

UDOT *Construction Inspection Guide*

PREFACE & CHAPTER 1

REVISED 2017





Preface

INTRODUCTION

Construction Engineering and Inspection (CE&I) includes the monitoring of construction work through inspection and testing. Inspection and testing is essential to ensuring projects are constructed in accordance with the approved plans, specifications, and contract provisions.

Inspection personnel are required to inspect all materials delivered to the worksite and confirm that materials and work meet the contract requirements. Additionally, it is the role of the construction staff to monitor progress against the construction schedule, verify correct interim and final payments, administer changes, and document that the project was built in accordance with the approved plans and specifications.

Proper inspection requires good communication and documentation skills, judgment, diplomacy, common sense, and a thorough understanding of the work, plans, and specifications. The purpose of this manual is to provide guidance to personnel performing construction inspection for the Utah Department of Transportation (UDOT) and to advance consistency and best practices to help ensure quality workmanship and materials are incorporated into UDOT projects.

SUMMARY OF IQP PROGRAM

The Inspectors Qualification Program is part of UDOT's Quality Assurance Program (QAP) and required by [23 CFR 637](#). Training and qualification is necessary to maintain qualified project personnel on each project. UDOT has developed a training and qualification program to assist both UDOT and Consultants in preparing well-trained people with the expertise needed to inspect projects. Inspectors assigned inspection duties on a UDOT or Local Government project are required to be IQP certified.

The Inspectors Qualification Program (IQP) has two methods of training:

1. UDOT ADOBE CONNECT ONLINE COURSES

These courses will have open sessions for three months at a time. Once a participant registers for a session, the participant must complete it within the three-month timeframe or must reregister and repay to enter the course again. The Adobe system will allow a participant to take the courses at their own pace and available time.

Participants can start a course, log out of the system, log back in later and the system will continue where they left off.

2. CLASSROOM COURSES

There are a few courses participants will take to become Qualified in a certain area such as crash attenuation/cushion installation, Partnering etc. Participants will schedule and attend these courses at an appointed facility and scheduled time.

CONTACT INFORMATION

Questions concerning any of the material presented in this guide should be directed to the UDOT Construction and Materials Division.

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GUIDE CONTENTS

Chapter 1 of this guide includes a brief overview of standard contractual requirements (referred to as general conditions or general provisions). This chapter also includes general information concerning inspector duties and authority, the Department's QAP, and describes basic documentation that must be maintained for all projects.

Chapters 2 thru 9 are organized by work activity classification and cover inspection for work normally encountered and specified in the Department's Standard Specifications. These chapters also include required documentation required. Chapter 10 covers utility and railroad information.

Where section numbers are shown, they refer to the UDOT [2017 Standard Specifications](#). UDOT is referred to as the "Department." Before using this manual, the inspector must gain an understanding of basic contract terms by studying [2017 Standard Specifications Section 00570 – Definitions](#).

Throughout the guide there are references to other documents or information sources where additional or more detailed information can be found.

HOW TO USE THE GUIDE

This guide can be downloaded to electronic device or smart phone. It can also be accessed online with the hyperlinks to each chapter.

Inspectors should also have access to and review the project specific Acceptance and Documentation Guide (A&D) and Special Provisions which include the project Measurement and Payment (M&P), Special Provisions, and Supplemental Specifications.

“GUIDE,” NOT SPECIFICATION

Finally, many sections in this guide closely follow a corresponding section on the [2017 Standard Specifications](#) however where they disagree always follow the contract documents.

According to [2017 Standard Specifications](#) Section 00727 *Control of Work*, the governing ranking in case of conflict of contract documents is:

- Project Special Provisions
- Project Plans
- Department Standard and Supplemental Specifications
- Department Standard Drawings



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Introduction

1.0 INTRODUCTION

Construction Engineering and Inspection (CE&I) includes the monitoring of construction work through inspection and testing. Inspection and testing is essential to ensuring projects are constructed in accordance with the contract provisions, plans, and specifications. Inspection personnel are required to be certified and to inspect all materials delivered to the worksite and confirm that materials and work meet the contract requirements. Additionally, it is the role of the construction staff to monitor progress against the construction schedule, verify correct interim and final payments, administer changes, and document that the project was built according to the plans and specifications. Proper inspection requires good communication and documentation skills, judgment, diplomacy, common sense, and a thorough understanding of the work, plans, and specifications. The purpose of this guide is to provide guidance to personnel performing construction inspection for the Utah Department of Transportation (UDOT) and to advance consistency and best practices to help ensure quality workmanship and materials are incorporated into UDOT projects.

GUIDE ORGANIZATION

Chapter 1 of this Guide includes a brief overview of standard contractual requirements (referred to as general specifications). This chapter also includes general information concerning inspector duties and authority, the Department's [Quality Assurance Program \(QAP\)](#), the [Inspectors Qualification Program](#), and the description of basic documentation that must be maintained for all projects.

Throughout the guide there are references to other documents or information sources where additional or more detailed information can be found. Questions concerning any of the material presented in this Guide should be directed to the UDOT [Construction and Materials Division](#).

1.1 CONTRACT GENERAL SPECIFICATIONS

[2017 Standard Specification](#)

A) GENERAL PROVISIONS– SECTION 00100

Section 00100 includes guidance for interpretation of the contract, descriptions of specification organization, and the intent of the language used. This section also has provisions for communication between the Contractor and the Engineer such as Requests for Information (RFI) and document submittals.



B) BIDDING REQUIREMENTS AND CONDITIONS – SECTION 00120

Section 00120 includes requirements for bidder prequalification, proposal preparation and acceptance, and debarment. It also requires bidders to have carefully examined the contract documents and conducted a reasonable site investigation before submitting bids.

C) CONTRACT AWARD AND EXECUTION - SECTION 00515

Section 00515 describes the process for proposal consideration, contract award and execution, bonding requirements, and requirements for the escrow of bid documentation when required by special provision.

D) PROSECUTION AND PROGRESS – SECTION 00555

Section 00555 includes requirements for subcontracting, construction scheduling, and contract time. It also identifies liquidated Damages for failure to complete work within the specified time, the process for determining contract adjustment due to delays and termination of contract. Note this section specifies general limitations to the Contractor's operations, with most all contracts citing project specific limitations in a special provision.

E) DEFINITIONS – SECTION 00570

Section 00570 lists acronyms, abbreviations, and definitions of terms used in the contract.

F) SCHEDULE AND NARRATIVE – SECTION 00700

Section 00700 covers the submittal of the Contractor's preliminary and/or baseline schedules with narrative, monthly progress meetings, and the revisions to the baseline schedule. This section also includes definitions related to construction scheduling.

G) SCOPE OF WORK – SECTION 00725

Section 00725 establishes the Contractor's responsibility for work, maintaining traffic, restoration of surfaces, railway/highway provisions, and construction and navigable waters.

H) CONTROL OF WORK – SECTION 00727

Section 00727 establishes the RE's and inspector's duties and authority, project acceptance, claims for additional compensation or contract adjustment, and the Contractor's safety person requirements.

I) CHANGE MANAGEMENT – SECTION 00777

Section 00777 establishes conditions and procedures under which changes may be made to the project through contract modification (Change Order and/or Design Change) and describes differing site conditions and Significant Changes in the Character of the Work (Major Changes).

J) LEGAL RELATIONSHIPS AND RESPONSIBILITY TO THE PUBLIC – SECTION 00820

Section 00820 cites contract requirements for observing laws and regulations, safety, protection of property, responsibility for damage claims, and insurance.

K) MEASUREMENT – SECTION 01280

Section 01280 describes the method of measurement of different units for various pay items under the contract. Note that every contract includes a Measurement and Payment Document (M&P) that describes the method of measurement and payment in greater detail specific to the project. *(Note: General rule of practice: mathematically measure and compute units, rounding to the nearest hundredths decimal place.)*

L) PAYMENT – SECTION – 01282

Section 01282 describes the scope of payment to the Contractor and the requirements for compensation for variation in quantities, eliminated items, changes and extra work, delays, and work performed under force account. It also describes requirements for progress and final payments, payment for material on hand (stockpile payment), fuel and asphalt adjustments, and requirements for timely progress payment and retained money to subcontractors for sublet work.

Note that payment procedures for force account apply only to work specifically directed by the Engineer to be performed on a force account basis and are not valid for comparing or developing cost estimates for changes and extra work. *(Note: General rule of practice: mathematically measure and compute units, rounding to the nearest hundredths decimal place.)*

M) ENVIRONMENTAL COMPLIANCE – SECTION 01355

Section 01355 includes requirements for hazardous materials discovered during construction, hazardous spills, work in streams, air quality, noise control, environmental clearances, permits, and discovery of historical, archaeological, or paleontological objects, features, sites, human remains, or migratory avian species.

For questions concerning environmental resources, please contact your Region environmental staff.

Region Contacts

REGION ONE			
Chris Lizotte	Environmental Manager	(801) 620-1687	clizotte@utah.gov
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N) SUBMITTALS – SECTION 01450

This section has administrative and general requirements for project submittals and describes the types of submittals required in the standard specifications and the action taken.

O) MATERIALS QUALITY REQUIREMENTS – SECTION 01455

Section 01455 01455 establishes requirements for testing, certification, and acceptance of materials. This section also describes “Buy America” requirements for Federal-aid projects. Reference 23 CFR 635.410635.410 and the FHWA Contract Administration Core Curriculum Manual and Reference Guide – Other Contract Provisions – Buy America.

P) MATERIALS DISPUTE RESOLUTION – SECTION 01456

Includes requirements for disputing acceptance or verification test results for the following materials on Department projects:

1. Section 02056 – Embankment, Borrow, and Backfill
2. Section 02721 – Untreated Base Course
3. Section 02735 – Microsurfacing
4. Section 02741 – Hot Mix Asphalt
5. Section 02743 – Hot Mix Asphalt – Bike and Pedestrian Paths
6. Section 02744 – Stone Matrix Asphalt
7. Section 02745 – Asphalt Material
8. Section 02752 – Portland Cement Concrete Pavement
9. Section 02785 – Chip Seal Coat
10. Section 02786 – Open-Graded Surface Course
11. Section 02787 – Bonded Wearing Course
12. Section 03055 – Portland Cement Concrete
13. Section 03310 – Structural Concrete

Also includes procedures for the Contractor to request that rejected, non-conforming material be allowed to remain in place.

1.2 CONTRACT TECHNICAL SPECIFICATIONS

Sections beginning with Section 01500 through the end of the specifications are technical specifications for specific pay items. The pay items in a contract designate the technical specifications that apply to a specific contract.

This section of the guide will discuss a few of the technical specifications that and inspector should be familiar with for all projects.

A) ENVIRONMENTAL CONTROLS – SECTION 01571

2017 Standard Specification

The Contractor assumes certain responsibilities for environmental protection that include the following:

- Filing of a Notice of Intent (NOI) to the Utah Department of Environmental Quality (DEQ) for storm water discharges when disturbing one or more acres.
- Compliance with the Storm Water Pollution Prevention Plan (SWPPP) and installation and maintenance of temporary erosion control measures.
- Filing of a Notice of Termination (NOT) to the DEQ when construction is complete.
- When the contract includes a bid item for an “Environmental Control Supervisor” (ECS), the Contractor designates a person to fulfill the responsibilities described in Section 01571. The inspector should verify that anyone performing this work has received an ECS training certification from the Department. The inspector should also be familiar with the following:
 - The storm-water and erosion control devices and materials described in Section 01571 and the UDOT Standard Drawings, EN series.
 - The Storm Water Pollution Prevention Plan (SWPPP) and application of Best Management Practices (BMPs) for specific use on the project
 - Requirements for the qualifications and responsibilities of the ECS
 - Inspection and documentation requirements for environmental controls
 - Contractor responsibilities for proper maintenance and subsequent removal of temporary erosion control features on the project. It is highly recommended that inspectors receive ECS certification through the Department. The inspector should consult with the Engineer when seeking clarification of any environmental control inspection requirements.



1.3 BUY AMERICA—UDOT CENTRAL CONSTRUCTION GUIDANCE

([2017 Standard Specifications](#) 01455 Buy America Clarification)

A) REASONABLY CONCLUDE

Project documentation must be sufficient enough that one can “reasonably conclude” that all processes were performed domestically for all quantities of steel/iron incorporated into the project. Every situation will be different, and a judgment will need to be made and documented when 100 percent certification cannot be shown.

B) STEP CERTIFICATION (PROCESS)

As Defined in Question #40 of FHWA Buy America Q&A

A step certification is a process under which each handler (supplier, fabricator, manufacturer, processor, etc.) of the iron and steel products certifies that their step in the process was domestically performed.

As required in [2017 Standard Specification](#) 01455 Section 1.14.C.1

- a) Signed certification by each Fabricator and Manufacturer that has handled the steel and iron product affirming that every process, including the application of a coating, performed on the steel or iron product has been carried out in the United States.



- b) Materials descriptions, quantities, and means of material identification such as heat numbers, lot numbers, and other industry identification markings for each process the material underwent so the final product can be tracked through a step process from smelting to final product.

To meet the intent of the [2017 Standard Specification](#) 01455, steel/iron products must follow a step process whereby the material can be tracked from smelting through all processes to the final product via a common tracking number such as a heat number, lot number, etc. or a combination thereof. By not being able to specifically track each step by heat/lot or any other identifying number on the certificate, the project office must be able “reasonably conclude” Compliance

before acceptance and payment.

To arrive at this conclusion without the ability to track by number from one process to another, the project office must exhaust every reasonable effort to obtain Buy America certifications with tracking numbers that match from one process to the other for the material in question. The effort put forth, in this case, should be documented in detail explaining why the project office can “reasonably conclude” that the material is the same from one process to the other without the aid of identifying numbers.

C) TEMPORARY STEEL

As Defined in Question #19 of FHWA Buy America Q&A

Buy America applies only to iron and steel products required to be permanently incorporated into a Federal-aid construction project.

Temporary use means that the contract specifications provide that the iron and steel products used on the project either must be removed at the end of the project or may be removed at the Contractor’s convenience.

Also, where a contracting agency is able to document that phased construction is imminent and the steel or iron product will be removed in subsequent near-

term stages, then the iron and steel product may be considered temporary and not subject to Buy America. However, if the iron or steel product is required to remain in place at the end of the contract (per contract documents) and where phased construction is not imminent, then the product is deemed permanent and Buy America applies.

If the steel or iron product does not perform a permanent structural purpose and is utilized as part of the Contractor’s means and methods, Buy America does not apply regardless of whether it is removed or left in place (i.e. sheet pile walls, temporary abutments on ABC bridges, etc.). As a general rule, if the steel or iron product is a bid item then Buy America applies, however, many lump sum items will have individual steel or iron products that must comply with Buy America.



In the case of phased construction, steel and iron products can only be considered temporary if the phase of construction planned to remove them is in the STIP at the time the phase to install them is awarded.

D) ESCALATION PROCESS

If compliance to [2017 Standard Specification](#) 01455 cannot be reached between the Resident Engineer and the Contractor the process should be escalated through the following channels in the following order:

- a) District Engineer
- b) Deputy Construction Engineer
- c) State Construction Engineer
- d) FHWA Area Engineer

Should the escalation process be used, if the person responsible for the next step of escalation is not available or does not respond within a reasonable period of time, the issue should be escalated to the

next level. The FHWA Area Engineer for each Region has indicated their availability to discuss these matters at most any time during this process. Unnecessary delays to the project in order to reach a decision on the adequacy of the certifications should be avoided.

E) PRE-CONSTRUCTION MEETING

The RE sets aside time at the pre-construction meeting to discuss in detail [2017 Standard Specification](#) 01455 to include a discussion of each steel/iron material that is to be incorporated into

the project. Emphasize the Step Certification Process and the requirement of approved documentation prior to incorporation and payment of steel/iron products on the project and the consequences of non-compliance. Also discuss the minimal use and tracking of foreign steel incorporated in the project.



E) DOCUMENT DECISIONS

Document all decisions made and the accompanying thought processes when “reasonably concluding” anything other than exact conformance to [2017 Standard Specification](#) 01455.

Refer to the “FHWA’s Buy America Q and A for Federal-aid Program” document for further information. http://www.fhwa.dot.gov/construction/contracts/buyam_ga.cfm.

1.4 CIVIL RIGHTS—EEO, LABOR, AND DBE REQUIREMENTS

Refer to FHWA 1273 & Title 49 CFR Part 26

Federal Highway Administration (FHWA) publication 1273 identifies contract provisions that are required in Federal-Aid construction contracts. Included are provisions that provide for equal employment opportunity (EEO), training, payment of predetermined wages, and certified payroll records. The Contractor

is required to hold meetings before the start of work with employees and then not less often than every 6 months to review and explain the EEO policy and implementation. The prime Contractor is responsible ensure compliance with these provisions by all subcontractors on the project. Contractor compliance information is tracked in the Department’s PDBS system. Refer to chapter 11 for additional information.



A) PROJECT BULLETIN BOARD (FORM C 131)

The Contractor is required to maintain a bulletin board with information located on the job site in an area accessible to employees and potential employees at all times. Bulletin boards are inspected at the beginning of the project and bimonthly thereafter to see that it is clean, unobstructed, and that all required information is posted and legible. Form C131 includes a listing of required posters and documents.

B) EMPLOYEE INTERVIEWS (FORM C 136)



The Contractor is required to permit employee interviews to verify compliance with FHWA 1273 provisions. Employee interviews should be conducted during the 2nd and 4th week that Contractors are on the project site and as each subcontractor begins work or as requested by the UDOT Civil Rights Office. If the Contractor's workforce is comprised of eight persons or less, all employees are to be interviewed. Otherwise, a random number of Contractor or subcontractor employees are selected representative of each craft on the project site. Effort is made to interview at least one Caucasian, one minority, and one female from each Contractor and subcontractor.

C) CERTIFIED PAYROLLS (FORMS WH 347 AND WH 348)

For partial estimate payments, the Contractor is required to furnish a weekly payroll report to the Engineer for all workers on the project. The weekly payroll can be furnished either electronically or as a hard copy. The Contractor is also required to certify that each laborer or mechanic has been paid the applicable wage rate and fringe benefits for the classification of work performed, as specified in the applicable contract wage determination.

D) HARASSMENT, INTIMIDATION, AND COERCION (HIC) REQUIREMENTS

Federal regulations require that all Contractors working on Federal-aid projects provide a workplace free of harassment, intimidation, and coercion and that UDOT must ensure that they are in compliance with this regulation. The Contractor must include in the EEO Policy, a commitment to provide a workplace free of harassment, intimidation, and coercion; ensure the policy is posted on the project bulletin board; ensure foreman and superintendents are trained in prevention of harassment, intimidation, and coercion. UDOT will ensure compliance with this by conducting Contractor employee interviews (C-136) and asking the question; have you been harassed, intimidated or coerced at work?

E) DBE PROGRAM

Disadvantaged Business Enterprise (DBE) program requirements are described in Title 49 of the Code of Federal Regulations, Part 26. The objective of the Disadvantaged Business Enterprise (DBE) program is to ensure nondiscrimination in the award and administration of DOT assisted contracts, to create a level playing field on which all firms can compete free from the effects of discrimination, and to ensure the DBE program is administered according to law. In order to satisfy the contract goal for participation, the DBE firm must perform a Commercially Useful Function (CUF). (Refer to form C141.) A CUF Form 141 should be completed for each DBE firm working on the project during the life of the contract.

The term “Race Conscious” refers to a contract goal (a percent of the dollar value of contract) that the prime Contractor is required to meet through subletting work to DBE subcontractors, or performing a good faith effort at the time of bidding.

The term “Race Neutral” refers to the situation where the prime Contractor can voluntarily use DBE firms and allows for an equal opportunity for DBE firms to compete and perform subcontracts. When trucking is performed by a DBE firm, the firm may subcontract or lease trucks from another DBE trucking company or a non-DBE trucking company. If they subcontract, the DBE must submit either a subcontract agreement or lease agreement to the Engineer before starting to work on the project, identifying the extra trucks as working for the DBE firm. The Engineer can then monitor performance using the CUF form. DBE regulations allow for a one to one match of DBE trucks and non-DBE subcontracted or leased trucks to receive 100% credit towards the DBE goal.

1.5 INSPECTOR DUTIES AND AUTHORITY

Control of Work – [2017 Standard Specification](#) Section 00727

The inspector is directly responsible to the Engineer but may work under the direct supervision of a field Engineer or other personnel assigned to specific construction operations. Inspector’s duties include inspection, sampling and/or testing of materials, documenting and making necessary records or reports of operations, and other duties directed by the Engineer.

It is the responsibility of inspectors to monitor and verify the project is being constructed in accordance with the plans, specifications, and contract provisions.

Inspectors must therefore be familiar with the contract. According to [2017 Standard Specification](#) Section 00570, the contract includes the following documents:

- Specifications and Plans
- Materials Minimum Sampling and Testing
- Notice to Contractors
- Bidding Schedule
- Measurement and Payment
- Bid Conditions Disadvantaged Business Enterprise (federal project)
 - Contract DBE Goal Percentage
 - DBE Bid Assurance
- E.E.O. Affirmative Action Requirements (federal project)
- Specific E.E.O Opportunity Responsibilities (federal project)
 - Apprentice Training Hours
- Equal Opportunity (state project)
- Title VI Appendix A & E
- FHWA – 1273 (federal project)
- Cargo Preference Act (federal project)
- Wage Rates (when applicable)
- Notice of Award
- Notice to Proceed
- Authorized contract time extensions
- Change orders, directives and agreements required to complete the work in an acceptable manner
- Use of Minority or Women Owned Banks (federal project)

It is the duty of all inspectors to study the plans and specifications and be fully conversant with all details of the work to be accomplished. If anything is found which is not fully understood, the inspector should obtain clarification from the Engineer. The

inspector has, and must use, the authority to enforce the specifications and reject both unsatisfactory workmanship and materials. Such rejections should be made immediately upon discovery, in writing, to the Contractor. The Contractor can be verbally notified of minor non-conformances and correction can be observed and confirmed. When differences in interpretation arise with the Contractor, the Engineer will decide.

The inspector is not authorized to revoke, alter, enlarge, relax, release any requirements of the plans or specifications, approve or accept any portion of the work, or issue any instructions contrary to the plans or specifications. If conditions arise which appear to make it impractical to enforce the specifications, the inspector should notify the Engineer immediately.

Management of the work is the Contractor's business. Inspectors should never instruct the Contractor in the means or methods of corrective action or performance of the work. However, if any methods are employed which the inspector has reason to believe will harm the quality of the finished product, the Contractor should be advised accordingly and Engineer notified immediately. The inspector is not to discuss the Contractor's means or methods of handling the work with competitors or others not directly involved with the project. The inspector must not attempt to supervise work for the Contractor or become obligated to the Contractor or their personnel.

1.6 QUALITY ASSURANCE PROGRAM (QA)

Refer to [UDOT Materials Manual of Instruction](#) – Part 8, Section 1010

A) MATERIALS ACCEPTANCE PROGRAM (MAP)

Refer to the [UDOT Materials Manual of Instruction](#) – Part 8, Section 1011

The Materials Acceptance Program outlines the steps used to make an informed acceptance decision based on the quality of the materials incorporated into projects. The Department uses a combination of sampling and testing, manufacturer provided documentation, and inspection to determine materials acceptance and conformance with the approved project plans and specifications.

B) INDEPENDENT ASSURANCE PROGRAM (IA)

Refer to the [UDOT Materials Manual of Instruction](#) – Part 8, Section 1012

The Independent Assurance (IA) program is an independent verification of sampling and testing procedures and provides continuity to the Quality Assurance (QA) program; in accordance with 23 CFR (Code of Federal Regulations) Part 637.207. Technician Independent Assurance involves an evaluation of testing personnel.

C) LABORATORY QUALIFICATION PROGRAM (LQP)

Refer to the [UDOT Materials Manual of Instruction](#) – Part 8, Section 1013

Laboratories performing work for UDOT must be qualified by the Department. Qualified laboratories are listed on the Department's website on the UDOT [Laboratory Qualification Program](#) page. The inspector should verify that testing is being performed by a qualified laboratory.

D) TRANSPORTATION TECHNICIAN QUALIFICATION PROGRAM (TTQP)

Refer to the [UDOT Materials Manual of Instruction](#) – Part 8, Section 1014

Technicians performing sampling and testing of materials must be qualified under the Department's TTQP. Specific qualifications are required for the sampling of different materials and for the various tests performed. The inspector should verify that all sampling and testing is being performed by current qualified technicians possessing.

E) INSPECTION QUALIFICATION PROGRAM (IQP)

Refer to the Department's [IQP](#)

Inspectors on UDOT project must be qualified under the [IQP](#). The purpose of the [IQP](#) is to ensure quality inspection during highway construction through the qualification of industry and department personnel. Through a cooperative program of training, study and examination, technicians will be able to better ensure satisfactory materials control, identification of poor quality materials, and proper documentation.

F) MINIMUM SAMPLING AND TESTING REQUIREMENTS (MS&TR)

Refer to the Department's [MS&TR](#)

The Department's [MS&TR](#) describes the point of acceptance (sampling location) and minimum sampling frequencies for materials that are tested for acceptance under the direction of the Resident Engineer. The inspector should verify that the [MS&TR](#) are met for the materials that are incorporated into the project.

G) DEPARTMENT QUALITY MANAGEMENT PLANS (QMP)

Refer to the Department's [Quality Management Plans](#)

The Department's [QMP](#) allows for certain materials to be accepted because they are supplied by qualified sources. These materials include: Portland cement, flyash and pozzolans, reinforcing steel and coatings, precast prestressed concrete, hydrated lime, and asphalt binder and emulsions. In general, materials not included in e) or f) above may be accepted based on certification from the manufacturer. This is more commonly referred to as a material certification or certificate of compliance (COC). (Refer to *Definitions – Section 00570* and *Materials Quality Requirements – Section 01455*.) The COC is a manufacturer's certification that the product or assembly meets the applicable specifications. The contract identifies manufactured materials or assemblies that can be incorporated in the work when accompanied by a certificate of compliance by the manufacturer.

1.7 GENERAL DOCUMENTATION REQUIREMENTS

All documentation needs to be limited to factual information. Subjective information, personal opinion, comments, and frustrations have no place in documentation or professional communication and can show bias and damage credibility.

A) DAILY PROGRESS REPORT (DPR)

Inspectors should complete Daily Progress Reports (DPR), a detailed record of daily events and occurrences on the project. The information should include details of labor, equipment and materials used, work accomplished, delays, breakdowns, idle time, inefficiencies, safety issues, and other important events or unusual occurrences that

affect or explain the Contractor's progress against the schedule. The recorded information must be clear, concise, complete, and contemporaneous.

The following information should be included:

An account of the workforce, activities, and work performed about critical path activities identified on the Contractor's schedule – The number of workers by Contractor/Subcontractor, hours of work, and a description of the work performed vs. scheduled. Provide sufficient information to reasonably determine the work performed. Note who did it, what was done, and when it was started and completed. Describe what work was anticipated and anything that hindered Contractor progress or reasons why any work expected to be completed was not done. Include station locations and any other applicable information necessary to identify the work by Contractor or Subcontractor. Identify all sources of information including individual's names.

- A record of all equipment on the project – Include descriptions such as make, model number, and equipment identification numbers. Note the hours used and if not used, why not.
- A record of materials and equipment being delivered to or leaving the project site – Document the progress of work and materials accepted or rejected, calling attention to any problems or quality deficiencies.
- A record of inspections and tests performed, non-conformances noted, and other information relative to the quality of the work – Identify specific work being rejected, including limits or starting and stopping points and the reason for rejection.
- For major non-conformances, a written notification to the Contractor should be issued. Corrective action must be observed and the finished work re-inspected, re-tested, or re-assessed and found to be in compliance before continuation of that work.
- A record of the weather conditions – Emphasize impacts to project work and Contractor progress.
- A record of visitors to the project site with any comments.

A record of any important discussions – Clearly explain any directions given to the Contractor and to which specific Contractor employee. Record the Contractor's

response. In monitoring work progress, it is beneficial for the inspector to have a basic understanding of Critical Path Method (CPM) scheduling concepts and the work activities that are on the critical path of the Contractor's schedule (Refer to schedule requirements in *Prosecution and Progress – Section 00555*).

Lead Inspectors are required to complete DPRS summarizing:

- **Labor** – Record of the workforce on the project
- **Equipment** – Record of equipment on the project, noting any equipment delivered or removed from the project
- **Materials** – Record of materials incorporated in the work, noting any materials delivered or Record of materials testing performed and documentation of contract materials that have been tested/ inspected and verified to meet the minimum contract requirements
- **Defective Work** – Record of work found defective through testing and/or inspection

Work Progress – Record of work performed vs. scheduled, including a description of the cause of any lost productivity or discrepancy in the work completed vs. work projected, based on the Contractor's schedule and/or expected production rates.

B) VISUAL INSPECTION REPORTS (VIR)

Visual Inspection Reports are used for:

- Documenting small quantity placements of material in accordance with the MS&TR.
- Supplemental documentation describing manufacturer's production/identification markings on materials incorporated in the work.

C) CONTRACT PAY ITEM DOCUMENTATION

Refer to Payment – [2017 Standard Specification](#) Section 01282

Contract items are entered as Item Postings in Masterworks for payment. Before documenting any contract pay items, the inspector should review the M&P document that is included with the special provisions.

D) FORCE ACCOUNT

Refer to Payment – [2017 Standard Specification](#) Section 01282

The following information is required to properly document contract pay items:

- Date of placement
- Contract item number and description
- Location – station and offset or other detailed location information
- Correct unit of measurement in accordance with contract terms
- Quantity accepted for payment
- Acceptance testing information and/or manufacturer provided documentation
- Verification information – including the name of the inspector verifying the information along with any measurements and calculations

Extra work is performed on a force account basis when the Contractor and Engineer cannot agree on a price or when the extent of work is unknown or of such character that a price cannot be determined to a reasonable degree of accuracy. The inspector needs to keep accurate daily records of the work as it is done and isolate by description specific work to be charged to and otherwise identified with any change order by completing the daily Force Account report in Masterworks. The Contractor each reviews and signs and the Engineer approves the Force Account report acknowledging the labor, materials, and equipment used each day. After the work, force account charges are summarized. The Contractor furnishes invoices, payrolls, etc., to support the charges.

1.8 PROJECT ACCEPTANCE

Refer to Control of Work – [2017 Standard Specification](#) Section 00727 and Prosecution and Progress – Section 00555

Project acceptance may involve partial acceptance of portions of the project or final acceptance of the completed project. The inspector should be familiar with the process for project acceptance and understand how it relates to contract time charges.

A) FINAL CLEANUP

Section 01741 includes Final cleanup and restoration of all areas disturbed by construction.

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