

401 - SANITARY SEWER

- 401.1 Referenced Specifications:
All materials and construction for sanitary sewers within the Village of Slinger shall be in accordance with the "Standard Specifications for Sewer and Water Construction in Wisconsin," latest edition, with all current supplemental specifications and addenda (hereinafter referred to as Wisconsin Sewer and Water Specifications or WSWs), and as hereinafter modified and/or clarified.
- 401.2 Materials
- 401.2.1 Certificates:
Prior to construction, the Contractor shall furnish the Engineer with certifications for all sanitary sewer pipes, precast manholes, sealing materials, etc. to be used on the project in accordance with Section 205.3 of these Standard Specifications.
- 401.2.2 Manholes:
Manholes shall be precast reinforced concrete at the size specified on the plans meeting the requirements set forth in WSWs Chapter 6.39.0

The sanitary sewer pipe shall be connected to the manhole by means of a flexible watertight pipe to manhole seal meeting the requirements set forth in WSWs Chapter 3.5.7.
- 401.2.3 Pipe:
Sanitary sewer pipes shall be to the size and materials as shown on the plans. When PVC pipe is specified, the pipe shall be SDR-35 and shall be blue or green in color. White colored PVC pipe shall not be used for sanitary sewers.
- 401.2.4 Pipe Bedding:
Class C bedding, in accordance with WSWs Section 3.2.6, shall be required unless otherwise noted on the plans.
- 401.2.5 Adjusting Manholes:
The final elevation of manhole rims shall be one-eighth (1/8) to one-quarter (1/4) inches below the finished pavement elevation.

Manhole adjusting castings may be permitted for adjusting manholes to final rim elevation providing that the Engineer approves the adjusting rings prior to installation.
- 401.2.6 Fernco Couplers:
When removing and replacing a section or sections of existing sanitary sewer pipe, the preferred method of connecting the new pipe to existing pipe is by use of "Fernco" couplers, or an equal approved by the Village Engineer.
- 401.2.7 Chimney Seals:
External manufactured chimney seals shall be installed on each sanitary manhole unless specifically stated otherwise in the Contract Documents. Manhole chimney seals shall meet the requirements of WSWs Chapter 6.42.0.
- 401.2.8 Alignment of Castings:
The Contractor shall be solely responsible for making sure the sanitary manhole castings remain centered on the manhole from the time of installation to the time of

placement of the final surface.

Should the sanitary manhole castings become misaligned, the Contractor, at his expense, shall excavate, adjust, repair and/or replace the chimney seal and external manufactured chimney seal, backfill and compact, and place and compact the final surface as necessary.

401.2.9 Acceptance of Sanitary Sewer:

Final acceptance of sanitary sewers will be made only after the system has been videotaped in accordance with Section 405 of these Specifications, pressure testing of sanitary sewers and vacuum testing of sanitary manholes has been performed in accordance with WSWS Chapter 3.7.0.

Additionally, sanitary manholes shall be reinspected by the Engineer and contractor 6 months after first acceptance of the work.

401.3 Measurement:

401.3.1 Sanitary Sewer Main:

All sanitary sewer main will be measured by the foot in place, and the quantity measured for payment shall be the number of feet of each of the various sizes and types completed and accepted measured along the centerline of the pipe. Measurement will be in accordance with WSWS Chapter 2.9.0.

401.3.2 Laterals:

All sanitary sewer main will be measured by the foot in place, and the quantity measured for payment shall be the number of feet of each of the various sizes and types completed and accepted measured along the centerline of the pipe. Measurement will be in accordance with WSWS Chapter 2.9.0.

401.3.3 Sanitary Risers:

Measurement for sanitary risers will be made per foot in place, and the quantity measured for payment shall be the number of feet of each of the various sizes and types completed and accepted measured along the centerline of the pipe. Measurement will be in accordance with WSWS Chapter 2.9.0.

401.3.4 Sewer Connections:

All costs associated with furnishing and installing wyes, or other approved sewer fittings for laterals, will be included in the cost of the sanitary sewer main.

401.3.5 Manholes:

Measurement for sanitary manholes will be by the vertical foot in place, and the quantity measured for payment shall be the number of vertical feet of the various sizes and types completed and accepted. Measurement for sanitary manholes will be in accordance with WSWS Chapter 2.9.0.

401.3.6 Castings:

All costs associated with furnishing and installing manhole castings will be included in the price bid for sanitary manholes.

401.3.7 Pipe Bedding:

All costs associated with furnishing, placing, and compacting pipe bedding will be included in the price bid for the sanitary sewer main and/or sanitary sewer lateral.

- 401.3.8 Fernco Couplers:
All costs associated with furnishing and installing Fernco couplers will be included in the price of the sanitary sewer main and/or sanitary sewer lateral.
- 401.3.9 Chimney Seals:
All costs associated with furnishing and installing chimney seals within sanitary manholes will be included in the price bid for the sanitary manholes.
- 401.3.10 Television Inspection:
All costs associated with television inspection of the new sanitary sewer will be as described in Section 405 of these specifications.
- 401.4 Payment:
Payment for the items described above will be paid at the unit price described above which shall be full compensation for furnishing all materials, including all masonry, conduit and sewer connections, steps, and other fittings; for all excavation, backfilling, disposal of surplus materials, cleaning out and restoring the site of the work; and for all labor, tools, equipment and incidentals necessary to complete the work as described above.

402 - STORM SEWER

- 402.1 Referenced Specifications:
All materials and construction for storm sewers within the Village of Slinger shall be in accordance with the "Standard Specifications for Sewer and Water Construction in Wisconsin," latest edition, with all current supplemental specifications and addenda (hereinafter referred to as Wisconsin Sewer and Water Specifications or WSWS), and as hereinafter modified and/or clarified.
- 402.2 Materials
- 402.2.1 Certificates:
Prior to construction, the Contractor shall furnish the Engineer with certifications for all sanitary sewer pipes, precast manholes, sealing materials, etc. to be used on the project in accordance with Section 205.3 of these Standard Specifications.
- 402.2.2 Manholes, Catch Basins/Inlets, Catch Basin Manholes & Field Inlets:
Manholes, catch basins/inlets, catch basin manholes, and field inlets shall be precast reinforced concrete at the size specified on the plans.
- The Contractor shall seal the area around the pipe connection with a mortar mix to prevent the accumulation of waste materials within the area of the void between the pipe and the manhole structure. The mortar shall be packed into the void and troweled smooth.
- 402.2.3 Pipe:
Storm sewer pipes shall be to the size and materials as shown on the plans.
- All reinforced concrete storm sewer shall have rubber gasket joints.
- All storm sewers shall be laid with a straight alignment between manholes, unless prior approval is granted by the Village Engineer.
- 402.2.4 Pipe Bedding:
Class C bedding, in accordance with WSWS Section 3.2.6, shall be required unless otherwise noted on the plans.
- 402.2.5 Adjusting Manholes:
The final elevation of manhole rims shall be one-eighth (1/8) to one-quarter (1/4) inches below the finished pavement elevation.
- Manhole adjusting castings may be permitted for adjusting manholes to final rim elevation providing that the Village Engineer approves the adjusting rings prior to installation.
- 402.2.6 Fernco Couplers:
When removing and replacing a section or sections of existing storm sewer pipe, the preferred method of connecting the new pipe to existing pipe is by use of "Fernco" couplers, or an equal approved by the Village Engineer.
- 402.2.7 Alignment of Castings:

The Contractor shall be solely responsible for making sure the storm manhole, catch basin/inlet, catch basin manhole, and field catch basin castings remain centered on the structure from the time of installation to the time of placement of the final surface.

Should the storm castings become misaligned, the Contractor, at his expense, shall excavate, adjust, backfill, and place the final surface as necessary.

402.2.8 Acceptance of Storm Sewer:

Final acceptance of storm sewers will be withheld until the system has been videotaped in accordance with Section 405 of these Specifications.

402.3 Measurement:

402.3.1 Storm Sewer Pipe:

All storm sewer pipe will be measured by the foot in place, and the quantity measured for payment shall be the number of feet of each of the various sizes and types completed and accepted measured along the centerline of the pipe. Measurement will be in accordance with WSWs Chapter 2.9.0.

402.3.2 Manholes, Catch Basins/Inlets, Catch Basin Manholes, Field Catch Basins:

Measurement for storm manholes will be by the vertical foot in place, and the quantity measured for payment shall be the number of vertical feet of the various sizes and types completed and accepted. Measurement for sanitary manholes will be in accordance with WSWs Chapter 2.9.0.

Measurement for catch basins and inlets will be by the unit constructed, and the quantity measured for payment shall be the number of units of the various sizes and types completed and accepted. Measurement for catch basins and will be in accordance with WSWs Chapter 2.9.0.

Measurement for catch basin manholes will be by the vertical foot in place, and the quantity measured for payment shall be the number of vertical feet of the various sizes and types completed and accepted. Measurement for catch basin manholes will be in accordance with WSWs Chapter 2.9.0.

Measurement for field catch basins will be by the vertical foot in place, and the quantity measured for payment shall be the number of vertical feet of the various sizes and types completed and accepted. Measurement for field catch basins will be in accordance with measurements described for manholes in WSWs Chapter 2.9.0.

402.3.3 Castings:

All costs associated with furnishing and installing storm manhole, catch basin/inlet, catch basin manhole, and field catch basin castings will be included in the price bid for storm manholes, catch basins/inlets, catch basin manholes, and field catch basins.

402.3.4 Pipe Bedding:

All costs associated with furnishing, placing, and compacting pipe bedding will be included in the price bid for the storm sewer main.

402.3.5 Fernco Couplers:

All costs associated with furnishing and installing Fernco couplers will be included in the price of the storm sewer main.

402.3.6 Television Inspection:

All costs associated with television inspection of the new storm sewer will be as described in Section 405 of these specifications.

402.3.7 Rip Rap Over Geotextile Fabric

Measurement for rip rap over geotextile fabric will be made per square yard in place and accepted by the Engineer.

402.4 Payment:

Payment for the items described above will be paid at the unit price described above which shall be full compensation for furnishing all materials, including all masonry, conduit and sewer connections, steps, and other fittings; for all excavation, backfilling, disposal of surplus materials, cleaning out and restoring the site of the work; and for all labor, tools, equipment and incidentals necessary to complete the work as described above.

402.4.1 Rip Rap Over Geotextile Fabric

All costs associated with furnishing and installing the geotextile fabric at outfall locations, as described above, shall be included in the price bid for rip rap.

403 – WATER MAIN

- 403.1 Referenced Specifications:
All materials and construction for water mains within the Village of Slinger shall be in accordance with the “Standard Specifications for Sewer and Water Construction in Wisconsin,” latest edition, with all current supplemental specifications and addenda, and as hereinafter modified and/or clarified.
- 403.2 Materials
- 403.2.1 Certificates:
Prior to construction, the Contractor shall furnish the Engineer with certifications for all materials to be used on the project in accordance with Section 205.3 of these Standard Specifications.
- 403.2.2 Pipe:
All water main shall be either Class 52 Ductile Iron or AWWA C-900 and C-905 PVC. High density polyethylene (HDPE) pipe may be approved by the Village Engineer on a case by case basis.
- All ductile iron water main pipe, fittings, valves, hydrant leads and risers, and service connections shall be protected from corrosion by the use of polyethylene wrap installed in accordance with WSWS Section 4.4.4 and 6.21.0. The Village Engineer reserves the right to order the double wrapping of ductile iron water mains whenever poor soils or high groundwater conditions are encountered.
- The Contractor shall provide for electrical continuity throughout new ductile iron water main by using either copper cables or copper straps. Bolts of mechanical joints and Megalugs shall not be considered to provide electrical continuity. Wedges or gasket tips made of either lead or brass shall not be used.
- All PVC and HDPE water main shall include a 10 AWG solid tracer wire.
- 403.2.3 Hydrants:
All hydrants within the Village of Slinger shall be Waterous Pacer WB-67 or Mueller Centurion. All hydrants shall have an auxiliary valve.
- All hydrants shall be factory painted yellow.
- All hydrants shall be “traffic type” with break off coupling on the standpipe and on the stem.
- Hydrants shall be equipped with a six (6) inch diameter inlet and a 5 ¼ inch minimum diameter valve opening.
- Hydrants shall be equipped with one five (5) inch diameter pump nozzle and two (2) 2 ½ inch diameter hose nozzles. All nozzles shall be equipped with National Standards heads.
- Hydrants shall have a 1 ½ inch pentagonal operating nut opening counter clockwise. Hydrants shall be equipped with O-ring packing.

Hydrants shall be provided with a flanged joint at the base bend for connection to the adjacent shut off valve.

The hydrants shall be provided in lengths required for specific hydrant locations shown on the plans. The hydrant lead shall have a minimum of six (6) feet of cover and the center of the "traffic break off" flanged connection (between the nozzle section and the standpipe section) shall be vertically positioned between one (1) and four (4) inches above the adjacent finished ground.

403.2.4

Valves:

All valves between three (3) inches and ten (10) inches shall be resilient wedge valves. All resilient wedge valves shall conform to the requirements set forth in WSWs Chapter 6.27.0. Resilient wedge valves shall be American Flow Control Series 500, Clow F-6100, or Mueller 2370-20.

All valves twelve (12) inches and above shall be Henry Pratt butterfly valves. All butterfly valves shall conform to the requirements set forth in WSWs Chapter 6.28.0.

All valves shall be furnished with a valve adaptor with gasket as manufactured by Adaptor, Inc and shall include a four (4) foot long valve extension stem.

All valves shall have stainless steel bolts.

403.2.5

Valve Boxes:

All valve boxes and covers shall be Tyler 6860, Bibby-STC B-5001, or Star.

All valve boxes shall have valve box adaptors.

403.2.6

Laterals:

All laterals within the Village of Slinger shall be as follows:

1. Water service pipes for single family residential properties shall be 1 ¼ inch Type K Copper Soft Temper Water Tube meeting the requirements of WSWs Chapter 6.24.0.
2. Water service pipes for multifamily and commercial properties shall be either ductile iron or PVC.

403.2.7

Corporation Stops:

All corporation stops shall be Mueller Type H-15000 for flared connections or Mueller Type H-15008 for compression connections, Ford equivalent, or other approved equal, meeting the following additional requirements:

1. All components of the corporation stops shall be manufactured of brass cast in accordance with AWWA C-800 Section 1, Paragraph 1.2 (ASTM B62). All brass castings shall conform to ASTM B62, and shall consist of 85-5-5-5 copper, tin, lead, zinc, as checked and verified in the finished (completed) product. A notarized certificate shall be signed by an officer of the manufacturing company stating compliance of the finished product (completed) with AWWA C-800 and ASTM B62 and of their latest revisions. All component parts, body, key, washer, nut, and tube nut shall have the same metal analysis complying with ASTM B62.
2. Inlet and outlet threads shall fully conform to AWWA C-800 with the key

and body seating surfaces being accurately machined and fit to the taper of 1³/₄ inch per foot, (.1458 inch per inch) plus or minus .007 inches per inch. The key shall have a "D" shaped boss provided at the small end and the retaining washer shall have a matched flat surface so machined as to provide an interference fit across the diameter of the boss perpendicular to this surface. There shall be no evidence of staking or chisel marks in this assembly.

3. The stem and retaining nut shall be so designed that failure from over tightening the retaining nut shall result in the stripping of threads rather than the stem fracture.
4. Corporation stops 1¹/₄ inch in size shall weigh no less than 5.7 pounds.

403.2.8

Curb Stops:

All curb stops used on the water distribution system of the Village of Slinger shall be Mueller type H-15150 or H-15154 for flared connections or Mueller type H-15155 for compression fittings, Ford equivalent, or other approved equal, meeting the following additional requirements.

1. All components of the curb stops shall be manufactured in accordance with AWWA C-800. All brass components shall conform to ASTM B62 and shall consist of 85-5-5-5 copper, tin, lead, zinc as checked and verified in the finished or completed product. A notarized certificate shall be signed by an officer of the manufacturing company, stating that the completed or finished product fully complies with AWWA C-800 and ASTM B62 and of their latest revisions.
2. Curb stops shall be of the inverted key design with the Minneapolis pattern top to accommodate thread size having 11-1/2 threads per inch with a pitch diameter of .262 inch and with an O. D. diameter of 2.316 inches. The inverted key design shall have a copper by copper connection.
3. All curb stops shall be of the quarter turned design and shall incorporate a check design to facilitate their quartered turning in such way that the valve key or stem shall be capable of withstanding an excess of 1,200 inch pounds of torque applied in both the fully opened and fully closed position.
4. All curb stops that are one and one-quarter (1 ¹/₄) inch and larger, shall be the ball or o-ring type. If o-ring designed curb stops are required, they shall be of the closed bottom design and sealed against external leakage at the top by means of a non-adjustable resilient pressure actuated seal and shall have a secondary resilient seal disposed above the pressure seal for added protection of the bearing surfaces against ground water infiltration. Further, this design shall be of the cylinder plug style having suitable o-ring seals and placed in such manner as to provide a balanced pressure across the plug.
5. The curb stop design shall be such that shut off of the curb stop shall be accomplished by a resilient pressure actuated seal so disposed in the key or plug to completely close the inlet body port flow in the closed position.
6. The curb stops shall not weigh less than 3.9 pounds for ³/₄ inch size or 6.1 pounds for 1 inch size.

- 403.2.9 Curb Boxes:
All curb boxes used on the water distribution system of the Village of Slinger shall be Mueller H-10312 complete with a stationary rod and 87081 lid, or approved equal, meeting the following additional requirements.
1. The upper barrel and the lower section of curb boxes shall be Class B gray iron pipe.
 2. All curb boxes shall be designed to telescope downward to protect against truck loading or similar type weight applied to the top section of the box.
 3. There shall be a heavy phosphorus bronze spring meeting ASTM B-159 requirements, positioned between the upper and lower section to assure proper telescoping of the upper barrel and to provide reasonable rigidity during installation. The upper section shall be retained in the lower barrel by at least two lugs flared at the bottom of the upper section.
- 403.2.10 Pipe Bedding:
Class C bedding, in accordance with WSWs Section 3.2.6, shall be required unless otherwise noted on the plans.
- 403.2.11 Rim Elevations:
The final elevation of valve boxes located within the roadway shall be one-eighth (1/8) to one-quarter (1/4) inches below the finished pavement elevation.
- 403.2.12 Alignment of Castings:
The Contractor shall be solely responsible for making sure the valve boxes and curb boxes remain centered on the structure from the time of installation to the time of placement of the final surface.
- Should the valve boxes become misaligned, the Contractor, at his expense, shall excavate, adjust, backfill, and place the final surface as necessary.
- 403.3 Measurement:
- 403.3.1 Water Main Pipe:
All water main pipe will be measured by the foot in place, and the quantity measured for payment shall be the number of feet of each of the various sizes and types completed and accepted measured along the centerline of the pipe.
- Measurement for hydrant leads shall extend from the centerline of the water main to the centerline of the hydrant. The hydrant lead shall be paid for at the unit price bid per lineal foot of pipe completed and accepted including all fittings.
- Measurement will be in accordance with WSWs Chapter 2.9.0.
- 403.3.2 Hydrants:
Measurement for hydrants will be by the unit in place, and the quantity measured for payment shall be the number of units installed and accepted. Measurement for hydrants will be in accordance with WSWs Chapter 2.9.0.
- 403.3.3 Valves:

Measurement for valves will be by the unit in place, and the quantity measured for payment shall be the number of units installed and accepted. Measurement for valves will be in accordance with WSWs Chapter 2.9.0.

All costs associated with auxiliary valves associated with hydrants shall be included in the price bid for the hydrant.

403.3.4 Pipe Bedding:

All costs associated with furnishing, placing, and compacting pipe bedding will be included in the price bid for the water main.

403.3.5 Valve Boxes:

All costs associated with furnishing and installing valve boxes shall be included in the unit price bid for furnishing and installing the various sizes and types of valves.

403.3.6 Water Laterals:

Measurement for water laterals leads shall extend from the centerline of the water main to the end of the pipe laid. The hydrant lead shall be paid for at the unit price bid per lineal foot of pipe completed and accepted including all water taps, corporation stops, curb stops, curb boxes, all costs associated with the water tap, permits and all other necessary materials.

403.3.7 Corporation Stops:

All costs associated with furnishing and installing corporation stops shall be included in the unit price for water laterals.

403.3.8 Curb Stops:

All costs associated with furnishing and installing curb stops shall be included in the unit price for water laterals.

403.3.9 Curb Boxes:

All costs associated with furnishing and installing curb boxes shall be included in the unit price for water laterals.

403.4 Payment:

Payment for the items described above will be paid at the unit price described above which shall be full compensation for furnishing all materials, including all conduit and connections, and other fittings; for all excavation, backfilling, disposal of surplus materials, cleaning out and restoring the site of the work; and for all labor, tools, equipment and incidentals necessary to complete the work as described above.

404 – UTILITY EXCAVATION & BACKFILL

- 404.1 Backfill:
Backfilling shall be performed in accordance with WSWS Chapter 2.6.0.
- 404.2 Measurement
- 404.2.1 Native Backfill
Furnishing, placing and compacting native backfill material shall be considered incidental to the work being performed.
- 404.2.2 Granular Backfill
Measurement of granular backfill shall be as described in WSWS Chapter 2.6.0.
- 404.3 Backfill
Payment for Backfill as specified on the plans shall be included in the price bid for the pipe.

405 - VIDEOTAPING OF SANITARY SEWER AND STORM SEWERS

- 405.1 Description
The work under this section shall consist of videotaping of sanitary sewers and storm sewers and preparing a report of the videotape. The Contractor shall furnish all labor, equipment, materials, and supplies required to do the work.
- 405.2 General
- 405.2.1 Video Equipment
Video equipment shall include video camera, television monitor, cables, power source, lights, and other equipment. The video camera shall be specifically designed and constructed for sewer inspections.
- The camera, television monitor, and other components of the video system shall be capable of producing a minimum 350 line resolution color video picture. The camera shall be mounted on skids suitably sized for each pipe diameter to be investigated, or on a self-propelled transporter specifically sized for each pipe diameter.
- 405.2.2 Operating Environment
The camera shall be operative in 100 percent humidity. Lighting for the camera shall minimize reflective glare. Lighting and camera quality shall be suitable to provide a clear, in-focus picture of the entire inside perimeter of the sewer pipe for a minimum length of seven (7) feet, for all conditions encountered during the work. Focal distance shall be adjustable through a range of from six (6) inches to infinity.
- 405.2.3 Footage Counter
The remote reading footage counter shall be accurate to one percent (1%) over the length of the particular section being inspected and shall be mounted adjacent to the television monitor.
- 405.2.4 Push Type Camera
At the Contractor's option, a push-type camera may be used to video storm sewer laterals from manholes to the catch basins/inlets, as well as short dead end pipe (stub) sections.
- 405.2.5 Video Recorder
A video tape recording shall be made during the televising operation. A high grade V.H.S. format tapes shall be used.
- 405.2.6 Tape Speed
The tape shall be recorded at the standard play (SP) setting.
- 405.2.7 Television Inspection
The camera shall be moved through the line in either direction at a uniform rate, which allows for maximum clarity of the image, stopping when necessary to ensure proper documentation of the sewer's condition, but in no case shall the video camera be pulled at a speed greater than forty (40) feet per minute. Manual winches, power winches, TV cable, powered crawlers, or powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer. If, during the inspection operation, the video camera will not pass through the entire manhole

section, the Contractor shall reset his equipment in a manner so that the inspection can be performed from the manhole on the opposite end of the line.

405.3.1 Cleaning of the Line

The line to be televised shall be cleaned and a red or other dark color dye approved by the Engineer shall be flushed down the line to help identify any dips or offsets in the line.

405.3.2 Excess Flow

In the event the section being televised has substantial flow entering the sewer between manholes, such that inspection of the sewer is impaired, then the Contractor shall reroute or pump the flow past the line being televised.

405.3.3 Communication During Videotaping Operations

Whenever non-remote powered and controlled winches are used to pull the video camera through the line, radios, telephones, or other suitable means of communication shall be set up between the two manholes of the section being inspected to ensure that adequate communications exist between members of the crew.

405.3.4 Calibration and Display of Footage Measurements

Accuracy of the footage counter shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device. Footage measurements shall begin at the sewer line point of penetration of the upstream manhole, unless specific permission is given to do otherwise. Footage shall be shown on the video monitor at all times.

405.4 Documentation Of Results Of Video Taping Of Sewers

405.4.1 Computerized Report

Video inspections shall be documented through the use of an in-vehicle computer system. This system must be IBM compatible with a 3.5" disk drive. The report shall be written in Word 6.0 (or later version) format. All defects and general information on the pipe being viewed along with an index for retrieving the information must be supplied to the Village as part of the report.

405.4.1.1 Format of Data for Computerized Report

The computerized report shall include, but are not limited to, the following information:

1. Location of each point of leakage.
2. Location of each service connection measured in feet from the designated manhole and by point on the pipe axis.
3. Location of any damaged sections, nature of damage, and location with respect to pipe axis.
4. Deflection in alignment or grade of pipe.
5. Record of repairs and quantity of sealing material used (if applicable).
6. Day, date, time, Village, street and limits, basin, manhole section, reference manhole number, name of operator, and weather conditions.
7. Pipe diameter, pipe material, section length, and corresponding videotape identification.
8. Type of improvement - sanitary or storm sewer.
9. Subdivision name.

405.4.2 Inspection Logs

Video inspection logs shall be typed, or computer printed, and shall be in a form acceptable to the Village. Printed location reports shall clearly show the location, in

relation to adjacent manholes, of each source of infiltration discovered. In addition, other data of significance include the location of buildings and house service connections, joints, unusual conditions, roots, storm sewer connections, collapsed sections, presence of scale and corrosion, and other discernible features shall be recorded. A sketch of the line being taped and the direction of taping shall be on the back of the log sheet.

The measurement of distance to laterals and defects is critical in confirming the location of areas to be excavated.

The computerized report may be substituted for the standard inspection logs only if the computerized report contains the same information in a format approved by the Village prior to the start of the work.

405.4.3 Video Tape Report

Color video tape recordings of the data on the television monitor shall be made by the Contractor. Copies of each videotape shall be provided to the Village. The tab to prevent accidental erasure shall be removed from the cassette before submittal.

Video tape recording playback shall be the same speed that it was recorded. Slow motion or stop motion playback features may be supplied at the option of the Contractor. The Contractor shall have all videotapes and necessary playback equipment readily accessible for review by the Village during the project. Tape speed shall be noted on the recorded videotape. Standard play (SP) mode shall be used.

405.4.3.1 Format of Data on Video Tape

Tapes shall include the following information:

Data view:

1. Report number.
2. Date of TV inspection.
3. Upstream and downstream manhole numbers.
4. Current distance along reach (tape counter footage).
5. Printed labels on tape container and on the tape cartridge with location information, date, format information, and other descriptive information.

405.4.3.2 Narrative Report

The following shall be added to the tape audio during filming:

1. Date and time of video inspection.
2. Operator's name.
3. Project name or subdivision name.
4. Type of project - sanitary or storm sewer.
5. Name of street and limits, or description of location of line being video taped.
6. Boundary streets between which the line is being video taped. Upstream and downstream intersection streets.
7. Verbal confirmation of upstream and downstream manhole numbers and direction of video taping line.
8. Verbal description of pipe size, type and pipe joint length.
9. Verbal description and location of each service connection and defect.
10. Weather conditions at time of video taping inspection.

405.5 Inspection Of Work By Village

The Village representatives shall be given full access to the site, including vehicles used to monitor the videotaping, during the course of the videotaping of the work to view the taping operations.

405.6 Possession And Rights Of Video Tapes And Reports

Upon completion of the video taping of the utilities, the video tape and all reports including the video tape log forms, 3.5 inch computerized report disk, and other records required in this section as part of the video tape report shall become the property of the Village of Slinger, who shall have the sole control of all rights associated with the documents.

405.7 Payment

All costs associated with videotaping will be as described in the contract documents.

- END OF SECTION 400 -