Preface

The following document is The Pennsylvania Department of Transportation Engineering District 10-0, Construction Unit Quality Manual as required by ISO 9001:2015; Quality Management System Standards. The master copy of this document is located and maintained electronically on the Departments Local Access Network (LAN) and addressed P:\penndot shared\District 10 Construction Unit ISO Quality Manual. All hard copies issued are uncontrolled and are noted as such. It is the user’s responsibility to verify that all referenced copies of this manual are current prior to use.

PennDOT District 10-0 Construction Unit

Approved by:

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Acronyms

AAR – After Action Review
AASHTO – American Association of State Highway and Transportation Officials
ACE – Assistant Construction Engineer
ACM – Assistant Construction Manager
ADE – Assistant District Executive
ASTM – American Society for Testing and Materials
AWS – American Welding Society
BC – Bridge Construction (Standards)
BEO – Bureau of Equal Opportunity
CAC – Community Advisory Committees
CAE – Consultant Agreements Engineer
CB – Citizen Band
CDS V3 – Construction Documentation System (version 3) (housed in ECMS)
CFS – Construction Field Site
CID – Customer Information Database
CMS – Construction Management System
CPM – Critical Path Method
CRP – Contractor Responsibility Program
CRPS – Contractor Responsibility Program System
CSE – Construction Services Engineer
CS – Customer Service
DBE – Disadvantage Business Enterprise
DE – District Executive
DGE – District Geotechnical Engineer
DLCCA – District Labor Contract Compliance Agent
DM-4 – Design Manual, Part 4
DMS – Dynamic Message Sign
DQA – District Quality Assurance
DRS – Document Routing System
ECMS – Engineering and Construction Management System
DRS – District Review System
EDMS – Electronic Documentation Management System
EIN - Employer Identification Number
EPA – Environmental Protection Agency
EPR – Employee Performance Review
FHWA – Federal Highway Administration
GER – Geological Engineering Reports
HAR – Highway Advisory Radio
IIC – Inspector In Charge
IMS – Information Management System
ISO – International Organization for Standardization
LAN – Local Access Network
MBE – Minority Business Enterprise
NEOP – New Employee Orientation Program
NFQ – Notice of Final Quantities
PA DEP – Pennsylvania Department of Environmental Protection
PDCA – Plan-Do-Check-Act
PE – Professional Engineer
PennDOT – Pennsylvania Department of Transportation
POM – Project Office Manual
PPR – Past Performance Reports
PPCC – PennDOT Project Collaboration Center
PSA - Project Site Activities
PTM – Pennsylvania Test Methods
QMS – Quality Management System
RC – Roadway Construction (Standards)
RFS – Request for Service
RMDS – Report Management Documentation System
ROW – Right of Way
RSGER – Reconnaissance Soils and Geological Engineering Reports
SCE – Structural Control Engineer
SEPS – Subsurface Exploration Planning Submission
SOI – Statement of Interest
SR – State Route
TC – Traffic Control (Standards)
WBE – Women Business Enterprise
WO – Work Order
4 – Quality Management System

4.4 Processes
Process Owner: Assistant District Executive – Construction

Purpose:
To provide an overview of the Construction Unit Quality Management (QM) System.

Scope:
The construction management of highways and bridges provided to the Construction Unit of the Pennsylvania Department of Transportation Engineering District 10-0.

Reference Documents:
ISO 9001:2015

Procedure:
The Construction Unit is responsible for the management of contracts for bridge and roadway construction. The Construction Unit interfaces with both the Design and Maintenance Units within the District throughout the duration of a project (see Figures: 4.1, 4.2 and 4.3).

The Construction Unit QM system encompasses the management of construction projects as Designed. Let contracts are placed in “Pre-Award” status in ECMS through the construction phase until the projects are completed and turned over to their owner, usually a specific County Maintenance Unit. Construction interfaces with the Design and Maintenance Units, throughout the life cycle of the project through various processes and communications. The scope of this QM system is limited strictly to the Construction Unit and the processes listed for the responsible management of construction bridges and roadways.

The Construction Unit has established, documented, implemented and maintains a Quality Management System (QMS) in compliance with ISO 9001:2015. Also, through the implementation of the management review process, internal auditing and our corrective action process, we continually strive to improve its effectiveness.

The processes needed for the quality management system and their application throughout the organization are identified in our procedures and in other documents, as appropriate, for defined Unit processes of Construction. In addition, the sequence and interaction of these processes, the criteria and methods needed to ensure that both the operation and control of these processes are effective, the monitoring, measuring and analysis of these processes and the actions necessary to
achieve planned results are also indicated, as appropriate, in our procedures and other documents, or addressed by ensuring the competence of personnel performing assigned duties.

Regarding availability of resources and information necessary to support the operation and monitoring of these processes, these responsibilities are the authority of the ADE –Construction and are addressed as described in other procedures.

Activities in the Construction Unit that could be considered as “outsourced” are activities such as consultant inspection services and construction support services with control of these activities being described in our purchasing process.

Figure 4.3 indicates one view of how our processes work together to achieve the results intended by implementing a process-approach based QMS. In one sense, we have mini-PDCA (Plan-Do-Check-Act) cycles operating within our processes as well as on a system-wide basis. We also consider end-customer satisfaction as a primary focus of our organization and attempt to align the activities of all our personnel with our PennDOT Vision, Mission and Value statements in a way that contributes to achieving customer satisfaction and quality.
Interaction of Key Processes

Figure 4.1

Central Office Functions

Project Delivery

District Office Functions

Design Roads & Bridges

Construct Roads & Bridges

Maintain Roads & Bridges

SCOPE OF QMS
Key Interfaces During Project Progression

Figure 4.2

Project Bid Letting

Design Roads & Bridges

Construct Roads & Bridges

Maintain Roads & Bridges

Detailed constructability review for selected projects.

Final constructability review

Internal Design Unit Checklist

Final inspection by:
- Design Unit
- Construction Unit
- Maintenance Unit
- Contractors
- Other Interested Parties
Plan-Do-Check-Act Cycle

Figure 4.3

PLAN
5.1 Leadership and Commitment
5.2 Quality policy
6.0 Planning

DO
8.0 Product Realization
8.6 Release of Products and Services
8.7 Control Nonconforming Process Outputs, Products, and Services

ACT (IMPROVE)
9.3 Management Review
10.2 Nonconformity and Corrective Action
10.3 Continual Improvement

CHECK
9.1.2 Customer satisfaction
9.1.3 Analysis and Evaluation
9.2 Internal Audit

4.0 Context of The Organization
5.3 Organizational Roles, Responsibilities, and Authorities
7.1.3 Infrastructure
7.1.4 Environment for the Operation of Processes
7.2 Competence
5 – Leadership

5.1 Leadership and commitment

Process Owner: Assistant District Executive – Construction

Purpose:
To provide evidence of top management commitment to the Construction Unit Quality Management System.

Scope:
Applies to top management communication to the entire Construction Unit.

Referenced Documents:
PennDOT District 10 Construction Unit Quality Policy

Procedure:
On at least an annual basis, the ADE – Construction shall provide evidence of commitment to the development, implementation and improvement of the quality management system by communicating to the organization the importance of meeting customer, regulatory and legal requirements.

As evidence of the commitment, the ADE – Construction shall maintain and publish the PennDOT District 10 Construction Unit Quality Policy and shall develop quality objectives for appropriate management personnel.

Further, the ADE – Construction shall conduct management reviews on a periodic basis, but at least twice a year.

Finally, the ADE – Construction shall ensure the availability of necessary resources by reviewing these issues at least during the management review process.
5.2 Quality Policy

*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To describe top management’s role regarding the Construction Unit Quality Policy.

**Scope:**
Quality Policy contents.

**Referenced Documents:**
Current Administration Strategic Plan

**Procedure:**

The ADE – Construction is responsible to ensure that the Quality Policy is developed, documented and effectively communicated to all personnel. Further, the ADE – Construction is responsible to ensure that the Quality Policy is appropriate for the organization, that it includes commitment to meeting requirements and for continual improvement. Finally, the ADE – Construction is responsible to assure that the Quality Policy provides a basis for establishing and reviewing objectives and is reviewed periodically for continued suitability.

5.2.1 Responsibility and authority

The responsibility, authority and interrelationship of those who manage, perform and verify work affecting quality, are shown on our organizational charts and in our job descriptions. Job descriptions are created and are maintained in an electronic file system.

Those with quality responsibilities have the organizational freedom and authority to take the action necessary to manage their responsibilities.
5.2.2 Management representative

The ISO Management Representative shall be appointed by the ADE - Construction. The ISO Management Representative is charged with the responsibility and has been granted the authority for ensuring that the requirements of ISO 9001:2015 are successfully carried out and maintained throughout the organization.

The ISO Management Representative reports on the performance of the Quality System at the Management Review meetings.

Among other duties, the ISO Management Representative shall ensure that the processes of the Quality Management System are established and maintained. The Management Representative shall report to the ADE - Construction on QMS performance including improvement and customer needs at the management review meetings. The management representative will ensure customer survey results and corrective actions are discussed annually with entire construction unit staff. Promoting QMS awareness shall be reviewed at least twice annually at the management review meetings.

5.2.3 Internal communication

The Construction Unit shall use the Management Review meetings as its primary vehicle for assuring that communication exists among its various levels and departments regarding the processes of the Quality Management System and their effectiveness. The ADE – Construction shall also communicate with the Construction Unit staff via meetings, annual Winter Construction School, IIC meetings, emails and newsletters, as appropriate.

5.3 Organizational roles, responsibilities and authorities

Process Owner: ISO Management Representative

Purpose:
To address administrative aspects of the Quality Management System.

Scope:
Applies to the entire Construction Unit organization.

Referenced Documents:
Organizational Chart

Procedure:
Submit concerns to ISO Management Representative for review at Management Review meetings.
6 Planning

Process Owner: Assistant District Executive – Construction

Purpose:
To address quality objectives and quality planning for the Construction Unit.

Scope:
This procedure addresses the role of top management regarding quality objectives and quality planning activities for the Quality Management System.

Referenced Documents:
Not applicable

Procedure:

6.2 Quality Objectives and planning to achieve them

As part of our Quality Management System planning the ADE – Construction shall ensure that our processes are defined in our Quality Manual, Procedures, Instructions, Forms, and Publications to ensure our processes are operating under controlled conditions and to meet documentation and record-keeping requirements as well as the requirements incorporated in our quality objectives.

6.2.1 Quality Management System Planning

The ADE – Construction shall establish quality objectives with appropriate Construction Unit personnel that are measurable and consistent with the District Scorecard, Construction Dashboards and Quality Policy.

The ADE – Construction shall ensure that the resources needed to achieve quality objectives and to meet requirements are identified and are available. In addition to addressing needed resources, quality planning shall include a review of the QMS processes at least annually as an element of management review.

Also, as appropriate, the ADE – Construction shall consider changes that are occurring in the organization and determine what actions if any are necessary to maintain the integrity of the Quality Management System.
7 – Support

7.1.1 General

*Process Owner: Assistant District Executive – Construction*

*Purpose:*
To determine and provide the resources needed to implement and maintain the quality management system and continually improve its effectiveness, and to enhance customer satisfaction by meeting customer requirements.

*Scope:*
Applies to the entire Construction Unit

*Reference Documents:*
Not applicable

*Procedure:*
It is the responsibility of the ADE – Construction to determine and provide the resources needed to; a) implement and maintain the quality management system and continually improve its effectiveness, and b) to enhance customer satisfaction by meeting customer requirements.

7.1.2 People

*Process Owner: Assistant District Executive – Construction*

*Purpose:*
To ensure that the personnel who are assigned responsibilities defined in the quality management system shall be competent based on applicable education, training, skills and experience.

*Scope:*
Applies to the entire Construction Unit

*Reference Documents:*
Not applicable

*Procedure:*
For all positions, a job description shall exist that defines the requirements for the position, including the education, skills and experience required for the position.

It is the responsibility of managers to ensure that applicants being considered for hire meet the requirements contained in the job description and to identify any training needs that the “new employee” may require to maintain ongoing competence.
7.1.3 Infrastructure

*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To provide and maintain appropriate facilities.

**Scope:**
Applies to the entire Construction Unit

**Reference Documents:**
Not applicable

**Procedure:**
The organization shall identify facility needs to achieve its purpose. Facilities are provided and maintained by the Department of General Services.

The Management Representative shall annually review facilities to ensure that facilities, equipment, hardware, software and supporting services conform to needs. Recommendations shall be reported to the Management Review Committee.

7.1.4 Environment for the operation of processes

*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To address maintenance of a suitable work environment.

**Scope:**
Applies to all work environments related to the Construction Unit

**Reference Documents: Not Applicable**

**Procedure:**
The ADE – Construction is responsible for identification and ensuring the maintenance of a suitable work environment for the organization.

Human and physical factors related to the work environment are typically not an issue for the office staff because services are performed in state provided facilities. For services provided outside state provided facilities (e.g. at construction sites), the project management staff shall conduct and document weekly safety talks and report unsuitable conditions to supervision for consideration for correction and corrective action.

The ADE – Construction shall review work environment adequacy at least annually in a Management Review meeting.
If we have unique requirements for the work environment, the ADE – Construction shall assure the documentation of a suitable plan to address the unique requirements.

7.1.5 Monitoring and measuring resources

Process Owner: Assistant District Executive – Construction

Purpose:
To define the process for controlling measuring and monitoring devices.

Scope:
Applies to all District 10 Construction Unit operations

Reference Documents:
Not applicable

Procedure:
Since our products are services and the oversight of the work of others (i.e. contractors), the Construction Unit has very limited opportunity for the use of measuring and monitoring devices in its processes. If a circumstance arises where testing or measurements need to be made or taken we generally use the PennDOT Material Lab in Harrisburg (which is ISO 9001 certified).

The one situation where calibration of measuring devices is required is for the activities described in Procedure 8.5.1: M2 - Equipment Calibrations – Distributors, Chippers and Rubber Tire Rollers. For this situation, the individuals doing the calibrations are responsible to ensure that the equipment used is adequate to perform the work. Also, the Construction Unit does possess various devices (i.e. nuclear density gauges for compaction, humidity gages for structural steel painting applications and finals unit digitizer for plotting cross-sections). These gages and devices are controlled and calibrated as per established procedures.

If it is required or necessary to control any other measuring and monitoring devices, each sub-unit shall identify the measurements to be made and the measuring and monitoring devices required to assure conformity of product to specified requirements and shall document a Quality Plan to provide the controls necessary to assure control of these measuring and monitoring devices.
7.2 Competence, awareness and training

*Process Owner: Assistant District Executive – Construction*

**Purpose:**  
To describe the requirements of competency evaluation, training and the effectiveness of training.

**Scope:**  
Applies to the entire Construction Unit

**Reference Documents:**  
Job Descriptions, Training Plans, PAWS, Core Competency Lists

**Procedure:**  
The management staff is responsible for 1) determining competence, 2) providing training or taking other actions to address competence gaps, 3) evaluating training effectiveness, as appropriate, 4) ensuring that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives and 5) ensuring that appropriate records are maintained (see diagram below).

![Diagram of Competence, Awareness, and Training Process]

Ensure personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives.
The requirements for training, awareness and competency for the organization shall include the following processes:

New full-time employees
- A District orientation, NEOP (New Employee Orientation Program), shall be provided which shall be documented and a record maintained in the personnel file. In addition, the immediate supervisor shall provide training for specific job duties related to the Construction Unit.

All full-time employees
- A Job Description shall exist for all positions in the organization.
- An appraisal process shall evaluate employee competence by way of his/her Job Description (in accordance with EPR processes)
- A core competency exists for each job classification. In addition, an EPR (Employee Performance Review) and training needs assessment is conducted for each full-time employee.
- The EPR review process or other methods shall be used at the discretion of the supervisor to evaluate the impact of training events. For training of one day or more, to immediately assess the effectiveness of training, the trainee shall prepare a note to their supervisor, describing information learned and training effectiveness. Supervisors shall compile notes and report on training effectiveness, when appropriate, at Management Review.
- Confirmation of these evaluations shall be retained as quality records.
- Appropriate records of Job Descriptions, education, training, skills and experience shall be retained in the individual personnel files for all organization personnel.

Temporary employees
- All temporary employees shall attend an appropriate orientation training session within 2 weeks of employment. Additional training shall be provided at the discretion of the employees’ supervisor

Also, it is our expectation, but not a requirement, for supervisors to discuss the purposes and importance of training with employees before training occurs.

All training, education, experience and qualifications shall be documented in the employee’s personnel records.

To assure that employees are aware of the importance and relevance of their activities and how they contribute to the achievement of the quality objectives, on at least an annual basis, the ADE – Construction shall ensure that such matters are addressed with all employees.
7.5 Documented Information

*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To define the Construction Unit processes for controlling documents and records.

**Scope:**
Applies to all Construction Unit personnel

**Reference Documents:**
ISO 9001:2015

**Procedure:**

**7.5.1 General**

The Quality Management System documentation shall consist of a Quality Manual that includes and or references the Policies and Procedures of the organization as they relate to the Quality Management System. It also includes the Quality Policy and objectives, work instructions which provide directions and guidance for the execution of critical tasks, forms which are used to provide a systematic method for recording specific information needed to document activities or the results of activities and the records required by ISO 9001:2015.

Further, the Quality Management System documentation shall include and or reference those documents needed by the organization to ensure the effective planning, operation and control of processes.
7.5.2 Creating and Updating

The Master copy of all Quality System documentation shall be maintained electronically under the supervision of the ISO Management Representative. Employees shall check any hardcopy (Un-controlled) Quality System document against the electronic Master to ensure it is the latest version. Any documents for the Quality Management System shall be reviewed for adequacy and approved prior to issue.

At least annually, an agenda item for the ISO Management Review shall be a discussion of the need for review and updating of documents. If updates are necessary, such documents shall be re-approved before reissuing.

Documents of external origin such as federal, state and county publications (e.g. Pub 408), regulations or Standards (e.g. AASHTO) are identified and controlled in each sub-unit to ensure that the proper versions of the documents are used. Any ISO documents (forms) created for District use, will be stored and controlled within our LAN system J:Drive, manual link to “P” drive” to enable field personnel to “read only” in our District 10 internet website.

The creation, revision and distribution of the Quality Manual, Work Instructions and Forms are the responsibility of the ISO Management Representative. All changes to the Quality Manual must be approved by the ADE - Construction and the ISO Management Representative.

The Table of Contents of the Quality Manual shows the latest revision date of each section so users can verify they have the correct revision. The most recent version of each document in the Work Instructions and Forms file will have a revision date. Any user of hard copy documentation shall check the master listing maintained on the computer master to ensure the hard copy document is the applicable version.

Each sub-unit head is responsible for annually reviewing their processes within this Quality Manual for use during the last quarter of the year and report on the status at a management review meeting. If uncontrolled copies are issued, they shall be clearly identified. Obsolete documents retained for legal or knowledge-preservation purposes shall be suitably identified.

Changes to internal documents may be recommended by any employee and forwarded to the document owner for review and action. The document owner is responsible to control the new issues and revisions and to assure proper approvals and distribution, and to assure obsolete documents are removed.

A Document Ownership Chart shall be maintained by the appropriate sub-unit head who shall conduct an annual review of documents to ensure that the documents remain legible, identifiable and retrievable. Furthermore, each sub-unit head shall maintain a master copy of each document type, and identify the current version to ensure applicable documents are available at points of use. These documents are listed in appendix A of this clause.
7.5.3 Control of documented information

Quality records that demonstrate conformance to specified requirements shall be stored for future reference. Quality records are identified in Appendix A, below, and shall be controlled by the document owner and retained for the length of time specified by the sub-unit or others, as appropriate. If control of document occurs outside the scope of the Quality Manual, then the Commonwealth Records Management Program will control record retention, see Appendix B.

Issues relating to protection, retention time and disposition of quality records shall be discussed at least annually in Management Review and appropriate actions, if any, shall be recorded and instituted.

Each sub-unit defines methods used for the identification, collection; indexing, access, filing, storage, maintenance and disposition of quality records include suitable identification of the contents of files or electronic media or storage boxes.

APPENDIX A

DOCUMENT OWNERSHIP CHART

The following is a list of documents referenced in the QMS procedures for individual areas throughout the construction unit.

Note: The classification of documents indicated below is for information only. Documents may be used in various places throughout the Construction Unit.

TOP MANAGEMENT
- Customer Survey and Results
- After Action Review Minutes
- Legislative Contact Report
- Customer Care Center (Electronic)
- Organizational Chart
- Job Descriptions
- Unit Training Needs
- Position Analysis Workbooks
- District Scorecard (Electronic)
- District Dashboard (Electronic)

CONSTRUCTION SERVICES ENGINEER
- Publication 2 – Project Office Manual
- Publication 8 – Construction Manual
- Publication 408 - Specifications

SCHEDULING AND CONSTRUCTABILITY
- Publication 3 - Bulletin #15 Approved Construction Materials
## ISO MANAGEMENT REPRESENTATIVE
ISO 9001:2015 Standard
Construction Unit ISO Quality Manual

### MATERIALS

| ACI 211.1-91 Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete |
| Publication 34 – Bulletin #14 Approved Aggregate Producers |
| Publication 35 – Bulletin #15 Approved Construction Materials |
| Publication 27 – Bulletin #27 Bituminous Concrete Mixtures, Design Procedures |
| Publication 41 – Bulletin #41 Approved Bituminous Asphalt Producers |
| Publication 42 – Bulletin #42 Approved Concrete Producers |
| ASTM Specifications |
| AASHTO Specifications |
| Publication 23 – Maintenance Manual |

### GEOTECHNICAL

| Publication 222 – Geotechnical Investigation Manual |
| Publication 293 – Geotechnical Engineering Manual |
| Publication 15M – Pennsylvania Design Manual 4 |
| AASHTO LRFD Bridge Design Specifications |
| Geotechnical Engineering Report Project Specific |
| Foundation Report Project Specific |
| Various Geotechnical Textbooks |
| PennDOT Mining Handbook |

### CONSULTANT AGREEMENT ENGINEER

| Publication 93 - Policy and Procedures for the Administration of Consultant Agreements |

### LABOR CONTRACT COMPLIANCE

| PennDOT Labor Compliance Manual |

### STRUCTURAL CONTROL

| Structural Welding Code |
| Publication 219M – Bridge Construction Standards |
| Publication 218M – Bridge Design Standards |
| Bridge Coating Inspection Manual |

### FIELD OPERATIONS

| Publication 2 – Project Office Manual (POM) |
| Publication 8 Construction Manual |
| Publication 408 – Specifications |
| Contract Documents Including Special Provisions |
| Publication 72M – Roadway Construction Standards |
| Publication 111 – Traffic Control Standards |
Publication 219M – Bridge Construction Standards  
Publication 212 – Official Traffic Control Devices  
Publication 213 – Temporary Traffic Control Guidelines  
Project Plans  
Cross Sections  
Project Partnering Meeting Minutes (If applicable)  
IPAD APPs:  
  Erosion & Sedimentation VI, Mobile Construction Concrete Inspector  
  Diary, Mobile Construction Documentation, Mobile Construction  
  Force Account, Mobile Construction Maintenance & Protection of  
  Traffic, Mobile Construction Punch List, Project Site Activities  

FINALS  
Estimate Items Books  
Project Materials Book  
Project Quantity Book  
Project Concrete Book  
Project Site Activity Sheets, PSAs electronic

APPENDIX B  
QUALITY MANAGEMENT SYSTEM  
FORMS/RECORDS SITES  

Note: Forms may be used in various places throughout the Construction Unit.  
Each Unit has specific retention times for their individual records  
Electronic sites have lists of Construction forms to be used during various phases/operations of the Construction process, updated by Central Office.

Publications and Reports  

Forms  

ECMS – go to References – go to Publications:  
  - Construction Forms  
  - Construction Related E-Pubs  
  - Highway Related

Out of Scope Documents/Records  
  •  [Management Directive 210](http://www.dot.state.pa.us/Internet/Bureaus/pdBCM.nsf/ConstructionAndMaterialsHomePage?OpenFrameSet)
8 – Operation

8.1 Operational planning and control

Process Owner: Assistant District Executive – Construction

Purpose:
To describe the process used for planning project delivery for the Construction Unit

Scope:
Applies to all Construction Unit operations.

Reference Documents:
Not applicable

Procedure:
The project delivery processes for the Construction Unit exist in eight (8) areas:

- Materials Unit
- Geotechnical Unit
- Consultant Agreements
- Labor Contract Compliance
- Structural Control
- Field Operations
- Finals Unit
- Scheduling and Constructability

Charts 8.1 to 8.8 below indicate how the various key project delivery processes of the Construction Unit fit together including: the inputs and outputs of key processes, the critical process steps (activities), important interactions, and key measures of performance. These charts indicate our approach to planning the project delivery processes, these processes will be described in more detail in section 8.5.1.

The Construction Unit uses a process management approach that begins with a clear understanding of quality objectives and product requirements. The quality objectives come from the current Administration’s Strategic Plan. The project requirements come from the Department of Transportation’s specifications, standards, material testing, and project specific special provisions.

Each sub-unit within the Construction Unit has a counterpart or point of contact in the central office that has established processes, documents, and resources for specific activities. The counterparts are located in central office sections and bureaus that provide direction, processes, documents, and specifications.
The Construction Unit works very closely with central office counterparts to determine best practices for verification, validation, monitoring, inspection, and test activities. Also, input and advice is received from counterparts in other Districts.

The records needed to support these activities are specified by the central office in a series of reports, documents, specifications, and forms. Most records are “built into” the system because critical central office functions will not be processed until proper paperwork is submitted.
Chart 8.1

Key Areas of the Construction Unit

- QA Management
- Resource Management
- Materials Unit
- Final Unit
- Geotechnical Unit
- Field Operations
- Consultant Agreement
- Structural Control
- Labor Contract Compliance
### Chart 8.2

**Materials Processes**

<table>
<thead>
<tr>
<th><strong>INPUTS</strong></th>
<th><strong>ACTIVITIES</strong></th>
<th><strong>OUTPUTS</strong></th>
</tr>
</thead>
</table>
| • Publication 408 Specifications  
• Standards  
• Special Provisions  
• Project Specifications  
• Project Office Manual  
• Requests from other units | **Supplier Process**  
• Approve Suppliers  
• Monitor Suppliers  
 **Provide Documentation**  
• Initial Plant Inspection  
• District Quality Assurance Reviews  
• Plant Book and Master Diary  
• Concrete and Asphalt Mix Design Approvals | • Materials that meet Department Specifications |

<table>
<thead>
<tr>
<th><strong>INTERACTIONS</strong></th>
<th><strong>MEASURES</strong></th>
</tr>
</thead>
</table>
| • Materials Lab in Harrisburg  
• Other Districts  
• Suppliers and Contractors  
• Other District Units | • Dashboards  
• Scorecards  
• QA Reviews  
• Customer Surveys |
# Chart 8.3

## Geotechnical Processes

<table>
<thead>
<tr>
<th><strong>INPUTS</strong></th>
<th><strong>ACTIVITIES</strong></th>
<th><strong>OUTPUTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Request from:</td>
<td>Design/Construction/Maintenance</td>
<td>Reports:</td>
</tr>
<tr>
<td>• Design</td>
<td>• Receive request</td>
<td>• Roadway</td>
</tr>
<tr>
<td>• Construction</td>
<td>• Conduct study</td>
<td>• Soil Reconnaissance</td>
</tr>
<tr>
<td>• Maintenance</td>
<td>• Prepare report</td>
<td>• Geotechnical studies</td>
</tr>
<tr>
<td>• Other</td>
<td>• Receive study</td>
<td>• Structure Foundation Report</td>
</tr>
</tbody>
</table>

**Design Consultants/Contractors**
- • Receive study
- • Review study
- • Prepare report

**Mining Companies**
- • Receive study
- • Review study
- • Prepare report

**INTERACTIONS**
- • Design
- • Construction
- • Maintenance
- • Consultants
- • Mining Companies
- • Central Office
- • DEP

**MEASURES**
- • Dashboards
- • Scorecard
- • Customer Surveys
Chart 8.4

Consultant Agreements Processes

**INPUTS**
- Publication 93 Consultant Agreement Manual
- Request within unit

**ACTIVITIES**
- Create Agreement
- Monitor Agreement
- Manage Records
- Generate Work Orders
- Closeout Project

**OUTPUTS**
- Final Invoice
- PPR
- Closeout Work Order

**INTERACTIONS**
- ACE/ACM
- Payroll
- Consultants

**MEASURES**
- Response time of proposal review
- Scorecard
- Survey
# Chart 8.5

## Labor Contract Compliance Processes

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Contract</td>
<td>• Verify subcontractor is on state approval list</td>
<td>• Approval of subcontractors</td>
</tr>
<tr>
<td>• Request from Prime Contractor (4339)</td>
<td>• Monitor subcontractor participation</td>
<td>• Wage Checks</td>
</tr>
<tr>
<td>• Project Office Manual</td>
<td></td>
<td>• Prevailing Wage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERACTIONS</th>
<th>MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Prime contractors</td>
<td>• QA Reports</td>
</tr>
<tr>
<td>• Subcontractors</td>
<td>• Labor Complaints</td>
</tr>
<tr>
<td>• IIC</td>
<td>• Work Order</td>
</tr>
<tr>
<td>• Central Office</td>
<td></td>
</tr>
</tbody>
</table>
Chart 8.6

Structural Control Processes

**INPUTS**
- AASHTO Manual
- Structural Welding Code
- Bridge Coating Inspection Manual
- Publication 408 Specifications
- Standards
- Special Provisions
- Project Specifications
- Project Office Manual

**ACTIVITIES**
Review Design Structure Plans for Constructability
Review Contractor’s Plans for:
- Demo Plans
- Beam Erection
- Substructure Formwork
- Overhang and False Work Details
- Paint Containment
Assistant Construction Engineer for:
- Local Bridge Projects
- Bridge Painting Projects

**OUTPUTS**
- Reviewed Structure Plans
- Reviewed Paint Project Submissions
- Approval Letters
- Technical Support

**INTERACTIONS**
- Design Unit
- Construction Unit
- Consultants
- Geotechnical Unit
- Central Office
- Other Agencies

**MEASURES**
- Bridge Construction on or off schedule
- Dashboard
- Scorecard
## Chart 8.7

### Field Operations Processes

**INPUTS**
- Contract
- Project Plans
- Standards
- Specifications
- Special Provisions
- Designer Notes

**ACTIVITIES**
- QA Oversight
- Work Authorization
- Work Orders
- Estimates
- Time Extensions
- Customer Complaints
- Environmental Mitigation
- Budget Management
- Work Zone Traffic Control Reviews
- Contract Compliance
- Close-Out Project

**INTERACTIONS**
- Other units
- Design
- Maintenance
- Suppliers
- Contractors
- State and Federal Agencies
- Property Owners
- Traveling Public
- Central Office

**OUTPUTS**
- Payment documentation
- As-Builts
- Quality Project
- Finaled Project

**MEASURES**
- Project specific dashboards
- Scorecard
Chart 8.8

Final’s Unit Processes

**INPUTS**
- Publication 408 specifications
- Standards
- Special Provisions
- Project Specifications
- Project Office Manual
- Contracts
- Budget
- ECMS

**ACTIVITIES**
- Start Projects
- Work Order Process
- Audit Process
- Process payments
- Adjust Contract Funding

**OUTPUTS**
- Completed construction project file
- Close out projects
- Provide support to IICs
- Contract Compliant Project

**INTERACTIONS**
- Field operations
- Contractors and suppliers
- Bonding Agencies
- Other Agencies

**MEASURES**
- Dashboards
- Scorecard
8.2 Requirements for products and services
Process Owner: Assistant District Executive – Construction

8.2.1 Customer communication

The Construction Unit does not have customers in the sense described in ISO 9001:2015. In the broadest sense the taxpayers are the ultimate customers, but it does not make sense for the Construction Unit to be communicating with taxpayers in relation to product information, inquiries, contracts or order handling, including amendments to highways being constructed.

Customer communication is to inform and relating to customer feedback and customer complaints. Examples of our communication include our Website, Work Zone Wednesdays, Facebook and Twitter to keep the public apprised of the status of our projects. The HAR – the Highway Advisory Radio system, DMS – Dynamic Message Sign and CB Wizards to provide real-time information to road users about current highway conditions.

Additionally, the Construction Unit collects customer satisfaction data and reviews this data at least annually for consideration for improvement.
8.2.2 Determining the requirements for products & services

Purpose:
To describe the nature of the “customer” relationship of the Construction Unit

Scope:
Applies to the entire Construction Unit

Reference Documents:
- Publication 408 – Specifications
- Publication 2 – Project Office Manual (POM)
- Project Special Provisions
- Project contract documents
- Publication 219M – Bridge Construction Standards
- Publication 72M – Roadway Construction Standards
- Publication 111 – Traffic Control Standards

Procedure:
The Construction Unit does not receive requirements in a conventional manner nor does it have customers in the sense that ISO contemplates “customers”. Requirements are presented to the Construction Unit from either a PennDOT Design group or from a Consulting Engineer. By the structure of the Pennsylvania Department of Transportation, the Construction Unit is responsible for reviewing plans and specs and providing comments to the design project manager. The Construction Unit also may provide input to the design process by participating, as appropriate, in constructability reviews during design and participating in initiatives to solicit end-customer input (i.e. taxpayers) regarding proposed projects prior to design completion (e.g. Community Action Committee – CAC).

The role of the Construction Unit is to provide quality assurance and oversight to assure contract compliance of projects per the specifications, in accordance with Department policies and procedures.

Regarding requirements not stated, the Construction Unit is mandated to adhere to Federal and State general requirements and to industry standards, as applicable, and to requirements contained in such documents as the POM and Publication 408.

Inspectors-In-Charge are responsible for ensuring that applicable requirements, even if not stated in contracts, but mandated elsewhere are addressed as an element of project execution.
8.2.3 Review of requirements related to products/service

The Construction Unit is not directly involved in the process of issuing requests for bids or reviewing the bid response by contractors (i.e. bids to perform construction services). Our role in the process is to ensure that projects are constructible prior to release for bid. Construction Unit completes this through a constructability review process. As evidence of such review, a completed checklist is required as a quality record for all projects as a minimum. A constructability review can be as simple as a brief review of the design after completion by the design unit or much more comprehensive interactions with the design unit throughout the duration of the design process. (See process flow chart)

It is our intention to focus on expanding construction unit involvement in the constructability review process and to participate as early as possible in the design process based on data that indicates potential for significant savings by performing a robust constructability review during the design phase of projects.
Figure 8.2.3 Flow Chart

**FLOW CHART FOR DESIGN CONSTRUCTABILITY REVIEW PROCESS**

* Note: Consultant Design - Consultant will provide written notes and comments of constructability reviews.

**Design Project Manager** schedules the project's Scoping Field View Meeting. The **Constructability Coordinator** attends and participates in this meeting. The **Constructability Coordinator** creates a working file for the project.

**Design Project Manager** informs **Constructability Coordinator** of Stage and submits two (2) 1/2-sized sets of plans, DPM Constructability Review Checklist and any pertinent information. **Constructability Coordinator** sets up and coordinates meeting and documents attendance.

**Constructability Coordinator** generates completed checklist and submits to **Design Project Manager**.

**Design Project Manager** addresses checklist and continues design.

**Design Project Manager** informs **Constructability Coordinator** of 60% Design Stage and submits two (2) 1/2-sized sets of plans, DPM Constructability Review Checklist and any pertinent information. **Constructability Coordinator** sets up and coordinates meeting and documents attendance.

**Constructability Coordinator** generates completed checklist and submits to **Design Project Manager**.

**Design Project Manager** addresses checklist and continues design.

**Design Project Manager** informs **Constructability Coordinator** of 90% Design Stage and submits two (2) 1/2-sized sets of plans, DPM Constructability Review Checklist and any pertinent information. **Constructability Coordinator** sets up and coordinates meeting and documents attendance.

**Constructability Coordinator** generates completed checklist and submits to **Design Project Manager**.

**Design Project Manager** addresses checklist and provides written responses to **Constructability Coordinator** to file electronically; continues design.

**Design Project Manager** submits FS&E.

**During Construction**

The **Constructability Coordinator** will be available to review and evaluate any constructability issues that become evident during construction. The Inspectors-in-Charge are encouraged to bring constructability issues to the attention of the **Constructability Coordinator** to prevent these same issues on future projects.

**Post Construction**

The **Constructability Coordinator** is to attend Final Inspection meetings and After Action Review meetings. Any constructability issues encountered on the project will be discussed so that they can be avoided or incorporated into future constructability reviews. Comments will be filed and made available to the Design Unit.
8.3 Design and Development of products and services

Process Owner: Assistant District Executive – Construction

8.3.2 Design and Development Planning
8.3.3 Design and development Inputs
8.3.4 Design and development Controls
8.3.4 Design and development Verification
8.3.4 Design and development Validation
8.3.5 Design and development Outputs
8.3.6 Design and Development Changes

Purpose:
This procedure provides guidance regarding the “long term” intent of the District 10 Construction Unit regarding interface with Pennsylvania highway design organizations

Scope:
Applies to the entire Construction Unit

Procedure:
While it is Department Policy for the design of PennDOT projects to be the responsibility of the Design Units in the Engineering Districts, the Construction Unit in District 10 initiated a process in cooperation with the Design unit and the Maintenance unit to ensure the constructability of each project.

While the Construction Unit does not design, nor maintain the projects, the Geotechnical Unit does provide design work on a limited basis as outlined in their current processes. The Geotechnical Unit reacts to requests from the Design or Maintenance Units, who are outside the QM scope, for specialized needs. The specialized designs are then combined as part of a greater overall project design that is then constructed to produce a safe product.

To enhance the ability of PennDOT to provide safe quality roads at the lowest cost, the Construction Unit shall, where appropriate, provide input to the design process by participating in constructability reviews during the design process and by participating in initiatives to solicit end-customer (i.e. taxpayers) input for proposed projects prior to design completion. It is the intention of the Construction Unit to encourage more comprehensive constructability reviews and participate early in the design process.

While it is not a requirement that the Design and Maintenance Units participate in the Construction phase of projects, the Construction Unit shall encourage involvement by personnel from these Units in the Construction phase of projects, and shall monitor results in this area by maintaining scorecard metrics of such involvement, as appropriate.
8.4 Control of externally provided products and services

Process Owner: Assistant District Executive – Construction

8.4.1 General
8.4.2 Type and extent of control of external provision
8.4.3 Information for external providers

Purpose:
To define and document the process for purchase of services that will be incorporated into projects

Scope:
Applies to all purchased items that affect the conformity of final product (i.e. a road) to requirements (specifications, contract provisions, etc.)

Reference Documents:
- Publication 2 – Project Office Manual (POM)

Procedure:
The process of “purchasing” contractor services to build roads is handled by the PA State Bidding and Contract Award Process. District 10 Construction Unit has limited involvement with these highly regimented and controlled processes. When appropriate (e.g. for large or complex projects), pre-bid meetings shall be held with participation by Construction Unit staff, as outlined in Publication 2.

There are three types of purchased services that are made by the Construction Unit. Both have impact on ultimate customer satisfaction. These services are:
- Construction Services
- Consultant Inspection Services
- Geotechnical Drilling Contract

These key processes are controlled. These controls are described in 8.5.1 under Consultant Agreements.

It should be noted that the initial evaluation of construction services suppliers (consultants) and consultant inspection services suppliers (inspectors) is conducted by the central office. The list of approved consultants is maintained by the central office.

To ensure ongoing acceptability of consultants a written evaluation is conducted by Construction Unit personnel for purchased services for every project per Publication 93.

Records of evaluations are maintained in ECMS. Records of acceptable consultants of purchased services are maintained by the central office.
8.5 Production and Service Provision

8.5.1 Control of Production and Service Provision

*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To ensure all operations affecting conformity to requirements are carried out under controlled conditions.

**Scope:**
Applies to all operations of District 10 Construction Unit.

**Reference Documents:**
- Applicable State publications (e.g. Pub 408, pub 93 etc.)
- Applicable external standards (e.g. AASHTO, ISO etc.)

**Procedure:**
The PennDOT District 10 Construction Unit is divided into sub-units as follows:

<table>
<thead>
<tr>
<th>Units</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>M</td>
</tr>
<tr>
<td>Geotechnical</td>
<td>GT</td>
</tr>
<tr>
<td>Consultant Agreements</td>
<td>CA</td>
</tr>
<tr>
<td>Labor Contract Compliance</td>
<td>LC</td>
</tr>
<tr>
<td>Structural Control</td>
<td>SC</td>
</tr>
<tr>
<td>Field Operations</td>
<td>FO</td>
</tr>
<tr>
<td>Finals Unit</td>
<td>F</td>
</tr>
<tr>
<td>Construction Services</td>
<td>C</td>
</tr>
<tr>
<td>Scheduling and Constructability</td>
<td>CPM</td>
</tr>
</tbody>
</table>

Each of the units has a series of key procedures to control the delivery of products and services. In each procedure, the relevant standards are noted along with relevant work instructions. The procedures also specify relevant equipment, as well as relevant monitoring and measuring devices. Also described are steps for monitoring and measurement.
8.5.1 – M1 Material Supply Letter
Process Owner: District Materials Manager

Purpose:
The purpose of this procedure is to review and approve materials to be used on a PennDOT construction project submitted by the contractor.

Scope:
The scope incorporates all PennDOT construction projects active within the district.

Reference Documents:
• Publication 34 – Bulletin #14 Approved Aggregate Producers
• Publication 35 – Bulletin #15 Approved Construction Materials
• Publication 41 – Bulletin #41 Approved Bituminous Asphalt Producers
• Publication 42 – Bulletin #42 Approved Concrete Producers
• Publication 408 – Specifications
• Publication 2 – Project Office Manual (POM)
• ASTM and AASHTO Specifications

Procedure:
The responsible areas involved in this process are as follows:
• Contractor submits material supply letter to materials office in ECMS or PPCC
• Materials unit reviews and approves the use of construction materials noted on the contractors submission
• Traffic unit reviews signal items associated with projects
• Central office electrical engineer reviews highway lighting items associated with the project
• Reviewed documents with noted approvals/disapprovals are electronically returned into ECMS or PPCC system to become a project record.

See process map:
Material Supply Letter Review (M1) Revised 4-5-2018

1. Contractor submits source-of-supply letter in ECMS or PPCC system.

2. Are Traffic signal or highway lighting items included that are not listed in bulletin 15?
   - YES
   - NO

   4. The Materials Unit Assistant Manager reviews the submittal.

5. The results of the review are documented on the SOS letter and electronically returned into ECMS or PPCC system.

6. Are Materials Approve?
   - YES
   - NO

   8. Contractor address all disapprovals and submits a new Source of Supply letter for only disapproved items.

3. Forward the traffic signal items to the District Traffic Unit and Central Office Electrical Engineer for review.
### Explanation of Blocks in the Flowchart for Material Supply Review (M1)

<table>
<thead>
<tr>
<th>BLOCK NUMBER</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contractor submits source-of-supply letter (CS-200 and/or CS-201) to District 10-0 Materials Unit electronically in ECMS or PPCC for initial review and approval of materials to be incorporated into the project (as per SOL 421-04-11).</td>
</tr>
<tr>
<td>2</td>
<td>Traffic Signal Items that are not listed in Bulletin 15 are reviewed by the District Traffic Unit and Central Office Electrical Engineer. The approvals and/ or disapprovals of these items will be incorporated into the District Materials Unit review comments that are sent back to the contractor.</td>
</tr>
<tr>
<td>3</td>
<td>The District Traffic Unit and Central Office Electrical Engineer reviews and approves traffic signal items not listed in Bulletin #15. The Traffic Unit’s comments are incorporated into the Materials Unit review. This does not increase the 14 days allowed for review.</td>
</tr>
<tr>
<td>4</td>
<td>The Materials Unit Assistant Manager reviews the submittal in accordance with Publications 408 and Bulletin #14, #15, #41, #42 and contract documents as applicable. If the submission includes highway lighting materials refer to POM Section B6 (13-1). The Materials Unit completes the review within 14 days of receipt of the request.</td>
</tr>
<tr>
<td>5</td>
<td>The results of the review are documented on the SOS letter and electronically returned in the ECMS or PPCC system.</td>
</tr>
<tr>
<td>6</td>
<td>Contractor is electronically notified in ECMS or PPCC system of approvals / disapprovals.</td>
</tr>
<tr>
<td>7</td>
<td>Materials that have been reviewed and approved may be incorporated into work on the project in the field.</td>
</tr>
<tr>
<td>8</td>
<td>For materials that have been disapproved the contractor must submit a new source of supply letter for the disapproved materials. This will start the process over once the new letter is received by the Materials unit.</td>
</tr>
</tbody>
</table>
8.5.1 – M2 Equipment Verification
Process Owner: District Materials Manager

**Purpose:**
The purpose of this procedure is to verify that maintenance organizations equipment (distributors, chippers and rubber tired rollers) perform to specifications.

**Scope:**
This procedure is conducted on equipment used by maintenance organizations for state projects.

**Reference Documents:**
- Publication 23 – Maintenance Manual
- Publication 19 – Pennsylvania Test Methods Manual (PTM)
- Publication 408 – Specifications
- District Forms
  - Chipper - M214C
  - Distributor - M214D
  - Roller - M214E

**Procedure:**
The responsible areas involved in this process are as follows:

Maintenance organizations prepare equipment for verification and make requests to materials unit to schedule.
Contractors prepare equipment for verification and make requests to materials unit to schedule.
Materials unit schedules and performs verification.

See process map:
Maintenance Organization requests/schedules equipment verification with Materials Unit

Test area is established to verify equipment

Verifications take place with associated personnel in accordance with references

**Distributor:**
Publication 23 Maintenance Manual Chapter 7 Form M214D

**Rubber Tire Roller:**
Publication 23 Maintenance Manual Chapter 7 Form M214E

**Chipper:**
Publication 23 Maintenance Manual Chapter 7 Form M214C

Maintenance Organization or Contractor makes necessary changes

Does equipment meet specification?

No

Yes

Materials unit representative completes Publication 23 form verifying equipment and distributes form to County Equipment Manager to sign and file
8.5.1 – M3 Initial Aggregate Plant Inspection – Annual

Process Owner: District Materials Manager

Purpose:
The purpose of this procedure is to ensure aggregate producers maintain requirements meeting specifications to provide material to meet PennDOT specifications.

Scope:
The scope includes all aggregate producers shipping to state related projects in the district.

Reference Documents:
- Publication 2 – Project Office Manual (POM)
- Publication 19 – Pennsylvania Test Methods Manual (PTM)
- Publication 34 – Bulletin #14 Approved Aggregate Producers
- Publication 408 – Specifications
- ASTM and AASHTO Specifications
- TR-430A Aggregate Source Evaluation Report

Procedure:
The responsible areas involved in this process are as follows:
Aggregate producer requests plant inspection
Materials unit conducts inspection

See process map:
Aggregate Producer requests/schedules initial plant inspection with Materials Unit.

Material Unit representative inspects Aggregate Plant in accordance with references and Specifications.

1. Required Documentation
2. Necessary lab equipment, inspector’s office and approved technician
3. Plant facility (i.e. Stock area).

Does Plant meet requirements

NO
Producers make necessary changes

YES
Aggregate plant approved to produce state specification aggregate for upcoming year
Form TR-430A submitted to Harrisburg from Materials for listing or continued listing in Bulletin 14, retained in Material Office
Records are kept in file in the District 10-0 Materials Unit Aggregate Plant Files.
8.5.1 – M4 Initial Bituminous Asphalt Inspection – Annual

Process Owner: District Materials Manager

Purpose:
The purpose of this procedure is to insure bituminous asphalt producers maintain requirements to provide material meeting specifications to PennDOT projects on an annual basis.

Scope:
The scope includes all bituminous asphalt producers shipping to state related projects in the district or surrounding districts.

Reference Documents:
- Publication 2 – Project Office Manual (POM)
- Publication 19 – Pennsylvania Test Methods Manual (PTM)
- Publication 34 – Bulletin #14 Approved Aggregate Producers
- Publication 35 – Bulletin #15 Approved Construction Materials
- Publication 408 – Specifications
- Publication 27 – Bulletin #27 Bituminous Concrete Mixtures, Design Procedures
- ASTM and AASHTO Specifications
- TR – 498 Bituminous Concrete Plant Inspection Report

Procedure:
The responsible areas involved in this process are as follows:
Bituminous asphalt producer requests plant inspection
Materials unit conducts inspection
Other outside agencies (i.e. Scale company, raw material representatives)

See process map:
Bituminous Producer requests/schedules initial plant inspection with Materials Unit.

Material Unit representative inspects Bituminous Plant in accordance with references and Specifications.

- Required Documentation
- Necessary lab equipment, inspectors’ office and approved technician
- Witness scale check for plant scales and lab scales
- Plant facility (i.e. Stock area).

Does Plant meet requirements?

- NO: Producers make necessary changes
- YES: Bituminous plant approved to produce state specification bituminous asphalt for upcoming year

Form TR-498 submitted to Harrisburg from Materials Unit for listing or continued listing in Bulletin 41, retained in District Materials office.
# Annual Bituminous Concrete Plant Inspection

**Bulletin #41/Bulletin #27-1**

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale Check:</td>
<td>P.T.M. #410</td>
</tr>
<tr>
<td></td>
<td>P.O.M. B-7/5-1</td>
</tr>
<tr>
<td></td>
<td>Checked Annually – Show Increments</td>
</tr>
<tr>
<td></td>
<td>Paperwork on File &amp; Scales Stickered</td>
</tr>
<tr>
<td></td>
<td>Scales 0.5% or less of Batch Wt.</td>
</tr>
<tr>
<td></td>
<td>Repeat Check 0.1% of Scale Capacity</td>
</tr>
<tr>
<td>Lab Scales:</td>
<td>Bulletin #27 1-2 &amp; 3</td>
</tr>
<tr>
<td></td>
<td>AASHTO M-231</td>
</tr>
<tr>
<td></td>
<td>Certified Annually-Paperwork on file and Stickered</td>
</tr>
<tr>
<td>Test Weights:</td>
<td>Bulletin #27 1-10</td>
</tr>
<tr>
<td>(500 lbs)</td>
<td>Paperwork on file (Class F) Certified by state or other agency every 3 years</td>
</tr>
<tr>
<td>Lab Equipment:</td>
<td>Bulletin #27 / 1 to 3</td>
</tr>
<tr>
<td></td>
<td>As per Bulletin #27 / 1A – 1.7</td>
</tr>
<tr>
<td>Break Machine:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Witness Calibration or paperwork on file</td>
</tr>
<tr>
<td>Plant Inspection Report:</td>
<td>Form TR-498 on file</td>
</tr>
<tr>
<td>Inspectors Office:</td>
<td>Bulletin #41 / F-1</td>
</tr>
<tr>
<td></td>
<td>As per 408/609.2 &amp; 714.5</td>
</tr>
<tr>
<td>Q.C. Plan:</td>
<td>408 / 106.03 (2A)</td>
</tr>
<tr>
<td></td>
<td>408 / 409.2E</td>
</tr>
<tr>
<td></td>
<td>Approved and On File for Current Year</td>
</tr>
<tr>
<td>Plant Tech Evaluation Sheet:</td>
<td>On File</td>
</tr>
<tr>
<td></td>
<td>408/409.2E</td>
</tr>
<tr>
<td></td>
<td>Bulletin #27 / 1-4</td>
</tr>
<tr>
<td></td>
<td>Pub. 408 / 409.2E &amp; Bulletin #27/1-4</td>
</tr>
<tr>
<td>Truck Scales:</td>
<td>Bulletin #27/1-8</td>
</tr>
<tr>
<td></td>
<td>Checked Annually by Dept. of Agriculture or other agency – Paperwork on File</td>
</tr>
<tr>
<td>Drum Continuous Mix Plants:</td>
<td>Calibrate annually (Asphalt Pump every 4 Months) – Paperwork on file.</td>
</tr>
<tr>
<td></td>
<td>Bulletin #27 / 1-15</td>
</tr>
<tr>
<td>Volumeters</td>
<td></td>
</tr>
<tr>
<td>Bitumionometers:</td>
<td>Bulletin #27 / 1-15</td>
</tr>
<tr>
<td></td>
<td>P.O.M. B-7 / 5-3</td>
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<td>Calibrate &amp; Document Twice a year by Plant Technician</td>
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<td>Fluidmeter:</td>
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<td></td>
<td>Continuous Mix Plants – Sprocket Paperwork on file</td>
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<td>If Asphalt is left in the tanks over winter is to be used, lift</td>
</tr>
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<td>sample for testing</td>
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<td>Weightmaster:</td>
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<td>Have Scales Checked by Plant Technician</td>
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<td>Mechanical Shakers:</td>
<td>Bulletin #42/F-1</td>
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<td></td>
<td>P.T.M. #608</td>
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<td></td>
<td>Bulletin #27/1-3</td>
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<tr>
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<td>Calibrate Annually by Plant Technician</td>
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<td>Gyratory Compactor:</td>
<td>Bulletin 27 / 2-3</td>
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<tr>
<td></td>
<td>Calibrate Bi-Annually / Verify Bi- Annually Internal Angle 1.16 ± .02</td>
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<td>Check Mold Diameter 0.50</td>
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**Updated: March 2018**

**Paperwork on file.**

**Pub. 408 / 409.2E & Bulletin #27/1-4**

**Have Scales Checked by Plant Technician**

**Calibrate Annually by Plant Technician**

**Calibrate Bi-Annually / Verify Bi- Annually Internal Angle 1.16 ± .02 Check Mold Diameter 0.50**

**Copy of Test Methods on File**
8.5.1 – M5 Initial Concrete Plant Inspection – Annual  
Process Owner: District Materials Manager

**Purpose:**
The purpose of this procedure is to insure concrete producers maintain requirements meeting specifications to provide material to meet specifications on PENNDOT projects on an annual basis.

**Scope:**
The scope includes all concrete producers shipping to state related projects in the district or surrounding districts.

**Reference Documents:**
- ACI 211.1-91 Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete
- **Publication 2 – Project Office Manual (POM)**
- **Publication 19 – Pennsylvania Test Methods Manual (PTM)**
- **Publication 34 – Bulletin #14 Approved Aggregate Producers**
- **Publication 35 – Bulletin #15 Approved Construction Materials**
- **Publication 408 – Specifications**
- ASTM and AASHTO Specifications
- TR – 4109 Portland Cement Concrete Plant Report

**Procedure:**
The responsible areas involved in this process are as follows:
Concrete producer requests plant inspection
Materials unit conducts inspection
Other outside agencies (i.e. Scale Company, raw material representatives)

See process map:
Concrete Producer requests/schedules initial plant inspection with Materials Unit.

Material Unit representative inspects Concrete Plant in accordance with references and Specifications.

- **Required Documentation**
- **Necessary lab equipment, inspectors’ office, and approved technician**
- **Witness scale check for plant scales and lab scales, calibrate wash down meter, and water meter**
- **Plant facility (i.e. Stock area).**

Does Plant meet requirement?

- **NO** Producers make necessary changes
- **YES** Concrete plant approved to produce state specification concrete for upcoming year

Form TR-4109 submitted to Harrisburg from Materials Unit for listing or continued listing in Bulletin 42, on file in Material office.
8.5.1 – M6 District Quality Assurance, Hot/Warm Mix Asphalt Plant 30 Day Review

Process Owner: District Materials Manager

Purpose:
The purpose of this procedure is to ensure that the appropriate steps are taken to verify an HMA/WMA plant may provide material.

Scope:
The scope includes any review of HMA/WMA plants for the purpose mentioned above.

Reference Documents:
The following references are applicable:
- Publication 2 – Project Office Manual (POM)
- Publication 41 – Bulletin #41 Approved Bituminous Asphalt Producers
- Publication 408 – Specifications
- District Internal forms

Procedure:
See process map:
**Inputs**
- Bulletin 41
  - Publication 2 (Project Office Manual)

**DQA Coordinate Review of Plant**
- District Quality Assurance (DQA) Inspector contacts asphalt (HMA/WMA) producer to coordinate day and time

**Prepare records**
- DQA Inspector prepares Project Office manual forms Part B section 7 pages 2-1 to 8-6 and District specific forms

**Conduct Plant Review**
- DQA inspector uses Project Office Manual Checklist Part B section 7 pages 8-3 to 8-6
- CS-4346 Plant Diary
- Internal District specific checklists
- HMA/WMA Plant Technician must sign all and receive copies of all forms

**No Plant Issues Found**
- DQA Inspector completes review forms and forwards them to Assistant District Material Manager for review

**District Office Records**
- DQA Inspector files hard copies of all District forms and records for a minimum of 7 years

**Plant Issues Found**
- Corrective Actions Verified
  - DQA Inspector completes Project office manual forms
  - Project Office Manual inspection checklist Part B section 7, pages 8-3 to 8-6
  - Corrective actions are developed with producer and added to Part B checklist to address deficiencies
  - Assistant District Material Manager or District Material Manager sends letter to producer requiring action on deficiencies noted
  - DQA Inspector follows up with producer until corrective actions are completed

**Output**
- HMA/WMA Plant continues to operate
8.5.1 – M7 Warranty Review  
*Process Owner: Construction Services Engineer*

**Purpose:**
The purpose of this procedure is to ensure that all projects that included a warranty are reviewed as per the warranty special provision timeframe.

**Scope:**
The scope includes all projects that have warranties regardless of item or timeframe.

**Reference Documents:**
Project special provision located in ECMS  
Manufacturer specifications

**Procedure:**
- Assistant Construction Engineer / Manager have the responsibility to review projects to see if warranties are incorporated.
- Ensure that the warranty toggle located in the detail screen in ECMS is checked “Yes”. As per special provisions and/or work orders.
- Notify appropriate Unit for warranty review (or combination of below)
  - Roadway
    - Pavement Manager
    - Material Manager
  - Structure
    - Structure Control Engineer
    - Bridge Unit
  - New Product
    - Design Unit
    - Material Manager
    - CE Council
- Finalization checklist
  - Warranty date is when the warranty expires.
  - Add a miscellaneous detail for warranty information and reviews.
    - Conduct warranty reviews as required by warranty. Place reviews as conducted in miscellaneous detail.
- After each and final review, a letter is drafted and sent to the Contractor informing Contractor of the findings and status of the warranty.
8.5.1 – GT1 In-House Design Requests

Process Owner: District Geotechnical Engineer

Purpose:
The purpose of this procedure is to ensure that geotechnical reports are created in accordance with the appropriate requirements, as defined in State and AASHTO Publications.

Scope:
The scope includes all requests for geotechnical information from the Design Unit concerning roadway or structure design.

Reference Documents:
The following references are applicable:

- Publication 222 – Geotechnical Investigation Manual
- Publication 293 – Geotechnical Engineering Manual
- Publication 15 – Pennsylvania Design Manual 4
- AASHTO LRFD Bridge Design Specifications (Project Specific Version)

Procedure:
The responsible areas involved in this process are:

- Design Unit makes request for information (utilizing Geo Request form)
  J:\Construction\GeoTechUnit\Geotechnical Files\Geotechnical Request Forms\Blank GeoRequest 2017.doc
- Geotechnical Unit provides report (Following Pub 293/DM-4) (If structure is involved, Bridge Unit reviews report)

Step 1: Receive request for geotechnical information from Design Unit
Step 2: Perform Geotechnical Studies in accordance with Reference Documents
Step 3: Provide Design Unit with a report including the requested information
8.5.1 – GT2 Construction Consultation

**Process Owner: District Geotechnical Engineer**

**Purpose:**
The purpose of this procedure is to ensure that the appropriate steps are taken to provide geotechnical assistance and/or expertise to construction projects.

**Scope:**
The scope includes any field visit to a construction project to offer geotechnical advice or provide an inspection. (Footer checks, caisson checks, test piles, retaining wall construction, cut and fill slopes, borrow material approval, etc.)

**Reference Documents:**
- Publication 408 – Specifications
- Contract Special Provision for appropriate item
- Geotechnical Engineering Report or Foundation Report for specific project
- Publication 219M – Bridge Construction Standards
- Publication 72M – Roadway Construction Standards
- Construction plans

**Procedure:**
The responsible areas involved in this process are:
- Construction Project Managers request consultation
- Geotechnical Unit provides field inspection

**Step 1:** Receive request for field visit from Construction IIC
**Step 2:** Pull design file and review necessary information
**Step 3:** Report to construction site
**Step 4:** Perform inspection / review project
**Step 5:** Give advice, approval or participate in discussion
**Step 6:** Follow up with documentation (letter or memo) or solution to problem, if required. Provide copy to Structure Control Engineer, if applicable. Standard footer checks and test piles inspection only require documentation in project field records.
8.5.1 – GT3 Geotechnical Hazard Inspection and Remediation Process

Process Owner: District Geotechnical Engineer

Purpose:
The purpose of this procedure is to ensure that the proper steps are taken to inspect a geotechnical hazard and design a repair for the situation, if required.

Scope:
The scope includes all requests from the Maintenance Unit regarding landslides, rockslides, subsidence and failing retaining walls.

Reference Documents:
The following references are applicable:
- Publication 222 – Geotechnical Investigation Manual
- Publication 293 – Geotechnical Engineering Manual
- Publication 408 – Specifications
- Various Geotechnical Textbooks

Procedure:
The responsible areas involved in this process are:
- Maintenance Unit requests review of site and advice for repair
- Geotechnical Unit inspects the site and prepares recommendation report
- Bridge Unit reviews designs involving structures

See process map below:
ISO Process Map – GT3 – Geotechnical Hazard Inspection and Remediation Process

START

DGE receives notification of potential geotechnical hazard

Is the situation an emergency?
The DGE determines if the hazard is an emergency, with input from other management personnel. Hazard log is filled out and placed in file; hazard logged in at J:\Construction\GeoTechUnit\Geotechnical Files\Geotechnical Tracking

Yes

Field view of hazard to be performed within 24 hours

No

Field view of hazard to be performed within 5 days

Yes

Data is collected for hazard at site (possible causes, photos, site measurements). Literature research is performed (geologic, topographic, and mine mapping; existing information). Fill out Geotechnical Hazard Worksheet.

No

Is drilling required? DGE determines if drilling is needed.

Yes

Develop boring plan.

No

DGE develops repair method for the hazard (time varies)

Does the repair involve a structure?

Yes

Review boring log data. Send samples to lab for testing to assist in design repair

No

District conducts subsurface investigation in accordance with Pub 222 (time varies)

Bridge Unit Review (2 days for emergency/5 days for non-emergency.) Address any comments before final recommendations are given.

Send recommendations to District Maintenance/County Offices and any other responsible parties.
8.5.1 – GT4 Geotechnical Review of Consultant Reports
Process Owner: District Geotechnical Engineer

Purpose:
The purpose of this procedure is to ensure that consultant submissions are reviewed in a consistent and thorough manner.

Scope:
The scope encompasses all geotechnical reports including: Technical and Price Proposals; SEPS; GER; Subsurface Boring and Testing Contracts; and Foundation Submissions.

Reference Documents:
The following references are applicable:
• Publication 15M – Design Manual Part 4
• Publication 222 – Geotechnical Investigation Manual
• Publication 293 – Geotechnical Engineering Manual
• J:\Construction\GeoTechUnit\Geotechnical Files\ISO\review checklists\2017 Checklists
• J:\Construction\GeoTechUnit\Geotechnical Files\Geotechnical Tracking.xls

Procedure:
The responsible areas involved in this process are:
• Design Unit Project Manager Requests review
• Geotechnical Unit reviews report using checklists and prepares comments
• Consultant receives comments and revises reports

See process map:
ISO Process Map – GT4 – Geotechnical Review of Consultant Reports

START

Project Manager (Design) requests review of consultant report

Geotechnical Review of Report to be completed within 2 weeks of submission by Project Manager. Log request on Consultant Submission Tracking Sheet at J:\Construction\GeoTechUnit\Geotechnical Files\Geotechnical Tracking

Is this review for a revised report?

Yes

Retrieve file and previous review memo and check to see if previous comments have been addressed

Type comment memo and send to appropriate parties (CSE; ADE-C). Add additional comments from CSE/ADE-C if necessary

Send comment memo to Project Manager to forward to the consultant responsible for the report

Review comments/changes from the consultant

Recommend approval and record on Consultant Submission Tracking Sheet

File Report

End

No

DGE or assistant DGE review report. Refer to appropriate consultant review checklist (J:\Construction\GeoTechUnit\Geotechnical Files\ISO\review checklists), DM-4, Pub 222, and Pub 293 throughout review to determine if report has appropriate information

Have all comments been addressed?

No

Yes
8.5.1 – GT5 Review of Contractor Submissions

*Process Owner: District Geotechnical Engineer*

**Purpose:**
The purpose of this procedure is to provide review of submissions from contractors in a consistent and thorough manner.

**Scope:**
The scope includes contractor submissions such as temporary shoring designs, blast plans and alternate foundation designs.

**Reference Documents:**
The following references are applicable:
- Publication 408 – Specifications
- Publication 15M – Design Manual Part 4
- Contract Special Provisions
- J:\Construction\GeoTechUnit\Geotechnical Files\Geotechnical Tracking.xls

**Procedure:**
The responsible areas involved in this process are:
- IIC requests review of a contractor submission, through PPCC.
- Geotechnical Unit reviews and provides comments or approval.
- The Contractor receives comments to revise submission if necessary.

Step 1: Receive submission for review
Step 2: Pull Design file related information
Step 3: Review Special Provisions to ensure submission meets the contract requirements
Step 4: Review Submission based on DM-4, special provisions and 408
Step 5: Submission accepted or comments for revision provided in PPCC.
8.5.1 – GT6 Mine Variance Review

*Process Owner: District Geotechnical Engineer*

**Purpose:**
The purpose of this procedure is to ensure that mine variance requests for mining operations within 100 feet of the highway rights-of-way are processed in a consistent manner and that all the necessary information is obtained.

**Scope:**
The scope includes all submissions for surface and deep mine operators to conduct operations within 100 feet of the highway rights-of-way.

**Reference Documents:**
The following references are applicable:
- Pennsylvania Publication PennDOT Mining handbook

**Procedure:**
The responsible areas involved in this process are:
- Mining Company requests for operations within variance area.
- Geotechnical Unit reviews said request information and provides comments or approval.

See Process Map:
ISO Process Map – GT6- Mine Variance

Receive notice from DEP of application for Surface Mining Permit from applicant

Is physical work within 300 feet of centerline of State Route?

Yes

Send standard form letter OS-2 (10-8) to mining company/DEP requesting additional info

Receive info requested from mining company

Send request for additional info

Review submitted plans and cross-sections

A

No

Send “No State Route involved” letter to DEP.

Has all guideline info been submitted as per the PennDOT Handbook for Mining

No

Is there physical work within 100 feet of PennDOT ROW?

Yes

B

No
A

Yes

Perform field view and inspection of site

No

Contact mining company and request necessary revisions

Does the mapping show proper safety measures?

B

No

Receive revisions from mining company

Yes

Is the mapping a good representation of the existing field condition?

Yes

Request necessary revisions from mining company

No

Receive info requested from mining company

Will the surface mine drainage affect the highway drainage? System?

End

Yes

Send letter to mining company requesting them to address drainage concerns

No

Have concerns been answered?

Yes

End

No

No

No

Yes

Yes
8.5.1 – GT7 Compaction Control  
*Process Owner: District Geotechnical Engineer*

**Purpose:**
The purpose of this procedure is to ensure that the appropriate steps are taken to provide compaction control for embankment construction, roadway subbase placement and pipe backfill for construction projects.

**Scope:**
The scope includes any field visits, laboratory testing and documentation for a construction project that requires compaction control of materials being placed.

**Reference Documents:**
The following references are applicable:
- Publication 408 – Specifications
- Publication 2 – Project Office Manual (POM)
- Publication 219M – Bridge Construction Standards
- Publication 72M – Roadway Construction Standards
- Contract Special Provision
- Construction plans
- TR 4276A(3/15)-Report on compaction by nuclear method
- TR 478A(10/11)- Report on compaction density by non-movement

**Procedure:**
The responsibility areas involved in this process are:
- IIC requests geotechnical unit services
- Geotechnical Unit provides a compaction control technician.

Follow the appropriate Process Map below according to the type of compaction
- Embankment
- Pipe Trench Backfill
- Subbase

See Process Map:
ISO Process Map GT-7 – Embankment Compaction Control Flow Chart

Construction Project Manager Contacts
District Geotechnical Unit for Compaction Control Services

Compaction Control Technician Dispatched to Jobsite to Review Project Quantities for Embankment Construction

Yes

Does project embankment quantity fall under small quantity specifications as per POM, Part B, section 6, page 5-2 (1,000 CY)?

No

Yes

Document compaction by non-movement method on form TR478A; as per Pub. 408, Section 206.3(b) 1.

No

Field collects appropriate material for gradation testing as per PTM-1.

Run gradation on material as per PTM-xxx. Is material too coarse to test by nuclear method per Pub 408, Section 206.3(b) 1?

Yes

Perform Moisture/Density Test (Proctor) on embankment material, as per PTM-106, to provide maximum dry density and optimum moisture targets for testing with the Nuclear Gauge.

No

Report results to Construction Project Manager and District Geotechnical Engineer. Perform nuclear density tests on representative material as required by Pub 408, section 206.3(b) 1 and the POM, part B, section 6 (frequency).

Yes

Do test results meet compaction requirements of 97% of proctor (100% for top three feet) and moisture requirements of within -3% of optimum as per Pub 408, Section 206.3 (b) 1?

No

Determine possible reason(s) for failing test results; i.e. poor compaction methods, pumping/rutting of soils (high moisture), lift thickness, improper proctor (material change).

Re-compact, dry, or remove embankment, as necessary.

Report ALL passing and failing test results on Form TR-4276A. Distribute copies to Project Manager and District Geotechnical Engineer.
ISO Process Map GT-7 – Pipe Trench Backfill Compaction Control Flow Chart

IIC Contacts District Geotechnical Unit for Compaction Control Services

Compaction Control Technician Dispatched to Jobsite to Review Compaction Requirements (embankment, subbase, pipe trench backfill)

Does testing fall under small quantity specifications (POM, Part B, sec. 6)

Yes

Document compaction by non-movement method on form TR478A.

No

Field collects appropriate material for gradation testing.

Is material too coarse to test by nuclear method per Pub 408, section 206.3(b) 1?

Yes

No

Perform Moisture/Density Test (proctor) as per PTM-106

Report results to IIC and Compaction Control Coordinator. Perform nuclear density tests on representative material as required by Pub 408, section 206.3(b) 1 and POM, part B, section 6. Report results on Form TR-4276A

Follow up with documentation and solution to failing compaction test results, if required.
ISO Process Map GT-7 – Subbase Compaction Control
Flow Chart

IIC Contacts District Geotechnical Unit for Compaction Control Services

Compaction Control Technician Dispatched to Jobsite to Review Compaction Requirements (embankment, subbase, pipe trench backfill)

Does testing fall under small quantity specifications (POM, Part B, section 6)

Yes: Document compaction by non-movement method on form TR478A.

No: Field collects appropriate material for gradation testing.

Is material too coarse to test by nuclear method per Pub 408, section 206.3(b) 1?

Yes: Perform Moisture/Density Test (proctor) as per PTM-106

No: Report results to IIC and Compaction Control Coordinator. Perform nuclear density tests on representative material as required by Pub 408, section 206.3(b) 1 and POM, part B, section 6. Report results on Form TR-4276A

Follow up with documentation and solution to failing compaction test results, if required.
8.5.1 – CA1 Execution of Consultant Agreements

*Process Owner: Consultant Agreement Engineer*

**Purpose:**
To obtain the inspection, management or consultation services of Consultant Engineering firms to supplement Department staff as needed. Type of agreement, Project Specific or Open End, is dependent but not limited to type of services required, estimated dollar figure of services, length of project, etc.

**Scope:**
Using ECMS Engineering Agreements section; create, advertise, select, execute, and manage consultant agreements for construction services in District 10.

**Reference Documents:**
- [Publication 93 – Procedures for the Execution of Consultant Agreements](#)

**Procedure:**
See process, Publication 93, Chapter 2

8.5.1 – CA2 Prepare a work order for an Open End Agreement

*Process Owner: Consultant Agreement Engineer*

**Purpose:**
To obtain the inspection, management or consultation services of Consultant Engineering firms using an established Open End agreement through Work Order process as needed.

**Scope:**
Using ECMS Engineering Agreements section to create a work order and execute a legal agreement for the work order so that consultant services may be used to supplement Department Staff or meet other needs as required.

**Reference Documents:**
- [Publication 93 – Procedures for the Execution of Consultant Agreements](#)

**Procedure:**
See process, Publication 93, Chapter 4
8.5.1 – LC1 Subcontractor Approval Process

Process Owner: Labor Contract Compliance Agent

Purpose:
To verify approval of subcontractors on construction projects within District 10-0

Scope:
The subcontractor approval process is conducted for all active construction projects in District 10-0

Reference Documents:
• Project Contract
• Publication 2 – Project Office Manual (POM)
• Labor Compliance Manual

Procedure:
1.) Open the ECMS welcome web page
    http://www.dot15.state.pa.us/ECMS/

2.) Enter User ID & Password
    Click on the “LOGIN” button

3.) Click on Work Queue
    Click Subcontractor Requests

4.) Click the request number to display the request (hyperlink)

5.) At the bottom of the screen look at the Requested Items
    If any items are in Review status they must be reviewed by Harrisburg

ALL ITEMS MUST BE APPROVED BEFORE SUBCONTRACTOR CAN BE APPROVED

6.) Click on the Contractor Responsibility Program (CRP) hyperlink in ECMS
    Click on “Log In”
    Click on “Doing Business with the Commonwealth”
    Click on “CRPS”
    Click on the icon in the center of the page “CRPS”
    Click on “CRP Check”

7.) Copy the Federal ID # for the subcontractor in ECMS
    Paste the Federal ID # in to the “TIN” field on the CRP screen
    Remove the “-“ and type the last # of the ID in the last space of the “TIN”

8.) Copy the Business Partner name from the Subcontractor Request Page
    Paste the Business Partner name in the “Name” box of the CRP request page
9.) Click on the “Search” button
   If the CRP check is ok you will see a Print Certification Button, go to step 12
   If the Print Certification button is missing go to step 10

10.) The bottom of the CRP screen will show who the subcontractor needs to contact
to get a clearance cert so that the subcontract can be approved
In comment box in ECMS type - “Sub Contractor to contact Contact Name Here
@ Contacts phone # here to get a clearance certificate. Fax clearance cert to
Your Name Here @ 724-357-5951 and resubmit sub request.”

11.) On the top of the ECMS screen Click on the Workflow button, then Correct

12.) Click on the Print Certification Button

13.) This opens the CRP Check Certification Form
   Click on the top left button – Export
   Select Acrobat Format (PDF) then click OK
   Save File to J:\Construction\10-0 DLCCA\EDMS
   Close the CRP

14.) Back at the section Subcontractor Request in ECMS
   Using the drop down next to Found on CRP select Yes or No

15.) Attach the scanned CRP check to the Subcontractor Request by:
   Clicking on “Browse”
   Go to J:\Construction\10-0 DLCCA\EDMS
   Select appropriate PDF document
   Select Document Type “CRP Check”

16.) At the top of the screen click on Save button
   Click on the Workflow button and approve.
8.5.1 – LC2 Labor Compliance – Project Review
Process Owner: District Labor & Contract Compliance Agent

Purpose: To ensure Labor Compliance and Safety on Construction Projects.

Scope: Review Construction project site(s) to ensure Labor Compliance and Safety activities are being enforced and monitored in accordance with the Labor Compliance Manual.

Reference Documents:
- Project Contract
- Publication 2 – Project Office Manual (POM)
- Labor Compliance Manual

Procedure:
1.) Contact the project IIC to set an acceptable review date to ensure a project representative will be onsite to assist in the review for helping to retrieve any required documents or explanations to questions that arise during review.
2.) The review consists of ensuring all Labor Compliance Manual Sections, 1 through 11, are completed and up to date with the most recent information as directed or required by each section’s content.
3.) If any findings or issues are identified, a detailed list will be provided to the project IIC of those findings or issues and the IIC is responsible to follow up and address all as required.

Notes: All detailed finding lists will be maintained locally at the project

Whether findings or issues are identified or not, any review performed by the project staff or DLCCA will be logged into the attached “Review and Noncompliance Tracking Sheet”, in the back of the Labor Compliance Manual to ensure if further action is required, those actions are tracked to completion.

4.) If there is a pattern of identified systematic issues/failures found on various projects that cannot be easily revised or additional training should occur for our staff, a CPAR will be issued for correction of highlighted issue(s)
8.5.1 – SC1 Structural Plans Review

Process Owner: District Structural Control Engineer

Purpose:
To review structural plans for construction projects prior to bid letting.

Scope:
Priority structure projects designed by Bridge Designers. A priority structure project is defined as any bridge or culvert project carrying traffic on or over the National Highway System or with a structure cost estimate exceeding $1,000,000.

Reference Documents:
- Publication 408 – Specifications
- Publication 15M – Design Manual Part 4
- Publication 219M – Bridge Construction Standards
- Publication 218M – Bridge Design Standards
- Contract Specifications
- Proposed Special Provisions
- AASHTO Manual
- AWS Manual (Bridge Welding Code)
- Bridge Coatings Inspection Manual

Procedure:
The responsible parties involved in this process are as follows:
- Design Project Manager
- Bridge Designer (either In-House or Consultant)
- Structural Control Engineer

Steps:
1. Design Project Manager uploads structure plans into the District’s Document Routing System (DRS) or the appropriate Constructability Review folder – by the Design Project Manager
2. Design Project Manager notifies Structural Control Engineer by email that structure plans are available for review
3. Structural Control Engineer enters the project information on the SCE’s Structural Plans Reviews spreadsheet.
4. Structural Control Engineer decides as to whether the project meets the criteria for a priority structure project.
5. Review structure plans for priority structure projects and input comments into the DRS or the District 10-0 Constructability Comment Sheet – by Structural Control Engineer
6. SCE to notify the Design Project Manager that comments have been submitted to the DRS (automated by the DRS) or submit the completed Comment Sheet prior to the constructability meeting - by the Structural Control Engineer
7. After consultation with the Bridge Designer, the Design Project Manager provides responses in the DRS or the Constructability Comment Sheet to the Structural Control Engineer’s comments
8. The Design Project Manager meets with the Structural Control Engineer to review comment responses.
9. The Design Project Manager directs the Bridge Designer to update the structure plans incorporating the changes
8.5.1 – SC2 Disposal of Bridge Paint Waste

Process Owner: District Structural Control Engineer

Purpose:
This procedure is to outline steps to be followed in disposing of bridge paint waste.

Scope:
All bridge painting projects in District 10.

Reference Documents:
- Publication 408 – Specifications
- Publication 2 – Project Office Manual (POM), Part B, Section 4, p. 18-1
- Waste Manifest Tracking Sheet
- Special Provisions to the contract
- Approved Waste Disposal Plan
- EPA Form 8700-12 (Notification of RCRA Subtitle C Activity), EPA website
- EPA Form 8700-22 (Uniform Hazardous Waste Manifest), EPA website

Procedure:
See the process map:
Once the blasting operation begins paint waste is collected and placed in containers (usually 55 gal drums). Waste containers must be approved by the Department (IIC or SCE). Containers must be properly stored in a secured location in the inspector’s diary when and how many containers of waste are placed in the storage site, this is site specific.

Contractor Contact Waste Hauler to receive the proper stickers for the waste which has been accumulated.

Upon receipt of proper stickers (Hazardous Waste-Handle With Care) coordinate with the approved Waste Hauler to transport waste to the approved disposal site.

Transport the waste from the waste holding site to the approved waste site as per waste handling plan.

The IIC keeps a log (Waste Manifest Tracking Sheet) of each load of waste transported from the project site. The log should be shared with the SCE after each update.

The Waste Disposal site will return a completed copy of the waste manifest (EPA Form 8700-22) to the generator (PennDOT), and the SCE will compare the manifests to the IIC’s log (Waste Manifest Tracking Sheet).

When the Waste Disposal Site receives the waste and the waste manifest with all proper attachments, they will weigh the truck (loaded), verify that all the waste has been received, and will sign the waste manifest, which completes the procedure. A completed copy of the manifest, along with the loaded weight of the truck, is returned to PennDOT for inclusion in a separate “Hazardous Waste Manifest” File to be kept in the District Construction Unit Office, SCE file.
# ATTACHMENT #1
## WASTE MANIFEST TRACKING SHEET

### PAINT WASTE MANIFEST TRACKING SHEET

<table>
<thead>
<tr>
<th>ECMS Number</th>
<th>County</th>
<th>Project Name</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>S.R.</th>
<th>Section</th>
<th>Structure Name*</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Storage Area Description</th>
<th>Does storage area meet requirements of special provision and waste disposal plan (Y/N)</th>
</tr>
</thead>
</table>

### Field Personnel to Complete

<table>
<thead>
<tr>
<th>Manifest Tracking Number</th>
<th>EPA Provisional ID #</th>
<th>Transport Date</th>
<th>Dept. Rep That Signed Manifest</th>
<th>Date Manifest Returned to District</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

### SCE to Complete

<table>
<thead>
<tr>
<th>Date Manifest Returned to District</th>
</tr>
</thead>
</table>

* Provide a separate sheet for each structure for projects with multiple structures.
ATTACHMENT #2

BRIDGE PAINT WASTE STORAGE REQUIREMENTS

*Refer to “Disposal of Bridge Waste” standard special provision, Publication 408

* The waste holding site is to be secured and labeled with the proper warning signs indicating, material specific, what is stored in the waste containers. This waste holding site is to be located away from any flood plains and the ground in the containment should be stable and covered with an impervious tarp. The storage site is to be approved by a Department Representative.

* Stage the containers together in the waste holding site in lots no greater than two rows of five containers each.

* Maintain a minimum lane clearance of 36 inches between each lot of ten containers.

* If waste from more than one site is being stored in the holding site, keep the containers separated by site.
ATTACHMENT # 3

BRIDGE PAINT WASTE TRANSPORT DETAILS

1. Refer to “Disposal of Waste” standard special provision, Publication 408 and POM, Part B, Section 4, page 18-1

2. 90 days after the first waste container was placed into the waste storage site it is to be transported to the designated waste facility as per waste handling plan. The waste-handling plan is to be submitted by Painting Contractor to the Department representative for review and acceptance by the contractor a minimum of 21 calendar days prior to the start of paint removal operations.

3. Prior to transporting waste, the contractor will sample, test the stored waste and prepare a Waste Characterization Data Sheet and provide to the Department’s SCE for review and signature.

4. Department Representative prepares Additional Information Sheet (See POM Part B, Section 4, page 15-3).

5. Contractor is to provide a waste manifest (EPA Form 8700-22) for each transport of bridge paint waste.

6. The Department representative is to review the waste manifest. A listing of the type of waste generated and the disposal facility being used as per waste handling plan should be found on the waste manifest.

7. The Department representative will verify the number of waste containers being transported matches the information indicated on the manifest.

8. After the waste manifest has been reviewed the Department Representative, IIC or SCE is to sign the manifest.

9. The signed manifest and the waste is transported to the approved disposal facility. The Department Representative documents the waste transport on the Waste Manifest Tracking Sheet and sends a copy to the SCE.

10. The contractor provides a certification for each manifest shipment that the waste was accepted by the disposal facility, and properly disposed.

11. The S files all completed manifests and waste certificates in a separate file for such and the documents are kept indefinitely.

12. The SCE compares the manifests received with the IIC’s Waste Manifest Tracking Sheet to ensure all manifests have been received by the Department.
8.5.1 – SC3 Project Initiation – Local Bridge Projects  
Process Owner: District Structural Control Engineer

**Purpose:**
This procedure is to describe project initiation tasks associated with a local bridge project.

**Scope:**
All local bridge projects in District 10.

**Reference Documents:**
- Publication 219M – Bridge Construction Standards
- Publication 218M – Bridge Design Standards
- Publication 408 – Specifications
- Contract Specifications
- Special Provisions to the Contract
- AASHTO Manual
- AWS Manual (Bridge Welding Code)
- Design Manual, Part 4, Structures

**Procedure:**
See process map:
LOCAL BRIDGES - ECMS PROJECT
INITIATION

Contract Let - Receive e-mail
Notification of List of Bidders
(Responsible Party - CO Contract Management)

Once Contract is let project
moves into Pre-Award Status
(Responsible Party - CO Contract Management)

Contract Approved in ECMS
(Responsible Party - Local Municipality)

This moves project into Award Status
(Responsible Party - Local Municipality)

Required Documentation (Bonds, Insurance, etc.)
input into ECMS
(Responsible Party - Contractor)

Contractor Documents received and contract
is executed
(Responsible Party - Contract Management)

This moves the project into
pre-construction status
(Responsible Party - Contract Management)

Notice to Proceed is issued by SCE

This moves project into Construction Status
(Responsible Party - Contract Management)

Pre-job meeting may be
held any time after award

SCE schedules pre-job conference

Meeting notification:
Construction Unit Secretary notifies
District Personnel

SCE notifies Contractor, District
Design PM, Owner, Design
Consultant, and Inspection
Consultant

Pre-job package assembled and
held in District office until pre-job
meeting

Pre-job conference held by SCE
in District office

Construction unit secretary types
and distributes pre-job meeting
minutes to all parties
8.5.1 – FO1 Field Operations – Startup

*Process Owner: Construction Services Engineer*

**Purpose:**
The purpose of this procedure is to outline steps involved in startup of a construction project.

**Scope:**
The scope includes all projects in District 10 that are bid and let for construction.

**Reference Documents:**

*General references:*
- Publication 2 – Project Office Manual (POM)
- Publication 8 – Construction Manual
- Publication 19 – Pennsylvania Test Methods Manual (PTM)
- Publication 408 – Specifications
- Pre-Job Packet
- Pre-job Template Memorandum
- Finals Unit – 30 Day Turn In Plan
- Project Record Check-In Sheet
- *Other State published standards that are applicable to the project, e.g. Roadway and Bridge Standards*

*Project Specific references: ECMS Project # required*
- Contract Documents, including Special Provisions
- Project Plan
- Designer Notes

**Procedure:**
The responsible areas involved in this process are:
- Construction Services Engineer conducts pre-bid meeting if required
- Central Office Contract Management section advertises, lets and awards contract through ECMS.
- Assigned ACE/ACM is responsible for scheduling and conducting pre-job meeting

1. Project advertised for bidding; the advertisement and contract may contain a schedule for a pre-bid meeting. This meeting may be mandatory for some projects. If the contract indicates that a pre-bid meeting will be held, the Construction Services Engineer will schedule a meeting in advance to review the project in the pre-bid meeting.

2. A pre-bid meeting is held, if required, to review contract details and unique situations with the prospective bidders.

3. Project let by Central Office in ECMS.
4. Project awarded to successful bidder in ECMS (within 60 days of the bid opening, 30 day extensions may be made with mutual consent) by Central Office per section 103 of the Publication 408 specifications

5. Contract is posted in ECMS by Central Office.

6. ACE/ACM schedules pre-construction conference (Pre-Job) with all parties/individual units. The Pre-Job is held to establish/discuss topics outlined on the Pre-Job memorandum template.

7. Contract is executed in ECMS by Central Office per section 103 of Publication 408 specifications

8. The ACE/ACM issues the Notice To Proceed (NTP) in ECMS. This cannot occur in ECMS prior to contract execution, but must be within 30 days of the award date unless a mutual written extension is in place per section 108 of Publication 408 Specifications.

9. The ACE/ACM assigns the IIC and other project team members in ECMS.

10. The IIC shall ensure that a field office is established if applicable and in accordance with contract terms.
8.5.1 – FO2 Field Operations – Project Management  
Process Owner: Construction Services Engineer

**Purpose:**
The purpose of this procedure is to ensure that construction projects are built to specifications.

**Scope:**
The scope includes activities of project management staff between constructability review to project startup through project closeout.

**Reference Documents:**
- Publication 2 – Project Office Manual (POM)
- Publication 8 – Construction Manual
- Publication 408 – Specifications
- Publication 72M – Roadway Construction Standards
- Publication 111 – Traffic Control Standards
- Publication 219M – Bridge Construction Standards
- Publication 212 – Official Traffic Control Devices
- Publication 213 – Temporary Traffic Control Guidelines
- Finals Unit – 30 Day Turn In Plan
- Contract Documents, including Special Provisions
- Project Plan
- Designer Notes

**Procedure:**
The project management staff is responsible for monitoring the field inspectors, managing the project records, and ensuring contract compliance.

**Project Management**

- Familiarization with Project
- Ensure Compliance
- Verify Subcontractors
- Verify Materials
- Verify Construction to Specifications
- Manage records, Process estimates, maintain documentation, and Process work orders
- Finals
The assigned IIC shall ensure that:

- Adequate staffing has been assigned to the project
- Risk based construction inspection is performed.

When assigned a project, Field Operation’s personnel shall:

- Become familiar with all project requirements as contained in the:
  - Contract
    - Special Provisions
    - Project Specifications
  - Project Plan prepared by design unit or others
  - Standards
    - Publication 408
    - Bridge, Roadway, and Traffic Standards
  - Designer Notes
  - Right of Way Notes

To ensure compliance with contract requirements, the assigned IIC along with field operations staff shall:

- Ensure field operations staff is using the correct version of specifications as per contract documents.
- Ensure subcontractors are approved through ECMS prior to them starting any work.
- Verify that materials that are being incorporated into the work are listed on the Approved Source of Supply
- Verify that all construction operations are performed to specifications, contract documents, and applicable standards, i.e. Publication 408, PTM, etc.
- Ensure documentation required is prepared and submitted to Finals Unit, including change authorization, negotiated costs and work orders.
- Follow the “Finals Unit – 30 Day Turn In Plan” to ensure that all project documentation is obtained from the contractor in a timely manner.
- Ensure required records are created as indicated in the Project Records Check-in List.
8.5.1 – FO3 Field Operations – Project Closeout
Process Owner: Construction Services Engineer

Purpose:
The purpose of this procedure is to ensure that construction project records and
documentation are closed out to meet the requirements of Publication 2, Project
Office Manual, Part B, Section 1, Page 2-1, Finals Unit requirements and as
outlined on the attached flowchart.

Scope:
The scope includes all construction projects in the district that are reviewed by
the Finals Unit.

Reference Documents:
- Publication 2 – Project Office Manual (POM)
- Publication 408 – Specifications
- Publication 72M – Roadway Construction Standards
- Publication 111 – Traffic Control Standards
- Publication 219M – Bridge Construction Standards
- Finals Unit – 30 Day Turn In Plan
- Project Records Check-In Sheet
- Contract
- Official Governing Document
- Contract Special Provisions
- Cross Sections
- Project Plans
- Designer Notes

Procedure:

The Inspector-in-Charge is responsible for submittal of final documentation to the
Finals Unit.

See process map:
Project Close-out

**Final Inspection (ACE and Field Staff)**
- Satisfy punch-list deficiencies
- Follow Steps in the “30 Day Turn In Plan” to obtain Required Documentation
- Perform After-action review of the Project and submit to ACE/ACM

**Field Review (Inspector-in Charge)**
- Review documentation since last field audit
- Complete Finals Unit Check-in Sheet
- Notify ACE/ACM if Required Documentation is not received according to the “30 Day Turn In Plan”

**Process Final Field Work Order and Estimate to balance the contract item quantities to 100% (Inspector-in-Charge)**

**Deliver Documentation to Finals Unit (Inspector-in-Charge)**
8.5.1 – FO4 Field Operations – E&S Details
Process Owner: Construction Services Engineer

**Purpose:**
The purpose of this procedure is to ensure that construction projects E&S controls are inspected in a timely manner and that modification to the E&S plans are appropriately approved.

**Scope:**
The scope includes activities of project staff from constructability review to project launch, through project closeout.

**Reference Documents:**
- Publication 2 – Project Office Manual (POM)
- Publication 408 – Specifications
- Contract Documents, including Special Provisions
- Project Plans
- Designer Notes
- Publication 72M – Roadway Construction Standards
- Publication 111 – Traffic Control Standards
- Publication 219M – Bridge Construction Standards
- Environmental mitigation sheet and permits
- Visual Site Inspection Report, DEP

**Procedure:**
The project staff is responsible for inspecting the E&S controls, at a minimum, weekly or after each measurable event. The project staff must report the inspection, inform the contractor of necessary corrections and monitor the corrections. If timely corrections are not made, all other contract work shall be stopped until all corrections are completed. The project staff must ensure any changes to the contract E&S plan are approved by the county conservation district and/or DEP regional office prior to implementation. Standard forms for documenting reviews and meeting minimum requirements are located on the departments LAN (J- drive) and on an IPad application.

See process map:
Field Operations E&S Details

- Familiarization with Project E&S Control requirements
- Ensure Compliance with “as-designed” E&S controls
- Ensure modifications submitted for approval by contractor or approved in the field by County Conservation District.
- Correct Deficiencies
- Verify Construction to Specifications
- Maintain documentation
- No Notice of Violations
When assigned a project, Field Operation’s personnel shall:

- Become familiar with and ensure all project E & S requirements are in place and functioning as specified:
  - Contract
    - Special Provisions
    - Project Specifications
  - E&S control Plan
  - Standards
    - Publication 408
    - Other state published standards applicable to the project, e.g. Roadway construction Standards
    - Designer Notes
    - Environmental mitigation sheet and permits

The assigned Project manager shall ensure that:

- Staffing has been assigned to inspect the E&S controls on a daily basis and after each rain event with the reviews documented on Ipad app for E&S and in the inspector’s daily diary P

- A review of the E&S control and plans occurs with the contractor.

- E&S control deficiencies are corrected

- Modifications to the “as designed” E&S controls are forwarded to the appropriate regulatory agency and approval is obtained before any related work is performed.

- Visual Site Inspection Form is completed when required.

To ensure compliance with contract E&S requirements, the assigned project manager with field operations staff shall:

1. Ensure the contractor or subcontractor is using the correct version of sequencing and phasing as per contract documents.
2. Verify that contractors are correcting deficiencies found as a result of an E&S control inspection.
3. Verify that all construction operations are performed to specifications, contract documents, and applicable standards, i.e. Publication 408.
4. Ensure documentation required is prepared and submitted to the pertinent regulatory agency.
8.5.1 – FO5 Field Operations – Field Peer Reviews

Process Owner: Construction Services Engineer

Purpose:
The purpose of this procedure is to ensure that construction unit personnel are completing field audits of their peers to maximize the efficiency and standardization of all field operations.

Scope:
To ensure peer reviews are being conducted on selected projects.

Reference Documents:
- District Checklists as developed for the field peer reviews
- District 10 Field Peer reviews folder, J-drive
- Audit Log, J-drive

Procedure:

See process map below:
Field Peer Reviews

ACE/ACM determines how many projects and which operations will be audited for the construction season.

ACEs assign two auditors for each project to be audited (Auditors will be auditing projects that are not assigned to their ACE.) Preferably one TCIS or Manager and one TCI will make a team.

The audit team performs the audit and completes the checklist. The team scores the audit using the District developed scoring sheets for the peer audits and reviews audit findings with IIC.

The audit team contacts the project manager of the job to be audited and schedules a date and time to conduct the audit on site when the selected operation is active.

The audit team gives the scores and any comments to their (ACE).

The construction staff reviews the data for trends, patterns, and opportunities for improvement and gathers suggestions if opportunities for improvement are noticed.

Suggestions for improvement are gathered and communicated to all field personnel via the monthly Construction Meetings, Winter School, and ISO Meetings.
8.5.1 – F1 Work Order Process

Process Owner: District Finals Unit Supervisor

Purpose:
The purpose is to make contract item quantity adjustments including additional work, and to add extra work items to contracts of current construction projects.

Scope:
The process can be utilized on federally funded contracts, state funded contracts and (local) municipal contracts to make contract change orders.

Reference Documents:
- Publication 2, B-3-1 – Project Office Manual (POM)
- Publication 408, Sections 110.02 and 110.03 – Specifications
- Authorization for Contract Work (Former CS-373) (if needed)
- CS-4347 types for extra work cost justification
- Work orders are electronic, processed in ECMS

Procedure:
- The key responsible areas involved are as follows:
- Construction inspection staff creates/submits/reviews work authorizations, negotiates prices, creates or reviews cost justifications, and prepares work orders.
- Contractor submits cost justifications through IIC via PennDOT Project Collaboration Center (PPCC) or CDSv3 (ECMS).
- Construction Documentation Specialist reviews and approves item cost justifications, submitted work orders, and select contract adjustments.
- Assistant Construction Engineer reviews work orders and contract adjustments.
- Maintenance Program Engineer reviews work orders from a fiscal view.
- Construction Services Engineer reviews work orders for ADE Construction
- ADE Construction, reviews work orders for DE (if funded 100% state, federal or any combination).
- Central Office reviews select Work Orders prior to Federal review.
- FHWA reviews and approves expenditures (only for Federal Oversight or PennDOT Oversight-NHS projects).
  - Central Office reviews legal Work Orders prior to Federal review.
- Field Inspection staff prepares and submits estimate for payment

See process map:
Publication 2 – Project Office Manual (POM), B-3-1, pg. 1-33 to 1-43
8.5.1 – F2 Finals Unit Project Set-Up
Process Owner: District Finals Unit Supervisor

Purpose:
The purpose is to establish the construction unit’s construction project records tracking. Set up establishes and identifies record keeping methods and the distribution custody of field books and estimate dates to project managers.

Scope:
This process is used to distribute and track custody of construction records for municipal, state and federal contracts.

Reference Documents:
- Items/Estimate Report
- Materials Book
- Items Quantity Book
- IPad Concrete App
- Field Survey (Black Book)
- Contract
- Plans
- Construction Field Site Service Request
- PPCC – Dist 10-0 Project Set Up

Procedure:
Contract Management unit begins the process with an executed contract. ACE/ACM conducts a pre-job meeting and establishes notice to proceed. The Finals Unit distributes necessary books for project documentation project records. Finals Unit personnel update data base with pertinent contract information and documentation tools issued dates. Inspector-in-Charge submits Construction Field Site (CFS) Request Form to Final’s Unit once field office, electricity, phone service, and internet service are established at the CFS. Final’s Unit will review and enter request into the Request for Service (RFS) system which will notify local IT staff to schedule with IIC to install the requested equipment and establish network drives. ACE/ACM acquires usernames of project specific PennDOT Project Collaboration Center (PPCC) users including prime and sub-contractor users, consultant designers, and inspection staff and completes PPCC Dist 10-0 Project Set-Up form and submits to PPCC District Administrators for project site creation which is then created and announced to all PPCC users via email. Project Manager is responsible for records until they are returned to construction/finals.

See process map below
Set-Up Distribution of Records

Process 8.5.1 (FO1) → District Labor & Contract Compliance Agent → Final's Unit

- Launches a Construction Project
- Generates material's book
  - Note: If project elects to use electronic material's book, no paper form is generated – electronic copy can be obtained on PPCC
  - Provides necessary books to be used for project documentation:
    - Concrete Book
    - Survey Book (Black Book)
    - Items Quantity Books
- Provides pertinent contract information and documentation supplies are recorded on (J Drive) by date issued and to whom

CDS v3 (ECMS w/ PSA option) → IT requests installation of IT equipment if applicable once field office is in place with electric, phone, and internet service

IT schedules with IIC to install equipment and establish local network.

Project ACE

- Indicates PPCC (SharePoint) project specific team members on PPCC – District 10 Project Set Up sheet including inspection staff, contractor users, and designers and submits to PPCC District Administrators
- PPCC District Administrator creates PPCC project site and adds project specific users. Announcement email is sent to all PPCC users informing them the site is established.
8.5.1 – F3 Project Closeout

Process Owner: District Finals Unit Supervisor

Purpose:
The purpose of this procedure is to closeout construction projects (move from “construction” status into “final” status). Final quantities are balanced and paid by project oversight staff. The final’s unit ensures all assigned and distributed record books and accumulated construction field documentation required during construction, which support payments and details work performed, are recovered for use in: finalization, storage, and future reference until established destroy date. Project finalization includes: Project Acceptance, Acceptance Certificate, Environmental Mitigation Commitments, District Materials Certification, Final Records Audit, Verification of Claims, Verification of Time Extension Resolution, Resolution/Verification of Funding closure, Notification of Final Quantities and generation of Records Storage location and destroy date.

Scope:
This process is to be used for all municipal, state and federal construction projects to closeout construction projects and their records.

Reference Documents:
- Project Records Check-In Sheet
- The Final Inspection and Punch-List CS-4137/CS-4136
- ECMS
  - Acceptance Certificate CS-4138
  - Time Extension
  - Interest Payment
  - Notification of Final Quantities
  - Finalization Checklist (ECMS)
- Finals Unit Guide Book

Procedure:
Project moves from “Construction” status to “Post-Construction” status when physical work is complete and entered into ECMS – Finalization Checklist.

See process map below
Final’s Unit Project Records Check-In Tasks

Project Staff:
• Schedules date & time for Project Turn-in
• Completes Project Record Check-In sheet

Final’s Unit
• Obtains Record’s log page from Network Drive (Generated Project Setup)
• Verifies all assigned materials are being returned
• Review Project Record Check-In sheet with Project Staff to ensure its completeness
• Obtain completed Final Inspection & Punch-list, scan & attach to ECMS Finalization Checklist
• Final’s Unit selects location for storage of records and records information in ECMS, Finalization Tracking Spreadsheet, and Record’s Storage Spreadsheet
• The Final’s Unit Supervisor or IIC must complete the “Time Extension Requests Resolved” in Finalization checklist if all time extension issues are resolved
• The Final’s Unit Supervisor or IIC must complete “Verification of Claims” in Finalization Checklist if there are no known claims
• Verify “As Built” Mylars have been submitted to “ACE” then to Plans Clerk
• Have IIC complete and submit quality survey for design items in ECMS

Record’s Control (For each project as applicable)

<table>
<thead>
<tr>
<th>RECORD</th>
<th>STORED</th>
<th>PROTECTED</th>
<th>RETRIEVED</th>
<th>RETENTION</th>
<th>DISPOSAL</th>
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</thead>
<tbody>
<tr>
<td>ECMS Database</td>
<td>ECMS</td>
<td>Access Control</td>
<td>ECMS Authorization</td>
<td>Retained</td>
<td>Retained</td>
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<tr>
<td>PSAs</td>
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<tr>
<td>Copy of Plans</td>
<td>Stored w/ Project files in District rolling record storage or State Record’s Center</td>
<td>Building has secure limited access – only employees or escorted visitors have access to these records.</td>
<td>Request desired records from Final’s Unit Staff and sign-out by type of Record</td>
<td>The later of: 7 Years after FINALIZATION date or 3 years after Final Voucher (Federal) is issued.</td>
<td>Confidential records are shredded and all are recycled. Electronic Files deleted.</td>
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<tr>
<td>Materials Book (Paper or Electronic)</td>
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<tr>
<td>Labor Compliance Manual</td>
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<td>IQ Books</td>
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<td>Survey Books</td>
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<tr>
<td>General Project Files (According to Suggested Master Index)</td>
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<td>As Built Plan</td>
<td>Microfilm</td>
<td>Limited Access</td>
<td>Request from Plans Clerk</td>
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</tbody>
</table>
8.5.1 – F4 Right-To-Know, Treasury Database

Process Owner: District Finals Unit Supervisor

Purpose:
To input construction project work order and time extension information into the Contracts Library of the State Treasurer website (www.patreasury.gov) to meet Right to Know obligations.

Scope:
Input applicable work orders and time extensions for construction projects (contracts) into the state treasurer website to meet Right to Know obligations. Remove all information that is not public information by redacting the documents prior to uploading them into the treasury database.

Reference Documents:
Act 3 of 2015, the Right-to-Know Law (Chapter 17)

Procedure:
See process map below:
Input Construction Project Work Orders and Time Extension into the Treasury Database

Project Manager creates a work order to make a change to the contract and/or new item quantities.

A Time Extension is granted for a contract

Work Orders (along with Explanations) and Time Extensions are printed from ECMS to show the details of the cost or time change.

The Documents are printed or converted to PDF and redacted by a TCI. (Any personal information is blackened out using permanent marker or Adobe Pro edit redaction feature, i.e. Tax info, social security numbers, workflow information, etc.)

The redacted pages are scanned into a PDF document by the Construction Unit Secretary.

The scanned and redacted documents are uploaded onto the Department of the Treasury website for the appropriate contract and once uploaded the documents are checked by the person that redacted the documents to make sure they are legible and the appropriate information is shown and/or redacted.
8.5.1 – C2 Employee Performance Review Processing

Process Owner: Construction Services Engineer

Purpose:
To establish measures and goals for the employee to achieve.

Scope:
All Construction unit personnel

Reference Documents:
- Position Descriptions (in ESS under “Supervisor Self Service User” tab
  - Under “Create/Update PD” click on “Select”
- Employee Performance Review User Guide
- Employee Performance Review Website Link
- HR sends out reminder to the units to complete Union and Nonunion EPR’s at appropriate times.

Procedure:
The position description is pulled from the on-line file; employees listed under their supervisor’s position number. The employee performance review form is updated with any changes in the employee’s position and updates for the new year. The supervisor goes over the old year’s review and assigns any comments and reviews the new year’s measures with the employee. The employee, supervisor, and a reviewer electronically signs the document. The completed EPR is then emailed to the HR portal.
8.5.1 – CPM1 AAR Process
Process Owner: Scheduling and Constructability Manager

Purpose:
To ensure that continuous organizational learning and improvement in construction and design happen with the use of feedback from completed project AAR’s.

Scope:
The scope includes all construction projects in the district that have conducted AAR’s after completion of project.

Reference Documents:
• District 10-0 AAR Form

Procedure:
1.) AAR’s will be held following all project Final Inspections and/or as required during construction of a project
2.) Project IIC’s will facilitate the AAR and complete the District 10-0 AAR Form.
3.) AAR meeting notes will be maintained in the project files and a copy provided to all attendees to include the Constructability Review Manager.
4.) Constructability Review Manager will review and maintain all project AAR Meeting Notes electronically on the J:Drive at:
   [J:\Construction\AARs\Construction AAR’s]
5.) Constructability Review Manager will hold annual AAR Review with Construction Admin Staff to discuss findings.
6.) Findings will be shared with Design and Construction personnel to update District Best Practices as necessary to improve the constructability process

8.5.2 Identification and Traceability
Process Owner: Assistant District Executive – Construction

Purpose:
To address identification and traceability requirements.

Scope:
Not applicable

Reference Documents:
Publication 408 – Specifications

Procedure:
As per contract specifications, requirements for identification or traceability are defined in Publication 408 (e.g. for steel heat numbers). The IIC is responsible to ensure that all requirements set forth in the Publication 408 concerning identification and traceability are met.
8.5.3 Property belonging to customers or external providers  
*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To address customer property

**Scope:**
Applies to all Construction Unit personnel

**Reference Documents:**
Not applicable

**Procedure:**
This requirement generally does not apply to District 10 Construction Unit services. If we have a customer requirement where District 10 Construction Unit is in possession of customer supplied product, the Management Representative shall ensure a special quality plan is prepared to address the situation.

8.5.4 Preservation  
*Process Owner: Assistant District Executive – Construction*

**Purpose:**
To address preservation of the conformity of product at all times

**Scope:**
Applies to all District 10 Construction Unit personnel

**Reference Documents:**
Not applicable

**Procedure:**
This requirement generally does not apply to all District 10 Construction Unit services since contractors who build our roads or bridges are responsible for all the material and components of “the products” until time for closeout of a contract. Once the contract is closed out, the product becomes the ownership of the Maintenance Unit, which is not covered by this manual.

If circumstances ever arise that require attention of preservation of property, the Management Representative shall create a special quality plan to address the situation.
8.6 Release of products and services
Process Owner: Assistant District Executive – Construction

8.6.1 Release of products and services

Purpose:
To address the monitoring and measurement of QMS processes.

Scope:
Applies to all Construction Unit operations

Reference Documents:
• District Scorecard
• Project and Sub-Unit Dashboards

Procedure:
The Construction Unit services delivered to customers are described primarily in
the procedures described in 8.5.1. Other QMS processes are described in
procedures throughout this Manual. The processes described in these
procedures are designed to meet the State and Federal regulatory requirements.
Our method for monitoring the ability of these processes to achieve planned
results include the measurement and analysis, the use of internal audits,
Management Review, and the corrective action process when planned results are
not achieved.

We also use dashboards, scorecards and action items to track performance
indicators, which we monitor within the Construction Unit and use to consider
improvement opportunities. We also report scorecard results to Central Office
management.

For special projects or unique contracts, an IIC shall identify and document
required methods for measuring and monitoring, and shall assure that
measurement and monitoring is used to achieve customer requirements.
8.6.2 Release of products and services

*Purpose:*  
To address measurement and monitoring of services.

*Scope:*  
Applies to all Construction Unit operations

*Reference Documents:*  
- District Scorecard

*Procedure:*  
Our services are provided in accordance with requirements defined in contracts, specifications and Department publications. Our primary opportunity to monitor and measure services to verify that requirements have been met occurs after the services have been provided.

The IIC shall as appropriate, review the physical work being performed and review the documentation to ensure that it meets requirements.

Additionally, on an annual basis, the performance of each employee is reviewed via our EPR process.
8.7 Control of Nonconforming process outputs, products, and services

*Process Owner: Construction Support Services Engineer*

**Purpose:**
To ensure that products or services which do not conform to requirements are identified and controlled.

**Scope:**
Applies to all Construction Unit personnel

**Reference Documents:**
None

**Procedure:**
Products of the Construction Unit are primarily service in nature and typically do not have tangible products associated with the provided services. Therefore, there is limited opportunity or requirement to consider disposition of non-conforming material.

It should be noted that, if a contractor supplies what is determined to be non-conforming material, that Construction Unit personnel may be involved in ensuring that the remedy or remedies are performed by the contractor in accordance with the requirements contained in Publication 408 or other applicable documents.

If circumstances arise where an actual tangible product is found to be non-conforming, the individual discovering the non-conformance from requirements shall document the non-conformance. Each Unit documents the non-conformance observed of their requirements as needed to ensure the product, service or requirement is fulfilled. The associated documents that each Unit utilizes will be maintained within the Unit or on the project. These document systems will be reviewed by responsible unit members for conformance, closure or systematic issues. If there are trends or an immediate need, the issue will be raised to CPAR level. CPAR’s, along with individual Units reporting on their process findings or finding trends, are discussed at the Management Review Meetings.

The Management Representative in assuring the documentation of a quality plan shall reference ISO 9001 to assure that the quality plan is documented in accordance with this element of the standard.
9 – Performance Evaluation

9.1 Monitoring, Measurement, Analysis and Evaluation
Process Owner: Construction Services Engineer

9.1.1 General
Process Owner: Construction Services Engineer

**Purpose:**
To ensure that the Construction Unit plans and implements the monitoring, measurement, analysis and improvement processes needed to demonstrate conformity of the product, to ensure conformity of the QMS and to continually improve the effectiveness of the QMS.

**Scope:**
Applies to all the Construction Unit personnel

**Reference Documents:**
None

**Procedure:**
We view this clause as a “think” clause, with the processes required to meet its contents described in other clauses of our quality management system. By instituting this approach, we plan and implement the monitoring, measurement, analysis and improvement of processes to ensure conformance to our product, quality management system and continued improvement of our system.
9.1.2 Customer Satisfaction
Process Owner: Construction Services Engineer

Purpose:
To define the process for monitoring information relating to customer perception as to whether the organization has met customer requirements

Scope:
Applies to all Construction Unit operations

Reference Documents:
• District Customer Service questionnaires: (External, Internal, Prime Contractors, Consultants)
• Customer Survey Index (CSI)
• After Action Review’s (AAR)
• Customer Care Center (CCC)

Procedure:
The District 10 Construction Unit employs several strategies to monitor customer perception as to whether the organization has met customer requirements. Since the ultimate customers are the users of the roads and bridges we build. District 10 Construction conducts customer surveys, Internal, External – Project Specific property owners, commuters, Material Suppliers, Prime Contractors and Consultants. The Project specific projects are decided by Management.

Information relating to customer perception as to whether the organization has met customer requirements shall be discussed and handled in at least one of the following: Immediate response to concern within time frame of CCC, weekly Construction Staff meetings if immediate attention/discussion is required, Management Reviews and for Group discussion at Winter School.

Process:
CCC Process below
Deadline/concern received in Construction Unit

Construction Secretary Assigns Complaint to ACE or CSE with Due Date. Does the CCC require a written response?

Yes

Construction secretary sends email with information to ACE / IIC to make contact within 24 hours

Rough draft letter due date to ACE / CSE

Secretary Records Deadlines in CCC Log

ACE / IIC gathers data, prepares rough draft of letter prior to deadline

ACE revises and delivers to Construction secretary

Secretary Types Rough Draft and Gives to CSE to review

CSE gives to ADE-construction for review

Disapproves

ADE-C Reviews Letter

Approval/Disapproval:

- Approves
- Disapproves

District Executive Reviews Letter and Returns to Construction

Construction Unit Secretary Prepares Final Draft

Construction Unit Secretary Returns Letter to District Executive for Signature

Letter Approved

Construction Unit Secretary Returns Letter to District Executive for Signature

District Executive Secretary emails response and Construction Unit Secretary mails letter with all information of concern and our response or action taken

IIC sends email back to ACE and secretary regarding concern and response

CCC closed out in system by ACE or secretary with all information of concern and our response or action taken

Yes

Construction secretary sends email with information to ACE / IIC with due date. Does the CCC require a written response?

Deadline/concern received in Construction Unit

Rough draft letter due date to ACE / CSE

Secretary Records Deadlines in CCC Log

ACE / IIC gathers data, prepares rough draft of letter prior to deadline

ACE revises and delivers to Construction secretary

Secretary Types Rough Draft and Gives to CSE to review

CSE gives to ADE-construction for review

Disapproves

ADE-C Reviews Letter

Approval/Disapproval:

- Approves
- Disapproves

District Executive Reviews Letter and Returns to Construction

Construction Unit Secretary Prepares Final Draft

Construction Unit Secretary Returns Letter to District Executive for Signature

Letter Approved

Construction Unit Secretary Returns Letter to District Executive for Signature

District Executive Secretary emails response and Construction Unit Secretary mails letter with all information of concern and our response or action taken
9.1.3 Analysis and evaluation
Process Owner: Construction Services Engineer

Purpose:
To address analysis of data to determine the suitability and effectiveness of the QMS.

Scope:
Applies to all Construction Unit operations

Reference Documents:

- CPAR - Corrective/Preventive Action Request

Procedure:
The Construction Unit shall collect and analyze information relating to customer satisfaction, product conformity and the performance of contractors, consultant inspectors, and suppliers to contractors. We shall also review our dashboards, action items and scorecard quarterly for opportunities for improvement and look for trends in our process performance and for opportunities to initiate corrective and preventive action.

Analysis of data shall be an agenda item for ISO Management Review.
9.2 Internal Audit

Process Owner: ISO Management Representative

Purpose:
To define the process of Internal Audits for District 10 Construction Unit.

Scope:
Applies to all District 10 Construction Unit ISO operations

Reference Documents:
- ISO 9001:2015

Procedure:
The management representative shall prepare an annual audit schedule, showing audits to be performed throughout the year based on status and importance. The schedule shall be presented to the ADE-Construction for review and approval and distributed to all affected Units. The schedule shall be reviewed in Management Reviews for appropriateness. Internal audits shall be conducted on a periodic basis, with all aspects of the Quality Management System being audited within a 3-year period. Consideration will be made during the schedule planning on the importance of processes to be audited based on negative trends in product conformance (CPAR’s reported for an area) or any other issues that adversely impact our system.

The management representative shall maintain a list of qualified personnel to conduct internal audits. The management representative shall ensure that personnel assigned to perform internal audits are competent, impartial and objective. Auditors may not audit their own work.

A team of one or more qualified auditors shall conduct individual audits. The auditor(s) shall notify the auditee at least one week prior to the meeting or a timeframe mutually agreed by both parties.

Upon completion of each audit, a report shall be prepared and presented to the ADE – Construction, the manager or supervisor of the area being audited, the ISO Management Representative, and other individuals at the discretion of the auditor within 5 working days for distribution. Completed audit reports will be stored electronically on the Departments’ Local Access Network (LAN). Adverse audit findings, if any, shall be captured on Corrective Action Request forms.

The disposition of any Corrective Action Requests as the result of an internal audit shall follow the Corrective Action procedure, noting that this procedure requires verification of the actions taken and the reporting of verification results. Management responsible for the area being audited shall respond to any observations, areas for improvement identified and nonconformities noted during the audit prior to the next regularly scheduled management review meeting.
The management representative shall review all internal audit reports and shall analyze them for trends and opportunities for improvement and shall report the results of this analysis the ADE – Construction at least twice during the year. Chart 8.2.2 provides a summary of the audit process.

If an internal audit cannot be completed in the timeframe designated by the approved audit schedule, the ISO Management Representative shall determine if there is adequate reason to re-schedule the audit without implications on the auditor’s EPR.
Chart 8.1

Summary of Audit Process

1. Prepare Audit Schedule
2. Submit to ADE for Review and Approval
   - Yes
     - Assign Qualified Auditors
       - (List of Qualified Auditors listed in the front of this manual)
     - Teams Prepare for Scheduled Audits
   - No
     - Distribute Audit Schedule to Teams
3. Audit is Conducted
4. Report Findings to Management Representative
5. Take Corrective Action If needed
10 – Improvement

Process Owner: Assistant District Executive – Construction

10.2 Nonconformity and Corrective Action

Purpose:
To establish a procedure for correcting nonconformities within the quality management system

Scope:
Applies to all Construction Unit operations

Reference Documents:
Unit tracking, Findings, Documentation Spreadsheets, CCC’s, Surveys

Procedure:
Any individual in PennDOT District 10 Construction Unit is authorized to generate a Corrective/Preventive Action Request (see attached form). In addition, the Corrective Action Process shall consider customer complaints that arise via letters, facsimiles, emails and phone conversations from any source, if a trend is being observed.

The Corrective Action Process shall also require review of dashboards, action items and scorecard to identify trends of customer dissatisfaction, concerns or internal process performance related to any dimension of any Construction Unit services or products. In addition, the Corrective Action Process may be considered for all issues raised via any contract mandated customer complaint procedure and those arising out of internal audits. CPARs generated by internal audit findings require the audit team representative initiating the request to verify its closure by informing the auditee and management representative that the identified issue has been resolved.

All CPAR forms shall be forwarded to the Management Representative who shall be responsible for assigning the evaluation and subsequent action regarding the Corrective Action to the individual deemed responsible for the activity.

The various units of Construction have developed and are utilizing specific documentation tools for their own processes/needs. These tools will be kept within the specific units or projects as the Units require. Individual units will review and discuss their findings for developing trends at each Management Review Meeting. If at this time, a trend or need is seen, a CPAR will be generated to close a process failure.

The process for evaluating the Corrective Action Request and determining the appropriate course of action may consider the following elements, as appropriate:
1. Identify deviations from requirements.
2. Investigate the causes of the deviation.
3. Explore Corrective Action alternatives or determine that Corrective Action is not appropriate or necessary for this particular issue.
4. Select the most appropriate Corrective Action, if any, and identify the responsibility and a time frame for completion.
5. Assure that Corrective Action has been effectively implemented, or refer the Corrective/Preventive Action Request to Management Review, if the implementation of Corrective Action requires resolution at that level of the organization.
6. Results of the Corrective Action process shall be recorded and records maintained as Quality Records.

All requests for Corrective Action shall be logged on a Corrective/Preventive Action Master Log.
CORRECTIVE/PREVENTIVE ACTION REQUEST

Rev1/13

CPAR - ____________

TO:  tboyer@pa.gov  (ISO Man. Rep.)  FROM:_________________________

CC:_________________________ DATE:___________

A. Corrective/Preventive Action Request (Please complete a separate form for each item):  
   In the space below describe the issue/problem/situation or customer complaint and the root cause of issue.

Signed: _____________ Date: _______

(When section A has been completed, forward this form to the ISO Management Representative)

Received by Management Representative: Signed ________ Date: ______

Assigned to: __________ Date: ______  Response requested by: Date______

B. Corrective/Preventive Action Response (Describe the Corrective/Preventive action to be taken, estimated completion date and means of verification of closure.)

Signed _______________________________________ Date: ___________

(When section B has been completed, return to the ISO Management Representative)

C. Review of Corrective/Preventive Action Implementation Comments:

Signed __________________________________________ Date: _______

(Management Representative)
10.3 Continual Improvement

Purpose:
To emphasize our commitment to continual improvement throughout the Construction Unit.

Scope:
Applies to all Construction Unit operations

Reference Documents:
Not applicable

Procedure:
Our approach to continual improvement is to use the management review process as a primary mechanism for gathering information relating to the Quality Management System and our products and processes. This is also our forum for setting priorities and allocating resources to achieve improvement.