

Special Specification 6231

AT&T Telecommunication System



1. DESCRIPTION

This Item will govern the installation of all facilities belonging to AT&T-Texas, hereinafter referred to as AT&T. The Contractor and approved Subcontractors shall construct all required utility adjustments within the limits of this project including any peripheral adjustments that may not have been discovered during the design process.

1.1. Definitions.

1.1.1. Bellcore Practices. Refers to AT&T telecommunication construction and maintenance practices accepted and in use by all AT&T personnel and contractors working in this project region. This information is documented in AT&T guidelines and manuals that collectively are referred to as Bellcore Practices and may include best practices that are not written but have been otherwise communicated to AT&T personnel and contractors. Any Contractor that works on the AT&T portion of the project must have and be familiar with the most current Bellcore Practices.

1.1.2. Cable/Fiber. Denotes copper cable and/or fiber optic cable. The Contractor must obtain cable prints from AT&T for information on type and size of Cable/Fiber to be placed. Cable/Fiber may be aerial, buried or underground.

1.1.3. Conduit. Piping material that will be used to house telephone cables. The words "conduit", "duct" and "piping" may be used interchangeably in this specification.

1.1.4. Conduit Structure (Duct Bank). Groups of conduits arranged in tiers and encased as specified in the plans.

1.1.5. Underground. Refers to facilities housed inside conduit. This excludes facilities that are placed directly in the ground which are referred to as buried facilities.

2. MATERIALS

2.1. AT&T will furnish all materials required for installing telecommunication system complete in place, such as pipe, fittings, cable, fiber, pre-cast manholes, markers, etc.

2.1.1. Procurement of Materials.

2.1.1.1. All materials proposed for AT&T within this project shall be provided by AT&T.

2.1.1.2. Cables that are greater than 3000 pair shall be requested at least 40 days prior to required delivery date. Fiber and smaller cables shall be requested at least 30 days prior to required delivery date.

2.1.1.3. Contractor is to install cable within 60 calendar days after receipt of cable.

2.1.1.4. Conduit, manholes and all other materials, other than cable, shall be requested at least 2 weeks prior to required delivery.

2.1.1.5. Remote terminal cabinets, mounting brackets, grounding trees and power switches shall be requested at least 30 days prior to required delivery and must be installed within 90 calendar days after taking delivery.

- 2.1.1.6. Serving Area Interface (SAI), mounting brackets, and grounding trees shall be requested at least 30 days prior to required delivery and must be installed within 90 calendar days after taking delivery.
- 2.1.1.7. In the event that special order items have been identified in the plan set, these items shall be requested at least 30 days prior to required delivery.
- 2.1.2. All other non-telecommunication system materials, such as casing pipe, galvanized iron pipe, shoring materials, backfill, mortar, tools, supplies, equipment, etc. required to properly complete the work will be furnished by the Contractor, except as otherwise noted. Unless otherwise directed in the plans, all materials furnished by the Contractor must meet Department and AT&T minimum requirements. In the event that a discrepancy exists between Department and AT&T material specifications, the Contractor must adhere to the more stringent specification.
- 2.1.3. Backfill. All backfill will be in accordance with Item 400, "Excavation and Backfill for Structures
- 2.1.3.1. Bedding. All bedding will be bank sand beginning 2 in. below the bottom of the duct bank and extending to 12 in. above top of the duct bank, as shown on the construction plans.
- 2.1.3.2. Cement Stabilized Backfill. All cement-stabilized backfill will be in conformance with Item 400, "Excavation and Backfill for Structures." Cement-stabilized backfill will be used to fill trench from top of bedding to bottom of subgrade whenever an excavation is under and within ten feet of a roadway.
- 2.1.3.3. Original Material Backfill (Type A). Type A backfill will be used whenever an excavation is a distance of 10 ft. or greater from an existing or proposed edge of pavement. Material used for this backfill will be equivalent to original material or better, free of debris, compacted 90%-95% standard proctor density in 8 in. lifts.
- 2.2. **Encasement.**
- 2.2.1. Concrete Encasement. All concrete encasement material will conform to Item 421, "Hydraulic Cement Concrete." Class B concrete will be utilized for encasement of conduits wherever plans indicate concrete encasement.
- 2.2.2. Steel Encasement. Steel Encasement will be of a sufficient diameter to encase the conduit(s), will be of a minimum length equivalent to the width of the proposed frontage road fill slope on each side or as noted on the plan sheets, and have a minimum wall thickness of 1/4 in.
- 2.2.3. HDPE Encasement. HDPE encasement will be of a sufficient diameter to encase the conduit(s), will be a minimum length equivalent to the width of the proposed frontage road fill slope on each side or as noted on the plan sheets, and will have a minimum SDR 11 wall thickness.
- 2.3. **Foundation.** All concrete foundations will conform to Item 416, "Drilled Shaft Foundations" and Item 420, "Concrete Structures." Class A concrete will be utilized for foundations wherever plans indicate foundation.
- 2.4. **Manholes and Handholes.**
- 2.4.1. Pre-cast manholes and handholes. All pre-cast manholes and handholes will be provided by AT&T.
- 2.4.2. Cast-in-place manholes and handholes. All materials used for cast-in-place manholes and handholes will conform to Bellcore Practices Section 622-505-210. Hydraulic cement with a nominal compressive strength of 4000 psi in conformance with ASTM C150 will be used. Rebar will be deformed steel bars having a 60,000 psi yield strength conforming to ASTM A615.
- 2.5. **Defective or Damaged Material.** All materials will be inspected for defects prior to being lowered into the trench. Any defective, damaged, or unsound material will be repaired or replaced as directed. Should damaged materials be placed, the Contractor will furnish at the Contractor's expense all labor and materials required for removing and replacing the defective material. Should the Contractor damage the materials after

installation, the Engineer may permit the damaged section to be cut from the length unless it is the opinion of the Engineer that the entire length was damaged. The cost and replacement of broken materials will be at the expense of the Contractor.

- 2.6. **Protective Concrete Cap.** All materials shall be provided by the Contractor and shall conform to Item 421, "Portland Cement Concrete" and Item 440, "Reinforcing Steel." Class "A" concrete shall be used unless otherwise noted.
- 2.7. **Aerial Installation.** All poles, anchors, guys, strand, U-guard, standoff brackets, and miscellaneous hardware shall be provided by AT&T.

3. CONSTRUCTION

- 3.1. **General Requirements.** All work performed by the Contractor and Subcontractor must adhere to AT&T regional guidelines, Department requirements, and the latest editions of both the Bellcore Practices and National Electric Safety Code (NESC).
- 3.1.1. The Contractor and Subcontractor must follow the more stringent requirements whenever the items listed above vary amongst each other.
- 3.1.2. In the event that discrepancies exist between the above items and any applicable legal and/or safety requirement of a federal, state or local authority, the more stringent requirement must be followed. The Contractor's work is subject to inspection by both Department and AT&T. All personnel must be familiar with Buried Plant: Precautions and Maintenance to Existing Systems, BR 629-100-010 Paragraph 1 prior to beginning work on any buried facilities Contractor. The Subcontractor that installs the underground telephone system must be an approved AT&T Contractor in good standing with AT&T.
- 3.2. **Coordination with AT&T.**
- 3.2.1. Slotted Manholes. All manholes proposed as pre-cast slotted shall not be ordered until Contractor has verified field conditions are adequate for placement. Otherwise, manhole shall be cast in place.
- 3.2.2. Cable/Fiber Splicing.
- 3.2.2.1. All splicing involved in this project shall be performed by AT&T.
- 3.2.2.2. Cables will be installed in stages to allow sufficient working room inside new manholes for splicing. Prior to installing any cables, Contractor shall discuss cable installation order and phases with AT&T Manager-Construction Contract Coordinator shown in the General Notes. AT&T will identify the maximum number of cables allowed to be installed at one time for each individual manhole.
- 3.3. **Trench Excavation.** Trench excavation and backfilling as required to complete the underground telecommunication system installation will be performed in accordance with Item 400, "Excavation and Backfill for Structures," as outlined herein, as shown on the plans and as directed. Blasting to perform the excavation will not be allowed unless authorized in the plans or in writing by the Engineer.
- 3.3.1. Trenches for Cable/Fiber, Conduit and Conduit Structure must also comply with the following requirements:
- 3.3.1.1. Width of Trenches will be in conformance with Bellcore Practices Section 622-020-901 Paragraph 11.20.
- 3.3.1.2. Depth of Trenches will be in conformance with Bellcore Practices Section 622-020-901 Paragraph 11.21.
- 3.3.1.3. Grade of Trenches will be in conformance with Bellcore Practices Section 622-020-901 Paragraph 11.22.
- 3.3.2. Manhole and Handhole Excavations. The width and depth of excavation for manholes and handholes will be determined by the lines and grades as established on the plans, dimensions of the manholes and handholes,

manhole and handhole orientation, as described in Article 400.4 of Item 400, "Excavation and Backfill for Structures" or as approved.

- 3.3.3. Classification of Excavations. No classification of excavated materials will be delineated. Excavation and trench work will include the removal and subsequent handling of all materials excavated in accordance with Item 400, "Excavation and Backfill for Structures."
- 3.3.4. Excavation Below Grade. Any part of the bottom of the trench excavated below the limits specified in Section III, paragraph C., a., (1), "Depth of Trenches," will be corrected with approved material and compacted in a manner as described in Article 400.3 of Item 400, "Excavation and Backfill for Structures" and as directed.
- 3.3.5. Protections and Restoration of Underground Structures and Facilities.
 - 3.3.5.1. Facilities other than AT&T's. Contractor will protect and restore underground structures in accordance with Bellcore Practices Section SW622-020-901, Paragraphs 11.01-11.04.
 - 3.3.5.2. AT&T Facilities. The Contractor will adjust and support existing telephone conduit wherever indicated on plans in accordance with Bellcore Practices Section 622-300-300 "Main Conduit Restoration and Rearrangement."
- 3.3.6. Trench Excavation Protection. All trench excavation protection will be accomplished in accordance with Bell System Practice Section 622-020-901.
- 3.4. **Backfill.** All backfill and backfill operations will be in accordance with Item 400, "Excavation and Backfill for Structures," as described herein and as directed. Where, in the opinion of the Engineer, it is necessary to maintain traffic across a trench, the Contractor will install temporary metal bridges as necessary to facilitate the movement of traffic.
- 3.5. **Foundation.** All foundation installations will be in accordance with Item 422.3 "Construction" Section A "Cast-in-place."
- 3.6. **Remote Terminal.** All telecommunication installations at remote terminal sites will be in accordance with Bellcore Practices. Site preparation for new remote terminal installations will be in accordance with Item 100 "Preparing of Right of Way." Landscaping for new remote terminal sites will be in accordance with Item 193 "Landscape Establishment".
- 3.7. **Serving Area Interface (SAI).** All telecommunication installations at SAI sites will be in accordance with Bellcore Practices. Site preparation for new SAI installations will be in accordance with Item 100 "Preparing of Right of Way." Landscaping for new SAI sites will be in accordance with Item 193 "Landscape Establishment".
- 3.8. **Pavement.** The Contractor will remove pavement and surfaces as part of the trench excavation in accordance with Item 400, "Excavation and Backfill for Structures." The removal and restoration of pavement and surfaces will be based upon the minimum trench width as described in Section II, paragraph A., 1., a., "Width of Trenches" plus 2-in. on each side of the trench.
 - 3.8.1. Concrete Surfaces. All removal of concrete surfaces (sidewalks, driveways, etc.) will be performed in accordance with Item 104, "Removing Concrete."
- 3.9. **Boring.** Installation of casing pipe and conduit(s) by bore shall be in conformance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." Bore spacer shall be installed in accordance with manufacturer's guidelines.
- 3.10. **Directional Boring.** Installation of casing pipe and conduit(s) by horizontal directional drill shall be in conformance with the North American Society of Trenchless Technology (NASTT), "Mini-Horizontal

Directional Drilling Manual" (1995) or ASTM F 1962 "Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit under Obstacles including River Crossings."

- 3.11. **Manholes and Handholes.** Manholes and handholes will be of the size and type as shown on the plans. All manholes and handholes will be set to the lines and grades as shown on the plans. Manholes will have a minimum 60-in. cover from finished grade to the top of the manhole box unless specified otherwise on the plans or as directed by AT&T. Handholes will be placed in line with final grade except where noted otherwise on the plans or as directed by AT&T.
- 3.11.1. Pre-Cast Manholes. All pre-cast manholes and handholes will be installed according to Bellcore Practices Section 622-506-200, "Precast Concrete Manholes, 38Y Types, Installation."
- 3.11.2. Cast-In-Place Manholes. All cast in place manholes will be constructed in accordance with Bellcore Practices Section 622-505-210, "Concrete Manholes, Cast in Place Construction"
- 3.12. **Conduit and Conduit Structures.**
- 3.12.1. General Requirements. Contractor shall start work at a tie-in point, unless otherwise indicated on the plans or directed by the Engineer. The work area shall be maintained in a neat and orderly fashion.
- 3.12.2. Duct Bank. Contractor will refer to Bellcore Practices Section 622-340-201SW "C Plastic PVC & C Polypropylene Direct Buried in Soil Main Conduit" for placing the conduit, including construction of curves, sweeps, and grade changes. This Item will cover requirements for mandreling, installing mule tape in each installed duct, and plugging all installed ducts at each end.
- 3.12.3. Defective or Damaged Material. All materials will be inspected for defects prior to being lowered into the trench. Any defective, damaged, or unsound material will be repaired or replaced as directed. Should damaged materials be placed, the Contractor will furnish at the Contractor's expense all labor and materials required for removing and replacing the defective material. Should the Contractor damage the materials after installation, the Engineer may permit the damaged section to be cut from the length unless it is the opinion of the Engineer that the entire length was damaged. The cost and replacement of broken materials will be at the expense of the Contractor.
- 3.13. **Cables.**
- 3.13.1. Buried/Underground.
- 3.13.1.1. Installation. Contractor will install cables per Bellcore Practices Section 628-200-208 "Placing Underground Cable."
- 3.13.1.2. Cable Racking. Racking of cables will be in accordance with Bellcore Practices Section 632-305-215, "Cable Racking, Cable Arrangements in Manholes" for up to 20 ducts.
- 3.13.2. Aerial.
- 3.13.2.1. Before starting any aerial cable placing operations, all personnel must be familiar with the Bellcore practices in the 620, 621, and 627 Divisions.
- 3.13.2.2. Before placing any setting any poles, anchors, or guys all personnel must be familiar with Bellcore practices in the 620, 621, and 627 Divisions. In addition, to the most current National Electric Code guidelines and safety practices.
- 3.14. **Marker Posts.** Posts identifying AT&T facility locations will be placed in accordance with AT&T standards at a maximum spacing of 500 linear feet along installation. Posts will also be installed at handholes, manholes, street crossings, changes in direction of AT&T facilities and as directed by the Engineer.

- 3.15. **Installing Manholes over Existing Conduit.** Contractor will refer to Bellcore Practices 622-300-205 "Special Construction" and 622-300-300 "Main Conduit Restoration and Rearrangement" when constructing manholes over existing conduit.
- 3.16. **Adjusting Existing Manholes.** All manhole frame and covers will be adjusted in accordance with Item 479, "Adjusting Manholes and Inlets."
- 3.17. **Removing Existing Facilities.** All abandoned telephone facilities, including manholes and conduit, to be removed will be accomplished in accordance with Item 496, "Removing Structures." An AT&T approved contractor (As shown in Section 3.A.3.) shall remove all existing cables and conduit as necessary for the installation of the new facility and for the connectivity between existing and new facilities; however, an AT&T approved contractor is not required to perform any other AT&T removals once the existing facility is abandoned in place.
- 3.18. **Protective Concrete Cap.** Concrete caps will be constructed above existing telecommunication facilities at locations specified and to the dimensions detailed on the plans in conformance with Item 421, "Hydraulic Cement Concrete."
- 3.19. **Lowering Existing Ducts.** Contractor will refer to Bellcore Practices and procedures when adjusting existing conduits in place. Contractor shall not perform any adjustments without prior notice to AT&T. The Contractor must allow for AT&T's inspection, if requested.
- 3.20. Contractor is responsible for hauling of cable and fiber material from AT&T storage facility; Contractor must coordinate this Item through AT&T Manager-Construction Contract Coordinator.

4. MEASUREMENT

- 4.1. **Trench Excavation and Backfill.** This Item will not be measured for payment but will be considered subsidiary to the buried facility installed in the trench.
- 4.2. **Trench Excavation Protection.** Trench Excavation protection will be measured by the plan footage. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantity are required.
- 4.3. **Concrete Surfaces.** The removal of concrete curb, sidewalk, driveway, medians and/or islands required to be removed and replaced due to underground telephone system construction will not be measured separately but will be considered subsidiary to the structure installed.
- 4.4. **Cut and Restore Pavement.** Cutting and restoring pavement will not be measured for payment, but will be considered subsidiary to the Item installed in the trench.
- 4.5. **Concrete Encasement.** This Item will not be measured for payment, but will be considered subsidiary to the Item installed in the trench.
- 4.6. **Foundation.** This Item will not be measured for payment, but will be considered subsidiary to the Item installed.
- 4.7. **Remote Terminal.** This Item will be measured by each site installed, complete in place. This is a plans quantity measurement Item. All labor and equipment required for building the remote terminal including, but not limited to the installation of all telecommunication facilities into the remote terminal, placing the cabinet, installing mounting brackets, preparing the site, building the foundation, landscaping, re-grading, erosion control, traffic control, establishing electrical service and connectivity, transfer switches, grounding, and driveways will be considered incidental to this Item.

- 4.8. **Serving Area Interface (SAI).** This Item will be measured by each site installed, complete in place. This is a plans quantity measurement Item. All labor and equipment required for building the SAI including, but not limited to the installation of all telecommunication facilities into the SAI, placing the equipment, placing the hardware, installing mounting brackets, preparing the site, building the foundation, landscaping, re-grading, erosion control, traffic control, grounding, and driveways will be considered incidental to this Item.
- 4.9. **Manholes and Handholes.** Manholes and handholes will be measured by each size and type installed, complete in place. This is a plans quantity measurement Item. Neck, rings, frames and covers will not be measured for payment, but will be considered subsidiary to the structure installed.
- 4.10. **Conduit and Conduit Structures (Duct Banks).** Conduit will be measured by the linear foot for the various types and sizes of conduit structures shown on the plans. This is a plans quantity measurement Item.
- Excavation, furnishing and placing backfill, removing and replacing pavement structure, sod, riprap, curbs or other surface, furnishing and installing all piping, fittings, sweeps, bends, repair couplings, adaptors, ground box/manhole/handhole termination kits, pre-assembled split repair kits, lubrication access fittings, expansion joints, concrete and underground mylar conduit marking tape, mule tape, and all labor, tools, equipment and incidentals will not be measured for payment but will be considered subsidiary to the conduit structure installed. Mandreling will not be paid for separately, but will be considered subsidiary to the conduit installation.
- 4.10.1. The lengths of duct bank will be measured along the duct between the outside faces of manholes or handholes or other connected facility as shown on the plans.
- 4.10.2. Where the installation involves connection to an existing conduit, the measurement will be made from the point of connection to the existing conduit.
- 4.11. **Cable/Fiber.** Copper cable and fiber optic cable will be measured by the linear foot as shown on the plans complete in place, including rodding and pulling, and installation of pedestals, risers and marker posts. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantity are required.
- 4.12. **Markers.** Markers will not be measured directly but will be considered subsidiary to the cable/fiber installed.
- 4.13. **Boring.** "Directional Bore" and "Jack and Bore" will be measured by the plan linear footage for the type and size shown on the plans. Casings and galvanized iron pipe will not be measured directly but considered subsidiary to the bore installation. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement."
- 4.14. **Installing Manhole Over Existing Conduit.** This Item will not be measured directly, but will be considered subsidiary to the manhole measurement.
- 4.15. **Adjust Existing Manhole.** This Item will be measured per each manhole adjusted. Trench excavation on the outside of the manhole will not be measured but will be considered subsidiary to this Item.
- 4.16. **Remove Existing Facilities.**
- 4.16.1. Conduit. Existing conduit removed wherever indicated on the plans will be measured by the linear foot. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement."
- 4.16.2. Manholes and Handholes. Manholes and/or handholes removed will be measured by the each as shown on the plans. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement."

- 4.16.3. Poles. Existing poles removed will be measured by the each item. This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement." All other above ground appurtenances will be considered subsidiary to the conduit removal.
- 4.17. **Protective Concrete Cap.** This Item shall be measured by the linear foot of concrete cap, complete-in-place.
- 4.18. **Lowering Existing Ducts/Cable.** This Item shall be measured by the linear foot of adjustment complete-in-place.
- 4.19. **Pole Installation.** This item "Pole (Tele)" shall be measured by the each item by size and type.

5. PAYMENT

- 5.1. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for the Items hereinafter described. The prices will be full compensation for furnishing and hauling all materials; for all excavation and backfill; for trench excavation protection; dewatering, shaping and fine grading of trench; for cutting and restoring pavements; for boring or directional boring, steel or HDPE casing; for removing and replacing concrete surfaces; for placing, joining and racking of pipe and conduit structures; for manholes, for handholes, risers, rings and covers, for placement of cable/fiber, pedestals, marker posts and for all other items of material, labor, equipment, tools; for all testing and incidentals necessary to complete the work in accordance with the plans and specifications.
- 5.2. **Trench Excavation and Backfill.** Payment for excavation and backfill for the installation of telephone facilities will not be paid for directly but will be considered part of the price bid for the specific Item installed.
- 5.3. **Trench Excavation Protection.** Payment for excavation protection for the installation of telephone facilities will be paid in accordance with Item 402, "Trench Excavation Protection".
- 5.4. **Pavement.** Payment for cutting and restoring pavement will not be paid for directly but will be considered part of the price bid for the specific structure installed.
- 5.5. **Concrete Encasement.** Payment for concrete encasement will not be paid for directly but will be considered part of the price bid for the specific Item installed.
- 5.6. **Foundation.** Payment for foundation will not be paid for directly but will be considered part of the price bid for the specific Item installed.
- 5.7. **Remote Terminal.** Payment for remote terminal installations will be made per each "Remote Terminal (Tele)" complete in place as specified on the plans. This price will be full compensation for all labor, tools and equipment required for building the remote terminal including, but not limited to the installation of all telecommunication facilities into the remote terminal, placing the cabinet, installing mounting brackets, preparing the site, building the foundation, landscaping, re-grading, erosion control, traffic control, establishing electrical service and connectivity, grounding, driveways, coordinating and installing transfer switches and furnishing and installing all non-telecommunication system materials.
- 5.8. **Serving Area Interface (SAI).** Payment for SAI installations will be made per each "SAI (Tele)" complete in place as specified on the plans. This price will be full compensation for all labor, tools and equipment required for building the SAI including, but not limited to the installation of all telecommunication facilities into the SAI, placing the hardware, installing mounting brackets, preparing the site, building the foundation, landscaping, re-grading, erosion control, traffic control, grounding, and driveways.
- 5.9. **Manholes and Handholes.** Payment for manhole installations will be made by the each for "Manhole (Tele)" of the size specified complete in place with all racking, ladder, and bonding hardware, rings, frames, covers and joint sealing compound and will be as detailed on the plans. Payment for handhole installations will be

made by the each for "Handhole (Tele)" complete in place with all racking, bonding hardware, rings, bricks, frames, covers and joint sealing compound and will be as detailed on the plans.

- 5.10. **Conduit and Conduit Structures.** Payment for conduit installations will be made at the unit price bid for "Conduit (Tele)" of the size and type of conduit specified. This price will be full compensation for installing conduit, excavating, furnishing and placing backfill, replacing pavement structure, sod, riprap, curbs or other surface; for furnishing and installing all fittings, sweeps, bends, repair couplings, adaptors, ground box/manhole/handhole termination kits, pre-assembled split repair kits, lubrication access fittings, expansion joints, concrete and underground mylar conduit marking tape; and for all labor, tools, equipment and incidentals.
- 5.11. **Cable/Fiber.** Payment for cable/fiber installations will be made by the plan linear foot for "Cable UG (Tele)", "Fiber UG (Tele)", "Cable Aerial (Tele)", "Fiber Aerial (Tele)", "Cable Buried (Tele)", "Fiber Buried (Tele)", "Innerduct (Tele)", and "Air Pipe (Tele)" as specified on the plans, complete in place. This price will be full compensation for rodding and pulling, installing risers, pedestals, marker posts; excavating, furnishing and placing backfill, replacing pavement structure, sod, riprap, curbs or other surface; for furnishing and installing all fittings, sweeps, bends, repair couplings, adaptors, ground box/manhole termination kits, pre-assembled split repair kits, aerial risers, U-Guards, standoff brackets, lubrication access fittings, expansion joints, concrete and underground mylar conduit marking tape; and for all labor, tools, equipment and incidentals necessary to complete the work.
- 5.12. **Marker Posts.** Payment for this Item will not be made directly but will be considered incidental to the manhole installation.
- 5.13. **Boring.** Payment for this Item will be made at the unit price bid for "Jack and Bore" or "Directional Bore" of the length specified on the plans, complete-in-place. This will be full compensation for installing the bore, furnishing and installing the casing, pulling conduit, cable/fiber; excavating and supporting bore pits, furnishing and placing backfill, replacing pavement structure, sod, riprap, curbs or other surface; for furnishing all bore equipment, fluids, supplies, fittings, labor, tools, equipment and incidentals necessary to complete the work.
- 5.14. **Installation over Existing Facilities.** Payment for this Item will not be made directly, but will be considered incidental to the manhole installation.
- 5.15. **Adjust Existing Manhole.** Payment for this Item will be made by the each for "Adjust Manhole (Tele)."
- 5.16. **Remove Existing Facilities.** Payment for this Item will be made by the plan quantities for "Remove (Tele)" and "Remove Structure (Tele)" for the type of structure removed.
- 5.17. **Protective Concrete Cap.** Payment will be made at the unit price bid for "Concrete Cap (Tele)" of the concrete class and reinforcement specified.
- 5.18. **Lowering Existing Ducts/Cable.** Payment will be made at the unit price bid for "Lowering Exist Ducts/Cable (Tele)" of the length specified on the plans, complete in place.
- 5.19. **Pole Installation.** This item "Pole (Tele)" shall be measured per each item by size and type.