# INSTRUCTIONS for EPA Region 8 Community Grant Recipients for completing the Water Infrastructure Construction Quality Assurance (QA) Plan Template for Construction with Design

(For construction activities with a design component -- No analytical sampling or analysis will occur.)

This Water Infrastructure grant Construction QA Plan template is intended for use **only by EPA Region 8 Community Grant recipients** receiving funding from State Revolving Funds to document project activities involving **Environmental Information Operations (EIO)** as part of a Community Grant. Complete all sections of this template. When this template is completed fully, the content meets EPA QAPP Requirements, QA/R-5.

**PREPARING THE Construction QA Plan:**

* For each section in the Construction QA Plan template, guidance is provided in a **comment box located on the righthand side as “NOTE to Preparer.**” Please click on the comment box to read the entire comment. Once the author addresses the comment, please delete the comment box. Text boxes in angle brackets **<Insert here>** are intended for the Preparer to complete by inserting appropriate text for each section. Enter content within the text box by overwriting the angle brackets. Text preceded by **“EXAMPLE:”** is example text and may not accurately describe the project plans/processes that will be implemented. This example text may be used to help develop responses but should be modified as appropriate to accurately describe the project plans. Example text is signified enclosure with brackets (i.e., [ ]).
* If you plan to utilize a **contractor for IT** services to develop data architecture, processes, validation, maintenance, etc., we recommend referring to your information management resources such as a Data Management Plan.
* We recommend avoiding collection of Personally Identifiable Information **(PII**). If you decide to collect PII, you must comply with 5 U.S.C. § 552a and EPA’s Privacy Policy and describe the requirements within the Construction QA Plan.
* If any of the elements in the template are not applicable for your project, insert **Not Applicable** and include a statement as to why the element is not relevant to the project.
* If there are plans to **publish information** to a website for public access, you must state in the Construction QA Plan how data limitations will be conveyed to users, including the requirement to post a disclaimer onto the website along with the published information. Provide the specific disclaimer text in the plan.
* In the Construction QA Plan, if applicable, describe the process for how data/information will be collected, stored, retrieved, and used, and/or **attach** your Data Management Plan **(DMP)** to the Construction QA Plan.
* Attach any applicable Standard Operating Procedures **(SOPs)** to the Construction QA Plan.
* Links to EPA guidance documents, policies, or statutes, State-issued permits, environmental impact statements, or other relevant documents may be provided in lieu of providing as attachments to the Construction QA Plan. Where links are provided, please ensure that the links are provided as hypertext so that the reader can navigate to the document location directly from the Construction QA Plan.

**FINALIZING THE Construction QA Plan:**

* **Delete this instruction page and all other instructional comments** after utilizing the guidance in the template and finalizing the document for review and approval.
* **For Community Grant Recipients:** All Construction QA Plans may be prepared by the Contractor or the Community implementing the project. The plan must be written from the grant recipient’s perspective and should therefore describe the roles, responsibilities, and activities that will be undertaken by both the Community implementing the project and the Contractor performing the work. Construction QA Plans must be submitted to the EPA Project Officer for routing to the appropriate reviewing entity (i.e., the Region 8 QA Branch or DAO) for review and approval. Once approved, provide a copy of the approved Construction QA Plan with completed signature page to your EPA Project Officer for their records.
* **For Contractors:** Submit your completed Construction QA Plan to the EPA Grant recipient who will coordinate with the EPA review and approval of the Construction QA Plan.

**Construction QA Plan Template Disclaimer:** This template describes a QA approach that could be used for a Water Infrastructure Community Grant construction project and has not been developed or reviewed to support other projects.

# Title Page

**U.S. Environmental Protection Agency Region 8**

**Water Infrastructure Community Grant**

<Insert Grant Recipient Organization Name

and Address>

**Construction Quality Assurance Plan**

<Insert Final Construction QA Plan Title>

<Insert Date of Construction QA Plan>

<Insert Construction QA Plan Revision No.>

<Insert Grant No.>

<Insert Period of Performance MM/DD/YYYY to MM/DD/YYYY>

# Approval Page

**Grant Recipient Approvals:**

Organization: <Insert here>

Project Quality Assurance Officer

Printed Name & Title: <Insert here>

Signature & Date:

Project Manager:

Printed Name & Title: <Insert here>

Signature & Date:

Construction Contractor Project Manager:

Printed Name & Title: <Insert here>

Signature & Date:

For Grant Recipients without EPA Region 8 Approved QMPs

**EPA Approvals:**

EPA Region 8 Project Officer

Printed Name & Title: <Insert here>

Signature & Date:

EPA Region 8 Quality Assurance Manager (RQAM)

Or Delegated Approving Officer (DAO):

Printed Name & Title: <Insert here>

Signature & Date:

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Revision History

|  |  |
| --- | --- |
| Revision No. | Description of Changes |
| <Insert here> | <Insert here> |

Acronyms

|  |  |
| --- | --- |
| DAO | Delegated Approving Officer |
| DCN | Document Control Number |
| DQI | Data Quality Indicators |
| DQO | Data Quality Objectives |
| EIO | Environmental Information Operations |
| EPA | Environmental Protection Agency |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| QAO | Quality Assurance Officer |
| QA | Quality Assurance |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| RQAM | Regional Quality Assurance Manager |
| SOP | Standard Operating Procedure |

# Introduction

<Insert here>

# Project Organization & Distribution List

|  |  |  |  |
| --- | --- | --- | --- |
| **Contact and**  **E-mail address** | **Title** | **Organization** | **Responsibilities** |
| <Insert here> | Water Infrastructure Grant Project Officer | U.S. EPA, Region 8 | <Insert here> |
| Mary Goldade  Goldade.Mary@epa.gov | EPA Regional Quality Assurance Manager or Delegated Approving Officer | U.S. EPA, Region 8 | Construction QA Plan Review and Approval |
| <Insert here> | Grant Recipient Project Manager | <Insert here> | <Insert here> |
| <Insert here> | Grant Recipient Project Quality Assurance Officer | <Insert here> | <Insert here> |
| <Insert here> | Grant Recipient Licensed Project Engineer/Architect | <Insert here> | <Insert here> |
| <Insert here> | Contractor Construction/Project Manager | <Insert here> | <Insert here> |

|  |  |  |  |
| --- | --- | --- | --- |
| <Insert here> | Contractor Construction Supervisor | <Insert here> | <Insert here> |

|  |  |  |  |
| --- | --- | --- | --- |
| <Insert here> | <Insert here> | <Insert here> | <Insert here> |

**Figure 1. Organization Chart**

<Insert here>

EPA Region 8 Quality Assurance Manager or Delegated Approving Official

<Insert here>

Project Quality Assurance Officer

<Insert here>

EPA Region 8 Project Officer

<Insert here>

City/Community Licensed Project Engineer/Architect

<Insert here>

City/Community Project Manager

<Insert here>

City/Community Field Staff

<Insert here>

Contractor Project Manager

<Insert here>

Contractor Construction Supervisor

<Insert here>

Contractor Survey Field Staff

<Insert here>

Contractor Construction Field Staff

**Legend**

Line of reporting

Communication

# Problem Definition, Background, and Project Description

<Insert the Problem Definition and Background here>

<Insert Project Description here>

Project Objectives:

Project Site(s) or Study Area(s) and Project Boundaries:

# Project Schedule

Table 6-1 includes a list of project activities and the anticipated timeframe for each.

**Table 6-1. Schedule**

|  |  |  |
| --- | --- | --- |
| Activities | Group/Person responsible  for activity completion | Timeframe work will be done |
| <Insert Here> | <Insert Here> | <Insert Here> |
| <Insert Here> | <Insert Here> | <Insert Here> |
| <Insert Here> | <Insert Here> | <Insert Here> |

# Data Quality Objectives

<Insert here>

[EXAMPLE: Environmental permits will be obtained and provided to the Contractor Project Manager by the Community Project Manager for utilization during the construction phase of the project. Permits received directly from the Community will be evaluated by the Contractor for applicability to the project based on dates specified in the permits and title of the referenced project in the permits.

Construction designs will be generated by the Contractor Project Engineer/Architect (or delegated draftsperson) using <Insert software name>. The interim construction design drawings will be generated at 30-percent-, 60-percent-, and 90-percent-completion statuses and will be reviewed and approved by the City/Community’s licensed Project Engineer.

Final as-builts will be developed by the Project Engineer (or delegated draftsperson) upon termination of construction. The licensed Project Engineer will review and provide an engineer’s stamp once the review is complete, signifying approval of the final as-built drawings.

All design drawings, including final as-builts, will utilize spatial data, including latitude, longitude and elevation of sewer collection system components, such as catch basins, manholes, piping confluences, piping joints, entry into the Wastewater Treatment Plant, as well as at regular 20-foot increments along the project corridor. Data collection approach is further described in Step 5, below.

Construction activities will commence once the 90-percent design drawing has been completed and approved by the City/Community Project Engineer. Construction will be assessed for quality through the generation of weekly inspections throughout the construction process. The evaluations will be conducted by the Contractor Construction Supervisor and the reports generated by the City/Community Project Manager in coordination with the Contractor Construction Supervisor.

Data quality objectives (DQOs) are required for the geospatial measurement and design components of the project. The seven steps that follow detail these DQOs.]

1. **State the Problem:** <Insert what necessitates the study here> [EXAMPLE: The Community sewer lines are dated and at risk of leaking and/or failure.]
2. **Identify the Goal of the Project:** <Insert how information will be used to meet the objectives here> [EXAMPLE: The goal of the project is to design and install upgrades to dated sections of the Community sewer lines where they have been identified to be most at risk of failure.]
3. **Identify Information Inputs:** <Insert what information is needed to answer the study questions here> [EXAMPLE: Inputs include existing evaluation conducted by the Community identifying which sections of the sewer lines need to upgraded; NEPA and SHPO determinations and other State-issued permits obtained from the Community Project Manager; SOPs describing survey data collection and post-processing; the data management plan; survey equipment; construction design computer software; and construction equipment and personnel.]
4. **Define the Project Boundaries:** <Insert target population & characteristics, geographical boundaries, and temporal limits here> [EXAMPLE: The geographical boundaries of the project include the sewer line corridor, extending from X Street to Y Street. Project boundaries can be observed on Figure 1, attached. The project will include disturbance of 2.3 acres along the project cooridor. Construction is anticipated to commence in <Insert Month> 2024 and terminate in <Insert Month> 2024. All construction will be performed in compliance with construction and environmental permits obtained from the Community Project Manager and will be conducted within the geographical and temporal boundaries specified therein. Should circumstances change such that the spatial or temporal boundaries of the project must change, the Contractor Project Manager will notify the Community Project Manager who will notify the and EPA Project Officer. In this event, construction will halt until the Community Project Manager or designee can obtain appropriate permits.]
5. **Develop the Data Collection Approach:** <Insert the parameters of interest and the logic for drawing conclusions from findings here> [EXAMPLE: Interim construction design drawings and as-builts will be generated for the project using survey data. If geospatial data collection is required, then geospatial information will be collected using a survey grade GPS (e.g., Trimble, or similar) with RTK positioning capabilities. Data will be collected by field staff in accordance with the Geospatial Data Collection Standard Operating Procedure (SOP), XXXX-YY-01 (Appendix B). The SOP contains instructions for deploying a base station and utilizing established geospatial information from nearby USGS base stations to establish accurate coordinates against which geospatial information corresponding to key data points will be checked for accuracy. Data points will be collected at locations of key sewer system components (e.g., catch basins, manholes, piping confluences, piping joints, entry into the Wastewater Treatment Plant), and at regular 20-foot increments along the project corridor.]
6. **Specify Performance or Acceptance Criteria:** <Insert the probability limits, performance criteria for new data or acceptance criteria for existing data use here> [EXAMPLE: Data generated during the project will include geospatial information, construction design drawings, and final as-builts. Performance and acceptance criteria for geospatial data are described in the Geospatial Data Post-Processing SOP, XXXX-YY-02 (Appendix B); geospatial information will be corrected as described in the SOP. “Check shots” at the base station will be collected continuously (at 15-minute intervals) throughout each day of data collection to be used as correction factors. Coordinates collected during a measurement period will be considered sufficiently accurate if base station measurements are within 0.1-foot latitudinally and longitudinally and within 1 foot vertically of the published USGS base station coordinates. Performance and acceptance criteria for design drawings and as-builts will be based on approval by the licensed City/Community Project Engineer. The City/Community Project Engineer will review design drawings and as-builts to ensure they adhere to applicable engineering standards. The licensed engineer’s stamp will indicate approval and acceptance of the design and as-built drawings. In addition, permits will be obtained from the Community prior to commencement of construction; these will be reviewed by the Contractor Project Manager to ensure the project title and/or description references the appropriate project and that the permit term is appropriate for and matches the construction planning bid documents. Once this information is reviewed and confirmed to be accurate, the permits will be considered acceptable.]
7. **Develop the Plan for Obtaining the Data:** <Insert the plans to meet the performance criteria defined here> [EXAMPLE: Geospatial data will be collected in accordance with SOP XXXX-YYY-01 (Appendix B) and as described in Step 5, above. Once collected and downloaded from the survey equipment, the data will be evaluated for accuracy by a qualified the Contractor’s certified Geographic Information Systems (GIS) Specialist during post-processing in accordance with the Geospatial Data Post-Processing SOP, XXXX-YY-02 (Appendix B). If the post-processed GPS data does not adhere to the accuracy requirements outlined in the SOP, then the data will be recollected. This process will be repeated until the acquired geospatial data meets the data quality objectives for accuracy. Once considered acceptable, the data will be utilized by the Contractor drafting personnel to generate interim design drawings and final as-builts.]

# Training and Specialized Experience

<Insert here>. [EXAMPLE: All field personnel involved in project construction shall have completed the 30-hour OSHA Construction training. The Contractor Project Manager is responsible for ensuring that all official certificates of course completion for each field team member has been received and is filed in the appropriate project folder on the Contractor network. The Construction Supervisor is responsible for checking the daily roster of employees against the certificates on file on the Contractor network prior to beginning work each day. Should an employee be found not to have a certificate on file, the Construction Supervisor will notify the Contractor Project Manager who will coordinate with the employee to either obtain the certificate for the file or enroll the employee in a training. The employee will not be allowed to perform work for the project until the training has been completed and the certificate has been filed.

The Construction Supervisor shall hold a current Construction Quality Assurance Manager certification and shall hold a Certified Sediment and Erosion Control Lead certification. The Project Manager is responsible for ensuring the trainings are up to date and on file in the appropriate location on the Contractor network.

The City/Community engineer assigned to the project for review and approval of as-builts has have a Engineer’s license or equivalent and be ablet o provide a stamp of approval at the end of the project for as-builts.]

# Documentation and Records

<Insert here> [EXAMPLE: Documents that will be produced or utilized for the project include existing planning bid documents, an environmental impact statement, weekly inspections, survey field notes, survey data, interim design drawings, and final as-builts.

**Existing Documents**

Planning bid documents (Appendix B) are generated by the Contractor prior to awarding of the project. The Contractor will utilize bid documents to identify areas needing survey and to guide the design and construction phases of the project. Existing permits and an environmental impact statement will be utilized to conduct the construction phase of the project. These will be provided to the Contractor Project Manager directly from the City/Community Project Manager electronically. The Contractor Project Manager will be responsible for identifying a storage location on the Contractor network for the documents and providing the documents to the appropriate personnel throughout the construction phase. The documents will be stored electronically on the Contractor network for <Insert retention period>.

**Survey Field Notes**

Field notes recorded during survey activities will be recorded in a field notebook using a write-in-the-rain pen by field staff. Field notes, at a minimum, will include date, weather, field personnel names, start time of the survey, features/components of the sewer system or project corridor that were surveyed, and the end time of the survey. Notes about surrounding areas that may affect survey data (e.g., suspected forest, topography, or building interference; cloud cover; minimal satellite connection; etc.) should also be noted. Each entry will be signed by the recorder at the end of each day to certify the recorded information. Errors in field notes will be signified with a single strikethrough of the incorrect text notes and initials provided by the individual correcting the notes. Field notes will be checked for accuracy by the field team lead at the end of each day and by the Contractor Project Manager on a weekly basis. The field notebook pages will be scanned to the Contractor network on a weekly basis by the Contractor Project Manager. Field notebooks will be kept on file in hard copy form at <Insert Location> for <Insert retention period> and made available, electronically to the City/Community and/or the EPA upon request.

**Survey Data**

Survey data will be logged on a survey grade GPS (e.g., Trimble, or similar). The Contractor Project Manager or delegated survey field staff will offload the data into an electronic file using survey data software (e.g., Trimble software, or similar). The survey data file will be transferred electronically to the Contractor GIS Specialist for post-processing. The GIS Specialist will evaluate the data to ensure it is not corrupt and meets performance criteria. The GIS Specialist will then transfer the data to drafting personnel who will use the data in CAD to produce the interim design drawings and final as-builts. The raw survey data files and post-processed survey data files will be kept on file on the Contractor’s network for <Insert retention period>.

**Interim Design Drawings**

Interim design drawings will be produced at the 30-, 60-, and 90-percent design completion phases of the project. These will be produced by the Contractor drafting personnel and transferred to the City/Community Project Manager and the licensed City/Community Project Engineer for concurrence and approval; design drawings will be delivered both electronically and in hard copy form.

**Inspections**

Construction will commence once 90-percent design drawings are completed and will proceed as described in the construction plan bid (Appendix A). It is the responsibility of the Contractor Project Manager to ensure construction proceeds as described in the construction plan bid.

During construction, weekly inspections will be conducted and recorded by the Contractor Construction Supervisor. The inspections will focus on construction progress, identification of any issues requiring corrective actions, and any safety or environmental observations. These will be recorded on Construction Walk-through Forms (Appendix B). Hard copy forms will be provided from the Contractor Construction Supervisor to the Contractor Project Manager, who will scan the forms to the Contractor network. The forms will be provided to the City/Community Project Manager and/or EPA if requested and will be maintained electronically on the Contractor’s network for <Insert retention period>.

**As-Builts**

Final as-builts will be produced by the Contractor drafting personnel and supplied to the City/Community. The final as-builts will be reviewed and approved by the City/Community Project Manager and licensed City/Community Project Engineer.

**Final Disposition of Documents**

All files utilized for and generated during the construction project will be provided to the City/Community electronically at or prior to project termination for storage by the City/Community. The City/Community networks are maintained by <Insert network maintenance system/contractor>; the system is backed up on a daily basis. All final project files, including permits, bid documents, inspection reports, field notes, survey data files, and as-builts, will be kept in the City/Community electronic archive folders indefinitely.]

# Design Methods and Construction Materials

<Insert here>

[EXAMPLE: **Design Methods**

Design drawings will be created using survey data collected at existing sewer component locations (e.g., catch basins, manholes, piping confluences, piping joints, entry into the Wastewater Treatment Plant), and at regular 20-foot increments along the project corridor where the system has been identified for replacement by the City/Community. The Contractor survey personnel will use existing figures and maps of the project corridor, obtained from the planning bid documents, to determine areas to be surveyed. Survey data will be collected twice throughout the project: once prior to design initiation for generation of interim design drawings, and a second time after construction is complete for generation of as-builts.

The survey data will be collected and checked for accuracy as described in Section 7 and will be managed as described in Section 9. Survey data will then be plotted in <Insert construction design software> by drafting personnel to generate 30-percent, 60-percent, and 90-percent completion design drawings showing the spatial locations of sewer system piping and other components that will be replaced. The design drawings will include engineering specifications of the sewer system replacement components, final elevations and gradients of replacement components, and final grade of the construction project area ground surface.

Final as-builts will be generated once construction of the sewer system upgrade is complete. A second survey of the project corridor will be conducted once construction and final grading has been completed. The final survey will be conducted and the data managed following the same procedures as the initial survey. Final as-builts will include actual locations, elevations, and gradient of final sewer system upgrade components and final grade of the surrounding disturbed area.

Corrective actions associated with survey equipment or quality of the survey data will be the responsibility of the Contractor Project Manager to initiate and monitor. Field staff conducting the survey may become aware of survey equipment malfunction (i.e. inability to collect data points; inability to triangulate or locate satellites; etc.). In such cases, field staff is responsible for troubleshooting the equipment and if the issues cannot be resolved, notifying the Contractor Project Manager to initiate a corrective action. Survey data will be offloaded from survey equipment by the Contractor Project Manager or delegated field personnel. The GIS Specialist will be responsible for post-processing the data and evaluating if the data meets performance criteria specified in Section 7. If the post-processing data does not meet data quality objectives or if data offload is unsuccessful the survey data will be re-collected.

**Construction Materials**

Construction materials produced during the project include interim design drawings and final as-builts. Design drawings and final as-builts will be drafted by the Contractor drafting personnel, then transferred to the City/Community’s Project Manager and licensed Project Engineer for review and approval. Approval for design drawings and final as-builts will be signified by the presence of the licensed City/Community Project Engineer’s stamp.]

**Table 10-1: List of Standard Operating Procedures or Other Methods**

|  |  |
| --- | --- |
| **Activity** | **SOP**  **Reference / User Manuals** |
| <Global Position System> | <Insert here> |
| <Geospatial Data Collection> | <Insert here> |
| <Geospatial Data Post-Processing> | <Insert here> |
| <Photos or Video> | <Insert here> |
| <Electronic Data Capture Device> | <Insert here> |
| <Security, Privacy and Publishing> | <Insert here> |
| <Data Storage, Transfer and Backup> | <Insert here> |

# Existing Data and Data from Other Sources

<Insert here > [EXAMPLE: Existing data that will be utilized for the construction phase of this project include State-issued permits, planning bid documents, an environmental impact statement, and archeological/historical determinations. Planning bid documents were generated by the Contractor prior to award and are in the possession of the Contractor. All existing documents will be provided by the to the Contractor prior to commencement of construction. Existing documents received by the Contractor will be considered acceptable for use during construction if received directly from the City Project Manager and if the documents reference the appropriate project. The Contractor Project Manager will be responsible for receiving and reviewing documents from the City Project Manager for acceptability.]

# Data Management

<Insert here-This section should be detailed and describe the complete data life cycle>

<Insert here-Describe the project data management process>

<Insert here-Describe the record-keeping procedures, document control, data storage, retrieval and or cite SOPs>

<Insert here-Describe data handling equipment procedures to process, analyze and transmit data reliably and accurately, along with acceptability of hardware and software configurations>

<Insert here-Identify the individual(s) responsible for data management>

<Insert here-Attach and reference checklists or forms that will be used>

<Insert here-Attach your Data Management Plan>

[EXAMPLE: Data and records generated during construction will include survey data, interim design drawings, weekly construction inspection forms, and final as-builts.

Survey data will be collected by the Contractor survey field personnel. Survey data will be logged on a survey grade GPS (e.g., Trimble, or similar) as described in Sections 7 and 9 of this Construction QA Plan. The Contractor Project Manager or delegated survey field staff will offload the data into an electronic file using survey data software (e.g., Trimble software, or similar). The survey data file will be transferred electronically to the Contractor GIS Specialist for post-processing. The GIS Specialist will evaluate the data to ensure it is not corrupt and meets performance criteria as described in Section 7. The GIS Specialist will then transfer the data to drafting personnel who will use the data into <Insert name of construction design software> to produce the interim design drawings and final as-builts. The raw survey data files and post-processed survey data files will be kept on file on the Contractor’s network for <Insert retention period>. Raw data files will be provided to the City/Community Project Manager by the Contractor Project Manager prior to project completion. The City/Community Project Manager or designee is responsible for receiving and evaluating the data received to ensure it is not corrupt and is usable.

The licensed City/Community Project Engineer will review interim design drawings and final as-builts and provide approval by means of an engineer’s stamp. The final as-builts will be kept on file electronically at the City/Community headquarters, indefinitely, and provided by the City/Community Project Manager to the EPA Region 8 Project Officer electronically for EPA’s records.

State-issued permits will also be utilized during the construction phase of the project. These will be delivered by the City/Community Project Manager electronically to the Contractor Project Manager. Copies provided to the Contractor Project Manager will be stored electronically on <Insert name of network>. Backups of the network occur on a daily basis. The Construction Project Manager is responsible for management of electronic files associated with the project. Electronic files shall be retained on the Contractor network for a minimum of <Insert retention period>.]

# Reporting, Oversight and Assessments

<Insert what type of report(s) will be generated? [EXAMPLE: Reports generated throughout the project include the interim design reports, weekly construction inspection forms, and final as-builts.]

<Insert what will the report(s) include? E.g., raw data, specific actions here> [EXAMPLE: Interim design drawings will be generated at 30-, 60-, and 90-percent completion phases of the design process. These will contain engineering specifications of the sewer system replacement components, proposed final elevations and gradients of replacement components, and proposed final grade of the construction project area ground surface.

Weekly inspection forms will include descriptions of construction progress, identification of any issues requiring corrective actions, and any safety or environmental observations. These will be documented on the Construction Walk-through Forms (Appendix B).

Final as-builts will include a diagram showing actual locations, elevations, and gradient of final sewer system upgrade components and final grade of the surrounding disturbed area.]

<Insert who will receive the report(s) here> [EXAMPLE: The City/Community Project Manager will receive weekly inspection reports and the City/Community Project Manager and licensed City/Community Project Engineer will receive interim design drawings and as-builts for review and approval. ]

<Insert who is responsible for preparing and delivering to the recipient(s) here> [EXAMPLE: The inspection forms/reports will be prepared and delivered by the Contractor Construction Supervisor to the Contractor Project Manager electronically within 24 hours of generation. The Contractor Project Manager will then deliver the forms electronically to City/Community Project Manager on a weekly basis. Interim design drawings and as-builts will be generated/prepared by the Contractor drafting personnel and provided to the Contractor Project Manager, who will, in turn, deliver the drawings electronically and in hard copy form to the City/Community Project Manager and licensed Project Engineer within 48 hours of generation.]

<Insert for assessment reports, who is responsible for implementing and monitoring Corrective Actions here> [EXAMPLE: Any corrective actions identified during weekly construction inspections will be the responsibility of the Contractor Construction Supervisor to implement or delegate for implementation and the Construction Project Manager to monitor corrective action progress. Corrective actions associated with interim design drawings and/or final as-builts will be the responsibility of the Contractor Project Manager to delegate to or coordinate with drafting personnel for implementation and will be the responsibility of the Contractor Project Manager to monitor.]

# Data Review and Usability

<Insert here>. [EXAMPLE: Survey data will be reviewed by the GIS Specialist as specified in Section 7 and in accordance with the Geospatial Data Post-Processing SOP. Interim design drawings and final as-builts will be reviewed and approved by the licensed City/Community Project Engineer in accordance with applicable engineering standards.]

# References

U.S. EPA, Privacy Policy (CIO 2151.1), September 2018. Website: https://www.epa.gov/irmpoli8/privacy-policy-and-procedures#privacypolicy

U.S. EPA, Requirements for Quality Assurance Project Plans (EPA QA/R-5), EPA/240/B-01/003, March 2001. Web site: https://www.epa.gov/quality/epa-qar-5-epa-requirements-quality-assurance-project-plans

U.S. EPA, Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4), EPA/240/B-06/001, February 2006. Web site: https://www.epa.gov/quality/guidance-systematic-planning-using-data-quality-objectives-process-epa-qag-4

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# List of Figures

# [*Figure 1 Location Map(s)*](#Figure3)

# Appendices

# *Appendix A*

# *Standard Operating Procedures and User Manuals*

# *Appendix B*

# *Project Forms*

# *Appendix C*

# *Cross-reference Between Construction QA Plan and EPA QA/R-5 Elements*

|  |  |
| --- | --- |
| **Project Management** | |
| **Construction QA Plan Element** | **Agency QAPP Element (EPA QA/R-5)** |
| **Title Page**  **Approval Page**  **Table of Contents** | A1. Title and Approval Sheet  A2. Table of Contents |
| **Introduction**  **Problem Definition, Background and Project Description** | A5. Problem Definition and Background  A6. Project/Task Description |
| **Data Quality Objectives and Indicators**  **Reporting, Oversight and Assessments** | A7. Quality Objectives and Criteria  C2. Reports to Management  C1. Assessments and Response Actions |
| **Project Organization & Distribution List**  **Training and Specialized Experience** | A3. Distribution List  A4. Project/Task Organization  A8. Special Training/Certifications |
| **Documentation and Records**  **Data Management** | A9. Documents and Records  B10. Data Management |
| **Project Implementation** |  |
| **Construction QA Plan Element** | **Agency QAPP Element (EPA QA/R-5)** |
| **Design and Data Collection Methods**  **Existing Data and Data from Other Sources**  **Data Review and Usability** | B1. Process Design (Experimental Design)  B2. Sampling Methods  B9. Non-Direct Measurements  D1. Data Review, Verification, and Validation  D2. Verification and Validation Methods  D3. Reconciliation with User Requirements |