



Century**Link**TM

3rd Party Manhole and Vault Access Construction Guidelines

NS-LN-OSP-MP-15-0740 Issue 2
Global Operations Shared Services

January 2016



Doc Number: NS-LN-OSP-MP-15-0720	Issue #: 2 Issue Date: 1/21/2015
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Original Creation Date: 12/17/2015	Effective Date: 01/07/2016
Purpose: To establish a policy or set of guidelines for all CLEC, CenturyLink (CTL) Contractors, and 3 rd party subcontractors to follow when performing services in CenturyLink manholes and vaults (utility holes).	
Summary of Changes: Change/added verbiage in section 4.7.4 - “No slack coils or splice cases will be allowed in the manhole system without prior written approval from CTL. CTL’s consideration of such request will be based upon its review of the technical feasibility, space limitations, and security concerns related to such request. Any approval or denial shall be provided by CTL in writing and within a reasonable time of such request; provided further, a denial shall provide the reasons for such denial”.	

Audience	Work Function
Local Engineering & Construction – East (Fehl)	Implement Corporate Policy –M & P’s
Local Engineering & Construction – Midwest (Clausen)	Implement Corporate Policy –M & P’s
Local Engineering & Construction – West (Griffith)	Implement Corporate Policy –M & P’s
Local Engineering & Construction – Mountain West (Edmoundson)	Implement Corporate Policy –M & P’s
Contract Administration	Implement Corporate Policy –M & P’s
Network Operations	Implement Corporate Policy –M & P’s
CNDC (White)	Implement Corporate Policy –M & P’s

Supersedes	Supersedes

Associated Processes and Documents	Document Number or Link
OSP Pre-field Testing For Design Services / Special Services	OSP Pre-field Testing For Design Services/Special Services
HSI and Prism Speeds and Profiles (ENS Markets)	HSI and Prism Speeds and Profiles (ENS Markets)
Blue Book - Manual of Construction Procedures	NS-LN-OSP-JA-14-0674
CLEC Access to CTL LQ Utility/Manhole	NS-L-OSP-JA-10-0651
Splicing arrangement in Manholes	NS-L-OSP-MP-97-0063
UG Cable-Roding Ducts and Placing Pull Line	NS-L-OSP-MP-97-0062
Vault Closure End Plate Drilling/order Instructions	NS-L-OSP-MP-97-0100
Conduit and Manholes, Precautions	NS-L-OSP-MP-97-0036



Conduit or Inner-Duct Placement Policy	NS-L-OSP-MP-12-0143
Unauthorized Placement of Conduit in CenturyLink facilities	NS-L-OSP-MP-08-0181
Underground Fiber Optic Cable Placement (Network Services)	NS-L-OSP-MP-05-0061
Sealing Conduits and Ducts	NS-L-OSP-MP-10-0070
Utility-Hole Construction and Racking Requirements	NS-L-OSP-MP-97-0041
Lead Sheath Cable Cleaning, Preparation for Splicing & Removal	FO-MP-2006-08-004
Lead Sheath Cable Maintenance and Removal	https://ecms.corp.intranet/livelink/lisapi.dll/37965806/Lead_Sheath_Cable_Contractor_Notification.pdf?func=doc.Fetch&nodeid=37965806
Utility Hole (Manhole) Entry	https://doc-share.corp.intranet/livelink/lisapi.dll/17199208/9.1_Utility_Hole_%28Manhole%29_Entry.pdf?func=doc.Fetch&nodeid=17199208
Pumping Water From a utility Hole	https://doc-share.corp.intranet/livelink/lisapi.dll/17199209/9.2_Pumping_Water_from_Utility_Holes.pdf?func=doc.Fetch&nodeid=17199209
Gas Detection	https://doc-share.corp.intranet/livelink/lisapi.dll/17197305/9.3_Gas_Detection.pdf?func=doc.Fetch&nodeid=17197305



Per OSHA, manhole entry safety training is required for anyone entering or working in manholes. CenturyLink requires a refresher course every 2 years for 3rd party contractors working in CenturyLink manholes and vaults.



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1.0 Background

This document was created to give direction to its employees and the employees of 3rd parties who access CenturyLink's (CTL) manholes and vaults. These guidelines help protect the integrity of CenturyLink's vaults and underground systems.

2.0 Manhole / Vault

A Manhole/Vault has four walls. Two walls are the street side and field side. The other two walls are the directional walls; North, South, East or West. Directional walls have built-in / pre-formed knock-outs. To place conduit into a knock-out, excavate the directional wall to the lowest available knock-out. If a knock-out cannot be used or is not available, then cable placement into the vault can only be accomplished by Core Drilling a hole into the vault wall. Perforation of a wall with a pneumatic bore-head is prohibited. Space around a conduit placed into a core-drilled hole must be filled with 3000 psi grout to prevent water and dirt from entering the vault.

3.0 Unconventional Utility Holes

Utility-holes are to be constructed and maintained so that they are safe to enter and do not present hazards to employees due to improper construction, degradation, lack of ventilation, elongation of necks, additional soil piles or other issues that would make the utility-hole unsafe to enter or a recognized hazard for our employees.

If an unsafe issue or structural integrity issue is found, the CTL employee must report the safety or integrity issue to his/her supervisor to initiate corrective action. The CTL supervisor shall evaluate the safety concern(s) from the Report of Underground Utility-hole Safety Issues and direct it to appropriate business unit (Global Services or Engineering & Construction) for professional evaluation and correction. Based on the evaluation from the Supervisor(s), a determination will be made if the issue presents a situation that makes the utility hole unsafe. Items that could create an unsafe condition can include, but are not limited to, anything that would be immediately dangerous to life and health or that has the potential to create a serious injury, such as the depth or configuration of the utility-hole prohibits proper ventilation, or the structural integrity of the utility-hole makes it unsafe to enter and work in. Where controls can be established to eliminate the hazard, such as the use of a portable utility-hole ladder when permanent steps are missing, or thorough purging to eliminate an atmospheric concern, a utility hole will not be welded shut.

The supervisor shall communicate to impacted employees and contractors the findings of his/her evaluation and if the utility-hole is determined to be unsafe and immediate corrections cannot be made, it will be marked or welded shut and no employees will enter until the corrections are made and the unsafe condition is eliminated. Once the unsafe condition is repaired, this information shall be communicated back to all employees and contractors.

- *In the event that a 3rd party tenant and/or a contractor discovers a manhole lid welded closed, he/she should contact the CTL employee who approved the application/permit.*



Offset utility-holes or utility-holes due to depth above normal ventilation conditions, and utility-holes with structural defects within the vault such as cracks, flaking and breaking of concrete material and other vault integrity conditions shall be evaluated by a licensed professional structural engineer to ensure these utility-holes are safe to enter and do not present a hazard to employees or contractors. The Engineer shall also evaluate the ventilation system based on flow rate of blowers, depth, neck length and configuration. If the evaluation determines in-market blowers are inadequate to properly purge and ventilate the utility-hole, the utility-hole shall be equipped with access points to allow for adequate ventilation and atmospheric testing of all areas prior to entry.

Below is a list of equipment needed to properly prepare a manhole site before subsurface work begins.



Adequate Water Pump and Hose



Gas Detection Meter



Adequate fresh air blower and vents



Proper Traffic Management



8" or 12" Heavy Duty Poly or Metal Ring



Other equipment that may be needed:



- A manhole ladder may be required. Use of conventional extension ladders to enter manholes is not acceptable.



4.0 Manhole & Conduit Construction Specifications

- 4.1** All Federal, State, County, City and CenturyLink Permitting and Safety requirements, rules, regulations, vehicular and pedestrian specifications apply when placing facilities in CenturyLink-owned manholes and conduits. This includes, but is not limited to, the following examples: A) Maintenance of traffic; B) Manhole setup and entry procedures; C) Removal and/or handling environmentally hazardous materials; D) Confined space permitting where required; E) Maintaining a safe work zone at ALL times.
- 4.2** The maintenance, removal or mining of lead-sheathed cable can result in the release of lead dust and potential exposure to personnel engaged in the maintenance/removal/mining process. Therefore, such maintenance/removal/mining operations must comply with the Occupational Safety and Health Administration (OSHA) Regulation 29 Code of Federal Regulations (CFR) Section 1926.62, Occupational Health and Environmental Controls – Lead and CenturyLink Methods and Procedures. CenturyLink prohibits the use of pneumatic tools and torching devices on lead sheathed cable.
- 4.3** It is **illegal** to discharge into the environment obviously contaminated utility-hole water (pollutants like oil, grease, gasoline, sewage, and water with excess suspended solids, etc.) where it will reach storm drains or any surface water. In addition, some local and state agencies may require additional best management practices (BMPs) for the discharge of water. Be aware of and follow the jurisdictional rules that apply to pumping water from utility holes in the specific city, county, or state.
- 4.4** When core drilling a manhole wall, a prospective tenant will designate the proposed wall and approximate proposed depth of the bore on drawings submitted with the application. A CenturyLink Engineer will provide the measurements for the core drill location. This location cannot be modified without CenturyLink Engineering written approval.
- 4.5** When a core drill is completed, a conduit terminator will be installed with a minimum 1” of grout, distributed evenly around the circumference of the terminator (See drawing in section # 5.1). Contractor will be responsible to remove and dispose all debris.
- 4.6** When placing/pulling subduct and/or cable in an existing CenturyLink conduit, place/pull facility into conduit(s) as assigned on the approved CenturyLink Permit or as mutually agreed upon as the result of a jointly-performed field survey. No conduit/duct assignment changes will be made without CTL Engineering written approval. Only attach pulling equipment to the designated pulling eyes built into the manhole (See drawing in section 5.3).
- 4.7** Contractor must contact the CenturyLink employee who approved/signed application/permit 48 hours prior to construction start. Work start may be delayed due to prior approved/permitted work in progress. See also <http://cablevault.centurylinkapps.com>

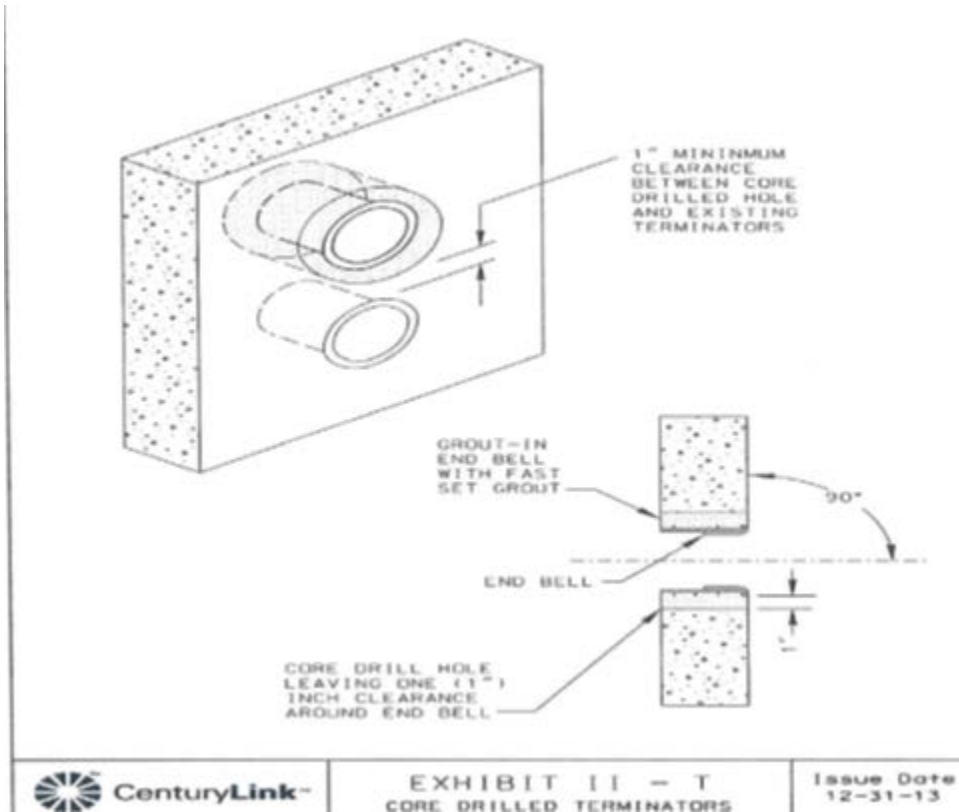


- 4.7.1 When placing/pulling cable in conduit, one person must be stationed at the surface/entry of the manhole while the manhole is occupied. Excessive cable will not be coiled or stored in unoccupied CenturyLink manholes. 
- 4.7.2 Contractors and tenants are responsible for any and all damage to existing facilities located in or near proximity of the manhole (above and below ground).
- 4.7.3 Pulling tension will not exceed the cable manufacturer's maximum load. Excess lubricant and debris must be removed and properly disposed of.
- 4.7.4 All cable(s) and subduct(s) will be racked (See drawing in section 5.2) in existing racking and will not obstruct access to existing cables or conduits. All fiber optic cables and all duct containing fiber optic cables must be tagged with owner's name and telephone number. All cables and inner duct will be directly fastened to the manhole racking system in the manhole. No slack coils or splice cases will be allowed in the manhole system without prior written approval from CTL. CTL's consideration of such request will be based upon its review of the technical feasibility, space limitations, and security concerns related to such request. Any approval or denial shall be provided by CTL in writing and within a reasonable time of such request; provided further, a denial shall provide the reasons for such denial. 
- 4.7.5 All conduits, ducts and sub-ducts, will be sealed with a water tight compound placed in all vacant conduits, ducts and sub-ducts and around all cables/facilities to prevent water flow from adjacent manholes. Compound/plugs must be maintained and replaced as necessary.
- 4.7.6 All damages to existing facilities must be immediately reported to the CenturyLink employee who approved the application/permit or call **UNICall 866-864-2255**. **Call 911** should Law Enforcement or Emergency Medical assistance be required.
- 4.7.7 Upon completion of the work and/or closing/replacing the manhole cover, the cover will align to and with any traffic markings that may be painted on said cover.
- 4.7.8 Provide written notice of construction completion within five business days and a signed set of as-built plans within twenty working days (excluding Nationally observed holidays).



5.0 Manhole Specification Details

5.1 Core Drilled Terminators



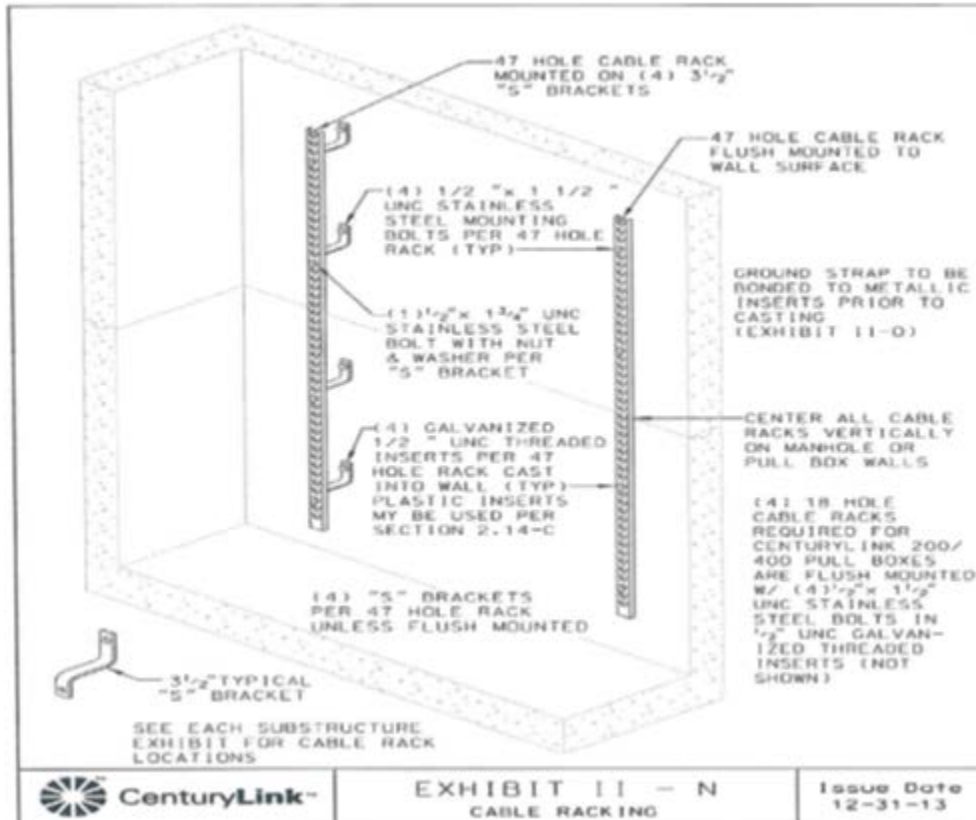
Acceptable



Unacceptable



5.2 Cable Racking



Acceptable – No more than 3 wraps per fiber

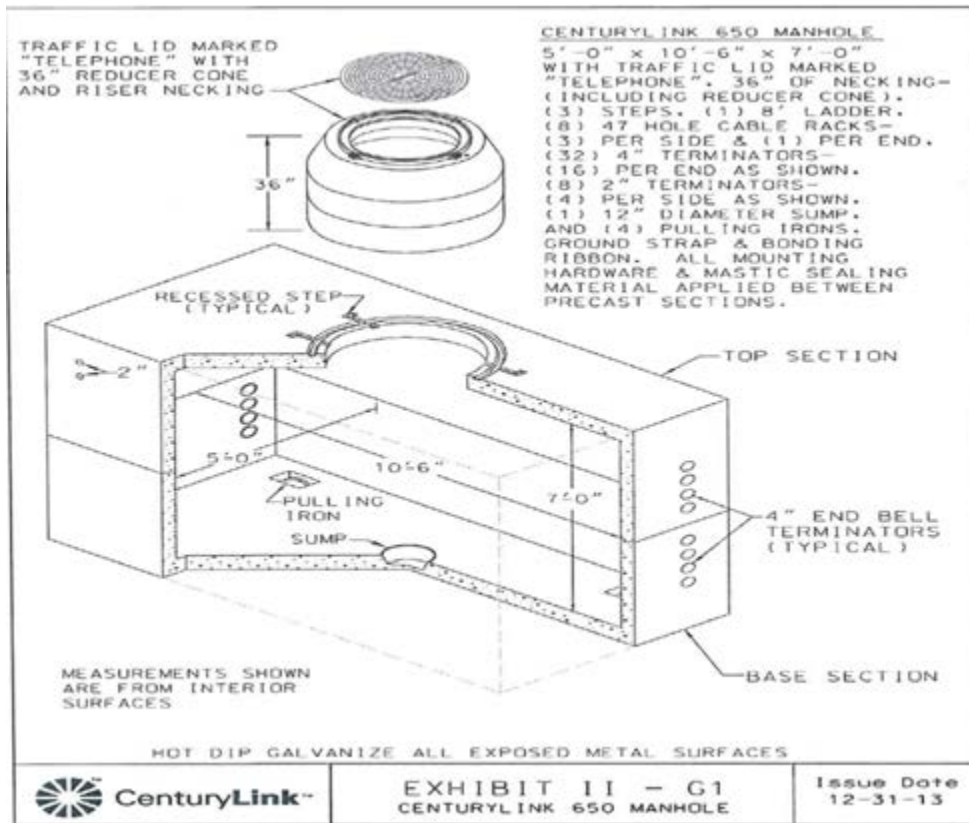


Unacceptable – More than 3 wraps

- See Note on page 11 for typical wrapping of cables in manholes.



5.3 CenturyLink 650 Manhole



NOTE:

- Wraps/wrapping the manhole is the process of looping the cable along the walls of a manhole. This is usually the process when the cable is exiting in duct or on a wall not in alignment with the duct of entry. The cable is wrapped/looped to prevent 1) blocking vacant holes; 2) prevent micro-bending; prevent blocking racking access (existing and future facilities).



6.0 Contacts

Process Area(s)	Name	E-mail Address	Telephone Number
Joint Use Manger	Henry Bowlin	henry.bowlin@centurylink.com	407-830-3091
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7.0 Reviewed By

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8.0 Authorization

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