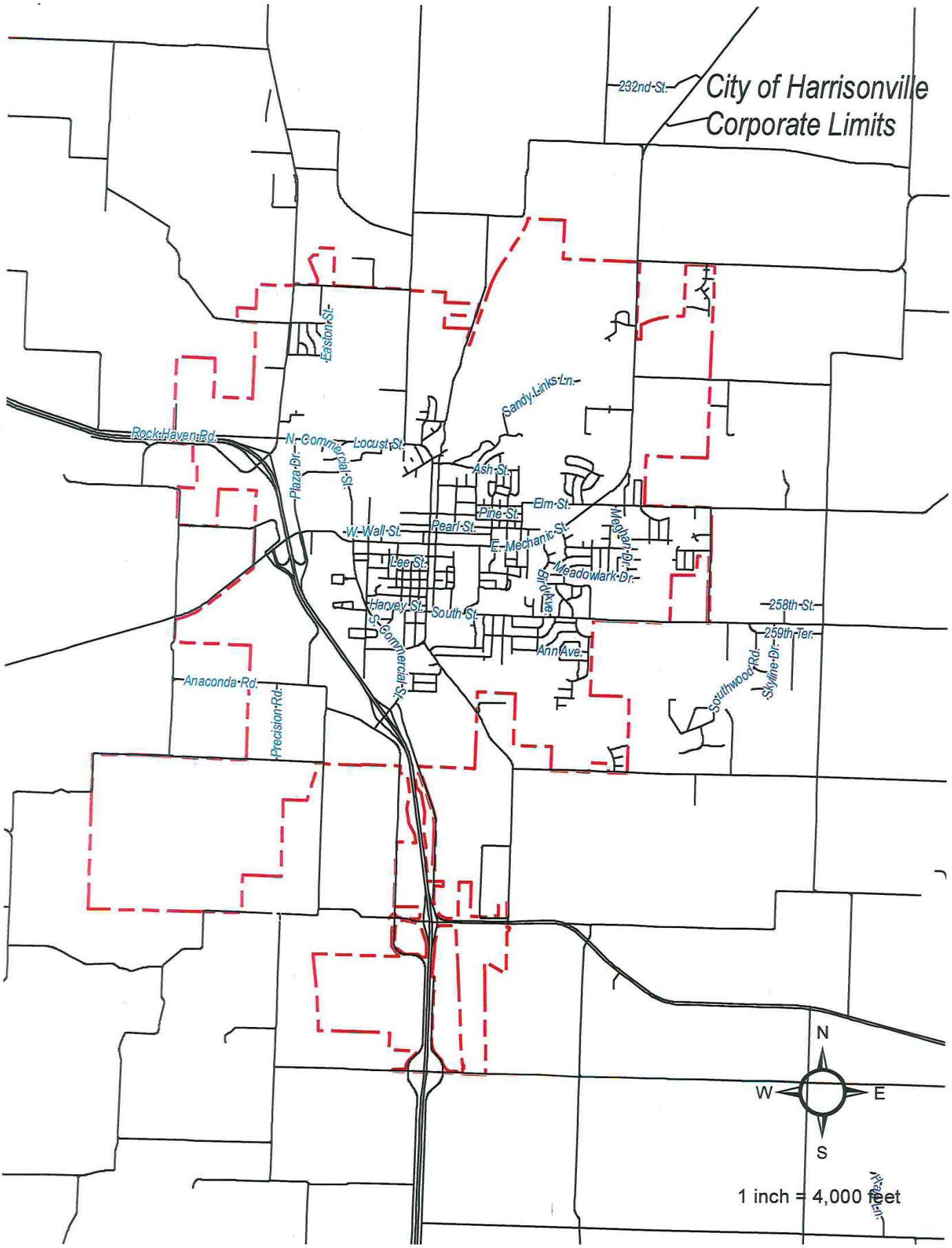
City Hall: 300 E. Pearl Street, P.O. Box 367 • Harrisonville, MO 64701
• Tel: 816-380-8900 • Fax: 816-380-8906
Electric Warehouse: 2108 Royal Street, Harrisonville, MO 64701 • Tel: 816-380-8968

ELECTRIC SERVICE POLICIES MANUAL

Policies Manual
Table of Contents

Page


City of Harrisonville
Corporate Limits
232nd St.
Easton St.
Sandy Links Ln.
Rock Haven Rd.
N. Commercial St.
Locust St.
Plaza Dr.
Ash St.
Elm St.
Pine St.
Pearl St.
W. Wall St.
E. Mechanic St.
Meghan Dr.
Meadowlark Dr.
Lee St.
Harvey St.
South St.
Bird Ave.
Ann Ave.
S. Commercial St.
258th St.
259th Ter.
Southwood Rd.
Skyline Dr.
Anaconda Rd.
Precision Rd.
N
W
E
S
1 inch = 4,000 feet

FOREWORD

The standards contained herein are supplementary to, and not intended to conflict with, the NEC ANSI/NFPA 70, the National Electrical Safety Code (NESC) ANSI C2, and governing laws, ordinances, and statutes as may be in force within the City of Harrisonville in which the Harrisonville Electric Department (HED) furnishes electric service.

This manual is offered to assist Customers, architects, engineers, contractors, wiremen and inspectors in the planning and construction of electric service installations. It is not intended to ensure adequacy and safety of the Customers own wiring and equipment. Such responsibility remains with the Customer. HED does not inspect the Customer's wiring for compliance with electrical codes or regulations. The City of Harrisonville, Codes Department is the inspection authority pertaining to Customer NEC Compliance. All inspections that are required on items not pertaining to the NEC shall be inspected by the Electric Superintendent or Electric Department personnel.

HED is dedicated to providing its customers quality electric service at the lowest possible price. One-way HED is accomplishing this is through use of uniform standards for installation, wiring and system design. These standards and requirements are intended to assist in expediting Customer needs for service. Therefore, it is required that Customers' wiring, and installations intended for connection to HED's system comply with these standards, the adopted National Electrical Code (NEC) and any other codes or regulations in effect in Harrisonville, Missouri.

HED actively promotes electric safety through safety programs for schools and information programs for the general public. HED encourages all companies and individuals to utilize this manual in a manner that furthers the cause of electric safety in our community.

GENERAL INFORMATION

ARTICLE 1. GENERAL INFORMATION

SEC. 1.1 DEFINITIONS

ABBREVIATIONS found within this manual:

COH	-	City of Harrisonville
HED	-	Harrisonville Electric Department
NEMA	-	National Electrical Manufacturers Association
NEC	-	National Electrical Code
NESC	-	National Electrical Safety Code
AWG	-	American Wire Gauge
MCM	-	Thousand circular mils wire size

COMMERCIAL CUSTOMER SERVICE REQUIREMENTS applies to any Customer who installs an electric service in a commercial building as defined by the City of Harrisonville zoning ordinance or a residential dwelling as defined by the City of Harrisonville zoning ordinance with three or more meters.

CUSTOMER means any person or entity applying for, receiving, using, or agreeing to receive electric service supplied by HED under one rate schedule at a single point of delivery and for use within the premises occupied by such person or entity or any person, firm or corporation that improves, changes, or converts land for specific use.

CONTRIBUTION TO AID CONSTRUCTION means a non-refundable cash payment from a Customer to be paid toward the cost of extending its Distribution System, installation of streetlights and other additions or modifications solely for the benefit of the Customer. See Master Fee Schedule.

DISTRIBUTION SYSTEM means conductors, transformers, pedestals, conduits, manholes, pads, ground rods, substations, transmission facilities and other equipment owned or utilized by HED to provide electric service. It does not include service lines.

ELECTRIC INDUSTRY TERMS means customary electric industry terminology that may be found throughout this document. Some knowledge of electric theory may be required for interpretation of certain topics.

FACILITIES means electric equipment installed for the purpose of facilitating the use or metering of electricity.

INSPECTOR means an employee of the City of Harrisonville Codes Department or Electric Department that inspects work performed by others.

METER SOCKET means a device used for mounting and connecting the electric meter.

RATE means a pre-determined charge for electricity consumed by a particular customer type.

RESIDENTIAL CUSTOMER SERVICE REQUIREMENTS applies to any Customer who installs an electric service with two or less meters to a residential dwelling as defined by the City of Harrisonville zoning ordinance.

SERVICE ENTRANCE means the conduit, wire, fittings, and accessories provided and installed by the customer between the termination of the service line or drop and the customer's service equipment. (Includes meter socket for three gang meter banks and larger)

SERVICE EQUIPMENT means the main circuit breaker(s) or fused switch(es) and their accessories which constitutes the main control and means of cutoff for the supply to a customer's premises.

SERVICE LINE OR DROP means the electric line extending from HED's distribution system to a Customer's electric meter.

SERVICE POLE OR PEDESTAL means the pole or pedestal where a Service Line is connected to HED's Distribution System.

STREET LIGHTING SYSTEM means the poles, luminaries, wires, etc. owned by HED that are used to light public roadways.

UNDERGROUND SECONDARY WIRE means the wire that is installed from the Underground transformer or pole to a secondary pedestal.

UNDERGROUND SERVICE WIRE means the wire that enters the meter or service location on the building from the underground transformer, secondary pedestal or pole.

SEC. 1.2 GENERAL

A. Due to continuing advancement in methods, some procedures outlined herein may need to be modified from time to time. Upon request, revised information will be supplied concerning these changes and revisions, if any. They may also be obtained through the City's website, www.harrisonville.com.

B. Exceptions may be approved when written requests are received and approved by the HED Director. Approval of the exception will be based on merits of quality customer service or sound business practices.

C. HED should be contacted about proposed installations as early as possible to allow time for necessary planning, scheduling, and proper coordination.

D. Where new electrical installations, additions or alterations are contemplated, inquiry should be made in advance of design or purchase of equipment relative to available voltage, point of delivery and extension of HED's Distribution System.

E. Note, it is the Customer's responsibility to install their service entrance equipment and meter socket at the place indicated by HED's representative. Failure to do so may result in unnecessary costs to the Customer for service relocations and possible delays in providing service.

F. Installation of wiring capacity greater than minimum code requirements is strongly recommended. Appropriate wiring protects property investment by assuring the wiring system is capable of handling increased usage of electrical equipment.

G. This manual is issued by HED as a guide for obtaining electric service and to address available services, conditions for service and standards for materials and construction of the Customer's service entrance. It is not intended to specify nor limit the design of the Customer's wiring or equipment. The standards for materials and construction are necessary to assure efficient use of HED's resources and are the minimum under which HED will supply service. HED reserves the right and authority to vary from the guidelines when it determines other solutions are more practical for the operation of HED.

H. Nothing contained in the standards shall require HED to install area feeder circuits underground or require any part of its existing Distribution System to be placed underground.

I. Standards identified herein supersede all previous publications of Electric Service Policies, Standards and Requirements issued by HED prior to this date and are subject to change without notice.

J. Representative Availability

HED has representatives whose services are available to Customers without charge. They endeavor to stay abreast of developments in safe and adequate practices in wiring, the latest developments in lighting and power application, and other data which pertain to the most efficient use of electricity. HED will be pleased to provide requested information or to investigate utilization difficulties, which may arise. Customers may call HED any time they believe HED's knowledge and experience maybe of assistance.

K. Right of Access

1. The Customer shall give authorized representatives of HED, when properly identified, full and free access to the premises of the Customer at all reasonable hours. This access shall be for the purpose of installing, reading, inspecting, adjusting, repairing, maintaining, replacing, or removing any of HED's Facilities on the premises of the Customer or for any other purpose incidental to the electric service supplied by HED.

2. Fences and other obstructions shall not be placed to restrict reading and maintenance of HED's meters. Where meters are located beyond locked doors or padlocked gates, the Customer's locking device shall have a keyway for dual key capacity that accommodates an HED lock.

3. HED representatives whose duty requires them to access the premises of the Customer has an identification card bearing the employee's photograph. The Customer should deny admittance to anyone claiming to be an employee who refuses to display a properly approved identification card. Any uncertainty of identity or purpose should be reported to HED immediately.

4. Representatives of HED may neither demand nor accept any compensation from a Customer for service rendered during the performance of their duty.

5. The Customer shall provide and/or describe all necessary easements or rights-of-way across property owned or otherwise controlled by the Customer for the construction, operation, and maintenance of HED Facilities required to supply electric service. Certain installations may require the Customer to sign an indemnification agreement.

L. Customer Responsibility for HED Property and Clearances

1. Breaking of seals, tampering with meters, wires or any other property belonging to HED by unauthorized representatives of HED is prohibited and may be punishable by Missouri State Statute 569.090(4). Penalty of a second offense can be punishable by felony conviction.

2. The Customer, at all times, shall protect the property of HED on the premises of the Customer and shall not permit anyone other than representatives of HED and other persons authorized by law to inspect, work on, open or otherwise handle the wires, meters or other HED Facilities. In case of loss or damage to HED property due to carelessness, neglect or misuse by the Customer, their family, agents, servants or employees, the Customer shall pay to HED the cost of any necessary repairs or replacements of such Facilities or the value of such Facilities. A second offense shall be prosecuted as a felony.

3. Swimming pools (above or below grade) shall be constructed to provide clearance per N.E.C.

4. Attachments of any kind or nature shall not be permitted on HED poles without previous execution of HED's Pole Attachment Agreement. The only exception to this will be temporary service.

5. If practicable, HED may relocate its Facilities at the request of a Customer or as a result of a Customer's construction activities. The Customer may be required to pay all costs associated with relocating the Facilities. All estimated costs shall be paid by the Customer prior to issuance of a job order.

6. A Customer shall use the electric service supplied by HED with due regard to the effect that the Customer's use has on other Customers and on HED Facilities and equipment. HED may refuse to supply service or may suspend service to a Customer if the Customer's service entrance wiring is not safe or is operated so as to disturb the electric service supplied by HED to other Customers.

7. HED will require a Customer to provide, at Customer's expense, special or additional equipment when a Customer's use of electric Facilities results in an interference with the quality of the Customer's own service or that of neighboring Customers, as determined by HED.

8. Care shall be taken by the Customer in the installation of antennas near HED power lines such that under all conditions, the installation will not be under or fall across HED lines nor contact them in any way that may be considered hazardous to life or property.

9. The Customer is responsible for providing clearances as specified in the NESC when constructing structures on their property. The Customer shall not construct or locate a building, structure, or mobile equipment within 5 feet of HED's Distribution System, as measured horizontally, from the vertical plane containing the nearest electrical conductor or equipment displaced by a 6 lb/ft² wind.

10. The location of buildings, structures (requiring building permit), including fences, or mobile equipment is prohibited above or beneath HED's Distribution System and within utility easements or rights-of-way. Fences shall be allowed within the utility easements but must allow access to equipment by means of a gate or gates. If the fence has to be removed for access the City of Harrisonville nor HED will be responsible for re-installing the fence and shall not be liable for damages.

11. The Customer shall be liable to HED for costs of any repairs or replacement of HED Facilities located on the Customer's premises or projects that are lost or damaged due to change in characteristics of the Customer's load that have not been reported to HED.

M. Discontinuance of Service

1. The City reserves the right to discontinue utility service for violation of any rules, regulations or ordinances of the City of Harrisonville relating to service (See "City of Harrisonville Municipal Code Section 700.370").

N. Standby Service

1. The Customer shall not use any other electric power or lighting service, including stand-by generators, in conjunction with HED's service, unless installed to NEC guidelines. To prevent operation of the Customer's stand-by generating Facilities in parallel with HED's service, the Customer is required to obtain a permit for work associated with the installation which requires approval by COH Inspectors before the installation is acceptable to HED, a transfer switch is required in order to prevent feedback on to HED's system.

2. Devices or attachments shall not be connected to HED's Facilities in such a manner as to permit the use of unmetered energy without prior written consent from HED. The Customer must submit detailed plans, specifications, equipment description and other details pertinent to the proposed installation as may be required by HED. These plans, specifications, etc., must be approved by HED before parallel operation will be allowed.

O. Service Exclusive

Electric service supplied by HED is for the exclusive use of the Customer on the premises to which such service is delivered. HED will not supply electric service to a Customer for resale or redistribution by the Customer unless prior written approval is granted by HED.

P. Submission of Plans

1. HED does not design, plan, install or maintain the Customer's wiring or electric equipment.

2. Customers may contact HED to obtain information relative to new electric service connections or changes in existing service. In order to obtain service at the time desired, an application should be submitted well in advance and the Customer should keep HED informed as to the progress of the relative work andwhen service is anticipated.

3. Prospective Customers desiring the installation of new electric service or changes in service shall furnish a building plan, a one-line electric diagram and a completed "Request for Electrical Service Information" form before service will be considered. HED will not design, plan, install or maintain any wiring or electrical equipment that is the property of the Customer. HED reserves the right to determine availability of voltage, phase of service, route of service, metering procedures and maximum fault current in any given area.

4. Where three-phase service is required, it shall be the Customer's responsibility to balance distribution of the load between the three phases of service as evenly as possible to preclude an over-current condition on HED equipment. Loss of HED equipment due to an imbalance may result in Customer being billed for replacement costs for such equipment.

5. The Customer is responsible for notifying HED of proposed all-electric services during the plan submission stages of development or service upgrade.

Q. Electric Rates

1. The rates that HED charges for different types of electric service are available forinspection by any Customer during working hours at HED's business office. They may also be obtained through HED's website at **www.harrisonville.com.**

2. Upon request, an HED representative will explain the rate schedules and assist in selection of the applicable rate best suited to the Customer's requirements. The Customer is responsible for the final selection of the applicable rate schedule.

R. Tree Trimming

The Customer shall permit HED to trim any trees out of the easement or remove any trees within the easement that HED deems as necessary if they may interfere with the safe operation of HED's Facilities. Except in emergencies, HED will trim trees not more than every three (3) to five (5) years. During emergencies HED will clear the lines of outage related trees and will leave the debris. Routine trimming is vital to maintaining safe and reliable service and is performed at no cost to the Customer. To avoid future problems and inconvenience, it is strongly recommended thatCustomers consult HED personnel when planting trees under or near overhead power lines.

1. Trimming and tree removal related to maintaining safe clearance for customer service lines to a Customer's Facilities, are the responsibility of the customer/property owner. HED will disconnect service or streetlight lines free of charge to facilitate customer tree trimming or removal.

2. Damage to a service line or the utility facilities due to customer/property owner neglect of trimming for service drop clearances may result in service upgrade or cost for repair.

S. Service Quality

1. HED will use reasonable diligence to maintain continuous electric service to the Customer but does not guarantee the supply of electric service against interruptions. HED shall not be considered at fault or liable for any damages occasioned by system fluctuation or interruption of electric service.

2. HED shall not be considered responsible or liable for failure by HED to perform any obligation if prevented from fulfilling such obligation by reason of delivery delays, breakdowns of or damage to Facilities, acts of nature or public enemy, strikes or other labor disturbances involving HED or the Customer, actions ofcivil, military, or governmental authority or any other cause beyond the control of HED.

3. HED will use reasonable diligence to provide an adequate and uninterrupted supply of electrical energy within normal voltage limits. HED shall not be liable, however, for personal injury, loss, or damages, if the electrical energy supply should be interrupted or subjected to voltage variation due to circumstances beyond the control of HED. HED shall have the right to temporarily suspend service for the purpose of making repairs or improvements to the system.

4. It shall be the obligation of the Customer to notify HED as soon as practicable if the Customer's service is interrupted, unsatisfactory or if any hazardous condition is proposed or thought to exist.

5. Any devices required to protect the Customer's equipment and premises shall be provided by the Customer. HED shall not be responsible for any damage to the Customer's equipment due to improper Customer protective devices or improper use, installation, or lack of appropriate protective devices.

6. Electric service is subject to occasional voltage fluctuation that may adversely affect the operations of sensitive controls in or on a Customer's electric equipment. Devices available for use with most electric equipment will minimize the effect of such disturbances. HED will assist the Customer in identifying the source of the disturbance. HED will not, however, assume any liability for damage to the Customer's equipment nor disturbances in processes arising from such variations.

7. HED reserves the right to limit the use of electrical energy any time that power shortages or equipment failures require HED to place into effect a curtailment program which may include voltage reduction and rotating blackouts.

T. Extension of Distribution System

1. Costs associated with the extension of, or addition to, HED's Distribution System must be recovered by HED or justified by some combination of the following, as determined by HED.

   a. HED's Distribution System will be enhanced or be made more reliable.

   b. The extension is not solely for the benefit of the requesting Customer and will serve future Customers.

c. The anticipated revenue to be received after implementation of the extension or addition will offset HED's investment within five years.

d. The Customer submits connection fees per City Master Fee Schedule, prior to start of work for costs of the extension or addition as determined by HED.

2. HED will determine the feasibility of a proposed system expansion or addition prior to undertaking the work.

3. It shall be the responsibility of the Customer to provide any information and/or property surveying as required for any work.

4. The Customer may be required to provide a Contribution to Aid Construction for costs in excess of the standard Facilities installed for the applicable rate class. Non-standard Facilities may include items such as multiple phases, additional size/shape of transformer, or other requirements necessary to serve the Customer.

5. HED facilities (conduits & vaults) required along new or improved roadways (not in new subdivision) shall be installed by the roadway or HED's contractor.

U. Conversion of Overhead Distribution System to Underground

1. Costs associated with the burial of HED's Overhead Distribution System must be recovered by HED or justified by some combination of the following, as determined by HED.

a. HED's Distribution System will be enhanced or be made more reliable.

b. The extension is not solely for the benefit of the requesting entity and will benefit others.

c. The anticipated costs of the conversion are sufficiently funded in HED's Underground Program budget.

d. The entity requesting the conversion submits a fees as per Master Fee Schedule, prior to start of work, for costs of the conversion as determined by HED.

2. The anticipated work shall be consistent with criteria established in HED's Underground Program.

3. HED will determine the feasibility of a proposed system conversion prior to

undertaking the work.

4. It shall be the responsibility of the entity requesting the conversion to provide any information and/or property surveying as may be required for any work.

5. The entity requesting the conversion may be required to pay fees per Master Fee Schedule for costs in excess of the standard allowable investment for the applicable rate class.

6. HED facilities (conduits & vaults) required along new or improved roadways (not in new subdivision) shall be installed by the roadway or HED's contractor.

7. Relocation of electric utilities due to roadway improvements associated with subdivision development shall be consistent with the City of Harrisonville Municipal Code Chapter 410 and Chapter 430.

V. Point of Service

1. For overhead services - residential, commercial or others – point of service is the weather head connections.
2. For underground services – residential, commercial, and industrial – point of service shall be at the connections in the padmount or HED owned secondary pedestal. Customer is responsible for all underground service wire. HED will make all connections of customer service to padmount or inside secondary pedestal.
3. For primary metering – industrial – Customer shall own and maintain (or pay an hourly rate if HED is requested to make repairs) all equipment on load side of primary metering equipment. Hourly rates and materials will be at HED cost plus 15% surcharge for material cost and vehicle maintenance.

SERVICE POLICIES AND REQUIREMENTS

ARTICLE 2. SERVICE POLICIES AND REQUIREMENTS

SEC. 2.1 GENERAL

A. HED will provide only one point of delivery at one voltage type of electric service to new services or Customer initiated upgrades.

B. In serving any Customer, HED will, at its discretion:

1. Determine the attachment point, voltage, and service characteristics that it will provide,

2. Approve the location of the Customer's entrance, equipment, and routing of its electric system from HED's service connection point to the service entrance,

3. Develop a detailed plan to modify HED's Facilities to suit the Customer's desires, if applicable. The Customer may be required to provide a Contribution to Aid Construction for excess cost, and

4. Determine whether a Customer's load is of such size and character and is so located, providing more than one service connection is advisable.

C. Contractors and others installing electrical work are to balance the load on three-wire and four-wire systems. This is required for the Customer as well as HED's benefit. It will provide the Customer with better voltage regulation and maximize use of the service entrance equipment.

D. Electric Facilities installed at HED's expense on a Customer's property for the purpose of serving that Customer, will remain the responsibility of HED. Electric Facilities installed at Customer's expense (i.e., metering sockets, current transformers, meter conduit for HED use, etc.) shall remain the responsibility of the Customer.

SEC. 2.2 INSPECTION/APPROVAL OF CUSTOMER'S WIRING

A. New wiring and alterations in wiring are required to be approved by the City's building inspector prior to being served by HED. HED cannot provide service until this approval has been received from the City's building inspector.

B. Any service that has been inactive more than 90 days shall require and electrical permit, be inspected and approved by the City's building inspector before being energized by HED.

C. The use of electric service supplied by HED is the sole responsibility of the Customer. HED shall not be held liable for any inspections or recommendations which are made as a courtesy to the Customer.

D. HED reserves the right, but not the responsibility, to inspect the Customer's service installation. HED personnel only inspect the Customer's outside service attachment, metering, equipment, conductors, and other facilities installed to provide electric service to assure compliance with HED's standards.

SEC. 2.3 METERING

A. Self-contained metering equipment is intended for single-phase residential and commercial service up to 400 Ampere and three-phase commercial service up to 200 Ampere. For larger services, current transformers (CT's) are required which are located remote from the meter.

B. Under no circumstances shall meters be removed or relocated, whether temporarily or permanently, except by HED employees or electricians authorized by HED to do such work.

C. HED is willing to relocate its metering equipment and service attachment when required for modification to the Customer's building or service entrance. However, there may be a cost to the Customer for such a relocation.

D. HED owns and maintains all HED billing meters and related metering devices. HED may permit the use of Customer owned metering devices when they are an integral part of the Customer's equipment.

SEC. 2.4 OVERHEAD SERVICE

A. Normally the Customer will be served through a meter attached to the outside of the building. Service entrance conductors shall be installed in accordance with the current ado of the NEC.

B. The length of a service drop from an HED pole attachment point to the Customer's premises will be limited by the ground clearance attainable at tensions appropriate to the strength of the wire and its supports, but not longer than 125'.

C. The Customer is to provide, in the construction of their building, a suitable service attachment (point of attachment) of sufficient strength to withstand the stress of HED's service drop under NESC heavy loading conditions.

D. The point of attachment of HED's service drop to the Customer's building or mast must be of proper height and location to provide at all points in the span the minimum clearances above ground and from other wires and obstructions required by the NESC and other applicable rules.

E. In general, the clearances shall be per adopted version of N.E.C.

SEC. 2.5 UNDERGROUND SERVICE

When underground service conductors are installed by HED, they will be terminated by HED at the first point of connection with the Customer at a point on the exterior of the building. This point will be the dividing line of responsibility between the Customer and HED. Wherever underground service conductors are installed by the Customer, they will be terminated by HED at the first point of connection with HED's system and this point will be the dividing line of responsibility between the Customer and HED.

A. Residential (see Article 3)

B. Commercial (see Article 4)

SEC. 2.6 TEMPORARY SERVICE

A. Temporary service equipment will be provided, by customer or licensed electrical contractor for residential and small commercial construction projects.

B. Temporary service may be provided to the Customer's disconnecting apparatus for all other situations, including larger Commercial Customers, traveling shows, public events displays, etc., upon receipt of application and approval by HED.

C. In cases where existing system is not available or of sufficient capacity, the Customer will be required to pay HED, in advance of construction, an amount equal to the estimated cost of installation and removal of Facilities required to provide temporary service power.

D. Connections shall not be provided until inspected and approved by City of Harrisonville's building inspector.

SEC. 2.7 EQUIPMENT UTILIZATION

A. In order to assure uniform customer service, it is important that the requirements for the Customer's electrical equipment identified herein be followed by the Customer. These requirements can be met by commercially available equipment. The Customer shall use the electric service supplied by HED with due regard to the effect of such service on other HED Customers and its Distribution System. HED may refuse to supply electric service or may suspend electric service to a Customer without notice if the Customer's installation is considered to be unsafe or dangerous or is installed or operated as to disturb the electric service supplied by

HED to other Customers. Equipment with excessive starting currents, or has intermittent or rapidly fluctuating load characteristics, shall not be connected to HED's lines without prior arrangement with HED. If the Customer's use of such equipment requires the installation of separate or additional transformer capacity, HED may, upon request from the Customer, furnish and maintain such separate or additional transformer capacity. The Customer shall pay to HED, in addition to the bill for electric service under the applicable rate schedule, all costs for these changes.

B. HED must be notified at least three (3) business days prior to the Customer installing any single-phase motors larger than 7½ horsepower, heating or cooling appliances greater than 10 kilowatts, or any special or unusual equipment so that HED can confirm if existing power lines and equipment are adequate to handle the increased load.

C. Electric service is subject to occasional rapid voltage variations which may adversely affect the operations of sensitive controls on a Customer's electrical equipment. Devices are available for use with most electric equipment that will minimize the effect of such disturbances. Upon request, HED will suggest appropriate devices for specific application and will advise on their correct adjustment and setting. HED will not assume liability for damage to the Customer's equipment nor to disturbances in any Customer processes arising from such variations.

D. Computer installations may require special consideration and protection by the Customer. Upon request, HED will assist the Customer with the planning of such special service protections.

E. When lightning arresters are installed by the Customer, they must be connected to the Customer's Facilities on the load side of their main entrance fuses or circuit breakers per adopted N.E.C.

F. A fuse or circuit breaker shall not be installed in the neutral or grounding conductor of the service entrance.

G. It is recommended that the grounded service conductor be the same size as the current carrying conductors. If a reduced grounded service conductor is installed, it must be sized in accordance with the NEC and approved by the City's building inspector.

SEC. 2.8 MOTORS

A. Single-Phase, 120/240 Volts

1. Starting inrush current for single or multiple motors shall be limited at any instant to 50 amperes at 120 volts or 150 amperes at 240 volts. This also applies to air conditioning units. The running power factor of motors shall not be less than

0.85.

B. Three-Phase

1. The permissible starting inrush current for three-phase, 60 hertz motors operated from a 480-volt supply is limited by the effect on other motors and on the Distribution Systems of the Customer and HED. The Customer must notify HED of the maximum size and type of motor to be served, as well as the aggregate of all motor loads, so HED can assure that proper service to all Customers on the affected segment of its Distribution System will be maintained.

2. The permissible starting inrush current for three-phase, 60 hertz motors operated from a 120/208 volt, four-wire supply is limited by the effect on lighting and other equipment connected at 120 volts and on the Distribution Systems of the Customer and HED. The Customer must notify HED of the maximum size and type of motor to be served, the aggregate of all motor loads and the type of lighting and other equipment to be served at 120 volts so HED can assure that proper service to all Customers on the affected segment of its Distribution System will be maintained.

3. In both of the above cases, a limitation on the motor inrush current may be necessary which can be accomplished by using proper motor starting devices.

C. Motor Protection

1. HED uses single-pole switches and single-phase fuses in its Distribution System. Accordingly, the Customer is expected to protect all of its three-phase motors and equipment from a single-phase operating condition. In addition, suitable protection must be provided by the Customer for all motors and related equipment in accordance with the NEC in order to protect the motor and equipment from improper or dangerous operation due to motor overloads or the failure to start.

    a. All motors shall be protected against overload by the installation of adequate over-current, thermal protective devices in all phases.

    b. Three-phase motors that operate apparatus that may be subjected to damage due to a reversal of rotation shall be protected with reverse-phase relays.

2. HED shall not be held responsible for any damage to Customer's equipment due to failure to use, improper use, or malfunction of protective devices.

SEC 2.9 OTHER EQUIPMENT

A. Welding

The Customer must notify HED prior to installation of any welding equipment. The Customer will also need to provide information on all the characteristics of the welder, what it will be used for and the timing of welding operations so that HED can assure availability of proper voltage at the welder and to minimize objectionable voltage fluctuations to other Customers.

B. Special or Unusual Equipment

Power factor corrective equipment, flashing signs, high frequency equipment, spark discharge devices, radio transmitters, x-ray machines, experimental devices, or any other equipment which could cause abnormal voltage fluctuations shall be designed and operated so as not to adversely disturb HED's electrical system. Customers must inform HED of the characteristics of any such equipment prior to placing it in service. If a Customer uses its building wiring as a carrier system for communication or signaling purposes, the Customer shall install suitable electrical filtering equipment to keep HED's Facilities free from carrier frequency currents.

SEC. 2.10 COGENERATION

A. Any Customer contemplating the operation of generating equipment in parallel with HED Facilities shall contact HED for information regarding terms, conditions, and requirements for interconnection with HED Facilities. Solar is the only form of Cogeneration currently allowed within the HED service territory.

B. Emergency/Standby generators are allowed.

MPUA (Missouri Public Utility Alliance) in conjunction with MJMEUC (Missouri Joint Municipal Electric Utility Commission) is the sole source for Electric Power provided for the citizens of the City of Harrisonville due to purchase power agreements with the exception of Solar.

RESIDENTIAL

ARTICLE 3. RESIDENTIAL

SEC. 3.1 AVAILABLE RESIDENTIAL ELECTRIC SERVICE (including mobile homes and two-unit dwellings and smaller)

Single-phase, 60 hertz, 120/240 volts, three-wire.

SEC. 3.2 GENERAL PROVISIONS

A. All new services customer-initiated upgrades, relocations, or modifications, shall be placed underground.

1. All unrestorable underground direct buried services shall be upgraded by the customer to electric service policy codes and specifications.

2. All services requiring increase in service size (ie. 100 amp to 200 amp) due to damage caused by storms shall be placed underground.

    a. Services shall be converted within sixty days of damage.

    b. HED may, at its sole discretion, extend the time for conversion if the number of services damaged in a single event warrants extension.

    c. Failure to restore a damaged service within specified times or signing agreements for HED conversion programs may result in discontinuing of electrical service.

3. All services requiring more than one replacement or reattachment due to damage from storms shall be placed underground.

    a. Services shall be converted within sixty days of damage.

    b. HED may, at its sole discretion, extend the time for conversion if the number of services damaged in a single event warrants extension.

    c. Failure to restore a damaged service within specified times or signing agreements for HED conversion programs may result in discontinuing of electric service.

4. All services requiring more than one replacement or reattachment due to damage from storms shall be placed underground by the dwelling owner if the dwelling owner has previously refused conversion to underground financed by grant funds.

a. Services shall be converted within sixty days of damage.

b. HED may, at its sole discretion, extended the time for conversion if the number of services damaged in a single event warrants extension.

c. Failure to restore a damaged service within specified times or signing agreements for HED conversion programs may result in discontinuing of electrical service.

5. All services requiring more than one replacement or reattachment due to damage from negligent trimming shall be placed underground.

a. Services shall be converted within sixty days of damage.

b. HED may, at its sole discretion, extended the time for conversion if the number of services damaged in a single event warrants extension.

c. Failure to restore a damaged service within specified times or signing agreements for HED, conversion programs may result in discontinuing of electric service.

6. All services requiring more than one replacement or upgrade due to damage caused by electrical diversion, carelessness, neglect or misuse, shall be placed underground.

B. Homeowners, architects, engineers, contractors, builders, etc., are requested to consult in advance with HED to obtain any special specifications and directives for the proposed service entrance. This may avoid delay and expense if carefully observed and followed.

C. Available short-circuit current at residential service entrances rated 200 amperes or less will be 10,000 AFC.

D. Single Lot and Subdivision Development

1. Development of a residential lot or subdivision requires the installation of an underground distribution and lighting system. The Customer of such an area shall contact HED prior to or during the planning/design phase.

2. Upon receipt of a proposed area, tract development plan or by request of the Customer, HED will specify the type of electric service available and location of proposed and existing Distribution System for use in the development. The Customer is required to construct a conduit system for the proposed residential area development in accordance with the following:

   a. Complete all work in accordance with HED's Electric Service Policy, construction standards and adopted NEC electrical codes.

   b. The Customer shall provide and install all conduits for HED's primary, secondary, lighting, and service conductors. HED will provide all transformer pads and Service Pedestals (HED will own and maintain all primary, secondary, and lighting conduits after they have been properly installed). ***NOTE: Customer will own underground service wire.***

      1. Conduits may be required beyond the customer's property. Such conduits and distance shall be determined by HED.

   c. HED will install, own, and maintain transformers, secondary pedestals and all conductors (primary and secondary) required to serve and will terminate at the Customer connection point. The metering socket must be installed by the Customer at the location designated by HED which is generally on the side of the house. ***NOTE: Customer connection point shall be either in transformer or secondary pedestal. Customer is required to install and own the underground service wire.***

   d. The Customer shall provide and/or describe at no cost to HED, all rights-of-way and easements required for HED's primary and secondary conductors, pad-mounted transformers, secondary pedestals, and any other Facilities that may be required to serve the Customer. The grading must be within 6 inches of final grade, with lots pinned or staked and the easement cleared of all trees, stumps, and obstructions before HED begins construction. Excessive spoils (rock, tree, stumps, etc.) resulting from the installation of HED's Distribution System will be the responsibility of the Customer to remove. Access for HED vehicles shall be provided to all HED Facilities prior to sodding, landscaping, and fencing.

   e. Complete all earth or rock removal and fill to final grade prior to trenching or boring for underground distribution system.

   f. Excavate all rock and remove all brush or trees, as required to facilitate installation and maintenance of HED's Distribution and Lighting System. (Specifically, the proposed facility route shall be cleared to ground level).

   g. Take adequate precaution to assure that underground conductors, transformers, and other equipment will not be damaged or disturbed in the

course of other construction operations, and if damage should occur, to reimburse HED for the cost of necessary replacement or repairs.

h. Pay amounts specified (if required) to HED before construction of its proposed Distribution System. See Master Fee Schedule.

i. Provide adequate drainage and landscaping to assure that HED's Distribution System shall not be exposed due to erosion or excavation during developmental stages and if exposure should occur, to reimburse HED for the cost of necessary replacement, repairs, or preventative measures.

E. Conduit Installation

1. If conduits are required to be installed by a Customer, the conduits shall be installed according to the design provided by HED. Revisions or field changes are not allowed unless prior, documented approval is given by HED.

2. Such conduit shall be installed within dedicated utility easements.

3. All PVC conduit joints must be glued together with PVC cement. Bands, clamps, or other connecting devices are not allowed. Polyethylene conduit joints must be made with fittings designed for use with polyethylene.

4. Conduit should be installed when grade is within 6 inches of final grade (except as otherwise provided in §3.2, D.2.b.).

5. All conduit runs shall be continuous rigid electrical plastic (Schedule 40) without sharp bends or indentations. Conduits at transformers and pedestal locations shall turn up above grade. All primary conduit bends shall be rigid steel and have 36-inch radii and secondary conduit bends shall be rigid steel and have 24-inch radii. HED Primary conduit shall be buried a minimum of 36 inches from top of grade and HED secondary conduit shall be buried a minimum of 24 inches from top of grade. Customer's underground service shall be installed per adopted NEC. In solid rock, this may be reduced to 12 inches, provided 2 inches of concrete are installed above conduit. The Customer shall contact HED for an open trench inspection. The trench shall not be backfilled until the conduit installation has been approved by HED in writing. The Customer is to provide and install all conduit risers for the service line, HED provided meter sockets and any other conduits necessary to complete the service line in accordance with HED standards. Open ends of conduit are to be capped or sealed. All conduit installed by the Customer shall have heavy duty string or nylon cord inside for HED to install its cable pulling rope. The Customer shall backfill the trench after installation of the conduit to within 36 inches of a pole or proposed equipment. The Customer shall promptly complete the backfilling after conductors are installed.

6. All open ends of conduit shall be capped.

7. All conduit shall be of proper size as noted on HED construction drawing.

8. Backfill shall be clean and adequately tamped to prevent future settling.

9. Conduit that is improperly installed shall be corrected by the Customer. This includes out of easement, improper depth, street crossings relative to lot lines, etc.

10. A heavy nylon pull string shall be installed in all conduit runs.

11. If changes to the conduit system are required due to a replatting or other changes in development, it shall be the Customer's responsibility to make these changes prior to HED installing any cable or equipment.

12. HED must inspect and approve the conduit installation, including street crossings,before taking ownership and installing its Distribution System. An HED inspector will inspect installations within 48 hours of notification. Conduit trenches shall not be backfilled until approved in writing by HED.

13. Additional staking may be required by HED in order to insure proper installation of conduit and placement of HED equipment, such as transformers and pedestals.

14. Any relocation of HED Facilities after they have been installed shall be at the Customer's expense.

15. **TRENCHING SHALL NOT BE PERFORMED WITHIN THREE (3) FEET OF EXISTING HED FACILITIES.**

SEC. 3.3 OVERHEAD SERVICE

For self-contained metering, the Customer shall furnish, maintain, and install an HED furnished meter socket, all conduits and all conductors from their service entrance and equipment to the meter socket; a conduit riser (2" min.), weather head; point of attachment; and service conductors to attach to the service drop. HED will furnish and install the service drop. The Customer's service conductors shall run from the meter socket through the service conduit riser with at least 24 inches of conductor extending from the weather head to provide for connection to the service drop with the appropriate drip loop.

SEC. 3.4 UNDERGROUND SERVICE

A. Single Family Thru Two Unit Dwellings – HED supplied meter socket

1. The Customer shall provide, install, and maintain a continuous service conduit from the designated HED facility to the point of service, and shall provide and install approved conduit risers in accordance with HED's Electric Service Standards, Article 6.

2. HED will install, own, and maintain transformers and all conductors (primary and secondary) required to serve the Customer and will make the termination of the service conductors in the meter socket, the HED Service Pedestal, or transformer.

3. The Customer shall provide, install, and maintain a continuous service conduit from the designated HED facility to the point of service and will provide and install conduit riser to complete the entrance in accordance with HED's Electric Service Standards, Article 6.

4. Customer shall provide, install, and maintain service conductors past HED point of service. HED will provide the required meter sockets up to two positions. The Customer shall be responsible for installations.

5. See Sec. 3.5 Metering par B4. For Installations Exceeding Two Positions.

B. Mobile Home Service

1. The Customer shall furnish and install an HED-approved prefabricated mounting pedestal for the meter and main disconnect with protective device and install a ground and grounding electrode. The Customer shall install a continuous, rigid electrical plastic conduit (Schedule 40) without sharp bends or indentations from the meter socket or pedestal to a designated HED facility. The Customer shall install, own, and maintain all equipment past HED point of service. It is recommended that 200 amperes capacity be provided for each unit due to the frequent use of electric heating in mobile homes. Service wire to be installed by Customer and maintained by Customer.

2. HED will install all primary and HED secondary distribution, make the meter socket connections, and install the meter. In all cases HED will own and maintain all primary and secondary Facilities, but will not take title to, own, or maintain any Customer wiring beyond the HED point of service (transformer and secondary pedestal.)

C. Transient Mobile Home Development (Includes RV Parks)

1. A transient mobile home development is one without one or more of the requisites for a permanent mobile home development.

2. HED may, at its option, serve individual mobile homes in a transient mobile home development in the same manner as those in a permanent mobile home development. In that case those standards and policies appropriate to a permanent mobile home apply.

SEC. 3.5 METERING

A. The Customer shall install an HED provided/approved meter socket in all cases. Exceptions shall be approved by HED prior to installation. Service shall be denied if an unapproved meter socket is installed.

B. The following govern the location of meters:

1. Meters shall be installed at locations approved of by HED. HED's inspector will approve and mark a location for each new or relocated meter.

2. Meters shall be installed outside where it will not be subjected to vibration, jarring, gasses, dust, fluids, etc., that may affect the accuracy of the meter.

3. Meters for single-family houses shall be installed on the side of the house at a point no farther than the second closest wall offset towards the street as measured from the side lot line unless served from rear of home.

4. In multiple-occupancy buildings (three meters and more), each of the premises and common facilities shall be individually metered. All meters shall be grouped at the same location and properly marked with the corresponding service switch. The building owner or its agent shall purchase and install a prefabricated, locking, ring type multiple-metering gang unit and entrance equipment. The type and size of the equipment shall be approved in advance by HED. The building owner or their agent shall own and maintain the meter sockets, and enclosures. The building owner or their agent shall maintain a supply of spare parts consisting of a minimum of one pair of meter blocks or four terminal clips for each twelve meters or fraction thereof of each size socket in each building. These are to be kept in a marked enclosure at each metering location in each building.

5. Meters shall not be installed above platforms that are inaccessible by stairs. A ladder is unacceptable in place of stairs. When meters are located above

platforms, the space in front of the meter shall be at least 36 inches wide and protected by appropriate railings.

6. When meters are to be located in a passageway or narrow space, the clear space in front of the meter shall not be less than 36 inches.

7. For ease of reading meters, the height of the center of the meter, where no walk or driveway exists, shall be not less than 42 inches nor more than 72 inches. When a meter is installed near a driveway or walk, the height shall be 78 inches above the final elevation beneath the meter.

8. A two-by-six wood plank shall be nailed between studs at the meter location to provide a strong structural support into which meter socket mounting screws will be installed.

SEC. 3.6 SERVICE ALTERATIONS

A. It is HED's intent to utilize as much of its existing Facilities as practical. HED will charge the Customer for service alterations required solely for the Customer's convenience, i.e., relocating existing Facilities to clear decks, room additions, swimming pools, etc. In some situations, the Customer may be required to update or relocate its service.

B. The charges for residential overhead service alterations are as follows (See also SEC3.2.D2.b and Sec 3.4.A.1 for conduit requirements):

1. If a Customer changes out the existing service entrance to a larger size and goes from an overhead service to an underground service at either the existing or a new location, there is no charge.

2. If a Customer changes an existing overhead service to an underground service with the same size entrance equipment, there is no charge.

3. A Customer should consult with HED when relocating an existing service to determine if charges are required per Master Fee Schedule.

COMMERCIAL
AND
INDUSTRIAL

ARTICLE 4. COMMERCIAL AND INDUSTRIAL

SEC. 4.1 AVAILABLE ELECTRIC SERVICE FOR COMMERCIAL AND INDUSTRIAL (including five-unit dwellings and larger)

Single-phase, 60 hertz, 120/240 volts, three-wire.
Three-phase, 60 hertz, 120/208 volts four-wire.
Three-phase, 60 hertz, 120/240 volts, four-wire
Three-phase, 60 hertz, 277/480 volts, four-wire.

HED's primary service at three-phase, 60 hertz is 7200/12470 volts four-wire.

An existing Customer who alters their service entrance to supply additional load must install equipment in compliance with the voltages above.

SEC. 4.2 GENERAL PROVISIONS

A. All new commercial and industrial services, customer-initiated upgrades, relocations, or modifications shall be placed underground.

B. Architects, engineers, contractors, builders, etc., are requested to consult with HED in advance of developing plans/designs to obtain any special specifications and directions for the proposed service entrance. This may avoid delay and expense if carefully observed and followed.

C. To avoid expensive alterations later, the service entrance should be sized for future growth as well as for present requirements. It is the Customer's responsibility to install service equipment in accordance with NEC provisions as a minimum. In order for architects, engineers and wiring contractors to select proper service equipment to meet NEC guidelines, the following information will apply to new installations.

1. Available fault currents will vary with each installation. Inquiry for a particular location should be directed to HED.

D. In apartments and other buildings with multi position gang meter sockets installed, each meter enclosure is to be clearly marked by the building owner, the Customer or their agent with a permanent identification engraved or stamped plate of the apartment or space which it serves. General services must be similarly distinguished. The identification shall be permanently inscribed on the inside back of each meter enclosure near the meter socket clips. It is the responsibility of the building owner, the Customer, or their agent to see that wiring in such locations is connected to the proper meter or meters. HED will not render service until all meters are properly marked.

E. Area Development

1. Development of a commercial or industrial area will likely necessitate the installation of an underground distribution system for the entire area. The Customer of such an area should contact HED prior to design of such a development.

    a. The Customer is responsible for the cost and installation of all conduit, vaults and pads as may be required.

2. Upon receipt of plans for a proposed development or by request of the Customer, HED will specify the type of electric service available and location of proposed and existing Distribution System for use in the development. The Customer is required to construct the proposed commercial area development in accordance with the following:

    a. Provide HED with complete “load data” before HED agrees to type and characteristics of the proposed service.

    b. Complete all work in accordance with HED’s Electric Service Policy, construction standards and electrical codes.

    c. The Customer shall provide and install all conduits for all primary, secondary, lighting, and service conductors. The Customer shall provide and install all transformer pads and service pedestals (HED will own and maintain primary, secondary, and lighting conduits after they have been properly installed).

        1) Conduits may be required beyond the customer’s property. Such conduits and distance shall be determined by HED.

    d. Customer will install all conduit, HED will own and maintain transformers and all primary, HED secondary, and HED lighting conductors required to serve the Customer, and will terminate its conductors. The metering socket must be installed by the Customer at the location designated by HED which is generally on the side of the building or transformer. See Master Fee Schedule for fees.

    e. The Customer shall provide and/or describe at no cost to HED, all rights-of-way and easements required for HED’s primary and HED secondary conductors, pad-mounted transformers, secondary pedestals and any other Facilities that may be required to serve the Customer. The grading must be within 6 inches of final grade, with lots pinned or staked and the easement cleared of all trees, stumps, and obstructions before HED begins construction. Excessive spoils (rock, tree, stumps, etc.) resulting from the installation of HED’s Distribution System will be the responsibility of the

Customer toremove. Access for HED vehicles shall be provided to all HED Facilities prior to sodding, landscaping, and fencing.

f. Complete all earth or rock removal and fill to final grade prior to trenching or boring for underground distribution system.

g. Excavate all rock and remove all brush or trees, as required to facilitate installation and maintenance of HED's Distribution and Lighting System. (Specifically, the proposed facility route shall be cleared to ground level).

h. Take adequate precaution to assure that underground conductors, transformers, and other equipment will not be damaged or disturbed in the course of other construction operations, and if damage should occur, to reimburse HED for the cost of necessary replacement or repairs.

i. Pay amounts specified (if required) to HED before construction of its proposed Distribution System.

j. Provide adequate drainage and landscaping to assure that HED's Distribution System shall not be exposed due to erosion or excavation during developmental stages and if exposure should occur, to reimburse HED for the cost of necessary replacement, repairs, or preventative measures.

3. Conduit Installation

a. Conduits installed by the Customer for HED use shall be installed according to the design provided by HED. Revisions or field changes are not allowed unless prior written approval is provided by HED.

b. Such conduit shall be installed within dedicated utility easements.

c. All PVC conduit joints must be glued together with PVC cement. Bands, clamps, or other connecting devices are not allowed. Polyethylene conduit joints must be made with fittings designed for use with polyethylene.

d. Conduit should be installed when grade is within 6 inches of final grade (except as otherwise provided in §3.2, D.2.b.).

e. All conduit runs shall be continuous rigid electrical plastic (Schedule 40) without sharp bends or indentations. Conduits at transformers and pedestal locations shall turn up above grade. All primary conduit bends shall be rigid steel and have 36-inch radii and secondary conduit bends shall be rigid steel and have 24-inch radii. Primary conduit shall be buried a minimum of 36 inches from top of grade and secondary conduit shall be buried a minimum of 30 inches from top of grade. In solid rock, this may be reduced to 12 inches, provided 2 inches of concrete are installed above conduit. The

Customer shall contact HED for an open trench inspection. The trench shall not be backfilled until the conduit installation has been approved by HED in writing. The Customer is to provide and install all conduit risers, meter sockets, and any other conduits necessary to complete the entrance in accordance with HED standards. Open ends of conduit are to be capped or sealed. All conduit installed by the Customer shall have heavy duty string or nylon cord inside for HED to install its cable pulling rope. The Customer shall backfill the trench after inspection of the conduit to within 36 inches of a pole or proposed equipment.

f. All open ends of conduit shall be capped.

g. All conduit shall be of proper size as noted on HED construction drawing.

h. Backfill shall be clean and adequately tamped to prevent future settling.

i. Conduits at transformer, Service Pedestal and sectionalizer locations shall turn up as shown in Section 6. Long radius 36-inch rigid steel elbows shall be used for primary and 24-inch rigid steel elbows for secondary on all horizontal bends, such as around corners or at a change in direction.

j. All conduits entering vaults shall be terminated, grouted, and provided with conduit end bells flush with the vault interior wall.

k. **TRENCHING BY THE CUSTOMER SHALL NOT BE PERFORMED WITHIN THREE (3) FEET OF EXISTING HED FACILITIES.**

4. The Customer may be required to furnish and install empty conduit to ensure the future reliability of underground service in the area via looped feed. Appropriate switches and protective devices are to be furnished by the Customer at the entrance to the building. The Customer shall consult with HED regarding space requirements for its distribution and metering equipment prior to actual design and layout. Customer shall own all service-connected wiring, customer shall install service wire to transformer or secondary pedestals.

SEC. 4.3 METERING

A. The Customer shall install an HED provided meter socket enclosure under 400 amps at a location marked and approved by HED. Service shall be denied if an unapproved meter socket enclosure is installed. Current Transformer (CT) rated meter socket enclosures will be provided by Customer and meet NEC requirements.

B. Services requiring CT metering requires a ½ inch by 8-foot copper or copper clad steel ground rod as near as possible to the location of the meter socket enclosure. The upper end of the rod shall be flush with or slightly below grade. The meter socket enclosure shall be grounded to the rod using a solid bare copper wire at

least #6 AWG. The use of combination meter socket enclosures will not be acceptable for any class of service.

C. The Customer may purchase and install a prefabricated U.L. rated device that includes the meter socket. The Customer shall obtain approval from HED of the installation prior to purchase of any equipment. In these cases, the Customer will own and maintain the meter socket and enclosure. HED will own and maintain the meter.

D. In multiple-occupancy buildings, each of the premises and common Facilities shall be individually metered with a means to disconnect for each service. All meters shall be grouped at the same location and properly marked with the corresponding service switch with an engraved or stamped plate. When the building owner or its agent purchases and installs a prefabricated, locking ring type multiple-metering gang unit and entrance equipment. The type and size of the equipment shall be approved in advance by HED. The building owner or their agent shall own and maintain the meter sockets and enclosures. The building owner or their agent shall maintain a supply of spare parts consisting of a minimum of one pair of meter blocks or four terminal clips for each twelve meters or fraction thereof for each size socket in each building. These are to be kept in a marked enclosure at each metering location in each building.

E. Metering CT's will be furnished by HED for installation by the Customer in the Customer's metering enclosure or as an integral part of:

1. Bus or bus extensions
2. Switchgear
3. Metering enclosure

Such CT's shall be installed with the polarity identification mark toward HED source and shall be separate from other metering or control circuits.

F. Metering CT's may be installed in HED's pad-mounted transformers at HED's discretion. Meters for such installations shall be mounted to the Customer's building. As a general rule, CT's cannot be installed in transformers that serve or have a high probability of serving multiple Customers. These installations may require the Customer to install metering enclosures.

G. The size of the metering enclosure required will vary with the size of the entrance conductors and their routing through the enclosure.

1. **Table 2** lists suggested minimum size enclosures. Larger enclosures may be required. The Customer shall furnish the enclosure.

Entrance Size (Amperes)	Inside Size C.T. Enclosure
800 for less	30" x 36" x 10"
Greater than 800	36" X 48" x 12"

Table 2

2. **C.T. enclosures shall be readily accessible from ground level or floor level to HED personnel only and shall be a separate, hinged compartment with hasp for HED lock. Enclosures shall not be used as splice boxes or raceways.**

H. The Customer shall furnish and install a 1-inch diameter conduit with sufficient pull boxes from the metering CT location to the meter socket. This conduit shall not exceed 65 feet in length without prior approval from HED.

I. Meter Location

1. Meters shall be located outside where they will not be subjected to vibration, jarring, gasses, dust, fluids, etc., that may affect the accuracy of the meter.

2. Meters shall not be located above platforms that are not accessible by stairs. Ladders are not an acceptable substitute for stairs. When meters are located above platforms, the space in front of the meter shall be at least 36 inches square and protected by suitable railings.

3. When meters are located in a passageway or narrow space, the clear space in front of the meter shall not be less than 36 inches.

4. For ease of reading meters, the center of the meter where no walk or driveway exists shall not be less than 42 inches nor more than 72 inches, and where a driveway or walk exists, shall be 78 inches above the final elevation.

SEC. 4.4 OVERHEAD SERVICE

A. Single Occupant Building - 200 Ampere

The Customer shall install an HED provided/approved meter socket enclosure, all conduits, all conductors from the service entrance, equipment to the meter socket enclosure, a conduit riser (2" min), weather head and service conductors to attach to HED's service drop. HED will furnish and install the service drop. The Customer's

service conductors shall run from the meter socket enclosure through the service conduit riser with at least 24 inches of conductor extending from the weather head to provide for connection to the service drop with an adequate drip loop. HED will make the connections to the Customer's service conductors and install the meter. The service conduit mast or service attachment shall be of a strength that is adequate for the span tension and of sufficient height to provide proper clearances for HED's service drop.

B. Single Occupant Building - 400 Ampere and Larger

The Customer shall furnish and install a service conduit riser with a weather head and the service entrance conductors from the service entrance equipment. The service conduit riser or service hook shall be of a strength adequate for the span tension and of sufficient height to provide proper clearances for HED's service drop.

C. Multi-Occupant Buildings

The Customer shall furnish and install an HED approved meter socket enclosure, conduit and conductors from their service entrance and equipment to the meter socket enclosure, a conduit riser (2" min.), weather head and service conductors.

HED will furnish and install the service drop to the building. The service conduit riser or service attachment shall be adequate for the span tension and of sufficient height to provide proper clearances for HED's service drop. The Customer's service conductors shall run from the meter socket enclosure through the service conduit riser with at least 24 inches of conductor extending from the weather head to provide for connection to the service bus with an adequate drip loop. HED will make the connections of the Customer's service conductors to the service bus and install the meter.

D. The Customer's service conductors shall extend at least 24 inches beyond the weather head to provide make-up length for HED to install connections to its service drop. HED will furnish and install its meter and metering cable. HED will furnish metering CT's and the meter socket enclosure for the Customer to install. The Customer shall furnish and install the metering socket enclosure and conduit for the metering circuits. If circumstances prevent installation in this manner, the Customer shall contact HED for alternate methods.

SEC. 4.5 UNDERGROUND SERVICE

A. HED requires service lateral conductors installed by the Customer to be in conduit. Per adopted NEC.

B. The Customer shall provide and install all primary, secondary, and service conduits on the Customer's property which are required by HED prior to the installation of its Facilities. The Customer shall also provide and install the vaults and equipment pads within the easements or right-of-ways designated for use by HED and in accordance with standard HED specifications. Underground conduit installed by the Customer shall be manufactured according to NEMA standards for Electrical Plastic Conduit.

C. Service entrance conductors shall conform to the following table:

MAIN SIZE	MAX NUMBERS OF CONDUCTORS PER PHASE
200 Ampere	1
400 Ampere	2
600 to 800 Ampere	3
1000 to 1200 Ampere	4
1400 to 1600 Ampere	5
1800 to 2000 Ampere	6

Table 3

D. Service conductors for 3 phase services above 400 Ampere shall be no larger than 600 MCM, single phase above 400 Ampere shall be no larger than 500 MCM, unless approved by HED and per adopted NEC requirements. If using parallel conductors and isolated conductors are used refer to adopted NEC requirements.

E. Service entrances above 2000 Ampere shall be coordinated through HED and approved before construction.

F. All installations where switchgear is used and installations larger than 1200 amperes require special consideration. HED representatives will work closely with the Customer to develop a mutually acceptable plan. HED should be contacted as early as possible to coordinate the work.

G. Commercial, Industrial and Multi-Family Dwellings (Three units and larger – Customer supplied meter socket)

1. The Customer shall extend underground service lateral conductors to the low voltage compartment of HED's pad-mounted transformer or designated equipment.

2. The transformer location shall be designated by HED, near a paved area and accessible by vehicle for maintenance.

3. The Customer shall provide and install the necessary electrical plastic conduits (Schedule 40), without sharp bends or indentations, for HED's primary conductors between the transformer and HED's Facilities. A heavy duty pull string or nylon cord shall be provided in the conduit. HED shall be given an opportunity to inspect these conduits prior to backfilling. Open ends of conduits are to be capped or sealed. Runs with bends or curves in excess of 50 feet must be installed with rigid steel 36-inch radius for primary and rigid steel 24-inch radius rigid steel elbows for secondary or HED approved alternative.

4. The Customer shall install the concrete pads, concrete pull boxes and the concrete bases as required for the transformer and other equipment as may be determined by HED.

5. HED will own and install all primary conductors and equipment and will make all terminations in the transformer.

6. If HED's system is not on the Customer's property or at the Customer's property line, the Customer shall extend the conduit and underground service lateral conductors to the property line, or a point designated by HED.
7. HED will not take title to own or maintain any of the Customer's service lateral conductors or service Facilities that are located on the Customer's property.

8. Since metering methods vary considerably, the Customer shall contact HED prior to construction and coordinate the details of meter location and equipment requirements.

SEC. 4.6 PRIMARY SERVICE (not available for residential class use)

A. Due to the variety of methods by which a Customer can take primary service, it is difficult to generalize as to specific requirements. HED representatives will work closely with the Customer's architect and engineer to develop a mutually acceptable and economical design within the framework of HED's rate schedules.

B. In general, however, the Customer shall provide, install, and maintain all necessary lines, switches, transformers, secondary distribution systems and protective equipment on their premises. Primary protective equipment shall be approved by HED to ensure coordination with its Distribution System.

C. The Customer shall provide space and Facilities for HED to terminate its primary lines. Each primary service Customer shall be required to install a main disconnect switch and protective device at their property line.

D. Metering applications vary for primary service. Each situation shall be coordinated during design stages with HED's representative.

E. The Customer shall supply HED two copies of their substation drawings and equipment specifications before plans are finalized and before equipment is ordered.

F. At the time of construction, the Customer-owned substation shall comply with all current editions of HED's standards or specifications. Copies of these specifications are available from HED.

TRAFFIC SIGNAL, STREET LIGHTING, AND SPECIAL EVENT SERVICE

ARTICLE 5. TRAFFIC SIGNAL, STREET LIGHTING AND SPECIAL EVENT SERVICE

SEC. 5.1 TRAFFIC SIGNAL SERVICE

A. Applications for electric service to City/State-owned traffic signal and streetlight metering points shall be made by the City/State to the appropriate HED representative. Upon receipt of the City/State's request, HED will determine the point of service, specify the type of service available at that location and approve the location of the City/State's entrance switch.

B. The City/State shall install an HED provided meter socket enclosure and shall provide and install, on public right-of-way, a continuous electrical conduit, and conductors (Schedule 40 size) without sharp bends or indentations, from the meter location to the service source or to a point designated by HED.

C. The City/State shall be responsible for the costs of any service alterations.

SEC. 5.2 STREET LIGHTING SERVICE

A. Street Lighting Systems shall be installed, operated, and maintained by HED in a manner consistent with the standards and procedures of the City Unified Development Ordinance and the general guidelines of the Illuminating Engineering Society of North America.

B. HED will assist the City in reviewing requests for placement of streetlight luminaires upon written request of the property owner(s) in a subdivision, or portion thereof, where streetlights do not exist or appear to be inadequate.

SEC. 5.3 SPECIAL EVENT SERVICE

A. Normally service will be provided as a temporary service in accordance with Sec. 2.6.

B. HED may provide electric outlets in some locations for special events. Use of these outlets shall be coordinated and authorized by HED.

C. All costs for special event electric service shall be recovered by metering, a specific use rate or contribution by the Customer.

D. Temporary installations require compliance with adopted NEC.

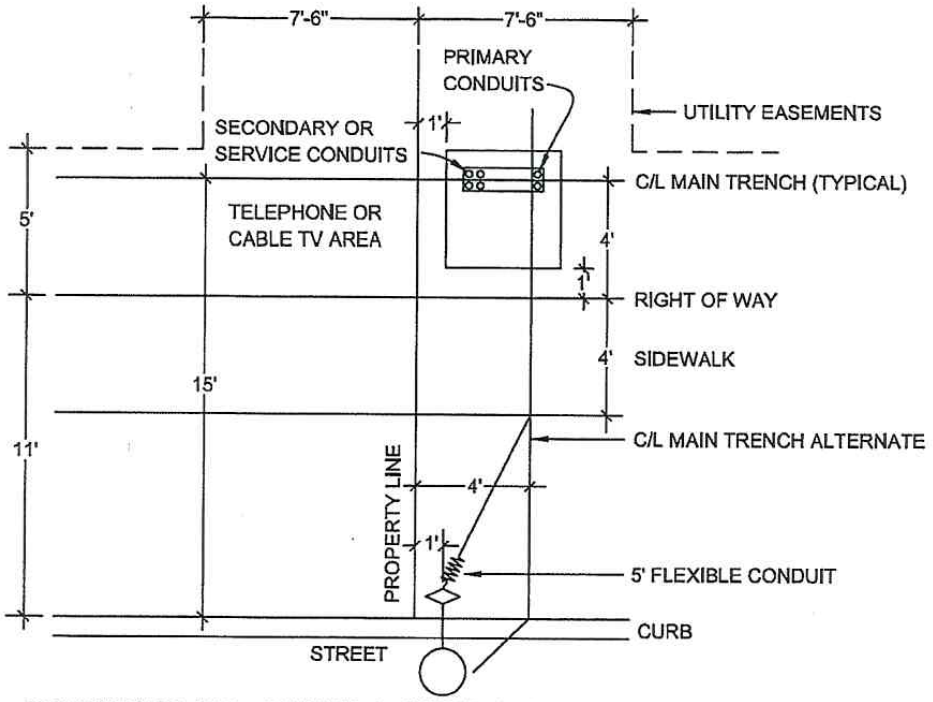
ILLUSTRATIONS

ARTICLE 6. ILLUSTRATIONS OF TYPICAL SERVICE INSTALLATIONS

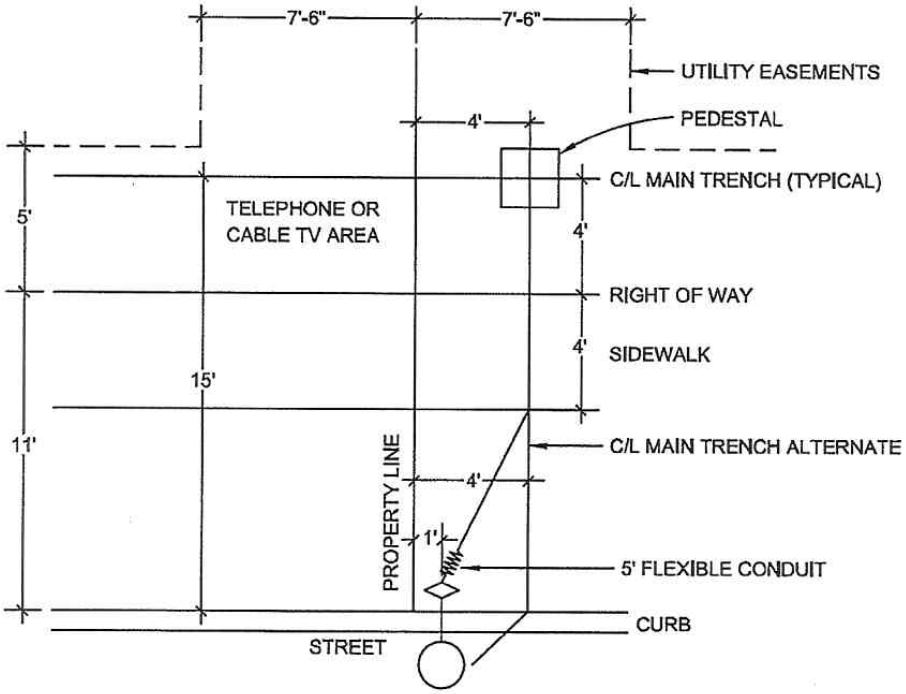
SEC. 6.1 TYPICAL SERVICE INSTALLATIONS ILLUSTRATIONS INCLUDED IN THIS MANUAL:

USSL	Street Side Pad & Pedestal Locations
URPL	Rear Property Pad & Pedestal Location
UCEL	Rear Property & Street Side Conduit End Location
UT	Trenches & Directional Boring
UT6	Trench – 600 AMP
UTJ	Joint Use Trenches & Directional Boring
USVMH	Underground Mobile Home Service
USVRU	Underground Residential Service 200/400 AMP
UT1BP	Single Phase Fiberglass Transformer Box Pad (25KVA-167KVA)
UT3P	Three Phase Transformer Pad – 75KVA thru 500KVA
UT3P1	Three Phase Transformer Pad – 750KVA thru 2500KVA
UE1FCP	Single Phase Fusing Cabinet Pad
UE3FCP	Three Phase Fusing Cabinet Pad
UE346VFCL	Three Phase Fusing Cabinet Vault Lid
UE346V	4’ x 6’ x 4’-6” Vault
UE346VL	4’ x 6’ Vaul6 Lid
UE346VTBL	4’ x 6’ Vault Traffic Bearing Lid
UE368V	6’ x 8’ x 6’ Vault
UE368VL	6’ x 8’ Vault Lid
UE368VTBL	6’ x 8’ Vault Traffic Bearing Lid
UE6SWPL	600 AMP – 3 Phase Switchgear Pad & Access Lids
UE6SWV	600 AMP Switchgear Vault – W/O Divider
UE6SWVD	600 AMP Switchgear Vault With Divider

NOTE: Marking Tape shown in all illustrations is recommended not required.



TRANSFORMER PAD, CONDUIT & STREET LIGHT LOCATION



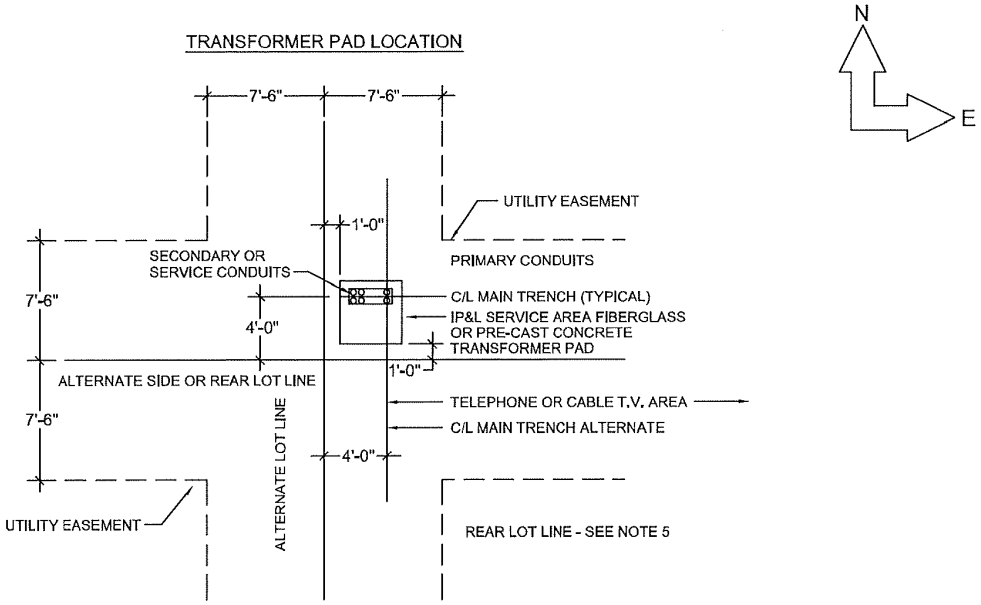
SECONDARY PEDESTAL. CONDUIT & STREET LIGHT LOCATION

GENERAL NOTES:

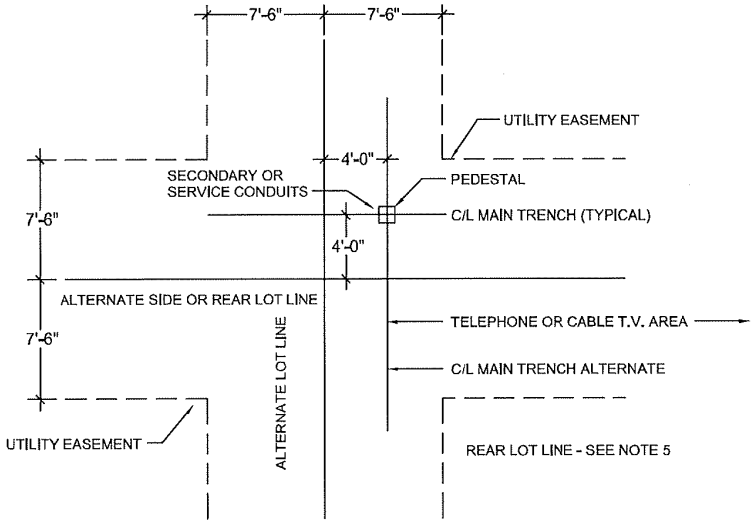
1. HED FACILITIES SHALL BE LOCATED AS SHOWN ON HED PROJECT DRAWING.
2. HED SHALL NEGOTIATE WITH OTHER UTILITIES WHEN ANY CONFLICT IN SYSTEM DESIGN IS APPARENT, SUCH AS CROSSING POINTS, PARALLEL TRENCHING, CLEARANCES ETC. THUS, ELIMINATING SOME CHANCE OF BOTH UTILITIES HAVING DAMAGED FACILITIES.
3. HED TRENCH SHALL BE DUG 4 FEET FROM & PARALLEL TO SIDE LOT LINES & 15 FEET FROM BACK OF CURB.
4. ALL TRANSFORMERS & ABOVE GRADE PEDESTALS SHALL BE INSTALLED SO THAT THE DOORS OR ACCESS COVERS ARE FACING AWAY FROM PROPERTY LINES OR STREETS.
5. CONDUITS FOR ALL EQUIPMENT AND LOCATIONS SHALL BE STUBBED AND MARKED ABOVE GRADE.

City of Harrisonville	**STREET SIDE PAD AND PEDESTAL LOCATIONS**	20 STANDARD NUMBER USSL
DATE: 06/09/2021 REVISED: 06/09/2021		

TRANSFORMER PAD LOCATION



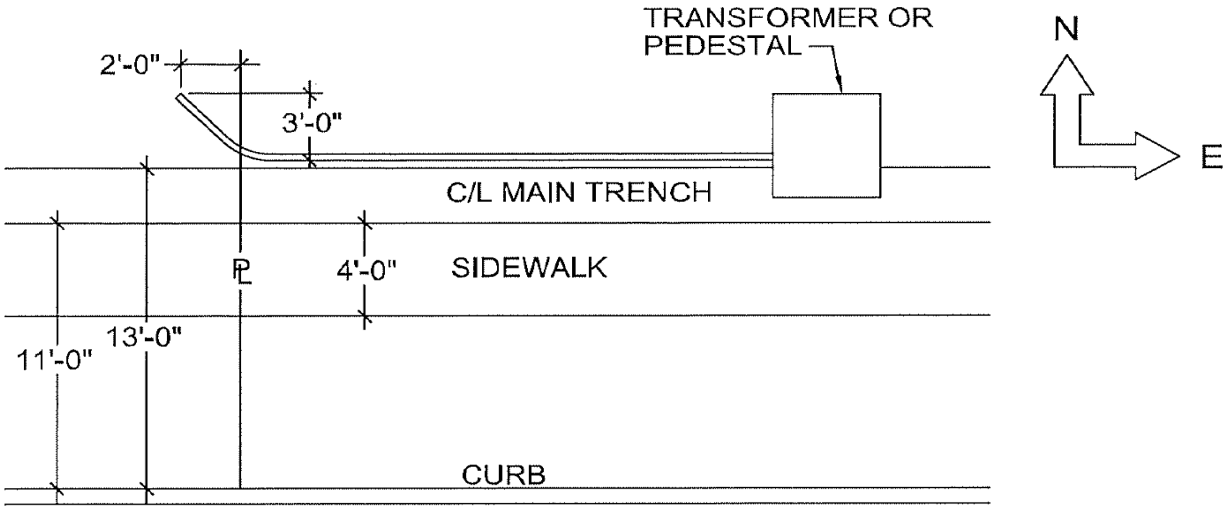
SECONDARY PEDESTAL LOCATION



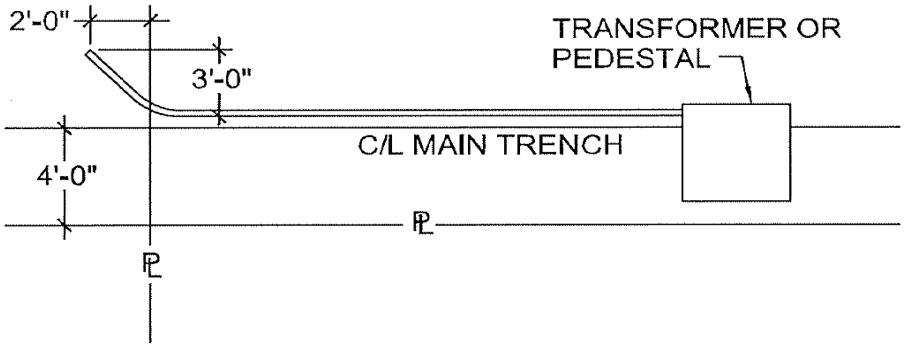
GENERAL NOTES:

1. HED FACILITIES SHALL OCCUPY THE NORTH & EAST SIDES OF THE REAR & SIDE LOT LINES.
2. TELEPHONE & CABLE TV FACILITIES SHALL OCCUPY THE SOUTH & WEST SIDES OF THE REAR & SIDE LOT LINES.
3. HED SHALL NEGOTIATE WITH OTHER UTILITIES WHEN ANY CONFLICT IN SYSTEM DESIGN IS APPARENT, SUCH AS CROSSING POINTS, PARALLELTRENCHING, CLEARANCES ETC. THUS, ELIMINATING SOME CHANGE OFBOTH UTILITIES HAVING DAMAGED FACILITIES.
4. HED TRENCH SHALL BE DUG 4 FEET FROM & PARALLEL TO THE REAR OR SIDE LOT LINES.
5. THE REAR LOT LINE DIRECTION IS SHOWN TO ILLUSTRATE THE DIFFERENT COMBINATIONS THAT ARE POSSIBLE IN U.R.D. SYSTEM DESIGN.
6. ALL TRANSFORMERS & ABOVE GRADE PEDESTALS SHALL BE INSTALLED SO THAT THE DOORS OR ACCESS COVERS ARE FACING AWAY FROM LINES.
7. CONDUITS FOR ALL EQUIPMENT AND LOCATIONS SHALL BE STUBBED AND MARKED ABOVE GRADE

Harrisonville	**REAR PROPERTY PAD AND PEDESTAL LOCATION**	21 **STANDARD NUMBER** **URPL**
DATE: **06/09/2021**		
REVISED: **06/09/2021**		



CONDUIT END LOCATION (STREET SIDE)

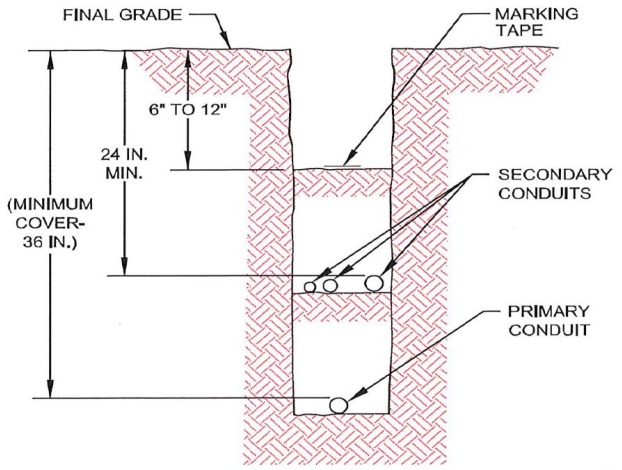


CONDUIT END LOCATION (REAR PROPERTY LINE)

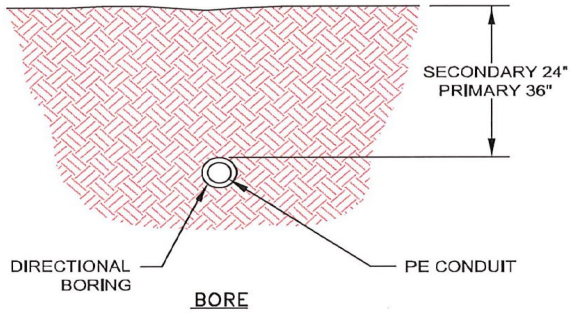
GENERAL NOTES:

1. HED FACILITIES SHALL OCCUPY THE NORTH & EAST OF THE REAR & SIDE LOT LINES.
2. TELEPHONE & CABLE TV FACILITIES SHALL OCCUPY THE SOUTH & WEST SIDES OF THE REAR & SIDE LOT LINES.
3. HED SHALL NEGOTIATE WITH OTHER UTILITIES WHEN ANY CONFLICT IN SYSTEM DESIGN IS APPARENT, SUCH AS CROSSING POINTS, PARALLEL TRENCHING, CLEARANCES ETC. THUS, ELIMINATING SOME CHANCE OF BOTH UTILITIES HAVING DAMAGED FACILITIES.
4. HED TRENCH SHALL BE DUG 4' FROM & PARALLEL TO THE REAR OR SIDE LOT LINES & 13' BACK FROM CURB.
5. THE REAR LOT LINE DIRECTION IS SHOWN TO ILLUSTRATE THE DIFFERENT COMBINATIONS,

The Harrisonville	**REAR PROPERTY & STREET SIDE CONDUIT END LOCATION**	22 STANDARD NUMBER **UCEL**
DATE: **06/09/2021** REVISED:**06/09/2021**		



UTA—12" TRENCH PRIMARY & SECONDARY
UTB—6" TRENCH PRIMARY & SECONDARY
UTC—6" TRENCH PRIMARY OR SECONDARY

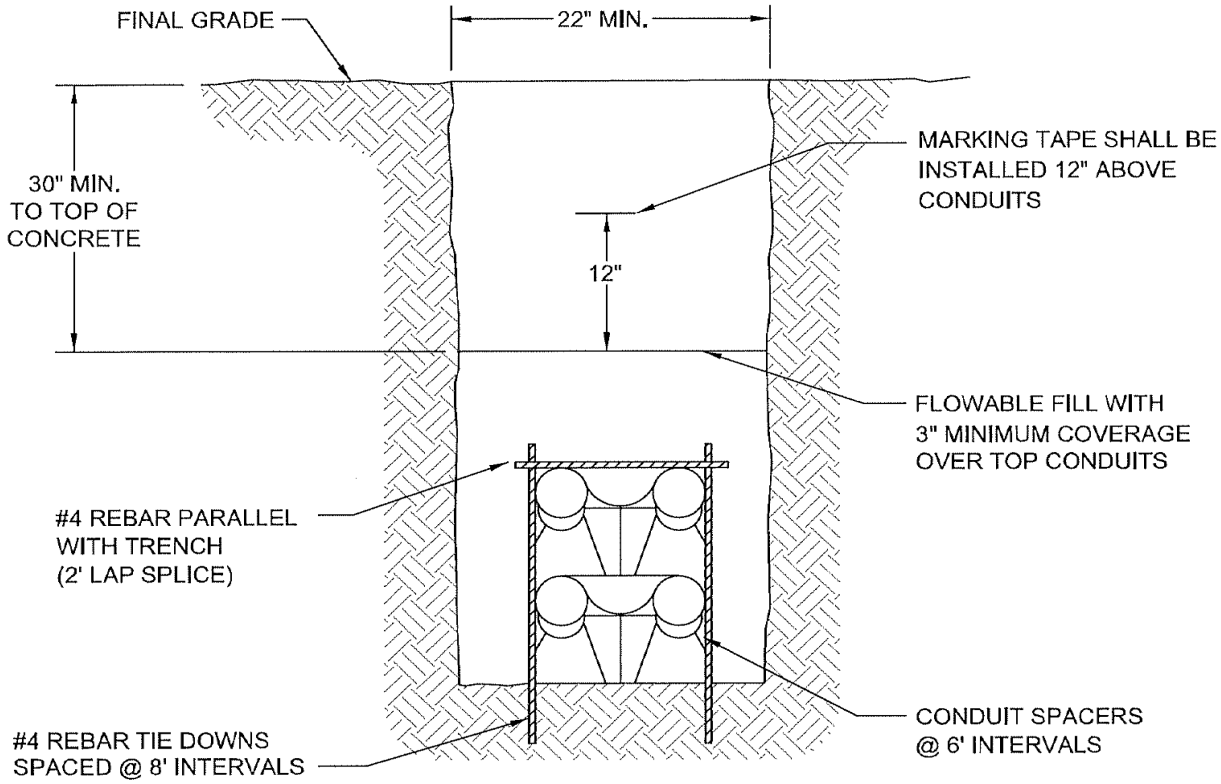


BORE

UTD_2 - 2" BORE
UTD_3 - 3" BORE
UTD_4 - 4" BORE
UTD_6 - 6" BORE

GENERAL NOTES:

1. UNDER OPEN AREAS USE EARTH BACK FILL FOR TRENCHES. BACK FILL IS TO BE FREE OF ROCK OR RUBBLE AND COMPACTED TO 95% OF MAXIMUM DENSITY IN TRENCH.
2. UNDER PAVED STREETS, SIDEWALKS, DRIVES, PARKING AREAS, AND TRANSFORMER PADS USE AB-3 OR CRUSHER RUN LIMESTONE BACK FILL COMPACTED TO 95% OF MAX. DENSITY IN TRENCH.
3. UNDERGROUND TRENCHES AND CONDUITS PROVIDED BY A CUSTOMER OR ITS AGENTS SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BEFORE BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING, REBURYING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CALL 816-380-8958 TO SCHEDULE INSPECTION.
4. CONDUITS SHALL HAVE A CUSTOMER INSTALLED PULL WIRE.
5. LIMIT 90° BENDS TO 3 PER CONDUIT RUN,
6. TAPE ENDS OF CONDUIT WITH DUCT TAPE.
7. PRIMARY CONDUIT SHALL BE SCHEDULE 40 PVC/PE, WITH 36" RADIUS, STEEL BENDS. MINIMUM DEPTH 36".



(600 AMP)

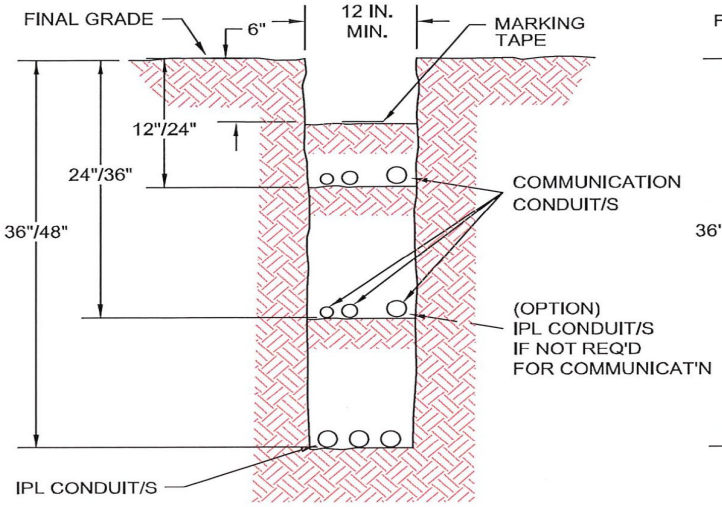
NOTES:

1. UNDER OPEN AREAS USE EARTH BACK FILL FOR TRENCHES. BACK FILL IS TO BE FREE OF ROCK OR RUBBLE AND COMPACTED TO 95% OF MAXIMUM DENSITY IN TRENCH.

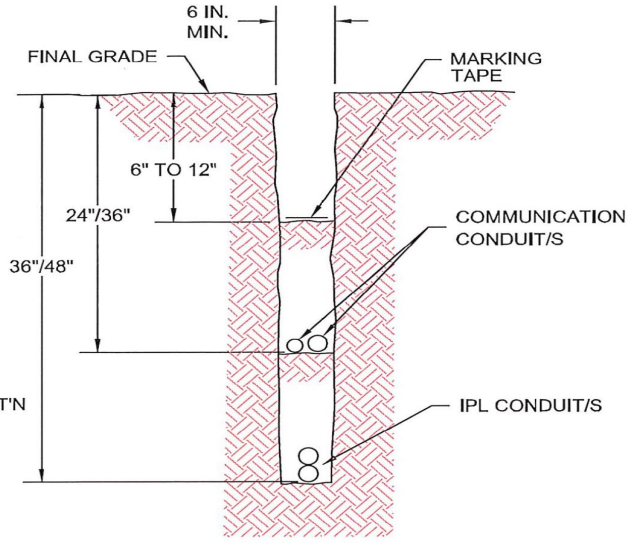
2. UNDER PAVED STREETS, SIDEWALKS, DRIVES, PARKING AREAS, AND TRANSFORMER PADS USE AB-3 OR CRUSHER RUN LIMESTONE BACK FILL COMPACTED TO 95% OF MAX. DENSITY IN TRENCH.

3. UNDERGROUND TRENCHES AND CONDUITS PROVIDED BY A CUSTOMER OR ITS AGENTS SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BEFORE BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING, REBURYING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CAL 816-380-8958 TO SCHEDULE INSPECTION.

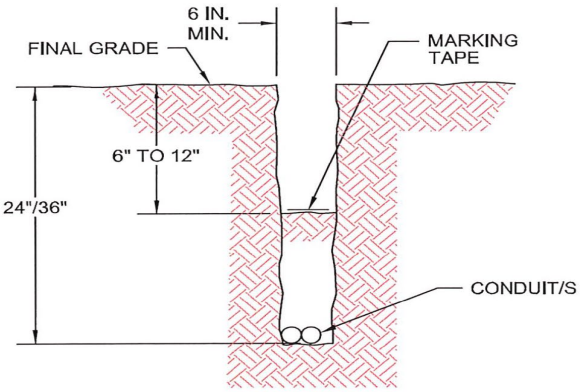
Harrisonville	**TRENCH 600 AMP**	35 STANDARD NUMBER UT6
DATE: **06/09/2021** REVISED:**06/09/2021**		



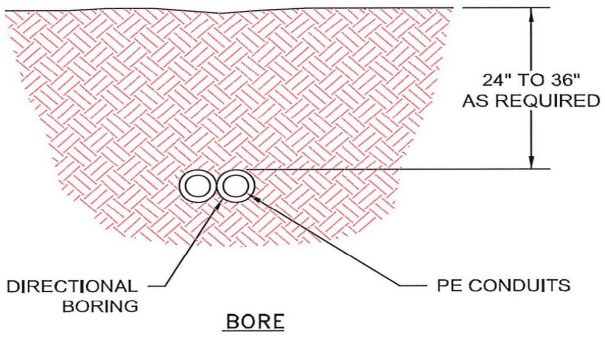
UTJA_1 (36" DEPTH)
UTJA_2 (48" DEPTH)



UTJB_1 (36" DEPTH)
UTJB_2 (48" DEPTH)



UTJC_1 (24" DEPTH)
UTJC_2 (36" DEPTH)



BORE

MAIN (LARGEST CONDUIT)	ADDITIONAL
UTJD_M2 - 2" PE	UTJD_A2 - 2" PE
UTJD_M3 - 3" PE	UTJD_A3 - 3" PE
UTJD_M4 - 4" PE	UTJD_A4 - 4" PE
UTJD_M6 - 6" PE	UTJD_A6 - 6" PE

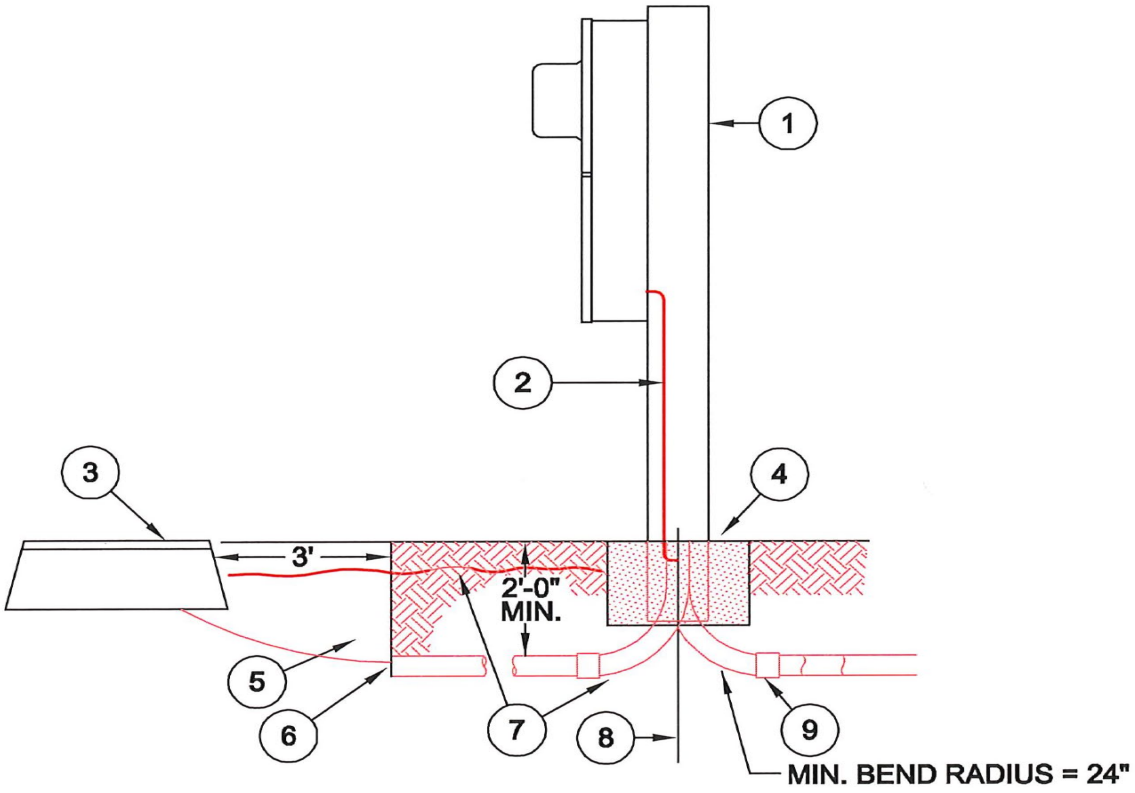
NOTES:

1. UNDER OPEN AREAS USE EARTH BACK FILL FOR TRENCHES, BACK FILL IS TO BE FREE OF ROCK OR RUBBLE AND COMPACTED TO 95% OF MAXIMUM DENSITY IN TRENCH.

2. UNDER PAVED STREETS, SIDEWALKS, DRIVES, PARKING AREAS, AND TRANSFORMER PADS USE AB-3 OR CRUSHER RUN LIMESTONE BACK FILL COMPACTED TO 95% OF MAX. DENSITY IN TRENCH.

3. UNDERGROUND TRENCHES AND CONDUITS PROVIDED BY A CUSTOMER OR ITS AGENTS SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BEFORE BACKFILLING, FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING, REBURYING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CALL 816-380-8958 TO SCHEDULE INSPECTION.

Harrisonville	**JOINT USE TRENCHES & DIRECTIONAL BORING**	36 STANDARD NUMBER UTJ
DATE: **06/09/2021** REVISED:**06/09/2021**		

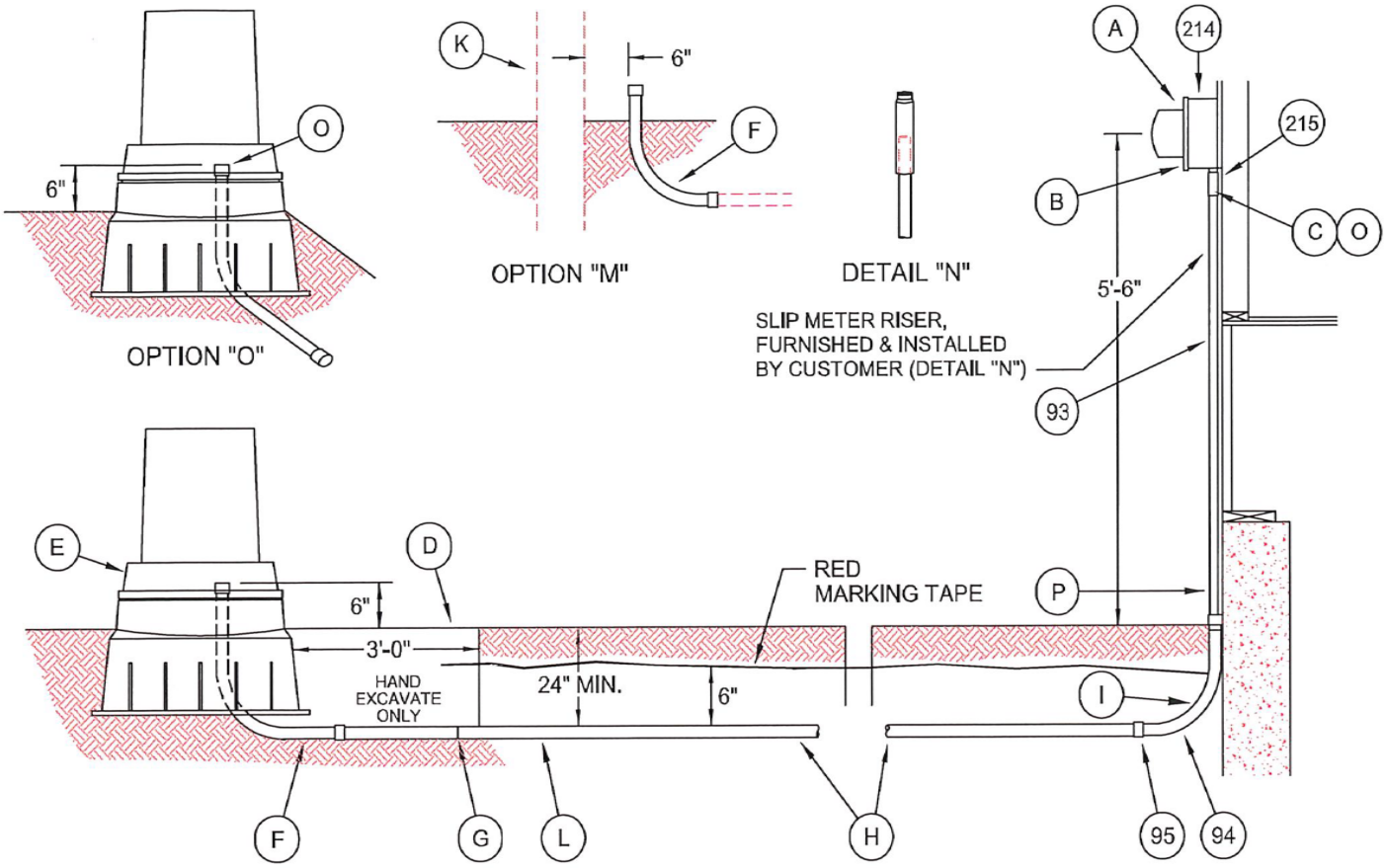


1. MOUNTING PEDESTAL (ADJACENT TO MOBILE HOME) FURNISHED & INSTALLED BY CUSTOMER
2. #6 CU. GROUND WIRE ATTACHED TO GROUNDING TERMINAL BLOCK FURNISHED & INSTALLED BY CUSTOMER
3. UTILITY TRANSFORMER OR SERVICE PEDESTAL.
4. PEDESTAL SHALL BE MOUNTED ON CONCRETE BASE OR WITH CONCRETE ANCHOR.
5. EXCAVATION 3"X3"X2" MIN. BY CUSTOMER HAND EXCAVATE ONLY.
6. PLUG END OF DUCT WITH DUCT SEAL WHEN DUCT IS FIRST INSTALLED.
7. CONTINUOUS FLEXIBLE NON-METALLIC PVC TYPE DB CONDUIT, FURNISHED AND INSTALLED, WITHOUT SHARP BENDS OR INDENTATIONS, COMPLETE WITH PULL WIRE & MARKING TAPE, BY CUSTOMER.
8. GROUND ROD 1/2"X8" COPPERWELD FURNISHED & INSTALLED BY CUSTOMER DRIVEN 12" MIN. DISTANCE FROM MOUNTING PEDESTAL AND/OR CONCRETE BASE.
9. CONDUIT & SERVICE ENTRANCE CONDUCTORS TO MOBILE HOME FURNISHED & INSTALLED BY CONSUMER.
10. ALL SCREWS TO BE SLOTTED OR PHILLIPS SHEET METAL TYPE.

GENERAL NOTES:

1. CUSTOMER INSTALLATION TO BE INSPECTED BY CITY INSPECTION DMSION BEFORE CONNECTION BY HED.
2. COMBINATION METERING & ENTRANCE EQUIPMENT FURNISHED & INSTALLED BY CUSTOMER MUST BE APPROVED IN ADVANCE BY HED.
3. SERVICE LATERAL CONDUCTORS FURNISHED BY CUSTOMER.
4. CUSTOMER SHALL PROVIDE PULL WIRE FROM CONDUIT END TO METER BASE.
5. CUSTOMER TO CONTACT HED WHEN SERVICE EXCEEDS 125 ' IN LENGTH.

City of Harrisonville	**UNDERGROUND MOBILE HOME SERVICE**	8 STANDARD NUMBER USVMH
DATE: **06/09/2021** REVISED:**06/09/2021**		

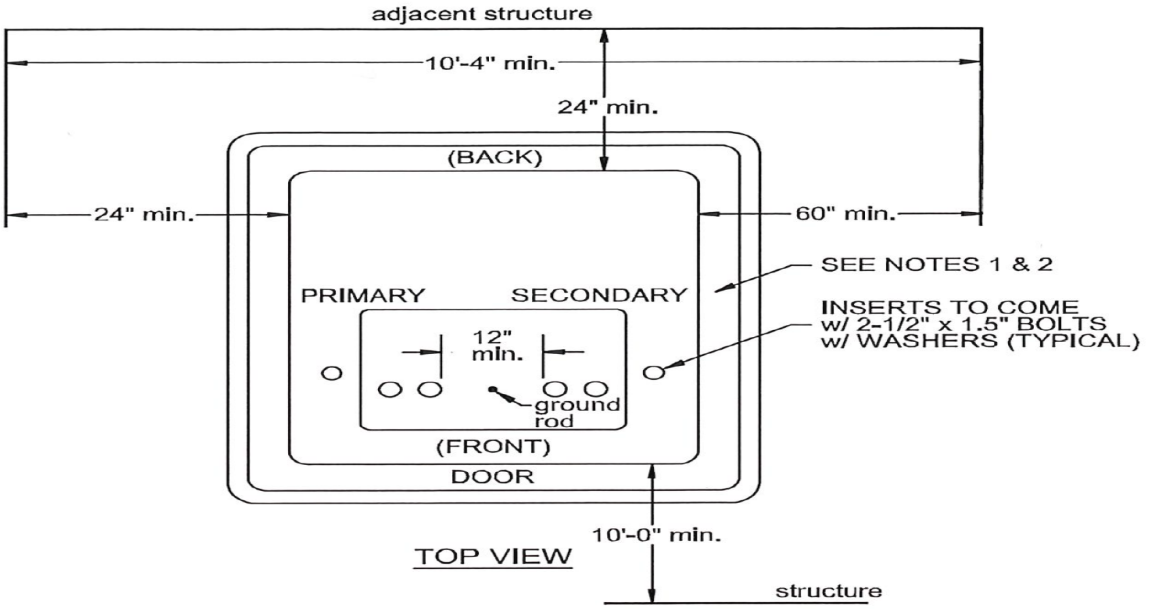


A. STANDARD SOCKET METER INSTALLATION. SOCKET FURNISHED BY HED AND INSTALLED BY CUSTOMER.
   1. METER LOCATIONS SHALL BE DETERMINED & MARKED BY HED.
B. INSULATED BUSHING, FURNISHED, AND INSTALLED BY CUSTOMER.
C. TYPE 80 PVC CONDUIT AND SLIPFITTOR FURNISHED AND INST ALLED BY CUSTOMER. ' OCCASIONALLY THE CUSTOMER'S METER SOCKET IS LOCATED AT A LOWER ELEVATION THAN THE UTILITY'S TRANSFORMER OR PEDESTAL, ALL LOCATIONS SHALL BE CONSTRUCTED AS ILLUSTRATED IN OPTION "O", OTHER MEASUERS TO PROHIBIT WATER RETENTION MAY BE RECOMMENDED BY THE CUSTOMER OR THE CUSTOMER'S AGENT FOR APPROVAL BY THE UTILITY.
D. EXCAVATION 36' X36"X30" MIN, BY CUSTOMER.
E. PAD MOUNT TRANSFORMER OR SERVICE PEDESTAL.
F. SCHED. 80 OR 40 PVC 90° ELBOW, M IN 24" RADIUS.
G. PLUG END OF DUCT WITH DUX SEAL WHEN DUCT IS FIRST INSTALLED. LEAVE ENOUGH PVC TO MAKE CONTINUOUS TO P&L ELBOW.
H. CONTINUOUS NON-METALLIC PVC TYPE DB SCHEDULE 40 CONDUIT, FURNISHED AND INSTALLED, WITHOUT SHARP BENDS OR INDENTATIONS, COMPLETE WITH PULL WIRE & MARKING TAPE BY CUSTOMER. SEE CONDUIT SIZE REQUIREMENT BELOW.
I. SCHED. 80 OR 40 PVC 90° ELBOW. MIN. 24" RADIUS.
J. ALL SCREWS TO BE SLOTTED OR PHILLIPS SHEET METAL TYPE.
K. WOOD POLE.
L. 2" PVC.
M. SLIPFITTOR
N. OPTION "O" - TRAN SFORMER OR PEDESTAL INSTALLED AT A HIGHER ELEVATION THAN THE METER.
0. SEAL END OF CONDUIT WITH INSULATED FOAM SEALENT (OPTION "O").
P. WHEN INSTALLING OPTION "0", SAW TWO 1/4" SLOTS IN CONDUIT RISER FOR WATER DRAINAGE.

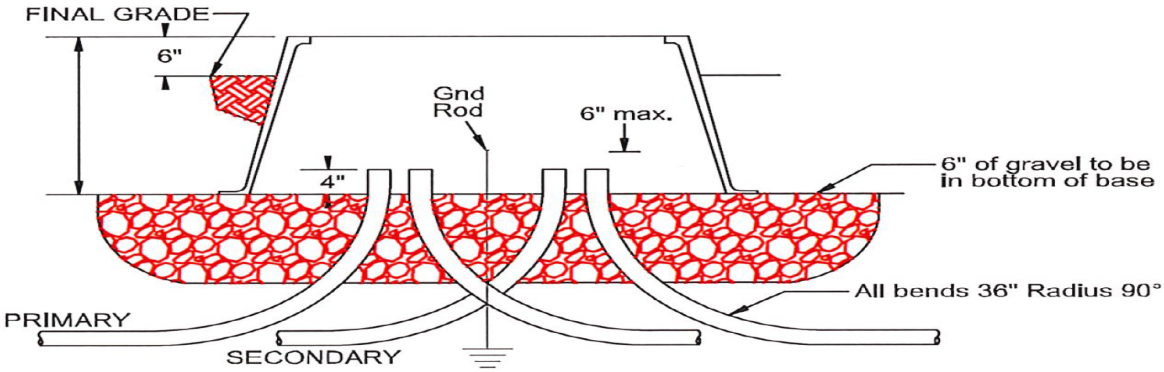
GENERAL NOTES:

(1) THIS STANDARD MAY BE ADAPTED TO RESIDENTI AL MULTI-FAMILY DWELLINGS EXCEPT FOR REQUIRED CONDUIT SIZE.
(2) CUSTOMER TO CONTACT IP&L ENGINEERING DIVISION WHEN SERVICE EXCEEDS 125' IN LENGTH.
(3) WORK ON CUSTOMER'S PANEL OR WIRING SHALL BE INSPECTEDBY CITY INSPECTION DIVISION BEFORE CONNECT ION BY HED.
(4) NUMBER INDICATORS ARE FOR HED INTERNAL USE ONLY.

City of Harrisonville	**UNDERGROUND RESIDENTIAL SERVICE 200/400 AMP**	3 STANDARD NUMBER USVRU
DATE: **06/09/2021** REVISED:**06/09/2021**		



TOP VIEW



SIDE VIEW

NOTES:

1. SECONDARY CONDUITS SHALL BE INSTALLED IN DIRECTION OF SERVICES TO BE USED. FINAL QUANTITIES OF CONDUIT RUNS SHALL BE APPROVED BY HED PERSONNEL PRIOR TO BACKFILLING.
2. CONDUIT INSTALLED FOR FUTURE CABLE RUNS SHALL EXTEND AT LEAST 24" BEYOND THE BASE AND BE CAPPED ON BOTH ENDS. ANCHOR BOLT INSERTS ARE POSITIONED FOR TRANSFORMERS.
3. A MINIMUM WIDTH OF 10'-4" WORKING SPACE BETWEEN STRUCTURES WILL BE REQUIRED FOR TRANSFORMER INSTALLATION AND MAINTENANCE.
4. ANY FENCE OR WALL IN FRONT OF TRANSFORMER DOOR LESS THAN 10' AWAY MUST BE REMOVABLE OR OPENABLE.

IMPORTANT - PLEASE NOTE

UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE POURING OR BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING, REBURYING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CALL 816-380-8958 TO SCHEDULE INSPECTION.

The Harrisonville	**SINGLE PHASE FIBERGLASS TRANSFORMER BOX PAD (25KVA - 167KVA)**	10B STANDARD NUMBER UT1BP
DATE: **06/09/2021** REVISED:**06/09/2021**		

Harrisonville

THREE PHASE TRANSFORMER PAD (75KVA - 500KVA)

20

STANDARD NUMBER
UT3P

DATE: **06/09/2021**
REVISED:**06/09/2021**

Harrisonville

THREE PHASE TRANSFORMER PAD (750KVA - 2500KVA)

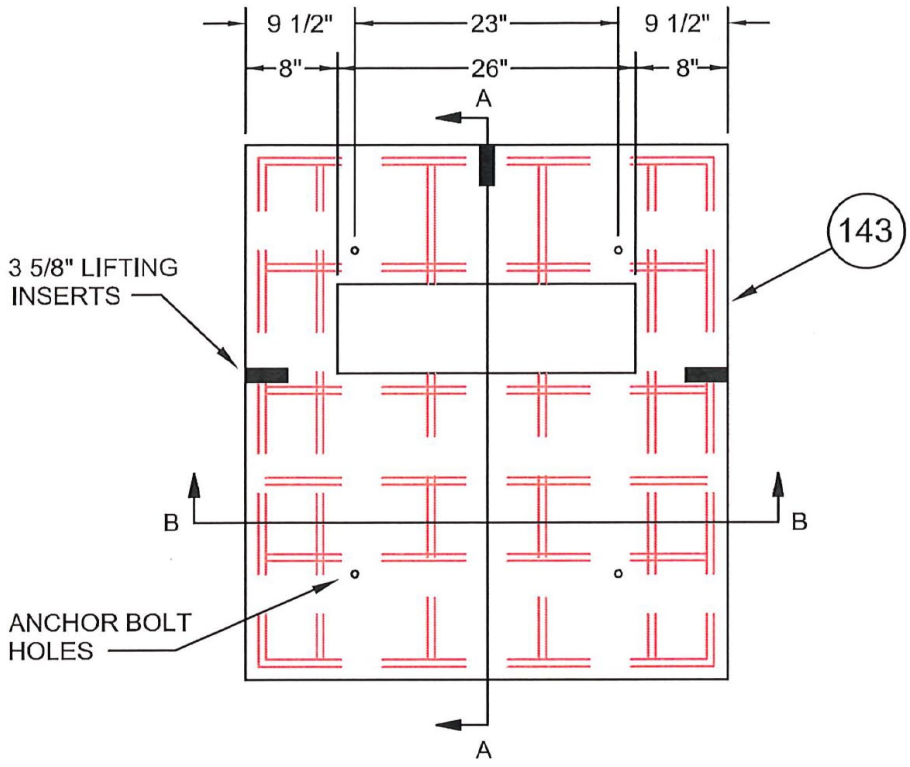
21

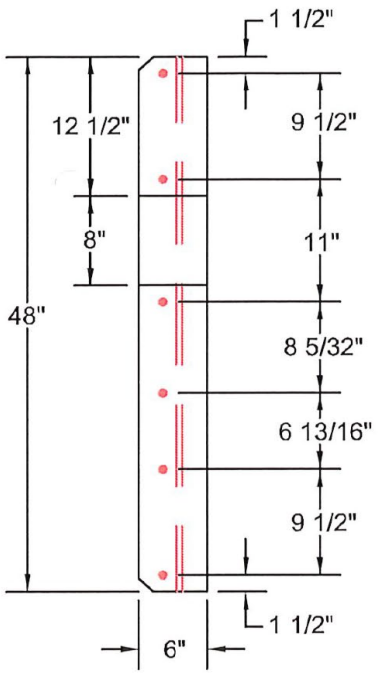
STANDARD NUMBER

UT3P1

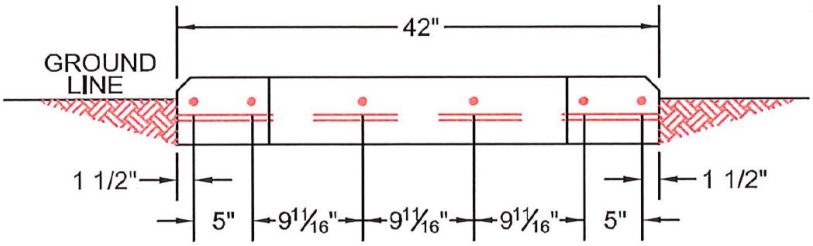
DATE: **06/09/2021**

REVISED:**06/09/2021**





SECTION A–A



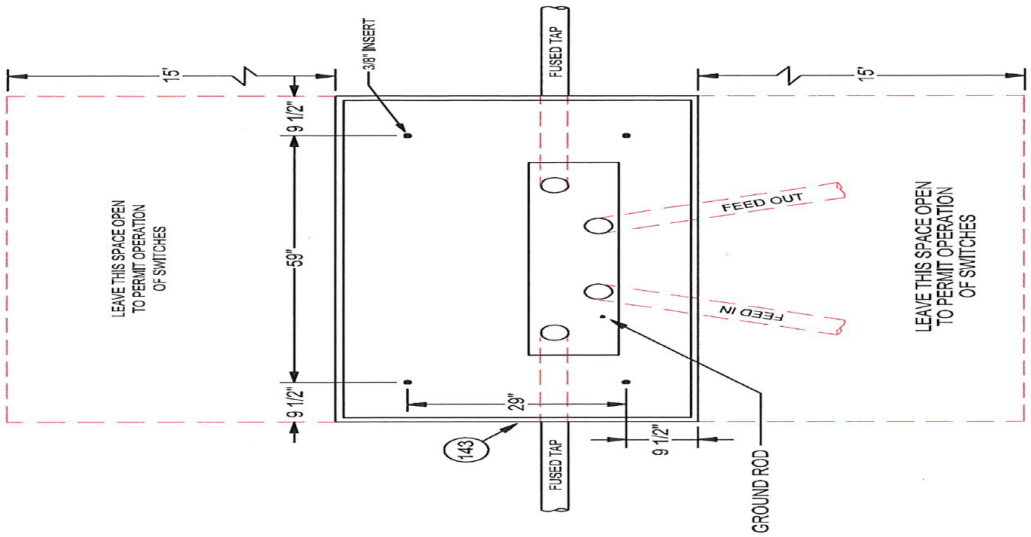
SECTION B–B

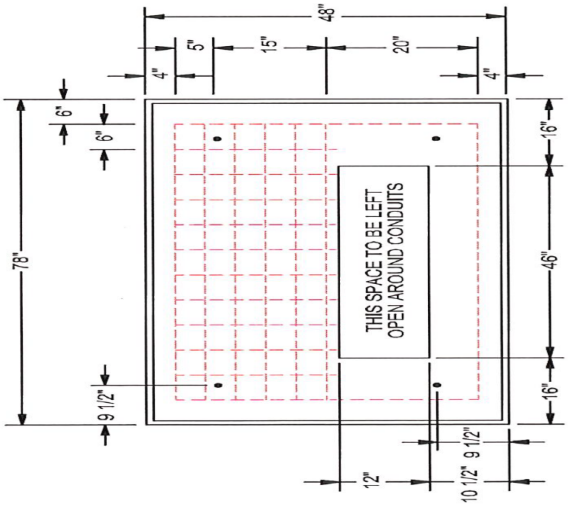
NOTE: ALL REINFORCING RODS ARE #4 (1/2")

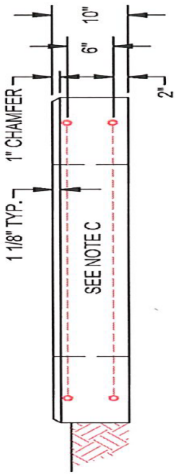
IMPORTANT- PLEASE NOTE

UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE POURING OR BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING, REBURYING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CALL 816-380-8958 TO SCHEDULE INSPECTION.

Harrisonville	**SINGLE PHASE FUSING CABINET PAD**	3 STANDARD NUMBER UE1FCP
DATE: **06/09/2021** REVISED:**06/09/2021**		







NOTES:

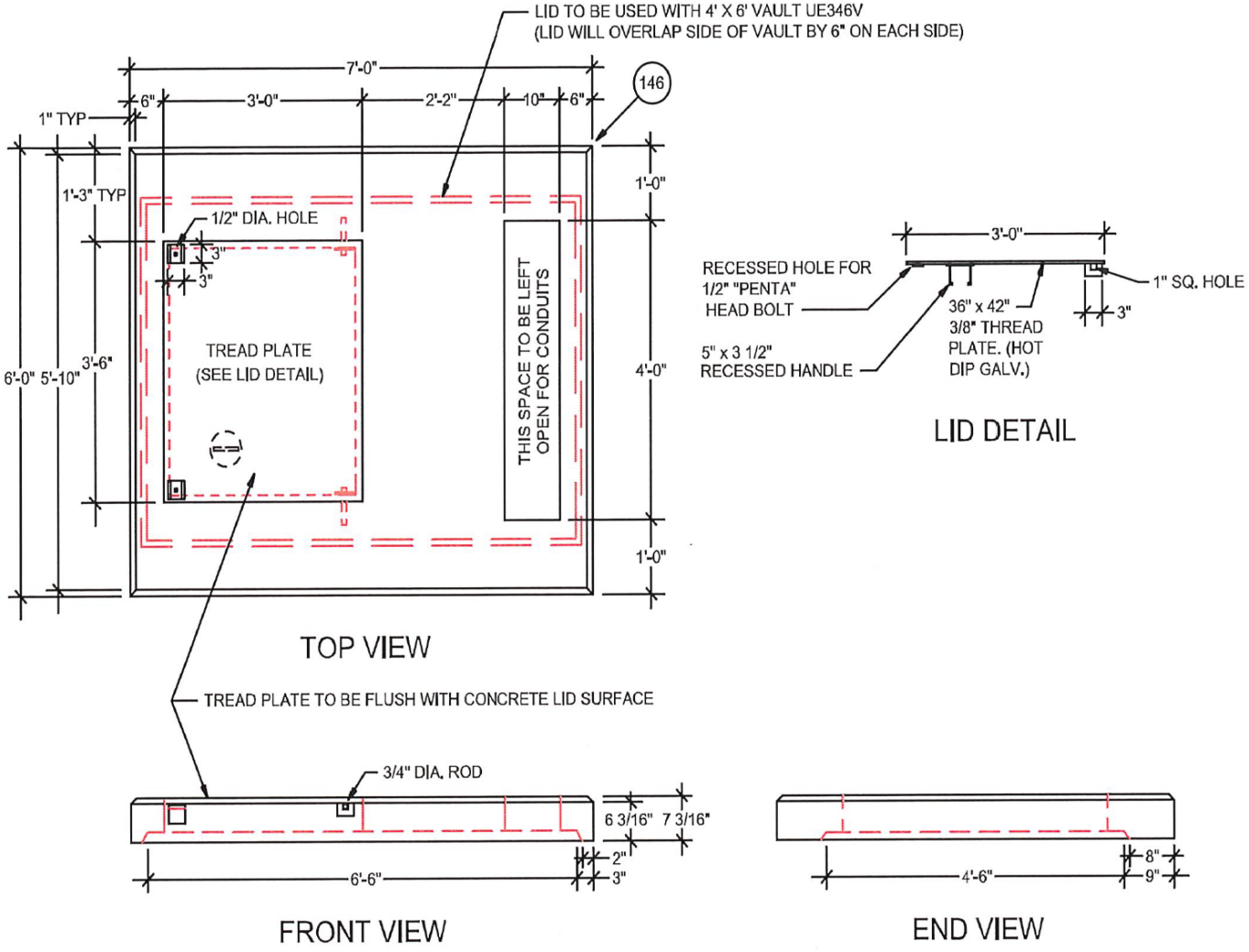
A. ALL CONCRETE SHALL BE AIR ENTRAINED AND TEST 4000#, WITH STEEL TROWEL FINISH.

B. DIRECTION OF PRIMARY CONDUITS UNDER CONCRETE MAY VARY WITH INDIVIDUAL JOBS; SPECIFIC INSTRUCTIONS FOR PRIMARY CONDUIT TO BE ISSUED.

C. THE SIZING OF THIS PAD IS BASED UPON AVERAGE VIRGIN EARTH AND ANY NECESSARY FILL SHALL BE COMPACTED TO POINT EQUAL TO THE ORIGINAL EARTH.

D. ALL CONDUITS SHALL HAVE CUSTOMER INSTALLED PULL WIRE.

City of Harrisonville	**THREE PHASE FUSING CABINET PAD**	7
DATE: **06/09/2021**		STANDARD NUMBER
REVISED:**06/09/2021**		UE3FCP



NOTES:

A. ALL CONCRETE SHALL BE AIR ENTRAINED AND TEST 3000#, WITH STEEL TROWEL FINISH. LID SHALL BE REINFORCED TO MEET CURRENT ACI STANDARDS.

B. PAD SHALL HAVE A MINIMUM SEPARATION OF 36" FROM SIDES AND REAR OF PAD TO ADJACENT WALLS AND OTHER UTILITY ABOVE GRADE FACILITIES.

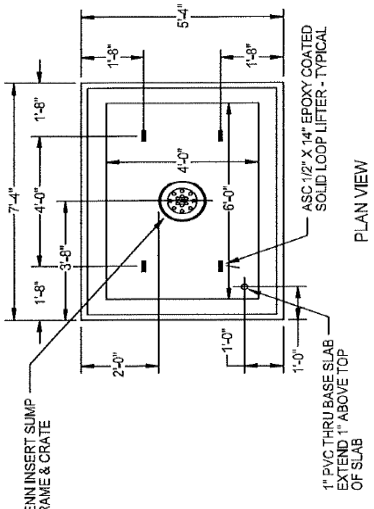
C. PAD SHALL HAVE A MINIMUM SIDE CLEARANCE OF 36" FROM EDGE OF WINDOWS AND DOORS LOCATED IN ADJACENT WALL.

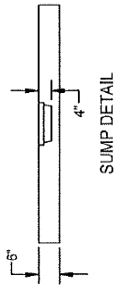
D. PAD SHALL HAVE A MINIMUM CLEARANCE OF 10' FROM FRONT OF WINDOWS AND DOORS.

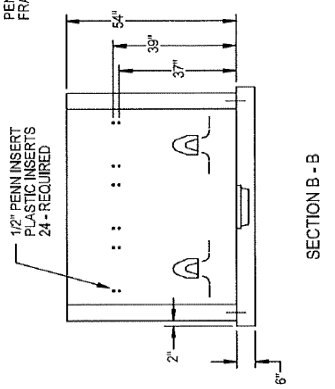
E. IMPORTANT· PLEASE NOTE

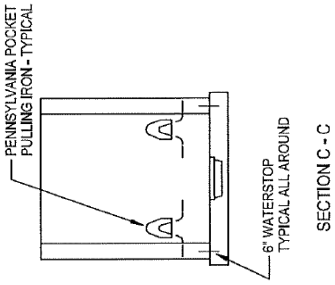
UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE POURING OR BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING, REBURYING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CALL 816-380-8958 TO SCHEDULE INSPECTION.

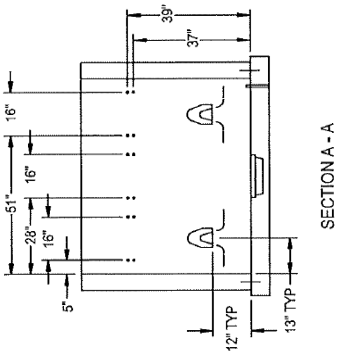
Harrisonville	**THREE PHASE FUSING CABINET VAULT LID**	8 STANDARD NUMBER UE346VFCL
DATE: **06/09/2021** REVISED:**06/09/2021**		

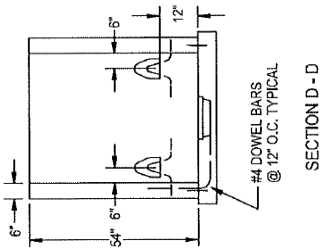












VAULT NOTES:

A-ALL CONCRETE SHALL HAVE 5% AIR ENTRAINMENT AND TEST 4000#; SURFACE SHALL HAVE A STEEL TROWEL FINISH.

B • NECESSARY FILL SHALL BE COMPACTED TO POINT EQUAL TO THE ORIGINAL EARTH.

C-TAPE END OF CONDUIT & THREADS WITH DUCT TAPE WHEN DUCT IS FIRST INSTALLED.

D-VAULT SHALL HAVE A MINIMUM SEPARATION OF 36" FROM SIDES AND REAR OF PAD TO ADJACENT WALLS AND OTHER UTILITY ABOVE GRADE FACILITIES.

E-VAULT SHALL HAVE A MINIMUM CLEARANCE OF 10' FROM ADJACENT BUILDINGS

F -ALL CONDUITS ENTERING VAULTS SHALL BE TERMINATED, GROUTED AND PROVIDED WITH CONDUIT END BELLS FLUSH WITH THE VAULT INTERIOR WALL.

G -IMPORTANT• PLEASE NOTE

UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING OR REBUILDING THE RESPECTIVE ITEMS

CONDUIT NOTES (IF APPLICABLE):

A- DIRECTION OF PRIMARY CONDUITS MAY VARY WITH INDIVIDUAL JOBS; CONDUITS SHALL HAVE A CUSTOMER INSTALLED PULL WIRE; EACH CONDUIT SHALL BE LIMITED TO 3-90 DEGREE BENDS.

B • PRIMARY CONDUITS SHALL BE A MINIMUM OF 4" PVC CONDUITS (30" MINIMUM BURIAL DEPTH) WITH 4" RIGID STEEL 90 DEGREE ELBOWS (MINIMUM RADIUS 36")

NOTES:

CEMENT TO BE PER ASTM C-150
REINFORCING USED TO BE PER ASTM A-615 GRADE 60
STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM C-913 CONCRETE TO BE AIR INTRAINED 4000 PSI @28 DAYS MINIMUM

SHIP WITH THIS BOX: (1) CASE OF JS1 JOINT SEALER

UNIT WEIGHTS	(LBS)
TOP SECTION	
MID SECTION 2	
MID SECTION 1	
BASE SECTION	7,333
BASE SLAB	2,897
TOTAL BASE WT.	10,230

Harrisonville

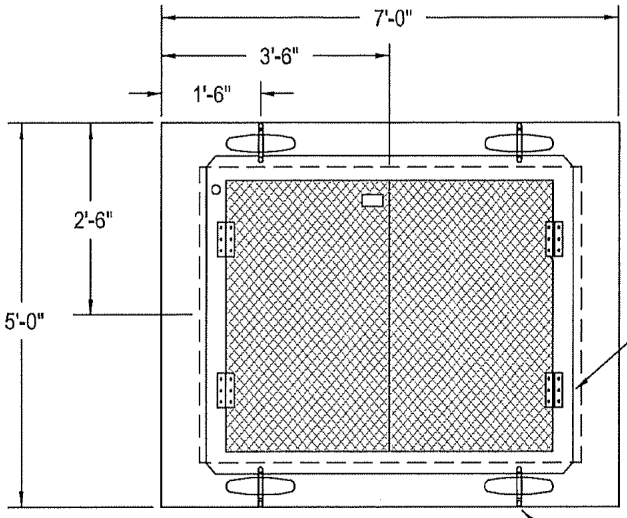
4' X 6' X 4'-6" VAULT

FOR LID DETAIL SEE UE346VTBL OR UE346VL

DATE: **06/09/2021**

REVISED:**06/09/2021**

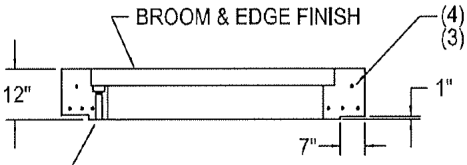
STANDARD NUMBER
UE346VFCL



USE FABRICATION TPD 42" X 60" 300 PSF LOADING WITH HORIZONTAL SPRINGS, RECESSEDPADLOCK STAPLE, 12" SKIRT, ADA SANDBLASTED FINISH, BITUMINOUS PAINT FOR AREAS IN CONTACT WITH CONCRETE AND 1 1/2" DRAIN.

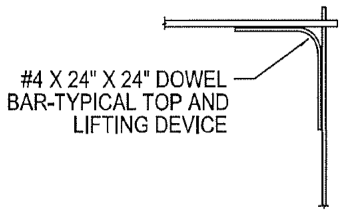
PLAN TOP SLAB

RECESSED 5/8" X 5" AMERICAN STEP D-ANCHOR EPOXY COATED LIFTING DEVICE



SECTION TOP SLAB

EXTEND 1 1/2" DRAIN TO BOTTOM OF FORM AND TAPE THE END WITH DUCT TAPE. AFTER FABRICATION, RAISE THE HATCH AND MAKE SURE THAT THE DRAIN IS CLEAR OF CONCRETE AND DUCT TAPE.



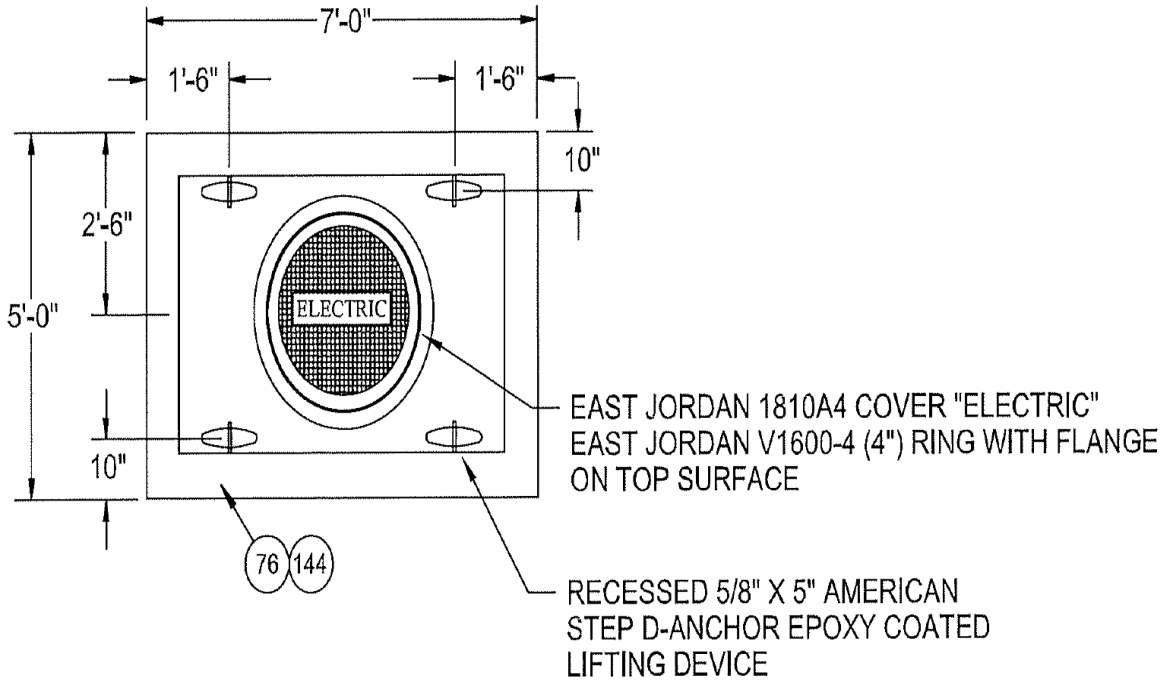
#4 X 24" X 24" DOWEL BAR-TYPICAL TOP AND LIFTING DEVICE

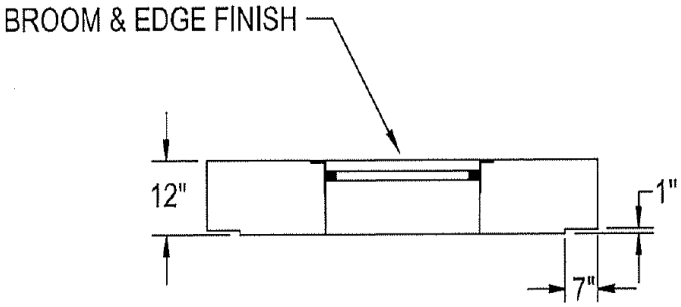
CORNER REBAR DETAIL

NOTES:

ORIGINAL DRAWING: HED UE346V POLE BOX TOP SLABESTIMATED WEIGHT: 2,798 LBS.

Harrisonville	**4' X 6' VAULT LID**	10 STANDARD NUMBER UE346VL
DATE: **06/09/2021** REVISED:**06/09/2021**		



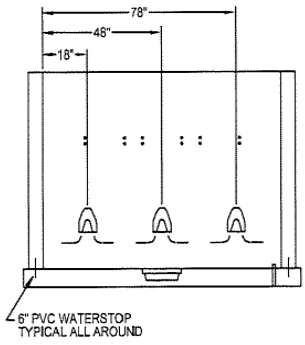


TOP SLAB REINFORCING	
REINFORCING AS NOTED ABOVE	
UNIT WEIGHTS	(LBS)
TOP SLAB	4,457

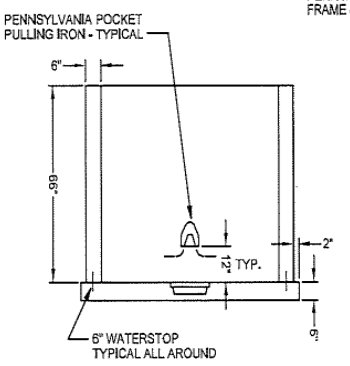
NOTES:

CEMENT TO BE PER ASTM C-150
REINFORCING USED TO BE PER ASTM A-615 GRADE 60 STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM C-913
CONCRETE TO BE AIR ENTRAINED 4000 PSI@28 DAYS MINIMUM

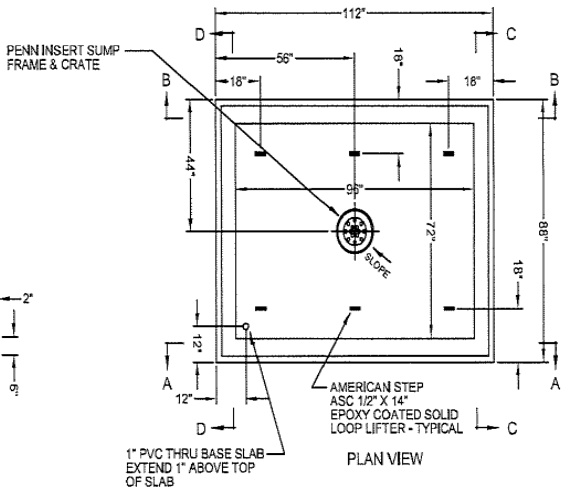
Harrisonville	**4' X 6' VAULT TRAFFIC BEARING LID**	11 STANDARD NUMBER UE346VTBL
DATE: **06/09/2021** REVISED:**06/09/2021**		



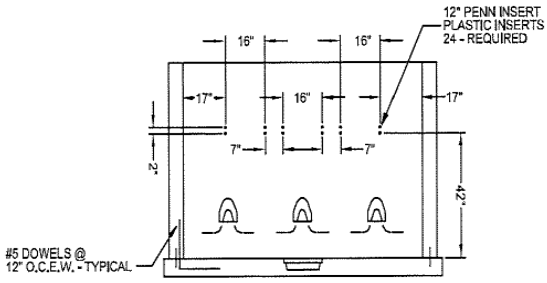
SECTION A - A



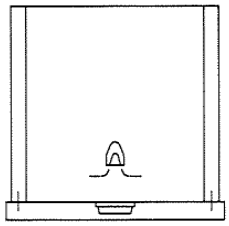
SECTION C - C



PLAN VIEW



SECTION B - B



SECTION D - D

NOTES:

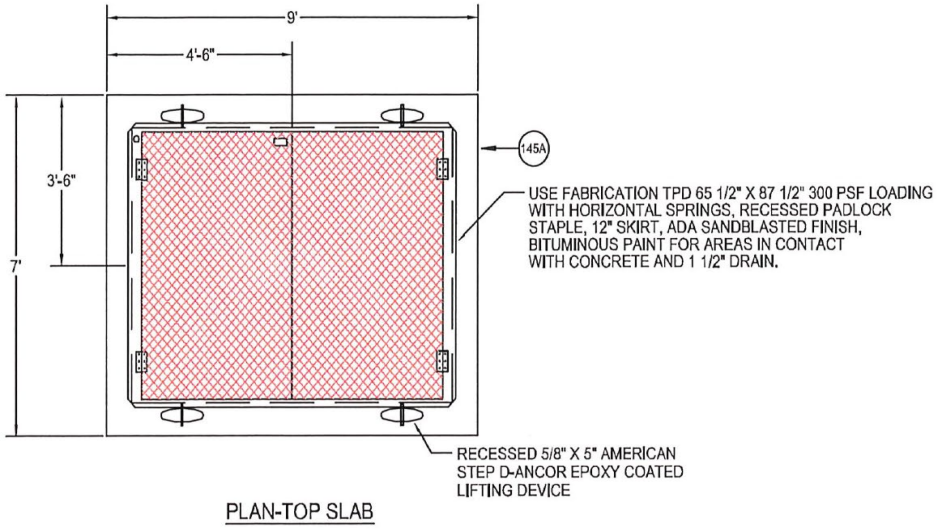
A. All CONCRETE SHALL HAVE 5% AIR ENTRAINMENT AND TEST 4000#. SURFACE SHALL HAVE A STEEL TROWEL FINISH.
B. DIRECTION OF PRIMARY CONDUITS MAY VARY WITH INDMDUAL JOBS: CONDUITS SHALL HAVE A CUSTOMER INSTALLED PULL WIRE; EACH CONDUIT SHALL BE LIMITED TO 3 - 90 DEGREE BENDS.
C. NECESSARY FILL SHALL BE COMPACTED TO POINT EQUAL TO THE ORIGINAL EARTH.
D. TAPE END OF CONDUIT & THREADS WITH DUCT TAPE WHEN DUCT IS FIRST INSTALLED.
E. PRIMARY CONDUITS SHALL BE A MINIMUM OF 4 PVC CONDUITS. (30" MINIMUM BURIAL DEPTH)
F. VAULT SHALL HAVE A MINIMUM SEPARATION Of 36" FROM SIDES AND REAR OF PAD TO ADJACENT WALLS AND OTHER UTILITY ABOVE GRADE FACILITIES.
G. VAULT SHALL HAVE A MINIMUM SIDE CLEARANCE OF 36" FROM EDGE OF WINDOWS AND DOORS LOCATED IN ADJACENT WALL.
H. VAULT SHALL HAVE A MINIMUM CLEARANCE OF 10' FROM ADJACENT BUILDINGS.
I. ALL CONDUITS ENTERING VAULTS SHALL BE TERMINATED, GROUTED AND PROVIDED 'MTH CONDUIT END BELLS FLUSH WITH THE VAULT INTERIOR WALL
J. ALL CONDUITS ENTERING VAULTS SHALL BE PROVIDED ENTRANCE BY CORE-DRILLING CONCRETE SIDE WALLS.
K. IMPORTANT - PLEASE NOTE
UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING OR REBUILDING THE RESPECTIVE ITEMS. PLEASE CALL 816-380-8958 TO SCHEDULE INSPECTION.

CONDUIT NOTES (IF APPLICABLE):

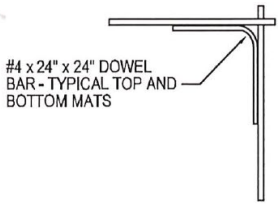
A. DIRECTION OF PRIMARY CONDUITS MAY VARY WITH INDIVIDUAL JOBS; CONDUITS SHALL HAVE A CUSTOMER INSTALLED PULL WIRE; EACH CONDUIT SHALL BE LIMITED TO 3-90 DEGREE BENDS.
B. PRIMARY CONDUITS SHALL BE A MINIMUM OF 4" PVC CONDUITS (30" MINIMUM BURIAL DEPTH) WITH 4" RIGID STEEL 90 DEGREE ELBOWS (MINIMUM RADIUS 36")

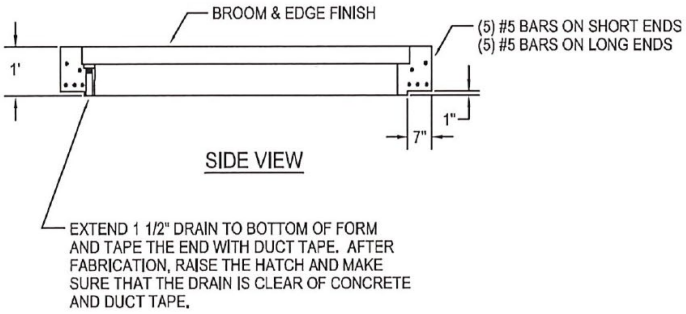
CEMENT TO BE PER ASTM C-150
REINFORCING USED TO BE PER ASTM A--615 GRADE 60 STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM C-913 CONCRETE TO BE AIR INTRAINED 4000 PSI@ 28 DAYS MINIMUM
SHIP WITH THIS BOX: (1) CASE OF JS1 JOINT SEALER

City of Harrisonville	**6' X 8' X 6' VAULT**	12 STANDARD NUMBER UE368V
DATE: **06/09/2021** REVISED:**06/09/2021**		



PLAN-TOP SLAB





SIDE VIEW

NOTES:
CEMENT TO BE PER ASTM C-150
REINFORCING USED TO BE PER ASTM A-615 GRADE 60 STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM C-913 CONCRETE TO BE AIR ENTRAINED 4000 PSI@ 28 DAYS MINIMUM

TOP SLAB REINFORCING	
REINFORCING AS NOTED ABOVE	
UNIT WEIGHTS	(LBS)
TOP SLAB	3,515

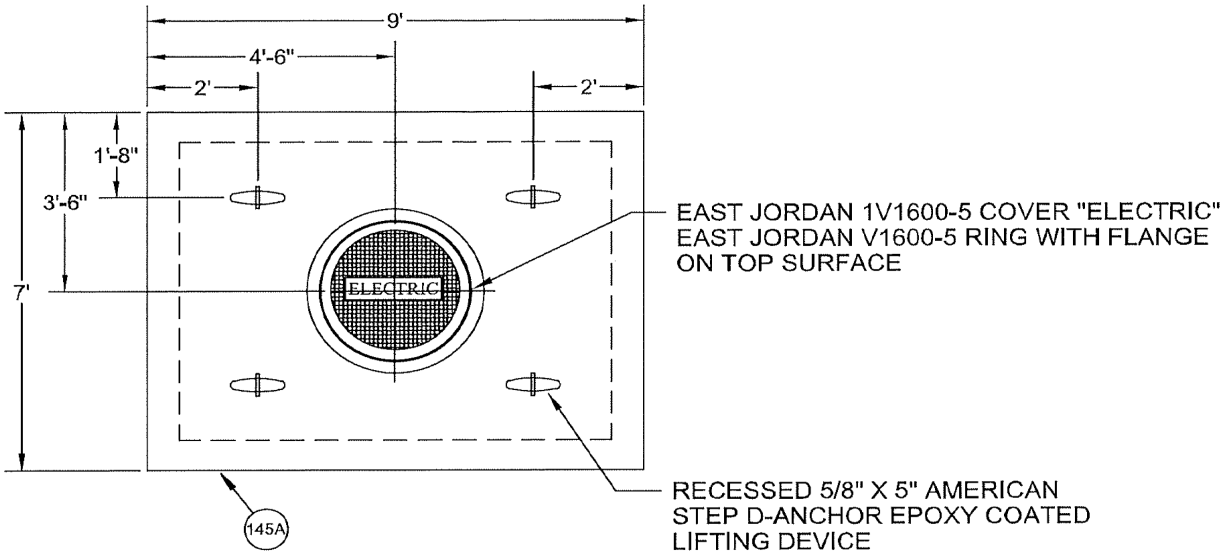
Harrisonville

DATE: **06/09/2021**
REVISED:**06/09/2021**

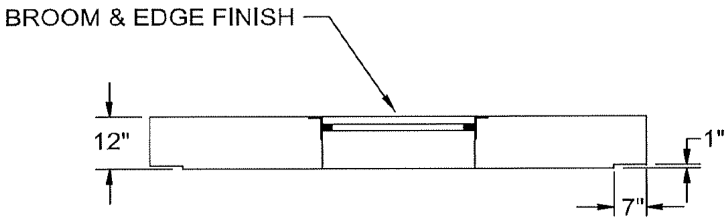
6' X 8' VAULT LID

13

STANDARD NUMBER
UE368VL



PLAN - TOP VIEW



SIDE VIEW

TOP SLAB REINFORCING	
#5 @ 6" O.C.E.W. WITH #5 DIAGONALS AROUND CASTINGS 1 1/2" CLEAR BOTTOM	
UNIT WEIGHTS	(LBS)
TOP SLAB	8,344

NOTES:
CEMENT TO BE PER ASTM C-150
REINFORCING USED TO BE PER ASTM A-615 GRADE 60 STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM C-913 CONCRETE TO BE AIR ENTRAINED 4000 PSI @28 DAYS MINIMUM

City of Harrisonville	**6' X 8' VAULT TRAFFIC BEARING LID**	14 STANDARD NUMBER UE368VTBL
DATE: **06/09/2021** REVISED:**06/09/2021**		

CONSTRUCTION NOTES:
1. SIDES OF FORMS MUST BE VERTICAL
2. STONE TOP EDGE ALL AROUND INCLUDING CORNERS
3. STONE BOTTOM EDGE ALL AROUND AND MAKE SURE THAT THERE IS NO EXCESS CONCRETE
4. NO LIFTING LOOPS ON SIDES OF SLABS
5. USE EPOXY COATED POCKET LIFTING LOOPS ON TOP OF SLABS
6. STEEL TROWEL AND LIGHT BROOM FINISH

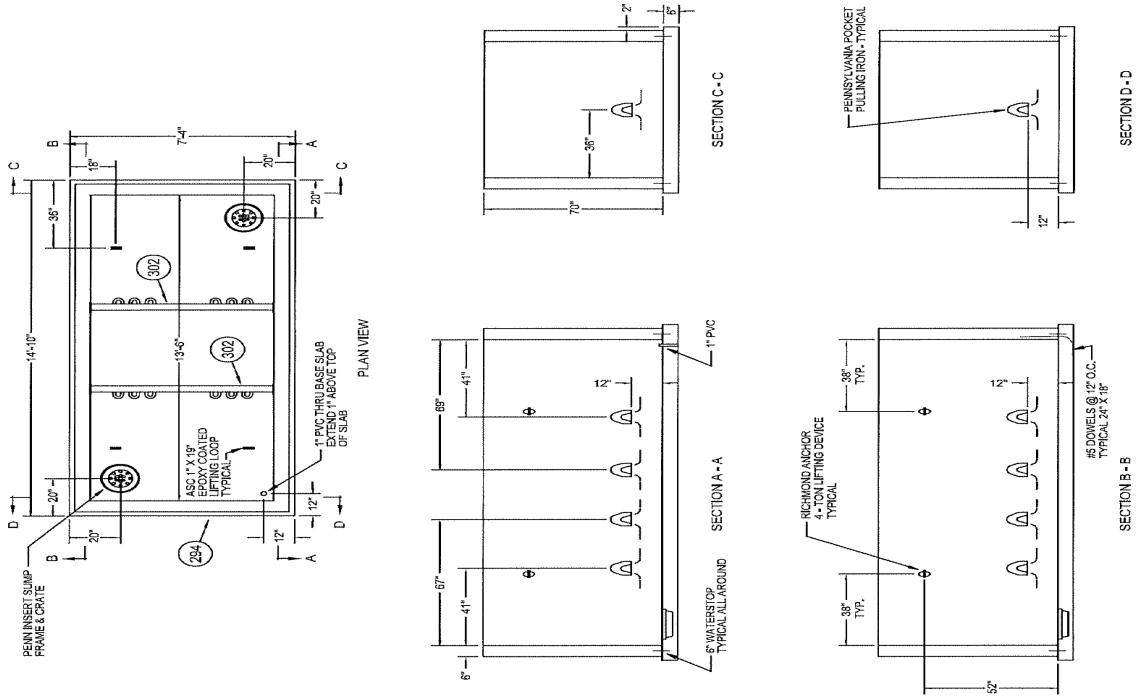
UNIT WEIGHTS "LBS"	TOP SLAB REINFORCING
TOP SLAB "A" 2,605#	#5 @ 6" O.C.E.W.
TOP SLAB "B" 3,871#	#5 DIAGONALS AROUND OPENINGS
TOP SLAB "C" 2,605#	EPOXY COATED REBAR

NOTES:
CEMENT TO BE PER ASTM C-150
REINFORCING USED TO BE PER ASTM A-615 GRADE 60
STRUCTURE AND REINFORCING DESIGNN TO BE PER ASTM A-913
CONCRETE TO BE ENTRAINED 4000 PSI @ 28 DAYS MINIMUM

600 AMP – 3 PHASE SWTICHGEAR PAD & ACCESS LIDS

DATE: **06/09/2021**
REVISED:**06/09/2021**

STANDARD NUMBER
UE6SWPL



ALL REBAR TO BE EPOXY COATED

FOR LID DETAIL SEE UE6SWPL

VAULT NOTES:

A-ALL CONCRETE SHALL HAVE 5% AIR ENTRAINMENT AND TEST 4000 # SURFACE SHALL HAVE A STEEL TROWEL FINISH

B - DIRECTION OF PRIMARY CONDUITS MAY VARY WITH INDIVIDUAL JOBS; CONDUITS SHALL HAVE A CUSTOMER INSTALLED PULL WIRE: EACH CONDUIT SHALL BE LIMITED TO 3--90 DEGREE BENDS.

C- %%NECESSARY FILL SHALL BE COMPACTED TO POINT EQUAL TO THE ORIGINAL EARTH.

D - TAPE END OF CONDUIT & THREADS WITH DUCT TAPE WHEN DUCT IS FIRST INSTALLED.

E - PRIMARY CONDUITS SHALL BE A MINIMUM OF 4" PVC CONDUITS 30" MINIMUM BURIAL DEPTH

F-VAULT SHALL HAVE A MINIMUM SEPARATION OF 36" FROM SIDES AND REAR OF PAD TO ADJACENT WALLS AND OTHER UTILITY ABOVE GRADE FACILITIES.

G-VAULT SHALL HAVE A MINIMUM SIDE CLEARANCE OF 36" FROM EDGE OF WINDOWS ANO DOORS LOCATED IN ADJACENT WALL.

H- VAULT SHALL HAVE A MINIMUM CLEARANCE OF 10' FROM ADJACENT BUILDINGS

I- ALL CONDUITS ENTERING VAULTS SHALL BE TERMINATED, GROUTED AND PROVIDED WITH CONDUIT END BELLS FLUSH WITH THE VAULT INTERIOR WALL.

J-ALL CONDUITS ENTERING VAULTS SHALL BE PROVIDED ENTRANCE BY CORE-DRILLING CONCRETE SIDE WALLS.

K - IMPORTANT - PLEASE NOTE

UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING OR REBUILDING THE RESPECTIVE ITEMS.

NOTES:

CEMENT TO BE PERASTM C-150

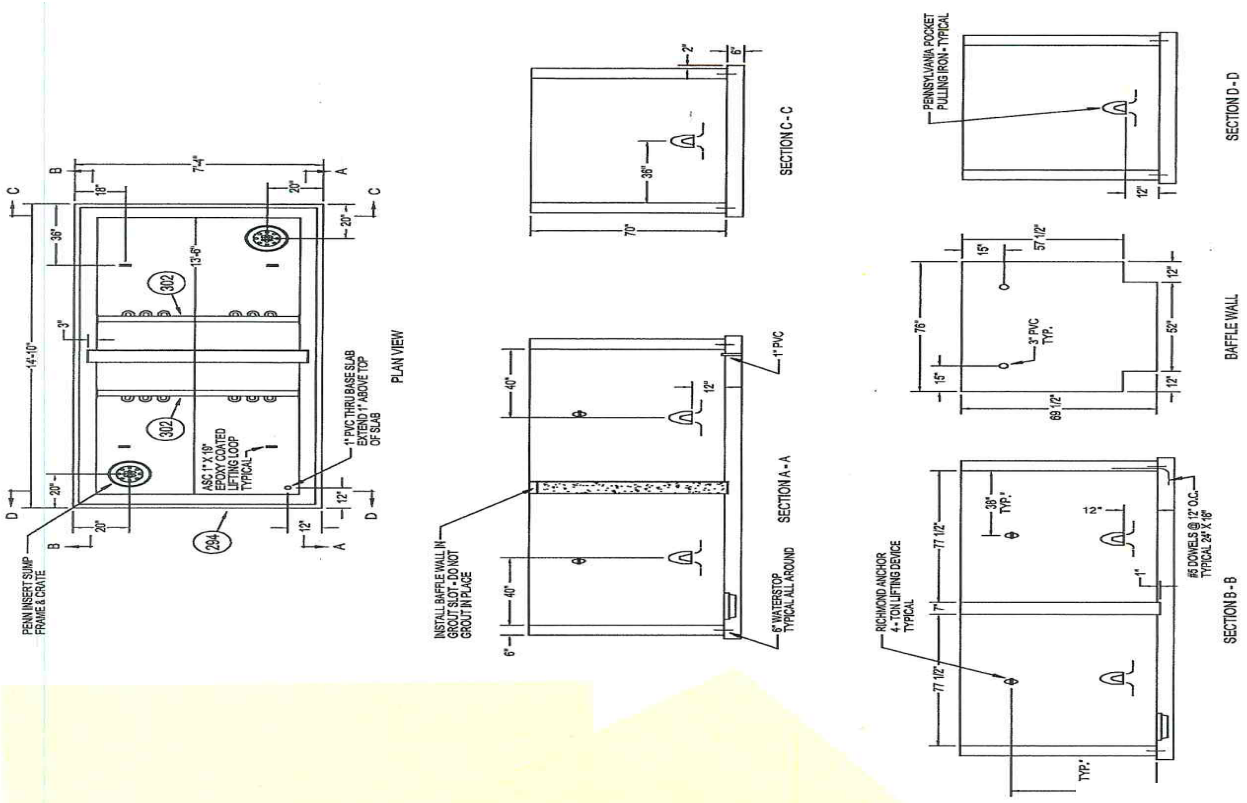
REINFORCING USED TO BE PER ASTM A-615 GRADE 60

STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM G-913 CONCRETE TO BE AIR INTRAINED 4000 PSI@ 28 DAYS MINIMUM

UNIT WEIGHTS	(LBS)
TOP SECTION	
MID SECTION 2	
MID SECTION 1	
BASE SECTION	17,716
BASE SLAB	8,058
TOTAL BASE WT.	25,774

SHIP WITH THIS BOX: (1) CASE OF JS1 JOINT SEALER

Harrisonville	**600 AMP SWTICHGEAR VAULT – W/O DIVIDER**	20 STANDARD NUMBER UE6SWV
DATE: **06/09/2021** REVISED:**06/09/2021**		



ALL REBAR TO BE EPOXY COATED

FOR LID DETAIL SEE UE6SWPL

VAULT NOTES:

A-ALL CONCRETE SHALL HAVE 5% AIR ENTRAINMENT AND TEST 4000 # SURFACE SHALL HAVE A STEEL TROWEL FINISH
B - DIRECTION OF PRIMARY CONDUITS MAY VARY WITH INDIVIDUAL JOBS; CONDUITS SHALL HAVE A CUSTOMER INSTALLED PULL WIRE: EACH CONDUIT SHALL BE LIMITED TO 3--90 DEGREE BENDS.
C- %%NECESSARY FILL SHALL BE COMPACTED TO POINT EQUAL TO THE ORIGINAL EARTH.
D - TAPE END OF CONDUIT & THREADS WITH DUCT TAPE WHEN DUCT IS FIRST INSTALLED.
E - PRIMARY CONDUITS SHALL BE A MINIMUM OF 4" PVC CONDUITS 30" MINIMUM BURIAL DEPTH
F-VAULT SHALL HAVE A MINIMUM SEPARATION OF 36" FROM SIDES AND REAR OF PAD TO ADJACENT WALLS AND OTHER UTILITY ABOVE GRADE FACILITIES.
G-VAULT SHALL HAVE A MINIMUM SIDE CLEARANCE OF 36" FROM EDGE OF WINDOWS ANO DOORS LOCATED IN ADJACENT WALL.
H- VAULT SHALL HAVE A MINIMUM CLEARANCE OF 10' FROM ADJACENT BUILDINGS
I- ALL CONDUITS ENTERING VAULTS SHALL BE TERMINATED, GROUTED AND PROVIDED WITH CONDUIT END BELLS FLUSH WITH THE VAULT INTERIOR WALL.
J-ALL CONDUITS ENTERING VAULTS SHALL BE PROVIDED ENTRANCE BY CORE-DRILLING CONCRETE SIDE WALLS.
K - IMPORTANT - PLEASE NOTE
UNDERGROUND PADS, VAULTS AND CONDUITS PROVIDED BY A CUSTOMER SHALL BE CONSTRUCTED TO THESE STANDARDS AND SHALL BE INSPECTED BY HED BEFORE BACKFILLING. FAILURE TO HAVE INSPECTION MAY RESULT IN REVISING OR REBUILDING THE RESPECTIVE ITEMS.

UNIT WEIGHTS	(LBS)
TOP SECTION	
MID SECTION 2	
MID SECTION 1	
BAFFLE WALL	2,570
BASE SECTION	17,716
BASE SLAB	8,058
TOTAL BASE WT.	28,344

NOTES:
CEMENT TO BE PERASTM C-150
REINFORCING USED TO BE PER ASTM A-615 GRADE 60
STRUCTURE AND REINFORCING DESIGN TO BE PER ASTM C-913 CONCRETE TO BE AIR INTRAINED 4000 PSI@ 28 DAYS MINIMUM

SHIP WITH THIS BOX: (1) CASE OF JS1 JOINT SEALER

Harrisonville	**600 AMP SWTICHGEAR VAULT – WITH DIVIDER**	21 STANDARD NUMBER UE6SWVD
DATE: **06/09/2021** REVISED:**06/09/2021**		