Section 01025 - MEASUREMENT AND PAYMENT

SCOPE. This section covers methods of measurement and payment for items of Work under this Contract.

GENERAL. The total Bid Price shall cover all Work required by the Contract Documents. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the unit prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid.

ESTIMATED QUANTITIES. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that he will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts therefore.

EXCAVATION AND TRENCHING. Except where otherwise specified, the unit or lump sum price bid for each item of Work that involves excavation or trenching shall include all costs for such Work. No direct payment shall be made for excavation or trenching.

All excavating and trenching for waterlines shall be unclassified as to depth, and all excavating and trenching for sewer lines shall be classified as to depth.

The unit or lump sum price bid for each item of Work which involves excavation or trenching shall be based on and shall include earth excavation throughout, from and below the ground surface to the trench bottom as excavated, regardless of the location, extent, or quantity of rock which may be encountered; each such price shall further include, as a subsidiary obligation of Contractor, the full cost of all rock excavation work performed outside of specified pay limits.

a. For Gravity Sewers. All trenching for gravity sewers shall be measured on a classified depth basis for each size of pipe regardless of the width of trench. The unit price bid for each such classified depth of trench and size of pipe shall include all Work required by the Contract Documents in connection with trenching and backfilling operations and not otherwise stipulated to be paid for separately.

   Trenches shall be measured for payment horizontally between centers of all new manholes and to the outer wall face of structures and existing manholes at the points of connection thereto.

The horizontal location of each point where the trench depth passes from one depth classification into another (breakpoint) shall be determined on a straight line prorated distance basis between and proportional to the trench depths opposite grade stakes located on each side of the point where each such specified classified depth limit or breakpoint occurs.

In all cases, trench depth, as measured for payment, shall be the vertical distance between the elevation of the original ground surface (above the longitudinal center line of the sewer) and the invert grade of the sewer, at the point of trench depth determination.

b. For Force Mains, Distribution Mains, and Transmission Lines. No direct payment shall be made for excavation and trenching work required for force mains, distribution mains, and transmission lines. All such work shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the unit price bid per linear foot of pipe in place.

c. Structure and Manholes Excavation. All excavation work required for structures and manholes, not otherwise paid for as trenching, shall be considered to be a subsidiary obligation of Contractor and the cost of such excavation shall be included in the prices bid for the structures and manholes.

SEWERS.

Item 1. Mobilization

Mobilization will be paid at the unit price bid. The unit price bid shall include costs incurred prior to beginning the Work, including permits, licenses, fees, insurance, bonds, equipment mobilization, and other associated expenses, in accordance with the Contract Documents. Payment will be limited to 2% of the subtotal bid prior to contingency. One half of the amount bid will be paid with the first payment application, and the remainder paid with the second payment application. If an amount greater than 2% of the subtotal is entered for mobilization, the difference in the percentage entered and 2% of the bid subtotal will be paid on the final payment.

Item 2. PVC Sewer

Sewers will be measured for payment on a horizontal plane after installation, through all line manholes to the centers of new manholes, and through the walls of structures and existing manholes at the points of connection therewith.

The unit price bid for pipe of each designated kind and size shall include furnishing all labor, materials, tools, equipment, pipe, fittings, jointing materials, pipe embedment, pipe embedment material, pipe laying, backfill trench, and associated appurtenances required for the installation of sanitary sewer(s) complete, tested, and placed into satisfactory service in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. This shall also include, but is not limited to, the cost of the following (ADD AS NEEDED):

(a.) Special scheduling necessary to complete this project in an orderly manner, as dictated by right-of-way acquisition and/or encroachment issuance.
(b.) For restoring the site to a condition equal to or better than original conditions.
(c.) For temporary patching driveways, walkways, and roadways immediately following construction and maintaining same until final or permanent repairs can be made.
(d.) For all erosion control measures for which there is no separate pay item, including temporary fertilizing, seeding, and mulching.
(e.) For installing temporary watertight plugs in the new line.
(f.) For furnishing, placing, and compacting suitable native backfill materials from trench excavations.
(g.) For Class B stone bedding for PVC sewer pipe.
(h.) For Class C stone bedding for Ductile Iron and/or Reinforced Concrete Sewer Pipe.
(i.) For air testing individual joints for RCP.
(j.) For mandrel testing of all PVC sewer lines.
(k.) For low pressure air testing and infiltration testing of all sewer lines.
(l.) For complying with all applicable OSHA regulations.
(m.) For traffic control measures for which there is no separate pay item.
(n.) For complying with regulations for construction within wetlands; including stripping, storing, and replacing topsoil, placing and removing temporary access roads, etc.
(o.) For installation of stream crossings including testing of pipe, restoration and/or stabilization of streambeds and banks, etc., for which there is no separate pay item.

Item 3. Ductile Iron Pipe (DIP) Substitution

Ductile Iron Pipe Substitution(s) will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings, jointing materials; pipe embedment, embedment material, pipe laying, and associated appurtenances required for the installation of the ductile iron pipe (DIP) sanitary sewer(s) complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and Plans, and all other costs not included under other bid items. This bid item pertains to the sanitary sewer pipe material substitutions of Ductile Iron Pipe in lieu of PVC, or RCP sanitary sewer pipe, including (a) through (o) in Item 2.

Item 4. Trenchless Crossing – Trenchless crossings will be paid at the unit price bid. Measurement for payment shall be made horizontally along the longitudinal centerline of the boring from end to end of the boring. Separate payment will not be made for smooth steel casing pipe or supports which may be needed by Contractor at locations other than where the boring is indicated on the Drawings; all such items shall be considered a subsidiary obligation of the Contractor. This also includes furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances. No payment for bore pit mobilization will be made if the casing is accepted and used.

a. Trenchless Crossing (bore and jack): The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings; jointing materials; pipe embedment, including furnishing embedment material; installation of smooth steel casing pipe, the installation of DIP carrier pipe, including all skids, blocking, spiders, steel straps, jointing materials, end closures, pits, and grouting of the outside annular space; associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the dry bore with steel encasement complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

b. Trenchless Crossing (tunnel/casing): The unit price bid shall include furnishing all labor, materials, tools, and equipment to install the casing/tunnel, including all costs in connection with excavation and backfilling, installation of tunnel liner plates and /or smooth steel casing pipe, the installation of DIP carrier pipe, including all skids, blocking, spiders, steel straps, jointing materials, end closures, pits, and grouting of the outside annular space, associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the Trenchless Crossing complete, tested, and placed into satisfactory service, in accordance with Contract Documents and plans; and all other costs not included under other bid items.

c. Guaranteed Trenchless Crossing: The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings, jointing materials, pipe to install the casing, including all costs in connection with excavation and backfilling, installation of smooth steel casing pipe or tunnel liner plates, the installation of DIP carrier pipe, including all skids, blocking, spiders, steel straps, jointing materials, end closures, pits, and grouting of the outside annular space, associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the Guaranteed Trenchless Crossing complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

Item 5. Tie to Existing Sewer System

Tie to Existing Sewer System will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, and equipment, including excavation, backfill, compacted gravel or crushed stone bedding, dewatering, concrete coring and sealing of pipe penetrations, drop pipes and pipe connections, installation of pipe supports and appurtenances, protection of adjacent facilities, work on bench and/or invert to direct flow to the invert channel, and associated appurtenances required for the installation of the tie to existing sewer complete, tested, and placed into satisfactory service, in accordance with the Contract Documents or Plans; and all other costs not included under other bid items.

All 'Tie to Existing Sewer Systems' 12 inches or greater and do not match the flow line of the existing pipe are to be constructed as an outside drop connection.

Item 6. Standard Manholes

Standard Manholes will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, embedment material and placement required for the construction of one standard manhole 6 feet deep measured from the elevation of the invert of the sewer at the center of the manhole to the top of the manhole cover, manhole foundation, manhole invert construction, walls, top section, manhole frame and cover, necessary ladder steps for a manhole 6 feet deep, and associated appurtenances required for the installation of the Standard Manhole complete, tested, and placed into satisfactory service, in accordance with the Contract Documents or Plans; and all other costs not included under other bid items.

Item7. Manhole Additional Depth

Manhole Additional Depth(s) will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and associated appurtenances required to install manholes to a depth greater than six (6) feet, including the prorated cost of ladder steps, complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included in other bid items.

Measurement will be made on a vertical foot basis from the invert of the manhole to the top of the frame and cover, less the standard manhole depth paid separately under Standard Manholes.

Item 8. Drop Manhole Connections - Drop Manhole Connections will be paid at the unit price bid.

a. Inside Drop Connections - The unit price bid shall include furnishing all labor, materials, tools, equipment, jointing material, fittings, embedment material and placement, drop assembly, drop pipe, and associated appurtenances required for the installation of an Inside Drop Connection of three (3) vertical feet, measured from the elevation of the inlet invert to the elevation of the outlet invert connection, complete, tested and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. Manholes which are to be fitted with Inside /Outside Drop Connections will be paid for at the unit price bid for Standard Manholes, and/or Manhole Additional Depth.

b. Outside Drop Connections - The unit price bid shall include furnishing all labor, materials, tools, equipment, jointing material, fittings, embedment material and placement, drop assembly, drop pipe, concrete encasement, and associated appurtenances required for the installation of an Outside Drop Connection of three (3) vertical feet, measured from the elevation of the inlet invert to the elevation of the outlet invert connection, complete, tested and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. Manholes which are to be fitted with Inside /Outside Drop Connections will be paid for at the unit price bid for Standard Manholes, and/or Manhole Additional Depth.

c. Extra Depth Inside/Outside Drop Connections – The unit price bid shall include furnishing all labor, materials, tools, equipment, jointing material, fittings, embedment

material and placement, drop assembly, drop pipe, concrete encasement, and associated appurtenances required to install Inside/Outside Drop Connection(s) to a depth greater than three (3) feet, complete, tested and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items.

Item 9. Vent Pipe

Vent Pipe will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, jointing materials, and associated appurtenances required for the installation of the Vent Pipe complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included in other bid items.

Item 10. 4" Sewer Lateral Installation

4" Sewer Lateral(s) will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, including excavation, pipe laying, backfilling, cleanout, reseeding, and all else required for installing the service laterals complete, tested, and placed in satisfactory operation in accordance with the Contract Documents and Plans; and all other costs not included in other bid items. (ADD AS NEEDED)

A. 4" Service Connection to Mainline - Each
B. 4" Service Connection to Manhole at Invert – Each
B.1 4" Inside Drop Connection 0'–3' Depth, including Bend & Tee – Each
B.2 4" Inside Drop Connection Extra Depth – Vertical Feet
C. 4" PVC Lateral – Linear Feet
D. 4" Dry Bore PVC – Linear Feet
E. 4" Cleanout - Each
F. 4" Ductile Iron Pipe Substitution – Linear Feet

Item 11. 6" Sewer Lateral Installation

6" Sewer Lateral(s) will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, including excavation, pipe laying, backfilling, cleanout, reseeding, and all else required for installing the service laterals complete, tested, and placed in satisfactory operation in accordance with the Contract Documents and Plans; and all other costs not included in other bid items. (ADD AS NEEDED)

A. 6" Service Connection - Each
B. 6" Service Connection to Manhole – Each
B.1 6" Inside Drop Connection 0'-3' Depth, Including Bend & Tee - Each
B.2 6" Inside Drop Connection Extra Depth – Vertical Feet
C. 6" PVC Lateral – Linear Feet
D. 6" Dry Bore PVC – Linear Feet
E. 6" Cleanout - Each
F. 6" Ductile Iron Pipe Substitution - Each

Item 12. Stone Driveway / Mailbox Pull-off Replacement

Stone driveway / mailbox pull-off replacement will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, including excavation and

replacement of driveways / pull-offs with a minimum 6" of ABC stone or material to match the existing stone gradation and color, and all else required for the installation of the stone driveway/mailbox pull-off replacement complete and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. The width of pay limit shall be as indicated on Typical Street Repair Standard Detail.

Item13. Asphalt Driveway Replacement

Asphalt driveway replacement will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, including excavation and replacement of pavement with 4" compacted ABC base stone with 1-1/2" surface course of bituminous concrete pavement, to join and match the existing pavement, and all else required for the installation of the asphalt driveway replacement complete, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. The width of pay limit shall be as indicated on Typical Street Repair Standard Detail.

Item14. Concrete Driveway Replacement

Concrete driveway replacement will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, to cut, form, pour, and finish concrete not less than 6 inches thick to join and match the existing concrete and all else required for the installation of the concrete driveways complete, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. The width of pay limit shall be as indicated on Typical Street Repair Standard Detail.

Item 15. Stone Roadway Replacement

Stone roadway replacement will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, including excavation and replacement of roadways with 6" ABC stone, or material to match existing stone, full width, and all else required for the installation of the stone roadway replacement complete, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. The width of pay limit shall be as indicated on Typical Street Repair Standard Detail.

Item 16. Asphalt Roadway Replacement

Asphalt roadway replacement will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, including replace of pavement with 10" compacted ABC coarse aggregate with 2" surface course bituminous paving, or, 8" compacted black base, and 2" of surface course bituminous paving to join and match the existing pavement and all else required for the installation of the asphalt roadway replacement complete, and placed into satisfactory service, in accordance with the Contract Documents and Plan; and all other costs not included under other bid items. The width of pay limit shall be as indicated on Typical Street Repair Standard Detail.

Item 17. Stabilization Stone

Stabilization stone will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, delivery, handling, placement, compaction and

all else required for the installation of the stabilization stone complete, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. Payment shall be based on the actual volume installed, in cubic yards, as measured by the lineal footage of trench, trench width, and depth of stone, and, as required by the Engineer/Owner and as specified in the Earthwork Section 02200.

Item 18. Clearing, Grubbing, and Disposal of Debris

Clearing, grubbing, and disposal of debris will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required to clear, grub, and dispose of cleared debris; complete, and in accordance with the Contract Documents and Plans; and all other costs not included under other bid items.

Measurement will be made for the linear feet of right-of-way cleared at the width of right-of-way and temporary construction easement shown in the Contract Documents and Plans. The temporary construction easement shall only be cleared where necessary.

Item 19. Seeding and Mulching

Seeding and mulching will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for finish grading, furnishing and spreading of topsoil, seed bed preparation, seed fertilizing and mulch materials, seeding, fertilizing, planting, mulching, maintenance operations, and any necessary reseeding required for the installation of seeding and mulching, complete, and in accordance with the Contract Documents and Plans; and all other costs required to complete the seeding work not included under other bid items. Measurement shall be made on the basis of the unit price bid and measured along the centerline of the sewer or waterline. Separate payment for seeding and mulching will not be made along sewer laterals or water services. All costs for seeding and mulching and associated work along sewer laterals and water services shall be included in the unit price bid. The unit price bid for seeding shall include all seeding work where specified and seeding required as a result of surface vegetation disturbed during the execution of this Contract.

Item 20. Sedimentation and Erosion Control Devices

Payment for sedimentation and erosion control measures will be paid at the unit price bid. The unit price bid for sedimentation and erosion control devices shall include furnishing all labor, materials, tools, equipment and all else required to install and maintain the sedimentation and erosion control measures and temporary seeding, complete, and in accordance with the Contract Documents and Plans; and all other costs required to complete the work not included under other bid items.

If sedimentation and erosion control measures, in addition to those specified and required on the Drawings, are required by NCDENR due to the actions or processes of the Contractor, all costs shall be at the Contractor's expense and shall be at no additional cost to the Owner.

A. Temporary Check Dams - each
B. Sediment Fencing – linear feet
C. Inlet Protection - each
D. Temporary Diversion Ditches – linear feet
E. Temporary Construction Exit - each

F. Temporary Stream Crossings - each
G. Erosion Control Matting – square yard
H. Rip-Rap – square yard

Item 21. Remove and Replace Storm Drains

Removal and replacement of storm drains shall be paid for the unit price bid. The unit price bid shall include furnishing all materials, tools, equipment, embedment material, labor, and associated appurtenances required to remove and replace any storm drain in conflict with the alignment of the proposed sewer, as indicate in the Contract Documents and Plans; and all other costs not included under other bid items. Payment will be considered when the conflicting storm drain is within 3.5 feet of the centerline of the proposed sewer.

Item 22. Anti-Seep Collars (Clay / Concrete)

Anti-Seep Collars will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, tools, equipment, excavation, placement and furnishing of materials, compaction, damming, pumping, and all else required to construct the anti-seep collars, complete, and in accordance with the Contract Documents and Plans; and all other costs required to complete the work not included under other bid items.

Item 23. Rock Excavation (Remove Rock Excavation item for all WSACC Projects)

Rock excavation will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required to excavate and dispose of solid rock, as may be encountered in the Work, complete, and in accordance with the Contract Documents and Plans; and all other costs required to complete the work not included under other bid items.
Quantification of excavated materials will be made as follows, and shall include the excess cost only of the removal and subsequent handling of such rock, over and above that of earth excavation, because the contract price for each item of work involving excavation shall be based on and include earth excavation throughout. Rock excavation shall be measured within and to pay limits as follows, and direct payment made at the unit price bid:

a. Below the top rock surface, as determined by surveys or other measurements made after stripping and before blasting, or, when preshooting is permitted, as determined and agreed to by Contractor and Owner after preshooting and stripping.

b. Above the bottom surface of the rock, where such surface is above the specified bottom pay limits.

c. Above planes which are the following distances below and parallel to the bottom of the pipe:

Pipe Size	Pipe Clearance
12" or smaller	0.50 ft
14" to 27" inclusive	0.75 ft
30" to 60" inclusive	1.00 ft

d. Above authorized structure subgrades.

e. Between vertical planes separated by a horizontal distance equal to the minimum trench width permitted for the size and type of pipe being installed.

f. To vertical surfaces 12 inches outside of the outer faces of masonry manholes, 2 feet outside of the outer faces of structures poured against forms, and to the pay limits for concrete on concrete items poured directly against the excavation faces.

All rock excavation pay quantities shall be based on the volume of the excavated material in its original and undisturbed condition." Measurement shall be the volume, in cubic yards, of rock excavated as measured by the linear footage of trench, trench width, and depth of rock removed.

Item 24. Pumping Station Construction

Pumping station construction will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and supplies; including excavation and backfill, concrete, wetwell manhole, connecting piping between the wetwell manhole and the pumping station, discharge piping to the connection with the sewer manhole, overflow piping, electrical work, underground electrical conduit, and associated appurtenances, and all else required for the installation of the pumping station, complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and Plans; including the performance of all necessary labor, supervision, and services; and all other costs required to complete the work not included under other bid items.

Item 25 - Air Relief Valve(s): Air relief valve (s) will be paid at unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, air relief valve, manhole, and associated appurtenances required for the installation of the air relief valve (s) assembly complete, tested, and placed into satisfactory service, in accordance with the Contract Documents; and all other costs not included under other bid items.

Item 26. Plugging Existing Abandoned Sewers:

Plugging of existing abandoned sewer lines will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, and equipment, including excavation, backfill, concrete, including removal and off-site disposal of existing materials traffic control, and all else required to abandon the sewer lines, complete, and in accordance with the Contract Documents, Plans, or Special Provisions; and all other costs not included under other bid items.

Item 27. Abandoning Existing Manholes:

Abandoning existing manholes will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, and equipment, including excavation, needed to remove the top 3 feet of the manhole; placing crushed stone backfill, import soil backfill (to facilitate seeding in grassed areas), ABC stone or pit gravel (for paved areas) to match existing conditions (paved or unpaved areas), compaction, off-site disposal of existing, traffic control, and all else required to abandon the manhole, complete, and in accordance with the Contract Documents, Plans, or Special Provisions; and all other costs not included under other bid items.

Item 27. Abandonment of Pump Stations

Abandonment of pump stations will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, and equipment, and all else required for the abandonment the pump station, complete, and in accordance with the Contract Documents, Plans, or Special Provisions; and all other costs required to complete the work not included under other bid items.

Item 28. Closed Circuit TV of Sewer

Closed circuit TV of sewer will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, material, tools, equipment, and associated appurtenances required to TV sewer mains, and laterals, complete, in accordance with the Contract Documents and Plans; and all other costs required to complete the work not include under other bid items. Payment shall be contingent upon prior approval of the Utility Owner regarding the video quality and format.

End of Section

WATERLINE

Item 1. - Mobilization: Mobilization will be paid at the unit price bid. The unit price bid shall include costs incurred prior to beginning the Work, including permits, licenses, fees, insurance, bonds, equipment mobilization, and other associated expenses, in accordance with the Contract Documents. Payment will be limited to 2% of the subtotal bid prior to contingency. One half of the amount bid will be paid with the first payment application, and the remainder paid with the second payment application. If an amount greater than 2% of the subtotal is entered for mobilization, the difference in the percentage entered and 2% of the bid subtotal will be paid on the final payment.

Payment will be made according to the Lump Sum bid, in the Unit Price Schedule.

Item 2. - Water main(s): Water main(s) will be paid at the unit price bid measured for payment on a horizontal plane after installation of the pipe. Water main(s) that are laid to conform to stationed profiles, payment shall be made on linear quantities based on the pipeline stationing as determined by surveys made after installation. The measurement of the length of each line or run of pipe of each size will begin and end at:

a. The end of the pipe where connected to an existing pipe, fitting, or valve; or at the end of a dead-end run.

b. The centerline intersection of run and branch on tees, crosses, or laterals where a branch line connecting therewith is constructed under this Contract. Where a branch fitting is installed under this Contract, and the branch or connecting line is to be constructed by others at some future date or under another contract, the pay measurement will include the entire laying length of the branch or branches of such fitting.

c. The measurement of each line of pipe of each size which is to be paid for on a unit price basis will be continuous through, and shall include the full laying lengths of, all fittings and valves installed between the ends of each line; except that the laying lengths of reducers and increasers will be divided equally between the connected pipe sizes. Connected piping for fire hydrants will be measured for payment from the center of the main to the hydrant shoe.The unit price bid shall include furnishing all labor, materials, tools, equipment pipe; fittings; jointing materials; pipe embedment, including furnishing embedment material; pipe laying; and associated appurtenances required for the installation of the water main(s) complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

Item 3. - Water Main Pipe Material Substitution: Water main pipe material substitution(s) will be paid at the unit price bid.

a. Ductile Iron Pipe (DIP) Substitution(s): The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings; jointing materials; pipe embedment, including furnishing embedment material; pipe laying; and associated appurtenances required for the installation of the ductile iron pipe (DIP) water main complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items. This bid item pertains to water main pipe material substitutions of push-on joint ductile iron pipe in lieu of PVC pipe.

b. Restrained Joint (RJ) Ductile Iron Pipe Substitution(s): The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings; jointing materials; pipe embedment, including furnishing embedment material; pipe laying; and associated appurtenances required for the installation of the restrained joint ductile iron pipe (DIP) water main complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items. This bid item pertains to water main pipe material substitutions of RJ ductile iron pipe in lieu of standard push-on joint ductile iron pipe.

Item 4. - Connection to Existing (Water) Main: Connections to Existing Water Main(s) will be paid at the lump sum price bid. The lump sum price bid shall include where applicable, dewatering the existing water main between the connection and the nearest existing sectionalizing valves, removing the existing water main pipe plug, cutting and removing the section of existing water main piping, all pipe, fittings, adapters, connecting valve, and associated work in replacing the section of main which was removed or furnished and installing the tapping sleeve and valve including valve box, jointing materials including gasket and bolts, jumpers, and appurtenances, and tapping of the existing water main, and all other work required for the installation of the connection complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

Item 5. Trenchless Crossings: Trenchless crossings will be paid at the unit price bid. Measurement for payment shall be made horizontally along the longitudinal centerline of the boring from end to end of the boring. Separate payment will not be made for smooth steel casing pipe or supports which may be needed by Contractor at locations other than where the boring is indicated on the Drawings; all such items shall be considered a subsidiary obligation of the Contractor. This also includes furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances. No payment for bore pit mobilization will be made if the casing is accepted and used.

a. Trenchless Crossing (bore and jack): The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings; jointing materials; pipe embedment, including furnishing embedment material; installation of smooth steel casing pipe, the installation of DIP carrier pipe, including all skids, blocking, spiders, steel straps,

jointing materials, end closures, pits, and grouting of the outside annular space; associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the dry bore with steel encasement complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

b. Trenchless Crossing (tunnel/casing): The unit price bid shall include furnishing all labor, materials, tools, and equipment to install the casing/tunnel, including all costs in connection with excavation and backfilling, installation of tunnel liner plates and /or smooth steel casing pipe, the installation of DIP carrier pipe, including all skids, blocking, spiders, steel straps, jointing materials, end closures, pits, and grouting of the outside annular space, associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the Trenchless Crossing complete, tested, and placed into satisfactory service, in accordance with Contract Documents and plans; and all other costs not included under other bid items.

c. Dry Bore without Steel Encasement(s): The unit price bid shall include furnishing all labor, materials, tools, and equipment, fittings; jointing materials; pipe embedment, including furnishing embedment material; the installation of carrier pipe, including all skids, blocking, jointing materials, jacking pipe, end closures, jacking pits, stabilized sand backfill and grouting of the outside annular space; associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the Trenchless Crossing complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

d. Guaranteed Trenchless Crossing: The unit price bid shall include furnishing all labor, materials, tools, equipment, fittings, jointing materials, pipe to install the casing, including all costs in connection with excavation and backfilling, installation of smooth steel casing pipe or tunnel liner plates, the installation of DIP carrier pipe, including all skids, blocking, spiders, steel straps, jointing materials, end closures, pits, and grouting of the outside annular space, associated appurtenances; and furnishing and maintaining any safety barriers and/or traffic control devices as may be required by State and/or local permit requirements and/or ordinances required for the installation of the Guaranteed Trenchless Crossing complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

Item 6. - Punch For 2-Inch Water Main(s): Punch For 2-Inch Water Main(s) will be paid at the unit price bid. Measurement for payment shall be made horizontally along the longitudinal centerline of the punch from end to end of the punch. The unit price bid shall include furnishing

all labor, materials, tools, pipe laying; and associated appurtenances for punch 2-inch water mains(s) complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items This item includes furnishing all new material, equipment and labor required to drill or punch, without encasement pipe, openings 4-inches in diameter, for insertion of 2-inch water mains as specified, and as directed by the Engineer, complete in place. The Engineer will require that all concrete driveways, asphalt driveways and asphalt cross roads will be punched unless otherwise directed.

Item 7. - Ductile Iron Pipe (DIP) Fittings

Ductile iron pipe fittings will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for the installation of fittings, complete, tested and placed into operation in accordance with the Contract Documents; and all other costs not included under other bid items.

NOTE:

1. Weight of fittings shall not include glands, nuts, bolts, and gaskets.

2. Compact fittings may be used on this project. However, the Owner will pay on these items ONLY based on the full size fitting weights AS IF full size fittings were used.

Item 8. – Main Line Valves and Valve Boxes: Main line valve(s) and valve box(es) will be paid at the unit price bid.

a. Gate valve(s) and valve Box(es) The unit price bid shall include furnishing all labor, materials, tools, equipment and gate valve, valve box, concrete collars, and associated appurtenances required for the installation of the gate valve(s) with valve box(es) assembly complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items

b. Butterfly (s) and valve Box(es)The unit price bid shall include furnishing all labor, materials, tools, equipment and butterfly valve, valve box, concrete collars, and associated appurtenances required for the installation of the butterfly valve(s) with valve box(es) assembly complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items.

Item 9. - Tapping Sleeves and Valve(s): Tapping sleeves and valves will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, gate valve, valve box, sleeve, concrete collars, and associated appurtenances required for the installation of the tapping sleeve with valve assembly complete, tested, and placed into satisfactory service, in accordance with the Contract Documents; and all other costs not included under other bid items.

Item 10. - Extension Stem(s): Extension Stem(s) to valve(s) will be paid at the unit price bid, when the operating nut is 3-1/2 feet below finish grade, or when directed by the Engineer. Measurement will be made on a vertical foot basis from the stem connection to operating nut located 1 foot below finish grade. The unit price bid shall include furnishing all labor, materials,

tools, equipment and extension stems with operating nut, and associated appurtenances required for the installation of the extension stem(s) assembly complete, tested, and placed into satisfactory service, in accordance with the Contract Documents and plans; and all other costs not included under other bid items. Extension stem shall provide operating nut one foot below finish grade.

Item 11. - Permanent 2-inch Blow Off(s): Permanent 2-inch Blow Off(s) will be paid at unit price bid. The unit price bid shall include furnishing all new materials, equipment, 2-inch gate valves, mainline plug, 2-inch pipe, valve boxes, soil pipe, concrete pads and labor and associated appurtenances for the installation of the permanent blow off(s) assembly complete, tested, and placed in satisfactory service, in accordance with the Contract Documents, and all other costs not included under other bid items, per the standard WSACC detail. The 2-inch pipe shall be Regular Strength (Schedule 40) Red Brass.

Item 12. - Air Relief Valve(s): Air relief valve (s) will be paid at unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, air relief valve, manhole, and associated appurtenances required for the installation of the air relief valve (s) assembly complete, tested, and placed into satisfactory service, in accordance with the Contract Documents; and all other costs not included under other bid items.

Item 13. - Water Service(s): Water service(s) will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, material, tools, equipment, connecting to service, valves, meter, meter box, valve box, and associated appurtenances required for the installation of the new residential water service(s) complete, tested, and placed into satisfactory service, in accordance with the Contract Documents; and all other costs not included under other bid items.

Item 14. -Fire Hydrant(s): Fire hydrant(s) will be paid for at the unit price bid. The unit price shall include furnishing all labor, material, tools, equipment, hydrant tee, hydrant, blocking, drainage facilities and associated appurtenances, required for the installation of the Fire Hydrant(s) complete, tested, and placed into satisfactory service, in accordance with the Contract Documents; and all other costs not included under other bid items. Auxiliary gate valve and pipe from main to hydrant shoe will be paid for separately.

Item 15. - Fire Hydrant Extension(s): Fire hydrant extensions(s) will be paid for at the unit price bid. The standard minimum 3”-6” bury is excluded from payment under this item but shall be included in the fire hydrant pay item. Fire Hydrant Extension Measurement for payment shall be made vertical foot basis to the nearest one-half foot. The unit price shall include furnishing all labor, material, tools, equipment, pipe embedment, including furnishing embedment material; pipe laying; and associated appurtenances, required for the installation of the fire hydrant extension(s) complete, tested, and placed into satisfactory service, in accordance with the Contract Documents; and all other costs not included under other bid items.

Item 16. - Stone Driveway / Mailbox Pull-off Replacement: Stone driveway / mailbox pull-off replacement will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for and to excavate and replace driveways / pull-offs with a minimum 6" of ABC stone or material to match the existing stone

gradation and color. The width of pay limit shall be as indicated on Typical Street Repair standard drawing.

Item 17. - Asphalt Driveway Replacement: Asphalt driveway replacement will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for and to replace pavement with 4" compacted ABC base stone with 1-1/2" surface course of bituminous concrete pavement to join and match the existing pavement. The width of pay limit shall be as indicated on Typical Street Repair standard drawing.

Item 18. - Concrete Driveway Replacement: Concrete driveway replacement will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for and to cut, form, pour, and finish concrete not less than 6 inches thick to join and match the existing concrete driveways. The width of pay limit shall be as indicated on Typical Street Repair standard drawing.

Item 19. - Stone Roadway Replacement: Stone roadway replacement will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for and to excavate and replace roadways with 6" ABC stone, or material to match existing stone, full width. The width of pay limit shall be as indicated on Typical Street Repair standard drawing.

Item 20. - Asphalt Roadway Replacement: Asphalt roadway replacement will be paid at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, and all else required for and to replace pavement with 10" compacted ABC coarse aggregate with 2" surface course bituminous paving or, 8" compacted black base, and 2" of surface course bituminous paving to join and match the existing pavement. The width of pay limit shall be as indicated on Typical Street Repair standard drawing.

Item 21. Stabilization Stone
Stabilization stone will be paid for at the unit price bid. The unit price bid shall include furnishing all labor, materials, tools, equipment, delivery, handling, placement, compaction and all else required for the installation of the stabilization stone complete, and placed into satisfactory service, in accordance with the Contract Documents and Plans; and all other costs not included under other bid items. Payment shall be based on the actual volume installed, in cubic yards, as measured by the lineal footage of trench, trench width, and depth of stone, and, as required by the Engineer/Owner and as specified in the Earthwork Section 02200.

Item 22. - Seeding and Mulching: Final seeding and any necessary reseeding shall be paid at the unit price bid. Measurement will be made along the centerline of the sewer or waterline. Separate payment for seeding and mulching will not be made along sewer laterals or water services. All costs for seeding and mulching and associated work along sewer laterals and water services shall be included in the unit price bid. The unit price bid for seeding shall include all seeding work where specified and required as a result of surface vegetation disturbed during the execution of this Contract. The unit price shall include finish grading, the furnishing and spreading of topsoil, seed bed preparation, seed fertilizing and mulch materials, seeding, fertilizing, planting, mulching, maintenance operations, and all other work required to complete

the seeding work and the establishment of a permanent ground cover, not included under other bid items.

Item 23. – Sedimentation and Erosion Control Devices: Sedimentation and erosion control measures shall be paid at the unit price bid. The unit price bid for sedimentation and erosion control shall include all costs for furnishing all materials, equipment and labor, and all other work required to install and maintain erosion control measures and temporary seeding as indicated on the Drawings which is not included under another bid item.

If sedimentation and erosion control measures, in addition to those specified and required on the Drawings, are required by NCDENR due to the actions or processes of the Contractor, all costs shall be at the Contractor's expense and shall be at no additional cost to the Owner.

A. Temporary Check Dams
B. Sediment Fencing
C. Inlet Protection
D. Temporary Diversion Ditches
E. Temporary Construction Exit
F. Temporary Stream Crossings
G. Erosion Control Matting – square yard
H. Rip-Rap – square yard

Item 24. Remove and Replace Storm Drains
Removal and replacement of storm drains shall be paid for the unit price bid. The unit price bid shall include furnishing all materials, tools, equipment, embedment material, labor, and associated appurtenances required to remove and replace any storm drain in conflict with the alignment of the proposed watermain, as indicate in the Contract Documents and Plans; and all other costs not included under other bid items. Payment will be considered when the conflicting storm drain is within 3.5 feet of the centerline of the proposed watermain.

Item 25. Abandonment of wells and/or existing water mains: Abandonment of wells and existing watermains shall be paid at the unit price bid. This items includes furnishing all materials, equipment, and labor required for the abandon the wells and/or waterlines, as specified in the Contract Documents and Plans or Special Provisions.

A. Wells – unit price bid – Lump Sum

B. Waterlines – unit price bid – linear feet

End of Section