

SECTION 3 - TRENCHING

(Underground)

DISTRIBUTION STANDARDS MANUAL

CONTENTS

DIRECT BURIED CONDUCTOR CLEARANCE

FROM OTHER UNDERGROUND STRUCTURES1.1,1.2

TRENCH

SELECT BACKFILL MATERIALS2.1

DIRECT BURIED CABLE SYSTEMS.....2.2

JOINT TRENCH

RANDOM SEPARATION WITHOUT GAS.....3.1

ELECTRIC AND GAS CONSTRUCTION NOTES.....3.2,3.3

ELECTRIC AND GAS ON ROAD-SIDE OF TRANSFORMER.....3.4,3.5

ELECTRIC AND GAS ON HOUSE-SIDE OF TRANSFORMER.....3.6,3.7

GAS & ELECTRIC SERVICE3.8,3.9,3.10,3.11

ELECTRIC AND GAS CROSS SECTION3.12

G51 (TRENCH IN A CONDUIT SYSTEM)

INDEXx1.0

H51 [TRENCHING (FOR CABLES OVER 200 AMPS)]

INDEXx2.0

J51 (TRENCHING)

INDEXx3.0

SECTION 3 - TRENCHING

(Underground)

FROM OTHER UNDERGROUND STRUCTURES

It is NYSEG's preferred construction practice to maintain at least 12" horizontal separation from other underground structures in accordance with NESC Article 352a. This can include other power or communication facilities which are not in agreement with this random separation (NESC 354).

Where 12" horizontal separation cannot be obtained, a vertical separation may be applied as per NESC Article 352c.

NESC Article 352b identifies the vertical clearances for crossing that is generally accepted to be 12".

If gas is a joint party, page 3.12 typifies the installation without consideration for "other structures".

*** CAUTION MUST BE USED AS ALL PARTIES INVOLVED MUST AGREE TO THE METHOD. REFER TO PAGE 1.2 FOR DETAILS.**

DIRECT BURIED CONDUCTOR CLEARANCE

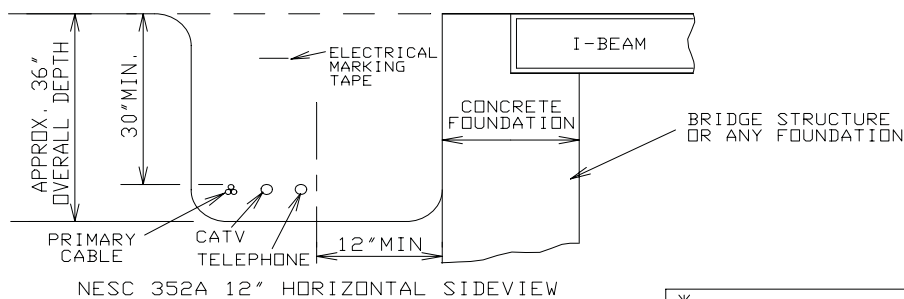
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SECTION 3 - TRENCHING

(Underground)

FROM OTHER UNDERGROUND STRUCTURES

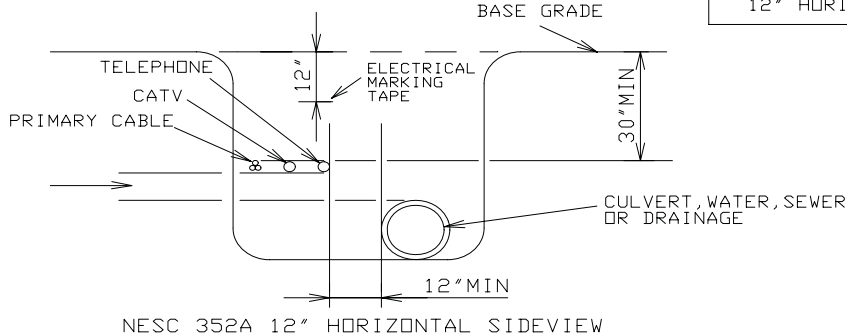
①



②

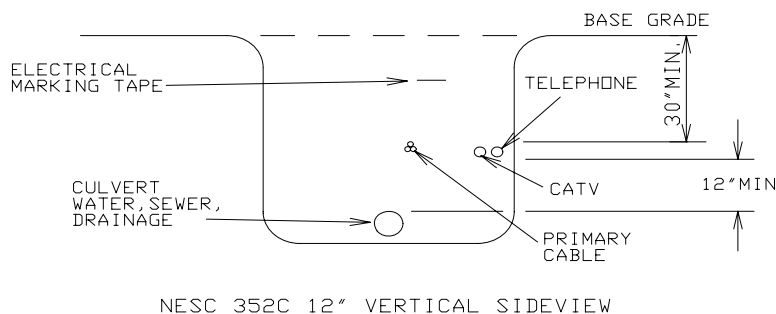
IN RANDOM
SEPARATION
IN ALL
EXAMPLES

NO VERTICAL
SEPARATION
REQ'D BY CODE

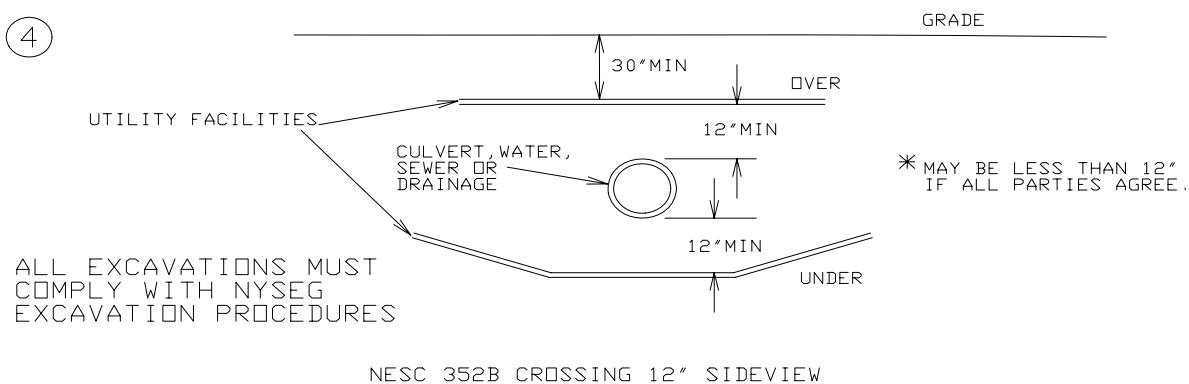


* PREFERRED PRACTICE
12\" HORIZONTAL

③



④



* MAY BE LESS THAN 12\"
IF ALL PARTIES AGREE.

DIRECT BURIED CONDUCTOR CLEARANCE

ISSUE NO. 1 DATE: MARCH 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

SELECT BACKFILL MATERIALS

USE

Select backfills shall be used to provide mechanical protection for underground distribution cables while not enhancing corrosion activity on bare concentric neutrals. These backfills can be especially useful in areas where a high percentage of rock exists in the soil.

Select backfill does not need to be used in areas where the native backfill is uniform and is clear of material that might damage the cable system.

REQUIREMENTS

The select backfill material shall in all cases be made up of sand particles with grain sizes of which at least 50 percent (by weight) will pass through a No. 200 (mesh per inch) sieve. ASTM Standard D-2487 shall be used as the guide for performing the sieve analysis and for classifying the backfills grain size distribution.

Acceptable ranges for the particle distribution of a backfill are as follows:

Mechanical Analysis

<u>Sieve Size</u>	<u>Particle Distribution</u> (percent finer by weight)
3/8"	100
No. 40	60 to 90
No. 200	50 or more

The grain size distribution of the select backfill shall be checked routinely with at least two (2) samples per supplier taken yearly. Test results from a soil testing laboratory shall be received for each sample. A copy of the test results and any questions concerning the adequacy of a particular select backfill should be forwarded to the Distribution Engineering Section of Power Delivery Operations.

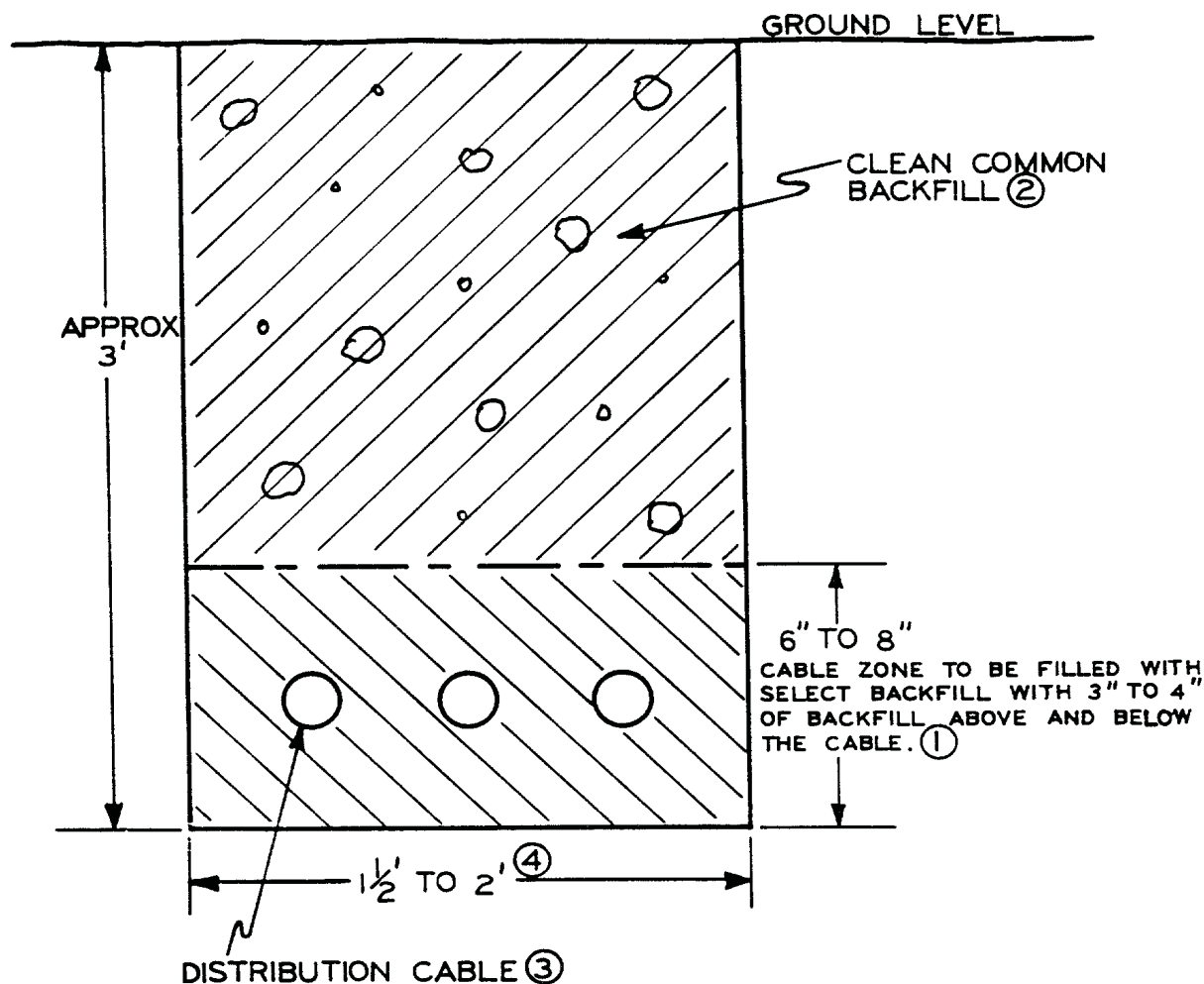
TRENCH

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SECTION 3 - TRENCHING

(Underground)

DIRECT BURIED CABLE SYSTEMS



NOTES:

1. Refer to page 2.1 for the specifications covering the supply of select backfill.
2. Clean common backfill is defined as soil that is free of debris including large (2") stones, or any other objects that might damage the cable system.
3. The trench cross section also applies to single-phase installations.
4. Width may vary to accommodate joint trench installations. Refer to pages 3.1-3.7 for joint trench requirements.

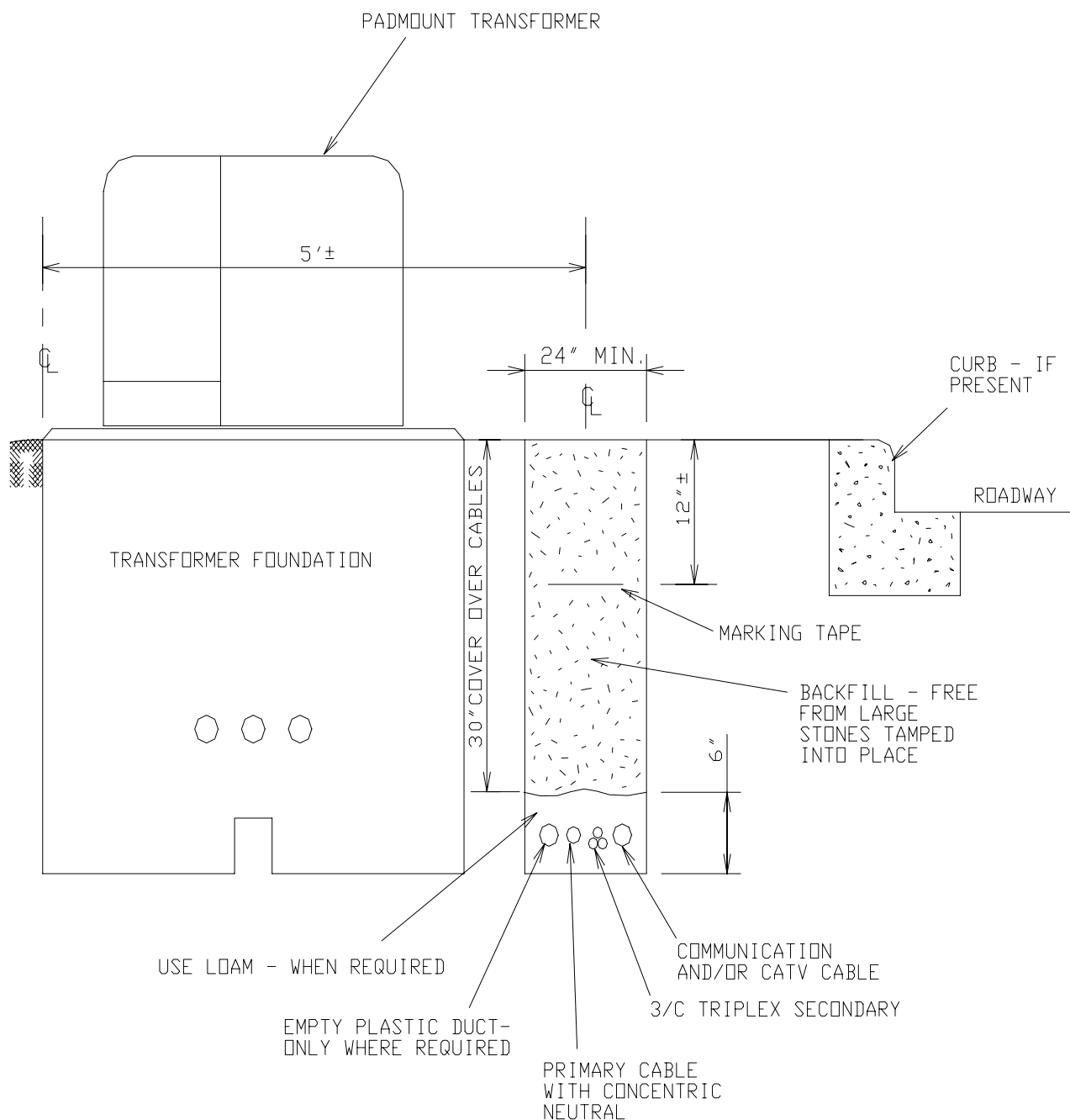
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SECTION 3 - TRENCHING

(Underground)

RANDOM SEPARATION WITHOUT GAS



ALL EXCAVATIONS MUST COMPLY WITH
NYSEG EXCAVATION PROCEDURES.

JOINT TRENCH

ISSUE NO. 2 DATE: MARCH 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

ELECTRIC AND GAS CONSTRUCTION NOTES

The following notes apply to the installation of gas and electric facilities in joint trench arrangements. These notes apply to Gas Standards 181.6.2 to 181.6.12 and Electric Standards, pages 3.2 -3.12.

1. As always, good coordination between all of the joint trench parties [electric, gas, cable television (CATV), and telephone and the customer or contractor] is essential if cost savings associated with joint trenching are to be maximized.
2. If work in an existing joint trench is necessary, follow all approved company procedures for locating the facilities.
3. Reference the appropriate Section 3 standards for construction details covering gas and electric joint trench installations.
 - a. Separators (spacers) should be spaced, as needed, to maintain a 12-inch separation between gas and random lay facilities (i.e. electric, telephone and CATV).
 - b. Gas service tees should be installed in conjunction with road crossing work.
 - c. The electric meter shall be installed on the front corner on the end of the house. The gas meter shall be installed near the electric meter, but sufficiently toward the rear of the house in order to:
 - 1) Maintain a 12" minimum horizontal separation between the gas meter regulator and the electric meter cabinet.
 - 2) Maintain a 6" minimum horizontal separation between any gas piping and the electric meter cabinet.
 - d. Gas regulator should be located at least 18 inches away from any opening into the structure. Where practical, the gas regulator should not be located under a window capable of being opened.
 - e. Electric lines should be installed below gas facilities at crossings. Vertical separation between electric and gas facilities shall be as follows:

	<u>*PREFERRED</u> <u>VERTICAL CLEARANCE</u>	<u>**ALTERNATE</u> <u>VERTICAL CLEARANCE</u>
Gas Main Line	6" minimum	2" minimum
Gas Service Line	6" minimum	2" minimum

* Backfill should be well-compacted so as to minimize settling such that this separation is maintained.

** Alternate vertical clearances in the above table are allowed if the gas facility is adequately protected from damage that might result from the proximity of another structure. Such protection might consist of a split conduit sleeve placed under the gas facility .

JOINT TRENCH

ISSUE NO. 4 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. FD

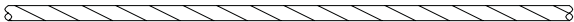
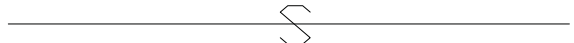




SECTION 3 - TRENCHING

(Underground)

ELECTRIC AND GAS CONSTRUCTION NOTES

- f. THE BOTTOM OF THE TRENCH SHALL BE REASONABLY LEVEL AND FREE OF ALL ROCK AND OTHER SHARP OBJECTS. IF THE FACILITIES ARE TO BE INSTALLED IN EITHER A ROCK EXCAVATION OR SOIL WHICH MAY DAMAGE IT, A BEDDING OF THREE INCHES MINIMUM OF SMALL PARTICLE-SIZE SOIL SHALL BE PLACED IN THE TRENCH PRIOR TO THE INSTALLATION OF THE FACILITIES. AS A RULE, SMALL PARTICLE-SIZE MATERIAL SHALL BE CONSIDERED AS MATERIAL WHICH IS EITHER ROUNDED AND CONTAINS PARTICLES 1/2 INCH OR LESS IN DIAMETER, OR SAND. A SMALL PARTICLE-SIZE SOIL SHALL BE PLACED OVER THE FACILITIES FOR A DEPTH OF 6 INCHES.
- g. IT IS PREFERRED THAT ALL UTILITIES SHALL BE INSTALLED AT THE SAME DEPTH (HORIZONTAL CONSTRUCTION)
- h. IF CATHODIC PROTECTION IS USED ON THE GAS FACILITIES, AND THE ELECTRIC SYSTEM INCLUDES A BARE METALLIC NEUTRAL, THE APPROPRIATE MEASURES (SUCH AS BONDING) SHALL BE TAKEN TO MITIGATE STRAY CURRENT EFFECTS ON THE BARE METALLIC NEUTRAL.
- i. GAS FACILITIES SHOULD BE INSTALLED TO THE RIGHT SIDE (AS FACING THE HOUSE) OF PADMOUNTED EQUIPMENT. A 12" SEPARATION SHOULD BE MAINTAINED BETWEEN GAS FACILITIES AND THE CONCRETE FOUNDATION FOR PADMOUNTED EQUIPMENT.
- j. FACILITY LOCATION IS PREFERRED TO BE ON PRIVATE PROPERTY. THE HIGHWAY EASEMENT CAN BE USED AS AN ALTERNATE LOCATION AS CONDITIONS DICTATE.

4. DRAWING KEY IS AS FOLLOWS:

ELECTRIC PRIMARY	
ELECTRIC SECONDARY	
ELECTRIC SERVICE	
GAS (MAIN & SERVICE)	
CONDUIT	
CATV	

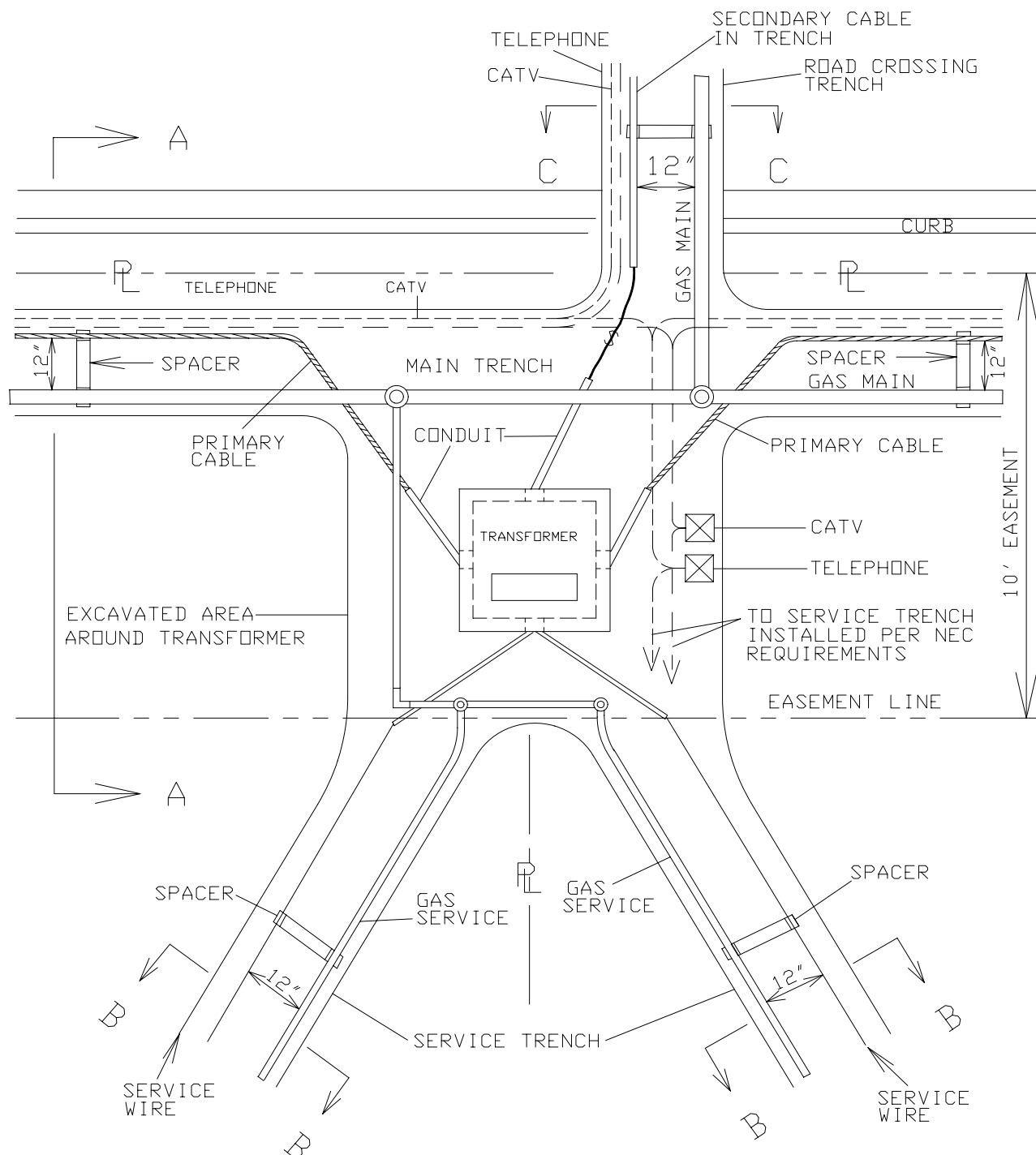
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SECTION 3 - TRENCHING

(Underground)

ELECTRIC AND GAS ON ROAD-SIDE OF TRANSFORMER



REFER TO PAGE 3.12 FOR SECTION DETAILS.

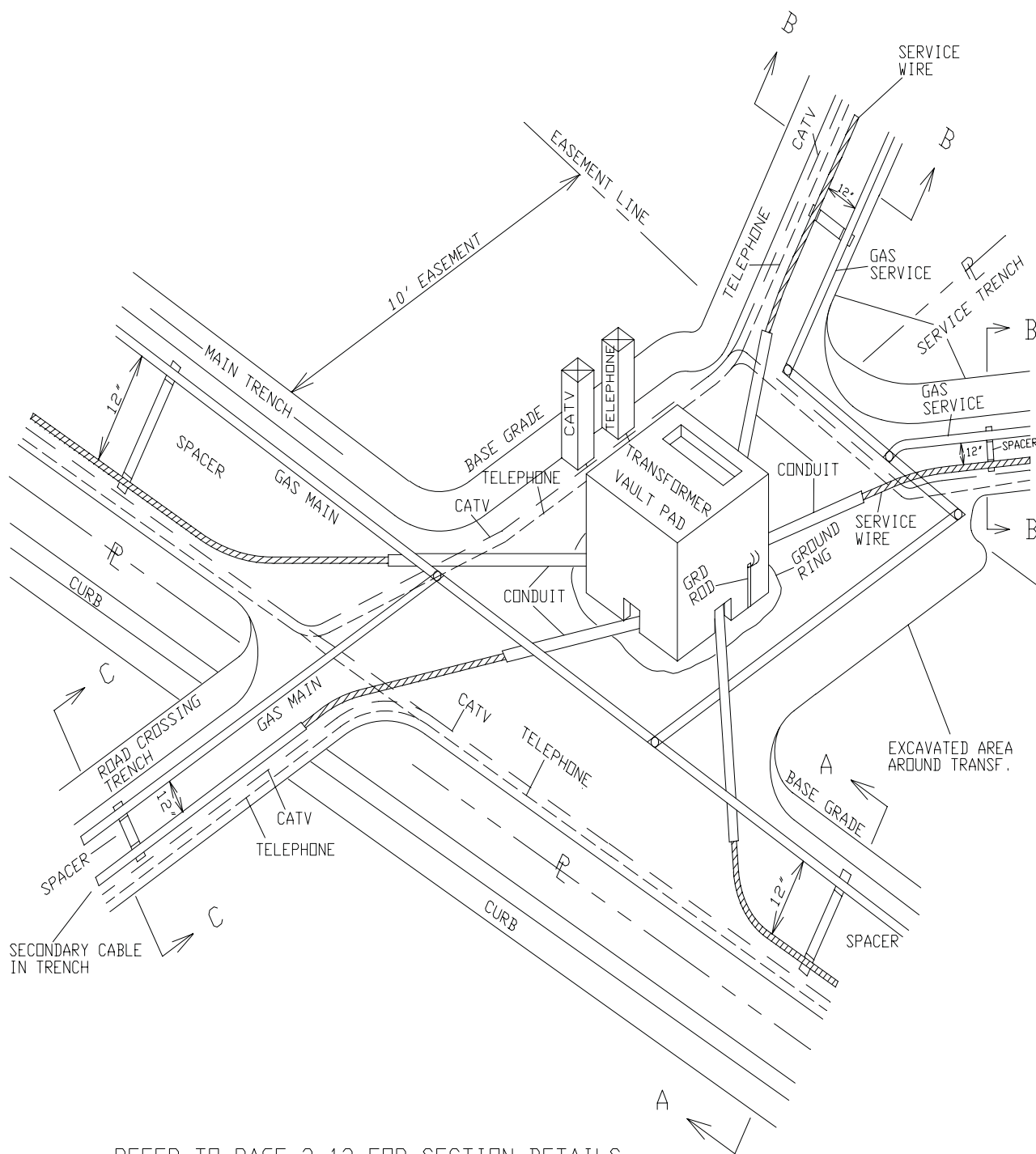
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ISSUE NO. 4 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

ELECTRIC AND GAS ON ROAD-SIDE OF TRANSFORMER



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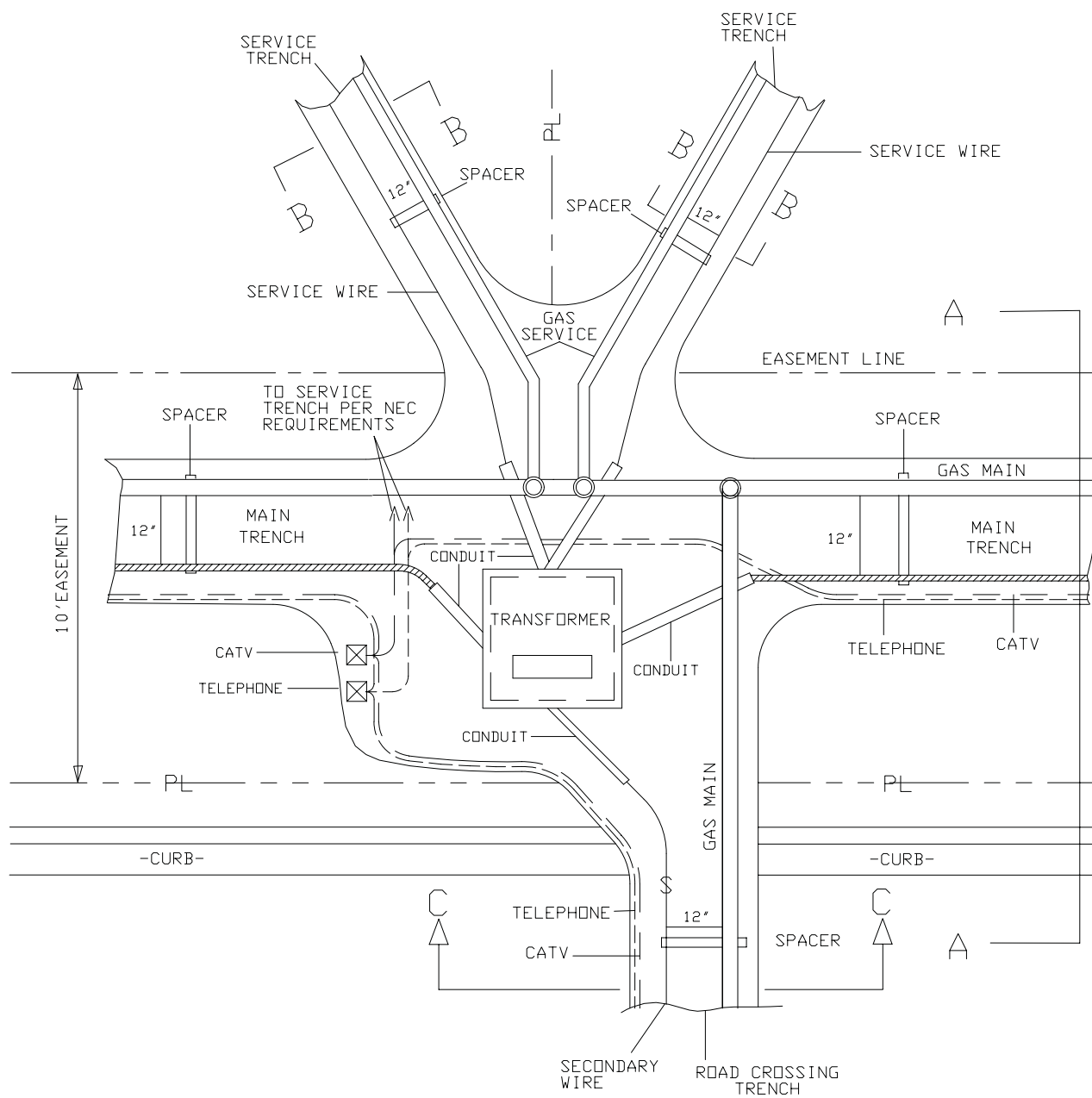
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SECTION 3 - TRENCHING

(Underground)

ELECTRIC AND GAS ON HOUSE-SIDE OF TRANSFORMER



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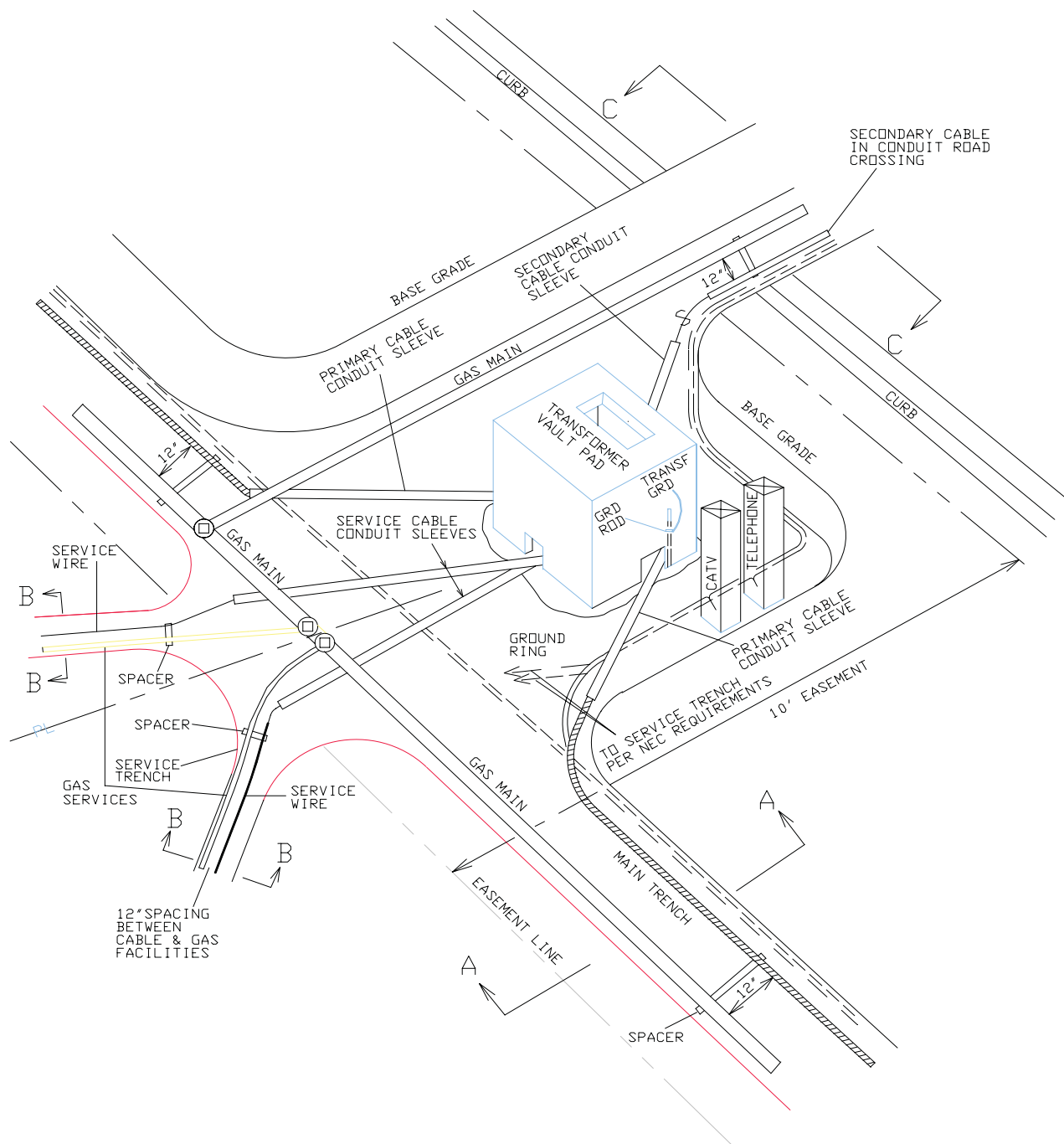
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ISSUE NO. 4 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

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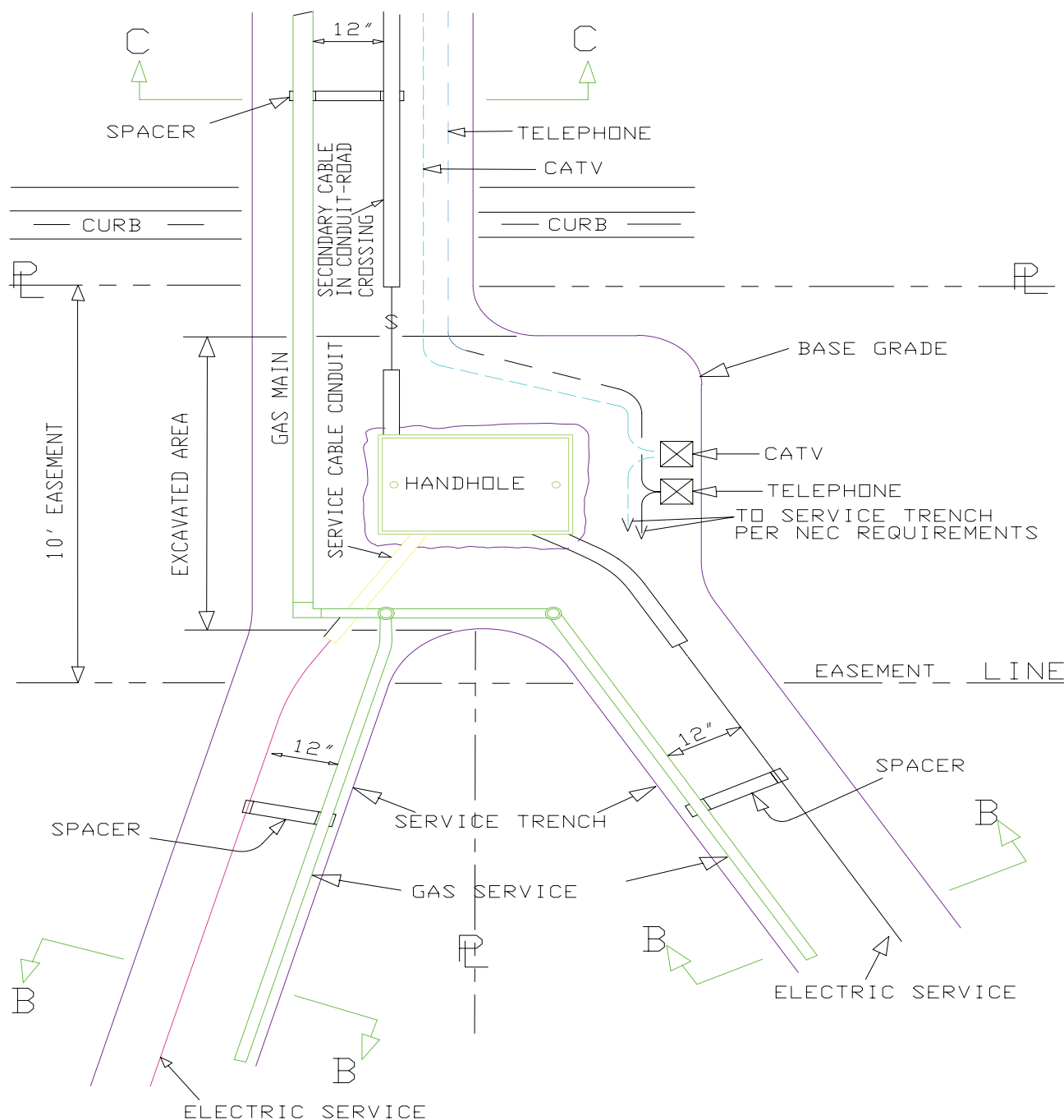
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ISSUE NO. 2 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

GAS & ELECTRIC SERVICE



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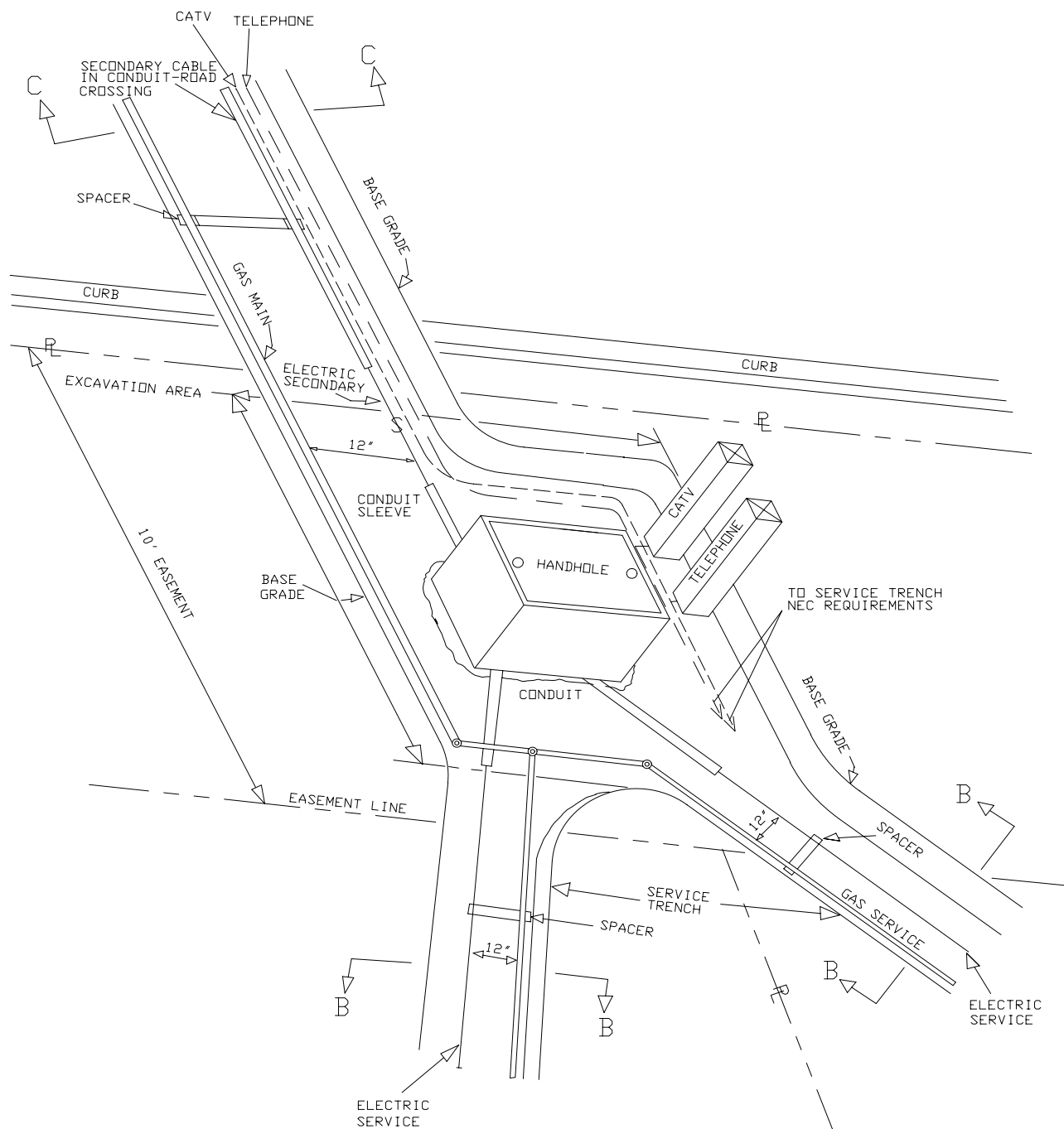
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ISSUE NO. 2 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

GAS & ELECTRIC SERVICE



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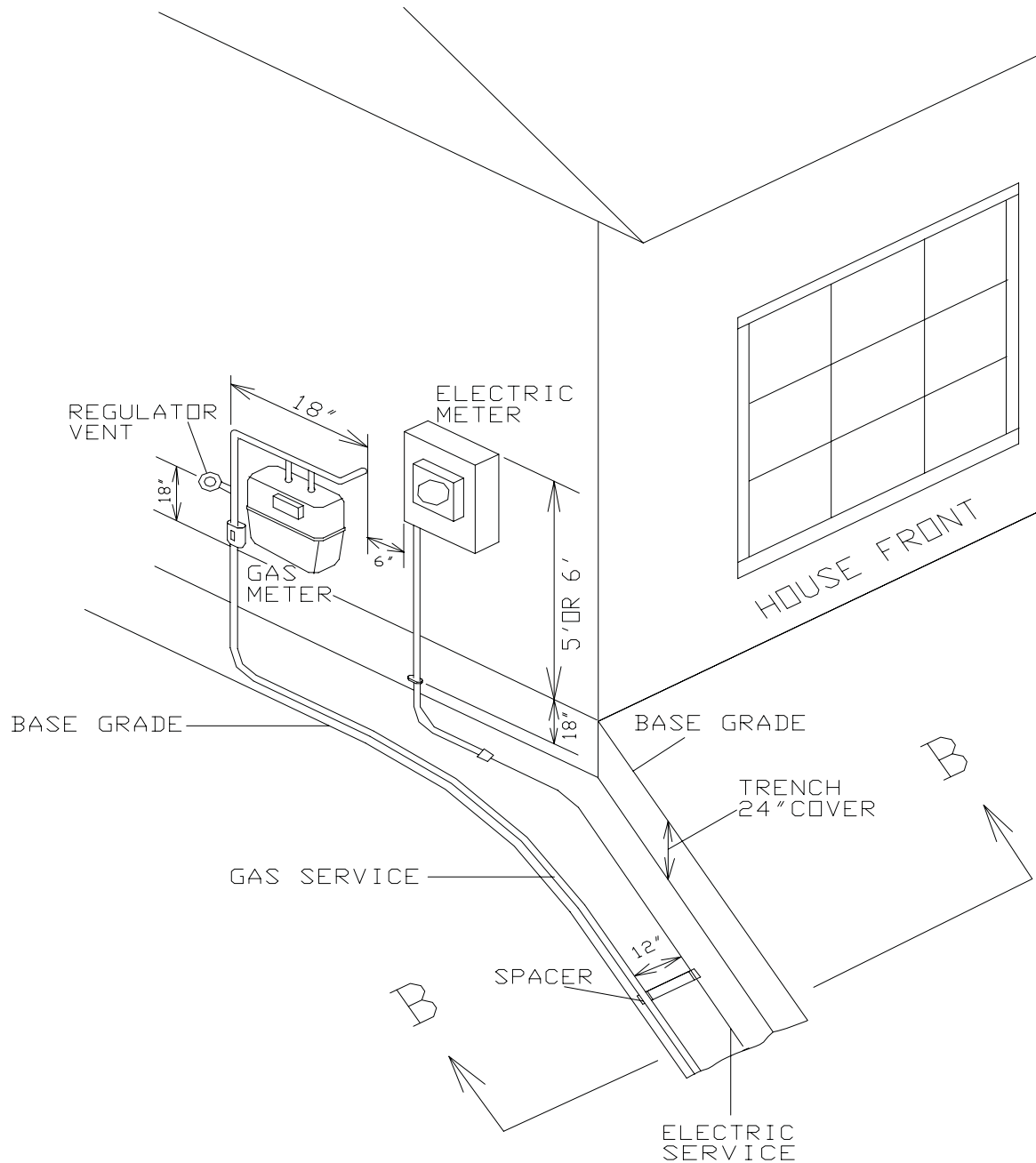
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ISSUE NO. 2 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

GAS & ELECTRIC SERVICE



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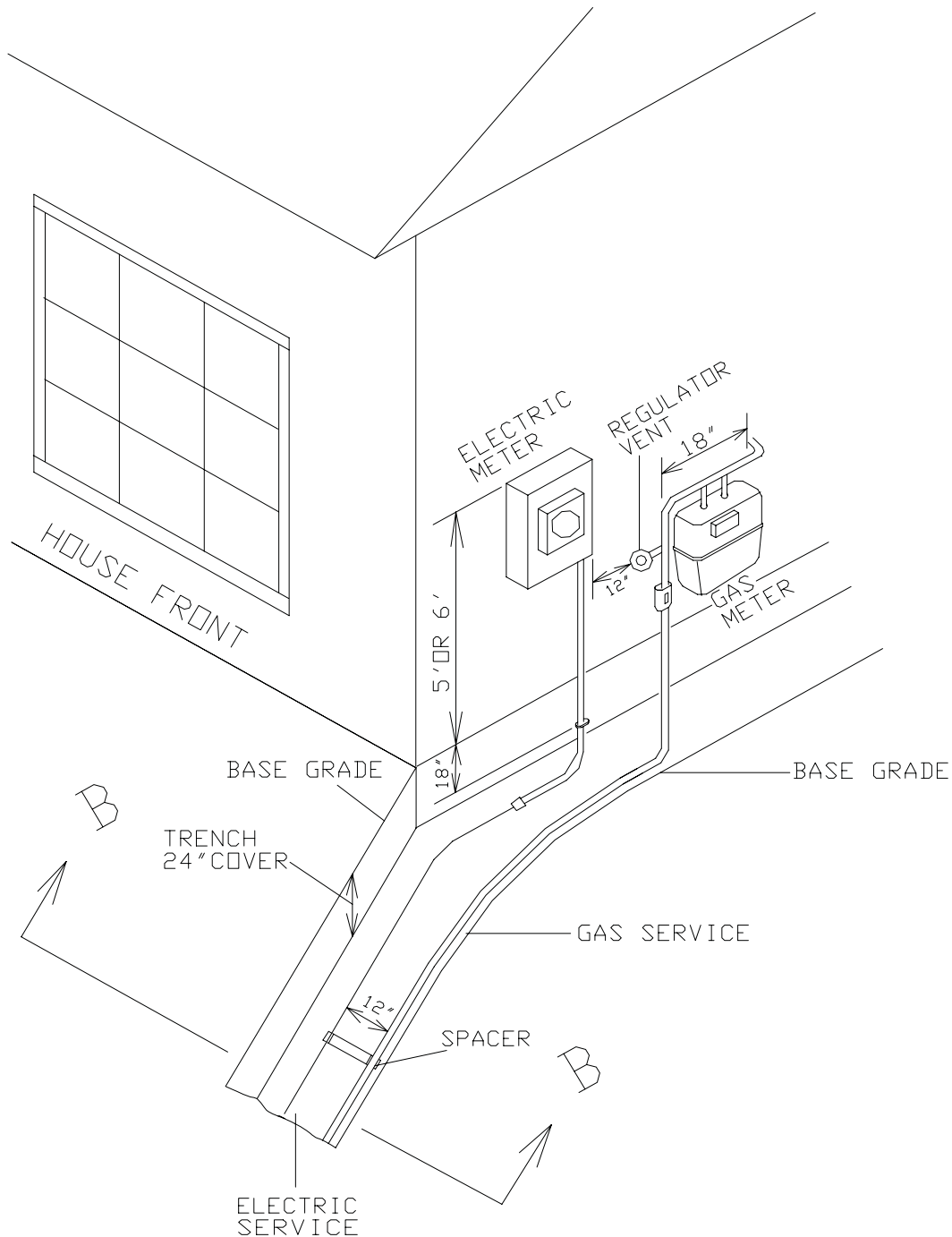
JOINT TRENCH

ISSUE NO. 4 DATE: SEPTEMBER 1992 DR. MJU CKD. RJN APPR. JAS

SECTION 3 - TRENCHING

(Underground)

GAS & ELECTRIC SERVICE



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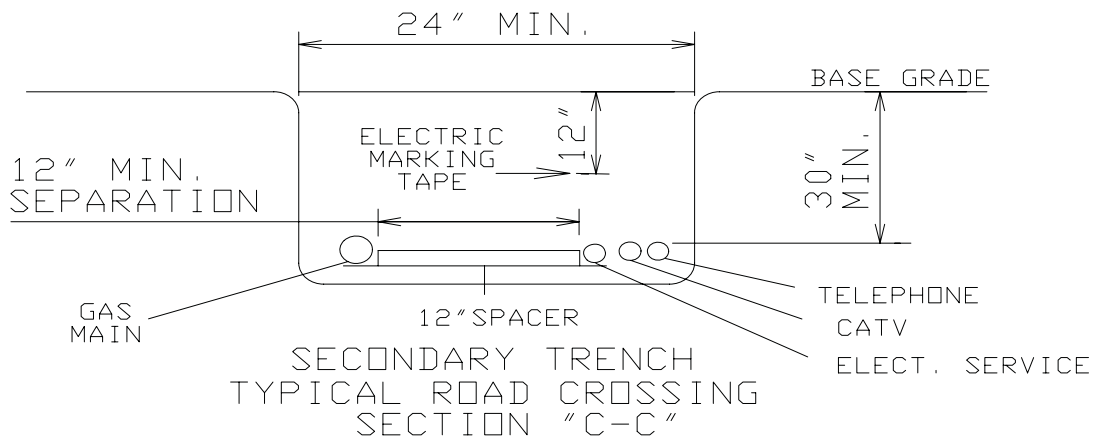
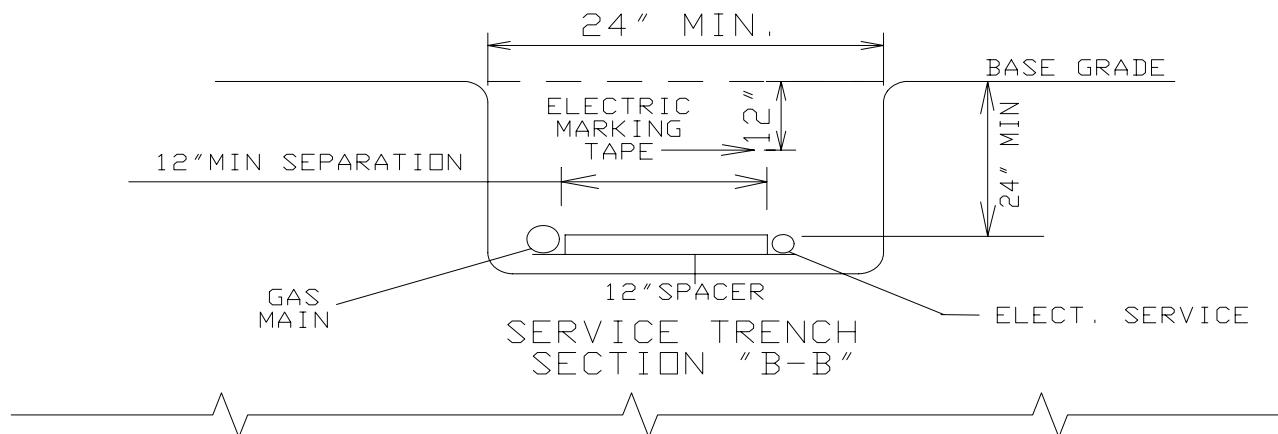
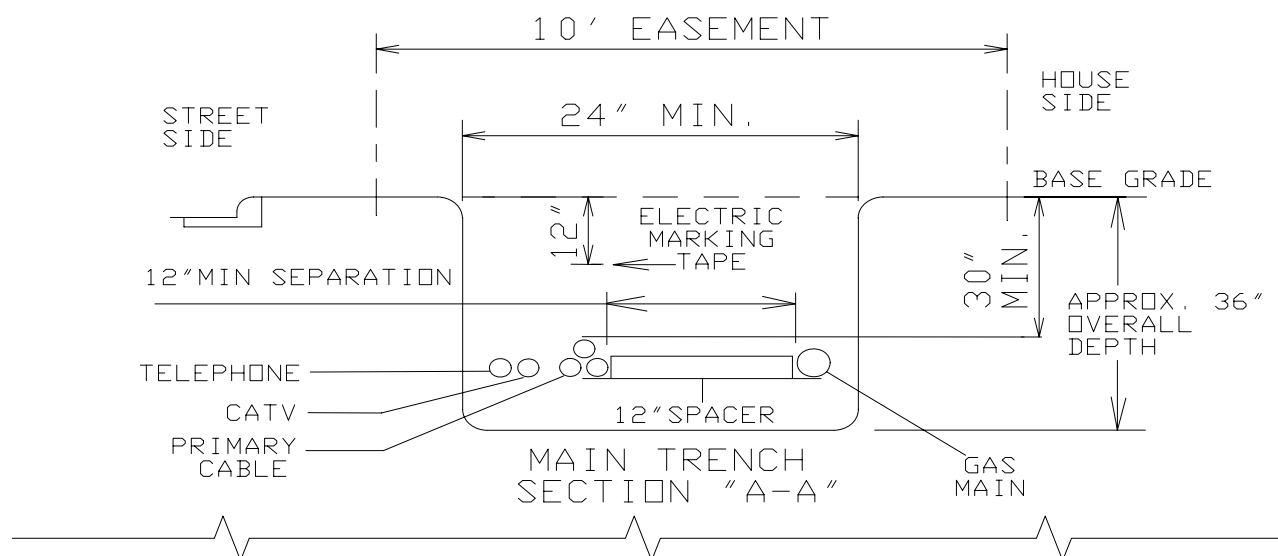
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SECTION 3 - TRENCHING

(Underground)

ELECTRIC AND GAS CROSS SECTION



JOINT TRENCH

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