Contents

1. Telecom Manholes……1
2. Service Entrance Construction……2
3. Service Entrance Cabling……4

1. Telecom Manholes

1.1. Manholes

1.1.1. Manholes will be placed to connect conduit runs together and/or to provide a cable pulling and splicing location as necessary. In addition, conduit runs shall not extend beyond 500 feet without installation of a manhole.

1.1.2. Manhole size will be 6'x12'x7' inside diameter.

1.1.3. Manhole(s) will use a minimum concrete strength of 3,500 psi.

1.1.4. The interior of each manhole shall have 7/8" galvanized steel pulling eyes located opposite of each entering conduit or duct bank.

1.1.5. Nylon wall racks manufactured by Underground Devices Incorporated or a compatible product anchored with stainless hardware. Stanchions will extend from 6" AFF to 6" from the ceiling. Stanchions will be placed 18" from the corners and every 3' along the walls.

1.1.6. Each manhole shall have a sump pit of at least 18 inches in diameter and 2" deep in the floor. The floor should be sloped to the sump pit. The sump pit will be located under the manhole lid.

1.1.7. A 5/8" diameter 6' copper clad ground rod will be installed in two opposite corners of the manhole. Extending 3" above the finished floor.

1.1.8. Each manhole shall have cover N1750 series from Neenah Foundry. Manhole covers shall be 32" diameter.

1.1.9. Conduits entering the manhole will have a bell fitting flush to the inside wall.

1.2. Hand-holes

1.2.1. Hand-holes can be placed when the cable design dictates an in-ground pull or splice box but does not warrant a manhole. Hand-hole specifications and installation locations will be specified on a case-by-case basis.

2. Service Entrance Construction

2.1. General Information

2.1.1. Division of IT will work with Project Management and/or their assigned engineering firm to design service entrances in accordance with the design of the cabling to be installed.

2.2. Conduit Quantity, Type, and Size

2.2.1. All buried conduit shall be 4" PVC, schedule 40 concrete encased and rebar reinforced.

2.2.2. Concrete shall be undyed.

2.2.3. All conduit exposed to sunlight shall be UV rated.

2.2.4. Three 4" conduits shall be installed from to a building as a minimum. Specific conduit quantities shall be determined on a building-by-building basis. Items for consideration are: type and use of building, growth, difficulty of adding pathways in the future, alternate entrances, and type and size of cables likely to be installed.

2.2.5. All conduits and inner ducts shall be equipped with a minimum 1,500 lb. Strength mule-tape pull line with sequential numbering.

2.2.6. All new conduits will be tested with a mandrill one trade size smaller than the conduit.

2.2.7. A diverse building entrance will be established if possible and desired for redundancy.

2.3. Conduit Installation Methods

2.3.1. Galvanized metal conduit shall be installed through the building penetration, outside of the building, to be connected to PVC conduit for the rest of the run. Metal conduit shall be extended 5 feet away from the building foundation.

2.3.2. Metal conduits entering the building through the floor slab shall be extended a minimum of 4 inches above the finished floor. Conduits entering the building through a sidewall shall be extended a minimum of 3 inches beyond the inside wall.

2.3.3. The ends of metallic conduit shall be reamed, bushed, and grounded according to the NEC and NESC.

2.3.4. Top of conduit must be buried at least 36 inches below the ground surface.

2.3.5. The conduit shall slope down and away from the building to accommodate drainage.

2.3.6. After installation of cables, Division of IT or its authorized vendor shall be responsible for sealing all conduits. All conduits shall be plugged to restrict infiltration of gas, water, and vermin.

2.3.7. When joint-trenches are used to install other utilities along with telecommunications facilities, the following separation distances should be used:

Adjacent Structure…	**Minimum Separation…**
Power or other foreign conduit	3 inches of concrete OR 4 inches of masonry OR 12 inches of well-tamped earth
Pipes (gas, oil, water, etc.)	6 inches when crossing *12 inches when parallel

2.3.8. The total number of bends in a conduit section run shall not exceed 270° total bends. Each bend shall have a radius not less than:

Conduit size…	**Radius…**
2" or smaller	Six (6) times the internal diameter
Larger than 2"	Ten (10) times the internal diameter

2.3.9. Conduit from manhole to building should be less than 500'.

2.3.10. Conduit installation methods shall follow industry standards. Reference ANSI/TIA-569-C and BICSI TDMM Manuals.

3. Service Entrance Cabling

3.1. General information.

3.1.1. Division of IT will provide design requirements for the facility. All new construction will specify the following facilities to be installed to the building:

3.1.1.1. 48 strand single-mode fiber

3.1.1.2. Twisted pair copper (size dictated by building sq. ft.)

3.1.1.3. Coaxial copper cable (either .500" or .750" in diameter)

3.1.2. Division of IT or its authorized vendor will engineer and install all service cable.

3.1.3. A diverse entrance cable will be established if possible and desired for redundancy.

3.1.4. Costs for such facilities will be paid for as follows:

3.1.4.1. Division of IT will provide service cabling up to the nearest existing manhole feeding a particular building. The construction project funds will pay for service facilities and construction from the nearest existing manhole into the building.