GENERAL INSTALLATION REQUIREMENTS FOR UNDERGROUND FACILITIES

- Underground electric service and meter location will be established by NHEC upon site visit.

- In some instances the type, nature, and/or size of the service requested by a Member may not be available at a desired location.

- When temporary underground service is required, the installation shall be in accordance with Construction Standard UTS, located on pages 49 and 50. The process and costs of obtaining temporary underground service varies, depending upon the location of existing facilities. After contacting NHEC and meeting a Line Design Technician in the field, the Member then installs the temporary service equipment and structure, has it inspected (when required by the town), and then calls NHEC. Service will be connected once the required documentation, prepayments, and permits have been completed. “Temporary” is installed to provide power during the construction phase of a project and is defined as less than one year by the Federal Energy Regulatory Commission. To continue service beyond one year, the service must be converted to a permanent service and meet all pertinent requirements of this handbook.

- For conductor requirements:
  - Single phase service 400 amps or less, NHEC provides conductors to the line side of the meter socket.
  - Single phase service 800 amps or less for multi-gang meter socket requires parallel runs, NHEC provides conductors to the line side of the meter socket.
  - Single phase service greater than 400 amps, Member provides all underground service conductors.
  - Three phase service Member provides all underground service conductors.

- In the case of underground facilities, a Member shall not erect or maintain any building, structure, or any part of the septic system over such facilities, and shall not plant any trees or shrubs over such facilities, and shall not substantially change the grade over or adjacent to such facilities.

- NHEC vaults and other equipment are to be within 15' of a traveled way or driveway, considered to be truck accessible year round.

- Minimum Clearances from equipment see Specification SP-2, located on page 12. The Member must contact NHEC to determine appropriate clearances. These clearances shall not supersede any local ordinance or code which requires greater clearance. If additional fire protection is necessary for insurance and/or other purposes, it is the responsibility of the building/property owner and/or Member to provide additional protection.

- The Member shall furnish at their expense and adhere to NHEC specifications all trenching, backfilling, manholes, conduits, ground wire and vaults necessary for the installation of underground electric distribution facilities.
  - Red Caution Ribbon shall be furnished and installed by the Member. This shall be installed the entire length of the trench above the conduit, a foot below finished grade.
  - A pulling rope, 1/4 inch diameter polypropylene, shall be installed in each conduit.
• Trenches shall be as straight as possible with no more than 180° of bends which will consist of no more than two 90° sweeps where the run transitions from underground to above ground. Routes through unstable soil such as mud, shifting soils, or other hazards should be avoided.

• Any significant change in the direction of the run shall be accomplished by use of an appropriate pull box.

• Underground facilities shall be a minimum of schedule 40 PVC and maintain a minimum depth of 36 inches to finish grade.

**EXCEPTIONS:**

• Conduits emerging from grade, above grade, under travel ways, roads and driveways, Schedule 80 PVC shall be used.

• Conduits installed less than 36 inches in depth require NHEC approval after site review and shall be encased in concrete to NHEC’s specs.

• Any conduits crossing or within 6 feet of drainage, water, gas, septic or sewer lines, must be encased in concrete. Concrete encasement shall be enclosing the area with 6 inches of concrete, all over, in every direction and 6 feet of concrete either side of the crossing.

• Underground conduit systems shall not be installed within 15 feet of any building foundation, swimming pool, etc., except for where service conduit merges to intercept the service equipment.

• The ends of the conduit shall be plugged during construction to prevent the entrance of foreign matter. The conduit shall be terminated as follows:
  • Conduit shall terminate not more than 3 inches inside a vault. Whenever possible the conduit should run straight into the vault without sweeps or bends. Where the conduit enters the vault, it shall be sealed with hydraulic cement to prevent water, soil and rock intrusion.

• All ends, joints and internal finish of the conduit shall be free of sharp edges or burrs which could damage the cable.

• All conduit joints shall be glued as recommended by the conduit manufacturer. Colored PVC cleaner shall be used before applying glue.

• The Member shall be responsible for having the conduit/vault system ready, prior to NHEC personnel installing the cable. Any additional changes, repairs or other work required to the underground conduit/ vault system in order for NHEC personnel to pull the cable into the conduit shall be the responsibility of the Member.

• Member shall be responsible to cover all open holes or trenches to mitigate any hazardous conditions at the job site prior to NHEC starting their work.

**SECONDARY**

• Sweeps: Electrical grade schedule 40 PVC 90° sweep(s) with a minimum radius of 36 inches may be suitable in straight runs between riser pole and meter locations less than 200 feet for 3 inch PVC and 150 feet for 4 inch PVC. If runs exceed these limits, then all 90° sweeps must be galvanized steel.

• If a reduction in the service conduit is required, it will occur at the top of the slip joint/expansion fitting utilizing a reducing bushing. The slip joint/expansion fitting will remain the same size as the conduit installed in the trench with the transition occurring above ground. Refer to Construction Standard IU Service Reduction located on page 31.
• Secondary trenches: Required 6 inch minimum spacing between all conduits and trench sidewalls. Refer to Construction Standard IU Secondary Trench, located on page 33.

• Conduits installed in pedestals must be straight up and in close proximity in order to make proper connections.

• At meter locations, the conduit shall terminate as per appropriate meter installation specs. If the meter socket is at a lower grade than the pad mounted equipment location or part of the underground conduit system, provisions shall be made as necessary so that the conduit will not fill with water and run into the meter socket. If a slip coupling (with O-rings removed) is utilized, a six inch deep, one foot wide, and two foot long stone base will be set up under the slip joint for drainage.

**PRIMARY**

• Sweeps: Electrical grade steel 90° sweep(s) with a minimum radius of 36 inches shall be required where the run transitions from underground to above ground. Sweep shall not be used in the underground portion of the primary run.

• Primary trenches: Require 6 inch minimum spacing between all electric conduits and requires a continuous #6 bare AWG copper grounding conductor that shall be directly buried in the bottom of the trench, prior to installation of any conduit, with a 20 foot coil at each end for connections by NHEC. Refer to Construction Standard IU Primary Trench located on page 32.

• Joint trenches: When electric facilities are installed jointly with communication facilities, clearance between conduits have to maintain 12 inch, the #6 AWG copper bonding conductor, should be readily accessible with adequate length at both ends and shall be installed at each vault and pad mounted equipment location between electric and communication facilities. Refer to Construction Standard IU Primary Trench, located on page 32.

• A drainage system must be installed to daylight in all vaults and sub surface structures. In areas of high water table, vaults and conduit may need to be elevated to promote effective drainage.

• If the first vault from the riser pole is at a higher grade than the riser location, provisions shall be made as necessary so that the conduit will not fill with water and run up into the riser. Any provision must obtain engineering approval.

• The maximum length between vaults is no more than 600’ without Engineering approval.

• Primary splices must be made in vaults.

• All vaults have to be parallel with the travel way.

• All primary conduits entering vaults must use the pre-casted knockouts located on the long end of the vault.

• Loop feeds are required when two or more underground transformers are installed. Refer to Construction Standard URD IB, located on page 24.
Underground Checklist

In order to improve our efficiency, we ask that you review the entire Section 2: Underground; page 14 of this handbook in order to ensure a timely and correct underground installation. Please be advised, NHEC can best serve you providing that you give us as much notice in advance as possible. If NHEC specifications are not met, applicable charges, per NHEC’s Tariff will apply. Please call our Member Solutions Department at (800) 698-2007 and reference your Work Order #________________

Please be sure to that you have completed all applicable steps below:

☐ Did you contact NHEC for a trench inspection?
☐ Is your trench the proper depth?
☐ Did you install the correct conduit meeting NHEC minimal requirements?
☐ Did you use the correct minimal radius 36” sweeps? (Steel or PVC)
☐ Did you use the proper amount of sand in the trench?
☐ Did you install the Copper Ground Conductor (if applicable)?
☐ Did you install the correct Caution Ribbon at the right depth?
☐ Did you install the correct Pulling Rope?
☐ Is the meter located in the NHEC pre-determined location?
Conduit and Trench Inspection Notice

All Contractors and Developers Requesting Underground Electrical Service shall call the Member Solutions Department of New Hampshire Electric Cooperative a minimum of 24 hours before trench is started to make arrangements for on-site inspection by NHEC Construction Personnel. NHEC will conduct an on-site inspection within 2 working days of the inspection request.

All trenches will be left open so that the conduit system can be certified as meeting the “Installation Requirements for Underground Conduit Systems” as listed in the “Handbook for Electric Service” provided by NHEC.

Once certification has been completed, an NHEC “approval” sticker will be placed at the appropriate location on the meter socket to notify all parties that the Underground Electrical System can be installed.

Failure to comply with this requirement will result in the system being re-exposed so that the proper inspection can be performed. No electrical service will be installed until the inspection sticker is in place.

Please be prepared to give all information regarding your project to our Member Solutions representative, including your Service Order #
____________________.

CONTACT NUMBER:
1-800-698-2007
INSTALLATION REQUIREMENTS FOR UNDERGROUND SERVICE

MATERIALS FURNISHED AND INSTALLED BY MEMBER

1. 3” OR 4” CONDUIT
   SCHEDULE 80 PVC.
2. 3” OR 4” 90°, 36” RADIUS SWEEP
   (SEE NOTE 5)
3. 3” OR 4” ADAPTER
   (IF NEEDED)
4. 3” OR 4” CONDUIT
   SCHEDULE 40 PVC
5. RED CAUTION RIBBON
   6” WIDE CAUTION RIBBON, MUST SAY
   “ELECTRICAL LINE BURIED BELOW”.
6. 1/4” POLYPROPYLENE STRING
   INSTALLED IN ALL CONDUITS WITH STRING
   EXPOSED AND TIED OFF AT ENDS THRU
   CAPS AT END OF CONDUIT.

STANDOFF BRACKET IMPORTANT NOTES:
CONTRACTOR TO KEEP CONDUIT TO 7-1/2” FROM FACE OF POLE.
NHEC PERSONNEL WILL PROVIDE A STANDOFF BRACKET TO ASSIST
STEEL SWEEP DISTANCE TO THE POLE.

ALL CONDUIT ABOVE GRADE
TO BE SCHEDULE 80 PVC.

CUSTOMER TO END
CONDUIT APPROXIMATELY
1’ ABOVE BRACKET

CUT STANDOFF BRACKET BAR FOR MINIMUM EXPOSURE

FINISH GRADE

1-0”

1-0”

3-0”

LOAD

2-0”

5. CAUTION RIBBON

STANDOFF BRACKET

ASSEMBLY FOR USING
STANDOFF BRACKET

2” CONDUIT: UJ3 - 2
3” CONDUIT: UJ3 - 3
4” CONDUIT: UJ3 - 4

STANDOFF BRACKET

TOP VIEW

CONDUIT APPROX. 7-1/2”
FROM FACE OF POLE

NOTE:
1.) All conduit and accessories must meet electrical grade specifications.
2.) All member furnished material to be on hand, and all necessary excavation and conduit ready prior to time of installation of equipment on pole by NHEC personnel.
3.) Conduit to be on quadrant of pole opposite flow of traffic.
4.) Refer to section 2 for further clarification and detailed descriptions for underground installations.
NOTES:
1.) All conduit and accessories must meet electrical grade specifications.
2.) All member furnished material to be on hand, and all necessary excavation and conduit ready prior to time of installation of equipment on pole by NHEC personnel.
3.) Conduit to be on quadrant of pole opposite flow of traffic.
4.) Refer to section 2 for further clarification and detailed descriptions for underground installations.
1. 3" OR 4" CONDUIT
   CONDUIT MAY BE EITHER SCHEDULE 80 PVC OR GALVANIZED STEEL & INSULATED BUSHING.

2. PIPE STRAPS

3. 3" OR 4" SLIP JOINT
   FROST PROTECTION INSTALLED ABOVE GRADE

4. 3" OR 4" CONDUIT (IF NEEDED)
   SCHEDULE 40 PVC BELOW FINISH GRADE.

5. 3" OR 4" 90°, 36" RADIUS SWEEP

6. 3" OR 4" ADAPTER (IF NEEDED)

7. GROUND WIRE
   AS REQUIRED BY NEC

8. GROUND ROD CONNECTORS

9. GROUND RODS
   (2) MIN. 3/4" x 5 3/4" DIAMETER COPPER CLAD.

10. METER SOCKET
     SOCKET MUST HAVE INTEGRATED MAIN CIRCUIT BREAKER(S), TO BE SECURELY ATTACHED TO BUILDING BY CONSUMER.

11. RED CAUTION RIBBON
     6" WIDE CAUTION RIBBON, MUST SAY "ELECTRICAL LINE BURIED BELOW".

12. 1/4" POLYPROPYLENE STRING
     INSTALLED IN ALL CONDUITS WITH STRING EXPOSED AND TIED OFF AT ENDS THRU CAPS AT END OF CONDUIT.

NOTES:
1.) Please call NHEC and make arrangements to have the meter location approved before making any changes in your present entrance or installing a new entrance.

2.) All service entrance wiring must be complete and all necessary excavation and conduit ready prior to the time of installation of the underground service lateral conductors by NHEC.

3.) If a reduction in conduit size is required see IU SERVICE REDUCTION.

4.) Four wire cable must be installed from meter socket to distribution panel.

5.) Refer to section 2 for further clarification and detailed descriptions for underground installations.

CONSTRUCTION STANDARDS

USE 3

ISSUE DATE: 01/19
MATERIALS FURNISHED AND INSTALLED BY MEMBER

1. SUPPORT POSTS (PRESERVATIVE TREATED) TWO 4" x 4" MINIMUM SQUARE POSTS SET 5' BELOW FINISH GRADE
2. MOUNTING BOARD 2' x 3' MINIMUM WITH 1-1/2" THICKNESS
3. PIPE STRAPS
4. 3" OR 4" CONDUIT SCHEDULE 80 PVC
5. 3" OR 4" SLIP JOINT FROST HEAVE PROTECTION INSTALLED ABOVE GRADE
6. 3" OR 4" CONDUIT (AS NEEDED) SCHEDULE 80 PVC
7. 3" OR 4" 90°, 36" RADIUS SWEEP
8. 3" OR 4" ADAPTER (AS NEEDED)
9. GROUND WIRE AS REQUIRED BY N.E.C.
10. GROUND ROD CONNECTORS
11. GROUND RODS (2) MIN. 6"-0" x 5/8" DIAMETER COPPER CLAD.
12. METER SOCKET SOCKET MUST HAVE INTEGRATED MAIN CIRCUIT BREAKER(S), TO BE SECURELY ATTACHED TO MOUNTING BOARD BY CONSUMER.
13. RED CAUTION RIBBON 6" WIDE CAUTION RIBBON, MUST SAY "ELECTRICAL LINE BURIED BELOW.",
14. 1/4" POLYPROPYLENE STRING INSTALLED IN ALL CONDUITS WITH STRING EXPOSED AND TIED OFF AT ENDS THRU CAPS AT END OF CONDUIT.

MATERIALS FURNISHED AND INSTALLED BY NHEC

METER
UNDERGROUND SERVICE LATERAL CONDUCTORS (TRANSFORMER TO METER) FURNISHED AND INSTALLED BY COOPERATIVE FOR BASIC SERVICE, FURNISHED BY CONSUMER FOR LARGE BASIC SERVICE.

NOTES:
1.) Please call NHEC and make arrangements to have the meter location approved before making any changes in your present entrance or installing a new entrance.
2.) All service entrance wiring must be complete and all necessary excavation and conduit ready prior to the time of installation of the underground service lateral conductors by NHEC.
3.) All service entrance wiring must be complete and all necessary excavation and conduit ready prior to the time of installation of the underground service lateral conductors by NHEC.
4.) If a reduction in conduit size is required see IU SERVICE REDUCTION.
5.) Four wire cable must be installed from meter socket to distribution panel.
6.) Refer to section 2 for further clarification and detailed descriptions for underground Installations.
INSTALLATION REQUIREMENTS FOR UNDERGROUND SERVICE

MATERIALS FURNISHED AND INSTALLED BY MEMBER

1. 4" CONDUIT
   SCHEDULE 80 PVC
2. 4" 90°, 36" RADIUS SWEEP
   GALVANIZED STEEL
3. 4" ADAPTER
   (IF NEEDED)
4. 4" CONDUIT
   SCHEDULE 40 PVC
5. 1/4" POLYPROPYLENE STRING
   INSTALLED IN ALL CONDUITS WITH STRING
   EXPOSED AND TIED OFF AT ENDS THRU
   CAPS AT END OF CONDUIT.
6. #6 SOLID BARE GROUND WIRE
7. RED CAUTION RIBBON
   6" WIDE CAUTION RIBBON, MUST SAY
   "ELECTRICAL LINE BURIED BELOW".

MATERIALS FURNISHED AND INSTALLED BY NHEC

POLE
GROUND ROD AND CONNECTOR
ALUMA-FORM STANDOFF BRACKETS

STANDOFF BRACKET IMPORTANT NOTES:

CONTRACTOR TO KEEP CONDUIT TO 7-1/2" FROM FACE OF POLE.

NHEC PERSONNEL WILL PROVIDE A STANDOFF BRACKET TO ASSIST
STEEL SWEEP DISTANCE TO THE POLE.

STANDOFF BRACKET

TOP VIEW

CONDUIT APPROX. 7-1/2"
FROM FACE OF POLE

MEMBER TO PROTECT
END OF CONDUIT FROM
INTRODUCTION OF FOREIGN
MATERIAL.

BRACKETS FURNISHED
BY NHEC

FINISH GRADE

CAUTION RIBBON

GROUND WIRE

NOTES:
1.) All member furnished material to be on hand, and all necessary excavation and conduit ready prior to time of installation of equipment on pole by NHEC personnel.
2.) Conduit to be on quadrant of pole opposite flow of traffic.
3.) Refer to section 2 for further clarification and detailed descriptions for underground Installations.
**Materials Furnished and Installed by Member**

1. **4" Conduit**
   - Schedule 80 PVC
2. **4" 90°, 36" Radius Sweep**
   - Galvanized Steel
3. **4" Adapter**
   - (If needed)
4. **4" Conduit**
   - Schedule 40 PVC
5. **Conduit End Caps**
6. **1/4" Polypropylene String**
   - Installed in all conduits with string exposed and tied off at ends thru caps at end of conduit.
7. **#6 Solid Bare Ground Wire**
8. **Red Caution Ribbon**
   - 6" wide caution ribbon, must say "electrical line buried below."

**Materials Furnished and Installed by NHEC**

- **Pole**
- **Ground Rod and Connector**
- **Aluma-Form Standoff Brackets**

**Standoff Bracket Important Notes:**
- Contractor to keep conduit to 7-1/2" from face of pole.
- NHEC personnel will provide a standoff bracket to assist steel sweep distance to the pole.

**Standoff Bracket**
- **Top View**
- Conduit approx. 7-1/2" from face of pole

**Notes:**
1. All member furnished material to be on hand, and all necessary excavation and conduit ready prior to time of installation of equipment on pole by NHEC personnel.
2. Conduit to be on quadrant of pole opposite flow of traffic.
3. Refer to section 2 for further clarification and detailed descriptions for underground installations.

**Construction Standards**

**Underground Primary**

**Loop Feed - Multiple Transformers**

**Primary Pole Materials**

**Issue Date:** 01/19
BACKFILL AROUND VAULT MUST BE FLAT AND LEVEL FOR A MINIMUM WIDTH OF 3 FT. ON ALL SIDES.

FULL SQUARE TILE

FULL TANK

Compact Crushed Stone

INSTALL 4" DRAIN PIPE WITH APPROVED DRAIN COVER TO DRAIN WATER TO DAYLIGHT FROM VAULT.

PAD & COVER REQUIREMENTS
FOR SINGLE PHASE TRANSFORMERS
USE PAD U5-5A AND WHEN USED AS A PULLING VAULT USE USE COVER U7-5B.
(NOT SHOWN IN TOP VIEW)

PROVIDE 3" OF CRUSHED STONE ON TOP OF COMPACTED CRUSHED STONE IN BOTTOM OF VAULT.

INSTALLATION REQUIREMENTS
1.) IF THE VAULT IS CUT INTO AN EMBANKMENT, NHEC MAY REQUIRE A RETAINING WALL EITHER IN FRONT OR BEHIND THE VAULT TO PREVENT MATERIAL FROM SPILLING INTO OR AWAY FROM THE VAULT.

2.) TOP OF VAULT SHALL BE SIX INCHES ABOVE FINISHED GRADE.

3.) ALL VAULTS WILL BE CONSTRUCTED WITH A DRAINAGE SYSTEM OF APPROVED PIPE MATERIAL TO DRAIN WATER THAT MAY PENETRATE THE VAULT. THE PIPING SHALL ORIGINATE AT THE LOWEST POINT INSIDE THE VAULT AND BE ROUTED TO FREE AIR AT AN ELEVATION BELOW ITS ORIGINATION THAT PROMOTES DRAINAGE.

4.) IF VAULT IS LOCATED NEAR THE TRAVELED WAY, NHEC MAY REQUIRE A PROTECTIVE STRUCTURE TO PREVENT DAMAGE.

5.) SEAL ALL KNOCKOUTS AFTER CONDUIT IS PLACED.

6.) CONCRETE SHALL HAVE A COMPREHENSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C-39-72(LATEST EDITION).

7.) REFER TO MEMBER HANDBOOK SECTION 2 OR CONSTRUCTION STANDARDS TAB 12 FOR FURTHER CLARIFICATION AND DETAILED DESCRIPTIONS FOR UNDERGROUND INSTALLATIONS.
**Installation Requirements**

1. If the vault is cut into an embankment, NHEC may require a retaining wall either in front or behind the vault to prevent material from spilling into or away from the vault.

2. Top of vault shall be six inches above finished grade.

3. All vaults will be constructed with a drainage system of approved pipe material to drain water that may penetrate the vault. The piping shall originate at the lowest point inside the vault and be routed to free air at an elevation below its origination that promotes drainage.

4. If vault is located near the traveled way, NHEC may require a protective structure to prevent damage.

5. Seal all knockouts after conduit is placed.

6. Concrete shall have a compressive strength of 5000 P.S.I. after 28 days when tested in accordance with ASTM C-39-72 (latest edition).

7. Refer to Member Handbook Section 2 or Construction Standards Tab 12 for further clarification and detailed descriptions for underground installations.

**Pad & Cover Requirements**

1. For single phase 15 or 25 kV transformer (15-167 kVA), use Pad U6-5A & Cover U7-5B.

2. For single phase 15 or 25 kV 200 amp sectionalizing cabinet use Pad U6-5B & Cover U7-5B.

3. For splicing or pulling vault use Cover U7-5A & Cover U7-5B.
CONSTRUCTION STANDARDS
PRECAST VAULT ASSEMBLY FOR 3-PHASE TRANSFORMERS

FURTHER REQUIREMENTS INCLUDES:
1.) VAULT COVER U7-7E TO ENCLOSE VAULT.
2.) APPLIABLE WEIGHTS:
   - VAULT TOP SECTION 5600 LBS.
   - VAULT BOTTOM SECTION 5300 LBS.
   - VAULT COVER U7-7E 2600 LBS.

INSTALLATION REQUIREMENTS
1.) IF THE VAULT IS CUT INTO AN EMBANKMENT, NHEC MAY REQUIRE A RETAINING WALL EITHER IN FRONT OR BEHIND THE VAULT TO PREVENT MATERIAL FROM SPILLING INTO OR AWAY FROM THE VAULT.
2.) TOP OF UPPER SECTION OF VAULT SHALL BE SIX INCHES ABOVE FINISHED GRADE.
3.) ALL VAULTS WILL BE CONSTRUCTED WITH A DRAINAGE SYSTEM OF APPROVED PIPE MATERIAL TO DRAIN WATER THAT MAY PENETRATE THE VAULT. THE PIPING SHALL ORIGINATE AT THE LOWEST POINT INSIDE THE VAULT AND BE ROUTED TO FREE AIR AT AN ELEVATION BELOW ITS ORIGINATION THAT PROMOTES DRAINAGE.
4.) IF VAULT IS LOCATED NEAR THE TRAVELED WAY, NHEC MAY REQUIRE A PROTECTIVE STRUCTURE TO PREVENT DAMAGE.
5.) SEAL ALL KNOCKOUTS AFTER CONDUIT IS PLACED.
7.) REFER TO MEMBER HANDBOOK SECTION 2 OR CONSTRUCTION STANDARDS TAB 12 FOR FURTHER CLARIFICATION AND DETAILED DESCRIPTIONS FOR UNDERGROUND INSTALLATIONS.
**CONSTRUCTION STANDARDS**

**U5-7S**

**PRECAST VAULT ASSEMBLY**

FOR

**3-PHASE 600 AMP SECTIONALIZER**

**INSTALLATION REQUIREMENTS**

1.) IF THE VAULT IS CUT INTO AN EMBANKMENT, NHEC MAY REQUIRE A RETAINING WALL EITHER IN FRONT OR BEHIND THE VAULT TO PREVENT MATERIAL FROM SPILLING INTO OR AWAY FROM THE VAULT.

2.) TOP OF UPPER SECTION OF VAULT SHALL BE SIX INCHES ABOVE FINISHED GRADE.

3.) ALL VAULTS WILL BE CONSTRUCTED WITH A DRAINAGE SYSTEM OF APPROVED PIPE MATERIAL TO DRAIN WATER THAT MAY PENETRATE THE VAULT. THE PIPING SHALL ORIGINATE AT THE LOWEST POINT INSIDE THE VAULT AND BE ROUTED TO FREE AIR AT AN ELEVATION BELOW ITS ORIGINATION THAT PROMOTES DRAINAGE.

4.) IF VAULT IS LOCATED NEAR THE TRAVELED WAY, NHEC MAY REQUIRE A PROTECTIVE STRUCTURE TO PREVENT DAMAGE.

5.) SEAL ALL KNOCKOUTS AFTER CONDUIT IS PLACED.


7.) REFER TO MEMBER HANDBOOK SECTION 2 OR CONSTRUCTION STANDARDS TAB 12 FOR FURTHER CLARIFICATION AND DETAILED DESCRIPTIONS FOR UNDERGROUND INSTALLATIONS.

**FURTHER REQUIREMENT INCLUDES:**

1.) VAULT COVER U7-7E TO ENCLOSE VAULT.

2.) APPROXIMATE WEIGHTS:
   - VAULT TOP SECTION: 5600 LBS.
   - VAULT BOTTOM SECTION: 5300 LBS.
   - VAULT COVER U7-7E: 2600 LBS.
NOTE:
1.) CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION).
2.) USE COVER U7-58 WITH VAULT U5-5.
3.) CONTRACTOR IS RESPONSIBLE TO COVER CABLE OPENING UNTIL NHEC BEGINS WORK. SEE DRAWING BELOW FOR RECOMMENDED COVER ATTACHMENT.
NOTE:
1.) CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION)
2.) APPROXIMATE WEIGHT: 1515 LBS.
ONE OR MORE PRIMARY CIRCUITS WITH TELEPHONE AND/OR CABLE TV

RED WARNING TAPE

CONDUIT (TYP.)

NO. 6 AWG SOLID BARE COPPER GROUND CONDUCTOR. (MEMBER SUPPLIED)

1. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND TRENCH SIDEWALLS.
2. TRENCH TO BE INSPECTED BY A REPRESENTATIVE OF NHEC PRIOR TO BACKFILLING.
3. REFER TO MEMBER HANDBOOK SECTION 2 OR CONSTRUCTION STANDARDS TAB 12 FOR FURTHER CLARIFICATION AND DETAILED DESCRIPTIONS FOR UNDERGROUND INSTALLATIONS.

NOTE:

WHEEL COMPACTED BACKFILL,
NO ROCKS LARGER THAN 6" DIAMETER

SAND OR FINE BACKFILL,
NO ROCKS LARGER THAN 1" DIAMETER

UNDISTURBED EARTH
ONE OR MORE SECONDARY CIRCUITS WITH TELEPHONE AND/OR CABLE TV

NOTE:
1. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND TRENCH SIDEWALLS.
2. TRENCH TO BE INSPECTED BY A REPRESENTATIVE OF NHEC PRIOR TO BACKFILLING.

CONSTRUCTION STANDARDS
TRENCH FOR JOINT ELECTRIC AND COMMUNICATION FACILITIES

IU Secondary Trench

ISSUE DATE: 08/05
CONCRETE CAPPED TRENCH

NOTE:
1. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND 4" TO TRENCH SIDEWALLS.
2. CONCRETE TO BE 5000 PSI
3. TRENCH TO BE INSPECTED BY A REPRESENTATIVE OF NHEC PRIOR TO BACKFILLING.
4. REFER TO MEMBER HANDBOOK SECTION 2 OR CONSTRUCTION STANDARDS TAB 12 FOR FURTHER CLARIFICATION AND DETAILED DESCRIPTIONS FOR UNDERGROUND INSTALLATIONS.

UNDISTURBED EARTH

WHEEL COMPACTED BACKFILL,
NO ROCKS LARGER THAN 4"
DIAETER

SAND OR FINE BACKFILL,
NO ROCKS LARGER THAN 1"
DIAETER

5000 PSI CONCRETE ENCASEMENT
NOTE:
1.) CONCRETE SHALL HAVE A COMPRESSION STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION).
NOTE:
1.) CONCRETE SHALL HAVE A COMPREHENSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION).