

[CompanyName]

Utility Construction

Quality Assurance/Quality Control Plan

[ProjectName]
[ProjectNumber]

Management acceptance

This Construction Quality Assurance/Quality Control Plan has been reviewed and accepted.

Endorsed By: (Name / Title)	[QualityManagerName], Quality Manager		
Signature:	<i>[QualityManagerName]</i>	Date:	[Date]
Version	1.0	Notes	Initial Issue

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SIGNATURE SHEET

Plan Preparer

This [CompanyName] Project Quality Assurance/Quality Control Plan was prepared in accordance with the contract specifications and requirements of the [CompanyName] quality system and approved by:

[QualityManagerName] / [Date]

[QualityManagerName], Quality Manager /Date

Approval by Company Officer

This [CompanyName] Project Quality Control Plan is approved by:

[SeniorManagerName] / [Date]

[SeniorManagerName] Senior Manager /Date

Plan Concurrence

[CompanyName] Project Quality Assurance/Quality Control Plan concurrence by:

[ProjectManagerName] / [Date]

[ProjectManagerName] Project Manager /Date

[SuperintendentName] / [Date]

[SuperintendentName], Superintendent /Date

PROJECT-SPECIFIC UTILITY CONSTRUCTION QUALITY PLAN

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H. SUBMITTALS

SUBMITTALS

Lists of documents and records that will be submitted to the customer appear on the Submittal Schedule and Log form. The Submittal Schedule and Log Form exhibit is included in this subsection.

SHOP DRAWING SUBMITTALS

The Project Manager or Purchasing and Estimating Manager prepare shop drawing submittals that supplement contract drawings. Shop drawings are required when additional details are necessary for fabrication or installation. The following information is included, as applicable:

- Dimensions established by field measurement
- Relationships to adjoining construction
- Identification of products and materials
- Fabrication and installation drawings
- Diagrams showing locations of field-installations
- Shop fabricated manufacturing instructions
- Templates and patterns
- Design calculations
- Compliance with specified standards
- Seal and signature of professional engineer if required
- Additional requirements as specified in the contract, contract technical requirements, or contract drawings.

[CompanyName] extends contract specifications to include customer approved shop drawings.

PRODUCT DATA SUBMITTALS

The Project Manager prepares product data submittals that consist of the manufacturer's product information. The information included in this submittal is:

- Manufacturer, trade name, model or type number
- Description
- Intended use
- Size and physical characteristics including drawings when applicable
- Finish and color characteristics
- Product manufacturer's installation instructions, when applicable
- Additional requirements as specified in the contract, contract technical requirements, or contract drawings.

ALLOWANCES AND UNIT PRICES SUBMITTALS

When customer contracts specify allowances and unit prices that the customer will select after the contract is awarded, the Project Manager prepares an allowance and unit price submittal for customer approval.

When a customer selects or approves an allowances and unit prices, the customer indicates the allowance and unit price selection on the signed submission return.

[CompanyName] extends compliance to contract specifications to customer approved allowances and unit prices.

REQUEST FOR INFORMATION (RFI) SUBMITTALS

The Project Manager submits a request for additional information to the customer when errors are found or when required information is not contained in the contract, contract technical specifications, or contract drawings.

Should any number of contract technical specifications or contract drawings result in conflicting requirements, the Quality Manager submits a request for information to the customer to select the standard that applies.

[CompanyName] extends compliance to contract specifications to customer requests for information.

CHANGE ORDER SUBMITTALS

Contract requirements or contract technical specifications may require a change after the contract is awarded. The Project Manager submits the change order to the customer for approval, including any contract price adjustments.

When a customer approves a change order, the customer signs the submission return.

[CompanyName] extends contract specifications to include customer approved change orders.

MOCK-UP SUBMITTALS

The Superintendent prepares mock-up submittals as required by contract. Additionally, the Quality Manager specifies mock-up requirements when they are necessary to ensure customer expectations are clearly identified.

The Quality Manager ensures that each mock-up demonstrates specific elements of form and/or function, and that they are specified in the submittal documents.

[CompanyName] extends contract specifications to include customer approved mock-up submittals.

SUBMITTAL SCHEDULE AND LOG

The Project Manager identifies submittals that apply to a specific contract and when they should be submitted, including:

- Contract requirement reference (if applicable)
- Submittal type: Shop drawing, product data, quality inspection and test plan, request for information, or allowances and unit prices
- Description
- Due date for submission to customer by [CompanyName]
- Due date for approval by the customer. Due dates may be a number of days after a project plan milestone.
- Approval date

SUBMITTAL REVIEW AND APPROVAL

The Quality Manager prepares submittals that provide additional details of how [CompanyName] plans to carry out quality-related aspects of the customer contract, contract technical specifications, and contract drawings and reporting of quality records to the customer.

The Quality Manager lists, schedules, and approves all quality-related submittals that are required by the project including submittals prepared by subcontractors and suppliers. The Quality Manager must review all submittals for compliance with the requirements of the [CompanyName] Quality System. The Quality Manager must sign approval of each contract submittal.

[CompanyName] extends compliance to contract specifications to all customer approved submittals. All

[CompanyName] activities comply with customer approved submittals.

[CompanyName] Project Submittal Form			
Submittal ID#	Project ID	Project Name	Date
	[ProjectNumber]	[ProjectName]	
To:		From: [CompanyName] Location:	
Type of Submittal: <input type="checkbox"/> Shop drawing <input type="checkbox"/> Product data <input type="checkbox"/> Request for information <input type="checkbox"/> Completed form or quality record <input type="checkbox"/> Quality system document <input type="checkbox"/> Other:		Description of submittal:	
List of attachments:		Remarks:	
Submittal Prepared by: [CompanyName] Name: Title: Signature / Date:		Submittal Approved by [CompanyName] Quality Manager: Name: Title: Signature / Date:	
Customer Disposition: <input type="checkbox"/> Approved <input type="checkbox"/> Conditionally approved, resubmission not required (see comments) <input type="checkbox"/> Disapproved, resubmission required <input type="checkbox"/> Other:		Customer Representative: Name: Title: Signature / Date:	
Comments:			

J. PROJECT QUALITY SPECIFICATIONS

Inspections and tests assess conformance to project quality specifications. Clearly defined specifications are essential for an effective inspection and test plan.

[CompanyName] personnel and subcontractors and suppliers are accountable for compliance to standards-based written specifications.

To achieve expectations reliably and consistently, specifications are clearly spelled out, not only for results but also for processes. Specifications apply to materials, work steps, qualified personnel and subcontractors and suppliers, safe work rules, and environmental work conditions.

Standards ensure that results are specified rather than left to discretionary practices.

CONTRACT SPECIFICATIONS

Fulfilling customer contract expectations is a primary objective of the [CompanyName] Quality System. To ensure that customer expectations will be fulfilled, [CompanyName] clearly defines the requirements for each contract before it is approved.

The Project Manager ensures that the information in customer contracts clearly defines customer expectations and that the necessary details are provided to set requirements for construction.

The Project Manager obtains contract technical specifications from the customer.

For each specific contract, The Senior Manager identifies supplemental technical specifications on the Trade-specific Quality Management Plan when they are not otherwise specified by the contract or the approved drawings. Superintendents have jobsite access to contract technical specifications for the construction activities they supervise.

All [CompanyName] activities comply with the contract technical specifications.

CONTRACT DRAWINGS

The Project Manager obtains customer supplied drawings that have been approved by local government regulators. Superintendents have jobsite access to approved architectural drawings for the construction they supervise.

All [CompanyName] activities comply with the drawing details and specifications cited in the drawings.

AS-BUILT RED-LINE DRAWINGS

As the project progresses, the Superintendent will mark the original design drawings to indicate as-built conditions including changes to specified materials, dimensions, locations, or other features.

NEEDS AND EXPECTATIONS OF INTERESTED PARTIES

The Quality Manager identifies interested parties, their expectations, quality requirements including governmental regulators, special interest organizations, and the public.

- Methods to monitor and control processes and characteristics
- Acceptability criteria for workmanship
- Tools, techniques and methods to be used to achieve the specified requirements.

[COMPANYNAME] QUALITY STANDARDS

All [CompanyName] activities comply with generally accepted good workmanship practices and industry standards.

The Quality Manager identifies supplemental requirements for industry standards that apply to a specific project when it is not otherwise specified by the contract, contract technical specifications, or approved drawings.

[CompanyName] quality standards supplement contract requirements when they are necessary to ensure quality.

When [CompanyName] quality standards differ from industry standards or product manufacturer instructions, the Quality Manager justifies that the standard reliably achieves quality results and then documents the justification.

All [CompanyName] activities conform to the company quality standards.

APPLICATION OF MULTIPLE SOURCES OF SPECIFICATIONS

Should multiple sources of specifications apply to a work task, the higher level of specification applies. When there are equal levels of specifications that conflict, the specifications are applied in this order:

- Submittals approved by the purchaser
- Contract technical specifications
- Contract drawings
- Government regulations that exceed requirements of items below
- [CompanyName] quality specifications, including subcontract specifications
- Product installation instructions
- Industry standards
- Generally accepted practices

COMPLIANCE WITH INDUSTRY UTILITY CONSTRUCTION STANDARDS

Codes that may apply to this project include those listed below.

Description	Reference Standard No.	Reference Standard Title
Clay sewer pipe installation	ASTM C 12	Standard Practice for Installing Vitrified Clay Pipelines
CMP installation	ASTM A798/A798M	Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications
Concrete gravity sewer piping installation	ACPA 01-103	Concrete Pipe Installation Manual
DIP polyethylene encasement installation	AWWA C105/A21.5	Polyethylene Encasement for Ductile-Iron Pipe Systems

[CompanyName] Quality Assurance/Quality Control Plan

PE pipe joining	ASTM D 2657	Heat Fusion Joining Polyolefin Pipe and Fittings
PE piping installation	ASTM D 2774	Underground Installation of Thermoplastic Pressure Piping
PVC piping installation	AWWA M23	Manual: PVC Pipe - Design and Installation
PVC piping installation	UBPPA UNI-B-3	Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe (Nominal Diameters 4-36 Inch)
PVC gravity sewer piping installation	ASTM D 2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
RCP piping installation	AWWA M9	Manual: Concrete Pressure Pipe
Steel pipe installation	AWWA M11	Manual: Steel Water Pipe: A Guide for Design and Installation
Steel pipe welding	AWWA C206	Field Welding of Steel Water Pipe
Gas piping installation	NFPA 54	National Fuel Gas Code
Pipe hanger and support installation	MSS SP-69	Pipe Hangers and Supports - Selection and Application
Structural plate installation	ASTM A807/A807M	Standard Practice for Installing Corrugated Steel Structural Plate Pipe for Sewers and Other Applications
Telecommunications installation	NFPA 70	National Electrical Code
Overhead pole line installation	NFPA 70	National Electrical Code

Selected Pages
Not the Complete Plan

K. MATERIAL INSPECTION TRACEABILITY AND QUALITY CONTROLS

Products and materials are controlled to assure the use of only correct and acceptable items. Controls include identification of the inspection status. Materials that require lot control traceability and the method of traceability are listed on the Controlled Materials form included as an exhibit in this subsection.

IDENTIFICATION OF LOT CONTROLLED MATERIALS

The Quality Manager determines types of project materials that require quality controls.

For each type of quality-controlled material, the Quality Manager determines lot control traceability requirements, if any, and specifies the means of lot identification. Identification methods may include physical labels, tags, markings and/or attached certification documents.

When lot-controlled materials are received, the Superintendent verifies that materials have the specified lot identifications.

The Superintendent maintains lot identification at all production phases from receipt, through production, installation, or assembly, to final completion. Acceptable methods for preserving lot identification include physically preserving observable lot identifications, recording the lot identification on a work task quality inspection form or other work record, or collecting the physical lot identifier as a record along with supplemented with location.

If lot-controlled materials are without lot identification, the Superintendent deems the materials as nonconforming and segregates them and/or clearly marks them to prevent inadvertent use. The Superintendent treats the material according to the company policy for nonconformances. Only the Quality Manager can re-identify or re-certify the materials.

MATERIAL RECEIVING AND INSPECTION

When lot-controlled materials are received, the Operations Manager inspects the materials and verifies that materials have the specified lot identifications. Received materials are listed on the Material Receiving and Inspection Report form or Metals Materials Receiving and Inspection form included as an exhibit in this subsection.

Material quality inspections and tests ensure that purchased materials meet purchase contract quantity and quality requirements. The Superintendent inspects or ensures that a qualified inspector inspects materials prior to use for conformance to project quality requirements.

The Superintendent ensures that each work task that uses the source inspected materials proceed only after the material has been accepted by the material quality inspection or test.

EQUIPMENT INSPECTIONS

All equipment is inspected and maintained daily or prior to use based on manufacturer's instructions. This includes all equipment whether in use or not while on the jobsite.

The Superintendent ensures that each work task that uses equipment proceed only after the equipment has been accepted by the equipment quality inspection or test.

The equipment inspection includes a verification of the following:

- Equipment is in good working condition and that there is no need for repair
- Equipment maintenance has been performed to meet manufacturer's specifications
- Equipment is safe to use

PRESERVATION AND PROTECTION OF MATERIALS AND COMPLETED WORK

[CompanyName] will preserve and protect work in process, completed work, component parts, materials, and when applicable, delivery to the destination to maintain compliance with project requirements and standards. This includes handling, storage, protection from natural elements, and reducing risks of damage.

Completed work is protected from damage as specified by government regulations, contract technical specifications, industry standards, or product installation instructions.

The Quality Manager identifies supplemental protection requirements that apply to a specific project when they are necessary to assure quality results.

MATERIAL AND EQUIPMENT STORAGE

The Superintendent ensures all materials and equipment will be delivered, stored, handled and maintained in a manner that protects them from damage, moisture, dirt and intrusion of foreign materials.

Delivery of materials and equipment will be planned according to the work progress to minimize storage on site, where there are higher possibilities of damages and deterioration of materials.

Preventive maintenance based on the manufacturer's recommendations will be performed on all stored materials and equipment if required.

If preventive maintenance is required:

- The Superintendent or qualified receiving inspector will record the item(s) on the Material and Equipment Receiving Inspection form and note that preventive maintenance is required
- Tag or label the material / equipment
- Record, on the tag or label, the type of preventive maintenance required, how often preventive maintenance is to be performed, and the date it was performed

Stored materials will be segregated to prevent cross contamination and limit losses should a delivery be rejected.

The Superintendent surveys stored materials and equipment during daily jobsite reviews to verify preventive maintenance requirements are being performed as required, and to identify if any material any material and/or equipment that have incurred damage or otherwise become defective and therefore unfit for use.

CALIBRATION OF INSPECTION, MEASURING, AND TEST EQUIPMENT

[CompanyName] Material Inspection and Receiving Report								
Contract ID	Contract Name	Purchase Order No.	Supplier			Bill of Lading No.	Date	
[ProjectNumber]	[ProjectName]							
Item No.	Stock/Part No.	Description	Quantity Received	Condition	Marking	Accept	Conditional Use	Reject
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Receiving Quality Control								
<p>ACCEPTANCE</p> <p>Listed items have been accepted by me or under my supervision</p> <p><input type="checkbox"/> Conform to contract specifications EXCEPT as noted herein or on supporting documents.</p> <p><input type="checkbox"/> Received in apparent good condition EXCEPT as noted</p> <p>Signature of authorized person and date: _____</p>								
EXCEPTIONS:								

L. UTILITY CONSTRUCTION INSPECTION AND TEST PLAN

The Quality Manager prepares quality inspection and test plans for a project that identifies:

- Each required quality inspection and/or test
- Inspection and test specifications for each required quality inspection or test
- Hold points for purchaser quality inspection
- Specification requirements for each quality inspection and test

The Quality Inspection and Test Plan form lists inspections and tests (other than work task inspections) that will be performed on this project.

Results of inspections and tests will be recorded on the Inspection and Test Form. An Inspection and Test Plan and Log form exhibit is included as an exhibit in this subsection.

INDEPENDENT MEASUREMENT AND TESTS

The Quality Manager ensures that quality tests that apply to a specific project are clearly identified. Tests for a project include:

- Purchaser required quality tests as specified by the contract, contract technical specifications, contract drawings, and approved submittals.
- Additional quality tests necessary to assure quality results.

HOLD POINTS FOR PURCHASER INSPECTION

The Superintendent stops work when reaching a hold point specified on the inspection and test plan. The Superintendent ensures that work proceeds only with purchaser approval.

INSPECTION AND TESTING UTILITY CONSTRUCTION STANDARDS

Inspection and testing standards that may apply to this project include those listed below.

Description	Reference Standard No.	Reference Standard Title
Testing of concrete pressure lines	AWWA M9	Manual: Concrete Pressure Pipe
Hydrostatic testing of DIP	AWWA C600	Installation of Ductile-Iron Water Mains and Their Appurtenances
Pressure & leakage testing of PVC	UBPPA UNI-B-3	Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe (Nominal Diameters 4-36 Inch)
Hydrostatic testing of steel pressure lines	AWWA C600	Installation of Ductile-Iron Water Mains and Their Appurtenances
Gas line pressure testing	NFPA 54	National Fuel Gas Code
Sewer line infiltration & exfiltration testing	ASTM C 969M ASTM C 969	Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines

Low-pressure air tests for clay pipelines	ASTM C 828	Low-Pressure Air Test of Vitrified Clay Pipelines
Low-pressure air tests for concrete pipelines	ASTM C 924M ASTM C 923	Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method
Low-pressure air tests for DIP pipelines	ASTM C 924M ASTM C 924	Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method
Low-pressure air tests for PVC pipelines	UBPPA UNI-B-6	Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe
Deflection testing for plastic pipe	ASTM D 2412	Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading

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Not the Complete Plan

N. CONTROL OF CORRECTIONS AND NONCONFORMANCES

Should a problem occur in the quality of work, we systematically contain the issue and quickly make corrections. Our first action is to clearly mark the item by tape, tag, or other easily observable signal to prevent inadvertent cover-up.

Then we expedite a corrective action that brings the workmanship or material issue into conformance by repair, replacement, or rework. Previously completed work is reinspected for similar nonconformances. If we cannot correct the item to meet contract specifications, the customer will be notified, and customer approval of corrective actions is required before proceeding.

Fixing problems found is not sufficient. [CompanyName] systematically prevents recurrences to improve quality. First enhanced controls and management monitoring are put into place to assure work proceeds without incident. Then using a structured problem-solving process, [CompanyName] identifies root causes and initiates solutions. Solutions may involve a combination of enhanced process controls, training, upgrading of personnel qualifications, improved processes, and/or the use of higher-grade materials. Follow-up ensures that a problem is completely resolved. If problems remain, the process is repeated.

Nonconformances and their resolution are recorded on a Nonconformance Report form. A Nonconformance Report form exhibit is included in this subsection.

MARKING OF NONCONFORMANCES AND OBSERVATIONS

When the Quality Manager, Superintendent, inspector, or customer identifies a nonconformance or an observation, the item is quickly and clearly marked by tape, tag, or other easily observable signal to prevent inadvertent cover-up.

CONTROL THE CONTINUATION OF WORK

After the item is marked, the Superintendent determines if work can continue in the affected area:

CONTINUE WORK: When continuing work does not adversely affect quality or hide the defect, work may continue in the affected area while the disposition of the item is resolved. The Superintendent may place limitations on the continuation of work.

STOP WORK ORDER: When continuing work can adversely affect quality or hide the defect, work must stop in the affected area until the disposition of the item resolved. The Superintendent identifies the limits of the affected area. The Superintendent quickly and clearly identifies the boundaries of the stop work area.

RECORDING OF NONCONFORMANCES

If nonconformances or observed items exist by the work task completion inspection, the Superintendent or inspector records the nonconformances on a nonconformance report.

The Superintendent sends the nonconformance report to the Quality Manager.

QUALITY MANAGER DISPOSITION OF NONCONFORMANCE REPORTS

When the Quality Manager receives a Nonconformance Report, he or she assesses the affect the reported nonconformance has on form, fit, and function. The Quality Manager may assign a disposition of either:

REPLACE: The nonconformance can be brought into conformance with the original specification requirements by replacing the nonconforming item with a conforming item.

REPAIR: The nonconformance can be brought into conformance with the original requirements through completion of required repair operations.

REWORK: The nonconformance can be made acceptable for its intended use, even though it is not restored to a condition that meets all specification requirements. The Quality Manager may specify standards that apply to the completion of rework. Rework nonconformances must be approved by the customer.

USE AS-IS: When the nonconforming item is satisfactory for its intended use. Any use as-is items that do not meet all specification requirements must be approved by the customer.

CORRECTIVE ACTIONS

The Superintendent verifies that corrective actions eliminate the nonconformance to the requirements of the original specifications or as instructed by the disposition of the nonconformance report, and then removes, obliterates, or covers the nonconformance marker.

Furthermore, the Superintendent ensures that previously completed work is reinspected for similar nonconformances and corrective actions are taken to avert future occurrences (see section 9.3 Corrective Actions).

CONTROL OF CORRECTIVE ACTIONS

When a nonconformance is found, the Superintendent ensures that:

- Previously completed work is reinspected for similar nonconformances
- Corrective actions are taken to avert future occurrences

The Quality Manager identifies requirements for corrective actions with respect to frequency, severity, and detectability of quality nonconformances items found during and after completion of work activities.

When a solution requires changes to [CompanyName] quality standards, the Quality Manager makes modifications as necessary by making changes to:

- Material specifications
- Personnel qualifications
- Subcontractor and Supplier qualifications
- Company standards
- Inspection processes

CORRECTIVE ACTION TRAINING

The Superintendent initiates corrective action training to address quality nonconformances. Personnel and subcontractors and suppliers performing or inspecting work participate in the training.

[CompanyName] Nonconformance Report		
Nonconformance Report Control ID	Project ID	Project Name
	[ProjectNumber]	[ProjectName]
Preparer Signature/ Submit Date		Quality Manager Signature / Disposition Date
Description of the requirement or specification		
Description of the nonconformance, location, affected area, and marking		
Disposition	<input type="checkbox"/> Replace <input type="checkbox"/> Repair <input type="checkbox"/> Rework <input type="checkbox"/> Use As-is	
	Approval of disposition required by customer representative? Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Customer approval signature /date: _____	
Corrective Actions	<input type="checkbox"/> Corrective actions completed Name/Date: _____	
	Customer acceptance of corrective actions required? Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Name/Date: _____	
Preventive Actions		
	<input type="checkbox"/> Preventive actions completed Name/Date: _____	

Q. QUALITY ASSURANCE SURVEILLANCE

We manage overall project performance by setting performance objectives, measuring actual performance, and managing performance improvements. Overall performance objectives will be designed to extend our customer's performance work objectives into [CompanyName] operations. Each objective will have specific and verifiable measures.

PROJECT QUALITY PERFORMANCE SURVEILLANCE

We expect to measure quality performance in the following areas:

- Customer satisfaction through customer feedback, surveys, complaints, and quality assurance surveillance reports.
- On-time task completion as measured by a monthly on-time performance assessment
- Contract administration compliance as measured by a monthly project contract administration assessment
- Safety Plan compliance as measured by safety violations and a monthly safety assessment
- Quality Plan conformance as measured by a monthly Quality Plan assessment

Every month, [CompanyName] holds a performance improvement meeting with the participation of key project and customer personnel. They review past performance, project quality risks, and quality issues. An action plan is set for improvement and progress is reviewed at the next meeting.

PROJECT AUDIT PLAN

The Quality Manager identifies the frequency of project quality audit that will be conducted during the project and the job position that will conduct the audits. Considerations include:

- The size of the project
- The complexity of processes and their interactions
- The duration of the project

PROJECT AUDIT REQUIREMENTS

The Quality Manager conducts monthly Project Quality System audits that verify proper operation of the Quality System on a project. At least monthly, the Quality Manager audits:

- Quality system framework
- Quality system management and responsibilities
- Customer contract specifications
- Design control
- Project-specific quality standards
- Project purchasing
- Process control plans
- Inspections and tests
- Nonconformances and corrective actions
- Preventive actions
- Quality records and documents

The Quality Manager takes corrective actions to ensure compliance with Quality System requirements. The effectiveness of changes is then evaluated and documented.

**[CompanyName]
Project Quality System Audit Form**

Project ID	Project Name	Auditor	Date
[ProjectNumber]	[ProjectName]		

**Review Topics:
(Place check mark next to each item audited)**

- Customer satisfaction
- On-time task completion
- Contract administration
- Safety compliance
- Quality risk planning and mitigation
- Performance improvement results
- Action plan for improvements

Quality Plan Conformance:

- Project QC Personnel
- Project Quality Coordination and Communication
- Employee Qualifications
- Qualification of subcontractors and suppliers
- Project Quality Specifications
- Testing Plan
- Test Reports
- Work Task Quality Inspections
- Daily Quality Control Report
- Control of Purch Items and Nonconformances
- Project Records and Documents

Nonconformance Notes and observations

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UTILITY CONSTRUCTION INSPECTION CHECKLIST

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Utilities - Storm Drainage Structures 33.49.00

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Utilities - Subdrainage 33.46.00

Utilities - Water Utility Distribution Equipment 33.12.00

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Utilities - Culverts 33.42.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
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<u>Compliance Verification</u>	<u>YES NO Heightened Awareness Checkpoints</u>
<input type="checkbox"/> Compliance with initial job-ready requirements	<input type="checkbox"/> <input type="checkbox"/> Culverts have sufficient cover for anticipated traffic
<input type="checkbox"/> Compliance with material inspection and tests	<input type="checkbox"/> <input type="checkbox"/> Culvert laid true / even between ends and free of deformations
<input type="checkbox"/> Compliance with work in process first article inspection requirements	<input type="checkbox"/> <input type="checkbox"/> Joints are soil// silt// or watertight (as specified by ENGINEER)
<input type="checkbox"/> Compliance with work in process inspection requirements	<input type="checkbox"/> <input type="checkbox"/> Push-on joints fully inserted
<input type="checkbox"/> Compliance with Task completion inspection requirements	<input type="checkbox"/> <input type="checkbox"/> Bell and groove ends laid facing up slope
<input type="checkbox"/> Compliance with inspection and test plan	<input type="checkbox"/> <input type="checkbox"/> Protective coating is intact// uniform// and free of damage
<input type="checkbox"/> Compliance with safety policies and procedures	<input type="checkbox"/> <input type="checkbox"/> Lifting holes sealed
Reported Nonconformances and incomplete items:	<input type="checkbox"/> <input type="checkbox"/> Culverts free of debris
	<input type="checkbox"/> <input type="checkbox"/> End walls / end sections / riprap outfalls secure and stable
	<input type="checkbox"/> <input type="checkbox"/> All culvert final locations// type// size// and usage indicated on Record Drawings

Scores and Completion Sign-off

Field Mgmt.-91.45.01

Quality 5 4 3 2 1 *Notes:*

On-Time 5 4 3 2 1 *Notes:*

Safety 5 4 3 2 1 *Notes:*

Sign and date*: Cell # / ID #: _____ Signed: _____ Date: _____

Task has been verified complete and in compliance with contract drawings and specifications except for non-conformances and incomplete items reported above.

<u>Quality Score</u>	5 = 100% NO problems	4 = 1 minor problem	3 = Hotspot or 2-3 minor	2 = 6+ or major problems	1 = Excessive problems
<u>On-Time Score</u>	5 = On Time	4 = Late	3 = Late by 1 day	2 = Late by 2 days	1 = Late more than 2 days
<u>Safety Score</u>	5 = 100% NO problems	4 = 1 minor problem	3 = Hotspot or 2-3 minor	2 = 4+ or major problem	1 = Injury

Utilities - Sanitary Utility Sewerage Piping 33.31.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
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<p><u>Compliance Verification</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Compliance with initial job-ready requirements <input type="checkbox"/> Compliance with material inspection and tests <input type="checkbox"/> Compliance with work in process first article inspection requirements <input type="checkbox"/> Compliance with work in process inspection requirements <input type="checkbox"/> Compliance with Task completion inspection requirements <input type="checkbox"/> Compliance with inspection and test plan <input type="checkbox"/> Compliance with safety policies and procedures <p>Reported Nonconformances and incomplete items:</p>	<p><u>YES NO Heightened Awareness Checkpoints</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Piping has sufficient cover for anticipated traffic <input type="checkbox"/> <input type="checkbox"/> Piping laid true and even between access openings <input type="checkbox"/> <input type="checkbox"/> Proper separation between water and sewer lines maintained (10' horizontal// 18" vertical with water on top) <input type="checkbox"/> <input type="checkbox"/> Bell ends laid facing up slope <input type="checkbox"/> <input type="checkbox"/> Mechanically restrained joints tight and secure <input type="checkbox"/> <input type="checkbox"/> Push-on joints fully inserted <input type="checkbox"/> <input type="checkbox"/> Connections to structures fully bedded and sealed <input type="checkbox"/> <input type="checkbox"/> Fittings and accessories compatible (material// pressure rating// connection type) with the piping utilized <input type="checkbox"/> <input type="checkbox"/> Protective coating/wrap is intact// uniform// and free of damage <input type="checkbox"/> <input type="checkbox"/> Indicator tape or tracer wire installed above piping
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Scores and Completion Sign-off

Field Mgmt.-91.45.01

Quality	5 4 3 2 1	Notes:
On-Time	5 4 3 2 1	Notes:
Safety	5 4 3 2 1	Notes:

Sign and date*: Cell # / ID #: _____ Signed: _____ Date: _____

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Utilities - Subdrainage 33.46.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
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<p><u>Compliance Verification</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Compliance with initial job-ready requirements <input type="checkbox"/> Compliance with material inspection and tests <input type="checkbox"/> Compliance with work in process first article inspection requirements <input type="checkbox"/> Compliance with work in process inspection requirements <input type="checkbox"/> Compliance with Task completion inspection requirements <input type="checkbox"/> Compliance with inspection and test plan <input type="checkbox"/> Compliance with safety policies and procedures <p>Reported Nonconformances and incomplete items:</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 10%;">YES</th> <th style="width: 10%;">NO</th> <th style="width: 80%;"><u>Heightened Awareness Checkpoints</u></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Drainage piping laid true and even sloped down to outfall</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Bell and groove ends laid facing up slope</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Push-on joints fully inserted</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Drainage piping encased with pervious backfill</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Subdrainage piping NOT connected to sanitary sewer</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Geotextiles of woven or non-woven filaments NOT woven slit film</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Filter media is free of excessive fines</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Permeable drainage liners/mats connected to subdrain piping</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Subdrainage pipe outfalls provided with rat guards</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Weep holes protected from soil blockage and angled downward</td> </tr> </tbody> </table>		YES	NO	<u>Heightened Awareness Checkpoints</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drainage piping laid true and even sloped down to outfall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bell and groove ends laid facing up slope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Push-on joints fully inserted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drainage piping encased with pervious backfill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Subdrainage piping NOT connected to sanitary sewer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Geotextiles of woven or non-woven filaments NOT woven slit film	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Filter media is free of excessive fines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Permeable drainage liners/mats connected to subdrain piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Subdrainage pipe outfalls provided with rat guards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Weep holes protected from soil blockage and angled downward
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Scores and Completion Sign-off

Field Mgmt.-91.45.01

Quality 5 4 3 2 1 *Notes:*

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