RESOLUTION 20-11

A RESOLUTION AMENDING SECTION 7 GENERAL REQUIREMENTS AND SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS OF THE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN HYRUM CITY.

WHEREAS, the Hyrum City Council approved the revised Design Standards and Construction Specifications for Public Works Construction in Hyrum City in January 2003; and

WHEREAS, Section 7 of the Design Standards and Construction Specifications for Public Work Construction provides general requirements and design guidelines for installation of electrical utilities in Hyrum City; and

WHEREAS, upon recommendation of Hyrum City's Engineer and Electric Department, the City Council has determined there is a need to amend and update Section 7 of Hyrum City's Design Standards and Construction Specifications for Public Works Construction.

NOW, THEREFORE, BE IT RESOLVED by the City Council of Hyrum, Cache County, Utah, to approve the revisions, attached hereto as Exhibit "A", to Hyrum City's Design Standards and Construction Specifications for Public Works Construction in Hyrum

THIS RESOLUTION shall become effective upon adoption.

ADOPTED AND PASSED by the Hyrum City Council this 1st day of October, 2020.

HYRUM CITY CORP.

BY: _____
Stephanie Miller
Mayor

ATTEST:

_____
Stephanie Fricke
City Recorder

HYRUM CITY
Power Department

SECTION 7

HYRUM CITY
GENERAL REQUIREMENTS
AND
SPECIFICATIONS
FOR
ELECTRICAL INSTALLATIONS

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STEPS FOR UNDERGROUND/OVERHEAD SERVICE INSTALLATION AND HOOK-UP

Complete the following steps in the order listed below:

1. Builder must fill out the Load Data Sheet, page 2 below, and return it to Hyrum City's Power Department. We use the sheet to document inspections and size the service wire/conduit. We will not perform the required trench inspections without a Load Data Sheet. The builder and Hyrum City Power will meet to determine if the service will be underground or overhead.

2. Do not begin work on the service installation before receiving the service design from Hyrum City's Power Department. Any work done that does not meet the Hyrum City Power Department design is at risk of having to be re-done at the cost of the builder/customer.

3. The building site requiring service must have its address marked and clearly visible from the street.

4. For underground service--Dig a trench (30" minimum depth) between the power source and meter equipment.
   For overhead service—Skip to step 7.

5. Install the conduit specified by Hyrum City Power (3"). At the power source, connect to the existing conduit stubbed from the transformer or secondary junction box. The meter riser must be aluminum and strapped to the foundation. Call Hyrum City (24 hours in advance) at 435-245-6033 to schedule a required inspection of the trench and conduit prior to backfilling.

6. After you have passed the conduit and trench inspection, cover the conduit with 4"of sand (to prevent the possibility of the conduit being damaged by backfilling with local soil), then 8" of soil. Approximately 1 foot directly above conduit, place red plastic electrical warning tape--3" wide over service, 6"wide over primary-- that reads, "Caution—Buried Electric Cable Below". Leave a tail of warning tape sticking out of the ground at the meter riser and power source. Backfill the trench to final grade.

7. Hyrum City will stick a U.G. Service Inspection Verification label to the inside of the meter base upon completion and inspection of the trench and conduit.

8. Contact Cache County for a power to panel inspection. When you pass the power to panel inspection . . ..

9. At this point, you MUST have passed the building Dept. power to panel inspection.
   For underground service--Hyrum City will provide the wire for underground service. A Hyrum City crew will return to the building site and install the wire in the conduit, make the connections and set the meter.
   For overhead service--The customer will provide the wire from the weatherhead to the meter. Hyrum City will provide the wire for the overhead service from the source up to the weatherhead, make connections and set the meter.

LOAD DATA SHEET
SINGLE FAMILY RESIDENTIAL STRUCTURE
Underground/Overhead Electric Service Feed

Architect/Engineer/Builder/Contractor:
Please submit this form for each single-family residential structure to be served by Hyrum City Power by means of an underground or overhead service wire. Using the NEC code to size the service wire is acceptable. However, Hyrum City can potentially use the information submitted on this sheet to de-rate the wire size upon request. Also, this form is necessary for Hyrum City to track the required inspections. **Hyrum City will NOT perform any inspections without this form.** Submit the form by email: mholmes@hyrumcity.com , by fax 435-245-4758, or by delivery to the address 60 West Main, Hyrum, UT. By signing this document, you are hereby acknowledging that the information provided is accurate and that you take responsibility for this information up to and including financial cost for the replacement of Hyrum City equipment due to any inaccuracies contained herein.

Contractor Contact Information:
Contractor/consultant name _____
Contact person _____Day phone # _____
Cell phone # _____ Fax # _____ Best contact time ☐ a.m. ☐ p.m.
E-mail address:_____
Customer (Owner) Contact Information *Complete this section if owner and contractor are separate individuals*
Name_____
Mailing address _____City, State Zip _____
Day phone # _____ Cell phone # _____ Best contact time ☐ a.m. ☐ p.m.
E-mail address:_____
Service Information *This section is required*
New service address _____ City, State Zip _____
New service address coordinates *(if applicable)*
_____
Subdivision name _____ Phase _____ Lot # _____ Block #_____
If known, nearest pole or padmount # *(pole/equipment tag, 10 or 12 digits)* _____

Service panel size: ☐ *150 Amp* ☐ *200 Amp* Size of building:_____ total sq. ft.

Distance between service hookup (power source) and meter equipment:_____ ft.

Special conditions and/or requests _____

Main source of heat: ☐ *gas* ☐ *propane* ☐ *electric* If electric: ☐ *heat pump (___ tons)* ☐ *furnace*
If air conditioning: ☐ *evaporative cooler* ☐ *central air (___ tons)* ☐ *heat pump (___tons)* ☐ *other*

Would you like Hyrum City Electrical Department to determine the size of the underground service wire?
☐ *Yes* ☐ *No*

Expected building completion date *(mm/dd/yyyy)* _____

It is important to provide the most accurate information available as it is used to design the facilities to serve your requested load. You may want to consult a licensed electrician or engineer prior to providing the information. Changes to load after submitting this information may delay design and potentially impact cost.

Please sign and date this form

_____

Applicant or representative signature Date

Please email or fax completed form to: mholmes@hyrumcity.com , by fax 435-245-4758,

or delivery to 60 West Main, Hyrum, UT.

STEPS FOR UNDERGROUND/OVERHEAD SERVICE INSTALLATION AND HOOK-UP

Complete the following steps in the order listed below:

1. Builder must fill out the Load Data Sheet, page 2 below, and return it to Hyrum City's Power Department. We use the sheet to document inspections and size the service wire/conduit. We will not perform the required trench inspections without a Load Data Sheet. The builder and Hyrum City Power will meet to determine if the service will be underground or overhead.

2. Do not begin work on the service installation before receiving the service design from Hyrum City's Power Department. Any work done that does not meet the Hyrum City Power Department design is at risk of having to be re-done at the cost of the builder/customer.

3. The building site requiring service must have its address marked and visible from the street.

4. For underground service--Dig a trench (30" minimum depth) between the power source and meter equipment.
   For overhead service—Skip to step 7.

5. Install the conduit specified by Hyrum City Power (4" minimum for 3 phase service) to the power source, connect to existing conduit. The meter riser must be aluminum and strapped to the foundation. Call Hyrum City (24 hours in advance) at 435-245-6033 to schedule a required inspection of the trench and conduit prior to backfilling.

6. After you have passed the conduit and trench inspection, cover the conduit with 4"of sand (to prevent the possibility of the conduit being damaged by backfilling with local soil), then 8" of soil. Approximately 1 foot directly above conduit, place red plastic electrical warning tape--3" wide over service, 6"wide over primary-- that reads, "Caution—Buried Electric Cable Below". Leave a tail of warning tape sticking out of the ground at the meter riser and power source. Backfill the trench to final grade.

7. Hyrum City will stick a U.G. Service Inspection Verification label to the inside of the meter base upon completion and inspection of the trench and conduit.

8. Contact Cache County for a power to panel inspection. When you pass the power to panel inspection . . ..

9. At this point, you MUST have passed the building Dept. power to panel inspection.
   For underground service—RE, install the wire in the conduit, make the connections in the transformer and meter/CT cabinet. Hyrum City will set the meter.

   For overhead service--The builder/customer will provide the wire from the weatherhead to the meter. Hyrum City will provide the wire for the overhead service from the source up to the weatherhead, make connections and set the meter.

LOAD DATA SHEET
COMMERCIAL STRUCTURE
Underground/Overhead Electric Service Feed

Architect/Engineer/Builder/Contractor:
Please submit this form for each commercial structure to be served by Hyrum City Power by means of an underground or overhead service wire. Using the NEC code to size the service wire is acceptable. However, Hyrum City can potentially use the information submitted on this sheet to de-rate the wire size upon request. Also, this form is necessary for Hyrum City to track the required inspections. **Hyrum City will NOT perform any inspections without this form.** Submit the form by email: mholmes@hyrumcity.com , by fax 435-245-4758, or by delivery to the address 60 West Main, Hyrum, UT. By signing this document, you are hereby acknowledging that the information provided is accurate and that you take responsibility for this information up to and including financial cost for the replacement of Hyrum City equipment due to any inaccuracies contained herein.

Contractor Contact Information:
Contractor/consultant name _____
Contact person _____Day phone # _____
Cell phone # _____ Fax # _____ Best contact time ☐ a.m. ☐ p.m.
E-mail address:_____
Customer (Owner) Contact Information *Complete this section if owner and contractor are separate individuals*
Name_____
Mailing address _____City, State Zip _____
Day phone # _____ Cell phone # _____ Best contact time ☐ a.m. ☐ p.m.
E-mail address:_____
Service Information *This section is required*
New service address _____ City, State Zip _____
New service address coordinates *(if applicable)*
_____
Subdivision name _____ Phase _____ Lot # _____ Block #_____
If known, nearest pole or padmount # *(pole/equipment tag, 10 or 12 digits)* _____

Service panel size: _____ amps Size of building:_____ total sq. ft.

Load List			
Type	Description	Added Load	Units
HVAC/Refrigeration Equip.			Tons
Largest Motor (code:_____)			HP
Fans/small motors/pumps/compressors			HP
Electric Heating (space/water)			kW
Equipment with large power requirement			kW

Distance between service hookup (power source) and meter equipment:_____ ft.

Special conditions and/or requests _____

Main source of heat: ☐ *gas* ☐ *propane* ☐ *electric* If electric: ☐ *heat pump (___ tons)* ☐ *furnace*
If air conditioning: ☐ *evaporative cooler* ☐ *central air (___ tons)* ☐ *heat pump (___tons)* ☐ *other*

Would you like Hyrum City Electrical Department to determine the size of the underground service wire?
☐ *Yes* ☐ *No*

Expected building completion date *(mm/dd/yyyy)* _____

It is important to provide the most accurate information available as it is used to design the facilities to serve your requested load. You may want to consult a licensed electrician or engineer prior to providing the information. Changes to load after submitting this information may delay design and potentially impact cost.

Please sign and date this form

_____
Applicant or representative signature Date

Please email or fax completed form to: . mholmes@hyrumcity.com , or by fax 435-245-4758,

or delivery to 60 West Main, Hyrum, UT.

7 GENERAL REQUIREMENTS AND SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS

7.1 GENERAL REQUIREMENTS

7.1.1 GENERAL

The purpose of this document is to assist Hyrum City Power customers in obtaining electric service. This document provides the requirements and shows the specifications for customer installations that must be met for electric service to be connected. It is the customer's responsibility to ensure compliance with these requirements and specifications. These requirements and specifications apply to new services, relocated services, house relocations, rewired services, and upgraded services.

Any work done before receiving the electric service design and signed contract from Hyrum City's Power Department that does not meet the Hyrum City Power Department design is at risk of having to be removed and re-installed at the cost of the builder/customer.

7.1.2 COMPLIANCE AND CONFLICT WITH REQUIREMENTS

All electrical work shall be in compliance with the latest edition of the National Electric Code (NEC), International Building Code, ICC Electrical Code, and the National Electrical Safety Code (NESC) except where these specifications are more stringent. If there is a conflict between standards, the most stringent shall rule.

7.1.3 UNDERGROUND UTILITY LOCATION -- CALL BEFORE YOU DIG

State law requires the customer/excavator to call 8-1-1 to mark underground utility locations at least 48 hours prior to any excavation. Do not start excavation until utilities have been marked by an underground locator service, or until the service confirms that no utilities exist in the area.

7.1.4 CUSTOMER GENERATION

Interconnection of customer distributed generation will be evaluated on a case-by-case basis. Contact Hyrum City Power before acquiring generation equipment or making any type of interconnection with any type of generating device to determine the requirements that must be met.

7.1.5 GROUNDING AND BONDING

The customer is responsible for ensuring that electrical wiring and service equipment are grounded and bonded in accordance with applicable NEC requirements. The grounding system shall have sufficient grounding electrodes, effectively bonded together, to prevent maximum resistance to ground exceeding 25 ohms. All grounding is to be in accordance with NEC Article 250.

Two ground rods 5/8” diameter x 8 ‘ long shall be driven at each three-phase transformer and three phase junction point, at 5’ center to center (spacing). One ground rod shall be driven at each single-phase transformer and single-phase primary junction point. All concentric neutrals shall be connected and commonly grounded to the driven ground rod.

In cases where ground rods cannot be installed at transformers, primary junction boxes and switches due to very rocky soil, 100 ft. of bare #2 copper-clad wire can be buried at least 18” deep in place of the ground rod(s). See requirements in Section 7.6.9.

Metallic equipment less than 6 feet from Hyrum City Power equipment requires bonding to the Hyrum City Power equipment.

7.1.6 INSPECTION

All work shall be inspected and approved by the City’s Power Department personnel before underground systems are backfilled. Cache County will perform “power to the panel” inspections. Final inspection and energizing the system will be performed by the City’s Power Department personnel.

7.1.7 POWER FACTOR

The customer is responsible for maintaining power factor between 95% lagging and 95% leading, or higher. Hyrum City Power recommends that customers provide and maintain code-approved power factor correction devices to maintain power factor between 95% lagging and 95% leading.

A power factor rate adjustment applies to customers with three-phase service and loads that exceed 200 kilowatts for three (3) consecutive months. This rate adjustment has the effect of increasing the power demand charges to customers who do not maintain a power factor of 95% or higher.

7.1.8 EQUIPMENT PERFORMANCE, PROTECTION, AND HARMONICS

The customer shall provide any power-conditioning devices necessary for the proper performance and protection of voltage-sensitive equipment. The customer is responsible for providing and maintaining code-approved protective devices to protect equipment against overloading, short circuits, ground faults, high or low voltage, and single-phasing of three-phase motors.

Customers shall not generate harmonic distortion that create disturbances on the electrical system that interfere with any other customer’s equipment. Customers shall provide harmonic filtering on equipment that can produce harmonic distortion (such as adjustable speed drives, power supplies, and electronic ballasts for lighting) such that harmonic distortion is kept within the limits specified in IEEE Standard 519, Section 10.

7.2 PERMITS AND APPLICATIONS

7.2.1 SERVICE APPLICATION

The customer shall complete an Electric Power Service Request Load Data Sheet to apply for electric service. The customer shall provide accurate load information on the request. The steps for service installation and hook-up are detailed on this request form. Refer to the request forms "Residential Electric Power Service Request" or "Commercial Electric Power Service Request" at the front of this standard.

7.2.2 PERMIT

City ordinances require applicants to obtain appropriate permits as per Hyrum City code before electric service is provided.

7.2.3 EASEMENTS

The customer (developer) shall provide, without cost to Hyrum City, all permits, rights-of-way, and easements required for the installation and maintenance of the public facilities that serve the customer (development). A Public Utility Easement (PUE) will be required in all subdivisions adjacent to the road right-of-way. A ten (10) foot easement is required along all frontages and may be required at rear and side lot lines at the discretion of City staff. If a PUE is required along the rear or the side of lots, the total width may be evenly split between the adjoining lots. No permanent structure or obstruction can be placed within the PUE without prior written approval of all Hyrum City owned utilities.

7.3 SERVICES

7.3.1 TYPES OF SERVICE

Electric service is provided as 60-hertz, alternating current, single-phase or three-phase. Nominal provided secondary voltages and types of service are shown in Table 1.

Table 1-Type and Voltage of Secondary Service

Phases	Voltage	Wiring	Limits
Single-phase	120 volts	Two-wire, grounded	200 amps or less
Single-phase	120/240 volts	Three-wire, grounded	400 amps or less
Three-phase	120/208 volts	Four-wire, grounded wye	750 kVA or less
Three-phase	277/480 volts	Four-wire, grounded wye	n/a

Contact Hyrum City Power to determine the requirements that must be met for primary voltage service at 7,200/12,470 volts.

7.3.2 STANDARD TRANSFORMER SIZES

Standard transformer sizes that are allowed are given in Table 2.

Table 2-Standard Transformer Sizes

Overhead Transformers	**Secondary Voltage**	**Sizes in kVA**
Single-phase	120/240 volts	25, 50, 75, 100, 167
Three-phase (bank of 3 single-phase transformers)	120/208 volts	75, 150, 225, 300
	277/480 volts	75, 150, 225, 300
Pad-mounted Transformers		
Single-phase	120/240 volts	25, 37.5, 50, 75, 100
Three-phase	120/208 volts	75, 150, 225, 300, 500, 750
	277/480 volts	75, 150, 225, 300, 500, 750, 1000, 1500, 2500

7.4 METER REQUIREMENTS

7.4.1 GENERAL

1. The customer is responsible for providing, installing, and maintaining all service equipment.
2. Meters shall be located where approved by Hyrum City Power.
3. Meters shall be accessible at all times for reading, maintenance, and emergencies.
4. Meters located within a gated area or enclosed space shall be approved prior to installation on a case-by-case basis.
5. Customers must contact Hyrum City Power before doing any work that involves the meter.
6. Meter bases shall be from Hyrum City Power Department's approved list.
7. The minimum size meter base is 150 amps.
8. Three-phase 200 amp meter bases shall have a lever by-pass.

7.4.2 METER BASE MOUNTING

1. Meter bases must be mounted to be plumb in all directions and securely mounted to a rigid surface.
2. Prior approval is required for installing meters in any type of enclosure.
3. Adequate protection for meters subject to physical damage must be provided.

7.4.3 METER LOCATION

The customer must provide a suitable meter location, with adequate clear working space. Metering equipment **shall not be installed** in the following locations unless prior approval is obtained from Hyrum City Power:

1. Any unsafe location, as determined by Hyrum City Power
2. Any hazardous location for electrical equipment as defined by the NEC
3. Within a 36 inches radius of the gas meter, gas valves, regulators, fittings, unions, or the gas line entrance into a building.
4. Directly over any window well, stairway, ramp or steps
5. In any entryway
6. Within 36 inches horizontally of a window that has a view of a living space or restrooms, or within 36 inches horizontally of a door.
7. In any place where moisture, fumes, or dust may interfere with the meter's operation or may damage the meter, as determined by Hyrum City Power
8. On any surface subject to excessive vibration, as determined by Hyrum City Power
9. In an area where metering is likely to be fenced in
10. Where the metering equipment is obstructed by anything including landscaping or other vegetation
11. Areas adjacent to fuel storage units

Residential meters shall be installed:

1. Outdoors within 10 feet of the front (street side) corner of the dwelling
2. On the side of the dwelling closest to the power source
3. At a location acceptable to Hyrum City Power, and in accordance with the standards drawings in this document.

Where there is no suitable location on the structure, a free-standing metering installation may be used, at a location approved in advance by Hyrum City Power.

7.4.4 DIRECT METERING

Direct-connect metering is required for residential services, and for single-phase services 400 amps or less, or three-phase services 200 amps or less. There are additional requirements for direct-connect metering installations with more than one meter.

7.4.5 CURRENT TRANSFORMER METERING

Current transformer (CT) metering is required for single-phase services greater than 400 amps and three-phase services greater than 200 amps. Hyrum City Power will provide and install: the meter, a meter test switch, CTs, and secondary metering wiring. Hyrum City Power will provide the CT cabinet and CT mounting base, paid for by the customer. The customer shall provide conduit, connectors/terminations, a disconnect after the CT cabinet rated for the load, and

bonding for meter and CT enclosures. The customer shall make connections of service wire in the CT cabinet.

7.4.6 SWITCHBOARD METERING (Above 800 amps)

Switchboard metering is required for services greater than 800 amps. The customer shall provide a drawing of the proposed switchboard metering equipment and a mounting pad with dimensions, to Hyrum City Power for review and approval. Approval must be obtained prior to fabrication.

The customer shall provide and install:

a. Switchboard enclosure with CT compartment

b. Meter base

c. Metering conduit–one-inch (1") minimum electrical non-metallic tubing (ENT) or flexible PVC for the metering secondary conductors

d. Locking equipment for the meter enclosure

e. Concrete mounting pad for the switchboard enclosure

f. A flat permanent surface (such as a concrete pad) extending a minimum of 36 inches (36") out from the switchboard in front of the CT compartment

Requirements:

1. The metering CTs shall be located in the CT compartment.

2. The CT compartment shall have a hinged door.

3. Installing one metered service requires mounting the meter and test switch remotely (outside the switchboard cabinet).

4. Installing two or more metering services requires mounting meters on the compartments' hinged meter panels.

5. The metering conduit in the switchboard section shall terminate in the CT compartment in front of the CTs.

6. The door shall be equipped with a device to hold it in the open position at 90° or more.

7. Lugs for terminating the customer's ground wire (or other grounding conductors) shall be located outside the sealable section and shall be designed to allow the customer's neutral system to be readily accessible.

8. All pull and termination sections shall have full front access.

9. All removable cover panels shall have two lifting handles and be limited to a maximum weight of 25 pounds.

10. The customer shall make connections of service wire in the pull section.

11. Bus bars are required from the pull section for service above 800 amps. Termination lugs are required and shall meet EUSERC 347.

14. Any customer-owned locking equipment for the metering enclosure must allow independent access by the Hyrum City Power.

15. Only Hyrum City Power conductors are allowed inside the pull section.

7.5 CLEARANCES

7.5.1 OVERHEAD SERVICES

The customer shall provide a point of attachment for overhead service that allows minimum clearances listed in the NESC for service drops and drip loops to be met in all conditions. Contact Hyrum City Power if the service length may be greater than 45', or the service will cross over uneven or sloped ground that may impact clearance height.

The lowest point of the overhead service cable and drip loop shall be at least 18" above the roof. No more than 72" of the service cable can run across the roof of the structure being served. Refer to the overhead service standard drawings in this document.

7.5.2 UNDERGROUND SERVICES

Clear workspace and fire code clearances must be maintained around pad-mounted equipment for underground services. Refer to the underground service standard drawings in this document.

At least 3 feet clear workspace measured from the edge of the equipment pad shall be available on the non-access side of pad mounted equipment.

At least 10' clear workspace measured from the edge of the equipment pad shall be available on the access (working) side of pad mounted equipment.

7.5.3 BETWEEN EQUIPMENT PADS AND BUILDINGS

The front of the equipment pad should always face away from adjacent structures and be free of obstructions. At least 8 feet, must separate the edges of the pad from any adjacent structure. The edges of the pad must be at least 10 feet from any combustible structures.

7.6 UNDERGROUND REQUIREMENTS

All underground service shall be installed in conduit. The customer shall provide conduit in place from the point of connection to the meter base with pulling tape provided in the conduit.

For residential service Hyrum City Power will pull the secondary service wire. For commercial service the customer shall provide and pull the secondary service wire.

The customer shall be sure that conduit is located where it will not be next to (or underneath) buildings, building foundations, or other structures (including retaining walls.)

The customer shall install six 3-inch conduits at road crossings where there is primary voltage crossing. Where there is secondary conductor that will cross a road the customer shall install three 3-inch conduits.

Hyrum City Power will allow only one overhead-to-underground conduit (or underground-to-overhead conduit—a “riser” or “dip”) on an overhead power distribution pole, whether it is primary voltage or secondary.

7.6.1 SERVICE CONDUCTOR

For residential service Hyrum City will provide the wire for underground service.

For commercial service the builder/customer must provide the wire for underground service. Cable shall be tri-plexed aluminum “EC”. Individual conductors shall be covered with XLP insulation rated to 600 volts and shall have color coded jacket.

7.6.2 SERVICE CONDUIT

The customer shall provide and install the conduit. All conduit in the ground shall be not less than Schedule 40 PVC electrical grade (gray with red stripe) conduit, 3-inches in diameter or larger, depending on the cable size and distance. Any conduit above ground shall be aluminum. For commercial three-phase service the minimum conduit size is 4-inches, or greater according to the wire and secondary service size.

7.6.3 BACKFILL

Trench and conduit shall be inspected by Hyrum City Power prior to backfilling. All conduit shall be embedded in sand. The sand shall extend a minimum of 2 inches below and 4 inches above the conduit to prevent the possibility of the conduit being damaged by backfilling with local soil. Backfill material shall be compacted. Install marking tape as required in section 7.6.4.

In areas of the trench where there is no equipment, no paving, or other structural requirement, the local soil may be used as backfill as long as it has no cobbles, construction waste or other refuse or deleterious materials.

A minimum of 30” of backfill above underground secondary/service conduit is required.

Excavated areas that support electrical equipment (transformers, junction boxes, switchgear, etc.), pavement, walks, etc., shall be backfilled with compacted sand. Backfill shall be compacted in lifts no more than 2 feet. The final compaction beneath areas supporting electrical equipment shall be 95% of the maximum dry density as determined by ASHTO T-99.

7.6.4 MARKING TAPE

Marking Tape shall be installed 12”above all buried conduits. It shall be red in color, 3” – 6”wide and state, “Caution—Buried Electric Cable Below”

7.6.5 JUNCTION BOXES

Primary and secondary junction boxes shall be placed on well compacted and level ground, meeting the backfill requirements in Section 7.6.3 and also placed so as to avoid being filled with drainage water. The secondary junction box shall be an upright pedestal type, Pencell-AG-20-HDX or approved equal.

7.6.6 BOXPADS

Box pads shall be placed on compacted and level ground meeting the backfill requirements in Section 7.6.3.

7.6.7 TRANSFORMER PADS

The transformer pads for transformers less than 100 kVA shall be Nordic single-phase box pad #CBP-37-43-15A (with cable openings 12” x 24”) or approved equal. The top of the transformer pad shall be at least 2 inches above the sidewalk. Concrete pads must meet the following requirements and shall be approved by Hyrum City Power:

7.6.7.1 Site Preparation

All dirt beneath the pad site must be compacted meeting the backfill requirements in Section 7.6.3, and level prior to setting or pouring the pad to prevent settling.

7.6.7.2 Concrete

Concrete shall be made using 6 bags of standard brand of Portland cement per cubic yard. Steel reinforcement shall be No. 4 bars placed on 12” centers and in accordance with the concrete transformer pad drawing. The pad must be poured at least three full days prior to setting the transformer. Concrete shall be kept above freezing at least 72 hours after pouring. The finished surface must be completely flat and level.

7.6.7.3 Conduit Window Layout

Low voltage conduits shall be formed as tightly as possible against the right side of the opening and shall in no case extend further than 20” from the right side of the conduit window on a small pad (96” x 78”) or 30” on a large pad (100” x 103”). Do not put any concrete in or under the conduit window. Use dirt to separate conduits. All construction shall be in accordance with the latest International Electric Code and approved by Hyrum City Power.

7.6.8 CLEARANCES

The front of the pad should always face away from adjacent structures and be free of obstructions. At least 8 feet must separate the edges of the pad from any adjacent structure. The edges of the pad must be at least 10 feet from any combustible structures.

7.6.9 GROUNDING METHODS

Driven ground rods are required at services, transformers, primary junction boxes and switches. In cases where ground rods cannot be installed at transformers, primary junction boxes and switches due to very rocky soil, 100 ft. of bare #2 copper-clad wire can be buried at least 18" deep in place of the ground rod. At least 100 total feet of wire, laid approximately straight, is required. Wire may be installed in a single length or several connected lengths, such as in a grid pattern.

7.7 OVERHEAD SERVICE REQUIREMENTS

Hyrum City Power provides all service wire to the meter mast (weatherhead) on overhead connections.

All residential overhead services shall be sized in accordance with Table 3. The minimum residential service permitted shall be a 150-amp service. Customers shall provide all service secondary conductor from the point of connection (weatherhead) to the meter base on overhead services.

Table 3-Residential Secondary Conductor Size—Customer Overhead Service Wire from Weatherhead to Meter

Square Footage of Residence	Service Size	Secondary Conductor Size	Neutral Conductor Size
Under 1200 s.f.	150 amp	1/0 Aluminum	#2 AWAC
1200 s.f. & above	200 amp	4/0 Aluminum	2/0 AWAC

The customer shall provide a point of attachment for overhead service that allows minimum clearances to be met in all conditions. Contact Hyrum City Power if the service length may be greater than 45', or the service will cross over uneven or sloped ground that may impact clearance height.

Mast shall be 2" or 3" rigid conduit, depending on the size of the service (see Table 4). The meter mast shall be securely connected to the structure with at least 2 points of attachment using Unistrut and 3/8" minimum lags.

Table 4-Meter Mast Conduit Size

Service Size	Conduit Size for Meter Mast
200 amp or less	2" min.
201 – 400 amp	3" min.
Above 400 amp	Contact Hyrum City Power

Mast weatherhead shall pass through the building eve and extend at least 24” above the roof, unless the weatherhead is mounted on the gable end of the building. The lowest point of the overhead service cable and drip loop shall be at least 18” above the roof. No more than 72” of the service cable can run across the roof of the structure being served.

If the point of attachment is more than 36” above a point of support on the mast, two independent guys are required.

7.8 MULTI-FAMILY RESIDENTIAL BUILDINGS

7.8.1 GENERAL

This section describes services with separate meters for multi-family residential buildings with three or more units. Hyrum City Power requires grouping of service entrance conductors at a common location.

Requirements:

1. All meters shall be in a common location.
2. Meter banks shall be installed on the side of the building closest to the power source.
3. The service entrance and meter shall be installed in locations meeting the requirements of Section 7.4.
4. The service entrance shall be sealed.

7.8.2 MULTIPLE-METERS

All multiple meter installations shall meet the following requirements.

Requirements:

1. Meter bases shall not be used as junction boxes.
2. Meter bases shall be selected from the Hyrum City Power Department list of acceptable meter bases.
3. A main disconnect is required when more than six services are connected. If an existing installation expands beyond six services, a main disconnect shall be installed.
4. NEC-approved load calculations are required when the sum of distribution section ampacities exceeds the pulling section ampacities. (See NEC Article 220, Branch-Circuit, Feeder, and Service Calculations.)
5. The cable pulling section must be appropriately sized for service termination.
6. Each service shall have a lockable and easily accessible disconnect in sight of the meter base location. If the disconnect is not in sight of the meter base, a label shall be placed at the meter base location indicating the location of the disconnect.
7. All required labels shall be correctly installed before the service is energized. Labels shall:
    a. be permanently affixed to the equipment

   b. be of sufficient durability to withstand the local environment. Engraved metal or hard plastic labels are required.
   c. not be attached to removeable covers
8. Each metered service and associated breaker shall be labeled to identify the dwelling unit address. Service will not be connected until permanent labels are attached.
9. It is the responsibility of the customer to ensure the meter bases are correctly labeled. These labels shall be kept current for the life of the facility.
10. A minimum vertical clearance of at least 66" from the center of the lowest meter to the final grade is required. However, a minimum vertical clearance of 36" to the center of the lowest meter is acceptable if a minimum 36" wide, flat, permanent surface (such as a concrete pad or walkway) below the meter is provided at the final grade and extends at least 18" on either side of the meter cabinet.
11. All unused openings shall be covered and secured by the customer.
12. Meters and metering equipment shall be located outdoors.
13. Panel covers must be secured in place prior to service equipment being energized.

7.9 STREETLIGHTS

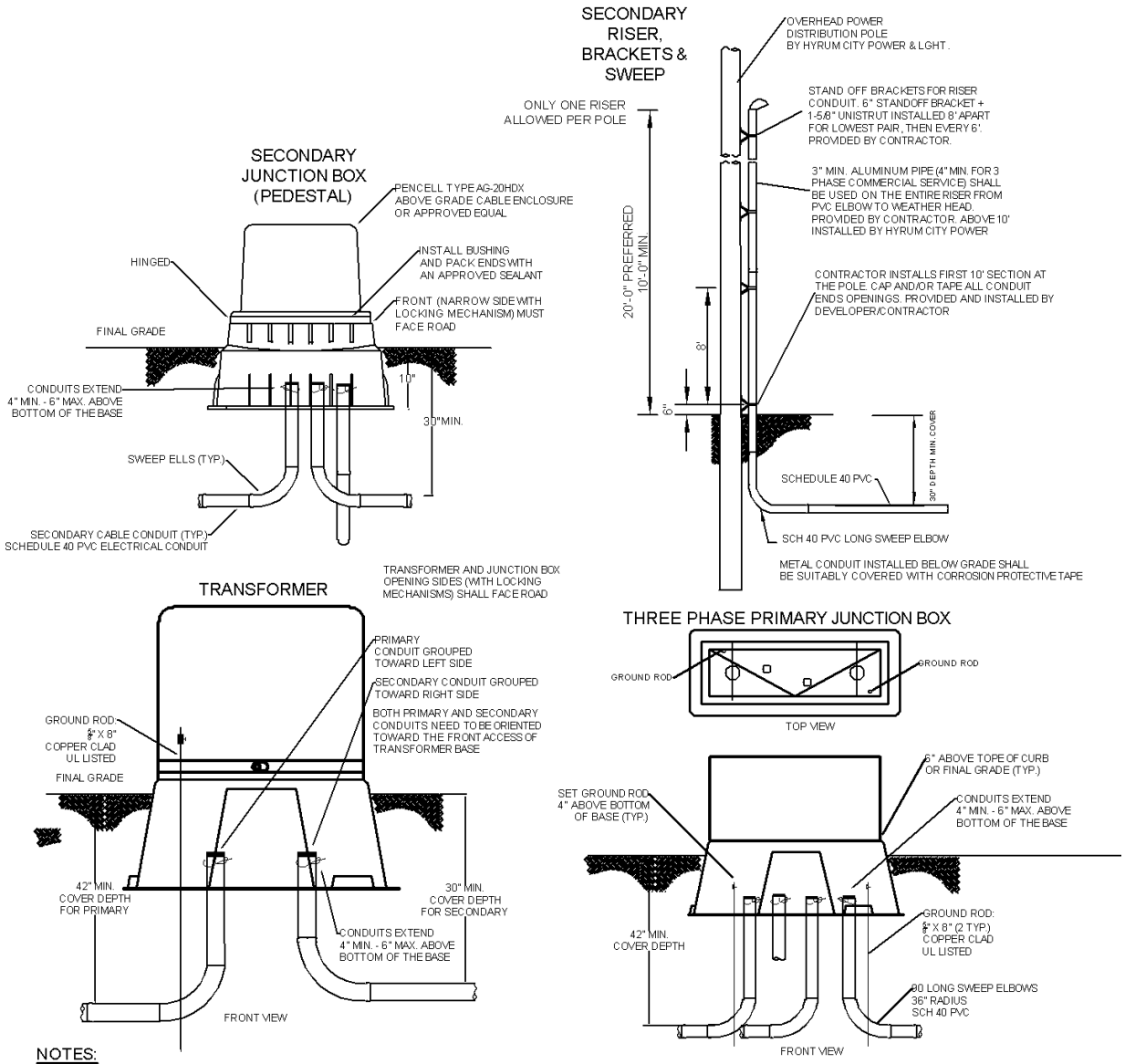
7.9.1 SUBDIVISION POLE-TOP LUMINARIES

The customer shall install conduit and secondary junction boxes for streetlights according to the Hyrum City design. Hyrum City Power provides and installs streetlights at the customer's expense. The concrete base for the light pole will be installed by Hyrum City and paid for by the customer.

HYRUM CITY
Power Department

SECTION 7

STANDARD
DETAIL
DRAWINGS



NOTES:

1. CONTRACTOR SHALL PROVIDE MATERIALS FOR THE DIP (OR RISER). CONTRACTOR INSTALLS FIRST 10 FEET UP THE POLE AND HYRUM CITY POWER WILL INSTALL ABOVE THAT POINT AND PULL CONTRACTOR-PROVIDED CABLE.
2. ON THREE-PHASE SERVICE CITY WILL PROVIDE METER BASE AND TEST SWITCH .
3. A CT CABINET MUST BE USED ON THREE-PHASE SERVICE ABOVE 200A.
4. FOR ALL THREE PHASE UNDERGROUND SERVICE CONTRACTOR SHALL PROVIDE 4" CONDUIT MINIMUM -- ALUMINUM ABOVE GROUND, SCH 40 PVC BELOW GROUND – FROM DIP OR RISER TO METER.
5. TRANSFORMER PADS MUST BE SIZED AND APPROVED BY THE CITY AND INSTALLED IN COMPLIANCE WITH APPLICABLE CODES.
6. BACKFILL BENEATH ELECTRICAL EQUIPMENT SHALL BE LEVEL AND BACKFILLED WITH SAND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASHTO T-99.

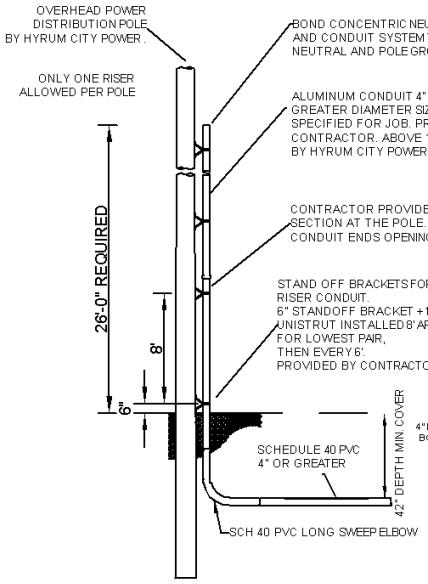
REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

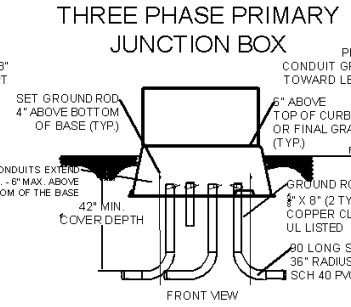
CONSTRUCTION QUICK REFERENCE

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.1	0

PRIMARY RISER, BRACKETS & SWEEP

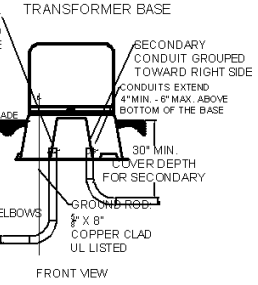


THREE PHASE PRIMARY JUNCTION BOX



TRANSFORMER

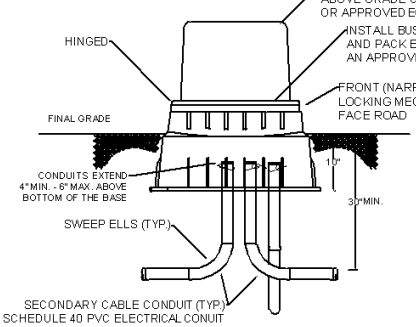
BOTH PRIMARY AND SECONDARY CONDUITS NEED TO BE ORIENTED TOWARD THE FRONT ACCESS OF TRANSFORMER BASE

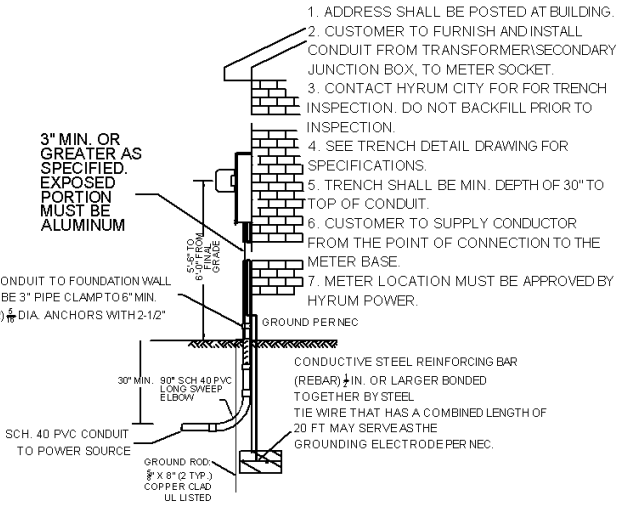


NOTES:

1. CONTRACTOR SHALL PROVIDE MATERIALS FOR THE DIP (OR RISER). CONTRACTOR INSTALLS FIRST 10 FEET UP THE POLE AND CITY WILL INSTALL ABOVE THAT POINT AND PULL CONTRACTOR-PROVIDED CABLE.
2. CITY SHALL PROVIDE METER BASE AND TEST SWITCH ON THREE-PHASE SERVICE.
3. A CT CABINET MUST BE USED ON THREE-PHASE SERVICE ABOVE 200A.
4. FOR ALL THREE PHASE UNDERGROUND SERVICE CONTRACTOR SHALL PROVIDE 4" OR GREATER ALUMINUM AND SCHEDULE 40 PVC CONDUIT FROM DIP OR RISER TO METER.
5. TRANSFORMER PADS MUST BE SIZED AND APPROVED BY THE CITY AND INSTALLED IN COMPLIANCE WITH APPLICABLE CODES.

SECONDARY JUNCTION BOX (PEDESTAL)



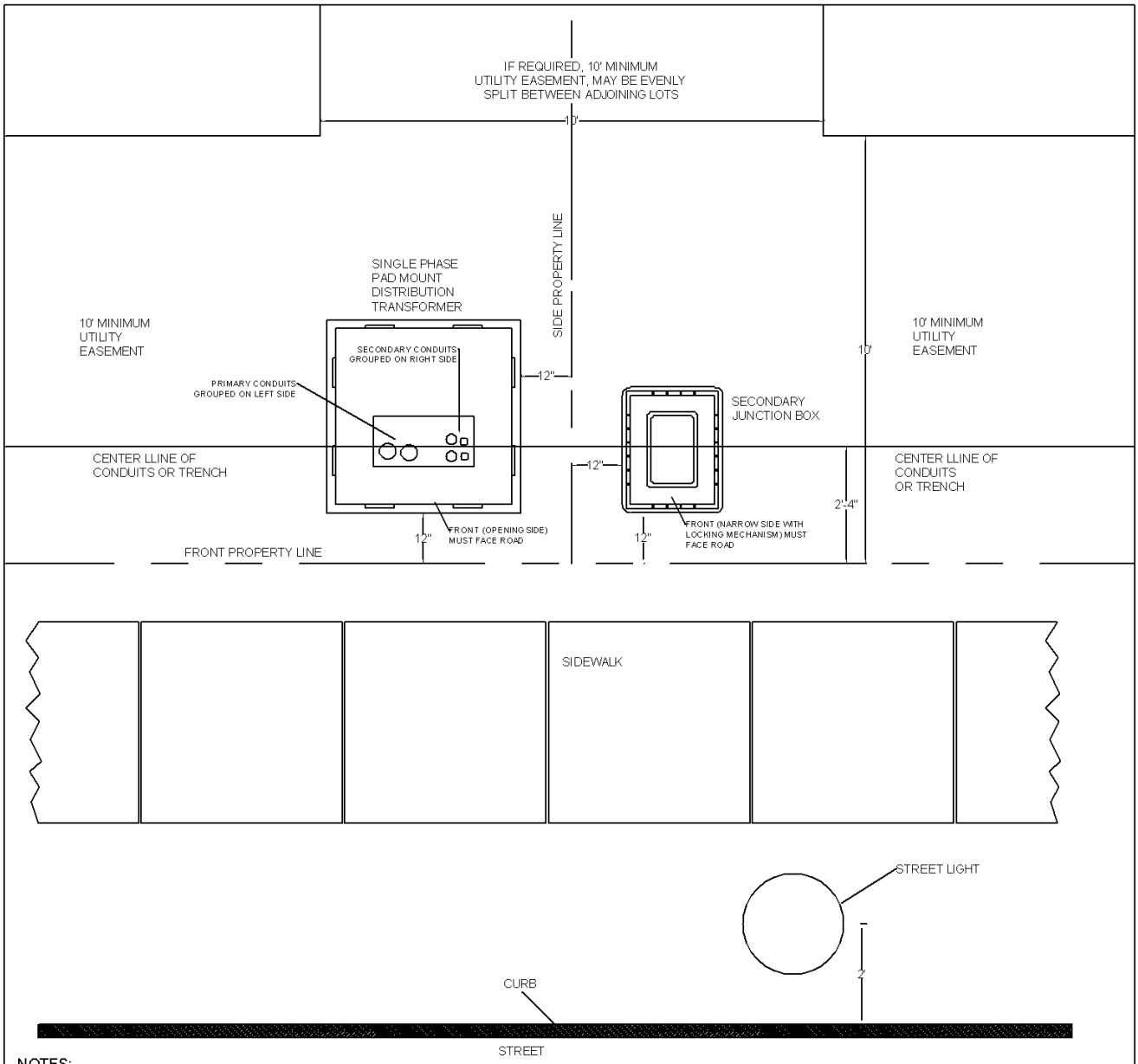


REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TYPICAL INSTALL--PRIMARY, SECONDARY & SERVICE

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.2	0



NOTES:

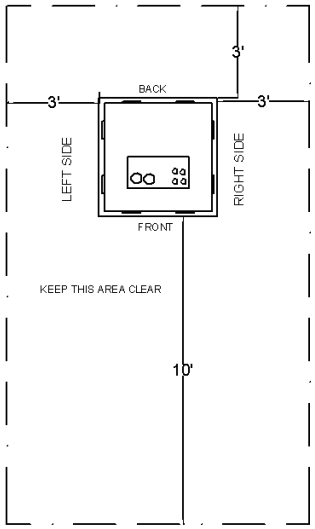
1. PRIMARY & SECONDARY JUNCTION BOXES, & BOX PADS SHALL BE PLACED ON WELL COMPACTED AND LEVEL GROUND. EXCAVATED AREAS THAT SUPPORT ELECTRICAL EQUIPMENT SHALL BE BACKFILLED WITH SAND COMPACTED IN LIFTS NO MORE THAN 2 FEET, COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASHTO T-99.
2. THE TOP OF THE TRANSFORMER PAD SHALL BE AT LEAST 2" ABOVE THE SIDEWALK.
3. THE FRONT OF THE TRANSFORMER PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES & BE FREE OF OBSTRUCTIONS FOR 1O FEET.
4. AT LEAST 3 FEET FROM THE SIDE AND BACK EDGES OF THE TRANSFORMER PAD SHALL BE FREE OF OBSTRUCTIONS.
5. THE EDGES OF THE TRANSFORMER PAD MUST BE AT LEAST TEN FEET FROM ANY COMBUSTIBLE STRUCTURES.
6. PRIMARY & SECONDARY JUNCTION BOXES SHALL BE PLACED SO AS TO AVOID BEING FILLED WITH DRAINAGE WATER.
7. ALL WORK SHALL BE INSPECTED AND APPROVED BY HYRUM CITY POWER BEFORE BURIAL.
8. FINAL INSPECTION AND ENERGIZING THE SYSTEM WILL BE DONE BY HYRUM CITY POWER.

REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TYPICAL TRANSFORMER & SEC. JUNCT. LOCATION

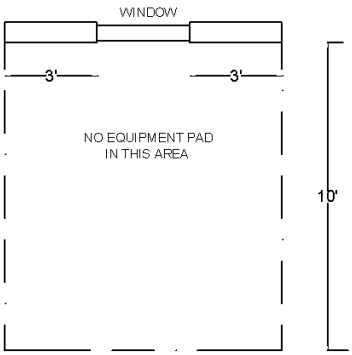
SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.3	0



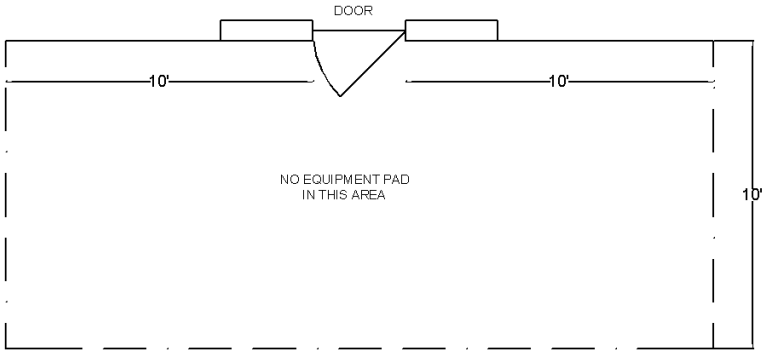
TRANSFORMER CLEARANCE
TYPICAL DETAIL 1

NOTE: A PREFABRICATED OR CONSTRUCTED-ON-SITE CONCRETE PAD SHALL BE USED FOR 100 KVA TRANSFORMER OR LARGER. CONTACT HYRUM CITY ELECTRICAL DEPARTMENT FOR REQUIRED EXACT DIMENSIONS AND APPROVAL.

1. DISTANCES ARE FROM THE EDGE OF THE EQUIPMENT PAD.
2. NO VEGETATION OVER 6" IN HEIGHT SHALL BE ALLOWED IN THE CLEAR AREA.
3. NO TRIP HAZARDS SHALL EXIST IN THE CLEAR AREA.



TRANSFORMER CLEARANCE
TYPICAL DETAIL 2



TRANSFORMER CLEARANCE
TYPICAL DETAIL 3

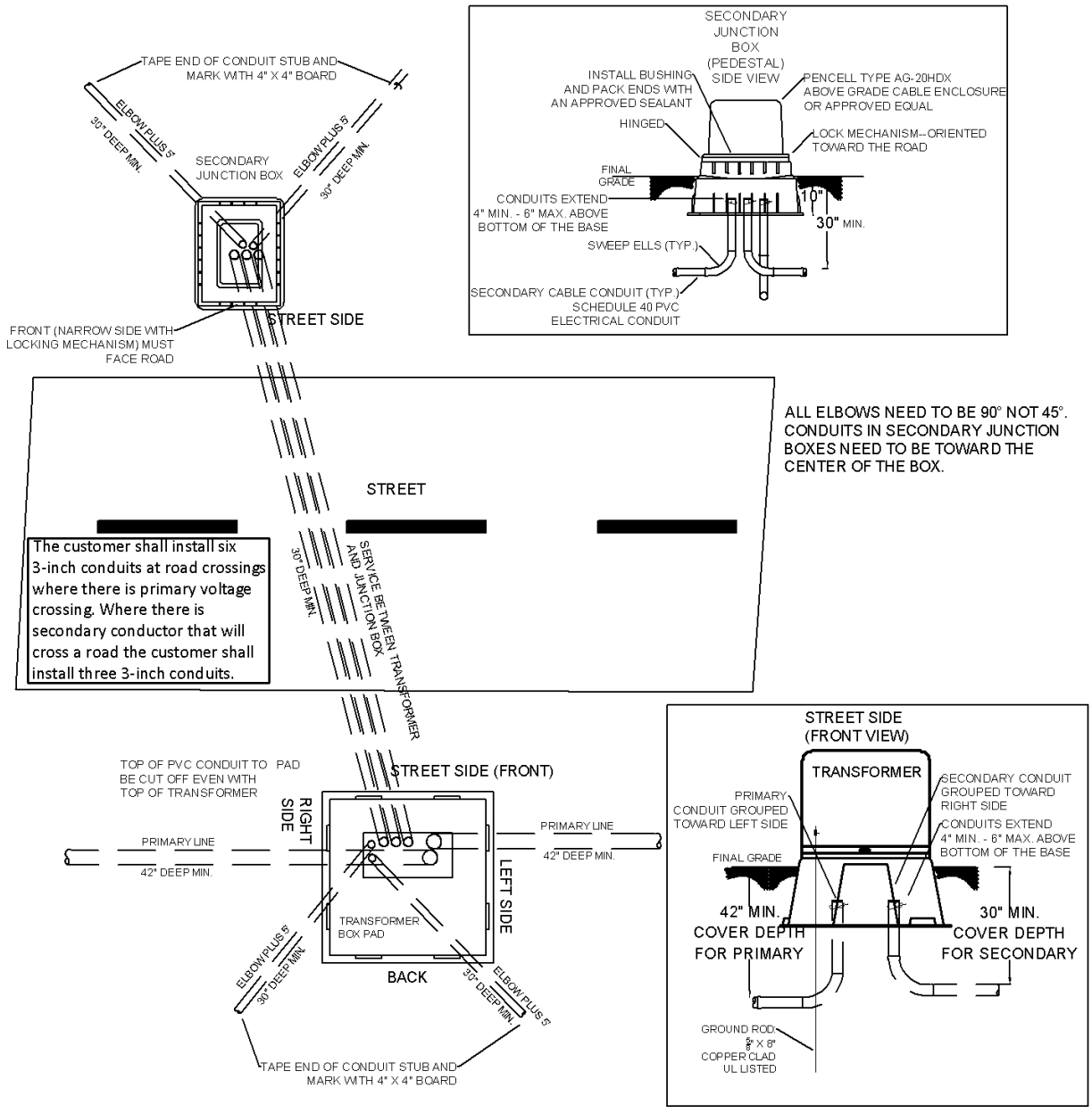
REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TRANSFORMER CLEARANCE

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.4	0

TYPICAL TRANSFORMER AND SERIVCE JUNCTION BOX INSTALLATION



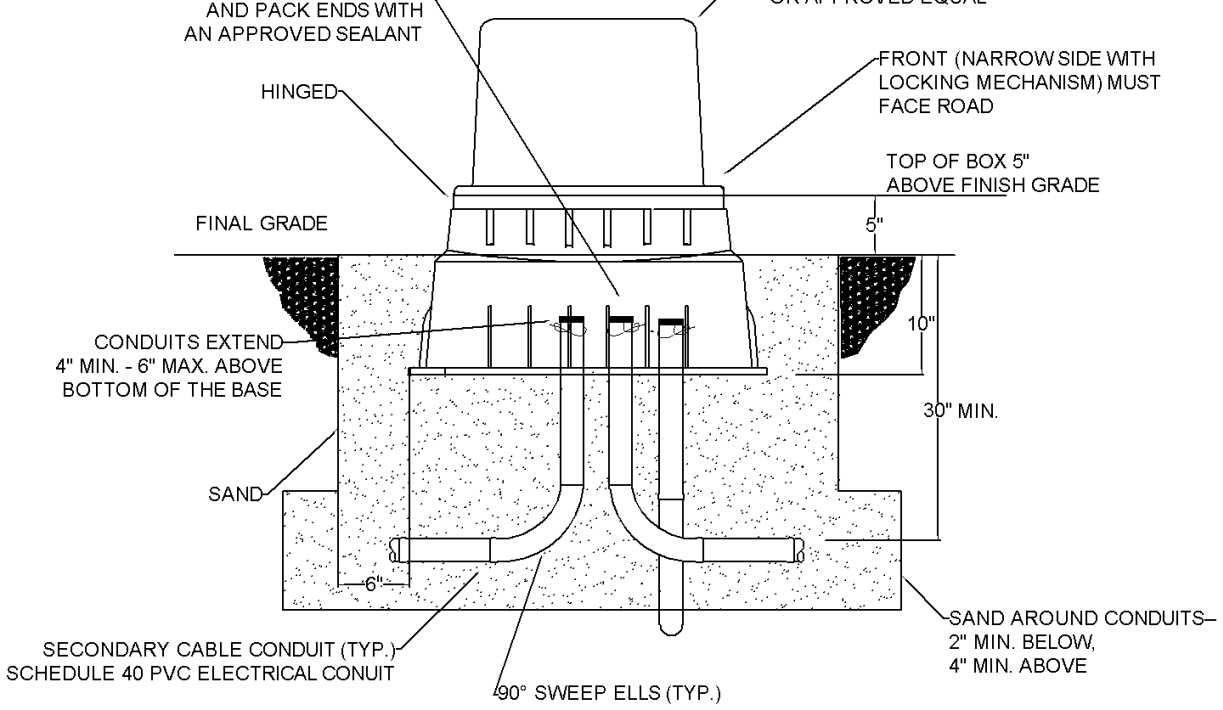
REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TRANSFORMER & SERVICE JUNCT. BOX INSTALLATION

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.5	0

SECONDARY JUNCTION BOX (PEDESTAL)



NOTES:

1. AREA AROUND BOX CAN EITHER BE PLANTED, HARD SURFACE OR A COMBINATION.
2. BOXES SHALL BE PLACED SO AS TO AVOID BEING FILLED WITH DRAINAGE WATER.
3. BOXES SHALL BE PLACED LEVEL ON SAND BACKFILL COMPACTED IN LIFTS NO MORE THAN 2 FEET, COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASHTO T-99.
4. ALL WORK SHALL BE INSPECTED AND APPROVED BY HYRUM CITY POWER DEPARTMENT.

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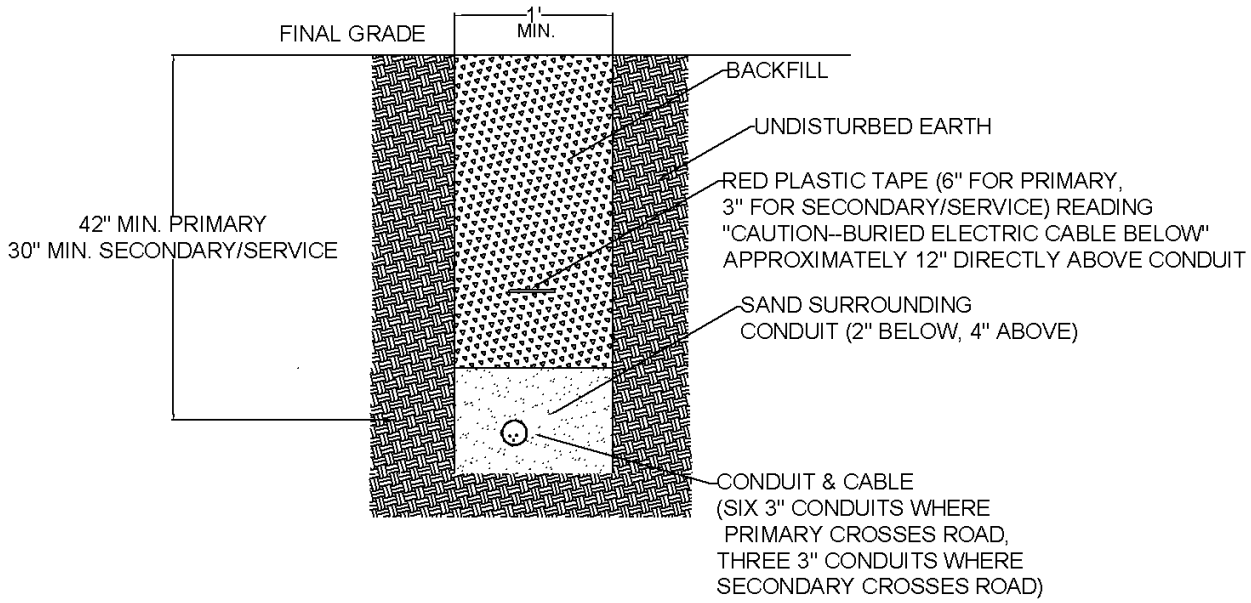
HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

SECONDARY JUNCTION BOX INSTALLATION

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.6	0



TRENCH DETAIL

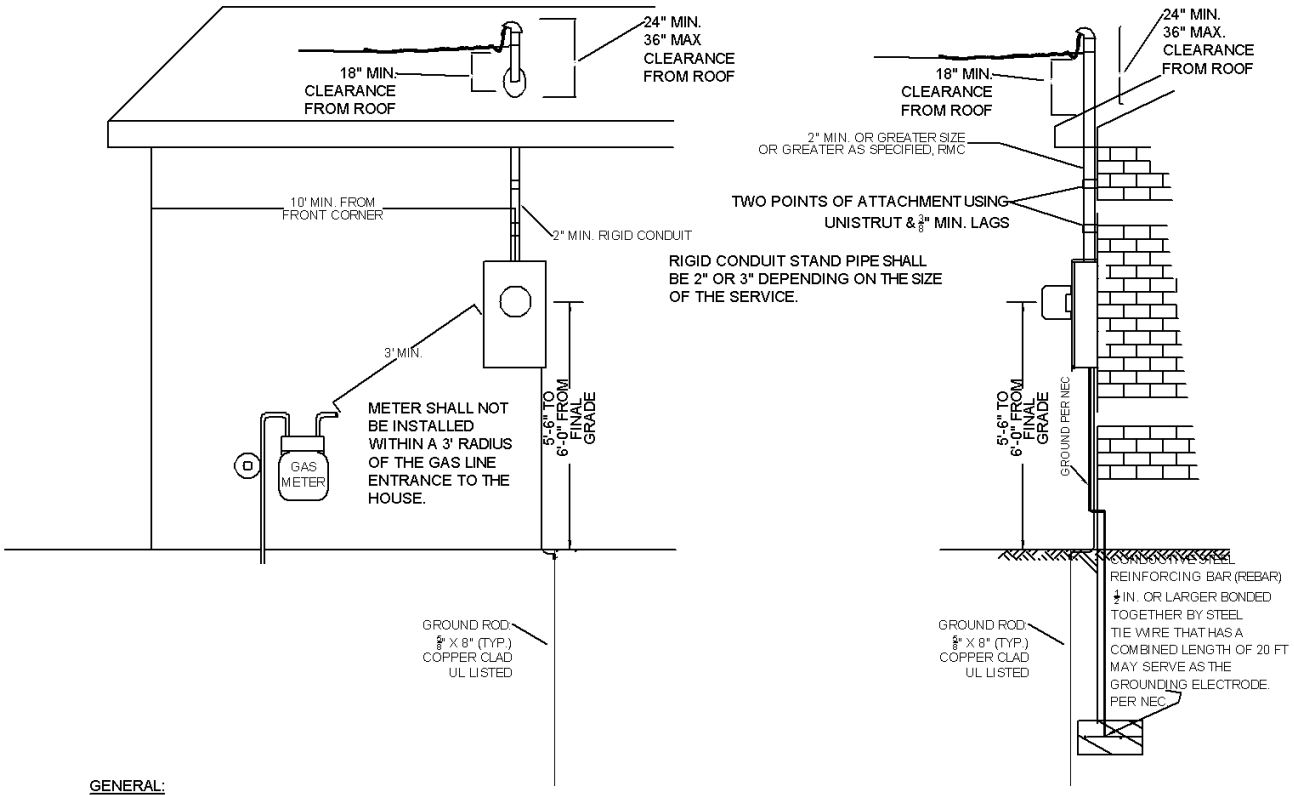
REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TRENCH DETAIL

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.7	0

OVERHEAD RESIDENTIAL SERVICES



GENERAL:
ALL ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, INTERNATIONAL BUILDING CODE, ICC ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE EXCEPT WHERE THESE SPECIFICATIONS ARE MORE STRINGENT. IF THERE IS A CONFLICT BETWEEN STANDARDS THE MOST STRINGENT SHALL RULE. HYRUM CITY PROVIDES ALL SERVICE WIRE TO THE METER MAST ON OVERHEAD CONNECTIONS. THE CUSTOMER SHALL PROVIDE SERVICE WIRE FROM THE WEATHER HEAD TO THE METER BASE.

INSTALLATION:
1. ADDRESS SHALL BE POSTED AT BUILDING.
2. CUSTOMER TO SUPPLY AND INSTALL CONDUCTOR FROM THE WEATHERHEAD TO THE METER BASE.
3. HYRUM CITY POWER PROVIDES SERVICE WIRE TO THE WEATHERHEAD FROM THE POWER SOURCE.

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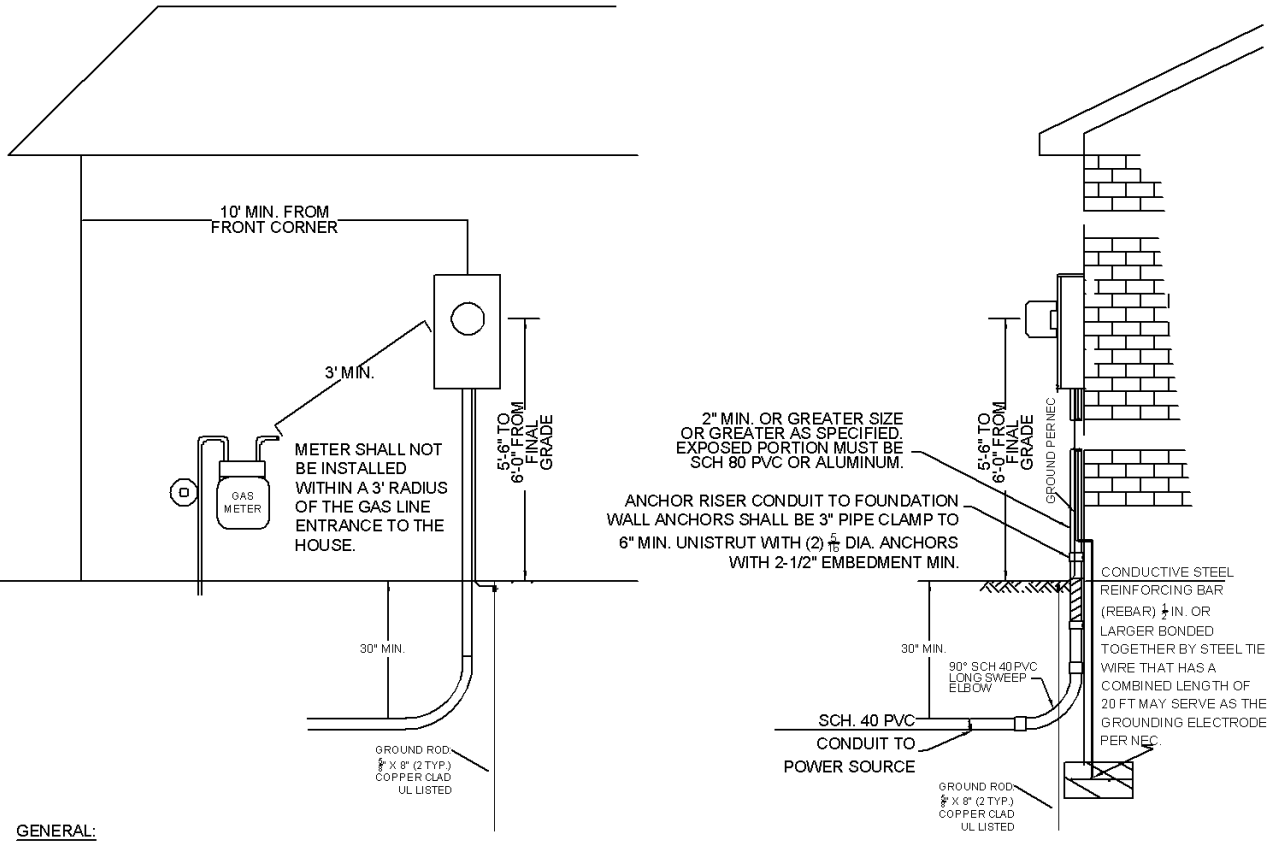
HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TYPICAL OVERHEAD RESIDENTIAL SERVICE

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.8	0

UNDERGROUND RESIDENTIAL SERVICES



GENERAL:
ALL ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, INTERNATIONAL BUILDING CODE, ICC ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE EXCEPT WHERE THESE SPECIFICATIONS ARE MORE STRINGENT. IF THERE IS A CONFLICT BETWEEN STANDARDS THE MOST STRINGENT SHALL RULE. THE CUSTOMER SHALL PROVIDE ALL SECONDARY SERVICE WIRE FROM THE POINT OF CONNECTION TO THE METER BASE ON UNDERGROUND SERVICES. CUSTOMER SHALL PROVIDE CONDUIT IN PLACE WITH PULLING TAPE PROVIDED IN THE CONDUIT. THE CITY'S ELECTRICAL DEPARTMENT WILL PULL THE SECONDARY SERVICE WIRE.

INSTALLATION:

1. ADDRESS SHALL BE POSTED AT BUILDING.
2. CUSTOMER TO FURNISH AND INSTALL CONDUIT FROM TRANSFORMER\ OR SECONDARY JUNCTION BOX, TO METER BASE.
3. CONTACT HYRUM CITY FOR FOR TRENCH INSPECTION. DO NOT BACKFILL PRIOR TO INSPECTION.
4. SEE TRENCH DETAIL DRAWING FOR SPECIFICATIONS.
5. TRENCH SHALL BE MIN. DEPTH OF 30" TO TOP OF CONDUIT.
6. CUSTOMER TO SUPPLY CONDUCTOR FROM THE POINT OF CONNECTION TO THE METER BASE.
7. METER LOCATION MUST BE APPROVED BY HYRUM CITY POWER.
8. A CT CABINET MUST SE USED ON THREE-PHASE SERVICE ABOVE 200 A.
9. FOR ALL THREE-PHASE UNDERGROUND SERVICE, CONTRACTOR SHALL PROVIDE 4" IMC (MINIMUM) FROM DIP OR RISER TO METER.

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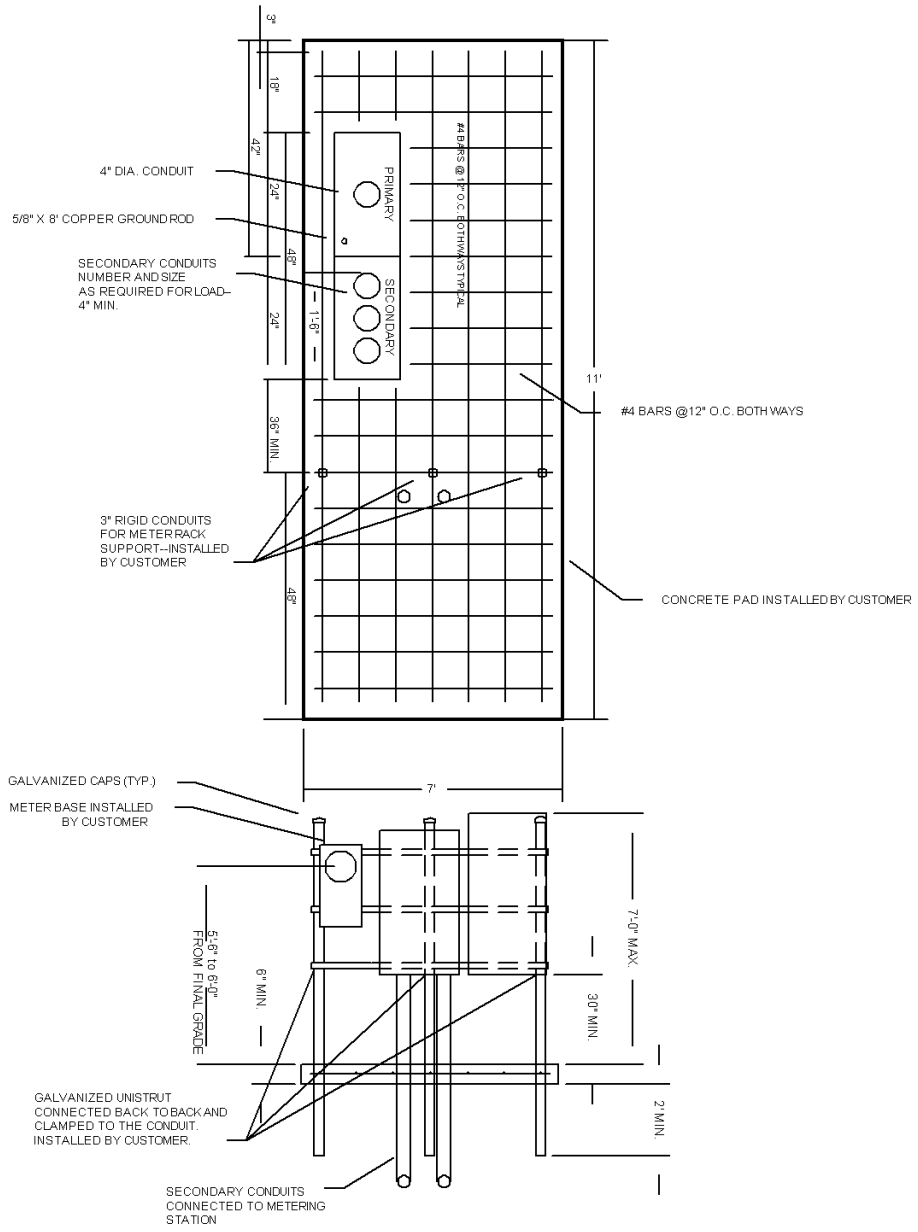
HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TYPICAL UNDERGROUND RESIDENTIAL SERVICE

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.9	0

THREE PHASE TRANSFORMER PAD WITH METERING STATION



NOTES:

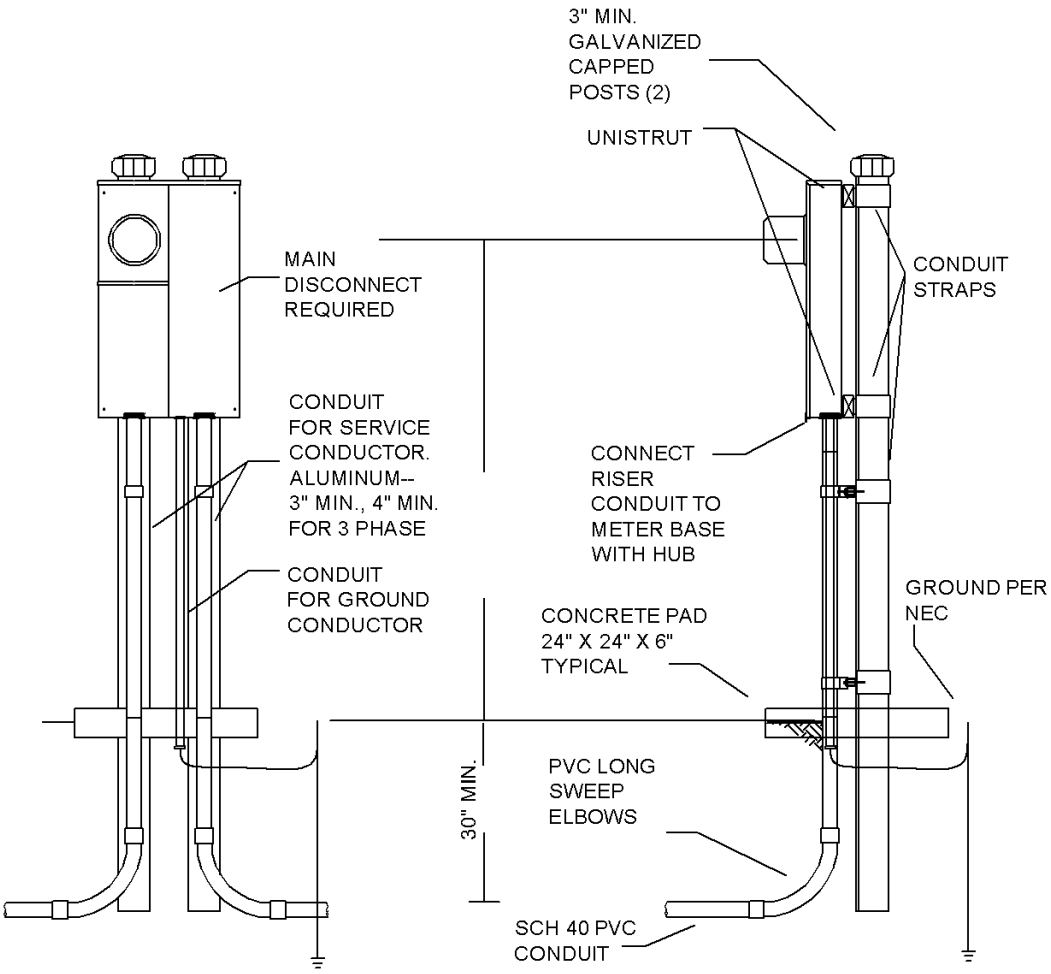
1. SECONDARY CONDUIT NUMBER AND SIZE SHALL BE INSTALLED AS REQUIRED FOR LOAD.
2. CUSTOMER SHALL MAKE SECONDARY/SERVICE WIRE CONNECTIONS IN TRANSFORMER AND METERING STATION.
3. HYRUM CITY POWER WILL PERFORM CT METER WIRING.
4. TRANSFORMER PAD AND METERING STATION SITE SHALL BE LEVEL AND BACKFILLED WITH SAND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASHTO T-99.

REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

TYPICAL TRANSFORMER PAD W/ METER STATION

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.10	0



FREE STANDING METER INSTALLATION
1 OR 3 PHASE

REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

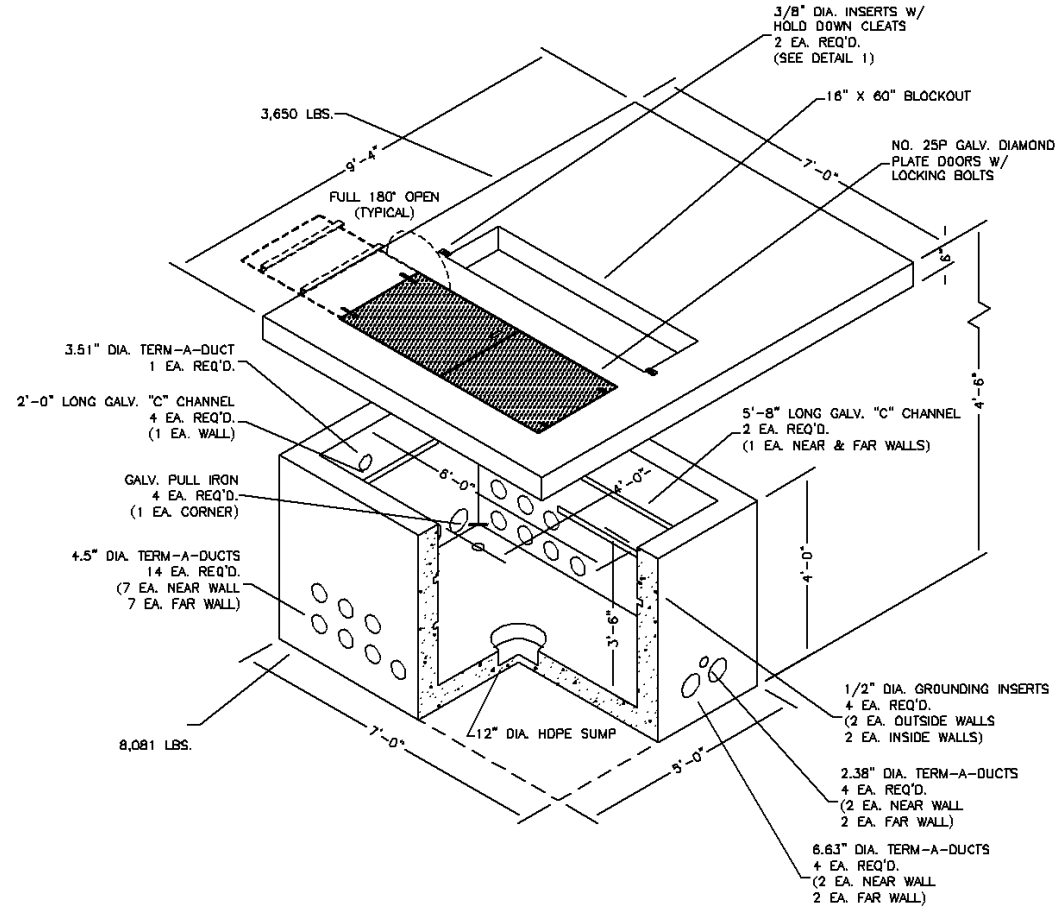
TYPICAL FREE STANDING METER SERVICE

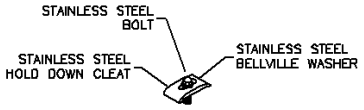
SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.11	0

Padvault for Three Phase Transformer

OLDCASTLE PRECAST -- 4' x 6' INTERIOR DIMENSION

2.4 – 25kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS





HOLD DOWN CLEAT
DETAIL 1

1 1/4" X 2 1/2" STAINLESS STEEL HOLD-DOWN CLEAT – 2 REQ'D.
3/8" X 1 1/4" STAINLESS STEEL BOLT – 2 REQ'D.
3/8" STAINLESS STEEL BELLVILLE WASHER – 2 REQ'D.

REV	REVISION RECORD	ENG BY:	APPD BY:	DATE

HYRUM CITY ELECTRICAL DEPARTMENT
ELECTRICAL SERVICE REQUIREMENTS

THREE PHASE TRANSFORMER PADVAULT

SCALE:	INITIAL ISSUE DATE:	SHEET	REV
NOT TO SCALE	08/01/2020	7.12	0