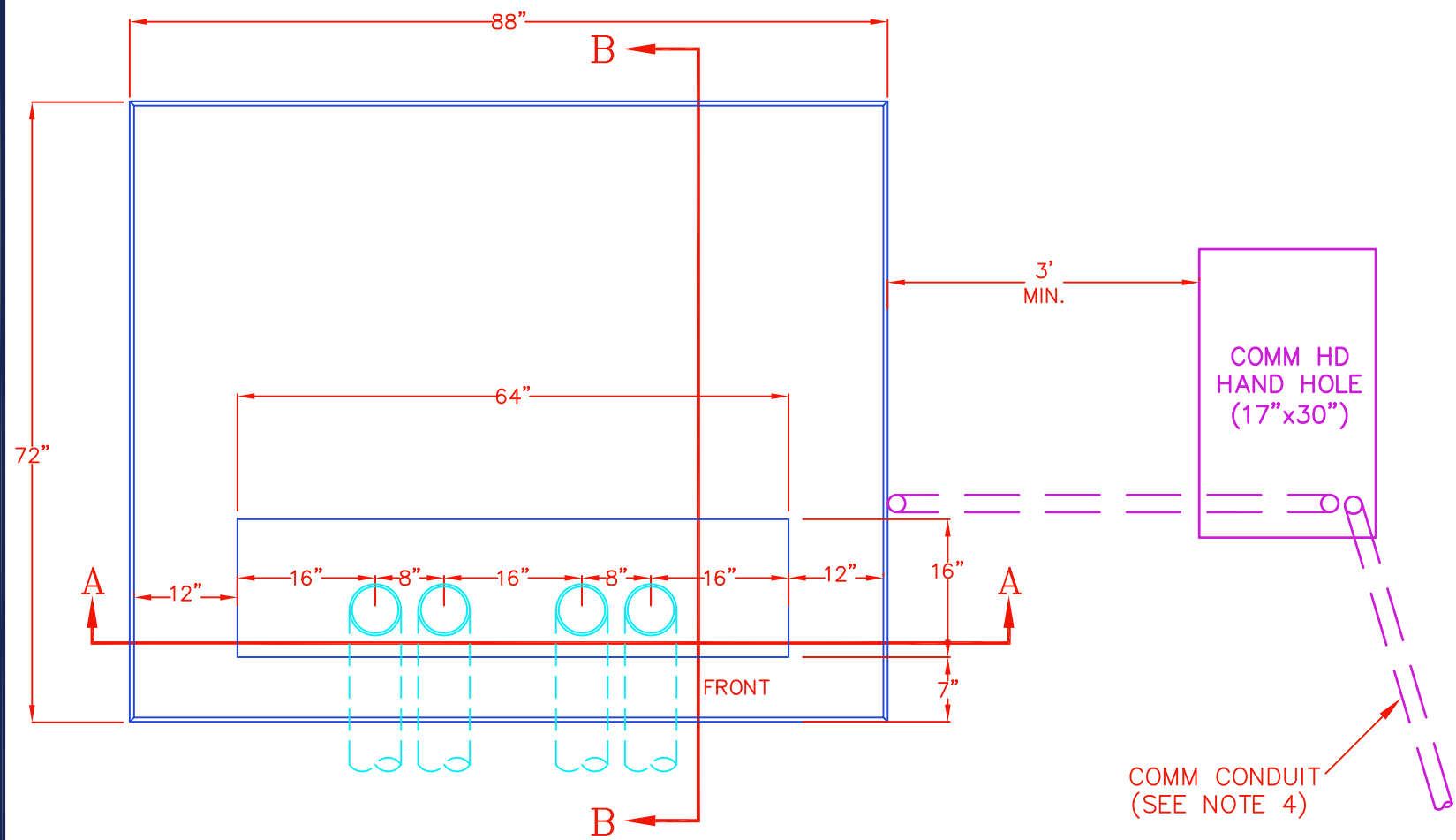
SECTION X-X



SWITCH PAD DETAIL  
900 AMP  
AIR INSULATED SWITCH  
STANDARD DRAWING

DRAWING NUMBER:  
**PAD  
NO. 11**

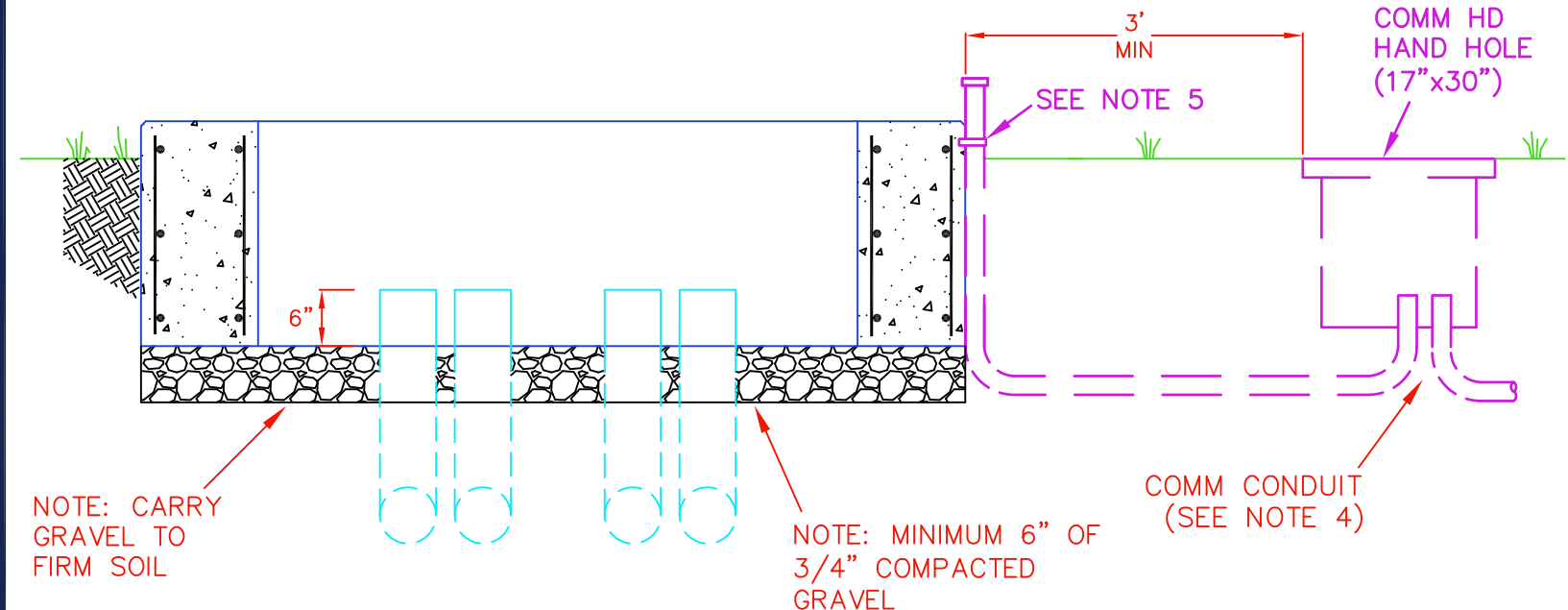
REVISED DATE:  
JAN. 1, 2021  
SCALE: NONE  
SHEET: 2 OF 2



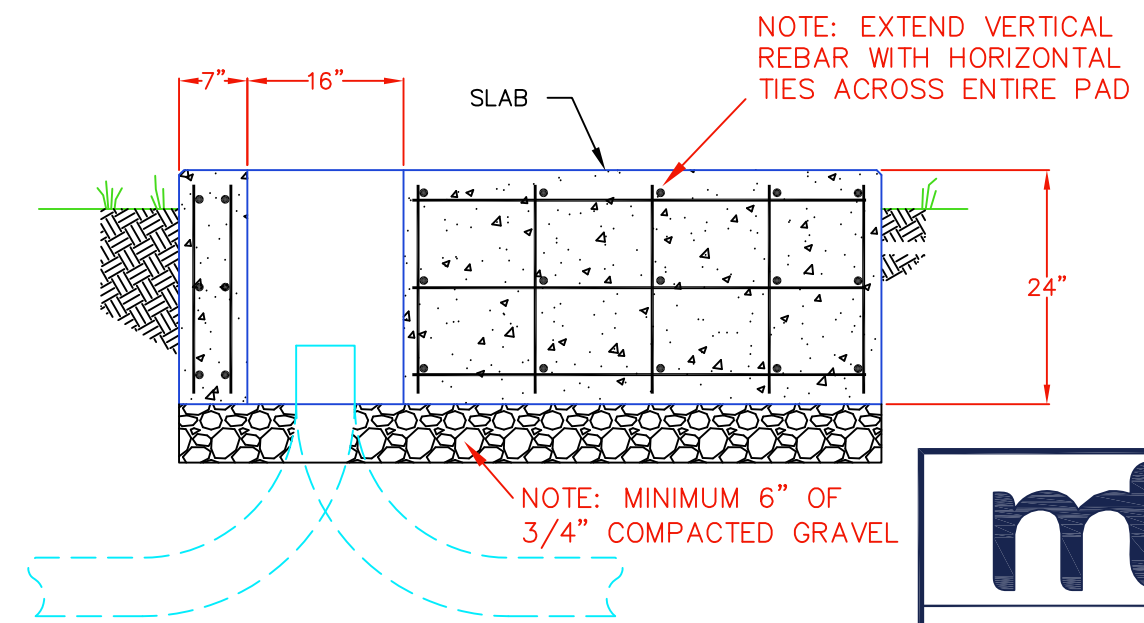
PLAN VIEW

NOTES:

1. OLD CASTLE PRECAST 384-72x88x24-MTE#12 IS PREFERRED OVER A POURED IN PLACE FOUNDATION.
2. TWO 6" 48R, SCH 80 ELBOWS IN AND OUT IS THE STANDARD MTE DESIGN. CONSULT WITH MTE ENGINEERING TO CONFIRM CONDUIT SIZE AND QUANTITY PRIOR TO INSTALLING.
3. ALL CONCRETE TO HAVE 1/2" REBAR REINFORCEMENT WITH VERTICAL REBAR SHALL BE 1 TO 2" FROM INTERIOR(BLOCKOUT) AND EXTERIOR SURFACES AND HORIZONTAL 1/2" REBAR TIES AT NO GREATER THAN 12" APART.
4. CONCRETE SHALL BE 3000 PSI.
5. INSTALL COMM CONDUIT TO COMM HD HAND HOLE (17 X 30) AT PRIMARY METERING PAD. GLUE CAP ON CLEAN CONDUIT OF ABOVE GRADE STUBOUT. CAPS NOT REQUIRED FOR ENDS ENCLOSED IN COMM HAND HOLES OR FLOWER POTS. SEE DRAWING HH-1 FOR HAND HOLE CONSTRUCTION DETAILS.
6. CONDUIT TO BE SECURED TO PAD USING MINIMUM 1/2" 2 HOLE STAINLESS STEEL CONDUIT STRAP AND CONCRETE ANCHORS.



SECTION A-A




SECTION B-B

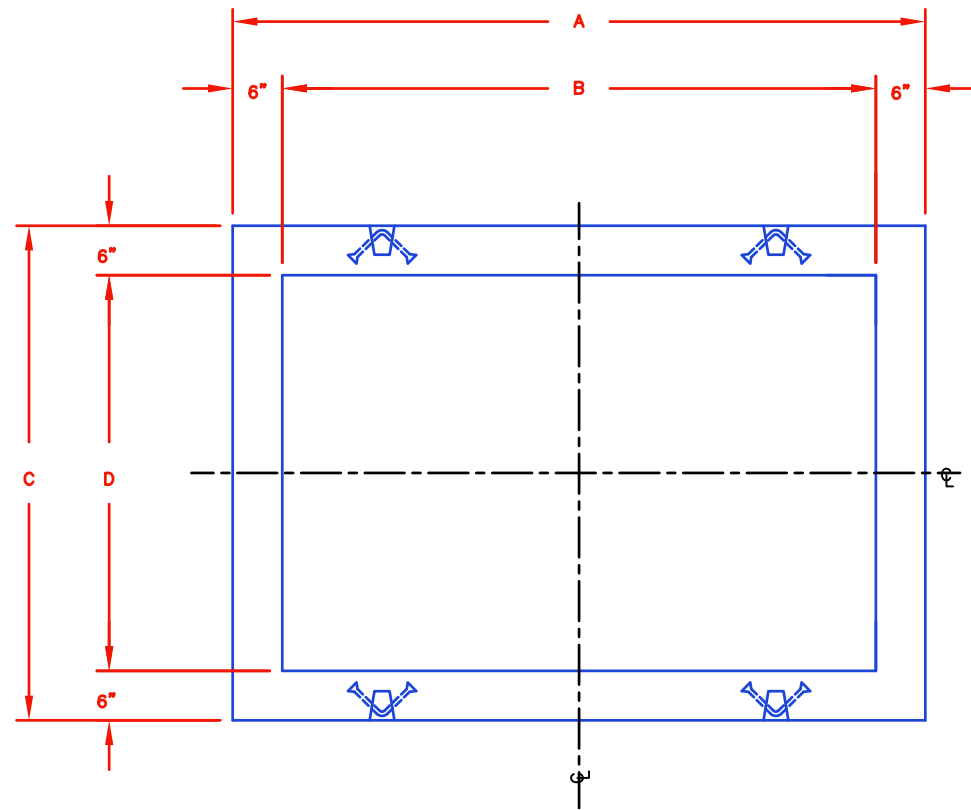
NOTE: CARRY GRAVEL TO FIRM SOIL

NOTE: MINIMUM 6" OF 3/4" COMPACTED GRAVEL

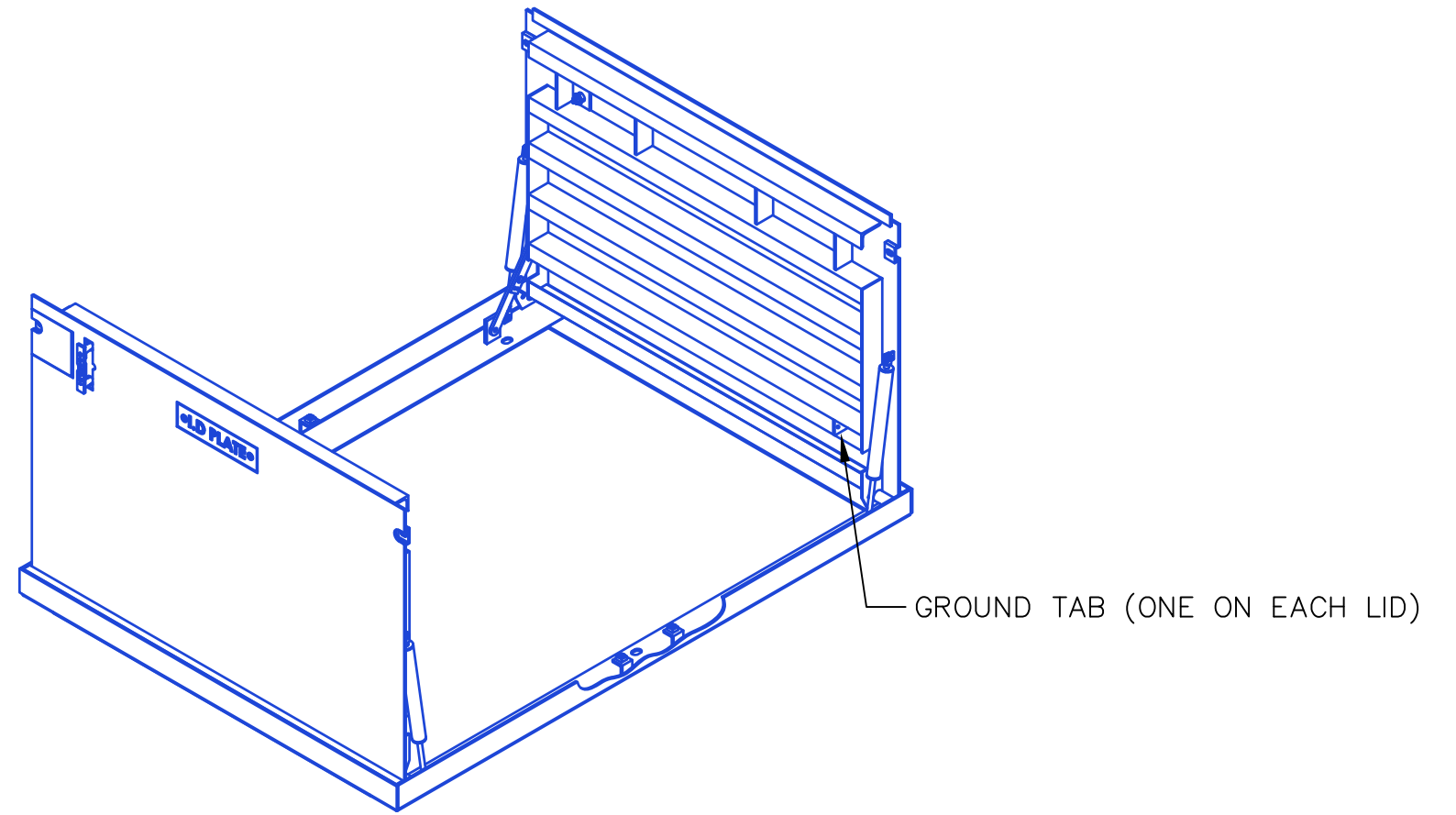
NOTE: EXTEND VERTICAL REBAR WITH HORIZONTAL TIES ACROSS ENTIRE PAD

NOTE: MINIMUM 6" OF 3/4" COMPACTED GRAVEL

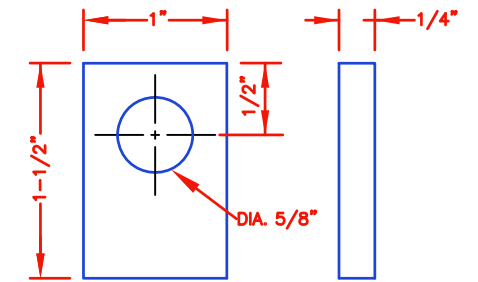
	
PRIMARY METERING CABINET PAD	
DRAWING NUMBER: <b>PAD NO. 12</b>	REVISED DATE: OCT. 2, 2023  SCALE: <u>NONE</u> SHEET: <u>1</u> OF <u>1</u>



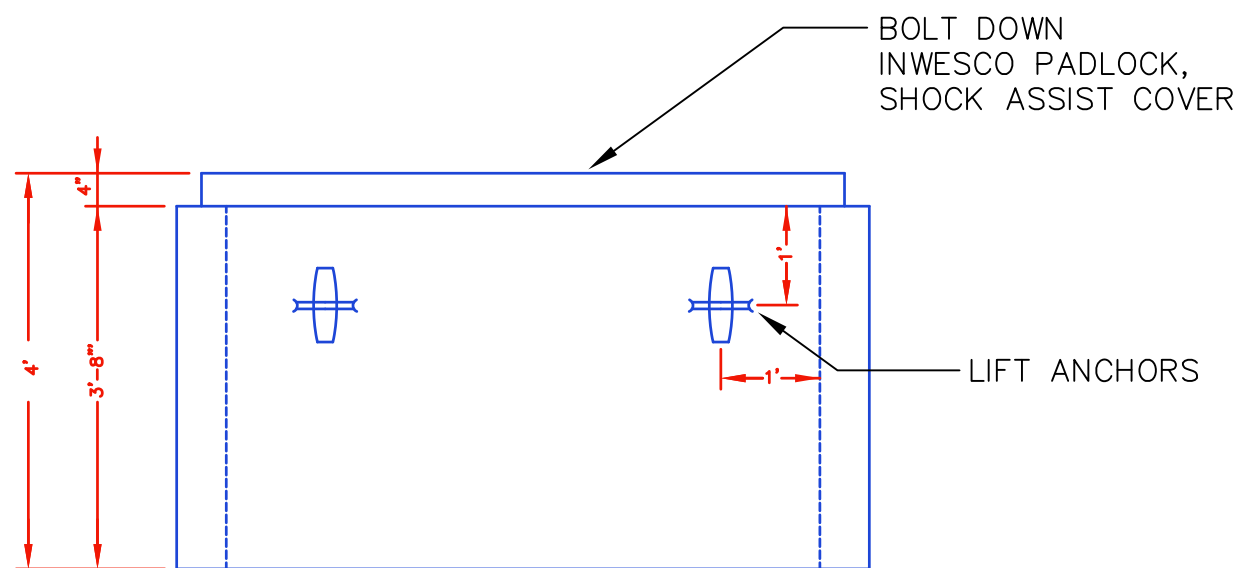
PLAN VIEW



VAULT COVER ISOMETRIC VIEW



GROUND TAB



SIDE VIEW

NOTES:

1. UV-1, UV-1HD, UV-2, AND UV-2HD IS A CONCRETE VAULT WITH BOLT DOWN, SHOCK RESISTANT FRAME AND COVER.
2. UV-1 IS THE VAULT WITH INTERIOR MEASUREMENTS OF 4' X 6'. UV-2 IS THE VAULT WITH INTERIOR MEASUREMENTS OF 6' X 8'. WHEN AN UV-1HD OR UV-2HD IS SPECIFIED, THE STANDARD STEEL COVER IS REPLACED WITH A HEAVY-DUTY STEEL COVER.
3. SEE APPENDIX B FOR APPROVED CATALOGUE NUMBERS.
4. SEE SHEET 2 FOR INSTALLATION DETAILS.

TABLE 1		
	UV-1	UV-2
A	7'	9'
B	6'	8'
C	5'	7'
D	4'	6'

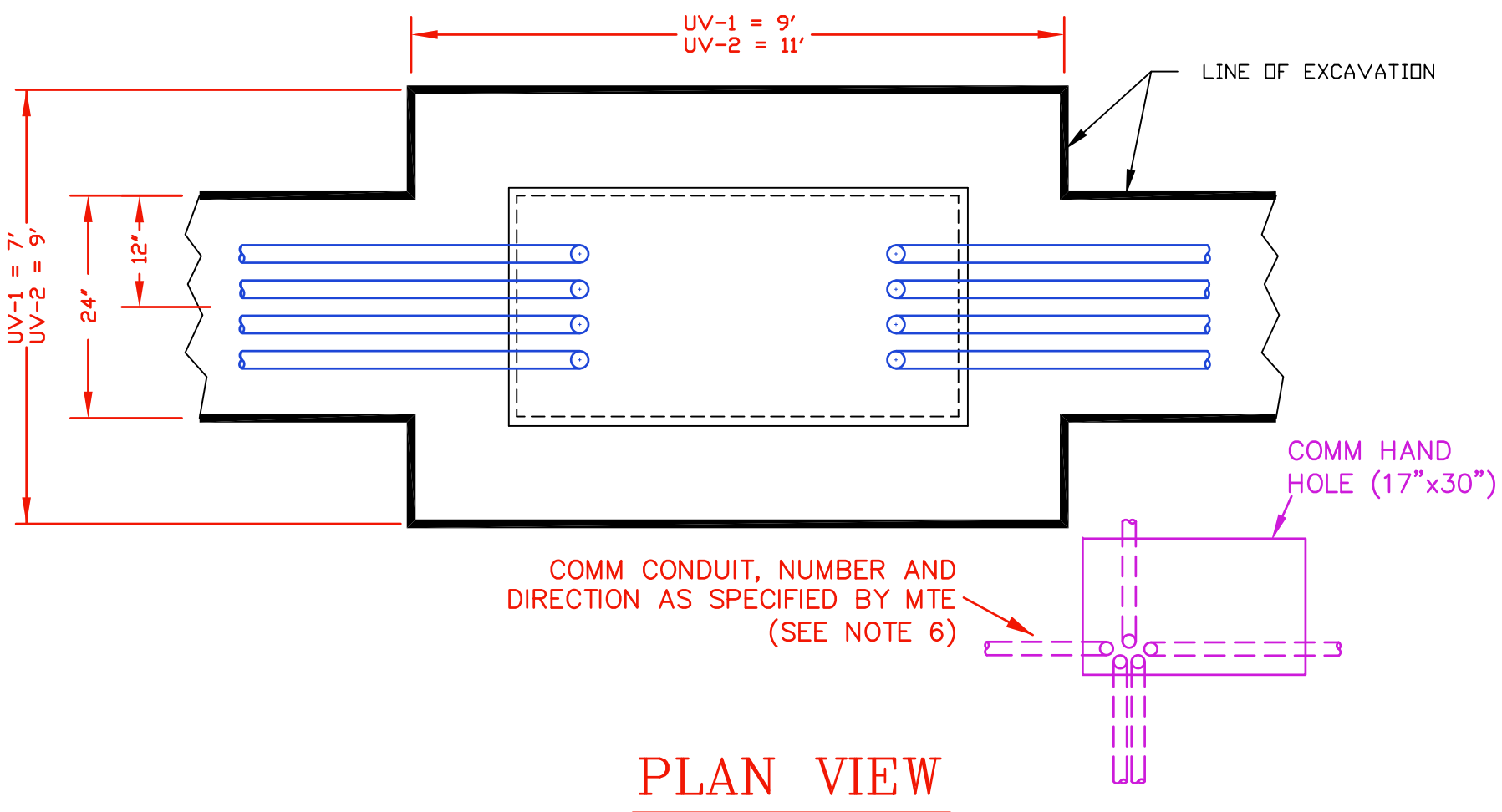


CONSTRUCTION DETAILS

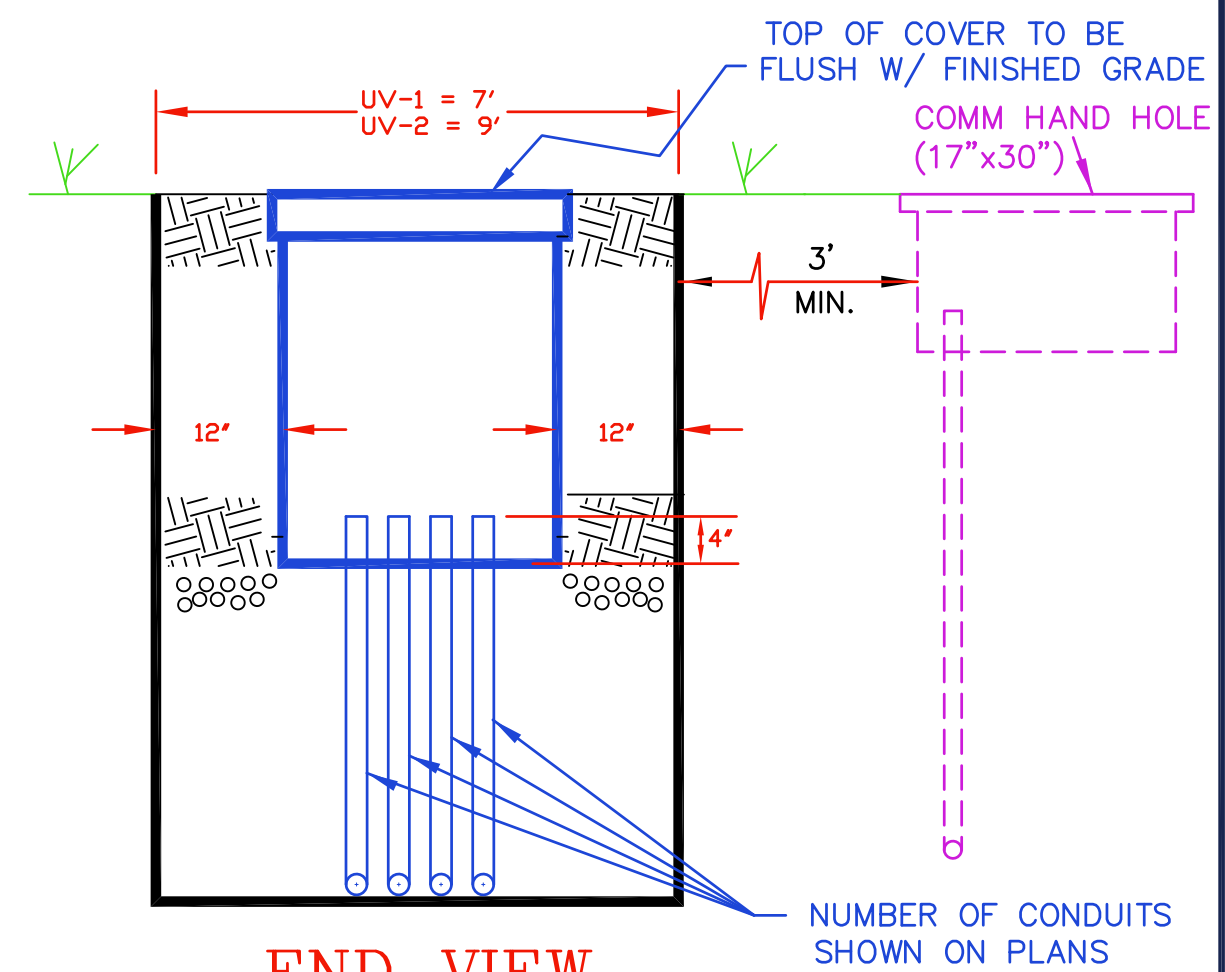
CONCRETE VAULT WITH COVER

DRAWING NUMBER:  
**UV-1,  
UV-2**

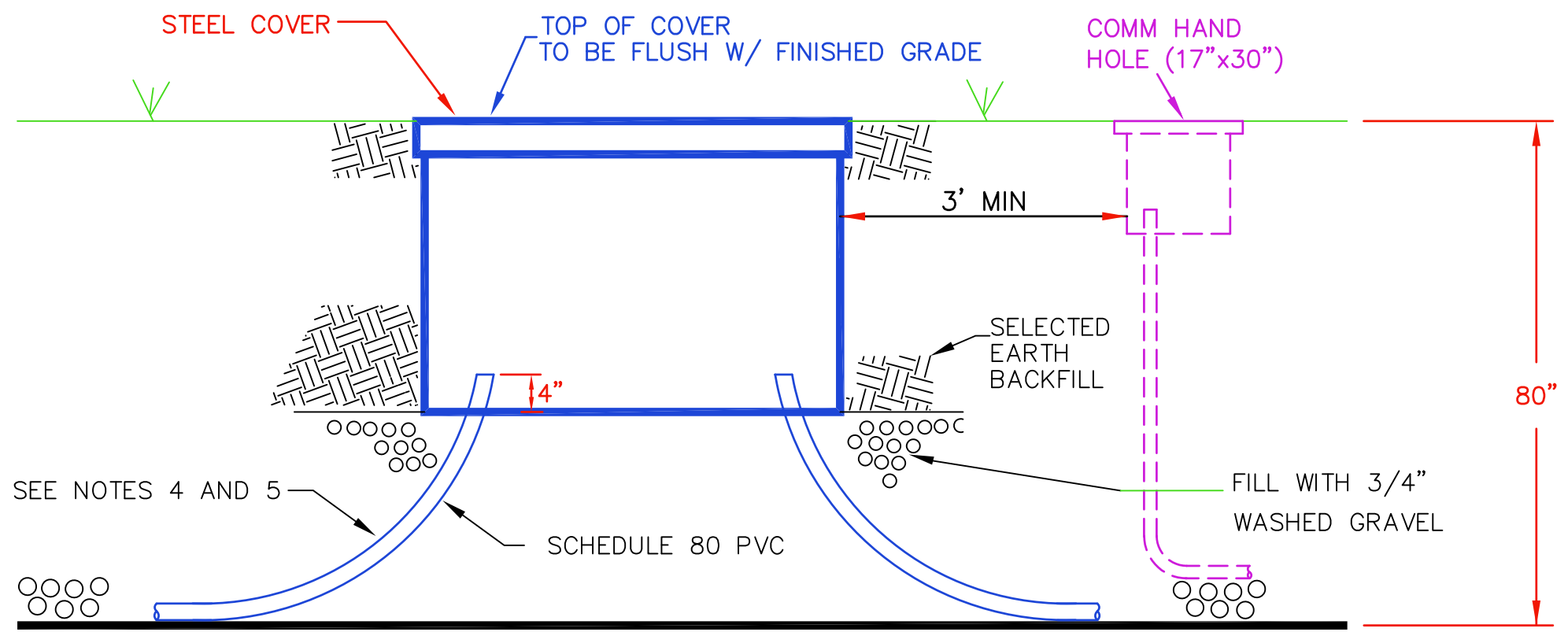
REVISED DATE:  
JAN. 2, 2023  
SCALE: NONE  
SHEET: 1 OF 2



**PLAN VIEW**




**END VIEW**



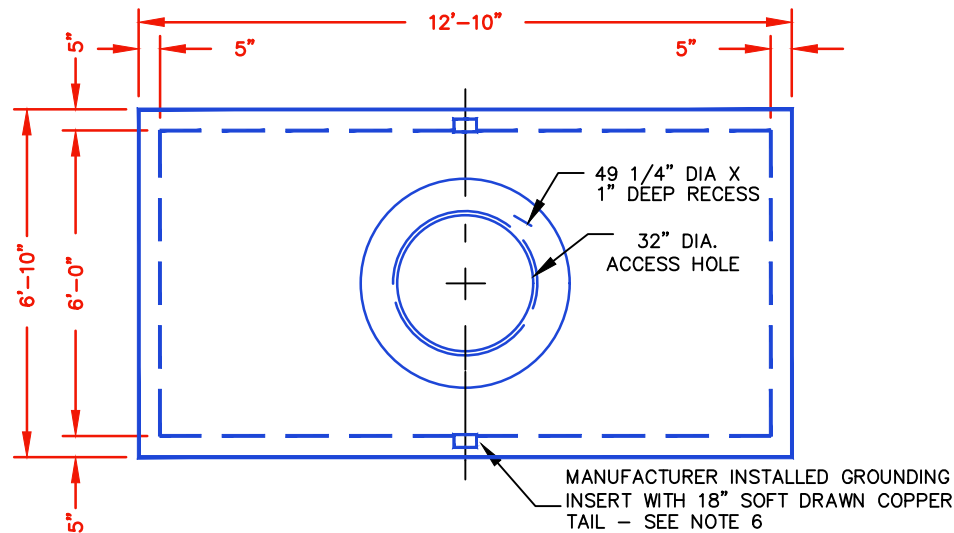
**SIDE VIEW**

**NOTES:**

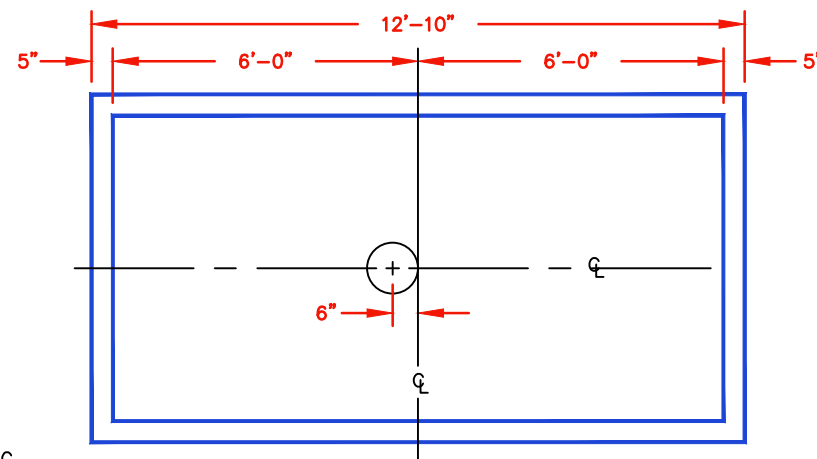
1. DEVELOPER SHALL FURNISH AND INSTALL VAULT PER MTE SPECIFICATIONS. CATALOG NUMBERS ARE LISTED IN APPENDIX B.
2. SIZE AND NO. CONDUITS SHOWN ON PLANS.
3. ALL ELECTRICAL CONDUIT ELBOWS SHALL BE CAPPED UPON INSTALLATION.
4. ALL ELBOWS TO BE SCHEDULE 80 PVC.
5. 36" RADIUS ELBOWS ARE TO BE USED FOR 2" CONDUITS AND 48" RADIUS ELBOWS FOR 4" AND 6" CONDUITS.
6. INSTALL 17" X 30" COMM HAND HOLE AND REQUIRED COMM CONDUIT AS SPECIFIED BY MTE AND INDICATED ON PLAN. IN COMMERCIAL APPLICATIONS, USE HD 17" X 30" COMM HAND HOLE. SEE DRAWING HH-1 FOR HAND HOLE CONSTRUCTION DETAILS.

	
<b>SETTING DETAILS</b> <b>CONCRETE VAULT WITH COVER</b>	
DRAWING NUMBER: UV-1, UV-2	REVISED DATE: JULY 1, 2023  SCALE: <u>NONE</u> SHEET: <u>2</u> OF <u>2</u>





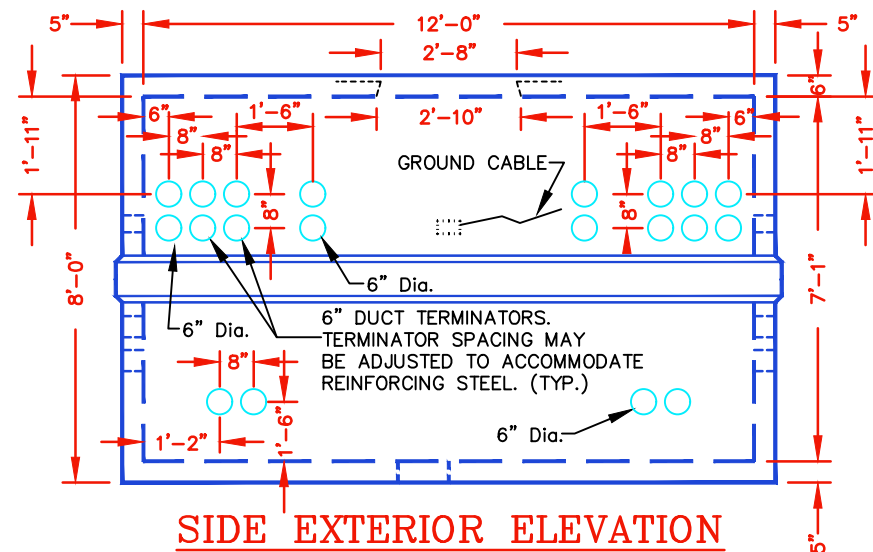
**PLAN VIEW**



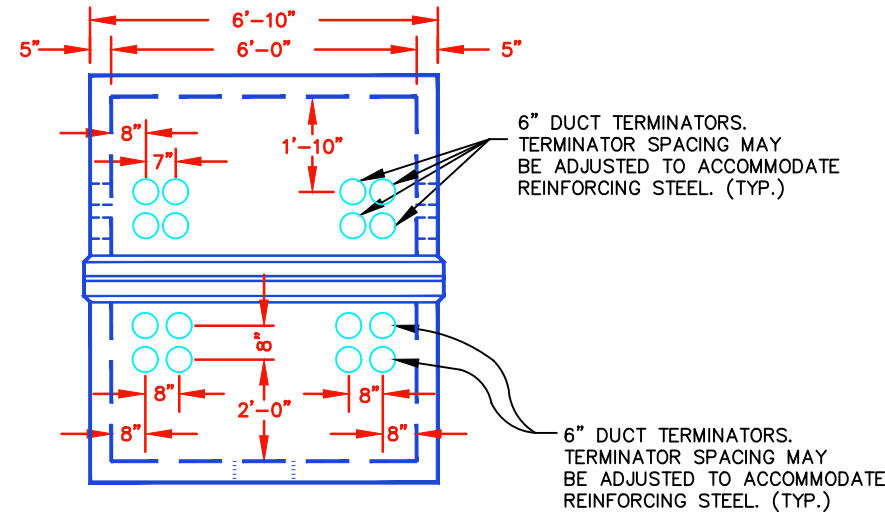
**FLOOR VIEW**

**NOTES:**

1. MANHOLE TO BE DESIGNED TO MEET H-20 LOADING REQUIREMENTS.
2. CONCRETE STRENGTH  $f_c=4,500$  PSI MIN AT 28 DAYS.
3. REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60.
4. ALL MANHOLE, JOINTS INCLUDING GRADE RINGS, SHALL BE SEALED USING RAM NEK OR RUB'NEK BY K.T. SNYDER CO INC. (OR APPROVED EQUAL) MEETING FED SPEC SS-S-210A.
5. LIFTING DEVICES WILL BE "SWIFT LIFT" BY DAYTON SUPERIOR, OR EQUAL.
6. MANHOLE TO HAVE 2 MANHOLE GROUNDING CONNECTORS CAST FLUSH TO INSIDE WALL WITH 18" LONG 4/0 SOFT DRAWN CU TAIL THROUGH EXTERIOR WALL (ACCEPTABLE GROUND CONNECTOR INSERTS ARE DOSSERT PGU30-4 OR BURNDY YGF294N)



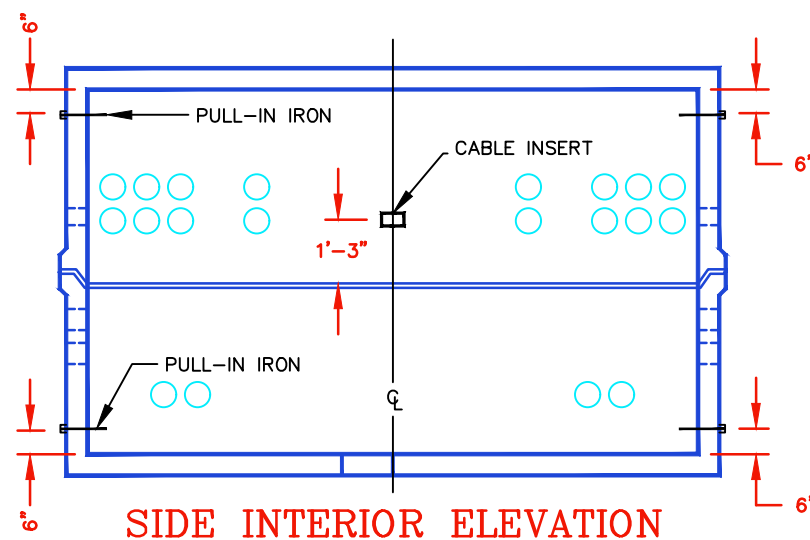
**SIDE EXTERIOR ELEVATION**



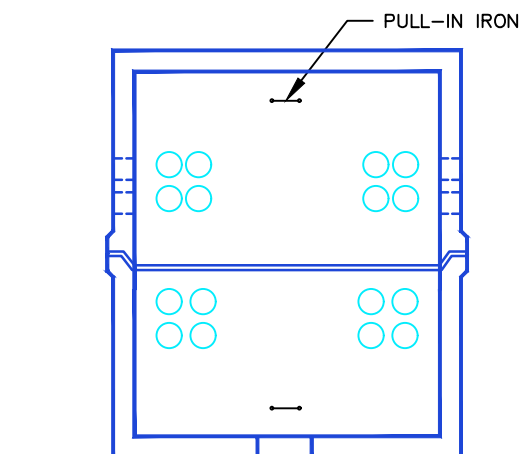
**END EXTERIOR ELEVATION**

**APPROVED DESIGN:**


OLDCASTLE PRECAST INC. DRAWING # 612-84-MTE  
FOLEY PRODUCTS DRAWING EMH-1

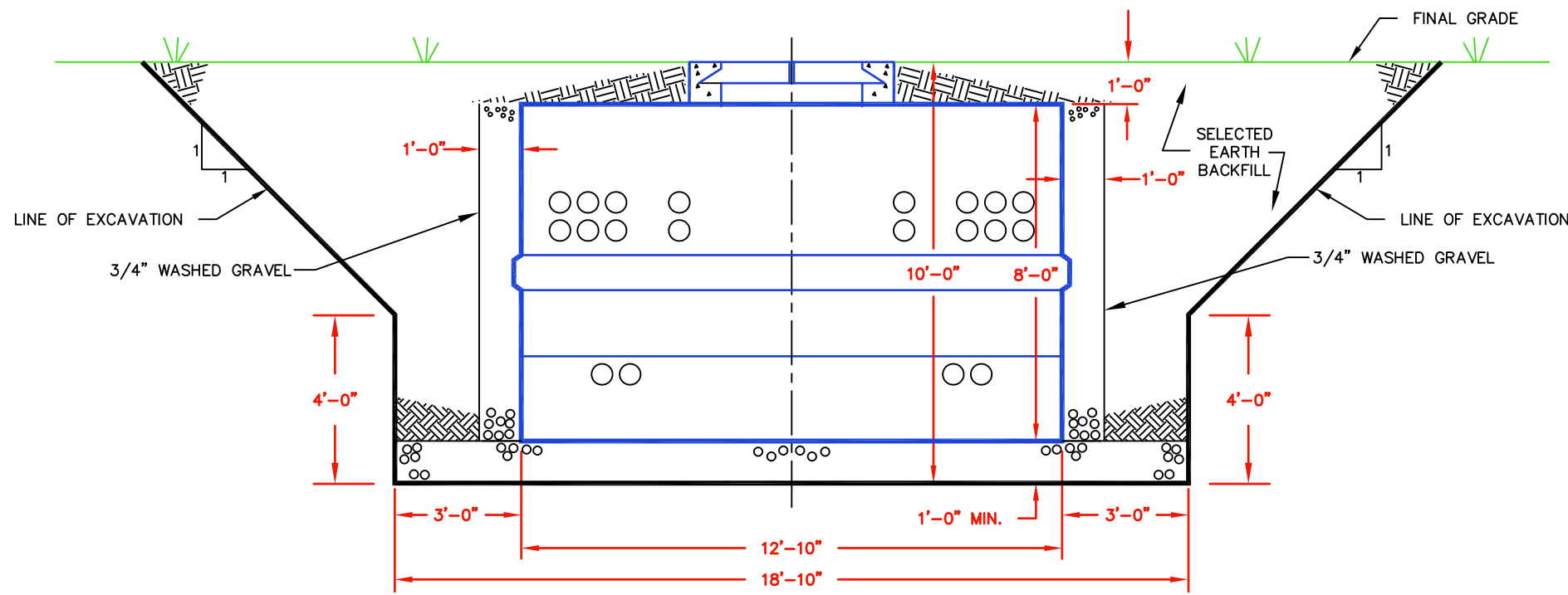


**SIDE INTERIOR ELEVATION**

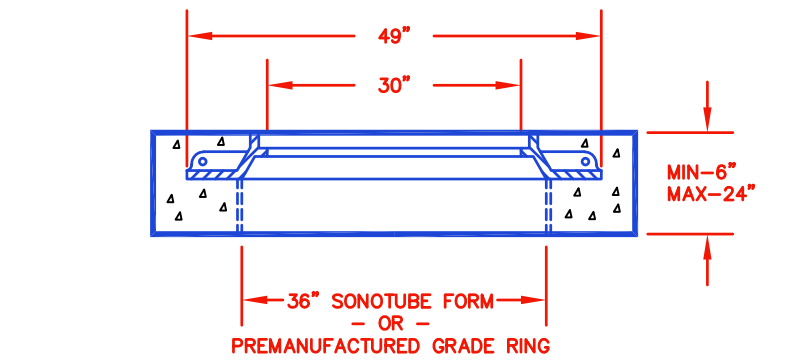
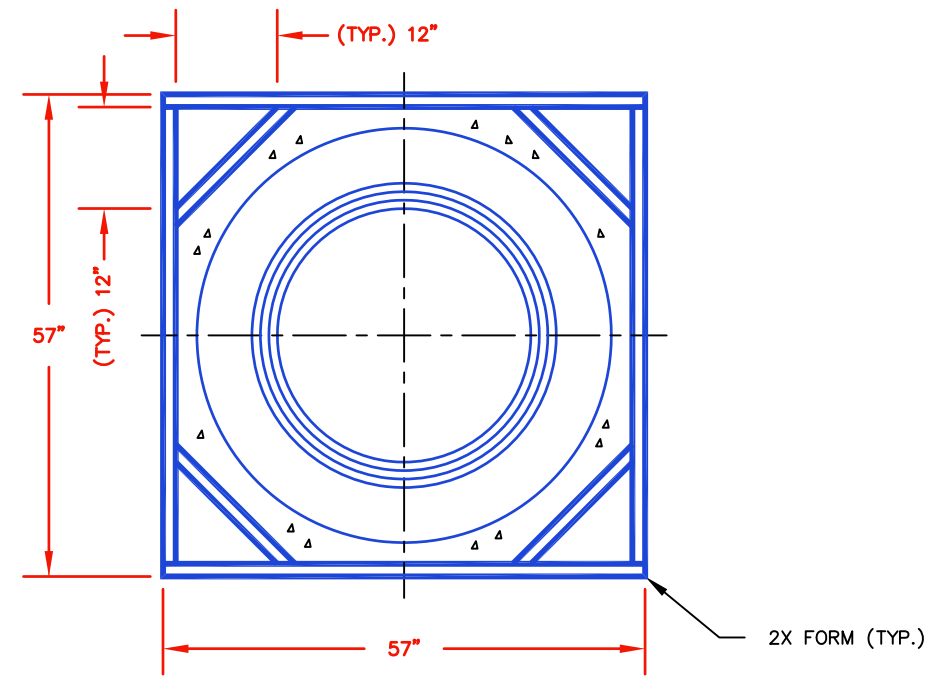


**END INTERIOR ELEVATION**

	
CONSTRUCTION DETAIL 12' x 6' x 7' UTILITY MANHOLE (TYPICAL)	
DRAWING NUMBER:	REVISED DATE:
MH-1	JULY 1, 2023
	SCALE: NONE
	SHEET: 1 OF 2



**SIDE VIEW**



**MANHOLE THROAT AND COVER DETAIL**

**NOTES FOR SETTING MANHOLE:**

1. EXCAVATE THE HOLE ACCORDING TO DETAILS SHOWN. NOTE THE 1:1 SLOPE TO COMPLY WITH OSHA REQUIREMENTS FOR "NORMAL" SOIL.
2. PLACE MINIMUM OF 12" OF 3/4" WASHED GRAVEL IN THE HOLE AND LEVEL.
3. SET THE MANHOLE. (NOTE THAT 3'-0" MINIMUM WORKING CLEARANCE REQUIRED AT BASE OF MANHOLE).
4. MTE TO GROUND MANHOLE.
5. DEVELOPER TO INSTALL REQUIRED DUCTS. DUCTS FOR LARGE MAIN FEEDS (500 MCM AND GREATER) SHALL BE DIRECTED INTO KNOCKOUTS IN LOWER SECTION OF MANHOLE. THE UPPER SECTION KNOCKOUTS MAY ONLY BE USED, BY WRITTEN MTE APPROVAL, FOR LOCAL TAPS AND/OR SMALLER CONDUCTOR FEEDS.
6. BACKFILL UP TO THE JOINT OF THE TWO HALVES.
7. SET THE MANHOLE THROAT AND COVER (SEE DETAIL).
8. BACKFILL TO FINAL GRADE. NOTE GRAVEL AROUND SIDES AND ENDS OF MANHOLE.
9. SEE MH-3 SH. 3 FOR TYPICAL COMM CONDUIT LAYOUT AT MANHOLE.

**MANHOLE THROAT/COVER NOTES:**

1. MANHOLE THROAT/COVER TO BE BOUCHARD #1133.
2. DO NOT SUPPORT METAL THROAT WITH SONOTUBE; USE PVC CONDUIT CUT TO CORRECT LENGTH (MIN. OF 4, EQUALLY SPACED).
3. CONCRETE FORMS SHOWN ARE 2X LUMBER FOR OUTSIDE FORM, AND 36" SONOTUBE FOR INSIDE FORM, BOTH CUT TO LENGTH REQUIRED FOR FINAL GRADE.
4. PREMANUFACTURED GRADE RING MAY BE SUBSTITUTED FOR SONATUBE & CONDUIT SUPORTS FOR MANHOLE COVER.



CONSTRUCTION DETAIL  
12' x 6' x 7' UTILITY MANHOLE  
SETTING DETAIL

DRAWING NUMBER:

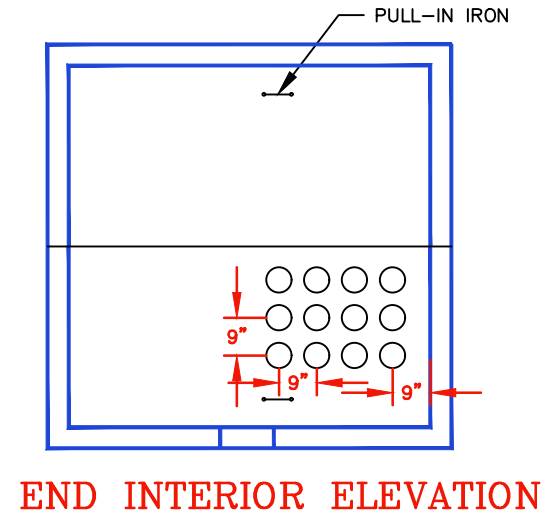
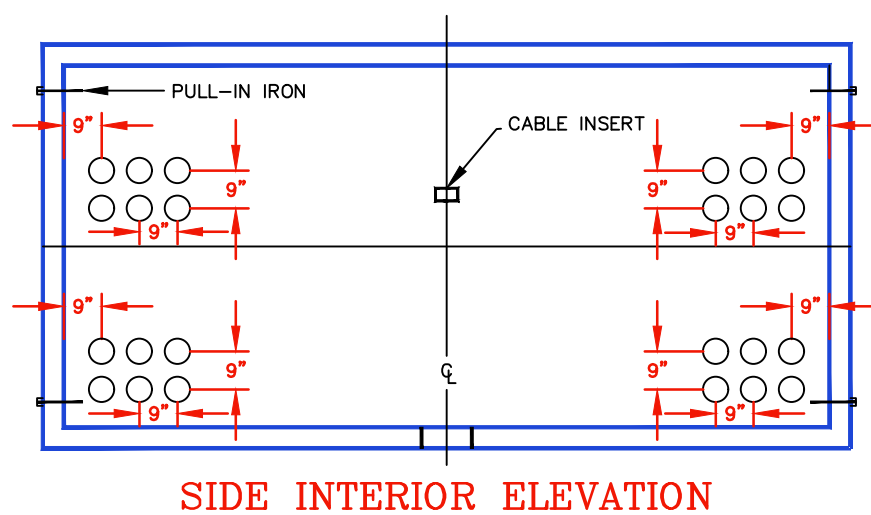
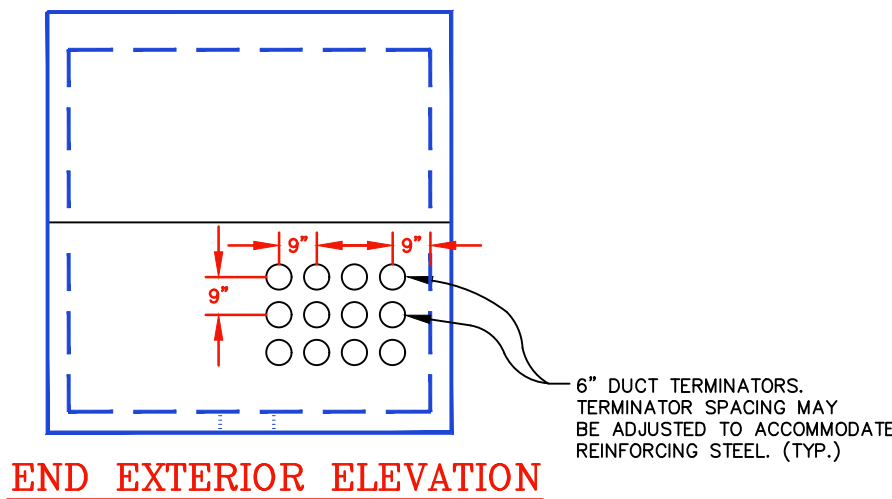
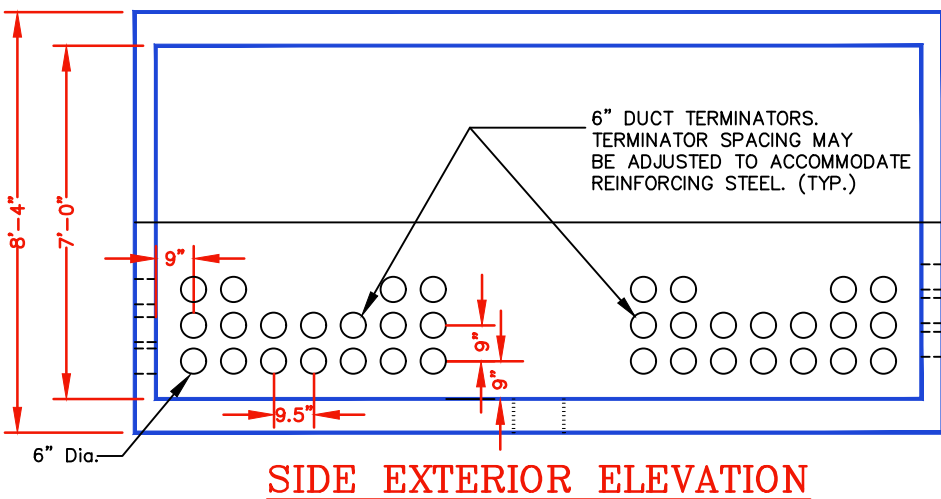
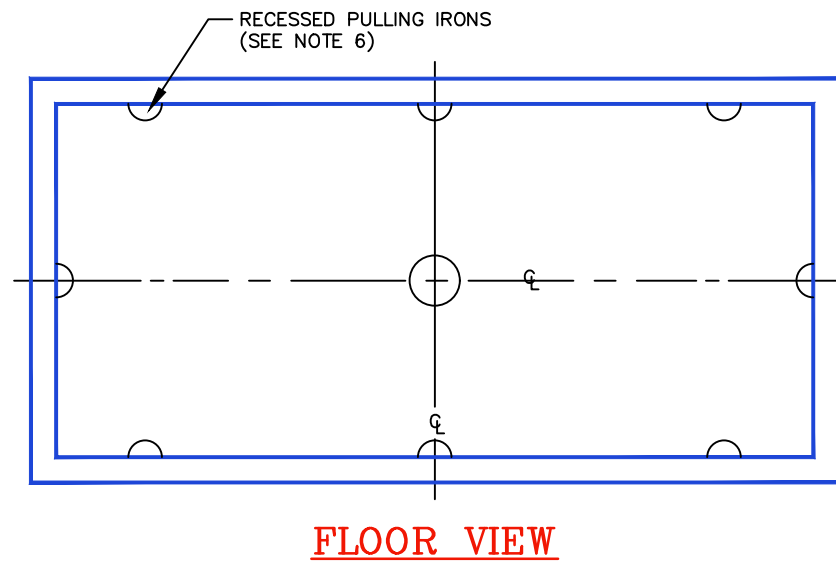
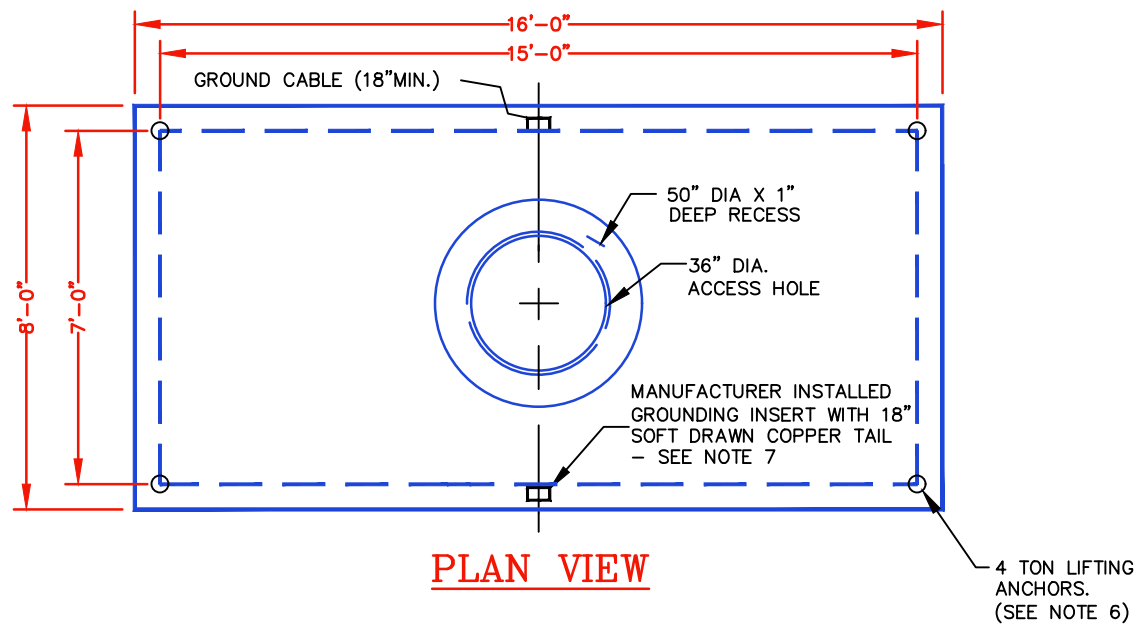
MH-1

REVISED DATE:

OCT. 2, 2023

SCALE: NONE

SHEET: 2 OF 2



**NOTES:**

1. MANHOLE TO BE DESIGNED TO MEET H-20 LOADING REQUIREMENTS.
2. CONCRETE STRENGTH  $f_c=4,500$  PSI MIN AT 28 DAYS.
3. REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60.
4. ALL MANHOLE JOINTS, INCLUDING GRADE RINGS, SHALL BE SEALED USING RAM NEK OR RUB'NEK BY K.T. SNYDER CO INC. (OR APPROVED EQUAL) MEETING FED SPEC SS-S-210A.
5. LIFTING DEVICES WILL BE "79U80 UA" BY MEADOW BURKE, OR EQUAL.
6. DO NOT USE PULLING IRONS TO LIFT MANHOLES. USE LIFTING ANCHORS. MANHOLES WITH DAMAGED PULLING IRONS WILL NOT BE ACCEPTED.
7. MANHOLE TO HAVE 2 MANHOLE GROUNDING CONNECTORS CAST FLUSH TO INSIDE WALL WITH 18" LONG 4/0 SOFT DRAWN CU TAIL THROUGH EXTERIOR WALL (ACCEPTABLE GROUND CONNECTOR INSERTS ARE DOSSERT PGU30-4 OR BURNDY YGF294N)

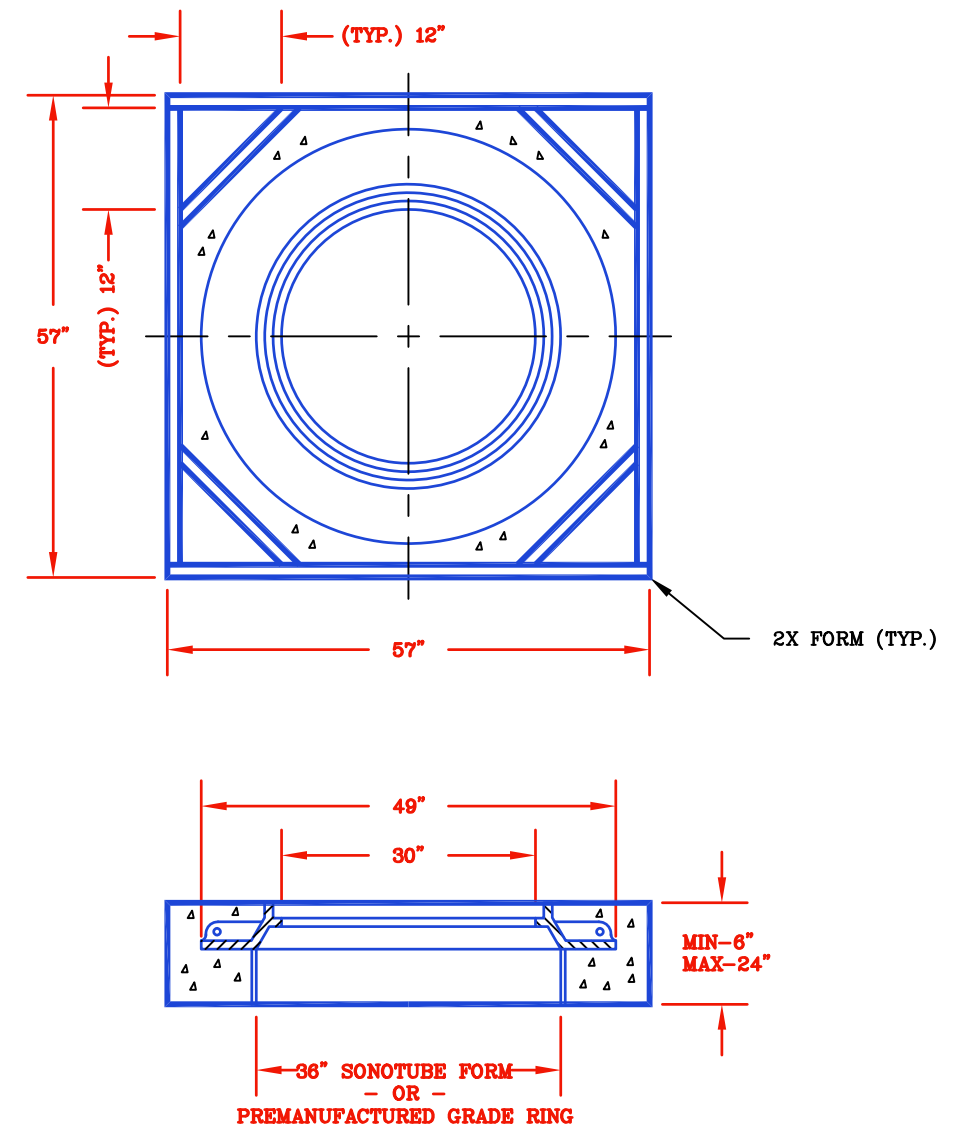
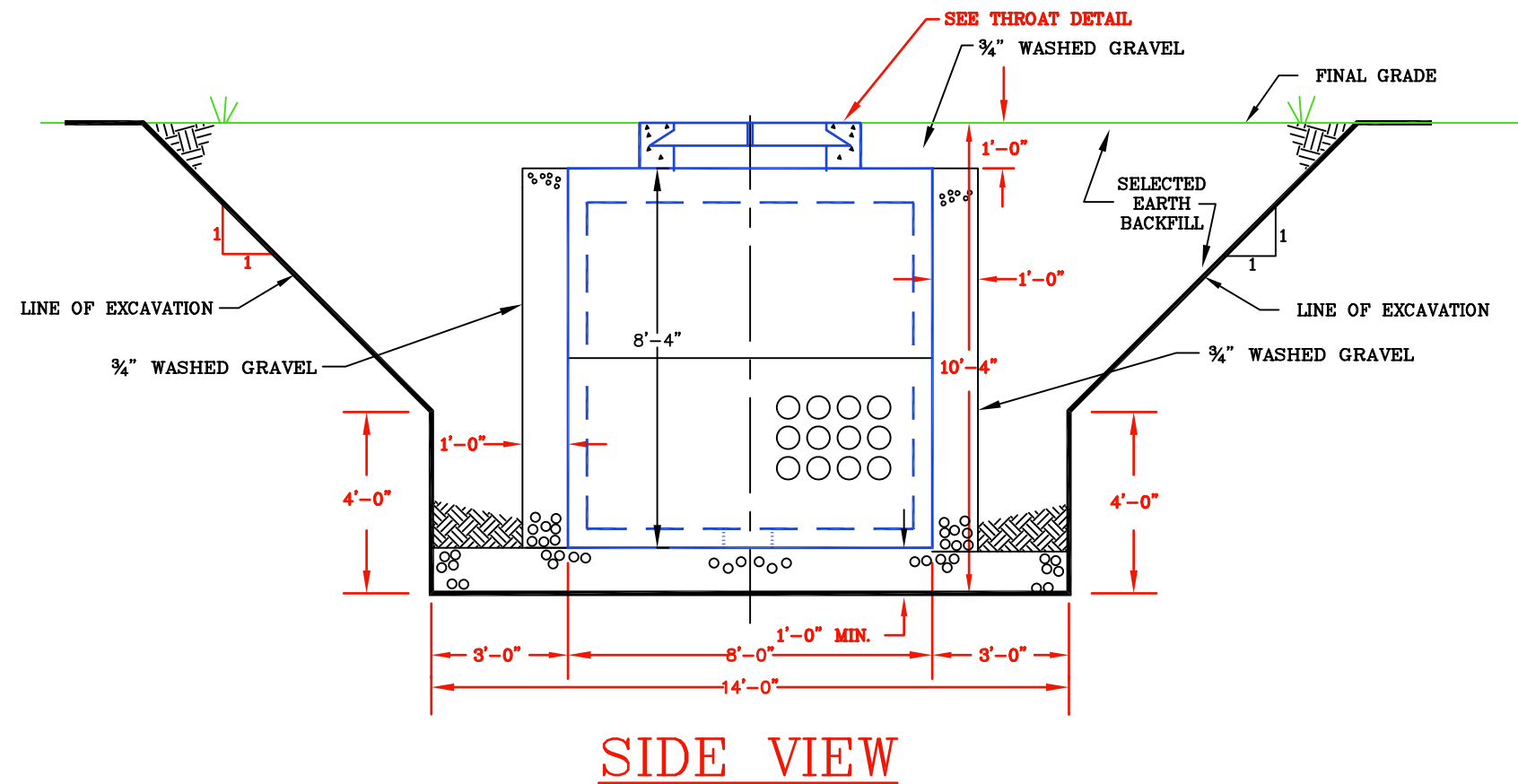
**APPROVED DESIGN:**

OLDCASTLE PRECAST INC. DRAWING #MTE 715MH3  
FOLEY PRODUCTS DRAWING EMH-3



CONSTRUCTION DETAIL  
7' x 15' x 7' UTILITY MANHOLE  
(TYPICAL)

DRAWING NUMBER:	REVISED DATE:
MH-3	JULY 1, 2023
SCALE: NONE	
SHEET: 1 OF 3	



## MANHOLE THROAT AND COVER DETAIL

### NOTES FOR SETTING MANHOLE:

1. EXCAVATE THE HOLE ACCORDING TO DETAILS SHOWN. NOTE THE 1:1 SLOPE TO COMPLY WITH OSHA REQUIREMENTS FOR "NORMAL" SOIL.
2. PLACE MINIMUM OF 12" OF 3/4" WASHED GRAVEL IN THE HOLE AND LEVEL.
3. SET THE MANHOLE. (NOTE THAT 3'-0" MINIMUM WORKING CLEARANCE REQUIRED AT BASE OF MANHOLE).
4. MTE TO GROUND MANHOLE.
5. DEVELOPER TO INSTALL REQUIRED DUCTS. DUCTS FOR LARGE MAIN FEEDS (500 MCM AND GREATER) SHALL BE DIRECTED INTO KNOCKOUTS IN LOWER SECTION OF MANHOLE. THE UPPER SECTION KNOCKOUTS MAY ONLY BE USED, BY WRITTEN MTE APPROVAL, FOR LOCAL TAPS AND/OR SMALLER CONDUCTOR FEEDS. WRITTEN MTE APPROVAL.
6. BACKFILL UP TO THE JOINT OF THE TWO HALVES.
7. SET THE MANHOLE THROAT AND COVER (SEE DETAIL).
8. BACKFILL TO FINAL GRADE. NOTE GRAVEL AROUND SIDES AND ENDS OF MANHOLE.

### MANHOLE THROAT/COVER NOTES:

1. MANHOLE THROAT/COVER TO BE BOUCHARD #1133.
2. DO NOT SUPPORT METAL THROAT WITH SONOTUBE; USE PVC CONDUIT CUT TO CORRECT LENGTH (MIN. OF 4, EQUALLY SPACED).
3. CONCRETE FORMS SHOWN ARE 2X LUMBER FOR OUTSIDE FORM, AND 36" SONOTUBE FOR INSIDE FORM, BOTH CUT TO LENGTH REQUIRED FOR FINAL GRADE.
4. PREMANUFACTURED GRADE RING MAY BE SUBSTITUTED FOR SONATUBE & CONDUIT SUPORTS FOR MANHOLE COVER.



SETTING DETAIL  
7' x 15' x 7' UTILITY MANHOLE

DRAWING NUMBER:

MH-3

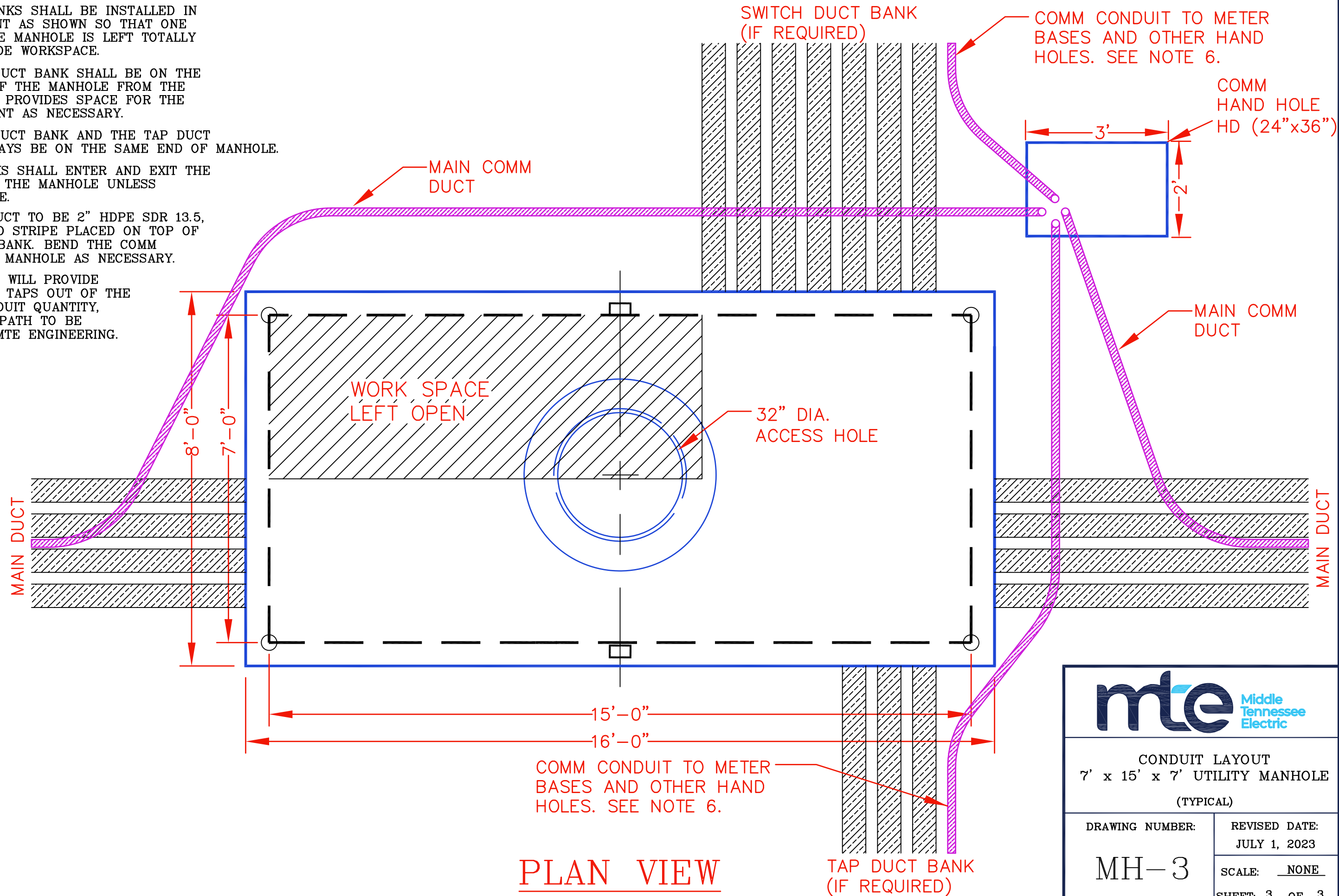
REVISED DATE:  
OCT. 2, 2023

SCALE: NONE


SHEET: 2 OF 3

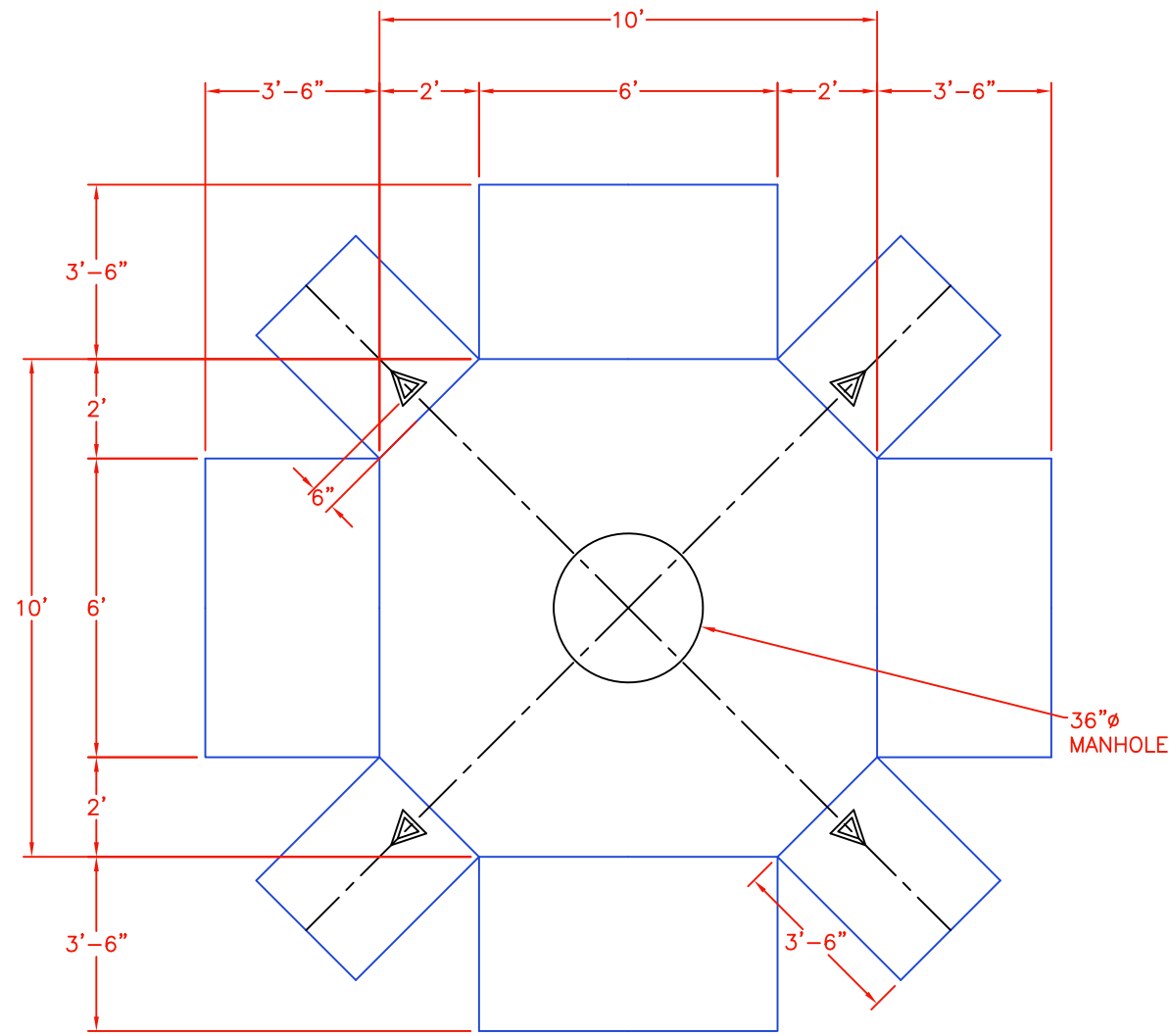
**NOTES:**

- 1) THE DUCT BANKS SHALL BE INSTALLED IN THE ARRANGEMENT AS SHOWN SO THAT ONE QUADRANT IN THE MANHOLE IS LEFT TOTALLY EMPTY TO PROVIDE WORKSPACE.
- 2) THE SWITCH DUCT BANK SHALL BE ON THE OPPOSITE SIDE OF THE MANHOLE FROM THE MAIN DUCT. THIS PROVIDES SPACE FOR THE CABLE TO BE BENT AS NECESSARY.
- 3) THE SWITCH DUCT BANK AND THE TAP DUCT BANK SHALL ALWAYS BE ON THE SAME END OF MANHOLE.
- 4) ALL DUCTBANKS SHALL ENTER AND EXIT THE BOTTOM HALF OF THE MANHOLE UNLESS APPROVED BY MTE.
- 5) MAIN COMM DUCT TO BE 2" HDPE SDR 13.5, ORANGE WITH RED STRIPE PLACED ON TOP OF CONCRETE DUCT BANK. BEND THE COMM CONDUIT AROUND MANHOLE AS NECESSARY.
- 6) MTE DESIGNER WILL PROVIDE INSTRUCTIONS ON TAPS OUT OF THE HAND HOLE. CONDUIT QUANTITY, SIZE, TYPE, AND PATH TO BE DETERMINED BY MTE ENGINEERING.

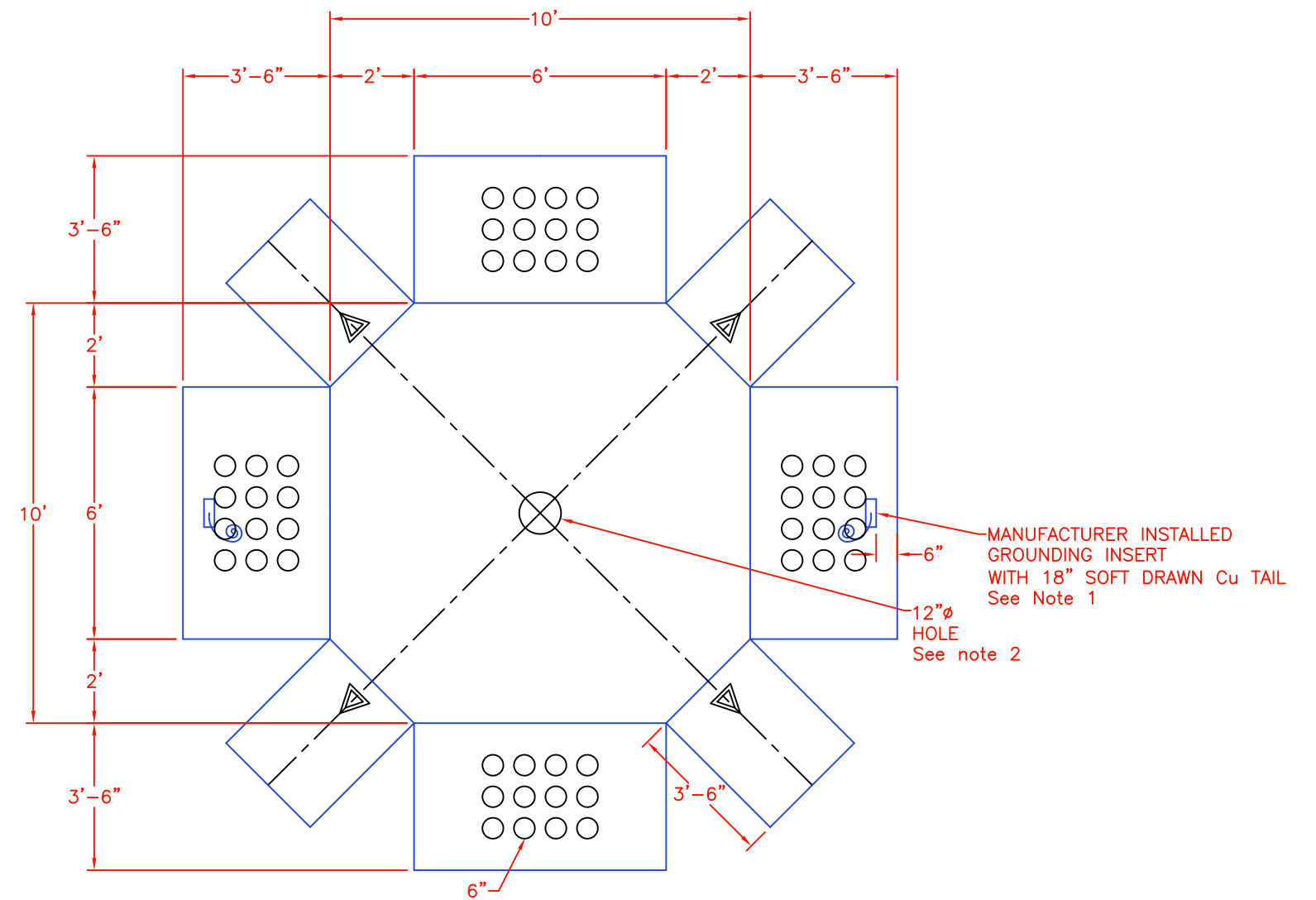


**PLAN VIEW**

	
<b>CONDUIT LAYOUT</b> 7' x 15' x 7' UTILITY MANHOLE (TYPICAL)	
DRAWING NUMBER:	REVISED DATE:
MH-3	JULY 1, 2023
SCALE: NONE	
SHEET: 3 OF 3	



TOP VIEW



BOTTOM VIEW

NOTES:

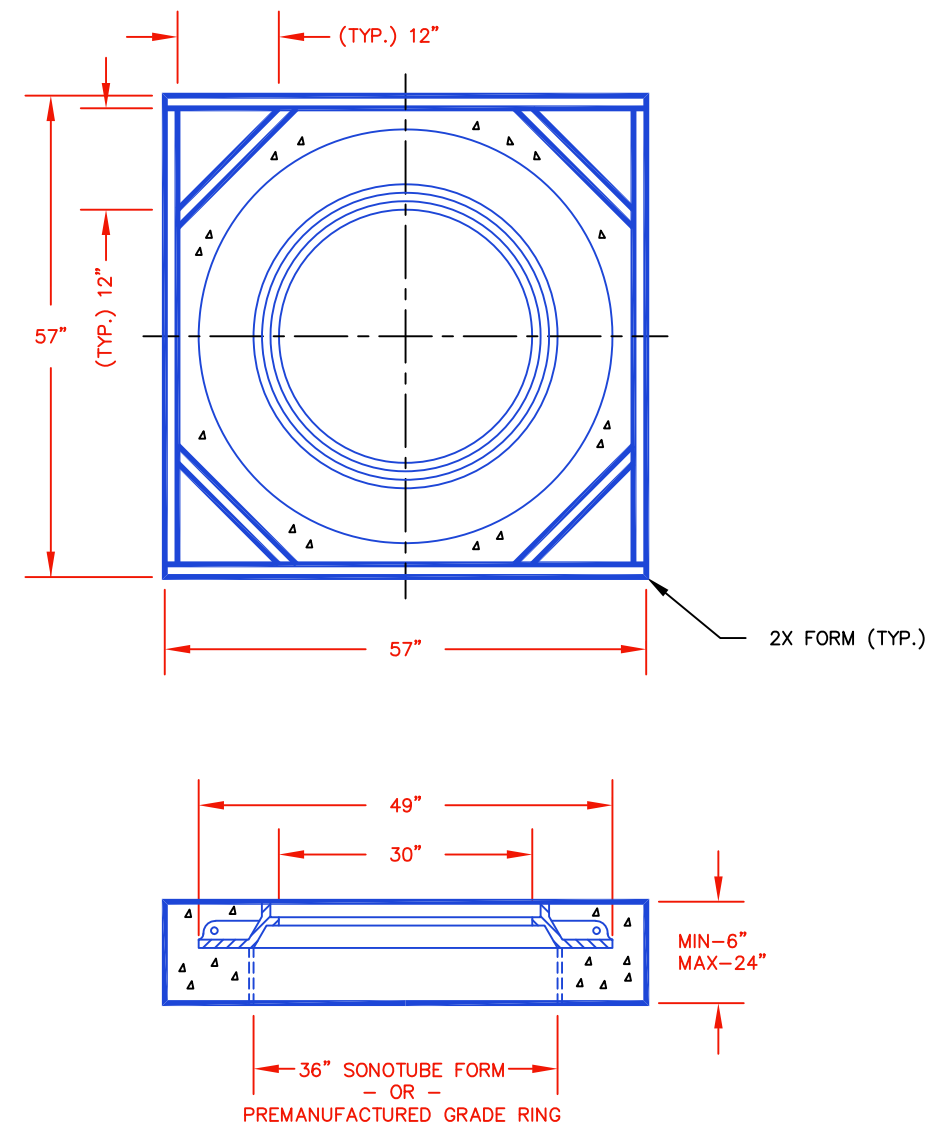
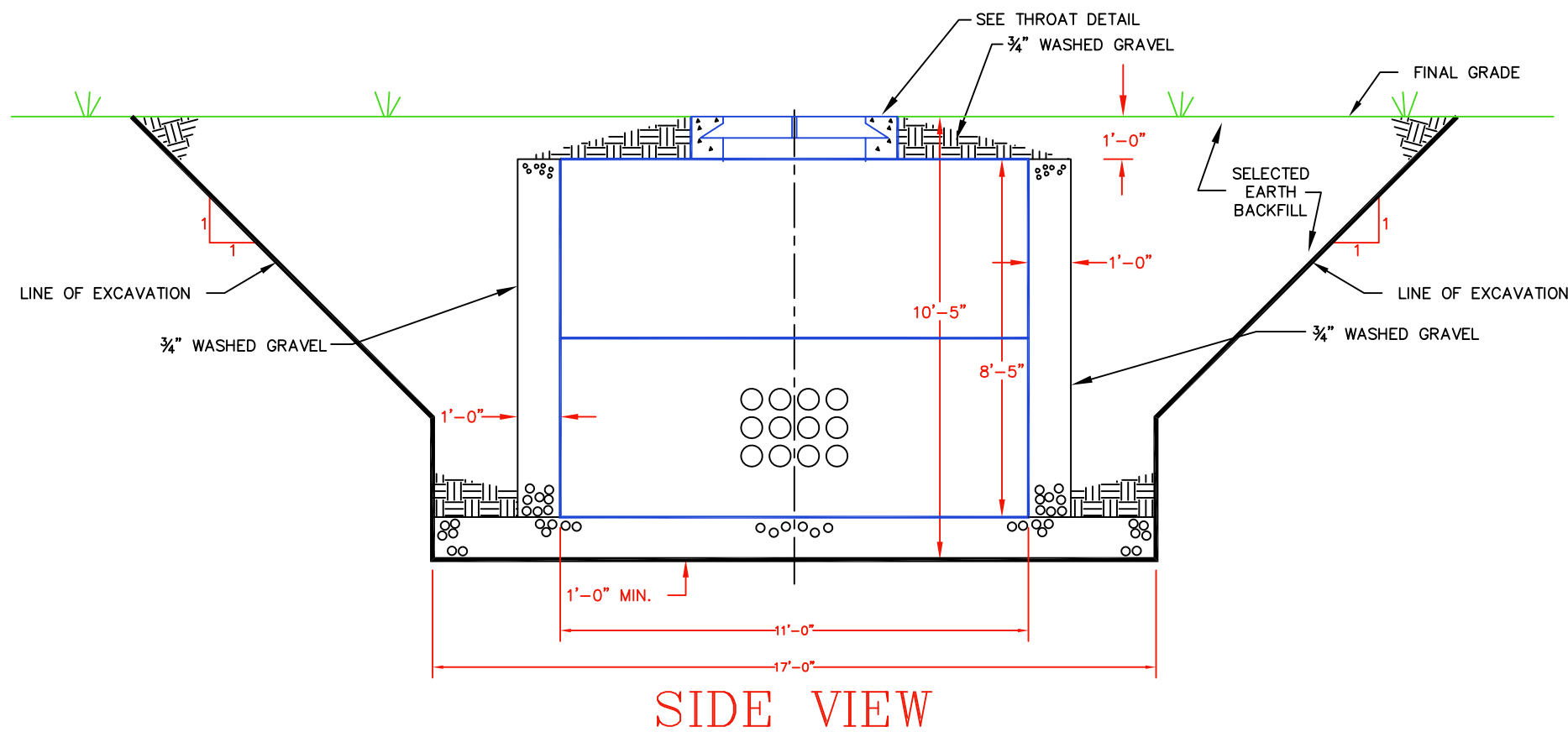
1. MANHOLE TO HAVE 2 MANHOLE GROUNDING CONNECTORS CAST FLUSH TO INSIDE WALL WITH 18" LONG 4/0 SOFT DRAWN CU TAIL THROUGH EXTERIOR WALL (ACCEPTABLE GROUND CONNECTOR INSERTS ARE DOSSERT PGU30-4 OR BURNDY YGF294N)
2. MANHOLE TO BE DESIGNED TO MEET H-20 LOADING REQUIREMENTS.
3. CONCRETE STRENGTH  $F_c = 4,500$  PSI MIN. AT 28 DAYS.
4. REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60.
5. ALL JOINTS, INCLUDING GRADE RINGS, SHALL BE SEALED WITH RAM NEK OR RUB'R-NEK BY K.T. SNYDER Co. INC. (OR APPROVED EQUAL) MEETING FED. SPEC. SS-S-210A.
6. LIFTING DEVICES WILL BE "79U80 UA" BY MEADOW BURKE OR EQUIVALENT.



CONSTRUCTION DETAIL  
OCTAGONAL MANHOLE

DRAWING NUMBER:	REVISED DATE:
OMH-3	JULY 1, 2022
	SCALE: <u>NONE</u>
	SHEET: <u>1</u> OF <u>2</u>

APPROVED DESIGN:  
OLDCASTLE PRECAST INC. DRAWING # 1010-7-MTE



## MANHOLE THROAT AND COVER DETAIL

### NOTES FOR SETTING MANHOLE:

- EXCAVATE THE HOLE ACCORDING TO DETAILS SHOWN. NOTE THE 1:1 SLOPE TO COMPLY WITH OSHA REQUIREMENTS FOR "NORMAL" SOIL.
- PLACE MINIMUM OF 12" OF 3/4" WASHED GRAVEL IN THE HOLE AND LEVEL.
- SET THE MANHOLE. (NOTE THAT 3'-0" MINIMUM WORKING CLEARANCE REQUIRED AT BASE OF MANHOLE).
- MTE TO GROUND MANHOLE.
- DEVELOPER TO INSTALL REQUIRED DUCTS.
- BACKFILL UP TO THE JOINT OF THE TWO HALVES.
- SET THE MANHOLE THROAT AND COVER (SEE DETAIL).
- BACKFILL TO FINAL GRADE. NOTE GRAVEL AROUND SIDES AND ENDS OF MANHOLE.

### MANHOLE THROAT/COVER NOTES:

- MANHOLE THROAT/COVER TO BE BOUCHARD #1133.
- DO NOT SUPPORT METAL THROAT WITH SONOTUBE; USE PVC CONDUIT CUT TO CORRECT LENGTH (MIN. OF 4, EQUALLY SPACED).
- CONCRETE FORMS SHOWN ARE 2X LUMBER FOR OUTSIDE FORM, AND 36" SONOTUBE FOR INSIDE FORM, BOTH CUT TO LENGTH REQUIRED FOR FINAL GRADE.
- PREMANUFACTURED GRADE RING MAY BE SUBSTITUTED FOR SONATUBE & CONDUIT SUPORTS FOR MANHOLE COVER.



### CONSTRUCTION DETAIL OCTAGONAL MANHOLE

DRAWING NUMBER:

OMH-3

REVISED DATE:

JAN. 3, 2022

SCALE: NONE

SHEET: 2 OF 2

## Appendix A

### Single Family Lot Underground Residential Service in Developed Subdivisions

The following specifications pertain to underground services to single-family homes built in developed subdivisions.

- 1) The electrical service ditch must run from the MTEMC designated meter location to the MTEMC designated power source. The ditch shall be as described in Ditch Detail “1S” or “2S”. The bottom of the ditch shall be level or sloping at a consistent angle such that the conduit will be supported well with little or no vertical bending in the ditch. The contractor or owner will be responsible for backfilling the ditch with rock-free dirt or sand.
- 2) The contractor shall provide and install a continuous (unbroken) 3” PVC (electrical grade, schedule 40) conduit in the ditch from the MTEMC source to the MTEMC meter base location, with no horizontal elbows in the run (not counting riser and meter base location vertical elbows). The conduit must be permanently connected and have a minimum 200 lb. tensile pull string installed from the MTEMC source to the meter location. A minimum of one-foot separation from other utilities shall be maintained. No portion of elbow or conduit above finished grade will be permitted to be Schedule 40 PVC; however, Schedule 80 electrical grade PVC will be permitted.
- 3) Before the ditch is backfilled and before wire is installed, the meter base must be installed complete with owner’s service entrance conductors. The ditch and conduit must be inspected by the MTEMC inspector at this time (prior to MTEMC pulling the service lateral conductors). Call 1-877-886-8362 to set up an appointment.
- 4) Where services cross streets, the ditch must be backfilled with crusher-run gravel. Where streets are paved, contractors should take out proper permits and repave according to local authority instructions.
- 5) The contractor or owner will be responsible for any damage to the conduit or cable occurring during backfilling, and any additional cost to MTEMC will be billed to the contractor.
- 6) In cases that require one or more horizontal bends, or are more than 250 feet from meter base location to MTEMC source, or service entrance is larger than 200 amps, contact the MTEMC District Engineering office for further requirements.



## Appendix B - Approved Materials

<u>Item</u>	<u>Manufacturer – Catalog Number</u>												
Manhole Covers	John Bouchard No. 1133 (ELECTRIC) Neenah No. R-1640-C1 (ELECTRIC)												
Manholes	<p><b>Old Castle Precast, Inc.</b> 5900 East Division, Lebanon, TN 37090 (615) 965-3077 – Donna Hughes (629) 543-4778 (cell) <a href="mailto:Donna.Hughes@oldcastle.com">Donna.Hughes@oldcastle.com</a></p> <p><b>Jarrett Concrete Company</b> 2012 Hwy 12 S Ashland City, TN 37015 615-927-9972 – Landon Owen Operations Manager <a href="mailto:landon.owen@jarrettconcreteproducts.com">landon.owen@jarrettconcreteproducts.com</a></p> <p><b>Foley Products</b> 879 Seven Oaks Blvd – Suite 670 615-785-3657 – Chad Rutzinski <a href="mailto:Crutzinski@foleyproducts.com">Crutzinski@foleyproducts.com</a></p>												
Vault	<p>Old Castle Precast, Inc.</p> <table border="0"> <tr> <td>UV-1</td> <td>4' X 6'</td> <td>464MTE-TN H20</td> </tr> <tr> <td>UV-1HD</td> <td>4' X 6' HD</td> <td>464MTE-TN H35</td> </tr> <tr> <td>UV-2</td> <td>6' X 8"</td> <td>684MTE-TN H20</td> </tr> <tr> <td>UV-2HD</td> <td>6' X 8' HD</td> <td>684MTE-TN H35</td> </tr> </table>	UV-1	4' X 6'	464MTE-TN H20	UV-1HD	4' X 6' HD	464MTE-TN H35	UV-2	6' X 8"	684MTE-TN H20	UV-2HD	6' X 8' HD	684MTE-TN H35
UV-1	4' X 6'	464MTE-TN H20											
UV-1HD	4' X 6' HD	464MTE-TN H35											
UV-2	6' X 8"	684MTE-TN H20											
UV-2HD	6' X 8' HD	684MTE-TN H35											
2-Hole Stacking Lugs	Approved manufacturers: Burndy/ Hubbell, CMC, Homac, Richards												
Terminal Stacking Adaptors	Burndy #"ASA250U", "ASA800U", or "ASA1000U" depending on wire size												
<b>Long Coupling</b> PVC Conduit	Prime Conduit, Cantex or equivalent. Must meet the following specifications: UL 651, NEMA TC2-1978, Fed Spec No. WC1094A. <b>Standard couplings will not be accepted.</b>												
PVC Long Couplings	<p><b>Long couplings is defined with minimum length as 4" long for 2" conduit, and 6" long for 3" and larger conduit.</b></p> <p>Prime Conduit CPLLCS300X6125 Cantex 6202005</p>												
3" Sch 40 Conduit with long couplings	Prime Conduit 49013-10 Cantex A52DA12												
3" Sch 80 Conduit with long couplings	Prime Conduit 49413-100 Cantex A53DA12												
<b><u>HDPE to HDPE Couplers</u></b>													
<b>Size</b>	<u>Dura-Line Part Number – Clear-Lock Couplers</u>												
1"	20005662												
2"	20005097												
<b><u>HDPE to PVC Couplers</u></b>													
<b>Size</b>	<u>Dura-Line Part Number – Shur-Lock II Couplers</u>												
1"	20000118												
2"	20000123												
3"	20000173												
4"	20000245												
5"	20000254												
6"	20000256												

<u>Conduit Spacers (chairs)</u>	<u>MFG</u>	<u>Base Number</u>	<u>Intermediate Number</u>
2" Conduit	Cantex	5335979	5336032
	Carlton	S288JLN	S289JLN
4" Conduit	Cantex	5335969	5336024
	Carlton	S288NLN	S289NLN
6" Conduit	Cantex	5335040	5336041
	Carlton	S288RLN	S289RLN

<u>PVC Conduit End Caps</u>	<u>MFG</u>	<u>Part Number</u>
1" Conduit	Cantex	5140033
	Carlton	E958F
	Heritage- Plastics	59647
	Prime Conduit	CAP100
2" Conduit	Cantex	5140037
	Carlton	E958J
	Heritage- Plastics	59125
	Prime Conduit	CAP200
3" Conduit	Cantex	5140039
	Carlton	E958L
	Heritage- Plastics	59127
	Prime Conduit	CAP300
4" Conduit	Cantex	5140040
	Carlton	E958N
	Heritage- Plastics	59128
	Prime Conduit	CAP400
5" Conduit	Cantex	5140041
	Carlton	E958P
	Heritage- Plastics	59129
	Prime Conduit	CAP500
6" Conduit	Cantex	5140042
	Carlton	E958R
	Heritage- Plastics	59130
	Prime Conduit	CAP600

<u>ITEM</u>	<u>DESCRIPTION</u>
Comm 2" HDPE Conduit	2" HPDE SDR 13.5 Orange with Red Stripe, multiple manufacturers
2" Comm Conduit Cap	2" HDPE Carlton end cap EC2.375
	2" Flay Vinyl end cap Millineum Supply part no 20001815

MIDDLE TENNESSEE ELECTRIC

APPROVED UNDERGROUND BOXES AND PADS

(last revised 4-18-2024)

DESCRIPTION	MTE ITEM	API (Advanced Plastics)	APC (American Polymer)	Channell	Charles Industries	Concast	Duralite/Carson (OldCastle)	ElectriGlass	GlasMasters	Highline (OldCastle)	Hubbell/Quazite/ Pencil	Utility Plastics
30X40X36 Primary Pull Box	7013		CP304836HU2299PAE						AP304836P15P-MTEEL	PHA304836HC4270100	PG30482270AE6 OR PG30482270MT	
13X24X18 Secondary Pull Box (Small)- Streetlight Installations Only	7020			BULKU1324180062106			13246300		AP132418P15P-MTEEL	PHA132418HC4270100	PG13242975AE6 OR PG13242975MT	
24X36X18 Secondary Pull Box (Large)	7021		CP243618U2299PAE	BULKU2436180062106	C243618AEETRXME		24366301		AP243618P15P-MTEEL	PHA243618HC4270100	PG24362242AE6 OR PG24362242MT	
30X48X18 Secondary Pull Box (X-Large)	7022			BULKU3048180082106	C304824AEETRXME		30486021-SYN				A12304818AAE6	
1 Φ Transformer Box Pad (Standard)	7009								BP2000A-MTO-1		HL-48-M-MTEMC	BB3743322632601
1 Φ Transformer Box Pad (Large)	7010										FBP374832MOSTN	BB4248322632600
Primary Concrete Vault	2012						FRP487248STB					
1 Φ Sector (ground sleeve)	9618						FC-23-37-32					
3 Φ Sector (ground sleeve)	9619						FC-23-67-32					
Primary Pull Box Extender	7013A								EP304812B22	PHA304812XE001		
17X30X18 Comm Handhole	1467		CP173018U2299HS		P173018ABGTHXMM		Carson 17306004/OldCastle PHA173018HC0670100		AH173018T00H-MTECO	1730-18P2PO1-MTCOM	PT17302529WU5 (Quazite)	JD1730SGLFM4BD
17X30X18 Comm Handhole (Heavy Duty) Minimum Tier 15 rating (24" depth also acceptable)	1473			BULKU1730180062544/ BULKU1730240062544	C173024AGGTHXMM				AP173018P15S-MTECO		PG17302344WU5 (Quazite)	
24X36X24 Comm Handhole	1470				P243624ABGTHXUD						DT243624PCH00WU5 (Pencil)	
24X36X24 Comm Handhole (Heavy Duty) Minimum Tier 15 rating	1474				C243624AGGTRXMM						DT243624PCH00WU5 (Pencil)	
10" Round Flower Pot Comm Handhole	1466	PFMTE1011FM001			P100010ABGTHXMM		Carson 09106007		AH910T00H-MTECO	910L-1G2GO1-MTCOM	PE9AHDH00WU5 (Pencil)	JD1000SGL

**Specifications and Notes:**

**1) Non-approved boxes/pads will not allowed by MTE.**

2) Covers for pullbox and secondary junction boxes shall have 1/2" minimum captive, stainless steel penta-head bolts with nuts that are chamfered to help facilitate the installation of auger style bolts.

3) Covers (for pullbox and secondary junction boxes) shall be gray in color and have "MTE" and "ELECTRIC" cast into the top of the cover.

4) Pullboxes and secondary junction boxes shall meet the Western Underground Committee Guide 3.6 (Rev.2, May 1988) See www.westernunderground.org.

5) The part numbers for both the box and lid shall be painted on the inside wall of the pullbox so that it is visible when the box is installed.

6) Shipment for box pads and pullboxes shall include cardboard separators between stacked boxes to prevent jamming.

7) Box pads shall be designed and tested according to the Northeast Underground Guideline (NEUC) Number 9001-87R1.

8) Box pads shall have "Front/Street" stenciled on the top lip of the box pad. The MTE specific part number shall be stenciled on the top lip of the box pad.

**9) Electrical pullboxes and secondary junction boxes and lids shall have a minimum Tier 15 rating for incidental traffic in accordance with ANSI/SCTE 77 2017 guidelines.**

10) COMM hand holes and flower pots shall have "MTE COMM" on its top.

**11) COMM hand holes and flower pots shall have hex-head bolts.**

**\*Note, for COMM boxes ONLY, PENTA head bolts will be accepted until July 1, 2024. This should allow suppliers to reduce existing stock. All boxes going forward should be made with hex bolts.**