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Requirements for Trenching and Backfilling by Developer/Customer for Primary and Secondary Installation in a Trench with Electric and/or Gas, Telecommunication Lines (Joint Trench)

(Replaces CRS - 1013)

THIS CUSTOMER REFERENCE SPECIFICATION (CRS) IS PART OF THE
RULES FOR ELECTRIC METER AND SERVICE INSTALLATION (REMSI) WEBSITE.

DISTRIBUTION CONSTRUCTION SPECIFICATIONS PPL ELECTRIC UTILITIES CORPORATION	Issue Date: <u>9/8/2011</u> Typist: <u>SLF</u> Drafter: _____
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This specification contains basic information which defines PPL EU's requirements for trenching and backfilling by developer/customer installation in a trench with electric and/or gas, telecommunication lines.

All details of this specification shall be strictly followed. Any deviation must be approved by the PPL EU designer. Unapproved deviations are usually costly for the customer to correct and can result in delays or possible refusal to connect service.

Requirements for trenching and backfilling by customer for residential 120/240 volt underground service lateral installation in a trench with electric and/or gas, telecommunication lines are specified in CRS 6-19-133.

Requirements for trenching and backfilling by developer/customer for primary and secondary installation in a trench with only electric lines are specified in CRS 6-14-121.

Requirements for trenching and backfilling by customer for residential 120/240 volt underground service laterals installation in a trench with only electric lines are specified in CRS 6-19-134.

This specification does not pertain to three-phase primary or service lateral burial. See CRS 6-15-180.

General Notes:

1. The Pennsylvania Underground Utility Line Protection Act requires any person doing excavation or demolition work to:
 - A. Ascertain the location and types of utility lines at each work site.
 - B. Request location of lines from utility at least 3 working days before beginning excavation or demolition work (call 811).
 - C. Notify utility of any break or damage to its line made or discovered during excavation or demolition.
2. The depth dimension shown on sheet 5 is minimum. Deeper trenches may be required due to obstacles or to maintain the following separation from other utilities.
 - A. Water, sewer, etc. – 12 inches of earth.
 - B. Steam, heat mains – 72 inches of earth.
 - C. Propane – 36 inches of earth; never above electric.
 - D. Gas – 6 inches minimum; 12 inches preferred; not below electric without prior approval from both PPL EU and the appropriate gas utility.

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E. Communication – 6 inches minimum, 12 inches preferred.

Exception: Some communication companies may not require deliberate separation between their cables and PPL EU cables.

Occupational Safety and Health Administration (OSHA) approved shoring is required for trenches deeper than 60 inches.

3. Do not use power excavating equipment within 24 inches of any existing buried cables or other electrical or communications equipment.

4. Site Preparation - by Customer:

A. Clear ground of trees, stumps, roots, rocks, and other obstructions.

B. Rough grade trench route to within 6 inches of final grade and establish finished grade at transformer and equipment locations.

5. Primary and Secondary Trench Preparation - by Customer:

A. Excavate trench to the depth shown on Sheet 5.

B. PPL EU will be installing conduit in trenches. Conduit does not bend at right angles. Round off all intersections when excavating trenches. The radius of turns is 36 inches minimum, 48 inches preferred.

C. Material excavated from trench must be placed on only one side of trench and far enough away so piles of excavated material pose no danger or obstacle to people working in trench. Keep one side of trench clear so workers have clear access to trench.

D. Provide an adequate amount of bedding material for use as protective backfill over PPL EU conduits and to bed the bottom of rough/uneven trenches if required. Distribute bedding material along trench route on same side of trench as removed trench material.

E. Grade trench free of high spots, rock projections, stones, roots, and depressions. If the bottom of the trench is rough/uneven, PPL EU will require the developer to excavate 3 additional inches and bed the trench with stone fines or sand 3 inches deep.

F. Trench must be clear of standing water before PPL EU crews will install electric facilities.

6. Installation of Cable, Transformers, Etc. - by PPL EU:

A. Place conduit and cable in trench. See CRS 6-19-133 for service lateral requirements by customer.

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6. Installation of Cable, Transformers, Etc. - by PPL EU: continued:

B. Install transformer/equipment foundations and grounding.

7. Backfilling by Customer:

Bedding Material

A. Bedding material is stone screenings with fines or sand.

B. Install as required in this specification.

Select Backfill

A. Select backfill is:

- Earth removed from trench provided it is mostly soil which contains some round gravel but no stones larger than one inch in diameter.
- Flowable fill, self compacting cementitious material is also permitted for use as select backfill with prior approval.
- Material such as: stone screenings with fines or earth meeting definition (A) transported to the site by the customer at his cost. Shaley earth containing sharp angular stones, coal fines, fly ash, and/or cinders are not select backfill.

B. Install above the bedding material to complete backfilling of a trench.

Backfilling Procedures/Requirements

A. Using bedding material, cover conduits in layers and tamp carefully between layers until 12 inches above trench bottom.

B. Coordinate installation of communication cables and gas facilities.

C. Maintain spacings between the various utilities as shown on sheet 5. Once the gas company has completed covering their facilities, the remainder of the trench may be backfilled using select backfill. Backfill trench in layers, thoroughly tamping each layer to eliminate air pockets.

D. Do not run wheels or tracks of equipment along trench to compact backfill.

E. Trench must be backfilled to full depth before primary cable will be energized.

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7. Backfilling - by Customer: continued:

Cleaning of Duct - by Customer:

After installation, the contractor must clean debris from the ducts by pulling a stiff bristled brush and some clean rags through each conduit. A fish line must be provided in each conduit and all conduit ends must be temporarily plugged to keep them clean and dry.

Pulling Line - by Customer:

- A. The only acceptable pulling line is a flat polyester, woven, prelubed tape, 1/2 inch in width with a minimum breaking strength of 1200 pounds.
- B. When installing pulling line in PVC conduit, be sure conduit adhesive is dry before installing the pulling line to avoid gluing the pulling line to joint.
- C. When joining flat pulling line to PPL EU's flat pulling line, be sure to adequately knot the two pulling lines together. An example of a secure knot is shown within CRS 6-19-133.

8. Road Crossings:

- A. When trench crosses a street or road requiring a permit, PPL EU obtains necessary permits and performs necessary trenching and street restoration work.
- B. When circumstances require paving of customer-owned streets or driveways prior to placement of PPL EU facilities, customer installs PPL EU provided 4 inch and/or 6 inch PVC conduit. PPL EU will specify how conduits are to cross streets. There will be diagonal crossings as well as perpendicular crossing of streets.

Extend conduit at least 2 feet beyond edge of roadway. Clean all conduits and install PPL EU provided plugs in conduit ends. When a street crossing has multiple conduits, allow 4 inches to 6 inches of space between conduits. Install all conduits at the bottom of a 45 inch deep trench to match the depth of other trenches in the development.

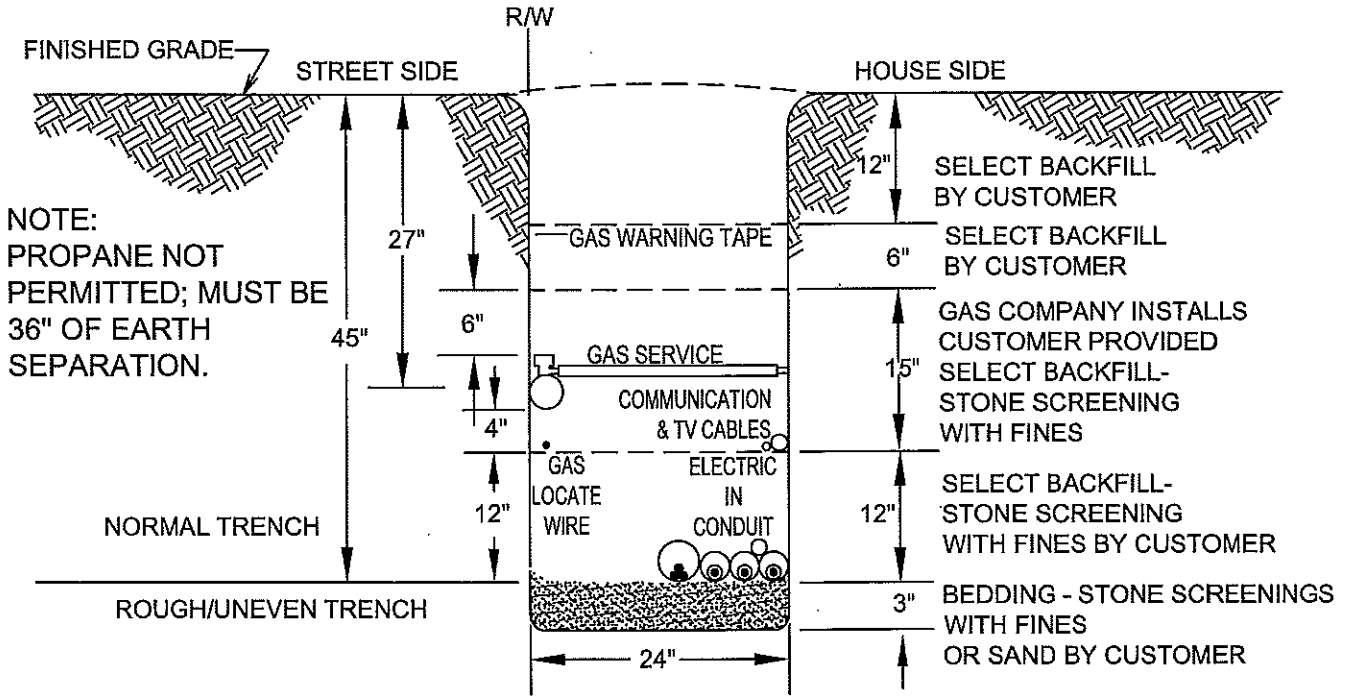
- C. Provide a smooth uniform surface for the conduit. Do not use bricks or other supports to bring conduit up to grade.
- D. Complete backfilling as outlined in Note 7, Sheet 4 and Sheet 5.

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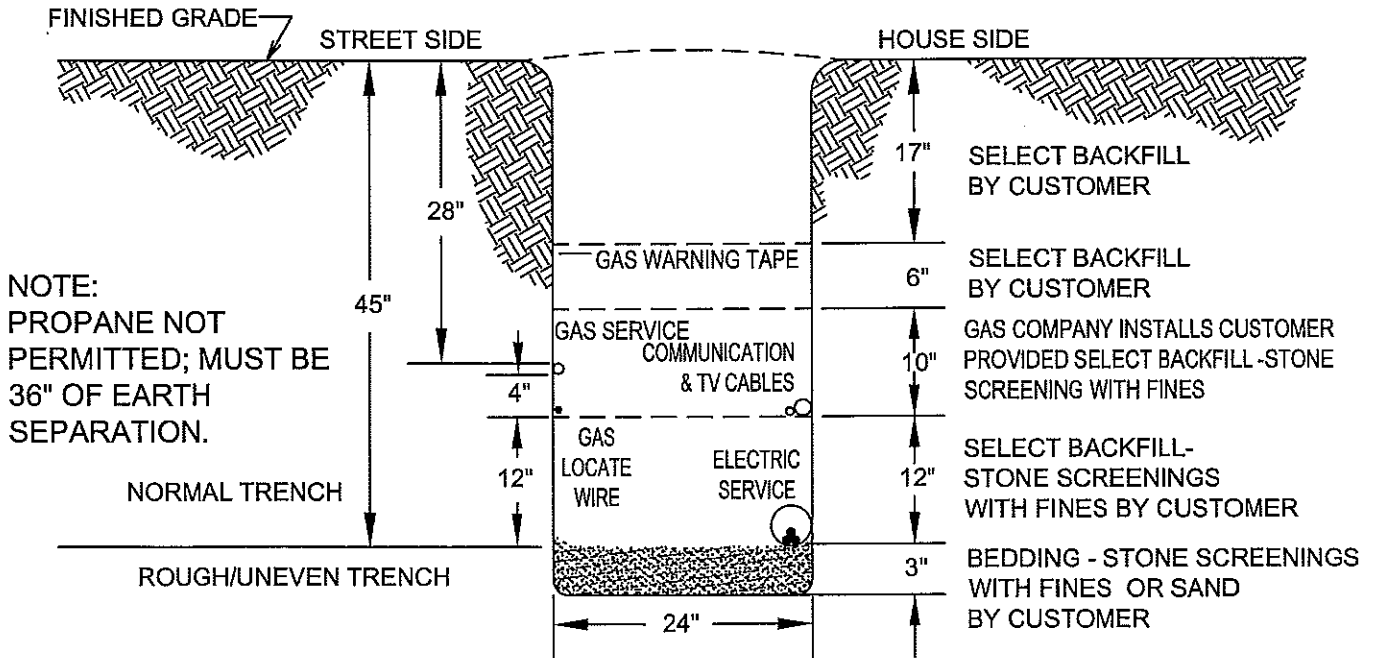
NOT TO SCALE

**JOINT ELECTRIC/GAS
Common Trench Main Lines**



NOT TO SCALE

**JOINT ELECTRIC/GAS
Common Trench Service Lines**



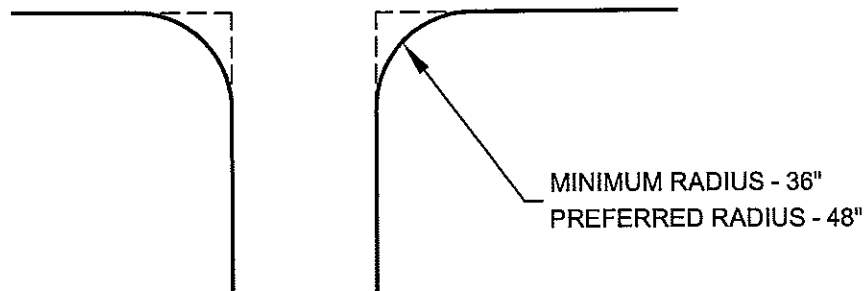
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NOT TO SCALE

Round off corners at trench intersections:

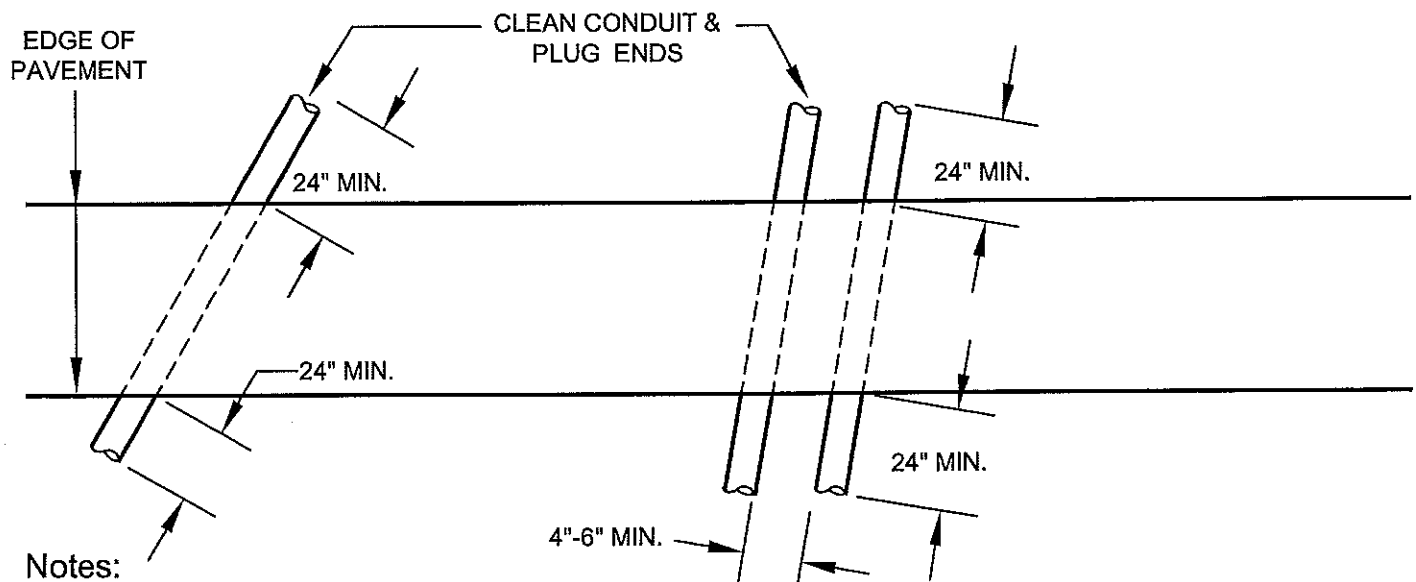


Notes:

1. Customer must coordinate with communication companies as to backfill and separation required for their cables.
2. Trenches over 60 inches deep must have OSHA approved shoring.

NOT TO SCALE

ROAD CROSSINGS



Notes:

- 1 PPL EU provides 4 inch and /or 6 inch PVC conduit and end plugs. Customer installs, cleans, and seals conduit.
2. Install conduit(s) at the bottom of a 45 inch deep trench.

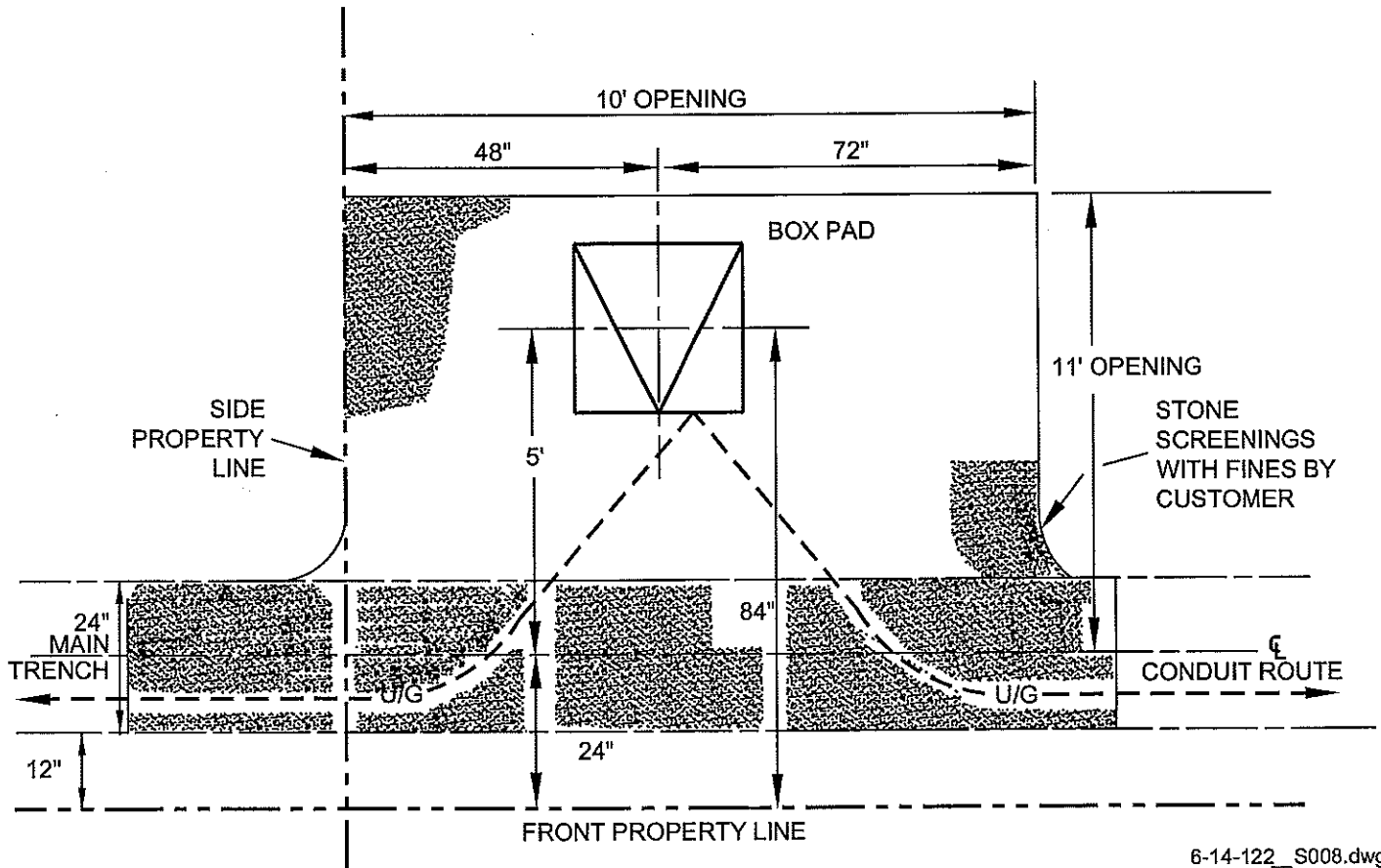
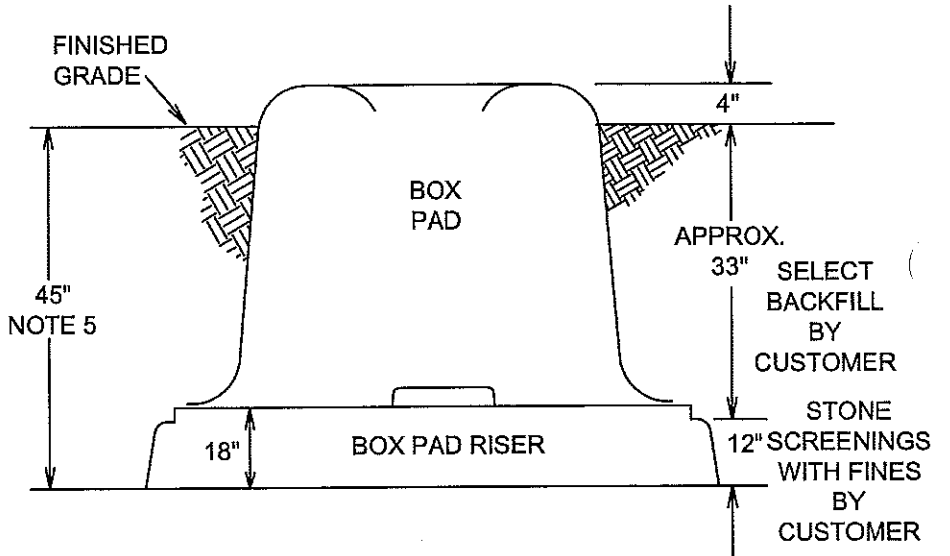
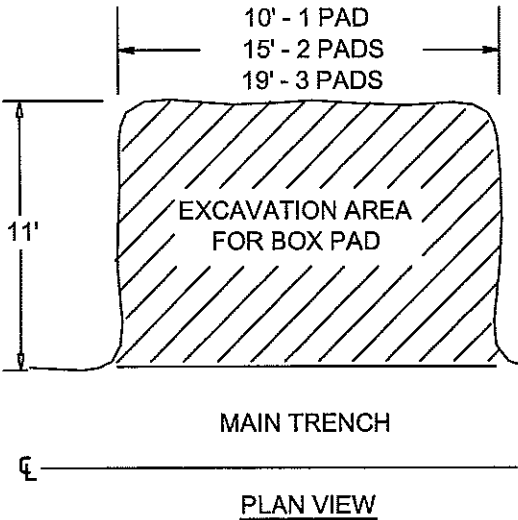
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NOT TO SCALE

BOX PAD EXCAVATION

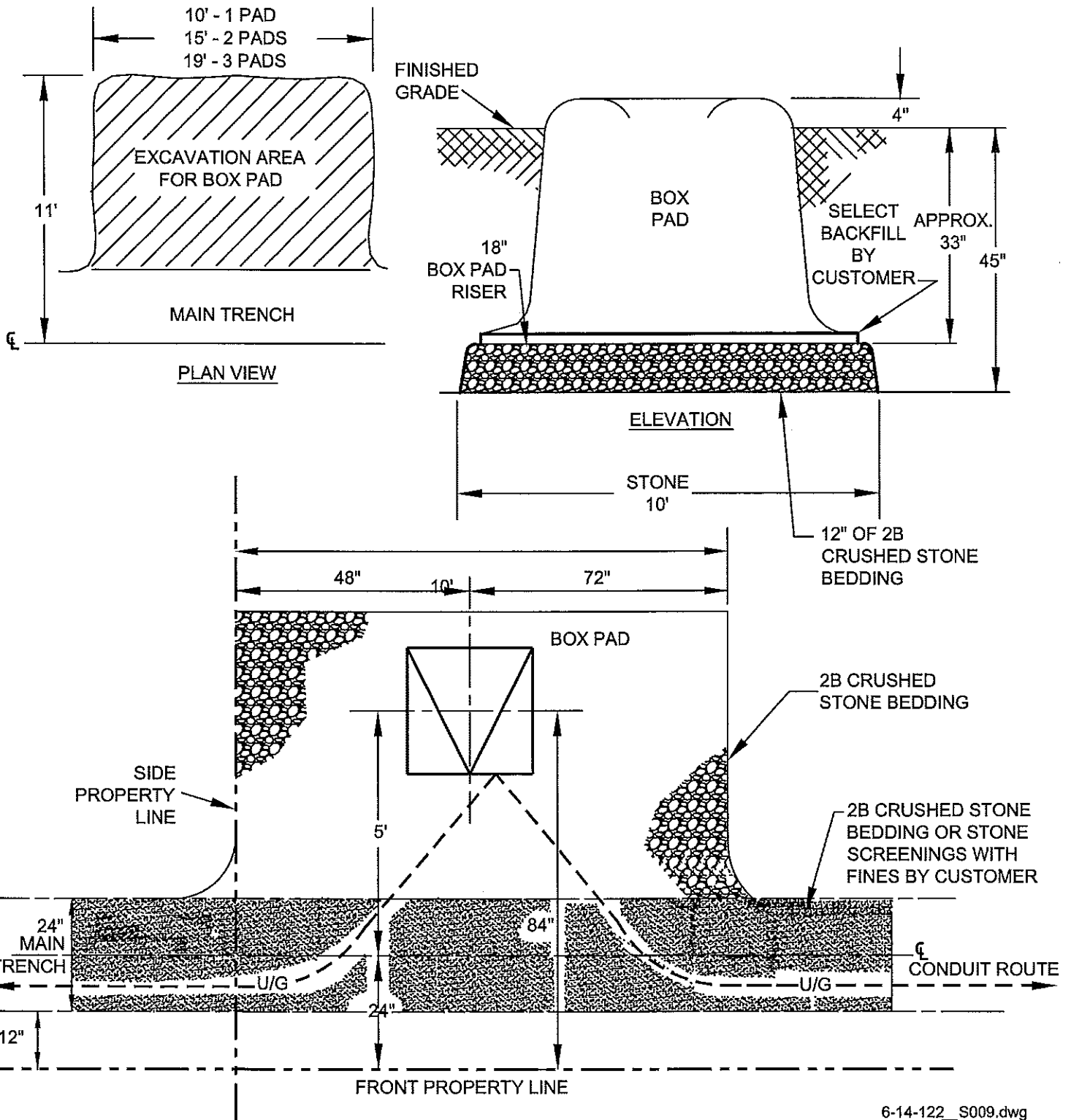


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NOT TO SCALE POOR DRAINAGE AREAS (AS DETERMINED BY LOCAL PPL EU PERSONEL)
INSTALL 12" OF 2B CRUSHED STONE WITHIN THE BOX PAD EXCAVATION
BOX PAD EXCAVATION



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