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## VOLUME II

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Proposed Sanitary Sewer No. 4989, CIP 98-85
POLK RUN WWTP EXPANSION, PHASE 3B
POLK RUN PUMP STATION ELIMINATION
SEWER

DETAILED PROVISIONS

SOIL BORINGS

Test borings that were drilled for this project have been indicated on the plans. Prospective Bidders are hereby notified that a copy of the test borings is included in the bid documents.

Construction recommendations in the geotechnical report are developed principally from the judgment and opinion of the geotechnical engineer who prepared the report. The construction recommendations are not final and the Contractor shall not rely solely upon the construction recommendations. The Contractor shall confer with a geotechnical engineer and/or conduct additional study at the site, to obtain the specific geotechnical information required for executing the work and preparing bids.

CONSTRUCTION SEQUENCE

Before construction is started, the Contractor shall submit a construction schedule to the Engineer. If the construction schedule changes by more than 14 calendar days, the contractor shall submit a revised schedule to the Engineer. This schedule shall outline the sequence in which the Contractor proposes to conduct operations and shall be approved by the Engineer before work is started.

The Contractor shall video record the construction limits with the Engineer and shall videotape additional areas requested by the Engineer, prior to mobilizing equipment and materials and starting construction. A copy of the video recording shall be provided to the Engineer in DVD format prior to starting construction.

It shall be the responsibility of the Contractor to uncover the existing conduit as the first order of work in order to determine the elevation and alignment of the existing conduit. The Engineer shall determine if adjustments are required.
PRECONSTRUCTION VIDEO INSPECTION

Construction in any area shall not start until the area has been video recorded with audio comment and the tapes submitted to the Engineer.

Prior to video recording, all areas to be inspected shall be investigated visually with notation made of features not readily visible video recording methods. This would include, but not limited to, culverts (size, type, and condition) and manholes that may be partially buried. Record all measurements made during the inspection.

All video recording shall be conducted in the presence of the Engineer unless waived in writing by the Engineer. At the start of video recording, the Contractor shall submit a sample DVD of a portion of this project for the Engineer to review. The sample DVD shall be approved before any other taping is allowed.

A. Equipment:

1. Video Record:
   a. The video inspection shall be recorded in MPEG format on DVD.
   b. Two (2) copies shall be submitted to the Engineer.

B. Video Information:

1. Each DVD shall begin with the current date, project name, and municipality and be followed by the general location, i.e., name of the street or property owner, viewing side, and direction of progress. The engineering stationing shall be noted on the audio track. Houses and buildings shall be identified audibly by an address, when available.

2. All video recordings shall, by electronic means, continuously display the month, day, year, hours, minutes and seconds.

C. Coverage:

1. Inspection coverage shall include, but not limited to, all existing driveways, sidewalks, curbs, ditches (drainage patterns are of particular concern), streets (including condition of paving for full width), landscaping, trees, culverts, catch basins, headwalls, fences, visible utilities, and all buildings (interior and exterior) located within the zone of influence of construction. Of particular concern are existing faults, fractures, defects, or other imperfections.

D. Recording Conditions:
1. All video recording shall be done during times of good visibility. No outside taping shall be done during periods of visible precipitation or when the ground area is covered with snow, leaves or debris, unless otherwise authorized by the Engineer.

2. In order to produce the proper detail and perspective, adequate lighting will be required to fill in shadow areas caused by trees, utility poles, road signs and other such objects, as well as other conditions requiring artificial illumination.

3. The average rate of speed in the direction of travel during video recording shall not exceed 50 feet per minute Planning rates and zoom-in/zoom-out rates shall not exceed 10 percent over a 3 second interval.

4. When conventional wheeled vehicles are used for video recording, the distance from the camera lens to the ground shall not be less than 8 feet.

The cost of this work shall be included in the unit price bid for the various contract items.

**PRECONSTRUCTION MEETING**

Following award of the Contract and before starting any work, the Contractor, the Contractor’s Superintendent, and Foreman shall meet with the Engineer, the Field Engineer and the Inspector in the office of the Engineer for a preconstruction meeting. The Contractor will be notified of the date and the time of the meeting.

_The Contractor is hereby notified that a performance rating system has been established for this project. The performance criteria for rating the Contractor will be discussed at the pre-construction meeting._

**ELECTRIC FACILITY NOTES:**

Danger - Contractor shall contact the company prior to excavation in vicinity of electric underground facilities (approximate plan location shown) or when working near overhead electric facilities.

For field inspector to locate underground electric line, in Ohio call "Ohio Utilities Protection Service" 1-800-362-2764.

For notification of construction activity near energized electric facilities, call 287-3426.
For additional underground electric record information, call 287-2454.

For electric Engineering notification, agreements and correspondence, address to Mr. James Dugan, central accounting marketing section, P.O.Box 960, Cincinnati, Ohio 45202-0960.

Contractor shall be responsible for all damages to electric facilities during construction.

Electric facilities to be kept in service at all times.

Contractor shall be responsible for supporting existing electric facilities affected by the proposed construction.

Where high pressure oil filled pipe type cable installation are exposed or otherwise interfered with by the Contractor, protection by the Contractor will be required against damage to the coating or surrounding thermal sand envelope.

Where concrete encased conduit systems or direct buried cable systems are exposed or otherwise interfered with, the Contractor shall protect the system from damage and provide temporary support to insure the integrity of the system. As soon as feasible, the Contractor shall take additional appropriate steps to provide permanent measures to restore support. The methods used shall be based on conditions to be determined by the utility.

Where the depth of excavation for the proposed work is greater than five (5) feet, the Contractor shall sheet and shore the trench to continuously maintain the support of electric facilities at location where the electric facilities are within the zone of influence adjacent to the excavation as determined by the natural angle of reposed of the soil.

All damage to electric facilities and services requiring adjustments, relocations and/or repairs will be made at the contractor's cost.

Contractor shall not backfill exposed electric facilities until the company has inspected its facility or performed any adjustments and/or maintenance that may be required.

NOTE:
Should Contractor damage electric facilities, Contractor shall immediately notify the electric service desk through the company operator (421-9500). Contractor shall keep everybody clear of damaged electric facilities until company personnel arrive at the work site.
GAS FACILITY NOTES:

For gas engineering and planning notification, agreements, and official correspondence, address to:

Duke Energy  
Company Gas Engineering Department  
Room 460a, 139 East Fourth St.  
Cincinnati, Ohio 45273-9598

These prints show approximate gas facility locations and depths. Contractor shall verify locations prior to construction.

Gas facilities are to be kept in service at all times.

The Contractor shall be responsible for all damages to gas facilities during or as a result of his construction. All damages to gas facilities requiring adjustments, relocation, and/or repairs will be made at the Contractor's cost.

The Contractor shall sheet and shore all excavations as required to continuously support gas facilities within the zone of influence (as determined by the natural angle of repose of the soil).

Crossing buried gas facilities with heavy construction equipment may cause damage to gas lines. Contact the Gas Engineering Department for details on how to protect the gas facilities from damage.

The Contractor shall not backfill exposed gas facilities until the utility has inspected its facilities and performed any maintenance and/or adjustments that may be required.

The Contractor is responsible for preventing any damage to gas facilities. This includes protection of coatings and wrappings on steel gas mains. It also includes any damage which may have occurred to plastic gas mains, such as crimps or gouges.

When cast iron or similar gas facilities are exposed or interfered with by the Contractor, replacement or reinforcement by the Gas Engineering Department may be required at the Contractor's expense. Backfill with control low strength material will be required.

Blasting or other construction procedures which may transmit loads or vibrations in the vicinity of gas facilities must be approved by the Gas Engineering Department. A blasting plan, identifying all pertinent information, must be submitted in writing by a blasting expert prior to any work.

MAINTENANCE OF TRAFFIC
The Contractor shall be responsible for maintaining “local” traffic at all times and for notifying the proper authorities regarding the closing of roads.

It is the intention to perform the required work with the least inconvenience to, and maximum safety of the Contractor and the traveling public. Any variances from these Maintenance of Traffic notes must be approved in advance, in writing, by the Engineer.

The Contractor shall not begin work until standard barricades and warning signs are in acceptable position and the markers and signs conform to the "Ohio Manual of Uniform Traffic Control Devices for Streets and Highways". The cost of all traffic control devices shall be included in the various contract items.

The Contractor shall maintain local traffic at all times during construction of this project in a manner causing the least amount of inconvenience to the abutting property owners. Temporary Driveways, Temporary Roadways, or Turn-Arounds as may be necessary to provide vehicular access to and from the abuting properties shall be constructed, maintained and subsequently removed by the Contractor, as directed by the Engineer.

MSD will obtain, process and pay for all required street opening permits. Any cost for inspection and testing required by jurisdictional agencies, in addition to that supplied as part of the street opening permit, will be billed to and paid by MSD, excluding penalty charges for delays due to the Contractor's operations.

When excavating in the street pavement, the portion of the street pavement not in the sewer main construction shall be kept clear of all excavated material. Only a portion of the trench shall be excavated at a time and closed again with controlled density backfill, before the pavement over the balance is removed, as directed by the Engineer.

All pavement and/or right-of-way openings within the public right-of-way must conform to the current edition of the State of Ohio, Department of Transportation, Construction and Material Specifications, with supplements or changes thereto. Also, the Contractor assumes all responsibilities and liabilities regarding strict adherence to applicable sections for the Maintenance of Traffic and Public Safety as set forth in the "Ohio Manual of Uniform Traffic Control Devices for Streets and Highways". All traffic control devices must be in place prior to starting construction.

The Contractor shall save harmless the City of Cincinnati and the Board of County Commissioners of Hamilton County and all its representation from all suits, actions, or claims of any character brought on account of any injuries or damages sustained by any person, or persons, or property in consequence of this construction project due to construction operations.

Police, Fire and School Bus access shall be maintained at all times. If at any time traffic has to be blocked, the Contractor shall notify the local Police District, Fire Division and School District Transportation Office.
The Contractor shall make arrangements and pay for the services of an off-duty police officer and cruiser, as needed or as required by the jurisdictional agency.

In addition to Item 614, "Maintaining Traffic," as set forth in the State of Ohio Department of Transportation Construction and Material Specifications, the following notes shall also apply to the work carried out within the limits of this project.

When it is required that an entire roadway be opened at the completion of the normal working day, if any trench excavations have not been completely backfilled and restored, a temporary cover, such as a metal plate or another approved device, shall be placed over that portion of the trench remaining open.

The Contractor will be required on an interim and permanent basis, to provide, erect, maintain (in proper position, clean, legible and good working condition), and remove all lights, signs, barricades and all other traffic control devices necessary to the maintenance of traffic, which also includes all advance warning signing or regulatory signs. All signs shall be reflectorized or illuminated. Type "B" flashing barricade warning light shall be installed with every advance warning traffic control device.

The standard device for closing any lanes to traffic shall be properly weighted, reflectorized, 30 to 55, gallon plastic drums. All drums used in lane(s) closures shall have type "C" steady burning barricade warning lights mounted on them.

An electric flashing arrow panel of a type shown on ODOT standard construction drawing TC-35.10 shall be installed in each taper closing a lane to traffic, centered in the closed lane.

Before work begins, the Contractor shall submit to the Engineer the names and telephone numbers of a person who can be contacted 24 hours a day by ODOT or Hamilton County and all interested police agencies. This person or persons shall be responsible for placing or replacing necessary traffic control devices to maintain the traveled pavement safely.

The Contractor will be required to give at least seven (7) days notice to the Engineer prior to the closure of any lane.

All vehicles, equipment, men and their activities are restricted at all times to one side of the pavement, unless otherwise approved by the Engineer. Vehicles and equipment shall always move with, and not across or against, the flow of traffic. Vehicles and equipment shall not park or stop except within designated areas, and shall enter and leave work areas in a manner which will not be hazardous to, or interfere with, the normal flow of traffic. Personal vehicles will not be permitted to park within the right-of-way, except in specific areas designated by the Engineer.

Pedestrian protection and pedestrian access must be maintained at all times. Pedestrian safety is of utmost importance throughout the life of the contract. Pedestrians must be
directed to the safest crossing point at all times, and their safety is the responsibility of
the Contractor.

To assure maintenance of adequate traffic control at all times, no signs are to be installed
or removed without the approval of the Engineer.

The Contractor shall notify the local police district and the fire division 48 hours prior to
the start of work. If temporary signs, which restrict parking, are installed, the local police
district shall be notified 24 hours prior to installation. Police and fire access shall be
maintained at all times.

Access to abutting properties must be maintained at all times.

All line stripping (dashed white and solid yellow) shall be replaced at the end of each
work day by the Contractor by using Class I (non-abbreviated) temporary pavement
markings, or permanent pavement markings. At the completion of the project all line
stripping shall be permanently replaced by the Contractor with approval of the Engineer.

The Ohio utility protection service shall be contacted prior to the start of any roadway
work which may damage traffic signal loop detectors so that underground equipment can
be located and marked by ODOT. The Contractor shall contact the ODOT one week prior
to grinding, pavement removal, etc., to assure that adequate signal timing is available and
that the affected loops are disconnected from the traffic signal controller.

In general terms street lighting systems, underground conduit, and wiring are located
behind the curb, and any street crossings are deep enough to be unaffected by pavement
work. The Ohio utility protection service shall be contacted prior to the start of any
roadway work so that underground equipment can be located and marked.

Failure to comply with these maintenance of traffic items will result in liquidated
damages being assessed per item 108.07 of the State of Ohio Department of
Transportation Construction and Material Specifications, for each violation.

Traffic shall be maintained at all intersections and drives at all times and shall be
controlled with flaggers and traffic control devices as required and shall be subject to the
approval of the Engineer.

Normal operation of all traffic signals shall be maintained at all times unless otherwise
approved by the Engineer. Care shall be exercised not to perform any work which might
affect the operation of the loop detectors or underground wiring until arrangements have
been made with the maintaining agency.

The following restrictions shall apply to the construction involved in this project: East Kemper Road
The Contractor may close East Kemper Road, east of Loveland-Maderia Road, for a period not to exceed a maximum of 6 months.

All through traffic shall be detoured around the construction area of the proposed sewer.

The Contractor shall provide all detour signage.

The Contractor shall be responsible for installing and maintaining the local traffic signage.

Contractor shall notify the Hamilton County Engineer a minimum of 2 weeks prior to starting work.

The cost of the maintenance of traffic shall be included in the various contract items.

**EXISTING UTILITIES**

The Contract Drawings show all underground utilities, water, gas, and sewer lines known to exist. However, this does not guarantee that all existing lines and appurtenances have been shown on the Contract Drawings, and the City assumes no responsibility for the accuracy thereof and does not free the Contractor from necessary precautions for the protection of any utility encountered on the project or the restoration of any utility damaged during the work.

The Contractor shall remove and haul away any construction material or other debris that may drop into inlets, manholes, and sewers during Contractor’s operation. Do not permit or cause any debris or construction material to enter the storm or sanitary sewer systems or appurtenances.

The Contractor shall notify, at least 48 hours before breaking ground, all public and/or private service corporations having wire, poles, pipes, conduit, manholes or other structures that may be affected by this operation, including all structures which are affected and not shown on the Contract Drawings. Owners of underground utilities, which are members of the Ohio Utilities Protection Service, can be notified by calling **800-362-2764 (toll free)**. Non-member underground utility owners must be called directly.

Supporting and/or protecting existing water lines, gas mains, telephone conduit, guy lines, electric/telephone poles, storm sewers, etc., shall be included in payment for the various contract items of work.

All work required for the maintenance of service of existing utilities shall be done by, and at the expense of the Contractor.

All maintenance, repair and/or replacement of existing utilities shall be in accordance
with the Rules and Regulations of the various utility companies having jurisdiction.

All existing storm sewers, driveway drains, and other surface drain pipes, whether shown on the Contract Drawings or not, removed or damaged during construction shall be repaired and reconnected by the Contractor, as directed by the Engineer, at no cost to the City.

It is assumed that there are water and gas branch lines, etc., serving each residence. The Contractor shall repair or replace these utilities, if damaged, at no cost to the City. The Contractor shall be responsible for the cost of any utility pole and utility line relocations required by the selected method of conduit installation and/or adjustment in alignment to facilitate construction. Utility pole and line relocation shall be performed by the affected utility. The cost for this work shall be included in the various 603 items and no additional payment will be made therefore.

**CONSTRUCTION PROCEDURE**

It shall be the Contractor's responsibility during the construction of this project to work equipment around poles, trees, or other obstructions which permit the passage of the bucket and boom but prevent passage of other portions of the equipment and, if necessary, to excavate from both sides of the poles, trees, or other obstruction, and to remove materials by hand labor, tunneling, or by other means, all at the Contractor’s own expense.

All excess excavated material and debris to be disposed of off-site must be disposed of in an environmentally sound fashion and in accordance with all local, state, and federal regulations.

It is the intent of these Detailed Provisions to provide a procedure for keeping the restoration of seed and sod areas and driveways current with the installation of the sewer pipe. This will be considered a part of the sewer installation and failure to keep restoration of these items completed reasonably close to the installation of the sewer pipe shall be cause to delay payment for sewer pipe installed until such restoration is completed to the satisfaction of the Engineer.

**REQUEST FOR SUPPLEMENTARY INFORMATION**

It shall be the responsibility of the Contractor to make timely requests of the City for any additional information not already in the Contractor’s possession and which should be furnished by the City under the terms of this Contract, and which will be required in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest day by which
each will be required by the Contractor. The first list shall be submitted within two (2) weeks after contract award and shall be as complete as possible at that time. The Contractor shall, if required, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in work, or to the work of others, arising from failure to comply with the provisions of this section.

Shop drawings and correspondence shall follow the following procedures.

1. All submittals and inquiries shall be made by the General Contractor to the Engineer.
2. A transmittal letter shall accompany each submittal. Information required shall be recorded in ink.
3. All data shall be submitted in sufficient number of copies for MSD to retain a minimum of three (3) copies. Any samples required shall be submitted so that MSD can retain two (2) samples.
4. The Contractor shall allow for sufficient review time so that installation will not be delayed as a result of the time required to process submittals. Two (2) weeks shall be allowed for the District’s review of each submittal or re-submittal. No extension of time will be authorized because of the Contractor’s failure to transmit submittals to MSD in advance of the work to permit processing.

USE OF PREMISES

The Contractor shall not trespass upon or in any way disturb property outside the street right-of-way, or outside the limits of construction, without first obtaining written permission from the owner to do so. A copy of such written permission shall be furnished to the Engineer.

If the Contractor finds it necessary to obtain additional working area, it shall be the Contractor’s responsibility for its acquisition. All requirements listed under the "Use of Premises" shall apply if additional area is obtained.

The Contractor shall, at the Contractor’s expense, restore such property to the full satisfaction of the owner, and shall obtain from the owner a written release stating that restoration has been satisfactorily made. A copy of the written release shall be furnished to the Engineer.

The Contractor shall not waste any excess earth, stone, or other excavated material on any property without first obtaining written permission from the owner of the property and securing the approval of the Engineer. One copy of the owner's written permission, and one copy of a written release from the owner stating that the work has been completed satisfactorily, shall be furnished to the Engineer.

All items within the construction limits and the street right-of-way shall be removed, or removed and replaced, or restored as required by the Contract Drawings and
Specifications, as directed by the Engineer.

PROTECTION OF TREES

The Contractor shall take precautions to avoid any unnecessary damage to trees. Branches which overhang the construction limits and which interfere with the operation of equipment shall be tied back to avoid damage, if possible. Where injury to branches is unavoidable, the branches shall be sawed off neatly at the trunk or main branch and the cut area shall be painted with an approved tree paint immediately. Any trees damaged beyond saving shall be removed by the Contractor at the Contractor’s expense, and in the case of trees located on private property, the Contractor shall make restitution to the owner.

MAINTAINING FLOW

It will be the responsibility of the Contractor, throughout the tenure of this contract, to provide and maintain sufficient flow at all times and to pass any flash or storm flow of sewers, drainage ditches, creeks, streams and rivers, and to prevent any backwater flooding due to obstruction caused by construction equipment and/or materials.

The Contractor shall maintain sewage flow within the existing intercepting sewer (S.S. No. 1687 downstream of existing manhole # 59408016) at all times during construction by by-pass pumping or diverting sewage flow into temporarily installed conduit or plastic lined trench channel. The existing 36 inch diameter sewer is a sanitary sewer and conveys dry weather flow and wet weather flows during rain events.

Dry weather flow shall be maintained from the existing 36 inch diameter sewer to the at all times. A minimum of [3,321] gallons per minute ([7.4] cubic feet per second) peak dry weather flow shall be maintained.

The peak capacity of the sewer is [19,855] gallons per minute ([44.24] cubic feet per second). The Contractor shall schedule the proposed work (replacement of 52 L.F. of sewer) along the existing intercepting sewer during dry weather and low flow periods. If the Contractor is unable to complete the work before a storm event, he shall be prepared to convey the excess flow by means of temporary sewer, storage or other means.

The Contractor shall maintain sewage flow within the existing local sewer (S.S. No. 2291 downstream of existing manhole # 59408014) at all times during construction by by-pass pumping or diverting sewage flow into temporarily installed conduit. The existing 8 inch diameter sewer is a sanitary sewer and conveys dry weather flows.

Dry weather flow shall be maintained from the existing 8 inch diameter sewer at all times. A minimum of [239] gallons per minute ([0.53] cubic feet per second) peak dry weather flow shall be maintained.
The Contractor shall maintain sewage flow within the existing local sewer (S.S. No. 2940 downstream of existing manhole # 59407011) at all times during construction by by-pass pumping or diverting sewage flow into temporarily installed conduit. The existing 12 inch diameter sewer is a sanitary sewer and conveys dry weather flows.

Dry weather flow shall be maintained from the existing 8 inch diameter sewer at all times. A minimum of [26] gallons per minute ([0.06] cubic feet per second) peak dry weather flow shall be maintained.

The description, design, calculations, equipment list and equipment layout, standard operating procedures and equipment maintenance plans, emergency operating procedures, notification and response in the event of unforeseen by-passing discharges into adjacent areas, and record-keeping methods for the management of maintaining flows and by-passing is to be defined in a Contractor's Temporary Bypass Plan (CTBP) and submitted to the Engineer for review within two (2) weeks following the Notice of Award of the Contract for approval prior to excavation. This plan shall list the Contractor's single point of contact, with phone numbers during the work day and the off-hours, who is responsible for the maintenance of flow. Alternate contact and phone numbers are also required. Additional information for use in the CTBP can be found in the Temporary Bypass Plan (TBP).

The cost of this work shall be included in the unit price bid for the various contract items.

**FENCING, SIGNS, MAILBOXES, AND GUARDRAILS**

Any fences, signs, mailboxes, and guardrails that need to be removed to facilitate sewer construction operations shall be replaced, in kind or with repairs satisfactory to the owner, at the Contractor's expense. Replacement of fences, signs, mailboxes and guardrails shall be considered a part of the sewer installation and shall be done immediately after the installation and backfilling of the sewer. The costs for the removal and replacement shall be included in the price bid for the various contract items.

**RESTORATION**

All restoration shall be completed in strict accordance with the appropriate items of the Specifications, as directed by the Engineer. All disturbed areas shall be restored as nearly as practical to the condition they were prior to construction within 30 days of pipe installation, at the direction of the Engineer. All drainage ditches disturbed by the Contractor’s work shall be restored, reshaped and graded to drain properly.

Pavement restoration shall be in accordance with the “Typical Restoration Section” and the provisions of the Governing Agency responsible for the particular road, as directed by the Engineer.
The restoration of sunken trenches shall be the Contractor's responsibility. Sunken areas shall be backfilled and compacted to meet adjoining grades and the surface area reseeded, or resurfaced with asphalt or concrete matching the existing surfacing. The Contractor's responsibility for this item shall be under the terms of, and for the duration of, the guarantee defined in 109.12 of the City Supplement.

The Contractor shall restore unpaved areas by seeding and mulching (Item 659) unless otherwise noted herein. Commercial fertilizer shall be used and shall have a chemical analysis of 10-20-10. The fertilizer shall be delivered to the project site in manufacturer's containers, unopened. The container, or an attached tag, shall have printed upon it the manufacturer's name and the chemical analysis of the contents.

All maintained residential yards shall be restored with shredded topsoil and fertilizer prior to seeding and Mulching (Item 659). Contractor shall remove all stones 1-inch and greater in any dimension. Shredded topsoil shall be placed in loose lifts that construct a 4-inch compacted depth. Grass seed shall be 20% Annual Ryegrass and 80% Finelawn Fescue.

All landscaping that results in seeding in the months of June, July and August, if applicable, shall be done between September 1 and September 15.

Driveways shall be restored in kind or with two (2) inches of Asphalt Surface Course (Item 448) on a six (6) inch Aggregate Base (Item 304) or with seven (7) inch thick Non-Reinforced Portland Cement Concrete Pavement, fast-setting concrete (Class FS) (Item 452). Concrete walks shall be restored with a five (5) inch thick Plain Portland Cement Concrete Walk (Item 608).

The cost of all restoration of streets, drives, walks, sod, etc., shall be included in the various items of the Contract. When restoring walks, curb ramps shall be constructed at intersections where the existing walk has been disturbed. Contact the jurisdictional agency for curb ramp requirements.

**RIGHT-OF-WAY**

All permanent and temporary Right-of-Way has been acquired for this project. Copies of the signed easement drawings and agreements are on file at the Department or Sewers, 1600 Gest Street, Cincinnati, Ohio.

**REQUIREMENTS OF SPECIAL RIGHT-OF-WAY**

Parcel 620-90-7, CSX Transportation, Inc. (CSXT)

The Contractor shall notify and schedule any work on CSXT property with the **CSXT Roadmaster, telephone (513) 369-5524** (ideally between the hours of 6:30 AM and 8:30 AM), FAX (513) 369-5523 at least **seven (7) days in advance** of the date desired to
begin the project. **No work is to be performed on CSXT property without the Roadmaster’s authorization.**

The Contractor shall acquire and pay for all associated costs for permit fees, inspection, employing the services of a CSXT flagger (as per existing labor agreements with the railroad including overtime, travel to and from the project site from the flagger’s place of employment, lodging and meal accommodations, etc.), as necessary, when required by the regulations or permit conditions of the railroad company, or as required as a condition of their permit.

Commercial General Liability Insurance

In addition to any other forms of insurance or bonds required under the terms of this Contract, the Contractor shall furnish evidence that, with respect to the construction it or any of its Subcontractors perform, it has provided Commercial General Liability Insurance (CGL). Prior to commencement of surveys, construction, or occupation of property owned or controlled by CSXT, the Contractor shall procure and maintain during the continuance of this Agreement, at the Contractor’s sole cost and expense, a policy of Commercial General Liability Insurance (CGL) naming CSXT, as additional insured and covering liability assumed by the Contractor under this contract. A coverage limit of not less than Three Million and 00/100 U.S. Dollars ($3,000,000) Combined Single Limit per occurrence for bodily injury liability and property damage liability is currently required as a prudent minimum to protect Contractor’s assumed obligations. The evidence of insurance coverage shall be endorsed to provide for thirty (30) days’ notice to CSXT, prior to cancellation or modification of any policy. Mail CGL certificate, along with agreement, to CSX Transportation, Inc., Speed Code J180, 500 Water Street, Jacksonville, FL 32202. Reference CSX Agreement No. CSX-037130 and ensure that the agreement number appears on all insurance documents furnished.

Failure to carry or keep such insurance in force until all work is satisfactorily completed shall constitute a violation of the Contract.

**MITIGATIVE MEASURES**

The Contractor will be responsible for providing the necessary material and labor to follow all mitigative measures indicated on the plans throughout the entire project. The mitigative measures stated on the plans are guidelines to be followed during the construction; alternatives to these measures should be submitted to the City for approval two (2) weeks prior to the construction in the area affected by the change.

Work adjacent to and within the stream will be strictly observed by the Engineer to assure compliance with the Contract Documents.

The Metropolitan Sewer District will provide a qualified environmental inspector to oversee construction operations for the more environmentally sensitive portions of this
construction project. The role of the environmental inspector will be to assure that the Contractor is aware of the sensitive areas within the project and of the steps necessary to complete the project with a minimum of environmental impacts. The environmental inspector will also inspect the project to assure that the mitigative measures and these Detailed Provisions are adhered to by the Contractor during the construction of the project and during site restoration activities.

Soil erosion and sedimentation controls shall be installed and maintained over the duration of the project as needed. These controls shall be located within or along the edge of construction between the proposed sewer line and the stream.

Temporary and permanent seeding shall be completed in stages to assure the restoration of the area disturbed during construction.

The Contractor shall give special attention to proper sewer construction, protection of the stream and riparian areas and the following mitigative measures, as well as those shown on the drawings. These measures are being taken so that the stream can be restored to "before construction" conditions.

a. The Contractor shall maintain all haul roads throughout the construction to prevent unnecessary construction traffic from using the creek in areas not disturbed by actual sewer construction.

b. The Contractor shall maintain existing stream cover by not removing or disturbing trees along the stream bank and other miscellaneous in-stream shading items. While working along the stream, use the area on the opposite side of the sewer from the stream for material storage and stock piling of excavated trench material.

c. Construction within the creek area shall be initiated and completed during normal to low periods of flow.

d. During high creek flow periods, construction work in the creek is prohibited; construction of sewer segments in areas away from the creek will be permitted.

e. At creek crossings, do not disturb the vegetation within the construction easement, except for the area required for excavation and equipment passage. This creek crossing shall include the creek and the creek banks.

f. When necessary, the creek flow can be temporarily diverted around the construction area, provided the method to be used receives prior approval by MSD’s Environmental Inspector, and any disturbance to the stream is minimized. Disturbed areas shall be immediately
restored, using the proper mitigative measures.

g. No solid or liquid wastes, including construction materials, shall be dumped or discharged into waterways or left where they may be washed away with stormwater runoff.

h. Where the trench crosses a stream with a solid or layered rock bottom, the Contractor shall sawcut the trench edges to a minimum depth of four inches (4”). The trench shall be backfilled with Class “C” concrete as indicated in the creek crossing detail shown on the construction drawings. The Contractor also shall provide necessary means to prevent fracturing of the bedrock due to equipment crossings.

i. All excess spoil material shall be removed from the stream corridor area promptly and disposed of in an environmentally sound manner. If wasted on site, it must be placed outside the riparian area and seeded immediately.

j. Stream bank restoration or rock channel protection shall be used, as directed by the Engineer when the excavation of the sewer disturbs the stream bank. The protection shall be a minimum of two feet (2’) thick from stream’s edge to a minimum of two feet (2’) above normal flow elevation, unless otherwise shown on the plans. Above this rock channel protection, a three-foot (3’) wide strip parallel to the stream shall be planted with willow sprigs and the remaining slope seeded with a mixture of fescue and clover. If this slope is greater than 3:1, including small drainage swales, the Contractor shall use erosion control devices to prevent erosion, as per ODOT specification Item No. 670 and ODOT Standard Drawing DM-4.2M, Jute and Excelsior Matting.

k. Dewatering flows are to be settled or filtered before discharge to stabilized sites, such as streams or storm sewers, not onto exposed soils, stream banks, or any other sites where the flows could cause erosion.

The cost for this work shall be included in the price bid for the applicable Environmental Compliance bid item.

**EROSION CONTROL PLAN**

The Contractor will be responsible for submitting an Erosion Control Plan prior to the initiation of any construction work. The plan shall be submitted within two (2) weeks following the Notice of Award of the Contract. Once approved, the plan shall be used by
the Contractor throughout the project. Deviations from the approved plan will need to be submitted to MSD three (3) weeks prior to the change for MSD's consideration.

The Contractor shall be responsible to check the mitigative measures installed on a weekly basis and correct any deficiencies found or identified by the inspector throughout the entire project.

The plan shall be used to address the environmental concerns shown on the Contract Drawings and the Mitigative Measures of these Detailed Provisions. The Erosion Control Plan shall include sound creek crossing techniques, location of access/haul roads, location of staging and stock pile sites, as well as type and location of erosion control devices. The plan shall specify a person responsible for overseeing the implementation of the items listed in the Plan.

The following shall be used as a guide to develop the Erosion Control Plan:

a. Stream Crossing Work--detail method of construction and stream flow diversion (i.e., coffer dams, by-pass pumping, etc.); specify stream bank and vegetation protection; excavated material and bedding material stockpile location.

b. Access/Haul Roads--identify ingress and egress points along sewer alignment; location of haul roads within construction easement along riparian areas; method of haul road creek crossing (culvert, temporary bridge, etc.); proposed access points on private property.

c. Staging/Stockpile Sites--identify location of potential site.

d. Erosion Control Devices--identify type of erosion control device (silt fence, stream bates, rock check dams, etc.); show location of devices (stream crossings, sloping areas, etc.); timing and method of permanent stabilization and re-vegetation.

The cost for this work shall be included in the price bid for the applicable Environmental Compliance bid items.

201 (Ref. No. 1) CLEARING AND GRUBBING

Clearing and grubbing shall be performed in accordance with ODOT Item 201 and the City of Cincinnati Supplement to the State of Ohio (ODOT) Construction and Material Specifications, Item 201, except as otherwise noted herein.

Payment for all labor, materials and equipment necessary to complete the work shall be at the lump sum price for Item No. 201.
202 (Ref. No. 2) SEAL AND ABANDON EXISTING SEWERS

Sewers that are to be abandoned shall be plugged or sealed where they join manholes, catch basins, or inlets. All existing sewers encountered in construction operations that are inactive, or are to be abandoned as determined by the Engineer, shall be plugged or sealed at both ends where broken into, before proceeding with backfilling.

Where plugging or sealing is required, pipe 12-inches or less in diameter shall be sealed by the installation of a suitable precast concrete or vitrified clay stopper, properly cemented into place. Pipe or masonry sewers larger than 12-inches in diameter shall be sealed at the required locations by the construction of a masonry bulkhead of brick, stone, or concrete having a thickness of one-half of the sewer diameter, except that the minimum thickness shall be 12-inches and the maximum thickness shall be 24-inches.

202 (Ref. No. 3) FILL, SEAL AND ABANDON EXISTING SEWERS

This item shall be constructed as shown on the plans and as directed by the Engineer. Fill, seal and abandon existing sewers larger than 12” in accordance with the method described in section 202.041 of the Cincinnati Supplement to the State of Ohio, Department of Transportation, Construction and Material Specification. The material used for filling the existing sewers shall be Controlled Density Fill, when the sewer is located within the improved right-of-way or in pavement areas.

This item will be used in other areas only when directed by the Engineer. Payment will be based on the unit price bid per cubic yard.

202 (Ref. No. 4) MANHOLES ABANDONED

Manholes shall be abandoned in accordance with Item 202.12 of the State of Ohio (ODOT) Construction and Material Specifications. All castings shall be disposed of at the Contractor’s expense. This item shall include all sanitary manholes to be abandoned as shown on the plans or as directed by the Engineer. The material used for filling the existing manholes shall be Controlled Density Fill, when the manhole is located within the improved right-of-way or in pavement areas.

202 (Ref. No. 5) REMOVAL OF STRUCTURES AND OBSTRUCTIONS

This is a contingency item.

The work shall be in accordance with Item 202 of the State of Ohio (ODOT) Construction and Material Specifications.
The Contractor shall remove portions of existing reinforced concrete foundations and retaining wall in conflict with the proposed sewer and concrete encasement only as directed and approved by the Engineer. Payment for this work shall be made at the unit price bid for Item 202 - Removal of Structures and Obstructions and no additional payment will be made therefore.

202 (Ref. No. 6) REMOVE AND SALVAGE EXISTING POLK RUN PUMP STATION

GENERAL

Work under this Item consists of removing the existing Lift Station to the limits shown on the plans and salvaging the existing Lift Station equipment, including but not limited to:

- Control Area – VFD’s (2), Transformers (2), Muffin Monster Control Units and Telemetering Items
- Drywell Area – Check Valves (2), Gate Valves (4), Sump Pumps (One large & one small)
- Wet Well Area – Muffin Monsters (2), Level Sensors (All)
- Outside – Generator, Fuel tank, 3 Godwin Portable pumps (Belong to East Section), 18” HDPE Header Pipe, Manifold and Valves

The Contractor shall furnish all labor, tools, materials and equipment for the removal, disposal and salvage of the existing Lift Station and Lift Station equipment as detailed on the plans and specifies herein.

A demolition schedule shall be prepared by the Contractor and submitted to the Engineer. The schedule shall include the proposed methods and sequence of operations and include coordination for shut-off, capping and continuation of utility services as required, together with details for dust and noise control protection.

In lieu of totally removing the entire concrete structures, the Contractor may cut and remove the top sections to a point two (2) feet below the finished grade. The bases shall be punctured sufficiently with 3 to 4 inch diameter holes to provide adequate drainage prior to abandonment. Inspection by MSD will determine the location and amount of holes needed in each tank. Concrete pavement shall be broken-up and removed.

As soon as demolition work has been otherwise completed and approved by the Engineer, filling shall be performed. Backfill shall be of compacted granular material (No. 304 aggregate) or Engineer approved equal. Final grading of the site shall meet with the existing surrounding grade and graded to drain naturally towards the existing swale. The site shall be restored by placement of a 6 inch thick layer of topsoil, seeded
and mulched in accordance with ODOT Item 659. All fill and abandonment activities shall be in accordance with Section 202 of the State of Ohio Specifications.

Before decommissioning the existing Lift Station, the Contractor shall contact the Pump Station Elimination Group at 557-5947, Polk Run WWTP Superintendent at (513) 683-1857 and/or the Project Manager at (513) 557-5908 to verify stated salvage items.

Identified items shall be removed and delivered to the Polk Run Treatment Plant, 9744 East Kemper Road, by the Contractor at the Contractor’s expense. All other items to be removed shall be disposed of by the Contractor at the Contractor’s expense.

The Contractor shall modify the existing Valve Vault piping as shown on the Drawings to allow maintenance of the existing force main between the Polk Run and the Sycamore Creek Wastewater Treatment Plants. The cost for this work shall be included herein.

The existing force main between the pump station and valve vault shall be filled sealed and abandoned. The cost for this work shall be included herein.

The lift station shall remain in operation until the proposed 42 inch diameter Sanitary Sewer is complete, tested and approved to receive sanitary flow.

NOTE: Entrance into the wet well and other portions of the Lift station shall be considered a confined space entry and shall be treated as such according to OSHA’s Regulation 29CFR-1910.14-6.

WET WELL CLEANING

The existing wet well shall be cleaned of all debris, with all grit and organic solids removed and hauled to the Polk Run Treatment Plant for disposal. After cleaning, the pump station shall be completely dewatered. All costs for hauling and disposal shall be included under this Item.
OPERATION OF PUMP STATION

It is required as part of the Contract that the Contractor shall perform all work in a manner so that MSD can keep the existing Lift Station in continuous dependable operation.

Temporary pumping at the Lift Station site may be required during construction in order to avoid raw sewage bypasses.

The Contractor shall furnish and operate any temporary pumping equipment required to maintain the wastewater flow around the construction operations so the pumping will not be out of service.

The Contractor shall have an employee on call 24 hours per day if an electrical pump system is used for raw sewage pumping to assure that no bypasses will occur due to plugging or circuit failure. If an engine powered pump system is utilized, an employee must be in attendance 24 hours a day.

The Contractor shall keep the Engineer informed of any work which will interfere with the operation of the Lift Station. Any necessary shut-down of the facility shall be scheduled in advance with the Engineer. All shut-down periods shall be scheduled so that the capacity requirements of the facility can be maintained. The Engineer shall have the authority to order work stopped or prohibited which would, in the Engineer’s opinion, unreasonably result in stopping the necessary functions of the operations.

Whenever it is necessary during the period of construction to shut-down the facility, the Contractor shall be required to make every effort to minimize the time any unit is out of service. When all equipment, labor and materials are ready that are necessary to begin and complete the work required during the shut-down time, the shut-down period may commence. The Contractor shall give the Polk Run Treatment Plant, a minimum of 24 hours notice when the work requires shut-down of the facility.

MSD reserves the right to determine the exact time of shut-down and may determine that the work will have to be performed on a Sunday, holiday or at night, at no additional cost to MSD.

The operation of all equipment and valves owned by MSD shall be performed by MSD.

PAYMENT

Payment for this Item will be made on a Lump Sum Basis for all labor, materials, and equipment necessary to remove the existing Lift Station and Lift Station equipment; for either salvage or disposal of the existing Lift Station equipment; cleaning, dewatering and disposal of solids from the wet well; operation of the Lift Station; and for any temporary pumping around the construction site.
210 (Ref. No. 7) SPECIAL EXCAVATION

This is a contingency item.

This item will be used only when directed by the Engineer.

211 (Ref. No. 8) SPECIAL FILL MATERIAL (BANK RUN GRAVEL)

This is a contingency item.

Only special fill material not included in other pay items shall be measured for payment.

211 (Ref. No. 9) SPECIAL FILL MATERIAL (No. 3 GRAVEL BEDDING)

This is a contingency item.

Contractor to furnish No. 3 Gravel Bedding meeting the requirements of Item 703 of the State of Ohio (ODOT) Construction and Material Specifications, only as directed by the Engineer, when this particular type of material is required in the work.

602 (Ref. No. 10) CONCRETE MASONRY, CLASS "C"

This is a contingency item.

Only special Class "C" Concrete Masonry not included in other pay items shall be measured for payment, as directed by the Engineer.

602 (Ref. No. 11) CONCRETE MASONRY, CLASS “C” (ENCASEMENT, CRADLES, KEY BLOCKS AND COLLARS)

This is a contingency item.

Only special Class “C” concrete masonry used for encasement, cradles, key blocks and collars, in addition to those items called for in the plans, shall be measured for payment, as directed by the Engineer.

603 (Ref. Nos. 12 through 17) CONDUITS AND STUBS

All backfill operations required under these items shall be in accordance with the City of Cincinnati Supplement to the State of Ohio (ODOT) Construction and Material Specifications, as shown on MSD Standard Drawing Acc. No. 49032, except as
otherwise noted herein. All requirements of these items shall be strictly adhered to by the Contractor and enforced by the Department of Sewers.

The price bid for these items shall be complete, and shall include all necessary site preparation; excavation; embankment; dewatering; maintaining existing sanitary flow; sheeting; preparation of trench bottom; granular bedding and initial backfill; pipe; joint material; backfill; testing; disposal of waste material; dust, odor and noise control; traffic control; lights, signs and barricades; cleaning up; saw cutting; and concrete encasement.

Stub lengths shall be included and paid per foot of conduit specified.

Partial payments for these items shall be paid by the Metropolitan Sewer District in accordance with the following schedule:

Eighty percent (80%) of the unit price bid for Jacking and Boring shall be paid for pipe installed as per plans.

Seventy percent (70%) of the unit price bid for Type “C” and Type “G” Conduit shall be paid for pipe installed, including initial backfill.

Sixty percent (60%) of the unit price bid for Type “B” Conduit shall be paid for pipe installed, including initial backfill.

An additional ten percent (10%) of the unit price bid for Jacking and Boring, Type “B”, Type “C”, and Type “G” Conduit shall be paid when the pipe passes the leakage test, and also the 30 day deflection test when PVC pipe is installed.

The remaining portion of the unit price bid shall be paid when video taping of the installed sewers and final restoration has been completed. Final restoration is defined as when seeding/mulching is in place in unpaved areas, and when pavement/roadway work is complete in paved areas.

Whenever the proposed sewer is located at approximately the same alignment as the existing sewer and it is necessary to remove the existing sewer in order to construct the proposed sewer, the cost for removing the existing sewer, including the cost for disposing and transporting of materials or any additional excavation, restoration, or labor required, shall be included in the price bid for the various 603 items.

It shall be the responsibility of the Contractor to uncover the existing sewer as the first order of work in order to determine the elevation and alignment of the existing conduit. The Engineer shall determine if adjustments are required.

If **PVC (S.D.R. 35) Pipe** is used under these items, all operations shall be in accordance with Items 603.016 and 707.41 of the City of Cincinnati Supplement to the State of Ohio, Department of Transportation, Construction and Material Specifications, latest edition.
PVC sewer pipe and fittings, ASTM D-3034 latest edition, shall have ASTM D-3212 joints (flexible elastomeric seals).

**Ductile Iron Pipe (D.I.P.),** shall be seal-coated cement mortar lined with push-on joints and shall conform to ANSI/AWWA C-151/A21.51 Specifications. Joints for ductile iron pipe and fittings shall be push-on bell and spigot rubber gasket type and shall conform to ANSI/AWWA C-111/A21.11 Specifications.

“**Vylon**” PVC Pipe, as manufactured by Lamson Co., shall meet the performance requirements of ASTM F1803 “Standard Specification for Poly (Vinyl Chloride) (PVC) Closed Profile Gravity Pipe and Fittings Based on Controlled Inside Diameter”. Flexible elastomeric seals meeting the requirements of ASTM D-3212 shall be used with “Vylon” PVC Pipe.


**Prestressed Concrete Cylinder Pipe (PCCP)** shall conform to AWWA C-301 and be designed in accordance with AWWA C-304. Joints for pipe and fittings shall be of steel ring, bell and spigot rubber gasket type and shall conform to AWWA C-301.


A five year warranty against defects in workmanship shall be required from the manufacturer prior to final approval for use of “Flowtite” Fiberglass Reinforced Mortar Pipe.

The price bid for these items shall be complete, including restoration.

**603 (Ref. No. 15) 42” CONDUIT, DUCTILE IRON PIPE WITH PUSH-ON JOINTS - JACKING AND BORING**

This item shall be constructed in accordance with the applicable sections of Item 603 of the City of Cincinnati Supplement to the State of Ohio Construction and Material Specifications and according to the notes and details shown on the Contract Drawings.

The bore shall be reasonably close to the proposed grade (no pockets, will be permitted) and large enough to accommodate not only the pipe, but also some means of introducing
the backfill. The annular space between the outside of the pipe and the bore shall be completely filled with a lean (1 to 8) mixture of cement and sand or cement, sand and pea gravel rammed or blown into place dry.

Some positive means to insure that the space is completely filled shall be employed.

The length of conduit to be paid shall be the actual number of linear feet measured from one end of the bored casing to the other end of the bored casing. The maximum footage that will be paid under this item will be that shown on the plans, unless otherwise directed by the Engineer.

The accepted quantity of conduit, jacked and bored, for the size and type specified will be paid for at the contract unit price bid per linear foot complete and in place and shall include all pipe, labor, materials, and incidentals necessary to construct the conduit as described in the Specifications.

Ductile iron pipe, Pressure Class as shown on the Contract Drawings, shall be installed within the limits of the Jack and Bore as shown on the plans. Ductile iron pipe and joints shall conform to AWWA Specification C-151 and C-111.

The Contractor shall notify the Roadmaster for CSX Transportation a minimum of 14 days prior to beginning construction.

The Contractor will pay for all associated costs for inspection, flagging, etc. as necessary, when required by the regulations of the railroad company, or, as required as a condition of their permit.

Jacking Pits
Jacking pits will not be paid for as a separate pay item. All associated costs for Jacking pits shall be included in the price bid for “Jack & Bore” of the size specified. The location and dimensions of the Jacking pits, as determined by the Contractor, shall be approved by the Engineer prior to any excavation operations.

Payment

Payment for this item shall be at the unit price bid per linear foot for Item 603, “Jack & Bore” of the size specified which shall include the cost of all pipe, labor, equipment, tools, supervision, and materials necessary to construct this item.

603.019 (Ref. No. 12, 13 AND 17) DEFLECTION TEST

A deflection test will be required on all main line fiberglass or PVC sewers as specified in the City of Cincinnati Supplement to the State of Ohio, Department of Transportation, Construction and Material Specifications. Maximum limit for vertical deflection shall be 5% of the pipe inside diameter. Deflection tests shall be conducted 30 days after
placing backfill. Contractor shall repair or replace sewers failing the deflection tests at no cost to MSD.

603 (Ref. No. 12 through 17) CONDUIT LEAKAGE TEST

All mainline conduits shall be subjected to a leakage check either by an infiltration or exfiltration test with water or by an air test. Water infiltration or exfiltration tests will only be allowed for conduits larger than thirty-six (36) inches in diameter. The infiltration test allowance, for conduits larger than thirty-six (36) inches in diameter, shall be 0.079 gallons per inch of the internal pipe diameter per 100 feet of conduit per hour. The exfiltration test allowance shall be the same as for infiltration except that an additional allowance of ten (10) percent shall be permitted over the basic allowance for each two (2) feet of head over a basic two (2) foot minimum.

All mainline conduits thirty-six (36) inches and smaller shall be subjected to an air test. This test shall be performed in accordance with the latest ASTM or UNI-BELL PVC Pipe Association requirements for each unique pipe material in effect at the time that bids are submitted.

The Contractor shall perform the leakage test at the Contractor’s expense, including the furnishing of all labor, materials, and appurtenances necessary for the performance of the leakage test. The cost of the leakage test shall be included in the price bid for the appropriate 603 items.

Flow will be permitted through the newly constructed sewer, prior to testing requirements being met, on an as needed basis, as directed by the Engineer.

603.05 (Ref. Nos. 12 through 17) EXCAVATION

For cuts deeper that four feet below the surface, the Contractor shall supply, details of bracing to be installed to protect the excavation. In those instances where cuts will be deeper than eight feet, the Contractor shall submit calculations prepared and sealed by a Professional Engineer registered to practice in the State of Ohio and experienced in designs of this type. Calculations and/or details shall be submitted 14 calendar days prior to the preconstruction meeting and are subject to County Engineer acceptance.

603.10 (Ref. Nos. 12 through 17) BACKFILLING

Controlled Density Fill, per City of Cincinnati Supplement to the State of Ohio (ODOT) Construction and Material specifications, Section 703.20 above the "initial backfill" shall be required for Type "B" conduit and in the following locations:

A. Where the trench parallels a road or street pavement and any part of the
trench is within three feet of the edge of the pavement, control density fill shall be used and shall extend to the pavement subgrade for the entire width of the trench.

B. Where the trench crosses a road or street pavement, control density fill shall be used and shall extend three feet on each side of the pavement at pavement subgrade (and shall extend beyond that point to the top of the initial backfill over the pipe at the angle of repose for bank run gravel).

Costs for backfilling, meeting the requirements of paragraphs “A” and “B” above, shall be included in the price bid for all Types of conduit specified on the contract plans.

Compacted bank run gravel backfill above the “initial backfill” shall be required for all conduits and trenches under sidewalks, driveway and parking lot pavements, when not within three feet of a road or street pavement and not within the right of way. If within two feet of the road or street pavement or within the right of way, Controlled Density Fill above the “initial backfill” shall be required for all conduits and trenches under sidewalks, driveway and parking lot pavements.

Controlled Density Fill shall meet or exceed the requirements as defined in the latest edition of the “Rules and Regulations of the Office of the County Engineer Governing Driveway Regulations and Pavement and/or Right-of-Way Opening Provisions for the Unincorporated Area of Hamilton County”, including addendums and attachments thereto.

JETTING

In lieu of compacting the bank run gravel backfill in 4” lifts, the bank run gravel backfill may be compacted by thoroughly jetting with water, provided satisfactory drainage and removal of the free water is provided.

The Bank Run Gravel backfill shall be finally consolidated by thoroughly jetting with water. For jetting, a hose not smaller than 1-1/2 inch diameter and a nozzle not smaller than 1 inch diameter and not shorter than 2/3 the depth of the trench carrying a water pressure of 40 pounds per square inch (psi) shall be inserted in a uniform pattern, at five feet maximum spacing, to obtain maximum consolidation. After the final jetting of the trench, the backfill shall be left to settle and to permit drainage of impounded water. Typical jetting procedures shall include a water removal system at intervals not to exceed 500 lineal feet of trench. Water removal shall not begin until the water surfaces above the backfill. After jetting is complete, the area around the jetting hole shall be filled and compacted by the use of the bucket on the equipment used for excavating. Settled trench surfaces shall then be brought to grade by filling with Bank Run Gravel backfill and compacted to a density equal to that of the adjacent ground.

Water shall be removed by installing an opening in the manhole or installing a vertical eight inch perforated pipe with filter paper adjacent to the manhole. If the vertical pipe
method is used, the vertical pipe shall be filled with #57 stone after all water is removed by pumping. All manhole openings shall be plugged and sealed after jetting and water removal operations are completed.

SPECIAL BACKFILLING REQUIREMENTS

Backfill material for Type "C" and Type “G” Conduit shall consist of suitable soil or granular material and shall be free from rubbish, muck, or other unsuitable materials.

Stones and shale exceeding one-half (1/2) cubic feet in volume shall not be used in the backfill, and stones and shale that are used shall be separated by at least six (6) inches of earth.

The backfill for Type “C” Conduit shall be finally consolidated by mechanical compaction or by thoroughly jetting with water as specified above. If the backfill is finally consolidated by jetting, the Contractor shall assume all responsibility and associated costs for any ground or hillside movement and/or instability related to the jetting compaction procedures.

The Contractor shall include the cost for the necessary backfill and compaction with the various 603 items. No additional payment shall be made for the use of Controlled Density Backfill when required by the jurisdictional agency or due to unsupported trenches, over excavating, or the inability to properly compact the backfill in the excavated trench.

603.059 (Ref. No. 18) VIDEO TAPING OF INSTALLED SEWERS

Contractor to furnish videotaping of installed sewers meeting the requirements of Item 603.059 of the City Supplement to the State of Ohio (ODOT) Construction and Material Specifications and according to the following current requirements:

Current PACP certification of all CCTV operators will be required for all CCTV work.

Database shall be an unmodified NASSCO-PACP Certified Access Database.

CCTV Software shall be NASSCO-PACP certified.

Initial Survey Television Inspection

The Contractor shall televise the sewer and shall inspect the upstream and downstream manholes of each sewer segment televised and document all observations.

Sewer sections and manholes shall be inspected by means of remote CCTV. If a blockage cannot be removed and hampers the videotaping of the sewer in one direction,
then the Contractor shall attempt to complete the section by televising from the other manhole to complete the section. This reversal must immediately follow the initial direction on the same survey and report. The Contractor must immediately report the obstruction to the Engineer.

The recorded video must show the entire circumference of the sewer. Any flow control to remove standing water and debris shall be incidental to this item. The Contractor must also consider weather conditions to obtain the best video image of the sewer. This may require the Contractor to delay any video work until after major rain events to allow the system to return to lower dry weather flow.

Perform all CCTV inspections in accordance with NASSCO’s Pipeline Assessment Certification Program (PACP). CCTV inspections will be conducted entirely in digital format. The entire inspection survey shall be recorded in MPEG-1 format written to DVD and submitted with digital links to the survey. All cleaning and television inspection reports shall be with-in +/- 2 (two) feet of the measured linear footage between manholes along the existing sewer centerline from the center of the manhole.

The documentation of the work shall consist of PACP CCTV Reports, Unmodified PACP database, logs, electronic reports, etc. noting important features encountered during the inspection. The speed of travel shall be slow enough to inspect each pipe joint, tee connection, structural deterioration, infiltration and inflow sources, and deposits, but should not, at any time, be faster than 30 feet per minute. The camera must be centered in the pipe to provide accurate distance measurements to provide exact locations of important features in the sewer and these footage measurements shall be displayed and documented on the video. The completed DVD will become the property of the MSD.

Every section of sewer (manhole to manhole) shall be identified by audio and alphanumeric on the video display and shall include: project name, municipality, street name, CAGIS manhole numbers (Contractor shall request the eight digit manhole numbers assigned by MSD), inspector’s name, sewer diameter and length, and date of inspection. Important features shall be identified by audio and on PACP log to include all manholes, active and inactive service connections, structural defects, maintenance problems, grease, roots, infiltration, obvious inflow sources, etc. All video must be continuously metered from manhole to manhole. In addition to televising the sewer, all manholes shall be panned with the video camera and visually inspected.

If the Contractor does not submit the specified information, or if it is not in the required format, or if CAGIS manhole numbers are not included, payment for videotaping of final sewers and for sewer pipe installed will not be made until the video information is corrected.

604 (Ref. No. 19) INSIDE DROP CONNECTION FOR EXISTING MANHOLE

This item shall be constructed in accordance with Standard Drawing Acc. No. 49061 and
as directed by the Engineer. The cost of removing existing piping crossing through the manhole shall be included under this item and no additional payment will be made therefore.

604 (Ref. No. 20) MODIFIED TYPE “S” MANHOLES

This item shall be constructed in accordance with Standard Drawing Acc. No. 49049, Type “A”, except as otherwise noted on the plans and in the specifications.

If PVC pipe is installed, the pre-cast manhole base shall be used in accordance with Standard Drawing No. 49056.

604 (Ref No. 21) STANDARD TYPE “S” DROP MANHOLES

This item shall be constructed in accordance with Standard Drawing Acc. Nos. 49003 and 49037, except as otherwise noted on the plans and in the specifications.

If PVC pipe is installed, the pre-cast concrete drop manhole base shall be used in accordance with Standard Drawing Acc. No. 49003-A.

604 (Ref. No. 22) STANDARD TYPE “S” MANHOLES

This item shall be constructed in accordance with Standard Drawing Acc. No. 49037, except as otherwise noted on the plans and in the specifications.

If PVC pipe is installed, the pre-cast manhole base shall be used in accordance with Standard Drawing Acc. No. 49056.

604 (Ref. Nos. 20 through 22) MANHOLES AND CASTINGS

The Contractor shall furnish all castings for this project, including manhole frames and covers. All manhole frames and covers shall be in accordance with Standard Drawing Acc. No. 49005.

The Contractor shall securely fasten the frame to the concrete portion of the manhole by means of four (4) ¾ inch stainless steel cinch anchors with five-inch long bolts.

If PVC pipe is installed, the precast manhole base shall be used in accordance with Standard Drawing Acc. No. 49056.

All costs for dewatering, as necessary, shall be included in the price bid for these items.
The cost for castings, cinch anchors, bolts and anchor holes, and all work incidental to their placement shall be included in the price bid for these items.

The Contractor shall include the cost to connect the pipe or pipes to the proposed manholes, including the cost of any pipe, materials, labor, excavation and restoration required, in the price bid for these items.

The contractor shall furnish watertight manholes as shown on MSD Standard Drawing Acc. No. 49051 where shown on the plans.

Butyl mastic seals shall be used at all manhole joints and at the concrete adjusting rings as shown on MSD Standard Drawing Acc. Nos. 49003, 49037 and 49049.

Whenever it is necessary to remove an existing manhole and/or pipe in order to construct a new manhole, the cost for removing the existing manhole and/or pipe, including the cost for disposing and transporting of materials or any additional excavation, restoration, or labor required, shall be included in the price bid for these items.

Deflections through manholes shall be made using a minimum centerline turning radius equal to 1.5 times the pipe diameter. Manhole riser sections shall be centered on the midpoint of the turning radius.

604 (Ref. Nos. 20 through 22) MANHOLE VACUUM TEST

The Contractor shall test all proposed manholes for leakage by means of vacuum testing. The vacuum testing shall not be performed until after the manholes are set to final grade and the manhole castings are bolted down. All lift holes shall be plugged. Any other openings, such as pressure relief valves, shall be temporarily plugged to allow the vacuum tests. All pipes entering the manhole shall be plugged and care shall be taken to securely brace the plugs from being drawn into the manhole. The vacuum equipment test head shall be placed in the opening of the casting only and the seal inflated in accordance with the manufacturer’s recommendations.

Vacuum testing shall be in accordance with ASTM C1244. A vacuum of ten inches of mercury (10” Hg) shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to nine inches of mercury (9” Hg). The manhole shall pass if the time meets or exceeds the allowable times as calculated from ASTM C1244, or as approved by the Engineer. All manhole repair and testing required because of the failure to meet the testing requirements shall be at the Contractor’s cost. The cost of the manhole vacuum leakage test shall be included in the price bid for the various 604 items.

604 (Ref. No. 23) REMODEL BOTTOM OF EXISTING MANHOLE

This item shall be constructed in accordance with Standard Drawing Acc. No. 49004 and
as directed by the Engineer.

SPECIAL (Ref. No. 24) ENVIRONMENTAL COMPLIANCE (MITIGATIVE MEASURES & EROSION CONTROL PLAN)

The cost for this item shall be complete, except for Silt Fencing and Creek Crossing Restoration, as stated in the “Mitigative Measures” and “Erosion Control Plan” Sections of these detailed provisions. The Erosion Control Plan shall be submitted within two (2) weeks after the Notice of Award of Contract. Changes to this plan shall be submitted within three (3) weeks prior to any deviations, for MSD's consideration.

Partial Payment for this item will be paid by MSD at 85% of the lump sum unit price bid for this item in proportion to the total length of mainline conduit installed. The remaining 15% shall be paid after the final restoration is completed.

SPECIAL (Ref. No. 25) ENVIRONMENTAL COMPLIANCE (CREEK CROSSING RESTORATION)

The cost for this item shall be complete, including the cost for saw cutting existing rock layers, furnishing and placing concrete, rock channel protection, excavation, soil placement, and willow sprig plantings as per the Creek Crossing Detail as shown on the Construction drawings and as described in the “Mitigative Measures” Section of these detailed provisions.

Payment for this item will be at the price bid per linear foot of Creek Crossing, as per detail.

SPECIAL (Ref. No. 26) ENVIRONMENTAL COMPLIANCE (SILT FENCING)

The Contractor shall install Silt Fencing in the manner and location as indicated on the construction drawings. The cost for this work shall be complete, including removal after stabilization.

Partial Payment for this item will be paid by MSD at the following schedule:

Seventy-five percent (75%) of the unit price bid shall be paid for silt fencing installed, as per the plans and specifications.

The remaining portion of the unit price bid shall be paid when fencing is removed and final restoration of the area is completed.
SPECIAL (Ref. No. 27) PERFORMANCE BOND

The Contractor shall include the cost of the Performance Bond in the Proposal. The cost entered in the Proposal should not exceed one percent (1%) of the official bid price.

This item shall be included for payment on the first partial estimate.

In the event the cost entered in the Proposal exceeds one percent (1%), the cost over one percent (1%) will be paid with the final payment.

FINAL PAYMENT

Before final payment is made to the Contractor, the Contractor may be required to submit to the Engineer a release, in writing, from all the property owners whose property has been used by the Contractor outside the limits of construction and/or right-of-way.