

**EXHIBIT B
SCOPE OF SERVICES
PROJECT NAME (ACRONYM)**

WBS NO. **XX.Y.9999**

Month Year

<<**THIS IS A COLLECTION SYSTEM PROJECT SCOPE TEMPLATE**>>

<<*DISTRICT Project Manager (PM) shall delete and/or modify the draft scope template to meet the specific needs of the Project.*>>

<<*CONSULTANT: Review and revise the draft scope, including additional detail and clarification. Prior DISTRICT approval is required before deleting any task or activity. All changes must be made in revision mode ("track changes") to facilitate DISTRICT review.*>>

The Scope of Services set forth herein defines the work to be performed by the CONSULTANT in completing the Project. Both the DISTRICT and CONSULTANT have attempted to clearly define the work to be performed and address the needs of the Project

SERVICES TO BE PERFORMED

<<Depending on the needs of the Project, leave any of Tasks 1-5 intentionally blank and note as such. However, do not delete any of the tasks so that the standard numerical sequence can be retained.>>

Task 1. Pre-design

Task 2. Design

Task 3. Bid and Award

Task 4. Construction Administration/Resident Project Representation (CA/RPR)

Task 5. Closeout

Task 6. Allowances

Specific Allowance 1. <<<insert service name. If none, then delete>>>

Specific Allowance 2. <<<insert service name. If none, then delete>>>

Specific Allowance 3. <<<insert service name. If none, then delete>>>

Specific Allowance 4. <<<insert service name. If none, then delete>>>

General Allowance

The Scope of Services for the Project shall consist of the tasks as outlined above. For design projects, the CONSULTANT shall provide services necessary to develop and produce a complete detailed design package culminating in a bid package for the Project to be advertised for construction as per Ohio Revised Code (ORC) requirements.

The CONSULTANT shall communicate with the DISTRICT's personnel to refine Project needs and deliver the Scope of Services. The CONSULTANT shall carefully consider the input by the DISTRICT's staff; however, based on the CONSULTANT's own experience and ability, CONSULTANT shall be solely responsible for providing complete, quality deliverables in accordance with the requirements of the Scope of Services. Documents referenced within the Scope of Services are available on the Consultant and Contractor Resource Page on the DISTRICT's internet site (www.neorsd.org).

The CONSULTANT shall incorporate the use of the DISTRICT's SharePoint site electronic submissions and workflow processes for all Tasks of Work as directed by the DISTRICT. The CONSULTANT shall use the SharePoint site for, but not limited to, the following: electronic upload of documents for reference and/or file, invoicing, design schedules, budget transfers, construction submittals, Request for Information (RFIs), Contractor pay requests, construction changes, schedule reviews, etc. During the duration of the Contract the DISTRICT may modify and/or add workflow processes and SharePoint usage, and the CONSULTANT shall incorporate the modifications and additions into their work. Access to the SharePoint site and workflow processes and training shall be provided by the DISTRICT.

CONSULTANT is required to have access to computer hardware and software that is compatible with the DISTRICT's SharePoint system, capable of running automated process workflows, and supporting electronic signatures in Adobe Acrobat. Minimum system requirements include:

- Windows XP or Window 7
- Microsoft Internet Explorer 32-bit version 7 or 8
- Microsoft Office 2007 or 2010
- Latest version of Adobe Acrobat (at a minimum Reader, Standard or Professional for editing)
- Broadband internet connection
- Open access to <https://neorsdpmo.org>

CONSULTANT shall verify current system requirements at start of contract and may need to adjust requirements during the contract period to accommodate upgrades or changes to the DISTRICT's system. The DISTRICT's system is configured to work with any open internet connection however specific firewall or security settings limiting internet content on the CONSULTANT's system could impact performance. Often, adjustments to these settings or work around processes can be implemented to mitigate the issues.

Deliverable and Data Standards

All deliverables shall be submitted in both PDF and native file format. Submitted PDFs shall be created from the native file using the appropriate software. Scanned copies to create PDFs are not acceptable. In general, each deliverable shall be provided as one optimized PDF document less than 100 MB. The PDF document shall be indexed to match the table of contents or main sections of the document and provided as an unprotected or unsecured document. If the PDF document cannot be reduced to less than 100 MB, CONSULTANT shall develop an alternative submittal plan with the DISTRICT PM. Additional requirements are as follows:

- Reports, technical memoranda, or other narrative deliverables shall include all the native files to create tables, renderings, images and other exhibits. In general, document formats shall be in MS Office format or as approved by the DISTRICT PM.
- PDFs for specifications shall be organized by volume and indexed where applicable; native files shall be provided in MS Word format.
- Drawing submittals shall be provided in both PDF and native file formats; PDF submittal shall be at a 600 DPI resolution or greater and include entire project set where possible. If Adobe compressed file size exceeds 100 MB, submittal shall be divided into 100 MB files by discipline or as directed by the DISTRICT PM. Where individual drawings are required, drawings shall be indexed and named per the DISTRICT CAD standards.
- GIS submittals and data shall be captured and delivered to the DISTRICT in a format that is directly compatible with the DISTRICT's GIS database, ESRI ArcGIS 10.2 Software Suite. GIS data shall include the development of metadata consistent with the DISTRICT's metadata requirements and allow for efficient transmittal of GIS data to the DISTRICT.

All submittals shall be provided to the DISTRICT PM electronically on CD or DVD (or other media as approved by the DISTRICT PM). Media shall be labeled with NEORS, project name, and project number.

The CONSULTANT shall enhance the DISTRICT's flexibility to accomplish follow-up studies or design related efforts as well as other DISTRICT projects. Software utilized by the CONSULTANT in accomplishing the scope of services must support this expectation, and at the DISTRICT's request must be provided for its use. Use of proprietary software which cannot be turned over to the DISTRICT at the end of this project is not allowed.

Any deviations from the above standard shall be rejected and the deliverable shall be considered incomplete.

Project Objectives

<< Insert description of key design components. For guidance, refer to previous project scopes. Refer to language in RFP, previous scopes, including tables and info from any AFP reports, etc. Overall the intent here is to define the major components and goals of project.>>

Project Schedule

The CONSULTANT shall utilize the following schedule milestones in the preparation of the Project baseline schedule:

<< Adjust to accommodate Project>>

- Task 1 - Pre-Design – X months from Notice to Proceed (NTP)
- Task 2 - Detailed Design – X months from NTP
- Task 3 - Advertisement for Bids – X months from NTP
- Task 4 - Construction NTP – X months from CONSULTANT's NTP
- Task 4 - Construction Services – X months from CONSULTANT's NTP (Contingent on final Construction Contract)
- Task 5 - Close-out – X months from CONSULTANT's NTP (contingent on final Construction Contract schedule)

CONSULTANT shall adhere to the District approved baseline schedule; changes to the baseline schedule during the project require District review and approval. CONSULTANT shall follow the District's Schedule Guidance Document in the preparation of the baseline schedule and for regular schedule progress updates.

Project Management

Project management is a critical activity to be integrated with the execution of all Tasks. CONSULTANT shall utilize procedures related to cost estimating, scheduling, project documentation, risk management, QA/QC, and others as necessary to enhance budget, scope, and time management for the Project.

In order to ensure that this Project is successfully completed in a timely manner and to the satisfaction of the DISTRICT, project management items, include, but are not limited to, the following:

- Monthly Project Progress Summary: CONSULTANT shall comply with the DISTRICT's most current Schedule Guidance Document. Invoices for the period covered in the report will not be paid until the monthly progress update is delivered to and approved by the DISTRICT.
- Monthly Invoicing: CONSULTANT shall comply with the DISTRICT's most current invoice policies and invoice format.
- Project Meetings: <<modify/add for project specific requirements>>
 - The CONSULTANT's Project Manager shall meet, in person, with select DISTRICT personnel monthly to review the progress of this Project and to discuss any outstanding issues and potential problems. These meetings should include identification of work performed last period, work to be completed next period, critical action item status, and responsible parties to complete actions. Budget or schedule problems shall be identified and corrective actions noted.

- The CONSULTANT shall prepare and deliver an agenda, updated schedule, revised action items log, and revised risk register three (3) working days in advance of the meeting and shall prepare and deliver meeting minutes for review within three (3) working days of the meeting. CONSULTANT should anticipate a one half day meeting with one of the initial progress meetings to present and review the Risk Register during the Pre-design task and an additional similar half day meeting for the Risk Register at approximately the 30% Design after alternatives have been evaluated. After that time, Risk Register reviews should be anticipated as updates during the monthly progress meetings. All draft submittals for monthly progress meetings shall be in Word or Excel format, and all final submittals shall be in PDF and delivered to the DISTRICT PM.
- It is also expected that the CONSULTANT and the DISTRICT PM hold telephone discussions as frequently as needed.
- The CONSULTANT shall make personnel available for meetings with other agencies and utilities to answer questions pertaining to design elements of the Project. The DISTRICT is responsible for leading the organizing, planning and conducting of any meetings with other agencies and utilities.

TASK 1: PRE-DESIGN

<< Modify/Expand text below based on project information and project requirements.>>

Changes to any conceptual alignment and facility locations that emerge during Pre-Design are to be described in the Basis of Design report, along with the rationale for such recommendations.

The Pre-Design Task shall be carried out to cost-effectively develop and evaluate the preferred alignment(s) for the Project. In general, this work includes the following steps:

- <<include a general summary of steps to be undertaken during Task 1, ending with the submittal of the Basis of Design report>>

All Task 1 deliverables shall be submitted as described above and in the following formats and quantities unless otherwise noted:

<<Modify number of hard copies required based on project requirements. >>

- <<#>> hard copies (half size, if plans) bound and indexed appropriately
- CD, DVD, or other media as approved by the DISTRICT PM, containing the native electronic format and indexed PDF electronic copies generated from the native document (not scanned) of all submittal documents

Task 1A: Project Management Plan

Within <<#>> days of the Notice-to-Proceed the CONSULTANT shall provide a detailed Project Management Plan that includes critical processes and management activities that ensure compliance with the Project design, schedule, risk, and budget requirements. The Project Management Plan shall include the following items:

- *Team integration* – Team integration shall discuss the project management team responsibilities, assignment of activities, and integration of the design team to meet project objectives and program standards.
- *Budget and schedule management and progress reporting* – Budget and schedule management and progress reporting shall be managed per the cost loaded project schedule. Schedule shall be developed and managed per the DISTRICT’s Schedule Guidance Document available on the DISTRICT’s web site.
- *QA/QC* – QA/QC shall include the description of the Project Quality Management (Quality Assurance and Quality Control) Program and how this program is implemented on the Project to comply with the DISTRICT’s technical review process. The CONSULTANT shall utilize the DISTRICT’S QA/QC template to capture and track comments from the QA/QC Program as well as responses and the changes to the design that come as a result of the QA/QC process.

<<Delete TRB statement below for smaller projects upon DISTRICT Design Manager (DM) approval>>

- *Technical review board (TRB)* – CONSULTANT shall provide up to <<__ (#)>> nominations of Senior Engineers/Technical Discipline Leads from firms that are not affiliated with the Project to serve on the TRB. Once selected, the Senior Engineers/Technical Discipline Leads are to participate on the TRB and be paid under a Specific Allowance.
- *Business Opportunity Plan* – This plan shall include a description of the process for analyzing subcontracting work opportunities for small businesses, once design elements are sufficiently developed.
- *Cost estimates* – This section shall include design milestone cost estimating guidelines and identification of software systems and process to develop the estimates.
- *Risk management* - The CONSULTANT’s Risk Management Plan shall include consideration of significant Project related risks and mitigation measures to alleviate those risks. This should include the DISTRICT’s risk register requirements and method for developing and maintaining this register as a primary design support tool. The risk register template is available on the DISTRICT’s web site.
- *Project Data Collection and Management Plan* – This plan shall include appropriate QA/QC processes and procedures, referencing the DISTRICT’s Data and Deliverables Standards within this Scope and through requirements on the Consultant Contractor Resource page, and be revised as necessary throughout the PROJECT.

Task 1B: Basis of Design Report

The CONSULTANT shall prepare a Basis of Design Report for the Project that concisely summarizes the activities and critical design decisions necessary to support advancement of the Project into detailed design. The primary objective for the Basis of Design Report is to ensure common understanding between the CONSULTANT and DISTRICT

regarding the design for the Project. The report should include information on all Task 1 pre-design subtasks, as well as the following:

<< Delete, Add, and/or Modify items as applicable to this Project>>

- Project location map
- Project site map by annotating the map with the locations of proposed improvements
- Proposed design criteria and associated parameters for all disciplines
- Conceptual development of proposed alignments, including the recommendation of the preferred alternative/alignment
- Design calculations (included as electronic appendices)
- Easement and land acquisition issues
- High-level process flow diagram showing significant changes, improvements, equipment, pumps, valves, meters, etc.
- Conceptual design drawings showing the primary features of any sewer alignments and other facilities, as well as alternatives requested by the DISTRICT << *if pertinent to design* >>
- Hydraulic analysis/modeling approach and results
- Identification of utilities that may be impacted by improvements
- Discussion of site and civil issues impacted by improvements
- Identification of required permits, land acquisition, easements, and Phase 1 Environmental Site Assessments (ESAs), as well as any issues associated with these items
- Electrical and power issues
- Preliminary Instrumentation and Process Control Narratives << *if necessary/required* >>
- Fire Protection and Life Safety issues
- Security Issues (based on DISTRICT Security Design Standards)
- Operation and Maintenance costs
- Updated planning level construction cost estimate
- Updated project/construction schedule
- Life Cycle Cost Analysis
- Community/stakeholder issues
- Risk Register and risk identification

Task 1C: Evaluation of Existing Information

The CONSULTANT shall evaluate and consider the following existing information related to the Scope of Services for the Project. This information is provided through a designated ftp ShareFile site or available through the Consultant and Contractor and Resource Page.

<<Develop, modify, and add to list of specific items that are pertinent.>>

- Hydrologic and Hydraulic Modeling for Combined Sewer Systems Standards and Protocols
- Flow and Rainfall Monitoring for Engineering and Construction Projects Standards and Protocols
- DISTRICT GIS Dataset
- Aerial photographs and impervious area delineations prepared for the DISTRICT's stormwater billing database
- Flow Schematics and Summary of Flows
- Regulator Reports for Regulators Associated with Project Interceptors
- DISTRICT's CAD Guidelines
- DISTRICT's Safety and Security Standards
- Other Available information

The CONSULTANT's findings and recommendations shall be presented to the DISTRICT as part of the Basis of Design Report.

<<Choose either Construction Methods or Construction Technologies below as applicable to the project. If both are applicable, paragraph shall be combined .>>

Task 1D: Construction Methods (Construction Technologies)

CONSULTANT shall identify the appropriate construction method(s) for the Project, including open cut, tunneling, microtunneling, and other trenchless methods, that support the DISTRICT's construction period, as well as the long-term effectiveness, operation and maintenance, and resiliency of each recommended improvement.

CONSULTANT shall also review and validate (or revise) the anticipated construction duration, by evaluating the methods and technologies anticipated, as well as any seasonal construction restrictions.

<<If construction technologies are applicable, CONSULTANT shall identify unique construction technologies that may reduce risk, improve constructability, or shorten the schedule.>>

Task 1E: Surveying

<<Include survey needed for the project here. The DISTRICT's goal is to perform the complete survey one time, unless the Project requires otherwise. Revise the following as necessary to meet the specific Project needs and characteristics.>>

CONSULTANT shall perform Subsurface Utility surveying of Quality Level “X” <<enter D, C, B or A based on Project needs (discussion with DM)>>. Quality Levels are summarized as:

- Quality Level “D” Existing Records: Information is derived solely from existing records or verbal recollection.
- Quality Level “C” Surface Visibility Feature Survey: Information is obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to Quality Level D information.
- Quality Level “B” Designation: Information is obtained through the application of appropriate surface geophysical methods to identify the existence and approximate horizontal position of subsurface utilities. Information is surveyed to standard tolerances, correlated with existing records and surface features, and reduced onto plan documents.
- Quality Level “A” Locating: Information is obtained through precise horizontal and vertical location of utilities obtained by the actual exposure and subsequent measurement of subsurface utilities, at a specific point. Precise horizontal and vertical position and all significant utility attributes shall be included on final plan documents.

CONSULTANT shall also gather data necessary to properly map the existing contours and existing conditions of the site. Baseline survey information shall be tied to the state plane coordinate system, North American Datum 83 (NAD83), and North American Vertical Datum 88 (NAVD 88) datum shall be used for vertical datum with benchmark information provided by the DISTRICT (if available) upon authorization of the Project. Locate pertinent structures within the survey area. Structures to be surveyed shall include those that may be impacted by construction or be required for the project design.

CONSULTANT shall use the DISTRICT’s GIS red-lining tool to capture any field verified changes to the DISTRICT’s GIS information.

CONSULTANT shall survey to the extent described below:

- Locate critical elevations and establish a reference benchmark circuit for all construction.
- Baseline of Survey – Establish horizontal control points with permanent markers, including preparation of Baseline of Survey Control drawings.
- Bench Marks – Establish bench marks along the Baseline of Survey.
- Street Alignments – Establish the centerline of street and right-of-way lines; street centerline monuments shall be located and referenced.
- Collect topographic information at a sufficient density to generate 1-foot contours. CONSULTANT shall provide traverses that close to within 1:5000. CONSULTANT shall provide measurements and computations that are verifiable.

- Topographic Surveying and Base Mapping – Perform detailed topographic surveys and base mapping; aerial photogrammetric mapping and digital orthophotos shall also be included.
- Drainage – Storm and sanitary sewer manholes shall be opened where possible to obtain pipe invert elevations, sizes, and flow directions. CONSULTANT shall perform confined space entry in structures to obtain pipe or structure information not obtainable from the surface.
- Parcel Information/Property Surveys – Perform all record research and procure all information necessary to establish existing right-of-way, property, and existing easement lines. Perform surveys of property lines that are affected by proposed easements. Establish property lines for up to <<#>> permanent easements and up to <<#>> temporary easements. Other parcels adjoining the project area shall be mapped from County records (tax maps, GIS mapping, etc.). Parcels shall be researched to provide owner, address, and parcel ID numbers.
- Utilities – CONSULTANT shall contact the Ohio Utilities Protection Service and other agencies for existing plans and field markings of subsurface utilities. Subsurface utilities shall be shown from an ASCE Quality Level C subsurface utility investigation. Under a Level C investigation, CONSULTANT shall survey the location of visible utility facilities (manholes, valves, etc.) and field markings provided by OUPS and/or others. The locations shall be correlated with existing plans provided by OUPS, DISTRICT, and others. Known unresolved or missing utility information shall be summarized and provided on the survey or in a separate document. All utility contact information is to be maintained in a utility contact document that provides utility contact information, contact log, and status. Existing utility plans shall be scanned in a PDF file format and provided on CD, DVD, or other media, as approved by the DISTRICT PM.
- Perform spot survey checks to verify the accuracy of the topographic mapping.

Task 1F: Permits and Easements Coordination

<<Verify all cities and entities involved and/or those requiring permits>>

Identify permits required by public and private entities, including, but not limited to, the *City of Cleveland*, Army Corps of Engineers, Ohio EPA (Permit to Install, SWPPP, NOI, etc.), ODOT, railroads, and *Cuyahoga* County Soil and Water Conservation District permit applications. Where necessary and with the approval of the DISTRICT PM, the CONSULTANT shall contact the appropriate regulatory agency to seek clarification on the applicability of permit requirements.

If elements of work require temporary or permanent easements, the CONSULTANT shall identify and coordinate these easements with the DISTRICT. If required, the CONSULTANT shall prepare legal descriptions, sketches, calculations, and plats for up to <<#>> permanent and temporary easements, which may be needed during construction.

Preparation of these easement documents shall be included in Task 1. This includes surveying services, in the event that it becomes necessary, to field locate the proposed

infrastructure, appurtenances, easement limits, etc., and any time required for meetings with property owners.

CONSULTANT makes the following data collection and environmental survey assumptions:

- The proposed project is exempt from the State Environmental Policy Act (SEPA).
- No offsite wetland or stream mitigation is required.
- No Environmental Assessment, Environmental Impact Statement preparation services, or other National Environmental Policy Act (NEPA) documentation is required.
- The DISTRICT is responsible for all permitting fees.

<<Should any of these assumptions prove false, CONSULTANT shall develop an approach to address these additional project needs and requirements under the project allowance.>>

Task 1G: Geotechnical Investigation

<<Because geotechnical investigation can vary project by project or is not always necessary, modify this section to fits the needs of the specific project.>>

CONSULTANT shall provide geotechnical consulting to prepare preliminary and final geotechnical data report (GDR), which shall be issued with the construction bid documents along with the accompanying geotechnical baseline report (GBR) described below. CONSULTANT shall also prepare geotechnical design memoranda (GDM) for internal use by the design team, as described below. The CONSULTANT and geotechnical professionals shall mutually determine the parameters of a soil boring program for the project areas, including prescribing the necessary tests and evaluating the resulting data. The geotechnical professionals on the team shall designate the location for each boring, be present when it is being drilled, and classify all samples. The geotechnical team members shall prepare interpretive GDMs as necessary to address the criteria for the alternatives analysis and as necessary to support the design. Such reports may include, but are not limited to, evaluation of the subsurface materials discovered, conditions which a construction contractor could expect to encounter, appropriate construction techniques, support requirements, slope stability analysis, and impact of surface and subsurface conditions on cost and risk. GBR shall be in general accordance with the document entitled “Geotechnical Baseline Reports for Construction, Suggested Guidelines” published by the American Society of Civil Engineers. It is the geotechnical professional’s responsibility to assure the accuracy of the reports. All reports shall be signed by a professional engineer registered in the State of Ohio.

Under the supervision of the CONSULTANT, the geotechnical professionals shall coordinate the services to perform all soil borings, rock corings, and pavement corings, collect all soil and rock samples, install any necessary instrumentation, and provide all testing services required for the development of geotechnical reports as described below. It is the responsibility of the CONSULTANT to ensure all affected parties are notified, secure any needed permits prior to commencing work, fill all bore holes with grout upon

completion of boring work, and restore each site to a condition equal to or better than that which was originally encountered.

All boring locations must be photographed prior to commencing boring activities. Each photograph must be properly named per the DISTRICT's photograph naming standard; at a minimum this shall include the boring date and boring identification number.

Photographs shall be electronically submitted to the DISTRICT. Filled or final core boxes shall be photographed prior to removal from the boring site. Soil samples taken from the borings shall be properly stored and preserved to prevent or minimize moisture change until completion of all analysis. It will be the responsibility of the CONSULTANT to manage the physical storage at a non-DISTRICT facility and to retain all soil and rock samples collected until completion of all analysis or as needed by CONSULTANT, at which time the CONSULTANT shall manage the proper disposal of all samples.

<<Project Specific Boring Program should be modified as needed below; examples can be used from previous DISTRICT projects.>>

Task 1G.01: *Project Specific Boring Program*

A geotechnical program shall be developed for the Project and focus on obtaining data and information along <<location of data collections, i.e. roads>>. Hazardous gas levels shall be monitored while the drilling program is in progress.

<<PM/CONSULTANT to provide detail on specific geotechnical boring program>>

The geotechnical program shall obtain additional information to ascertain the geotechnical conditions along the project alignment. This includes characterizing and profiling of the bedrock conditions at proposed inverts.

Soil samples shall be preserved in air-tight 2-inch diameter, 5-inch tall jars. Rock core shall be stored in 2.5-foot long wooden rock core boxes that hold up to 10 feet of rock core. The rock core shall be photographed once placed in the box. At least one foot of each 5 feet of rock core shall be protected with plastic wrap and foil to minimize moisture loss of the core for future lab testing.

The following table lists the proposed borings for the Project:

<<Insert Table, List, and/or Description of work>>

Task 1G.02: *Geotechnical Deliverables* <<delete and/or modify as applicable>>

Two (2) deliverables are associated with the geotechnical program, a Geotechnical Data Report (GDR) and a Geotechnical Baseline Report (GBR).

The draft GDR will be submitted at the completion of the drilling phase and will include all data obtained from the borings, wells, and testing. Information from the GDR will be used to determine the final locations for any additional borings. A final version of the GDR shall be submitted after the completion of any well monitoring and any additional drilling required after the preliminary GDR was submitted. The GDR is to include all information regarding the borings, well installations, well monitoring, and testing

information from both the preliminary and final design phase. In its final form, the GDR shall become part of the Contract Documents.

An interpretive GBR shall be developed after all the geotechnical information has been acquired as part of Task 2. A near final draft of the GBR shall be submitted to the DISTRICT for review. In its final form, the GBR shall become part of the Contract Documents and will supersede the GDR in the event of underground disputes. If the GBR is silent on a particular geotechnical issue, the raw data in the GDR will be used during dispute resolution.

Task 1G.03: *Geotechnical Design Memoranda* <<delete if not applicable>>

Up to **two (2)** geotechnical design memoranda (GDM) shall be prepared near the end of the preliminary engineering phase or early design phase of the project. The GDM are not meant to be formal DISTRICT deliverables and are not issued to bidders; however, the GDM shall be provided to the DISTRICT upon request. Pertinent information from the GDM shall ultimately be included in the GDR and GBR, which supersedes the GDM.

Task 1H: Hydraulic Analysis/Modeling

<<The need for hydraulic analysis/process modeling is dependent on the type of Project and existing information used to develop the Project. Delete this if not needed for this Project. If needed, include description of processes, piping, channels, etc. to be analyzed/modified. Include procedures, software, etc. as necessary.>>

Hydraulic analysis/modeling supports the Pre-Design work, and continues to be applied during design, construction, and closeout to evaluate the effects of project refinements on hydraulic performance. CONSULTANT shall use the DISTRICT's *InfoWorks ICM* version of the <<*Easterly*>> Baseline Conditions and Consent Decree Models. CONSULTANT shall verify and recalibrate the model as required for design and performance assessment.

<<PM: The CONSULTANT is required to comply with the DISTRICT's Hydrologic and Hydraulic Modeling for Combined Sewer Systems Standards and Protocols when editing/modifying the model that shall be submitted back to the DISTRICT as a deliverable. A copy of the DISTRICT's Hydrologic and Hydraulic Modeling for Combined Sewer Systems is provided to the CONSULTANT. >>

The DISTRICT shall provide a master model and associated support files for use in developing a project-specific "child" version design model. All changes to the model in creating the project-specific design model must be clearly documented prior to submission to the DISTRICT. The project model shall be submitted at various stages of design and the final submission shall include final design configurations. In addition, any changes during construction must be documented as part of the project close-out deliverables, for purpose of future master model updates. All modeling effort for this project is included in the Project's base scope of services.

Model refinements shall be completed to a level of detail appropriate for flow reduction strategy and alignment/alternative strategy development. Model calibration/verification shall be completed in a manner that supports alternative development and evaluation. The calibrated/validated model shall be made available to confirm the effectiveness of the

preferred alternative and support the Basis of Design development. CONSULTANT shall perform the project specific hydraulic analysis/modeling subtasks detailed below.

<<PM: For Task 1.H and/or Applicable if a CSO project: With Advanced Facility Planning work underway, specific alignments, green infrastructure, or other specific improvements should be listed and discussed to meet Consent Decree requirements.>>

Task 1H.01: *Model Baseline Review and Validation/Calibration* <<edit as necessary>>

- (a) Flow Monitoring Plan (FMP) The CONSULTANT shall complete a FMP in accordance with the DISTRICT's Flow and Rainfall Monitoring for Engineering and Construction Projects Standards and Protocols (Flow Monitoring Standards) available on the DISTRICT's CCR Page. <<add detail as necessary based on project needs and Flow Monitoring Standards>>
- CONSULTANT shall develop a Flow Monitoring Work Plan (FMWP) to support model verification and recalibration. <<if necessary, describe plan>>.
 - The FMWP shall include a Flow Monitoring Location Plan (FMLP) to identify location within system.
 - CONSULTANT shall analyze flow meter and rainfall data during the Pre-Design Task.
 - DISTRICT will provide rain gauge data from their permanent rain gauge network to support the calibration of other rainfall data as part of the FMP.
 - CONSULTANT shall assist flow monitoring subconsultant in siting monitors and QC, analysis, and reporting for collected monitoring data in accordance with the DISTRICT's Flow Monitoring Standards.
 - CONSULTANT shall submit a Flow Monitoring Report in accordance with the DISTRICT's Flow Monitoring Standards. <<Coordinate with District PM as to level of documentation>>.

<<Include Preliminary Flow Monitoring Plan map and/or table in scope of services.>>

(b) Hydraulic Model Review and Updates

- CONSULTANT shall use available record drawings, supplemented by field data collection activities under the Surveying subtask, to refine the hydraulic elements of the project-specific baseline and consent decree models as necessary to represent existing conditions. Required changes will be documented and reported to the DISTRICT as required in the DISTRICT's Hydrologic and Hydraulic Modeling for Combined Sewer Systems Standards and Protocols.

(c) Model Verification/Recalibration

- CONSULTANT shall review collected flow monitoring data and perform dry and wet weather flow analysis to support verification of the model's performance. Meter versus model comparison plots will be developed to document model's performance using current hydrology parameters and determine need for model recalibration. The CONSULTANT shall submit a technical memorandum

summarizing recommended recalibration needs and proposed approach to the DISTRICT.

- For recalibration, CONSULTANT shall do the following:
 - Refine existing catchment boundaries where needed using a combination of improved local sewer system GIS mapping available from the DISTRICT, topographic mapping from LiDAR imagery available from the Ohio Geographic Reference Information Project (OGRIP), and limited records research and/or field reconnaissance where drainage/sewershed divides are uncertain.
 - Revise the impervious area within each drainage catchment using the impervious area polygons delineated for each parcel in the DISTRICT's stormwater billing file and adding representations of impervious area within roadway right-of-way. The fraction of directly connected impervious area (DCIA) for each sewer system will be estimated based on the ratio of directly connected to total impervious area in the current model (determined through calibration), and limited field reconnaissance surveys of property drainage patterns within representative neighborhoods.
 - DCIA and other hydrologic parameters (e.g., soil infiltration rates/volumes and overland flow path parameters) will be refined during the calibration process using the available flow monitoring records.
- CONSULTANT shall develop and submit a Model Verification TM/Calibration Report.

Task 1H.02: *Project Baseline Model Assessment* <<edit as necessary>>

(a) Existing Conditions Assessment with Recalibrated Hydrology Parameters

CONSULTANT shall use the updated project baseline model to determine existing level of service within the Project area under design storm and typical year conditions. Design events will include the **eight (8)** largest typical year storms as defined by the DISTRICT (to size CSO conveyance and capture infrastructure) and the 5-year, 6-hour-1 hr. interval design event (used to check the hydraulic capacity of DISTRICT's conveyance system). CONSULTANT shall develop and submit an Existing Conditions Assessment TM.

(b) Updated Baseline Conditions Assessment with Design Hydrology Parameters

CONSULTANT shall develop an updated baseline conditions model using the validated/recalibrated existing conditions. The updated baseline conditions model will include near-term future projects, documented sediment and hydraulic restriction in sewers removed, and design hydrology parameters.

CONSULTANT shall develop design hydrology parameters (i.e., future population estimates and/or build-out conditions) through coordination with the DISTRICT. CONSULTANT shall use the updated baseline conditions model to assess near-term future project performance and impacts on CSO control and surcharging level of service. CONSULTANT shall develop and submit an Updated Baseline Conditions Assessment TM.

(c) Consent Decree Conditions Assessment with Design Hydrology Parameters

CONSULTANT shall assess the Consent Decree Model based on the updated baseline conditions model and defined design hydrology parameters.

CONSULTANT shall update the Consent Decree Model, as necessary, to comply with the targeted level of CSO control per the Consent Decree and DISTRICT 5-year, 6-hour level of service guideline. CONSULTANT shall develop and submit a Consent Decree Model Assessment TM.

Baseline and Consent Decree Model assessment TMs may be combined into one report deliverable, as desired by the DISTRICT.

Task 1H.03: *Advanced Hydraulic Modeling and Evaluation* <<add detail and edit as necessary>>

<<Provide PROJECT services specific to advanced hydraulic modeling and evaluations such as; surge analysis, ventilation/odor control, CFD modeling/analysis, and physical model. Examples can be used from previous DISTRICT projects.>>

Task 1I: Develop and Evaluate Feasible Alternatives and Alignments

Task 1I.01: *Alternative Evaluation #1*

<<add summary of alternative to be evaluated>>

Task 1I.02: *Alternative Evaluation #2*

<<add summary of alternative to be evaluated>>

Task 1J: Hydraulic Modeling Sensitivity Analysis

Task 1J.01: *Structure Sensitivity Analysis*

Results from hydrologic and hydraulic computations are sensitive to the selection of parameters used in the calculations. Many of these parameters are not well known for the specific site conditions especially for non-standard or atypical structural configurations. For these non-standard structures, flow characteristics are significantly different than those predicted by the use of standard equations and coefficients. The CONSULTANT is required to provide a sensitivity analysis which covers the best estimate of these parameters, along with conservative parameter values which will span the greatest variance of potential parameter values. The results shall be analyzed and compared to identify the design features which are sensitive to the selected parameters. The CONSULTANT shall use the results to identify the appropriate risk versus cost of each design alternative. While not required for each structure, the CONSULTANT should be prepared to use Computational Fluid Dynamics (CFD) modeling applications to refine the selected design for major structures that have significant impact on the cost or operations of the facilities. In these cases, the CONSULTANT shall be prepared to include physical hydraulic modeling to select the final design alternative.

CONSULTANT has assumed that a CFD model will be required on two (2) structures.

Task 1J.02: *Level of Service Sensitivity Analysis*

In addition to the DISTRICT's hydraulic performance guideline (5-year, 6-hour, 1-hr intensity storm event), the CONSULTANT shall analyze the Project (excluding tunnels) for greater storm events (i.e. 5-year 6-hour 15-minute intensity and up to **two (2)** additional storms) to develop a correlation between design storm, hydraulic performance, and the size of the resulting infrastructure improvement(s). The CONSULTANT shall determine the existing system level of service before and after the improvements in the adjacent project area and confirm an increased level of service will not convey flooding issues downstream. The CONSULTANT shall conduct a cost-benefit analysis for the storm level of service vs. improvement(s) cost. The cost shall be a Class 5 estimate in accordance with the Association for the Advancement of Cost Engineering (AACE) International Recommended Practice 18R-97.

CONSULTANT shall develop and submit a Sensitivity Analysis TM.

Task 1K: Condition Assessment

<<PM: The need for condition assessment is dependent on the type of Project. Delete if not needed for this Project. If needed, include description of processes, equipment, facilities, etc. to be assessed. Include discussion with DISTRICT's SSMO department.>>

Task 1L: Construction Schedule Issues

To the extent possible, outline the critical path for major construction tasks.

The CONSULTANT shall identify project related issues that could potentially cause schedule delay, such as: equipment with long lead times, lengthy construction requirements, construction methods, equipment installation coordination issues, plant/utility required outages, etc.

Task 1M: Engineer's Estimate of Probable Construction Cost

In the Basis of Design include a Class 4 estimate in accordance with the Association for the Advancement of Cost Engineering (AACE) International Recommended Practice 18R-97. Cost Estimate shall also be submitted in accordance with the DISTRICT's design milestone cost estimating included in Task 2 - Design.

Task 1N: Coordination with Other Entities

CONSULTANT is responsible for taking into consideration past, present and future work of other public and private entities potentially affecting the Project, and coordinating as necessary to complete the work.

<<If necessary, under an allowance, the CONSULTANT may be requested by the DISTRICT to design specific utility relocations prior to bidding. CONSULTANT's design will include all necessary utility relocations to accommodate for minor vertical or horizontal conflicts along the proposed alignment. In cases where the utility relocation must be designed by the utility owner, payment to the utility owner will be made through a Specific Allowance, and the relocation design will be incorporated into the plans as part of CONSULTANT's base scope.>>

Task 1O: Constructability and Coordination Evaluations

The CONSULTANT shall evaluate approaches for construction of the Project while keeping existing necessary infrastructure operating during construction. After completing the constructability/coordination evaluation, CONSULTANT shall meet with the DISTRICT to discuss various delivery options and considerations including but not limited to a critical path project schedule, present value life cycle costs for proposed improvements, proposed temporary facilities (if any) and their cost and impacts, and operation and maintenance needs during construction.

Task 1P: Risk Analysis

CONSULTANT will perform continuous risk analysis for the Project, including alternatives identified by the DISTRICT. The risks and associated likelihood of occurrence as well as impact of occurrence will be summarized in a risk register template provided by the DISTRICT. The register will be reviewed at regular Project progress meetings.

Task 1Q: Environmental Site Assessment Coordination

<<Modify section according to Project needs; delete if not applicable. Check with Regulatory department to decide whether environmental assessments will be done under this contract or the regulatory GES contract and modify text as applicable>>

CONSULTANT shall review historic Sanborn maps, if available, and will use CAGIS, historic aerial maps, and other property data to support alternatives under Task 1.

CONSULTANT will evaluate up to ___ (#) Phase I Environmental Site Assessments (as per relevant ASTM standard) on property identified through review of data mentioned earlier in this Task, and help identify properties requiring a Phase II Environmental Site Assessment. CONSULTANT will identify any property, right-of-way, and easements, as well as the current owner of those properties, right-of-ways, and easements associated with project land.

A separate existing DISTRICT Environmental Services Contract will conduct any required the Phase I and Phase II ESAs. CONSULTANT shall coordinate efforts with this Contract. Any ESA work performed by others shall be evaluated and incorporated into the Contract Documents, as necessary, during the design phase of the Project by the CONSULTANT.

Task 1R: Community Impact Assessment

<<Modify section according to Project needs.>>

The CONSULTANT shall prepare a Community Impact Assessment (Assessment), with the intent of identifying potential short-term impacts to the community during construction, and long-term impacts that arise as a result of the installed asset. Impacts are considered to be both positive and negative in nature. The magnitude and complexity of the Project will dictate the level of assessment required.

The Assessment should focus on impacts such as noise, vibration, dust, odors, loss of parking, access, inconvenience, etc. to local residents, businesses, places of worship, and public agencies; disruption of services (i.e. fire, police, schools, Rapid Transit Authority, refuse collection) services; impacts on historic buildings and other features; damage to vegetation; changes to pedestrian and vehicular traffic patterns; impacts proposed construction truck routes have on local community including condition of existing roadways proposed as truck routes; etc. during construction.

The Assessment should also include aesthetic impacts from aboveground structures, potential economic impacts to local businesses, long-term changes to traffic patterns, road degradation, changes in land use, effects on emergency response, and impacts due to long-term construction, and changes or additions to permanent aboveground structures.

A separate Assessment report will be prepared for each significant site and surrounding community. The following activities shall be planned:

- Field visit(s) to the project area to visually inspect sites and neighborhood settings;
- Review of project maps, topographic maps, land use maps, and aerial photos;
- Research to identify demographic characteristics of the surrounding community;
- Assist the DISTRICT with interviews and meetings with public officials, community leaders and other stakeholders, as well as residents and business owners;
- Tracking traditional and social media; and
- Preparation of written CIA report (draft and final) summarizing findings.

Task 1S: Future Flow Reduction/Stormwater Management Strategies

<<Revise as necessary for Project.>>

CONSULTANT shall evaluate strategies for determining the long-term sustainability of impervious area/runoff reduction, and the benefit of runoff reduction on the size and layout of project elements. CONSULTANT shall also evaluate compliance with the DISTRICT's Title IV regulation and Ohio EPA water quality requirements.

CONSULTANT shall evaluate potential locations to implement stormwater management/green infrastructure to provide the reduction of storm inflows into the combined system to support the strategies identified above. Under this task, up to [redacted] (#) areas will be assumed as potential stormwater management/green infrastructure candidates to evaluate for implementation considering the relative community impacts and cost of the required storm sewer and supporting construction, the relative CSO control performance and cost-effectiveness of implementing compared to the base project elements and the potential community co-benefits for the permanent facilities within the various project areas identified.

TASK 2: DESIGN

The CONSULTANT shall develop drawings and specifications and integrate the DISTRICT's standard specifications and Bid Booklet (including Instructions to Bidders, General Terms and Conditions, Special Conditions, Agreement) for the PROJECT to produce construction bid documents suitable for competitive bidding purposes to produce a quality, cost-effective project. The drawings will indicate the layout, plans, sections, and details of the PROJECT.

Anticipated number of drawings by discipline is as follows:

- General: ##
- Plan and Profiles: ##
- Structural: ##
- Civil: ##
- Maintenance of Traffic: ##
- Erosion and Sedimentation Control: ##

<<Include additional drawing disciplines as necessary>>

- Structural- Tunnel: ##
- Structural – Shafts & Near Surface Structures: ##
- Geotechnical Instrumentation: ##
- Mechanical: ##
- Electrical: ##
- Instrumentation & Controls: ##

For cut-and-cover sewer installation and relatively shallow structures (less than 15 to 20-ft) the design of the excavation support system will be at the discretion of the Contractor. However, CONSULTANT will provide all design parameters, including, but not limited to, loading diagrams, anticipated subsurface conditions, and groundwater levels, and shall specify any necessary limitations such as maximum trench widths, minimum support requirements, and if applicable, restrictions for acceptable support systems or installation methods. The bedding and backfill requirements will also be specified by CONSULTANT.

For tunneling and other trenchless methods, the CONSULTANT is expected to design the temporary excavation support, where applicable, and the final liner.

The CONSULTANT shall review Environmental Site Assessment reports, prepared by others, to incorporate requirement/constraints into the contract documents as necessary.

All specifications shall be prepared with the CSI 49 Division Master Format 2010 or more current version. All drawings shall be prepared using AutoCAD. Files shall be submitted in AutoCAD version 2012, unless approved otherwise by the DISTRICT's Project Manager. All construction cost estimates shall be prepared in accordance with the Association for the Advancement of Cost Engineering (AACE) International Recommended Practice 18R-97. The cost estimate shall be submitted in accordance with the DISTRICT's design milestone cost estimating guidelines.

Equipment to be incorporated in the design shall be identified and data entered in the asset management sheets provided by the DISTRICT, and referenced to the DISTRICT's standard specifications.

All Task 2 deliverables shall be submitted as described above and in the following quantities unless otherwise noted.

- <<#>> full-size hard copies of drawings, bound and indexed appropriately
- <<#>> half-size hard copies of drawings, bound and indexed appropriately
- <<#>> hard copies of technical specifications, including Bid Booklet and Division 1, bound and indexed appropriately.
- <<#>> DVDs of videos or photo files
- <<#>> CD, DVD, or other media as approved by the DISTRICT PM, containing the native electronic format and indexed PDF electronic copies generated from the native document (not scanned) of all submittal documents.

Task 2A: 30% Design

The 30% design submittal, based on the Basis of Design Report and resulting review comments, will serve as the initial layout and orientation of recommended improvements for review. At the 30% design stage, the design will incorporate major design concepts, reflect decisions made to date, and facilitate advancement of the design through the remaining design stages.

The 30% submittal shall include, at a minimum, the following:

- Drawings
 - Title Sheet
 - Sheet Index, which should be near completion.
 - Preliminary alignment plan view and profile sheets, without construction notes, developed using the DISTRICT's sheet format and numbering system.
 - General and specific notes as appropriate.
 - <<as required>> Architectural, structural, demolition, equipment, HVAC/Plumbing, civil/site, and overall site plans sufficiently developed to show the proposed general layout of the entire project. Drawings shall also include dimensions, clearances and working space necessary for operation and maintenance.
 - <<as required>> Process and Instrumentation Diagrams (P&IDs), including mechanical equipment major piping, and instrumentation should be near completion.
- Specifications
 - List of bid items
 - Table of Contents of technical specifications. List shall indicate any deviations from the DISTRICT's standard specifications.
 - Preliminary specifications for major equipment components <<if required>>

- Updated listing of easements and permits required. Including draft easement documentation provided to DISTRICT property acquisition team.
- Updated preliminary construction schedule
- Updated utility tracking sheet
- Revised Basis of Design Report with calculations as appendices, including hydraulic modeling summary of changes. Including a summary and explanation of significant differences between the Basis of Design Report prepared during pre-design and the 30% design efforts.
- Revised Risk Register
- Hydraulic Model and Analysis, in accordance with Hydrologic and Hydraulic Modeling for Combined Sewer Systems Standards and Protocols, and its results reflecting the most current design, including a summary of model changes.
- Hydraulic profiles.
- Pipe sizing and loading conditions.
- Engineer's Opinion of Probable Construction Cost: Prepare a Class 4 Construction Cost Estimate. <<____ (#)>> hardbound copies and one (1) PDF electronic copy shall be submitted to the DISTRICT's Project Manager.
- Revised Process Control Narrative compliant with District Standard. <<if required>>
- A complete list of major equipment proposed with catalog cut sheet data. <<if required>>
- Quality Assurance/Quality Control Report:
The CONSULTANT shall issue a QA/QC Report, one (1) hardbound copy and one (1) electronic copy, to the DISTRICT PM including the following:
 - List of the CONSULTANT review staff, their discipline, and submittal documents (portions of documents) they were responsible for the QA/QC.
 - Documentation of CONSULTANT's internal review.
- Design Meeting: <<modify/add for project specific requirements>>
 - The CONSULTANT shall organize and lead a 30% Design Update Meeting at the time of the design submittal to present the design and discuss comments regarding the design. The presentation shall include an explanation of key decisions made during the pre-design and design task. DISTRICT staff, the CONSULTANT's Project Manager, and key design team staff representing the various disciplines shall attend the meeting. The CONSULTANT shall prepare and deliver meeting minutes to DISTRICT within four (4) working days of meeting.
 - The DISTRICT will provide comments to CONSULTANT on the DISTRICT's technical comments form within ten (10) working days of CONSULTANT's delivery of the design submittal documents.
 - The CONSULTANT will incorporate the conclusions reached at the design meeting into the CONSULTANT responses to the related comments. CONSULTANT will capture on the technical review form any additional

comments generated at the meeting. Within ten (10) working days of the DISTRICT's written review comments the CONSULTANT will submit to the DISTRICT the technical review comment form, including responses to all comments.

- At the subsequent regularly scheduled Monthly Progress Meeting the CONSULTANT shall include in the agenda a list of critical issues developed by the CONSULTANT and DISTRICT based on the design review comments.

<<Add Technical Review Board, if required and approved by DM.>>

Task 2B: 60% Design

The 60% design submittal is a detailed presentation of the design configurations and parameters established in the Pre-Design and 30% Design Tasks as modified to reflect advancement of the design and incorporation of comments.

The 60% submittal shall include, at a minimum, the following:

- Drawings. Drawings shall illustrate the complete complement of facilities included in the Project (both rehabilitated and new), including all dimensions, abbreviations, nomenclature, legends, general notes, and discipline related notes. Drawings shall include at a minimum:
 - Plan and profile drawings
 - <<as required>> Architectural, structural, demolition, equipment, HVAC/Plumbing, civil/site, and overall site plans sufficiently developed to show the proposed detailed layout of the entire project
 - Trench width limitations and backfill requirements for any sewers to be constructed by open-cut methods
 - Plan and section views of excavations and finished structures, including at a minimum; excavation limits, temporary excavation support systems, and finished structure wall thicknesses
 - Plan and section views of flow control/regulator structures <<and gate control structures>>, including at a minimum, the configuration of all components, all exterior and interior dimensions, flow channels, orifice, access openings, etc.
 - All existing utilities and preliminary concepts for any necessary utility support and/or relocation
 - Site plans and preliminary site restoration plans
 - Draft maintenance of traffic plans based upon final coordination meeting with the local municipality and meeting requirements of the local municipality and the "Ohio Manual of Traffic Control Devices for Streets and Highways"
 - Draft Erosion and Sedimentation Control plans that coincide with the Storm Water Pollution Prevention Plan

<<Modify/add the following drawings for project specific requirements>>

- Plan and section views of tunnel excavation and tunnel lining; including excavation limits and precast segment thickness
- Draft Process and Instrumentation Diagrams (P&IDs) showing all mechanical equipment, process piping and instrumentation

- Draft equipment schedules
- Proposed panel layout and wiring drawings
- Electrical one-line power drawings
- Draft Geotechnical Instrumentation plans
- Draft Construction Sequencing plans
- Specifications
 - Bid Items
 - Draft technical specifications; indicate any deviations from the DISTRICT's standard specifications
 - Draft measurement and payment section
 - Draft constraints section
 - Any draft special specifications
- <<as required>> Review DISTRICT's Mercury Policy and its applicability potential equipment or materials for the project. Review and include the DISTRICT standard specification *02 82 07 Recycling of Universal and Hazardous Waste*, if appropriate, for demolition of equipment containing mercury.
- Easements and Permit Applications including but not limited to:
 - Prepare final legal descriptions and plat drawings for all temporary and permanent easements.
 - Prepare a draft Storm Water Pollution Prevention Plan (SWPPP) using the DISTRICT standard template outline if more than one (1) acre is planned to be disturbed. The CONSULTANT shall prepare the SWPPP and supporting documents as may be required to obtain a Notice of Intent permit from the Ohio EPA and local stormwater permitting regulations. The CONSULTANT shall provide all documentation pursuant to the standards as provided in the latest Ohio Department of Natural Resources –“Rainwater and Land Development Code”.
 - <<prepare draft of time critical permit applications>>
- Updated Construction Schedule, including preliminary sequence of construction for maintaining operations during construction.
- Utility Coordination, including:
 - Updated utility tracking sheet
 - Preliminary plan submittal to utility companies
 - Utility owner coordination meetings with critical utility crossings/conflicts
 - Subsurface utility engineering <<as required and detailed/quantified in negotiations>>
- Revised Basis of Design Report with design calculations reflecting the most current design. Including a summary and explanation of significant differences that may exist between the 30% Basis of Design Report and the 60% Basis of Design Report.
- Hydraulic Analysis/Process Model, in accordance with Hydrologic and Hydraulic Modeling for Combined Sewer Systems Standards and Protocols, and its results reflecting the most current design, including a summary of model changes.

- Flow operation schematic for design storms. <<if necessary/required>>
- Reevaluate of <<Advanced Hydraulic Modeling and Evaluation>> as a check on the performance of the model against the final system alignment, configuration, and profile. <<if necessary/required>>
- Geotechnical Data Report: The geotechnical program begun during the pre-design task shall be advanced during the design task, including all necessary borings, rock cores, testing, and analysis. The final boring logs shall be the result of the data gathered in the field and analyzed in the lab during the pre-design and design tasks. The logs shall be incorporated into a geotechnical data report. <<if necessary/required>>
- Annotated outline of the Geotechnical Baseline Report. <<if necessary/required>>
- Revised Risk Register.
- Engineer’s Opinion of Probable Construction Cost: Construction cost estimate shall be a Class 3 estimate. <<___ (#)>> hardbound copies and one (1) PDF electronic copy shall be submitted to the DISTRICT’s Project Manager.
- Asset Management Equipment and Spare Parts Tables. The CONSULTANT shall complete, as appropriate, the columns of the Asset Management Equipment Inventory Table and the columns of the Spare Parts to Inventory Table identified as “completed during design”, as further described on the “instructions” sheet of the Asset Management Equipment and Spare Parts Excel file provided by the DISTRICT. The remaining columns will be completed during the Construction Administration Task by the CONSULTANT as described on the “instructions” sheet. The spreadsheet shall be housed in SharePoint and be continually updated. <<if necessary/required>>
- Failure Modes and Effects Analysis <<if necessary/required>>. A Failure Modes and Effects Analysis (FMEA) is a methodology for analyzing potential reliability problems early in project development when it is easier to address these issues. The FMEA should be performed immediately following the 30% design submittal. FMEA is used to identify failure modes, determine their effects and identify actions to mitigate the failures. The CONSULTANT shall lead a one (1) day workshop and develop a technical memorandum summarizing the key findings and recommendations. The CONSULTANT shall follow the DISTRICT’s FMEA template and guidelines.
- Revised Quality Assurance Report, one (1) hard bound copy and one (1) electronic copy, transmitted to the DISTRICT PM including:
 - Updated list of the CONSULTANT review staff, their discipline, and submittal documents (portions of documents) they were responsible for the QA/QC.
 - Documentation of CONSULTANT’s internal design review.
 - Documentation of the CONSULTANT’s constructability review including inter and intra discipline coordination review

- Design Meeting: <<modify/add for project specific requirements>>
 - The DISTRICT will provide comments to CONSULTANT on the DISTRICT’s technical comments form within ten (10) working days of CONSULTANT’s delivery of the design submittal documents.
 - The CONSULTANT shall organize and lead a 60% Design Review Meeting to present the design and to receive and discuss comments regarding the design within five (5) working days of DISTRICT’s written review comments. DISTRICT staff, the CONSULTANT’s Project Manager, and key design team staff representing the various disciplines shall be in attendance for the review. The CONSULTANT’s QA/QC review staff shall be available by phone to answer questions regarding the QA/QC report. The CONSULTANT shall prepare an agenda, and deliver to the DISTRICT PM two (2) working days before the meeting, based on the review comments and a list of critical issues developed by the CONSULTANT and DISTRICT review team. Discussion items will be captured in meeting minutes prepared by CONSULTANT and delivered to DISTRICT within four (4) working days of meeting.
 - CONSULTANT will incorporate the conclusions reached at the meeting into the CONSULTANT responses to the related comments. CONSULTANT will capture on the technical review form any additional comments generated at the meeting. Within ten (10) working days of the DISTRICT’s written review comments the CONSULTANT will submit to the DISTRICT the technical review comment form, including responses to all comments.

Task 2C: 90% Design

The 90% percent design submittal serves as the pre-final design submittal including all design disciplines and facility components and considering all comments and decisions made during the previous submittal reviews and meetings.

The 90% submittal shall include, at a minimum, the following:

- Complete set of Contract Documents. Interdisciplinary reviews shall be substantially completed before this submittal is made. The drawings and specifications are essentially ready for bidding. The Contract Documents shall include:
 - Drawings: The drawings shall include complete or near complete versions of all drawings sheets listed in the sheet index, including, but not limited to, the following:
 - Final Plan and Profile
 - Final architectural, structural, demolition, equipment, HVAC/Plumbing, civil/site, and overall site plans
 - Utility support and/or relocation
 - Final maintenance of traffic plans based upon final coordination meeting with the local municipality and meeting requirements of the local municipality and the “Ohio Manual of Traffic Control Devices for Streets and Highways”
 - Final Erosion and Sedimentation Control plans

<<Modify/add the following drawings for project specific requirements>>

- Final tunnel and shaft excavations, shaft structures, gate control and other flow structures
- Details shall be added for the tunnel and shaft excavations, final tunnel lining, final temporary excavation supports, final shaft structures, gate control structures, and all flow control structures
- Final Geotechnical Instrumentation plans
- Final Construction Sequencing Plans
- Final equipment schedules
- Final Process and Instrumentation Diagrams (P&IDs)
- Final panel layout and wiring drawings.
- The Bid Booklet, the Front End (Instructions to Bidders, General Terms and Conditions, Special Conditions, Forms of Agreement) and Division 1 – General Requirements shall be included with the bid package. These documents have standard templates that will be provided by the DISTRICT to the CONSULTANT.
- Final versions of all technical specifications.
- Final GDR <<if necessary/required>>
- Final Basis of Design report, including a summary and explanation of significant differences that may exist between the 60% Basis of Design and the 90% Basis of Design. Provide complete design calculations as appendices to the final Basis of Design report. These appendices can be submitted as an electronic file with all final calculations in PDF on a CD. This submittal will replace any previous calculation submittals.
- Updated Construction Schedule, including preliminary sequence of construction for maintaining operations during construction, as well as constructability
- Permit applications including but not limited to:
 - Prepare a final Storm Water Pollution Prevention Plan (SWPPP) using the DISTRICT standard template outline if more than one (1) acre is planned to be disturbed. The CONSULTANT shall prepare the SWPPP and supporting documents as may be required to obtain a Notice of Intent permit from the Ohio EPA and local stormwater permitting regulations. The CONSULTANT shall provide all documentation pursuant to the standards as provided in the latest Ohio Department of Natural Resources –“Rainwater and Land Development Code”.
 - Draft EPA Permit To Install application
 - <<Final time critical permit applications>>
- Utility Coordination, including:
 - Updated utility tracking sheet.
 - Plan submittal to utility companies
 - Final utility owner coordination meetings
- Hydraulic Analysis/Process Model, in accordance with Hydrologic and Hydraulic Modeling for Combined Sewer Systems Standards and Protocols, and its results reflecting the most current design, including a summary of model changes.

- Draft Post-Construction Monitoring Location Plan (PCMLP) <<if a CSO Consent Decree project>>
- Revised risk register.
- Engineer’s Opinion of Probable Construction Cost: Prepare a Class 2 Construction Cost Estimate. Three (3) hard copies and one (1) PDF electronic copy shall be submitted to the DISTRICT’s PM.
- Updated Asset Management Equipment and Spare Parts Tables. <<if necessary/required>>
- Final Process Control Narratives <<if necessary/required>>
- <<if necessary/required>> Develop preliminary Standard Operating Procedure (SOPs) “Pocket Guides”, which shall include, as a minimum:
 - System overview/general operating strategy
 - Normal operating parameters
 - Normal start-up procedure
 - Normal shutdown procedure
 - Trouble shooting guidance
- <<if necessary/required>> Develop preliminary Standard Maintenance Procedures (SMPs) for all critical equipment using District standards and by reviewing existing O&M manuals and finalize during Construction Administration Task.
- <<if necessary/required>> Develop preliminary lockout/tagout procedures for all critical equipment using the District’s standard template and finalize during Construction Administration Task.
- Business Opportunity Program analysis: In concert with the development of the construction cost estimate, CONSULTANT shall analyze areas where MBE/WBE and SBE contractors certified with the DISTRICT can be utilized and recommend a MBE/WBE and SBE percentage goal for the construction project to the DISTRICT PM. A template will be provided by the DISTRICT for the CONSULTANT’s use.
- 90% Draft Geotechnical Baseline Report: <<if necessary/required>>
 - A draft geotechnical baseline report (GBR) shall be prepared and included in the 90% design submittal. The draft report shall be a near final version of the report. Revisions to the report after the 90% submittal should consist only of changes necessary to correlate with revisions to the final design or changes due to reassessment of risk assignment.
 - The GBR shall contain the evaluation of the subsurface materials discovered and the conditions which the construction contractor can expect to encounter. In addition, the GBR shall include discussion of dewatering, appropriate construction techniques and support requirements necessary to properly construct this PROJECT. The primary purpose of the GBR is to set baselines for geotechnical conditions anticipated to be encountered during underground construction in order to provide clear indications in the Contract for resolution of disputes concerning underground conditions. Certain risks will be clearly

allocated between the Contractor and the DISTRICT. The GBR will also provide a generalized subsurface profile and describe key geotechnical considerations and constraints. It will be the geotechnical professional's responsibility to assure the accuracy of the reports.

- The GBR is a Contract Document and will supersede the GDR in the event of underground disputes. If the GBR is silent on a particular geotechnical issue, the raw data in the GDR will be used during dispute resolution.
- The CONSULTANT shall organize and lead a workshop/meeting to present the GBR. The main author(s) of the GBR shall present the GBR and identify key risks and how they are addressed in the GBR. DISTRICT staff, the CONSULTANT's Project Manager, and key design team staff shall be in attendance for the review. The CONSULTANT shall prepare an agenda, and deliver to the DISTRICT PM three (3) working days before the meeting. Discussion items will be captured in meeting minutes prepared by CONSULTANT and delivered to DISTRICT within four (4) working days of meeting.
- Revised Quality Assurance Report, one (1) hardbound copy and one (1) electronic copy, transmitted to the DISTRICT PM including:
 - Updated list of the CONSULTANT review staff, their discipline, and submittal documents (portions of documents) they were responsible for the QA/QC.
 - Documentation of CONSULTANT's internal design review.
 - Documentation of the CONSULTANT's final constructability review including inter and intra discipline coordination review.
 - Documentation of Front end, Bid Booklet, Division 1 and technical specification coordination review with the contract drawings.
- Design Meeting: <<modify/add for project specific requirements>>
 - The DISTRICT will provide comments to CONSULTANT on the DISTRICT's technical comments form within ten (10) working days of CONSULTANT's delivery of the design submittal documents.
 - The CONSULTANT shall organize and lead a 90% Design Review Meeting to present the design and to receive and discuss comments regarding the design within five (5) working days of DISTRICT's written review comments. DISTRICT staff, the CONSULTANT's Project Manager, and key design team staff representing the various disciplines shall be in attendance for the review. The CONSULTANT's QA/QC review staff shall be available by phone to answer questions regarding the QA/QC report. The CONSULTANT shall prepare an agenda, and deliver to the DISTRICT PM two (2) working days before the meeting, based on the review comments and a list of critical issues developed by the CONSULTANT and DISTRICT review team. Discussion items will be captured in meeting minutes prepared by CONSULTANT and delivered to DISTRICT within four (4) working days of meeting.
 - CONSULTANT will incorporate the conclusions reached at the meeting into the CONSULTANT responses to the related comments. CONSULTANT will capture on the technical review form any additional comments generated at the meeting. Within ten (10) working days of the DISTRICT's written review

comments the CONSULTANT will submit to the DISTRICT the technical review comment form, including responses to all comments.

<<Add Technical Review Board, if required and approved by DM.>>

Task 2D: Final Design

The final design will be represented in the documents to be used for bidding purposes. This includes final drawings, specifications, cost estimates, and project schedules. The following provides more details relative to the final design submission requirements.

The Final design submittal will incorporate all corrections and shall be complete and suitable for bid purposes. A final design review meeting may be held, at the DISTRICT's discretion, if significant 90% detailed design delivery issues are discovered during the 90% review. If the final design review meeting is held, the CONSULTANT shall prepare agenda, meeting minutes and attend the meeting and revise the drawings and specifications as necessary based on the outcome of the final review meeting as part of the base scope of services.

The Final design submittal shall include, at a minimum, the following:

- Final Contract Documents, including:
 - All drawings.
 - All technical specifications
 - All front end documents
 - Bid booklet
 - Final geotechnical data report <<if necessary/required>>
 - Final geotechnical baseline report <<if necessary/required>>
 - Any additional bidding/reference documents
- Final hydraulic analysis/process model
- Final basis of design with all final calculations
- Final Process and Instrumentation Diagrams <<if necessary/required>>
- Final Process Control Narratives <<if necessary/required>>
- Revised risk register
- Final design quality assurance report
- Final Engineer's Estimate of Construction Cost, Class 2.
- Updated Asset Management Equipment and Spare Parts Tables. <<if necessary/required>>
- Final Business Opportunity Program analysis and recommendation for MBE/WBE and SBE participation
- Summary of all permits and approvals for the Project

Following the Final Design Submittal, CONSULTANT shall meet with the Director of Engineering (DOE) to review the final design contract documents. Prior to the meeting the CONSULTANT shall work with the DISTRICT PM to finalize the DISTRICT's Construction Bid Document Review Checklist and DISTRICT Technical Review Comment Forms. CONSULTANT shall provide detailed meeting notes and document DOE comments on the standard DISTRICT DOE comment form within two (2) working days of review meeting. The DISTRICT will review and provide CONSULTANT a final

comment form within three (3) working days. CONSULTANT shall provide responses within ten (10) working days of DOE meeting.

It is the CONSULTANT's responsibility to document that all previous comments have been addressed and that CONSULTANT provided and documented that suitable inter and intra discipline reviews were completed. Once all comments are addressed and CONSULTANT QA/QC reviews are complete CONSULTANT shall submit a complete set of Contract Bid Documents to the DISTRICT.

TASK 3: BIDDING

The CONSULTANT shall provide Contract Documents for bidding purposes and for distribution by the DISTRICT to interested parties including the DISTRICT's staff. The CONSULTANT shall provide up to <<___ (#)>> hard copy bid sets and one (1) electronic PDF copy (front end documents, specifications, bid booklet, full size drawings, half size drawings, and any other supplemental documents). The PDF copy shall be created as described and required in Task 2.

Task 3A: Pre-Bid Meeting

- The CONSULTANT shall assist the DISTRICT's PM in developing an agenda and presentation for the Pre-Bid Meeting.
- The CONSULTANT shall attend and participate in the Pre-Bid Meeting.
- The CONSULTANT shall assist in preparing minutes of the Pre-Bid Meeting, which will be included in the first addendum.

Task 3B: Addenda

The CONSULTANT shall assist the DISTRICT's PM in the preparation and issuance of addenda during the bid phase. Addenda shall be prepared in the format provided by the DISTRICT and approved by the DISTRICT PM.

In general, the following procedures should be followed when portions of the Specifications or Drawings are being altered by addenda:

- Each page affected by the addenda shall use a red-line method to indicate where changes are made and should be footnoted to indicate Addenda number and date.
- Each drawing affected by addenda shall be updated to show the changes and a revision cloud shall be placed around the changes. A triangle, with corresponding addendum number inside, shall be placed next to the change. CONSULTANT shall include comments or remarks in the designated border area.

Task 3C: Bid Evaluation & Recommendation

The CONSULTANT shall assist the DISTRICT's PM in analyzing bids and provide a letter of recommendation for award of the construction contract. At a minimum, the following should be provided:

- Assist the DISTRICT PM with preparation and review of bid evaluation sheet
- Review the Purchasing Bid tabulation and recommendation
- Review any minimum qualifications or requirements specified in the Contract Bid Documents

TASK 4: CONSTRUCTION**Task 4A: Contract Administration Services**

The CONSULTANT shall provide Contract Administration Services supporting the DISTRICT's PM and Construction Supervisor for the duration of PROJECT construction. The scope of services shall include but is not limited to the following:

- Prepare Conformed-to-Contract documents. The conformed set of contract documents shall be defined as the unofficial set of documents whereby the original signed and executed Contract Documents are amended as described below to incorporate addenda issued during the bid process. It is intended for NEORSD's internal use only.
 - Conformed-to-Contract document submittal shall include:
 - Provide up to <<__ (#)>> sets to the DISTRICT and/or Contractor.
 - 1 indexed PDF electronic copy
 - 1 original electronic application format copy
 - The Conformed-to-Contract set shall include all changes to the specifications and drawings after the bidding process has ended. In general, the following procedures shall be followed:
 - Each page of the Specification Volume affected by the addenda shall use a red-line and strike-out method to indicate where changes are made and should be footnoted to include Addenda number and date; the Bid Booklet should include the accepted bidding forms filled in by the Contractor at the time of submittal.
 - Drawings – Each drawing affected by addenda shall be updated to show the changes and a revision cloud shall be placed around the changes. A triangle with corresponding addendum number inside shall be placed next to the change. CONSULTANT shall utilize the standard drawing border area for comments or remarks box to designate the addenda change. Refer to the DISTRICT's CAD Guidance Manual for specific procedures for drawing revisions and confirm with the DISTRICT'S PM.
 - The Specification book and Drawing cover sheets shall include a stamp reading as follows:

Conformed-to-Contract Documents

Note: These documents are the Conformed-to-Contract documents. They have been amended to incorporate addenda issued during the bid process. They are an unofficial set of documents and are intended for NEORSD's internal use only.

- Final post-construction monitoring location plan (PCMLP) based on final design. <<if a CSO Consent Decree project>>
- Participate in a Pre-Construction Meeting and prepare meeting minutes.
- Provide the DISTRICT a listing in an excel workbook of all the required submittals specified in the Contract Documents. The CONSULTANT shall clearly identify, or

- provide a separate list of, the required operations and maintenance manual submittals and required spare parts. Utilizing SharePoint assist the DISTRICT with maintaining project files of approved submittals and update the required submittal list accordingly.
- Review detailed construction shop drawings, contractor/vendor's operations and maintenance (O&M) manuals, contractor/vendor's O&M training outlines and other information submitted by the Contractor for compliance with the design concept and the requirements of the Contract Documents. Such data shall be recommended for approval, returned for revision, rejected, or distributed for information. Each submittal shall be divided into separate PIECES for the purpose of review. Each PIECE shall be stamped using Adobe Professional pursuant to the disposition requirements of Standard Specification 01 33 00. Each PIECE shall be annotated using Adobe Professional with any significant remarks or notes. Assume <<____(#)>> shop drawing reviews, including re-submittals.
 - Complete the Asset Management Equipment Inventory Table as described on the "instructions" sheet of the Asset Management Equipment and Spare Parts Excel file on at least a monthly basis as shop drawings or equipment are received. <<if necessary/required>>
 - Complete the Spare Parts to Inventory Table as described on the "instructions" sheet of the Asset Management Equipment and Spare Parts Excel file as spare parts are received by the DISTRICT. The CONSULTANT will be responsible for obtaining the spare parts information required by the form when the spare parts are delivered to DISTRICT Inventory. The applicable portions of the spare parts table shall be delivered in hardcopy with the spare parts. <<if necessary/required>>
 - Finalize Standard Operating Procedure (SOPs) "pocket guides" once proven through the Start-up and Commissioning process. After Start-up and Commissioning, ____ (#) copies of the approved pocket guides shall be provided to the DISTRICT. <<if necessary/required>>
 - Finalize Standard Maintenance Procedures (SMPs) for all critical equipment. <<if necessary/required>>
 - Finalize lockout/tagout (LOTO) procedures for all critical equipment. <<if necessary/required>>
 - Provide Draft System O&M Manual(s). The System O&M Manual shall address, but not be limited to, safety aspects during operation, maintenance, and cleaning; suggested sequence of operation; operational strategies of sewers, regulators, manholes, and connection structures; truck placement; loading operations; odor control provisions; and solids management.
 - Also included with the O&M Manual shall be the index of record drawings and schedules of equipment. In addition, <<instrument lists, ISA data sheets, and identification of the configuration software (PLC, OIT, HMI) utilized>> shall be part of the O&M Manual. <<The ISA data sheets shall include calibration data.>>
 - All drawings, schedules, <<instrument lists and I/O lists>> shall be included in electronic format in the appendix to the O&M Manual. Drawings shall be in

native format and PDF; and all schedules and lists shall be in Excel and PDF format.

- As requested by the DISTRICT, assist in liaison with Contractor when construction work affects plant operations or other on-site work.
- As requested by the DISTRICT, attend monthly formal progress meetings, weekly project status meetings, and other on-site coordination conferences.
- As requested by the DISTRICT, assist with monthly reports, if any, as to PROJECT status or progress.
- Provide interpretation of Contract Documents when requested by the DISTRICT.
- As requested by the DISTRICT, prepare responses to Requests for Information (RFIs). Assume <<__ (#)>> RFIs.
- As requested by the DISTRICT, consider and evaluate the Contractor's suggestions for modifications to the Contract Documents and report recommendations to the Construction Supervisor. Assume <<__ (#)>> suggestions for modifications.
- As requested by the DISTRICT, review, provide cost estimate, and assist with the negotiation of Work Orders. Assume <<__ (#)>> Work Orders.
- As requested by the DISTRICT, review Contractor's as-built red line drawings for accuracy and completeness throughout the Construction phase. Compile record drawings from reviewed set in hard copy/electronic format.
- As requested by the DISTRICT, assist in the preparation of and administration of construction related claims. Assume <<__ (#)>> claims.

Task 4B: Resident Project Representative Support Services

The CONSULTANT shall provide Resident Project Representative Assistance to the DISTRICT's Construction Supervisor during the duration of the construction of PROJECT. The level of service shall be <<__ (#)>> hours per month for a duration of <<__ (#)>> months << and for __ (#) hours per month for the remaining ____ (#) months>>. The Scope of Services shall include, but is not limited to, the following:

- Advise the Construction Supervisor immediately if it is determined that any work requiring shop drawing or sample submission is commenced and the shop drawing has not been approved.
- Review the progress and the quality of the construction work for general conformance to the Contract Documents, and consult with the Construction Supervision regarding such observations.
- Prepare written reports for each site visit and provide a copy to the Construction Supervisor.
- Report to the Construction Supervisor whenever the CONSULTANT believes that any work may be unsatisfactory, faulty, defective, does not conform to the Contract

Documents, has been damaged, or does not meet the requirements of any inspections, tests or approvals required to be made.

- Advise the Construction Supervisor when the CONSULTANT believes work should be corrected or rejected or uncovered for special testing, inspection or approval.
- Advise the Construction Supervisor in determining that tests, equipment and startups are conducted as required.
- Assist the Construction Supervisor in determining field obstructions and expedite modifications to Contract Documents to reflect field conditions.
- Assist with the final inspection by design staff and Construction supervisor.
- Maintain a redline set of drawings to be used for preparation of the record drawings.
- Observe, document, and verify final quality testing of new sewer line installations that are required by contract.

➤ **Protocol:**

- One point of contact from the CONSULTANT should be designated for the Resident Project Representative Support Services. A secondary point of contact can be designated in the event that the first point of contact cannot be reached with a critical field question. All communications should be routed to the designated CONSULTANT contact.
- No more than two members of the CONSULTANT design team are typically needed for progress meetings unless there is a specific need as determined by the DISTRICT.
- Generally, CONSULTANT's communication with the Contractor shall be through the DISTRICT. The construction contract does not recognize the CONSULTANT as having any authority to approve, reject or direct any of the Work.
- The CONSULTANT's representatives shall not answer any questions or provide direction to the Contractor while on site. The Contractor should be directed to forward those questions to the DISTRICT's Construction Supervisor.
- The CONSULTANT is not authorized to direct the Contractor or DISTRICT's Construction Inspection Staff, unless in the event of an emergency and the DISTRICT's Construction Supervisor or Construction Manager cannot be reached.
- If a decision must be made on a less critical issue, the order of contact is the DISTRICT's Construction Supervisor and then the DISTRICT's Construction Manager.
- It is imperative that the DISTRICT's Construction Supervisor be kept informed of all observations made on site, and be the first one that is informed.

TASK 5: CLOSEOUT

- Compile Record Drawings within <<__ (#)>> days of substantial completion from reviewed as-built red line set and instrumentation and control point-to-point drawings

in hard copy and native electronic format. CONSULTANT shall submit record drawings as follows:

- <<__ (#)>> full size hard copies of drawings, bound and indexed appropriately
- <<__ (#)>> CDs containing the native electronic format and indexed PDF electronic copies generated from the native document (not scanned) of all submittal documents
- <<__ (#)>> DVDs of videos and/or photo files
- Provide System Operations & Maintenance Manuals and associated training for the DISTRICT staff.
- Provide completed final Asset Management Equipment Inventory Table and Spare Parts to Inventory Table.
- Provide updated Arc Flash / Short Circuit Study in both hardcopy and electronic format in accordance with the DISTRICT standard. <<if necessary/required>>
- Assist with the final inspection by design staff and Construction Supervisor.
- Provide documentation that outlines all required quality control testing has been attained and verified with new sewer installation on the PROJECT.
- Conduct a final performance certification including preparing a video inspection of the <<tunnel, sewers, appurtenant structures and buildings>> one year after project completion.
- Final hydraulic model verification and update based on final as-built conditions.
- Update post-construction monitoring location plan (PCMLP) as necessary based on final as-built conditions. Implementation of the PCMLP by others. <<if a CSO Consent Decree project>>
- Certify that all consent decree items for the PROJECT have been addressed. <<if a CSO Consent Decree project>>

TASK 6: ADDITIONAL SERVICES (ALLOWANCES)

The DISTRICT may require additional services from the CONSULTANT for items not specifically included in the aforementioned Tasks. These services may consist of, but not be limited to, additional investigative and/or design services. It is the DISTRICT's intent to determine the appropriate price for Additional Services during negotiations with the selected CONSULTANT.

The funds associated with special allowances may only be used following written authorization of the Director of Engineering and Construction or other DISTRICT designee.

The following Additional Services may be authorized as part of this PROJECT:

Task 6A: Specific Allowance 1: <<EXAMPLE: Utility Relocation Design and Construction>>

<<The Utility Relocation Design and Construction Specific Allowance shall be used to compensate utility owners - particularly electrical, natural gas, and telecommunication utilities –for the design and construction cost estimates associated with utility relocations. This allowance is not intended to be used to compensate the CONSULTANT for design of utility relocations that will be designed by the CONSULTANT and performed by the PROJECT contractor, such as water, storm, and/or sanitary utilities. The allowance shall be a mechanism to pay the utility to start the design only. Utility coordination will be the responsibility of the CONSULTANT under the base contract.>>

Task 6B: Specific Allowance 2: <<EXAMPLE: Technical Review Board>>

<<This specific allowance shall be included for Technical Review Board (TRB) Meetings at the 30% and 90% design stages to be organized and led by the CONSULTANT. The TRB will consist of <<__ (#)>> independent experts representing critical design disciplines as mutually agreed upon by the DISTRICT and CONSULTANT. Each meeting shall be held over a <<__ (#)>> day period and will permit the participation of the DISTRICT Project Manager and other DISTRICT staff. The CONSULTANT shall have key staff available during each <<__ (#)>> day meeting to address any comments or questions raised during the meeting. The CONSULTANT shall distribute a notebook of key information and drawings one (1) week in advance of the meeting. The CONSULTANT shall prepare and submit meeting minutes to the DISTRICT Project Manager within four (4) working days after the meeting. This allowance is not intended to be used to compensate the CONSULTANT for preparation of meeting materials, attending the meetings, or preparing meeting minutes.>>

Task 6C: Specific Allowance 3: <<Title/Description>>

<< Define specific allowance based on RFP or as determined through negotiations>>

Task 6D: General Allowance

In the event work items are identified beyond the scope of this agreement, this allowance may be used only at the sole discretion and approval of the Director of Engineering and Construction.

Revision Date	Page	Paragraph/Section	Revised By	Description of Revision
3/5/2015	<i>B12</i>	Task 1G	G. Singer	Edited Soil & Rock sample storage requirements (samples may be disposed after analysis or as needed by CONSULTANT)
3/6/2015	<i>Various</i>	Various	D. Lopata	Various edits throughout document. Updates by Collections Systems Group
3/13/2015	<i>B9</i>	Task 1E	G. Singer	Added reference to NAVD 88 in Survey section
6/15/2015	<i>B7</i>	Task 1B	M. Seluga	Edited Process Control Narratives bullet
	<i>B14</i>	Task 1H	M. Seluga	Modified Flow Monitoring requirements
	<i>B22</i>	Task 2A	M. Seluga	Added "compliant with District Standard" as a requirement of the Revised Process Control Narrative
	<i>B25</i>	Task 2B:	M. Seluga	Added 1 day workshop and tech memo to FMEA task
	<i>B28</i>	Task 2C:	M. Seluga	Added a Draft Standard Maintenance Procedures and preliminary Lockout/tagout procedures for critical equipment
	<i>B34</i>	Task 4A	M. Seluga	Added requirement to finalize SOPs, SMPs, and LOTO.