GUIDELINES FOR CONDUIT INSTALLATION

1. General

These specifications provide CHELCO's requirements for the construction of underground electric power distribution facilities.

All construction work shall be done in a thorough and workmanlike manner in accordance with the conduit design layout, plans, construction drawings and/or other specifications provided.

All design and construction shall comply with the previsions of the current edition of the National Electrical Safety Code, except where local regulation or other regulations are more stringent. In which those regulations shall govern.

2. Design Review and Changes

The Contractor shall review the conduit design layout prior to the start of construction and propose any desired changes or clarifications needed.

No changes will be made to the design or facility placement without prior approval by CHELCO.

3. Trenching Requirements

All trenching depths specified are minimums as measured from the final grade to the top surface of the conduit.

The routing plans and trench specifications shall be as shown on the conduit design layout.

Where trenches are intended for more than one conduit, particular care must be taken to prevent soil falling into the trench during the lying of the first ducts, thereby reducing the depth of the last installed conduits.

All trenches shall follow straight lines between staked points to the greatest extent possible.

4. Conduit Requirements

The electric power distribution conduit of the size designated on the conduit design layout shall consist of a minimum of schedule 40 PVC electrical grade, gray in color. Schedule 80 is required for any portion that will remain above grade.

If continuous (bore) duct is used it must be SDR-13.5 Red.

Caution tape must be installed 1' over top of all primary and secondary conduit.

All exposed ends of the conduit shall be plugged to prevent the entrance of foreign matter and moisture into the conduit.

2,500 psi mule tape must be installed in all primary and secondary conduit.

There shall be a minimum of twelve inches of fill between electrical conduit and other cable T.V. or telecommunications lines.

There shall be a minimum of sixty inches of fill between electrical conduits and any natural gas supply lines.

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When design indicates a turn in conduit routing, which requires a manufactured sweeps to accomplish the turn, a sweep with a minimum length of 3 feet shall be used where three-inch conduit is being used, and a sweep with a minimum length of 4 feet shall be used where four-inch conduit is being used.

5. Minimum Depth Requirements

Conduit for the purpose of installing cable for primary and secondary voltage shall be installed **no less than 48**" below final grade. Conduit can be bundled in a joint use trench application as long as 48 inches of cover remains from the top of the conduit bundle.

Conduit for service wire only shall be no less than 36" below final grade.

Conduit for decorative lighting only shall be no less than 30" below final grade.

6. Minimum Equipment Clearances

Consideration shall be given to maintain required clearances from building, fire hydrants etc. when turning up conduit at equipment locations. Below are some common equipment clearances required.

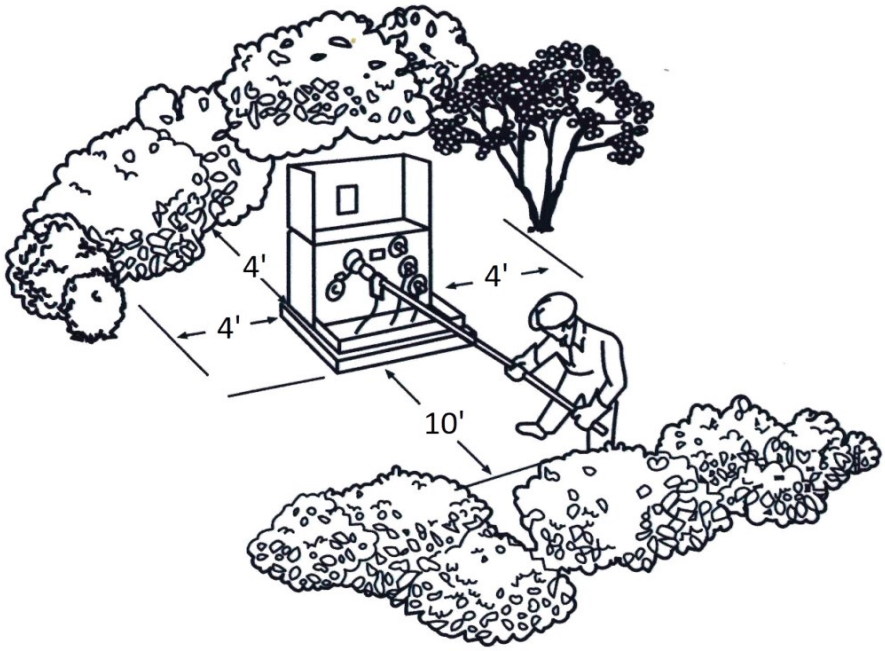
Pad Mounted equipment (oil filled) from buildings and structures 10 (ft)

Pad Mounted equipment from fire hydrants 4 (ft)

Underground primary and secondary from swimming pools 5 (ft)

Clearance from any landscaping on back and sides 4 (ft)

Clearance from any landscaping on front (door) side 10 (ft)



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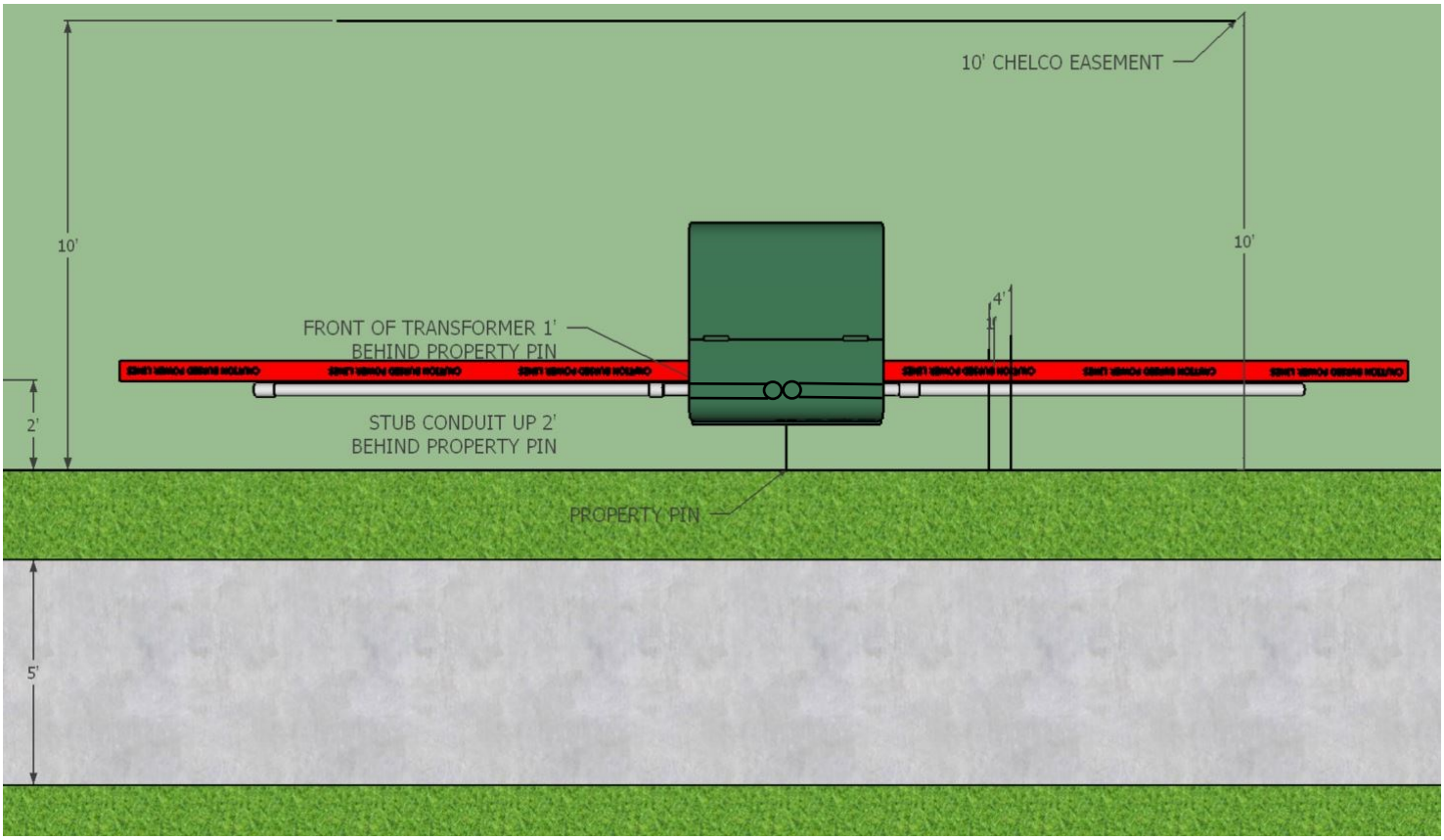

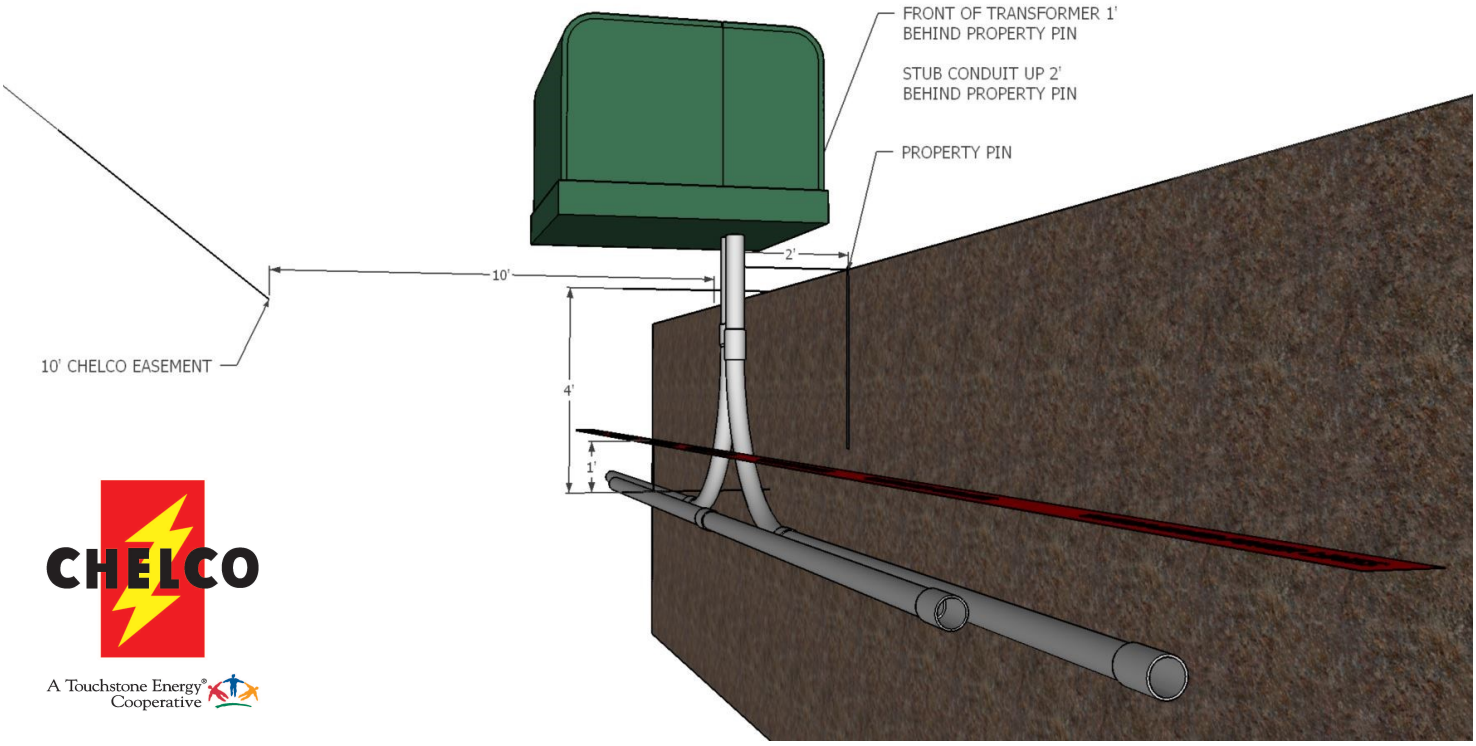

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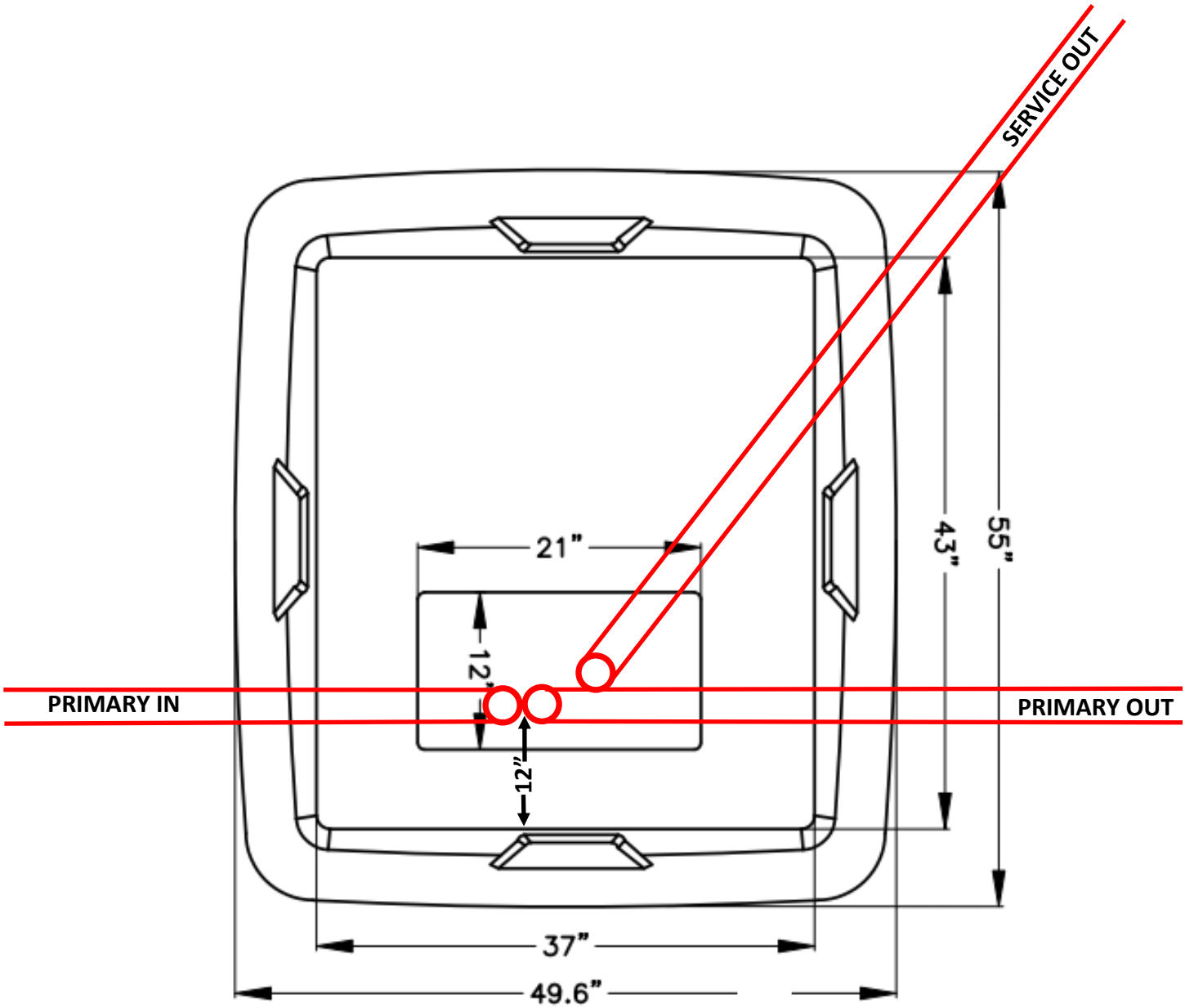
Conduit Installation Guide

Single Phase Transformer

- Minimum 48” cover over top of conduit
- 1’ backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90’s



ROAD/FRONT SIDE

MINIMUM DISTANCE BETWEEN PRIMARY AND SECONDARY DUCTS TO STAY WITHIN 21" X 12" WINDOW

PRIMARY ON THE LEFT

SECONDARY ON THE RIGHT

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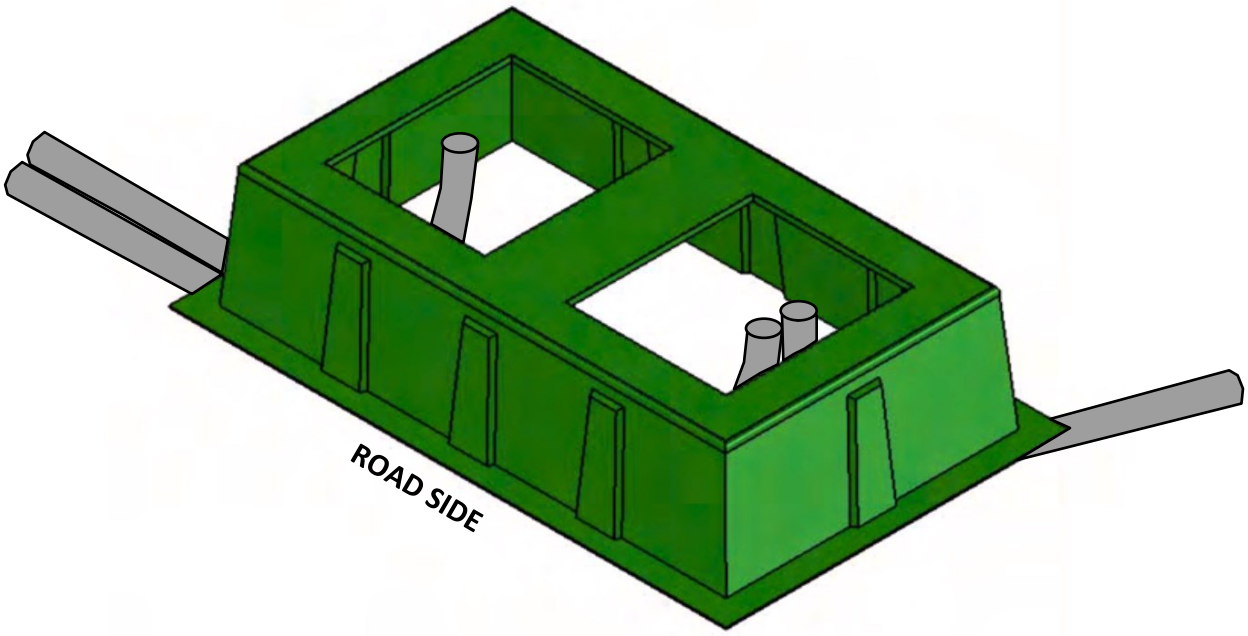
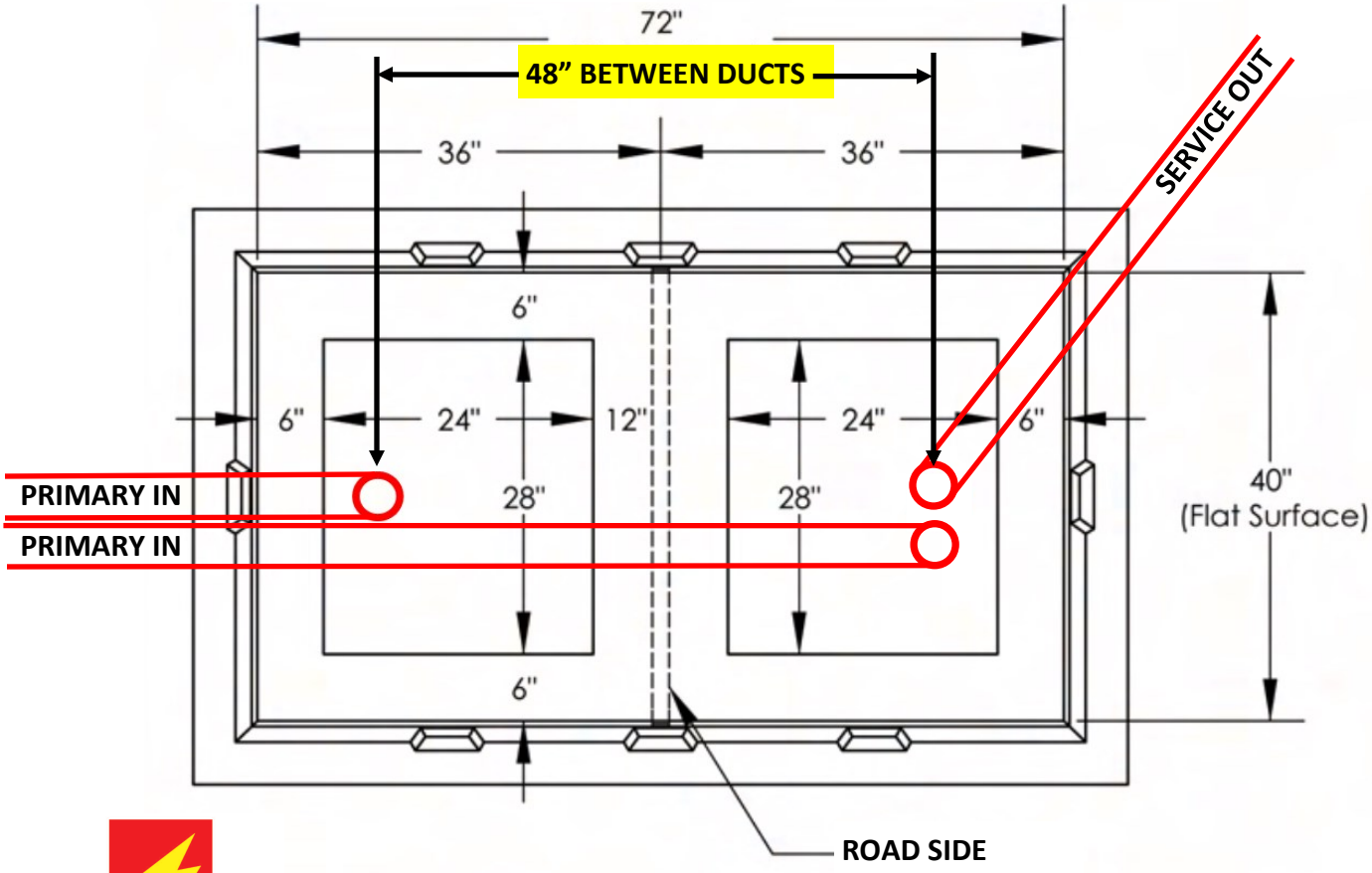
Conduit Installation Guide

Single Phase Transformer

- Minimum 48" cover over top of conduit
- 1' backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90's





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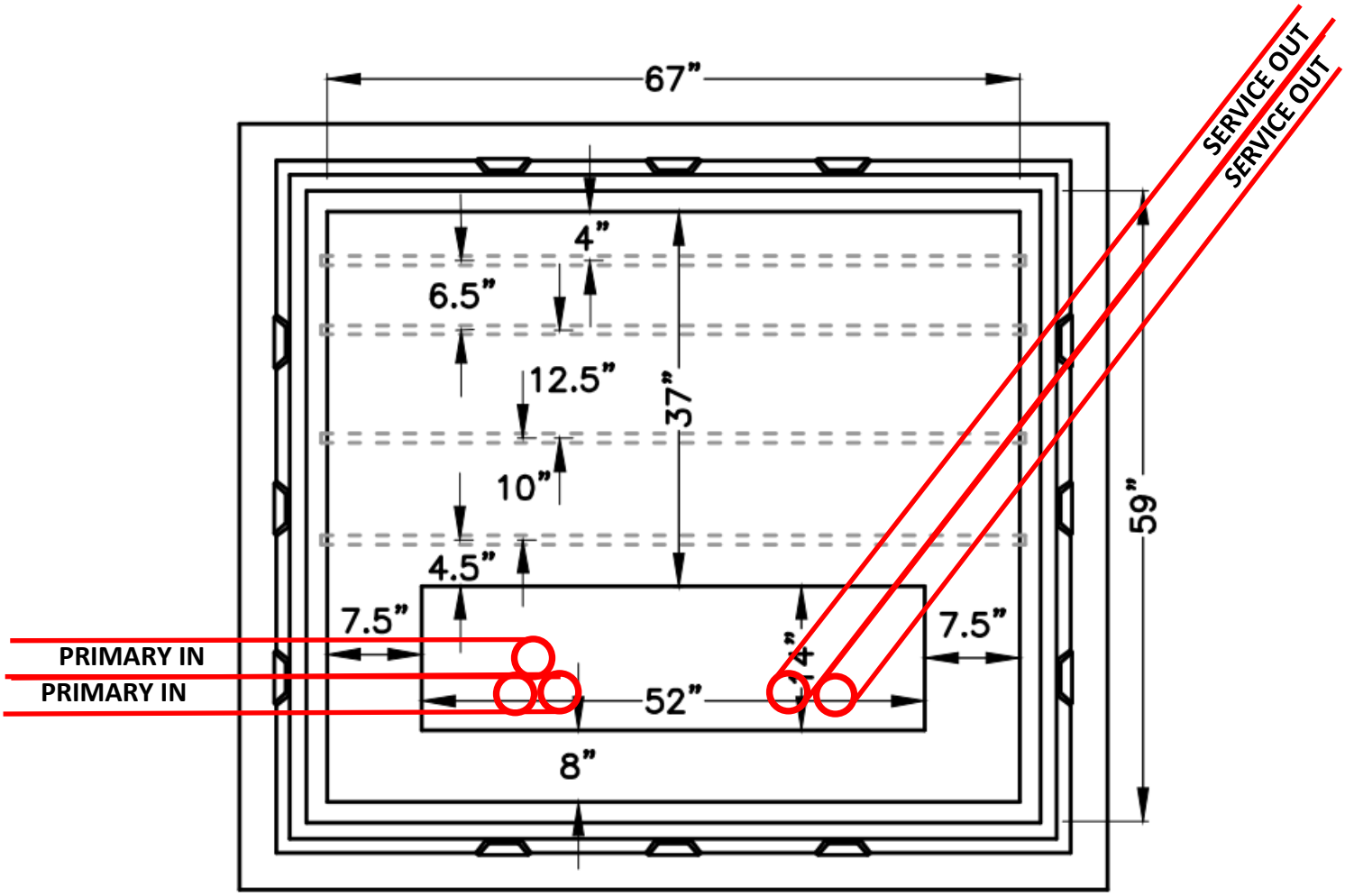
Conduit Installation Guide

Open Delta Transformers

- Minimum 48” cover over top of conduit
- 1’ backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90’s



ROAD/FRONT SIDE

18” BETWEEN PRIMARY AND SECONDARY DUCTS TO STAY WITHIN 52" X 14” WINDOW

PRIMARY ON THE LEFT

SECONDARY ON THE RIGHT

FLAT SURFACE 67” X 59”

BOTTOM 88.5” X 77.5’

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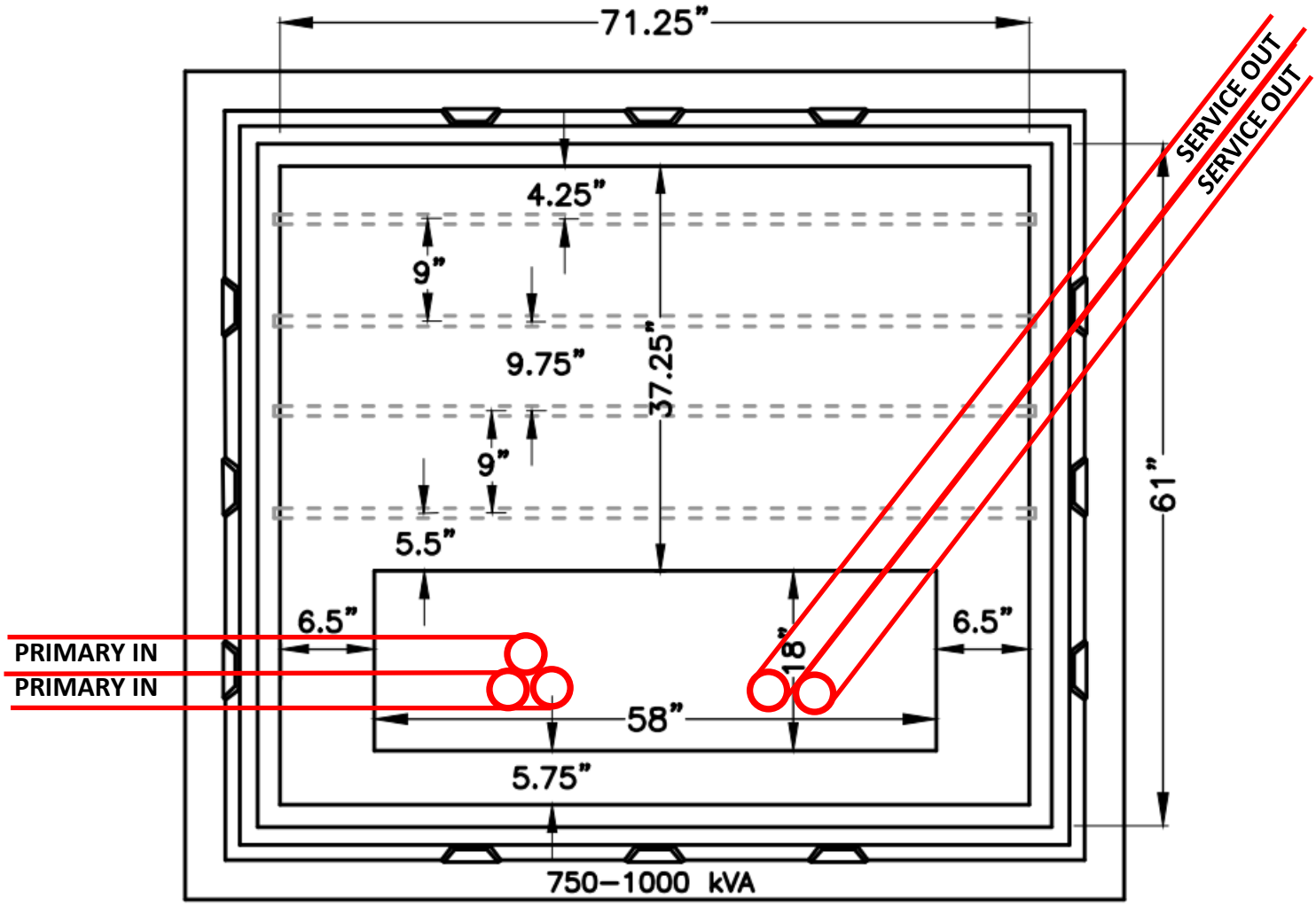
Conduit Installation Guide

Three Phase Transformer up to 500 KVA

- Minimum 48” cover over top of conduit
- 1’ backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90’s



ROAD/FRONT SIDE

18” BETWEEN PRIMARY AND SECONDARY DUCTS TO STAY WITHIN 58" X 18” WINDOW

PRIMARY ON THE LEFT

SECONDARY ON THE RIGHT

FLAT SURFACE 71.25” X 61”

BOTTOM 89.75” X 80.5’

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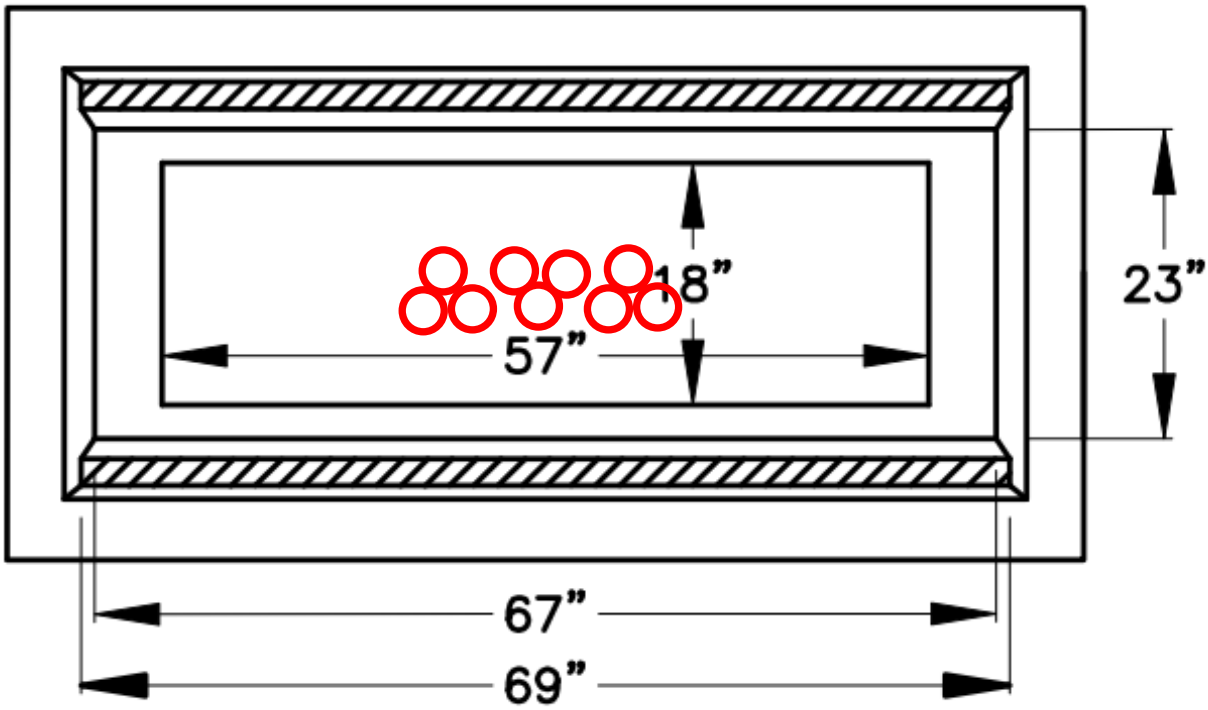
Conduit Installation Guide

Three Phase Transformer 750-1000 KVA

- Minimum 48” cover over top of conduit
- 1’ backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90’s



ROAD/FRONT SIDE

PRIMARY DUCTS TO STAY WITHIN

57" X 18” WINDOW

FLAT SURFACE 67” X 23”

BOTTOM 80” X 41”

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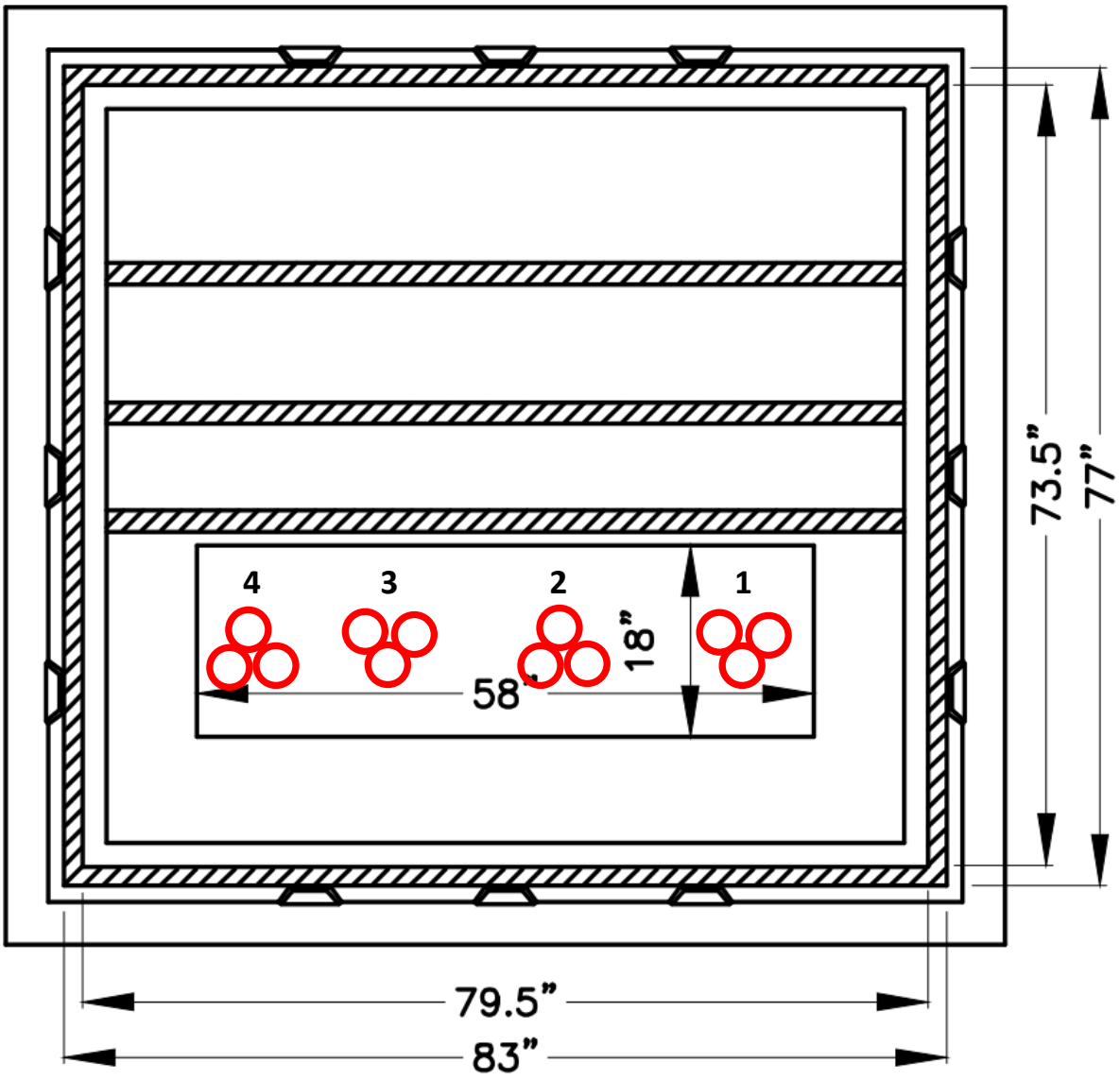
Conduit Installation Guide

Three Phase Junction Cabinet UM33

- Minimum 48” cover over top of conduit
- 1’ backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90’s



ROAD/FRONT SIDE

14.5" BETWEEN PRIMARY DUCTS TO STAY WITHIN 58" X 18" WINDOW

FLAT SURFACE 79.5" X 73.5"

BOTTOM 83" X 77"

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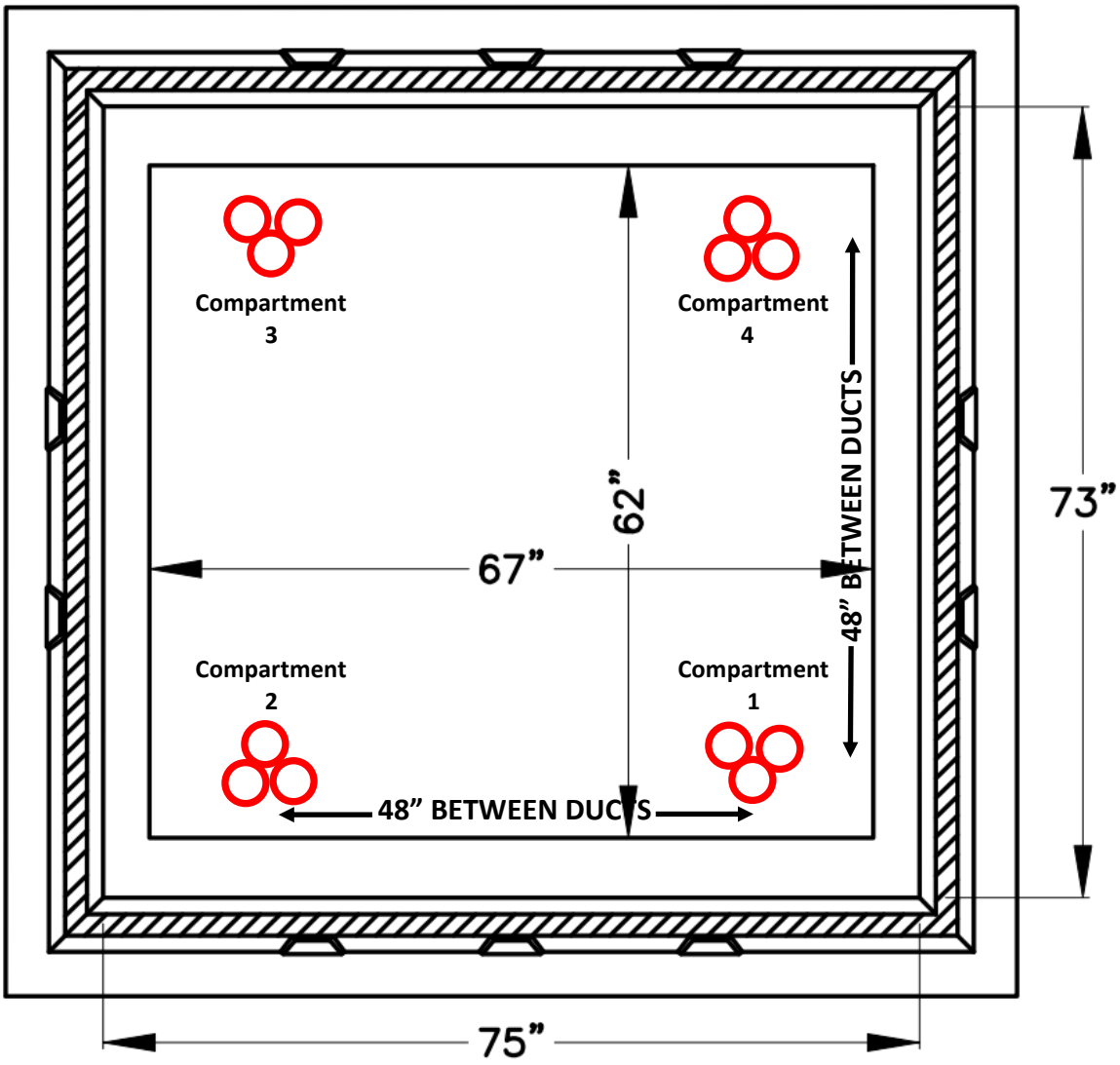
Conduit Installation Guide

Three Phase Junction Cabinet VISTA

- Minimum 48" cover over top of conduit
- 1' backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90's



ROAD/FRONT SIDE

48” BETWEEN PRIMARY DUCTS TO STAY WITHIN 67" X 62” WINDOW

FLAT SURFACE 75” X 73”

BOTTOM 83” X 77”

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Conduit Installation Guide

Three Phase Junction Cabinet Fused

- Minimum 48” cover over top of conduit
- 1’ backfill and install cation tape
- Install 2500 lbs. mule tape in all conduit
- Use long sweep 90’s