



# CONSTRUCTION MANUAL OF INSTRUCTION

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# I

## NTRODUCTION

The Construction Manual of Instruction (referred to herein as “the Manual”) provides guidance to personnel who inspect and administer Utah Department of Transportation (also “UDOT” or “Department”) contract provisions. Further, it establishes specific responsibilities of the Resident Engineer (RE) regarding contract administration and construction engineering management (CEM). It is an administrative guide and reference describing acceptable methods and procedures for the preparation of records and reports by both Department and consultant personnel engaged in the administration and construction of projects under UDOT’s supervision.

The term “Resident Engineer” or “RE” is used in the Manual to describe both the Resident Engineer employed with the Department and a Consultant Resident Engineer (CRE) contracted with the Department to provide CEM services. The Manual is generally written for the RE and all actions are to be performed by the RE unless otherwise noted.

In general, personnel should use good engineering judgment and common sense. They must also document the work performed and decisions made. When in doubt or when situations occur outside those subjects covered in the Manual, advice should be sought from an immediate supervisor.

The Manual refers to general information, instruction, guidelines, and regulation found in other publications and includes references and links to standard specifications, Department policies and procedures, and other supporting documents and websites, including regulatory requirements and conditions of the Department’s Federal-aid agreements.

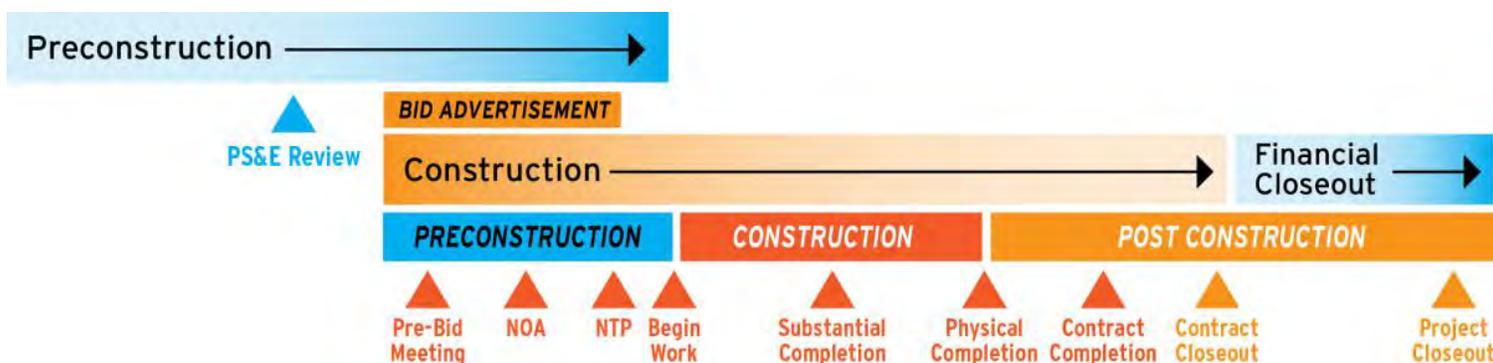
Information included in the Manual is not to be interpreted as replacing, modifying, or superseding any part of the construction contract. The construction contract governs the relationship between the Department and the Contractor and the terms of the contract take precedence over instruction contained in the Manual. **It is strongly recommended the construction contract be read before looking to the Manual for guidance.**

# CONSTRUCTION MANUAL OF INSTRUCTION

## Manual Organization

The Manual is structured to generally follow the timeline of a typical design-bid-build (DBB) project, covering roles and responsibilities of the construction staff through the design process, preconstruction, construction, and post construction.

The Manual also includes brief sections on Alternative Project Delivery and Department-required oversight of Federally-funded Local Government (LG) projects.



## Project Timeline

The term “Preconstruction” describes various activities that occur through project development and design to the beginning of construction work by the Contractor.

The “Construction” phase begins at bid advertisement and includes “Preconstruction”, “Construction”, and “Post Construction” activities.

The **Plans, Specifications, and Engineer’s Estimate (PS&E) Review** is a project review involving project team members for purposes of identifying and making any necessary changes and corrections before advertising the project for bidding. (See also *Constructibility Reviews* under Preconstruction)

**Notice of Award (NOA)** is the notice from the Department to the Contractor of the acceptance of the bid and subsequent award of the contract. (See also *Prosecution and Progress* under General Provisions)

Once the Contractor has signed the contract and executed the contract bonds and required insurance, the Department issues a **Notice to Proceed (NTP)** to the Contractor authorizing the work. (See also *Contract Award and Execution* and *Prosecution and Progress* under General Provisions)

**Substantial Completion, Physical Completion, and Contract Completion** are terms used for contractual milestones to be achieved by the Contractor as specified in the contract. (Reference Section [00555](#), [00570](#), and [00727](#) – See also *Project Acceptance and Contract Completion* under Post Construction)

**Contract Closeout** is the verification of completion of all required project documentation by the RE and subsequent final payment (including retention) to the Contractor. Contract Closeout pertains specifically to the construction contract. (See also *Contract Closeout* under Post Construction)

**Project Closeout** is the collective activities performed by the Construction, Materials, and Civil Rights Division, Consultant Services, and Right of Way (ROW) section in preparation for audit review. Project Closeout includes reimbursement from the Federal Highway Administration (FHWA) for Federally-funded projects. (See also *Project Closeout* under Post Construction)

## References

### Buy America (Federal-aid Projects Only)

[FHWA Construction Program Guide – Buy America](#)

[Buy America Memorandum December 22, 1997, Policy Response Regarding Manufactured Products](#)

[Buy America Memorandum December 21, 2012, Clarification of Manufactured Products](#)

[Buy America Waivers Approved by the FHWA](#)

[FHWA Buy America Questions and Answers No. 43, 44 and 45](#)

[FHWA's Buy America Questions and Answers \(All\)](#)

[FHWA Quick facts about “Buy America” requirements for Federal-aid highway construction](#)

[MAP-21 S. 1518 Buy America Questions and Answers](#)

[FHWA Contract Administration Core Curriculum Manual and Reference Guide – Other Contract Provisions – Buy America](#)

[UDOT Buy America Information Website](#)

### Code of Federal Regulations (CFR)

[Title 23 Highways \(23 CFR\)](#)

[Title 29 Labor \(29 CFR\)](#)

[Title 40 Protection of Environment \(40 CFR\)](#)

[Title 49 Transportation \(49 CFR\)](#)

# CONSTRUCTION MANUAL OF INSTRUCTION

## **Federal Highway Administration (FHWA)**

[Civil Rights Programs](#)

[Contract Administration Core Curriculum Manual and Reference Guide](#)

[DBE Program](#)

[Every Day Counts Initiative](#)

[Federal-Aid Program Administration Stewardship and Oversight](#)

[FHWA Federal-Aid Program Administration – Consultant Services](#)

[Technical Advisories](#)

[Work Zone Operations – Best Practices Guidebook](#)

## **United States Code (USC)**

[Title 23 Highways \(23 USC\)](#)

## **Utah Department of Transportation (UDOT)**

[2012 Acceptance and Documentation Guide \(A&D\)](#)

[2012 Standards and Specifications](#)

[Construction Engineering Management Training Program \(CEMT\)](#)

[Construction Inspection Manual](#)

[Construction Forms](#)

[Contract Management](#)

[Engineering Technology Services \(ETS\)](#)

[Innovative Contracting](#)

[Inspector Qualification Program \(IQP\)](#)

[Materials Manual of Instruction \(MMOI\)](#)

[1011 – Materials Acceptance Program \(MAP\)](#)

[1012 – Technician Independent Assurance](#)

[1013 – Laboratory Qualification Program \(LQP\)](#)

[1014 – Transportation Technician Qualification Program \(TTQP\)](#)

[Minimum Sampling and Testing Requirements \(MS&TR\)](#)

[Owner Controlled Insurance Program \(OCIP\) Manual](#)

[Policies and Procedures](#)

[Project Development Business System \(PDBS\) Home Page](#)

[Project Manager Guide](#)

[ProjectWise \(PW\) Home Page](#)

[ProjectWise Reference Guide for UDOT Construction](#)

[Safety and Health Manual](#)

[State Furnished Material](#)

[UDOT/AGC Partnering Field Guide](#)

## **Utah Administrative Code**

[Utah Administrative Code](#)

## **Utah Manual on Uniform Traffic Control Devices (Utah MUTCD)**

[Utah Manual on Uniform Traffic Control Devices \(Utah MUTCD\)](#)

## Department Organization and Overview

The Department is responsible for providing efficient, safe, economical transportation systems within the framework of policy established by the Transportation Commission and under the direction of the Department's Executive Director.

The Transportation Commission establishes policies related to transportation systems and allocates funding for projects, through which the Executive Director's responsibilities are executed.

Understanding the functions and concerns of other divisions and the manner in which they fit into the overall organization improves teamwork and efficiency within the Department. Each employee has a responsibility to promote good relations with fellow employees. A principal factor in promoting good relations is to keep your supervisor fully informed about all pertinent events that occur on work for which you are responsible. This principal applies equally at all levels of authority within the Department.

# CONSTRUCTION MANUAL OF INSTRUCTION

## Central Construction, Materials, and Civil Rights Division

### **Construction, Materials, and Civil Rights**

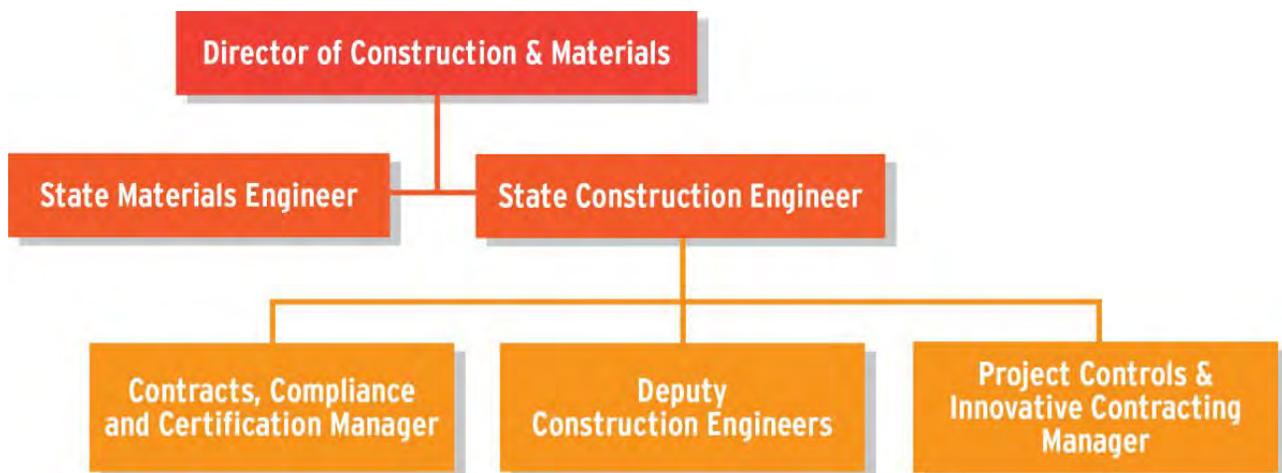
The [Construction, Materials, and Civil Rights Division](#) has responsibility for the administration of contracts during the construction phase. The Division assumes this responsibility at the time the contract is advertised in accordance with established Department procedures. Its responsibility ceases when the Department has accepted the project and final payment has been issued to the Contractor. The [Materials Division](#) is responsible for the overall management of the Department's [Materials Acceptance Program \(MAP\)](#) and all Central Materials Laboratory (CML) testing and inspection programs. The [Civil Rights Division](#) is responsible to administer the civil rights program as required by FHWA regulations in the [Title VI, On-the-Job Training \(OJT\)](#), contract compliance, and [Disadvantaged Business Enterprise \(DBE\)](#) programs.

### Director of Construction and Materials

Construction engineering functions are the responsibility of the Director for Construction and Materials. The Director for Construction and Materials coordinates and directs construction engineering activities, materials certification and testing programs, and acts as an advisor for the Department on matters of engineering policy.

### State Materials Engineer

The State Materials Engineer provides materials related support to the [Construction Division](#), has overall responsibility for the [UDOT Materials Database](#), [Laboratory Qualification Program \(LQP\)](#), [Transportation Technician Qualification Program \(TTQP\)](#), qualified suppliers and [Quality Management Plans \(QMPs\)](#), and Central Materials Laboratory (CML) functions.



## State Construction Engineer

The State Construction Engineer is responsible for all construction contracts and updating, revising, and maintaining construction policies and procedures, specifications and standard drawings, manuals of instruction, and training programs.

## Contracts, Compliance and Certification Manager

The Contracts, Compliance and Certification Manager is involved in the administration of all construction contracts and project advertisement, bidding, issuing of NOA and NTP, Disadvantaged Business Enterprise (DBE) program administration, civil rights, Equal Employment Opportunity (EEO), DBE certification, and other contract requirements.

## Deputy Construction Engineers

The Deputy Construction Engineers provide general construction engineering and contract administration support, review of construction practices and procedures (process reviews) in accordance with Policies and Procedures [08B-28](#), and assist with the training of construction personnel.

## Project Controls and Innovative Contracting Engineer

The Project Controls and Innovative Contracting Engineer provides for the procurement of innovative contracts and is involved with project schedule and claims review in addition to providing Region support and training for project controls and alternative project delivery methods.

## Central Preconstruction

The [Central Preconstruction Group](#) includes [Environmental](#), [Geotechnical](#), [Hydraulics](#), [ROW](#), [Structures](#), [Traffic and Safety](#), [Consultant Services](#), [Standards](#), [Local Government](#), [Value Engineering](#), [Project Management](#), [Engineering Technology Services \(ETS\)](#), and [Electronic Program Management System \(ePM\)](#). The Preconstruction division is responsible for approvals for Design Exceptions, Design Waivers, Deviations from Standards, and approval of the use of patented and proprietary products. (Reference *FHWA Contract Administration Core Curriculum Manual and Reference Guide*, Materials, [Patented and Proprietary Products](#))

## Environmental

The [Environmental Section](#) provides engineering and technical expertise for transportation project development, having staff with expertise in archaeology, landscape architecture, wetlands, water quality, noise, wildlife, historic architecture, threatened and endangered species, and the [National Environmental Policy Act](#)



# CONSTRUCTION MANUAL OF INSTRUCTION

[\(NEPA\)](#). The Environmental Section can assist Project Managers in developing Environmental Assessment (EA), Environmental Impact Statement (EIS), State Environmental Study (SES) scopes of work and cost estimates. The Environmental staff also actively participates as project team members, reviews all EA/EIS/SES documents and coordinates environmental issues with FHWA and other agencies.

## Geotechnical

The [Geotechnical Section](#) provides designs and construction and maintenance support for bridge foundations, Mechanically Stabilized Earth (MSE) Walls, soil and slope stability, and landslides and rock fall. The section performs geotechnical investigation and testing required to support these efforts and maintains a manual of instruction as well as related standard drawings, specifications, and special provisions.



## Hydraulics

The [Hydraulics Section](#) provides direct support to Region Hydraulic Engineers for roadway drainage design by providing training and drainage specifications and standard drawings. The section also designs and provides QC for the hydrologic and hydraulic analyses required for drainage crossings. Other functions include evaluating and mitigating scour hazards for existing bridges with foundations in waterways.



## Right of Way (ROW)

The [ROW Division's](#) primary responsibility is to acquire property needed for highway purposes and relocate displaced businesses or persons. The section is also responsible for the management of properties acquired, oversight of local government highway projects using state and federal funds, utilities, access management, statewide permits, ROW plans, maps and records, and providing support to the region ROW groups.



## Utilities and Railroads

The [Utilities Division](#) provides assistance to project teams coordinating relocation or protection of utilities and railroads.



## Structures

The [Structures Division](#) is responsible for statewide oversight and region support for structures design and inspection during construction. These responsibilities include the review of all shop drawings, erection plans, field design changes, accelerated bridge construction planning activities, etc.



## Traffic and Safety

The [Traffic and Safety Division](#) is responsible for overseeing research and programs to improve transportation safety. These include safety improvement programs for work zones, school zones, and traffic signals; handling state-furnished equipment orders, signing requirements and restrictions; approving speed reduction requests, design exceptions, and waivers and deviations from Standards.



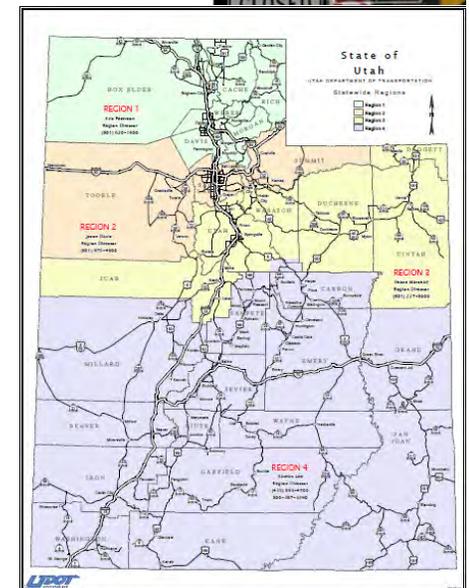
## Region Organization

### Region Director

The Department is comprised of four geographic Regions, each having a Region Director functioning as the operational representative of the Department's Deputy Director. The Region Director is responsible for all activities of the Department within their respective Region. Each Region is further divided into districts, with a District Engineer responsible for both construction and maintenance operations within their assigned district.

### Region Program Manager

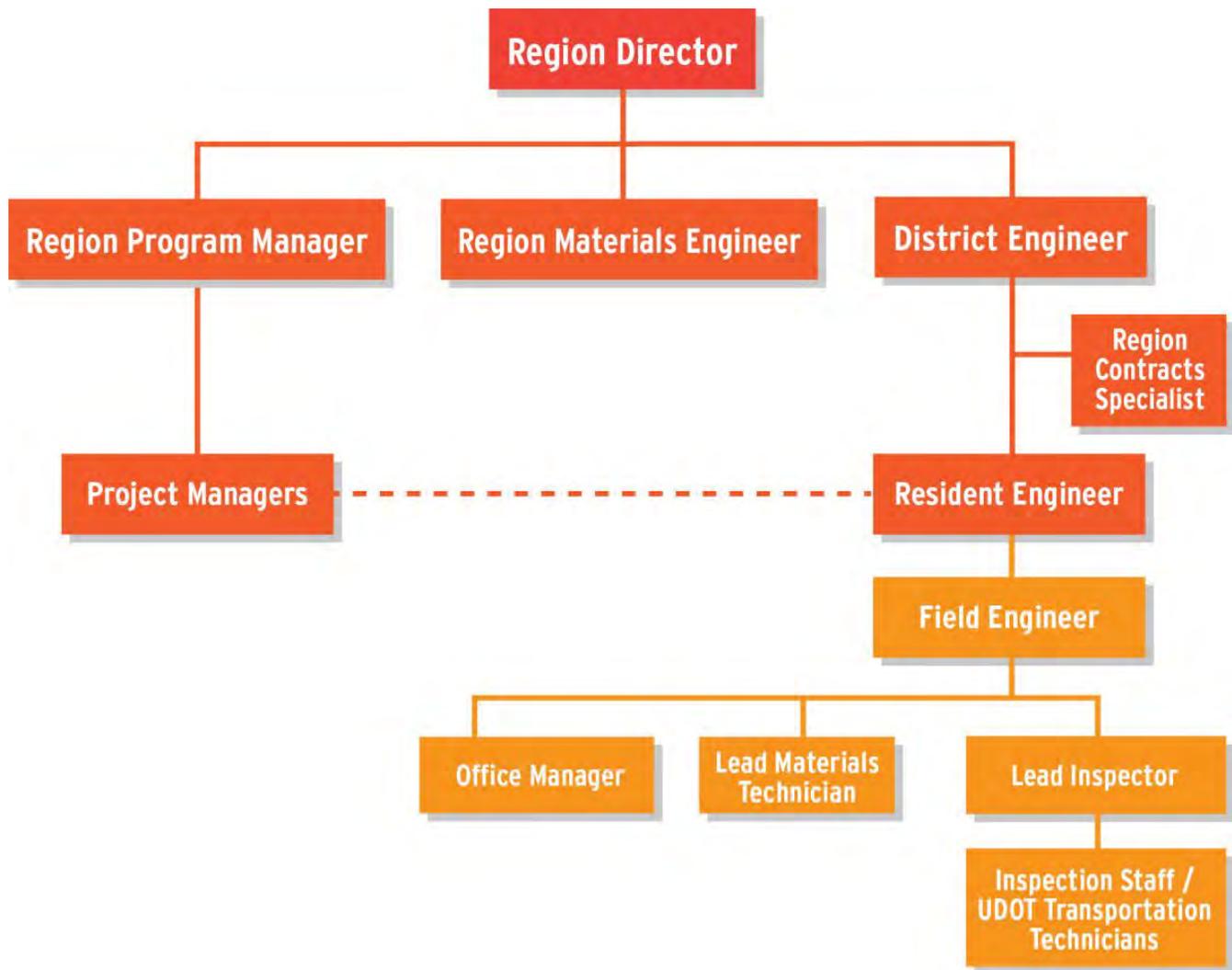
Each Region has a Program Manager responsible for developing and implementing the Region's construction program. They coordinate the Region's programming activities and manage personnel responsible for project management. Program Managers are responsible for delivering the Region's construction program and report directly to the Region Director.



### Project Manager

Project Managers report to the Region Program Manager. Each project is assigned to a Project Manager (PM) who is responsible for the execution and completion of a project that involves managing a team of UDOT employees or consultants, or both, and having overall responsibility for the project's scope, schedule, budget, and quality.

# CONSTRUCTION MANUAL OF INSTRUCTION



## ***Region Materials Engineer***

The Region Materials Engineer (RME) reports to the Region Director and manages the Region Materials Laboratory and staff, providing materials engineering support to the Region's construction and operations programs and oversight of materials acceptance for construction projects within the Region.

## ***District Engineer***

The District Engineer is assigned to construction contract administration and is directly responsible to the Region Director. For projects administered in accordance with the [Federal Highway Administration \(FHWA\) and UDOT Stewardship and Oversight Agreement](#) not falling under full federal oversight, the District Engineer represents the FHWA for purposes of determining Federal-aid participation for change orders, approving specification changes, and has the authority and responsibility for project acceptance. (Reference [FHWA Program Administration, Stewardship and Oversight](#))

## **Region Contracts Specialist**

The Region Contracts Specialist (RCS) reviews contract change orders and final project documentation to verify compliance with Department and FHWA requirements. The Region Contracts Specialist is a resource to the RE and staff, able to provide assistance with issues or questions concerning the Department’s [Project Development Business System \(PDBS\)](#), [ProjectWise \(PW\)](#), civil rights and EEO requirements, and other aspects of project documentation and record keeping.

## **Additional Region Support**

Other region project support includes Traffic Engineering, Design, Hydraulics, Environmental, Public Involvement Coordination and Information, Utilities, ROW, and Safety.

It is important the RE and assigned staff understand the Regions have personnel with expertise in these areas and that can assist with project issues and answer questions that arise during construction.

## **Project Organization and Staffing**

Each construction contract is administered under the direct supervision of an RE, assigned as the Department’s representative before contract award. The Department generally assigns the RE during the design process to provide input to plan development and design, allowing the RE to have a better understanding of the project’s history and intended scope. This assignment is determined by the District Engineer and made through an assignment order issued by the Director of Construction and Materials.

The RE has both a responsibility and obligation to work closely with the Department’s Project Manager, who has specific project responsibilities. Project Managers have ultimate responsibility for the project’s budget, scope, and schedule and must remain actively involved in the project during the construction phase. It is important for the RE to understand their role in support of the PM’s responsibilities during construction and the importance of close coordination and communication with the PM. The PM’s responsibilities and coordination with the RE during construction is described in the [UDOT Project Manager Guide](#). (See also *RE Coordination with the Project Manager under Construction Activities*)



# CONSTRUCTION MANUAL OF INSTRUCTION

## **Federal Highway Administration (FHWA)**

On a project for which the federal government makes all or part of the funding available, the [FHWA/UDOT Stewardship and Oversight Agreement](#) formalize the roles and responsibilities of the FHWA's [Utah Division](#) and UDOT in administering the Federal-aid Highway Program. The agreement outlines a consistent approach for the FHWA's [Utah Division](#) and UDOT to effectively manage public funds and assure the Federal-aid highway program is delivered in accordance with applicable laws, regulations, policies, and good business practices. (See also *District Engineer* under Region Organization)

Administering construction is a function of the Department, its engineers, and inspectors. However, regardless of delegated responsibilities, FHWA engineers can make inspections of any Federal-aid project at any time.

The relationship between the FHWA and the Department does not directly involve the Contractor. FHWA representatives inspect the project for purposes of reviewing the Department's procedures and assuring the project is constructed in accordance with commitments contained in UDOT's agreement with the FHWA. The FHWA has neither responsibility nor authority to direct or supervise the Contractor's work through either oral or written direction or to otherwise deal directly with the Contractor.

## **Resident Engineer**

The RE is the Department's representative on the project and operates under the supervision of the District Engineer. The RE coordinates activities with the PM on all matters affecting the project scope, schedule, and budget. The PM's responsibilities and coordination with the RE during construction is described in the [UDOT Project Manager Guide](#).

As the Department's representative, the RE will have frequent personal contacts with the Contractor, property owners, municipal and utility representatives, and the public. It is important the conduct of these associations be of a character reflecting positively on the RE and the Department. (Reference *Policies and Procedures* [05-30](#))

## **Field Engineer**

The Field Engineer operates under the supervision of, and is directly responsible to, the RE and keeps the RE informed of work progress, non-compliance issues, staffing issues, and other field items. The Field Engineer supervises inspection staff, performs inspections and testing as needed, and assists the RE with administrative duties as directed.

## **Office Manager**

The office manager is directly responsible to the RE but may work under the supervision of the Field Engineer. Office manager duties include assigning document attributes for PW using the [ProjectWise Reference Guide for UDOT Construction](#) and making certain complete electronic documentation is maintained contemporaneously throughout project construction in PDBS, PW, and the [UDOT Materials Database](#). The office manager must make certain project administration and accounting documentation meets the contract requirements and verifies labor compliance, certified payrolls, and EEO interviews on Federal-aid projects. The office manager also verifies Contractor pay estimates and assists the RE with project administration tasks as directed.

## **Project Materials Lab and Technicians**

The project materials lab and technicians are directly responsible to the RE but may work under the supervision of the Field Engineer. Materials technician's duties include sampling and testing, documenting sampling and testing activities and reporting test results, documenting and evaluating materials delivered to the project, and coordinating with the inspection staff on materials acceptance.

## **Lead Materials Technician**

The lead materials technician is responsible for reviewing test results, documenting these results on the appropriate forms, comparing the results to contract specifications, and reporting all test results to the project inspector, Field Engineer, and RE.

## **Inspection Staff**

The inspection staff is directly responsible to the RE but may work under the supervision of the Field Engineer or one in charge of the inspection of construction operations. In general, inspection staff's responsibilities include the performance of observation and inspection, documentation of materials acceptance, sampling and testing of materials, measurement of pay quantities, and making necessary records or reports of Contractor's operations, and other duties as directed by the RE and Field Engineer.

# CONSTRUCTION MANUAL OF INSTRUCTION

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1

## **Order of Magnitude**

Budget Verification,  
Program Review

2

## **Program Development**

Conceptual Estimate, Value Analysis,  
Cost Models, Site Analysis

3

## **Budget Estimates**

Design Phase Estimates, Construction Schedules  
Estimates, Phasing Options, Document Analysis

4

## **Value Engineering**

Constructability Analysis, Coordination Reviews, Scope  
Definition, Life Cycle Cost Analysis

5

## **Procurement and Implementation**

Site Logistics Plan, Safety Program, Quality Assurance Programs, Bid Package Plan,  
Long-lead Purchasing strategy, M/WBE Inclusion Programs, Labor Agreements

## PRECONSTRUCTION

The Preconstruction phase includes all project development activities up to the beginning of construction work by the Contractor. Upon advertisement for project bids, the Construction Division assumes responsibility for all aspects of the project with the RE established as the single point of contact for all project related communication. However, construction personnel are involved during this phase so they may become familiar with the project, provide input on various project aspects, and be prepared for construction.

### Risk Assessment and Mitigation

(Reference the [UDOT Project Manager Guide](#), Chapter 7 Managing Project Risk)

Every project will have some form of risk analysis and management. The level of analysis varies depending on the size and complexity of each project. In general, larger projects will begin risk analysis in the environmental phase. Other projects will begin risk analysis during either concept or scoping.

Risk analysis and management is a process that uses specialized tools to identify risks to the project and attempts to quantify the magnitude of each risk. By comparing the relative magnitude of risks, the project team can focus their efforts on those most significant. Mitigation strategies are then developed, implemented, and tracked in an effort to eliminate, minimize, or properly assign risks.

The PM is responsible for initiating the risk analysis process. All project disciplines, including Construction, should be represented on the risk analysis team. The initial risk workshop will produce a risk registry that contains each identified risk, the probability of occurrence, the impact if it happens, and a mitigation strategy. The risk registry should be reviewed and updated regularly throughout the project, including during construction.



# CONSTRUCTION MANUAL OF INSTRUCTION

## Price plus Time (P+T)

(Reference Policies and Procedures [08A-09](#), [08A-13](#), FHWA Contract Administration Core Curriculum Manual and Reference Guide - [Time-Related Incentive/Disincentive \(I/D\) Provisions](#), and FHWA Technical Advisory, [Incentive/Disincentive for Early Completion](#))

Price plus Time, or P+T is a method of bidding both price on contract items and time costs for project milestones. Bids are evaluated using the combined costs. For more information see [UDOT Price + Time Bidding \(P+T\)](#).

## Constructibility Reviews

Constructibility reviews are required on all projects and intended to provide an optimum use of construction knowledge and experience in the planning, design, procurement, field operations and logistics to achieve safety, quality, and overall project objectives. The best value to the project is achieved by performing a constructibility review early in the project's development and again at multiple stages during the design process. Constructibility reviews may also be performed concurrently with the PS&E review. Reviews typically include a review of economics, availability of materials, site restrictions, local conditions, and lessons learned that may affect the construction process and an assessment of alternative designs, methods, and equipment. Timely construction input during the planning and design process can significantly improve the accomplishment of overall project objectives, including cost and timely completion.

The Department does not currently have a formal prescribed process for conducting constructibility reviews but may, at times, outsource this work. The RE and staff should be aware of the purpose and process involved in constructibility reviews and look for opportunities to provide input to the design and advertising package consistent with this process.

Constructibility reviews will normally include analysis of site access, construction staging, temporary facilities, utilities, permits, specialty items, contract packaging, scope of work, and specification clarity, including review of the general conditions, special conditions, and technical specifications. Constructibility reviews should address the coordination between the contract documents and the actual site conditions. Site and project specific issues should be addressed during the reviews along with any impacts that conditions may have on the project along with proposed solutions to the identified issues. Special conditions do not remain the same from project to project and need to be reviewed accordingly.

At PS&E review, careful consideration should be given to reviewing the Engineer’s Estimate. The estimate review should verify items and quantities match information in the plan summary sheets, represent all intended items of work to meet the project scope, and verify that the estimated unit prices are reasonable considering the project location and site and market conditions at the time of advertisement for bids.

Additional information may be found in the National Cooperative Highway Research Program (NCHRP) Report 390, “[Constructibility Review Process for Transportation Facilities](#)” and a companion publication, NCHRP Report 391, “[Constructibility Review Process for Transportation Facilities – Workbook](#)” (1997). Another resource on this topic is the “[Constructibility Review Best Practices Guide](#)” (2000) from the [American Association of State Highway and Transportation Officials \(AASHTO\) Subcommittee on Construction](#). (See also *Constructibility Review Checklist* in the Appendix)

## Staffing Needs During Construction

The RE and District Engineer should give careful thought to the staffing needs for the project, reviewing the anticipated overall operations and construction workload, and identifying any specialized activities or inspection and training requirements needing to be accomplished before construction begins. Consideration should include specific project elements and training requirements such as railroad safety, pile driving, welding certifications, etc. (See also *Determining Project Staffing Requirements* under Resident Engineer’s Responsibilities and *Risk Based Inspection* under Inspecting Work and Materials)

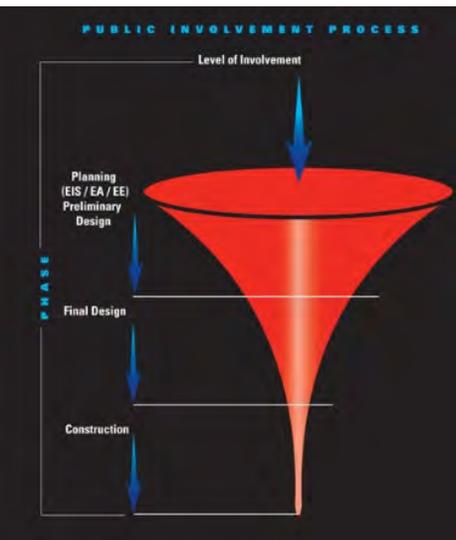
When selecting a Resident Engineer and crew for a specific project, the [Resident Engineer Assignment Risk Matrix](#) should be used to help determine the required experience level needed for the project. This experience level is based on several risk factors specific to the project. This is a tool that should be used to help justify the experience level of the RE and crew that is chosen.

## Public Involvement

Public involvement and information is critical during the construction phase, as this is the most visible portion of project delivery to UDOT’s customers, the general public. Because of this, the Department has created steps in the project delivery process to make certain public involvement does not get overlooked in the transition from project development and design to construction, and that commitments established during design are carried out during construction.

Public involvement during the construction phase should be addressed in collaboration with the Region

# CONSTRUCTION MANUAL OF INSTRUCTION



Public Involvement Manager (PIM), the PM, and the RE at or before the PS&E review. At this point the project team should decide how public involvement needs will be handled. This can be accomplished through the Contractor on minor projects, Department staff, or through the Department's contracting with a third-party consultant Public Involvement Coordinator. It should also be decided at or before the PS&E review what will be the general approach to public involvement and information on the project, considering the available project budget and what is necessary to meet the project's needs.

The group should use the [Project Outreach Planner \(POP\)](#) as a reference and tool in this conversation as outlined in the Project Delivery Network. [Task 4P1 Revise/Implement Public Involvement Plan](#) details the items that should be

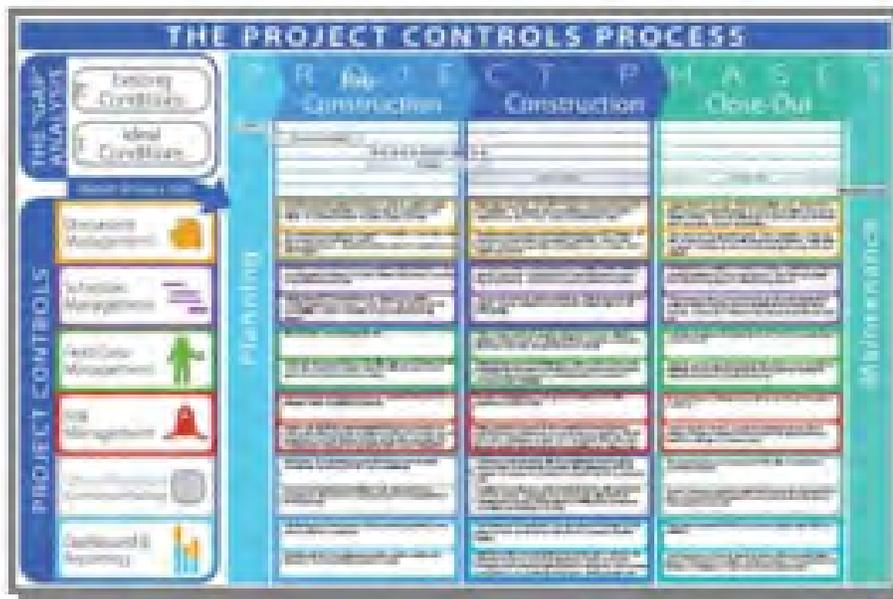
discussed among the PIM, PM and RE.

## Public Relations

At the earliest stage of the project, the RE should become aware of aspects of the project that may be expected to negatively impact the local community and develop strategies to minimize those impacts. The RE should be acquainted with the history of the project, along with any concerns that have been raised and any local individuals who have been involved in the planning of the project.

## Project Controls

Project Controls is a term used to describe the methods applied during construction to manage the project schedule (schedule management), claims (claims management), contract additions or changes (change management), project cost (budget management), and document control, which includes the management of all project correspondence, inspection records, test reports, field measurement and determination/verification of quantities of work accepted for payment in accordance with the contract.



Project correspondence should be identified and organized by project area and/or construction operation and contract item whenever possible. This assists with the overall organization of project records for use in evaluating potential change orders or Contractor requests for compensation and/or time.

The implementation of effective project controls is essential in generating sufficient documentation to demonstrate and verify the project meets the contract requirements. During the design process, the RE and PM should jointly determine what specific project control methods are needed based on the project's size and complexity. For large or complex projects, consideration should be given to involving the Department's Project Controls and Innovative Contracting Manager in determining the most effective project controls methods.

Some examples of project controls may include: 100% completion payments vs. partially complete payments; cost-loaded schedule for payment by milestones/activities; full or partial electronic submittal requirements, etc.

## Closeout Preparation

During the design process, the RE should keep contract closeout in mind. Decisions made during PS&E review can significantly affect closeout procedures. Design-Build (DB) projects often face different closeout procedures or requirements due to the various methods of payment used, absence of estimated quantities, and project-specific Request for Proposal (RFP) requirements. For instance, a DB project may determine payments through a cost-loaded schedule. Tracking weight tickets and testing frequencies for Hot Mix Asphalt (HMA) on a design-bid-build project may be simple because HMA is only one bid item; however, with a DB project with many HMA schedule activities that payment is based upon, additional ticket and testing document control may be necessary to clearly demonstrate compliance with contract requirements.

The RE is encouraged to work closely with the PM, Designer of Record (DOR), and the Project Controls and Innovative Contracting Manager to identify potential closeout obstacles during preconstruction. Methods and solutions to accomplish more efficient project control activities during construction and streamlined contract and project closeout processes after construction should be considered.

## Materials

The RE should identify the material types included in the plans and become familiar with possible material sources. Significant attention to iron and steel materials on Federally-funded projects is essential. These

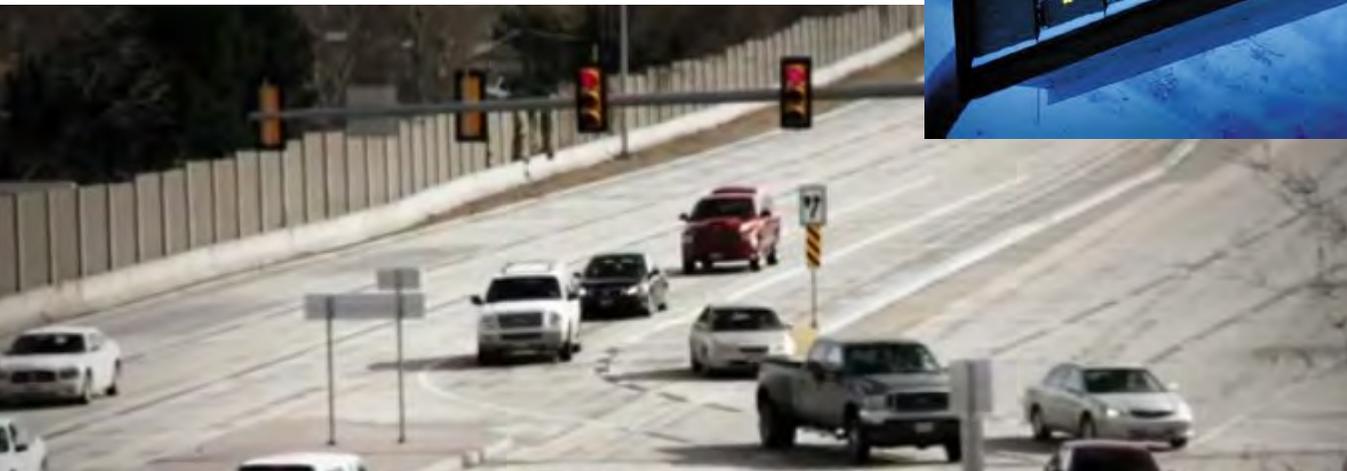
# CONSTRUCTION MANUAL OF INSTRUCTION



materials are subject to the Buy America provisions cited in 23 CFR [635.410](#) and Section [01455](#). Reference the [UDOT Buy America Information Website](#) and the FHWA Contract Administration Core Curriculum Manual and Reference Guide – Other Contract Provisions – [Buy America](#). The RE is expected to work closely with the PM to identify materials which may not be capable of meeting Buy America requirements. If the cost of these materials is estimated to exceed 0.1 percent of the total contract amount or \$2,500, whichever is greater, a Buy America waiver is required. Requesting and obtaining a Buy America waiver can be a time-consuming and lengthy process,

without any assurance of success. It is also important to note that waivers cannot be obtained after project advertisement.

Some materials are normally state-furnished. These can include signal, lighting, and ATMS structures and equipment. The RE must understand what state-furnished materials are included in the project and make certain to order these materials sufficiently in advance of when they will be required. Coordination with the DOR and PM is necessary to make sure complete and accurate orders are submitted. Ordering of these materials should be submitted through State Furnished Materials at [sfmaterials@utah.gov](mailto:sfmaterials@utah.gov).



# Preconstruction

Order forms and contact information for the State Furnished Materials Coordinator can be found at: [State Furnished Materials Order Form](#).

The RE should identify potential long-lead items including Contractor, third party, or state-furnished materials and make certain the project specifications account for long-lead time limitations. To help alleviate potential schedule impacts resulting from the procurement of long-lead items, consideration may be given to the use of a “flexible NTP”, which allows for contract time to start either when the Contractor begins work (or when traffic is first impacted) or an established date, whichever occurs first. (See also *Contract Time* under Preconstruction Activities)

For state furnished items, it is the RE’s responsibility to coordinate with the DOR, PM, and State Furnished Materials to make sure procurement of this material does not delay the project. These items may include steel transmission power poles, fiber optic cable, steel girders, and specialty materials. Consideration should be given to other significant projects in the area and the impact they may have on the supply of materials.

## Safety

The RE and staff should identify and follow through on any unique or specific safety concerns and project specific training needs for construction personnel anticipated to be assigned to the project. For example, any work in the proximity of railroad facilities requires personnel to have completed railroad safety training. More information on these requirements can be found in *Utilities and Railroads* under Construction Activities.

## Traffic Control

The RE needs to be familiar with the project’s potential maintenance of traffic (MOT) issues and the Transportation Management Plan (TMP) developed by the Department, when applicable. Refer to Policies and Procedures [08-05](#). The RE should verify specific TMP requirements of the Contractor are included in the project plans and specifications. In conjunction with this plan, the RE will identify adjacent construction projects and make certain sufficient coordination is done to allow effective maintenance of traffic within the affected corridor. As part of this coordination, the RE should review project plans and limitation of operations requirements cited under Section [00555](#), or project special provision, for potential conflicts with adjacent construction projects. The RE is also expected to review these documents for possible constructibility or MOT issues. Potential hazard mitigation and positive protection issues covered under Department Standard Drawing [TC3B](#) must be identified and addressed with the Contractor during construction.

# CONSTRUCTION MANUAL OF INSTRUCTION

## Utilities and Railroads

(Reference [Contractor Orientation Railroad Courses Contractor Safety Website](#))

The RE is expected to work with utility and railroad companies to facilitate the removal, protection, or relocation of their existing facilities. The relationship should be one of mutual cooperation and consideration. The RE is encouraged to make personal contact with representatives of the utility or railroad responsible for coordination with the Department in dealing with the impacts that inevitably occur with highway construction projects. (See also *Utilities and Railroads* under Construction Activities)

## Preconstruction Survey

Urban projects may require an assessment of buildings and other major structures such as bridges, sewers, storm drains, utilities, and adjacent properties (e.g. commercial, industrial, and residential) located on or adjacent to the alignment of the project. These features should be surveyed before construction begins. These surveys provide a record of the condition of adjacent structures. Existing buildings, utilities, and other structures in the vicinity of or adjacent to a construction project are subject to possible damage as a result of de-watering, pile driving, blasting, excavation, and various other construction operations. Regardless of age, it is important to identify, record, and catalog such pre-existing conditions in the vicinity of project sites before beginning construction to minimize liability for alleged damage that may have existed before any construction operations. On certain projects, this requirement is included in an item of work as part of the construction contract and is the responsibility of the Contractor as an early action work item.

The Department is normally responsible for managing surveys during the design process to determine asbestos assessment, underground oil or gas, buried fuel tanks or contaminated soils, geotechnical conditions, utilities surveys, etc. (See also *Preconstruction Survey* under Preconstruction Activities)



## Right of Way (ROW)

ROW agreements establish the terms and conditions of agreements between the Department and property owner. The Contractor is not a party to this agreement and it is therefore important that all commitments to property owners be included in the project plans and specifications. The RE is responsible for being familiar with ROW documents, including any agreements, and working with the DOR and PM during the PS&E review to make certain the commitments are included in the advertised plans and specifications. On Federally-funded projects, contract change orders resulting from conditional ROW approvals given at advertising may not be eligible for federal participation.

## Civil Rights

(Reference the *UDOT Civil Rights Manual*; See also *Civil Rights* under Construction Activities)

## Plans, Specifications, and Estimates Review (PS&E)

The PS&E review takes place at roughly the 90 percent plan stage. This review includes analysis of site access, construction staging, contract packaging, scope of work, materials, traffic control, ROW, environmental, safety concerns, specification clarity, internal consistency, public involvement requirements, utility and railroad requirements and potential issues, and advertising package completeness. It also includes review of the general and special provisions along with the technical specifications. Reviews will evaluate the completeness and coordination of the construction drawings and specifications, the appropriateness and enforceability of the construction contract special provisions, and the practicality of construction details. (See also *Constructibility Review Checklist* in the Appendix)

## Environmental Compliance

The RE should review and discuss the environmental documents with the PM at or before the PS&E review. The RE needs to understand the commitments made and how they are being moved forward into the construction contract. The RE needs to review this information for clarity, constructibility, etc. The RE should also understand the environmental clearances required, any restrictions that may impact construction, and what activities may be required in the course of contract administration. (See also *Environmental Compliance* under Construction Activities)

# CONSTRUCTION MANUAL OF INSTRUCTION



## Salvaged Items

(Reference Section [02221](#) and *FHWA Contract Administration Core Curriculum Manual and Reference Guide* – [Salvage Credits](#))

Section [02221](#) cites that unless otherwise specified, salvaged material becomes the property of the Contractor. Generally, items salvaged in the course of work should become the property of the Contractor. When specified otherwise, determining and accounting for the salvage value of the material can become problematic for the Department, particularly on Federal-aid projects.

When the contract specifies the material becomes the Contractor's property, it is generally accepted that proper credit is received to the project by way of the Contractor's bid prices, which reasonably takes into account the value of the material for salvage or resale by the Contractor.

## Warranty Clauses

(Reference 23 CFR [635.413](#) and [FHWA Contract Administration Core Curriculum Participant's Manual and Reference Guide](#))

The FHWA has had a longstanding policy against the use of warranties on Federal-aid projects. Their policy was based on the rationale that participation in a warranty payment constituted an indirect Federal-aid participation in maintenance costs.

Beginning in the 1980s, contracting agencies became increasingly interested in using warranties as a way to improve product quality, and as an element of certain innovative contracting approaches, such as, design/build/warrant contracting. Under [Special Experimental Project 14 – Innovative Contracting \(SEP-14\)](#), the FHWA approved warranty concepts with the objective of encouraging improved quality and Contractor accountability without shifting the maintenance burden to the Contractor. Ordinary wear and tear, damage caused by others, and routine maintenance remained the responsibility of the State Transportation Agency. Based on evaluations and the experience of several States, the FHWA revised its policy on warranties. The final rule was published in the *Federal Register* on April 19, 1996, with an effective date of August 25, 1995, allowing States to include warranty provisions for construction products or features in their contracts.

Warranty provisions must only be for a specific construction product or feature. A general warranty for the entire project is unacceptable since the Contractor does not control the design process or make decisions during that phase.

Warranties may not cover items of maintenance not eligible for Federal participation. An example of this might be a warranty for guardrail construction where it would be inappropriate to warrant routine damage done to the guardrail by vehicle impacts. Contractors are not to be required to warrant items over which they have no control. An example of this might be a warranty for HMA pavement on an overlay project. It would be appropriate for the Contractor to warrant the smoothness of the pavement or the rutting performance, but inappropriate to warrant reflective cracking which might occur due to pre-existing underlying layers regardless of how well the Contractor constructs the new pavement.

Current regulations do not restrict the duration of the warranty. However, practical experience has shown that 2 to 5 year warranties are common, and warranties beyond 5 years may not be as cost effective due to bonding and/or surety issues. Warranty provisions have been used for HMA pavements, bridge painting, traffic striping, and bridge expansion joints.

# CONSTRUCTION MANUAL OF INSTRUCTION

Although the RE and staff may not be involved in the determination of contract requirements for warranties for certain elements of the project, they should be aware of the reasoning and mechanisms used to implement warranties for contract work. The contract may require a “warranty” from the Contractor for high cost items or elements of work the Department has determined to be of risk in terms of the duration or length of service before maintenance or replacement may be required at the Department’s expense.

Where the contract includes a warranty period, the RE’s responsibilities for performance or securing the contractual instrument for administration of a warranty will be explained in the contract specifications. For example, a Letter of Credit, issued by a financial institution, provides assurance of compensation to the Department if the Contractor fails to meet the terms or conditions of the warranty. A Letter of Credit is required for Pavement Marking Materials under standard specification Section [02768](#). (See also *Warranty Periods/Bonds* under Construction Activities)

## C ONSTRUCTION

The construction phase begins upon the project advertisement for bids. It is at this point that the Construction Division assumes responsibility for certain aspects of the project, with the RE established as the single point of contact for all project related communication.

Before or upon project advertisement, the RE should meet with his staff as a group, along with other Department or project personnel expected to be involved with the construction, for purposes of reviewing project information and establishing expectations. The meeting should include discussion regarding individual's roles and responsibilities; partnering expectations; unique construction activities or special concerns; plans and specifications requirements; inspection requirements; project controls requirements; materials acceptance sampling, testing, and reporting requirements; communication protocol, etc.

### Preconstruction Activities

#### **Risk Assessment and Mitigation**

(See also *Risk Assessment and Mitigation* under Preconstruction)

The RE should obtain video and photographic documentation of existing conditions within the project limits, particularly for projects in an urban area. Photographic records of existing conditions can be extremely valuable to the Department in the event of claims and disputes or claims by property owners affected by the project. (See also *Preconstruction Survey* and *Risk Based Inspection* under Inspecting Work and Materials)

#### **Specifications and General Provisions**

(See also *General Provisions* under Construction Activities)

General provisions, sometimes referred to as general conditions, are contract specifications that are mostly standardized by state departments of transportation (DOTs). These include common requirements for the bidding and award of contracts, prosecution and progress, scope of work, control of work, legal and material requirements, and methods of measurement and payment.

# CONSTRUCTION MANUAL OF INSTRUCTION

UDOT specifications are written in CSI (Construction Specifications Institute) three-part format, rather than most other DOTs that use what is referred to as [American Association of State Highway Transportation Officials \(AASHTO\)](#) five-part format. Under both formats, each specification is divided into parts.

The fourth and fifth parts of the [AASHTO](#) five-part format establish the method of “measurement” and “payment”, respectively, within each specification section. With the CSI format, each specification has only three parts, with “Measurement” (Section [01280](#)) and “Payment” (Section [01282](#)) each having their own section. Each contract includes a project specific [Measurement and Payment \(M&P\)](#) document, separate from the specifications, describing the method of measurement and payment for each bid item included in the contract.

## **Specification Types**

### **Standard Specification**

Specifications approved by the Department’s [Standards Committee](#) for general application and repetitive use.

### **Supplemental Specification**

An addition or revision to the Standard Specifications that has been approved by the Department’s [Standards Committee](#).

### **Special Provision**

A unique specification or a modification or revision to a standard specification applicable to an individual contract.

In the event of discrepancies between information contained in the plans and specifications, the governing ranking of the contract documents indicating which takes precedence is described in Section [00727](#).

## **Definitions**

(Reference Section [00570](#))

Section [00570](#) includes abbreviations and definitions for commonly used contract terms. (See also *Abbreviations and Acronyms* in the Appendix)

## **Bidding Requirements and Conditions**

(Reference Section [00120](#) and Policies and Procedures [08B-01](#), [08B-12](#), [08B-27](#))

Section [00120](#) establishes the conditions under which bids are accepted by the Department and describes the Contractor’s responsibility for understanding the plans and specifications and knowledge



of job conditions, including the performance of a reasonable site investigation. Even though having little or no involvement in bidding procedures, the RE should understand the contents of this Section.

The RE will be available to answer bidder's questions and provide a site review upon request. The RE or their representative(s) should accompany bidders visiting the project site, if requested, with the basis of supplied information being the same for all interested parties.

Specifications cite the Department is bound only by written statements, representations, or descriptions of conditions and work and that no oral explanations or instructions are binding. However, the RE and field personnel should be aware that any statements regarding conditions, work difficulty, or any other comments not included in the plans and specifications could significantly influence the bid preparation.

### Mandatory Pre-bid Meetings

Mandatory pre-bid meetings are recommended when there are unique or unusual project requirements, significant environmental concerns, complex construction methods, high risk project elements, or complex MOT requirements involved in constructing the project. These meetings are held as specified in the contract (Department Special Provision [00250S](#)) to communicate unique project information to all prospective bidders.

The FHWA does not have a policy on mandatory pre-bid meetings. However, 23 CFR [635.112 \(b\)](#) requires an advertising period of at least 3 weeks before opening of bids, except that shorter periods may be approved by the Division Administrator in special cases when justified by the Department. The RE should discuss the length of advertisement with the PM to allow for consideration to extend the 3 week advertising period for large or complex projects.

FHWA's recommendation has been that a mandatory pre-bid meeting be held no earlier than the middle of the second week of advertisement to allow bidders time to review the project before the meeting and allow for time to adjust bids after the meeting. The PM schedules the meeting and the date is established in the bid documents. Invitees should include the project designer and other key members of the project team.

# CONSTRUCTION MANUAL OF INSTRUCTION

Before the pre-bid meeting, the PM and RE jointly determine the project characteristics and requirements that need to be reviewed with potential bidders and develop the meeting agenda, as well as decide who will conduct the meeting. Either the PM or the RE may direct the meeting and respond to bidders' questions. However, if the PM leads the meeting, the RE must also attend to maintain the single point of contact for all questions and any contract clarification during the bidding process. The PM should attend and support the RE with project information and background. The RE is required to provide administrative resources to document minutes and Contractor attendance.

## ***Contract Award and Execution***

(Reference Section [00515](#))

Section [00515](#) outlines the procedures and obligations involved in the award of the contract to the successful bidder. The RE will know these conditions have been met when the NTP has been issued.

## ***Prosecution and Progress***

(Reference Section [00555](#))

Section [00555](#) establishes the Contractor's responsibility to provide sufficient resources to meet specified project schedules and quality of construction. It includes schedule requirements, information on determining delays, and specifies liquidated damages for failure to complete.

The RE is required by contract to notify the Contractor of unsatisfactory progress in writing. However, the RE should first discuss the issue of unsatisfactory progress with the Contractor before written notification is prepared to gain an understanding of the issues and attempt to find a resolution. This course of action is consistent with the principles of partnering. Neither party to the contract should receive written notification of an issue or problem without it having first been discussed in a face-to-face meeting. If the Contractor does not act in keeping with the intent of this Section the matter is to be directed immediately to the attention of the District Engineer and PM.

## ***Limitation of Operations***

The limitation of operations identifies the constraints under which the Contractor is required by contract to perform construction activities. These limitations are unique to each project and are normally described under Special Provision 00555M.

## Contract Time

(Reference Policies and Procedures [08A-09](#), 23 CFR [635.121](#))

Unless otherwise specified in the contract, time charges commence 10 days following the Notice to Proceed. Price plus Time (P+T) contracts may specify a different date or time when work is allowed to begin or when contract time charges commence.

Some contracts may include provisions allowing for what is known as a “Flexible NTP”. In this case, contract time charges will typically begin when the Contractor begins work or impacts traffic, or upon a date established in the contract, whichever occurs first. Before selecting this particular method of establishing contract time, consideration should be given to both Department and Contractor resources, timing of other contracts within the District or Region, and the potential for a Contractor to be the successful bidder on multiple projects scheduled around the same time. Allowing the Contractor some flexibility in starting work and allowing better use of resources will often lead to lower bid prices, which is in the best interest of both the Department and the public.

The RE has authority to suspend work and time charges on working day or calendar day contracts when it is in the interest of the Department. The RE will not suspend work and time charges, or waive the beginning of time charges, unless it is jointly determined with the PM and District Engineer to be in the best interest of the Department and only after having thoroughly discussed potential impacts to the Department with both the PM, District Engineer, and Contractor. For work suspensions that are not due to any fault of the Contractor, consideration should be given regarding what project work may proceed and how time charges should be handled, considering fairness to other bidders. Generally, the Contractor should not be allowed to perform work during full contract time suspension.

The RE will keep the PM and District Engineer informed with respect to the justification and duration of any suspensions of contract time.

Time charges are kept in the project accounting, time reporting/progress report module of PDBS along with weather information and events. The RE is to keep time charges current and send a completed monthly status of time report, generated from PDBS, to the Contractor’s review and approval or disapproval. When contract time is suspended, the RE must enter a diary comment in PDBS justifying the suspension. The date of the comment should correspond to the date of the time charge activity.



# CONSTRUCTION MANUAL OF INSTRUCTION

## Notice of Award (NOA)

The NOA is official announcement to the lowest responsible bidding Contractor that the contract has been awarded. This document informs the Contractor of the RE assigned to represent the Department in construction administration and management of the project.

## Notice to Proceed (NTP)

The NTP is official announcement giving authorization to the Contractor to proceed with the work. This indicates all bonds, insurance certificates, and contracts have been signed. The RE will not allow work to start before the Department issues the NTP.

## Contract Subletting

(Reference Section [00555](#), 23 CFR [633](#), 23 CFR [635.116](#), [FHWA 1273](#), and the [FHWA Contract Administration Core Curriculum Manual and Reference Guide - Subletting or Assigning the Contract](#))

When portions of the contract are sublet, the Contractor continues to be the legally responsible party for the performance of the contract. All instructions, orders, changes, or other contract matters pertaining to the subcontractor's work should be directed to the Contractor. The RE and field personnel must be careful to maintain proper communication channels and maintain the Contractor's role under the contract.

Requests by the Contractor to sublet work are submitted to the RE on Form [C-115](#) (Request to Sublet Work). A

separate form is required for each subcontractor. Requests to sublet work must be reviewed and approved before the subcontractor performs any work on the project. Before RE approval, requests to sublet work must be reviewed to verify:

1. The maximum allowable percent sublet is not exceeded. (Note that exceeding the allowable subletting amount maximum of 70 percent is a considered contract violation and subject to the provisions of Section [00120](#), Debarment).
2. Contractor's compliance with the original Disadvantaged Business Enterprise (DBE) commitment (Federal-aid projects). (Reference Policies and Procedures [08B-110](#) and [Federal Project Plan Sheets Part XII - Bid Conditions](#))



For Federal-aid projects, Form [C-116](#) (Subcontract Agreement Certification for Federal-aid Projects) is required to be submitted with Form [C-115](#) (Request to Sublet Work). A separate form is required for each subcontractor. Form [C-116](#) includes the required Federal-aid Provisions (Reference 23 CFR [633.102e](#) and FHWA [1273](#)).

## Subcontractor vs. Supplier

A fabricator or supplier is one who fabricates or processes an item off of the project site and delivers it to the project. They do not need to be authorized or approved as a subcontractor provided:

1. The fabricator or supplier does not perform a function that is part of the construction process (i.e. placing barrier, incorporating materials in the work, erection of bridge components, grading and compacting surfacing materials, etc.)
2. The fabricator or supplier does not establish a fabricating or processing facility expressly for the use of the project.
3. The fabricator or supplier, in producing or delivering materials, does not perform any actual work on the project.

## Scope of Work

(Reference Section [00725](#), 23 USC [112\(e\)](#), 23 CFR [635.109](#), and [FHWA Contract Administration Core Curriculum Participant's Manual and Reference Guide – Standardized Changed Condition Clauses](#))

Section [00725](#) establishes conditions and procedures under which alterations may be made to the project through contract modification (Change Order) and describes differing site conditions and Significant Changes in the Character of the Work (Major Changes). (See also *Change Orders* under Project Controls)

Due to the nature of highway construction and the conditions under which work is performed, designers cannot always accurately determine and describe the existing conditions at project sites. Consequently, the actual conditions encountered during construction may differ from those indicated in the contract documents, resulting in a change in type or amount of work and ultimately in the cost of construction. Furthermore, situations may develop during construction that requires the Department to order the Contractor to slow down or to stop construction through no fault of the Contractor. The RE may give written notice to suspend all or any portion of the work for any reason at any time during the contract. (See also *Contract Time* under Prosecution and Progress)



# CONSTRUCTION MANUAL OF INSTRUCTION

The RE's order to slowdown or stop work may cause a change in construction costs. There also may be situations encountered during construction requiring the Department to make alterations to the design. In addition to changing the amount of contract work, such alterations could significantly affect the Contractor's production costs.

## Significant Changes in the Character (Scope) of the Work

(Reference Section [00725](#))

This article provides for the adjustment of the contract terms if the Engineer orders, in writing, an alteration in the work or in the quantities that significantly change the character of work performed and provides for adjustments resulting from formal change orders by the Engineer, in writing, to the extent that the impacted work is part of the contract. Either the Department or the Contractor may initiate an adjustment but both parties must be in agreement before the work is performed.

Section [00725](#) also cites requirements for the use of on-site materials, Contractor's responsibility for work, railway/highway provisions (Reference Policies and Procedures [08E-01](#), [08E-03](#), [08B-29](#) and 23 CFR [645](#), 23 CFR [646](#)), and Value Engineering Change Proposals (VECP) proposals (Reference Policies and Procedures [08A4-1](#) and 23 CFR [627](#)).

When differing site conditions, extra work, work beyond the scope of the contract, or requests or claims for additional compensation or time become known or anticipated, notify the District Engineer and PM immediately.

## Preconstruction/Partnering Conferences

As soon as possible after the project has been awarded, preferably before NTP, the RE will arrange and conduct a meeting with participants and parties having an interest in the project. Attendees should include the CEM staff, members of the Contractor's office and field management team, major subcontractors and suppliers, and affected utilities, government agencies, and other stakeholders. The purpose of the meeting is to introduce all of the participants and stakeholders in the project and discuss actions necessary for the successful start, prosecution, and completion of the contract. Agreed strategies and lines of responsibility and authority should be developed at this time.



The meeting should review the construction contract and work, identifying potential risks or difficulty, safety hazards, public exposure and similar issues. Attention should be given to construction details, materials requirements (including state furnished materials and Buy America requirements, when

applicable), proposed schedules, meetings and communication protocol, public involvement, identification of project personnel's roles, responsibilities and authorities, and actions necessary to coordinate the beginning of work.

The RE also meets with the PM to help prepare the agenda for the Pre-Construction Meeting and to ensure that all commitments made during the design phase are communicated to the contractor. (Possible items to consider reviewing: PDD, risk registry, status of ROW and commitments, utility relocations, long lead items, state furnished materials, items of concern from the bidding process.)

Before the meeting, the RE should have studied the plans and special provisions and made a field inspection of the project to fully understand the contract requirements and existing conditions. An agenda covering all items to be discussed should be prepared by the RE and distributed at least one week before the conference.

The preconstruction conference is important in establishing the tone for relationships and preparing for the efficient administration of the contract. The Contractor should be encouraged to come prepared for the meeting with a list of any questions, requests, or suggested items to be addressed at the meeting. Detailed minutes should be recorded and an action list included for those action items agreed to at the meeting. The meeting minutes represent an important contract record and appropriate care should be given to their preparation and distribution. Matters requiring subsequent response should be clearly recorded with action assigned to a specific person and a date by which response must be made.

Because of the importance of the preconstruction conference, care should be given to selecting the location. Ill-furnished trailers with no heat or air-conditioning, subject to noise, dust and interruptions are not conducive to efficiency. The location should be comfortable, quiet, and not subject to interruptions and phone calls. There should be adequate seating for all attendees around a table. Looking at and talking to the backs of people's heads as in a classroom setting is not likely to generate team spirit or promote familiarity between participants. On projects of any size or complexity, the preconstruction conference can be expected to last several hours and consideration should be given to breaks, refreshments and lunch.

Partnering is a long-term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of resources. This often requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based upon trust, dedication to common goals, and an understanding of each other's individual expectations and values. Benefits include improved efficiency and cost effectiveness, increased opportunity for innovation, continuous good working relationships, and the continuous improvement of quality products and services.

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The partnering process is an attempt to remove the adversarial roles that can develop between members of the project team and to substitute cooperation, cohesion, consideration and compromise, together with a desire to work toward the achievement of each participant's goals. The RE is expected to be an enthusiastic participant in the partnering process and ensure full participation and cooperation by the field staff.

Partnering provides the basis for improving participant relationships on construction projects and increases the potential for a successful project. The RE is expected to assume a leadership role in maintaining the process throughout the life of the project and be proactive in the resolution of problems and barriers to this process. The objectives, understanding of the principals and goals, and the importance of maintaining respectful relationships through partnering needs to be demonstrated and maintained by the RE and staff throughout the project.

The RE is expected to implement partnering according to Section [00725](#) and the UDOT/AGC Partnering Field Guide. This process includes conducting partnering evaluations on a regular basis as described in the [UDOT/AGC Partnering Field Guide](#). For more information, refer to the links on the [UDOT Partnering](#) page under [Contract Management](#). A sample preconstruction conference and partnering agenda is included in the guide, under Appendix C. (See also *Preconstruction Conference Agenda* in the Appendix for a suggested listing of invitees)

## Preconstruction Survey

(See also *Preconstruction Survey* under Preconstruction)

As part of a project risk assessment, consideration should be given to the use of a preconstruction survey for purposes of evaluating the condition of existing facilities before construction begins. This is mostly used on projects being built in urban areas where construction operations have potential to cause damage to adjacent structures or facilities. An example may be where historic buildings or properties are in relatively close proximity to construction operations and heavy equipment. In such cases, pile driving and other operations may require the use of vibration monitoring.

When determined during the design process to be of value in mitigating risk, an item for "preconstruction survey" may be included in the contract, to be performed by the Contractor as an early action work item.



Video is a highly recommended supplement to photographic records. These photographic and video records are useful and should be available for reference throughout the life of the project. During the construction phase, the RE should maintain detailed photographs of the outside of structures within the limits of, and adjacent to, the project.

Photographs showing condition of sidewalks, driveways, buildings, store windows, light posts, and other features are encouraged to prevent unsubstantiated claims against the project for damages unrelated to construction activities.

Upon Project Closeout, the RE should make certain these photographic records are delivered to the PM.

## Construction Survey

(Reference Section [01721](#))

Section [01721](#) specifies the Contractor’s responsibilities for surveying. Before beginning any work, the Contractor must submit a statement indicating all Department-provided horizontal and vertical control has been field checked and determined to be accurate within the tolerances specified. The Contractor must notify the Engineer verbally and in writing if discrepancies are found. Some tolerances prohibit various surveying methods. The RE must be aware of the required tolerances and allow only survey methods that can meet the specified tolerances. All rework caused by surveying errors must be done by the Contractor at no cost to the Department. (See also *Survey* under Construction Activities)

## Closeout Preparation

It is important the RE confirms the project controls to be used for the project well before any construction begins, understanding that a major goal of project controls is to allow efficient contract and project closeout. It is helpful to identify or review what the contract closeout procedure and requirements will be before work begins. By understanding this, the RE will know the end products required from the various project control features.



For instance, during the project acceptance and contract completion process, the RE is required to furnish lists of remaining work and documentation. Action item logs, submittal logs, and certification tracking tools make it much easier and faster to generate these lists. Also during this process, the Contractor has up to 30 calendar days to review and approve the final payment. Detailed quantity tracking and reconciliation methods reduce final payment disputes and requests for adjustment, reducing the time of contract closeout.

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If the RE has any questions about closeout requirements, they should contact the Region Contracts Specialist. The RE should coordinate new project controls techniques with the Region Contract Specialist to make sure the end product meets requirements and that the parties involved are clear on the requirements and expectations.

If process reviews are not scheduled or anticipated, the RE should consider requesting one. This can be done through the Region Contract Specialist or the Deputy Construction Engineers in conjunction with Policies and Procedures [08B-28](#) using Form [C-120](#) (Construction Process Review Report). A process review is a valuable tool for providing feedback on project documentation and can help the RE gauge how well the project controls are working. Findings of process reviews should be used to adjust project controls if necessary, so that all documentation is complete and acceptable at contract closeout.

In addition to process reviews, the RE should consider using internal quality control processes. Individuals familiar with closeout procedures but not familiar with the project are the best candidates for this role. This helps ensure documentation is self-explanatory. Internal quality control can serve any function which is needed and is similar to process reviews in that it provides feedback to the RE on documentation quality during the project which allows for adjustments to be made, if necessary, to enable orderly contract closeout.

## Construction Activities

### Resident Engineer's Responsibilities

The RE is ultimately responsible for all inspection, materials acceptance, and documentation necessary to fully support Contractor payment and establish contract compliance. The RE also certifies, through submittal of UDOT Form [C-196](#) (Project Materials Certification) that all work and materials incorporated in the project and all sampling and acceptance testing were in conformity with the approved plans and specifications. (Reference Policies and Procedures [08B-31](#) and 23 CFR [637.209](#))

The RE is responsible to make certain the contract work is performed in accordance with the contract provisions and that all materials incorporated in the work have been tested or certified and accepted by the proper authority before permitting its use in the work. The RE is also responsible to make certain progress and events are properly documented, all records and reports are complete and correct, and the Department's interests are protected.



The RE is responsible to coordinate with the PM on any and all matters that may impact the project budget, scope, and schedule. The RE must understand the PM’s overall project responsibilities and keep the PM informed about potential item overruns, change orders, claims, and schedule impacts or delays. (See also *RE Coordination with the Project Manager*)

As the Department’s representative, the RE must make certain the project meets all contract requirements. The RE should expect to obtain no more than what is specified or accept any less than the contract requirements. The RE will in no way attempt to supervise work for the Contractor. Proper relations between the Contractor and Department

personnel and its representatives are of the utmost importance. Reasonable efforts are expected to be maintained through partnering to uphold harmonious relations. However, excessive fraternization with Contractor personnel is expected to be avoided.

The RE needs various assistants, inspectors, and others to monitor the different phases of work for proper compliance and keep project records in order. Inspection personnel must treat the Contractor fairly and refer any issues regarding acceptance to the RE.

The RE delegates the responsibility for inspection supervision on the project to a Field Engineer or one or more experienced inspectors. Lead inspectors should have authority to direct and coordinate the activities of all inspection personnel and make day-to-day decisions involving engineering judgment of an immediate nature.

Each employee should be delegated authority consistent with administrative responsibilities. The RE should make certain delegated duties are being properly discharged. All employees should be empowered to make decisions within their delegated authority.

### **Determining Project Staffing Requirements**

It is the role of the RE, in coordination with the District Engineer and PM, to staff the project appropriately. An adequate number of staff must be assigned to meet minimum inspection and testing requirements. Project staff should have the required certifications and qualifications. Personnel assigned to assist the

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RE with testing, inspection, and documentation of the contract work will have varying levels of training, experience, and qualification. Each employee must know their responsibility and must have authority to execute it. The RE is responsible for the training and proper assignment of these personnel and is expected to brief assigned personnel on project plans and the schedule for work.

The RE should use the Contractor's proposed schedule to develop staffing needs. These needs must be shared with the District Engineer to avoid over committing resources. Staff should be selected based on the project scope and associated qualification and certification requirements. Throughout the project, the RE should evaluate work load versus required staff and adjust staffing levels accordingly.

When assigning Department technicians, the District Engineer should consider personnel qualifications, compatibility and familiarity with the assigned field crew, and career advancement potential and opportunity to further skills and experience. Other considerations include the proximity of the normally assigned work location to the project location, special or specific skills that may be required for the work, and balancing Department needs between Operations and CEM during the time of project construction. (See also *Risk Based Inspection* under Inspecting Work and Materials)

It is important the RE keep the District Engineer and PM informed of the progress of work, including any anticipated extra or changed work, unusual problems or changed conditions, and potential for additional compensation due the Contractor.

## RE Coordination with the Project Manager

The RE needs to understand the PM's role and responsibilities in project delivery. It is important the RE involve the PM in decisions and discussions during construction that potentially affect the budget, schedule, and scope. Reference the [UDOT Project Manager Guide](#) for additional information concerning the PM's project responsibilities during construction. (See also *Project Organization and Staffing*)

## Duties of Inspector

(Reference Section [00727](#))

Work and materials are inspected to determine acceptability in accordance with the contract requirements. It is the responsibility of the inspector to determine the work is performed in accordance with specified requirements. The inspector has no authority to accept work, but has the authority and responsibility to reject work or materials until an acceptance determination can be made by the RE.

The inspector is directly responsible to the Resident 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 and observation, sampling and/or testing of materials, documenting and making necessary records or reports of operations, and other duties as directed by the Resident Engineer.



Inspectors must have a good understanding and knowledge of work required by the

contract. Before construction starts, inspectors should study the plans, specifications, and contract provisions to familiarize themselves with the requirements and be prepared to readily answer any questions concerning the work. Inspectors should consult with the RE before the work is started for clarification of provisions or requirements that may be unclear or not completely understood.

Most work inspection requires the inspector to be present during the operations where the inspector can observe details of the work. The inspector should make certain all materials and work is in compliance with the contract. The Contractor's operations affecting or important to quality should be closely observed tested, measured, and documented. Operations that can be inspected and tested after the fact should be handled in this manner. If the operation provides little or no consequence to quality, an appropriate level of testing, observation, and documentation should be performed. (See also *Risk Based Inspection* under Inspecting Work and Materials)

Members of the inspection staff should not act as supervisors for the Contractor by directing or supervising workers in accomplishing their tasks, or assisting the workers or performing any task or duty for the Contractor.

The inspector must provide documentary evidence to support that all work and materials is in compliance with the approved plans and specifications. The RE uses this information in determining acceptance. Unacceptable work and materials should immediately be brought to the Contractor's attention for prompt correction. If not promptly corrected, the situation should be brought to the attention of the RE for resolution.

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Unsafe working conditions should also immediately be brought to the attention of the Contractor for instant correction. The circumstances should be noted in the inspector's diary. If the unsafe conditions are not immediately corrected, the situation should be brought to the attention of the RE for resolution.

The importance of the inspector keeping a neat, complete, up-to-date and accurate diary and submitting reports in a timely manner cannot be over-emphasized. If there are disputes, the inspector's daily records are the legal documents with which the matter may be resolved.

## General Provisions

(See also *Specifications and General Provisions* under Preconstruction Activities)

### Control of Work

(Reference 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. (See also *Inspecting Work and Materials* under Work and Materials)

The RE and staff should never discuss the Contractor's methods of handling work with the Contractor's competitors or persons not directly involved with the project. Any instructions to the Contractor are issued to the superintendent or foreman, not to workers on the project. Suggested changes or instructions pertaining to the work should be for the benefit of the project, supported by the contract specifications, and

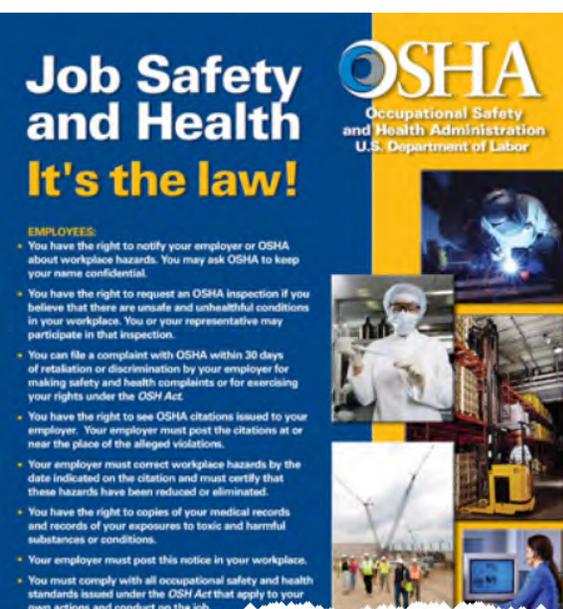
based on sound judgment. A written record should be maintained of specific instructions or orders issued.

### Legal Relations and Responsibility to Public

(Reference Section [00820](#), Policies and Procedures [08B-30](#), and the [UDOT Safety and Health Manual](#))

### Project Safety

The safety of project workers and motorists traveling through projects is essential. There are a number of Federal, State, and Local regulations governing safe work practices for projects under the Department's jurisdiction. All project personnel should be aware of and be able to recognize hazardous situations and rectify them immediately.



**Job Safety and Health**  
**It's the law!**

**OSHA**  
Occupational Safety and Health Administration  
U.S. Department of Labor

**EMPLOYEES:**

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in that inspection.
- You can file a complaint with OSHA within 30 days of retaliation or discrimination by your employer for making safety and health complaints or for exercising your rights under the OSH Act.
- You have the right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violations.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records and records of your exposures to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.
- You must comply with all occupational safety and health standards issued under the OSH Act that apply to your own actions and conduct on the job.

The poster includes several images: a person in a white protective suit, a person in a hard hat and safety vest, a person in a hard hat and safety vest, and a person in a hard hat and safety vest.

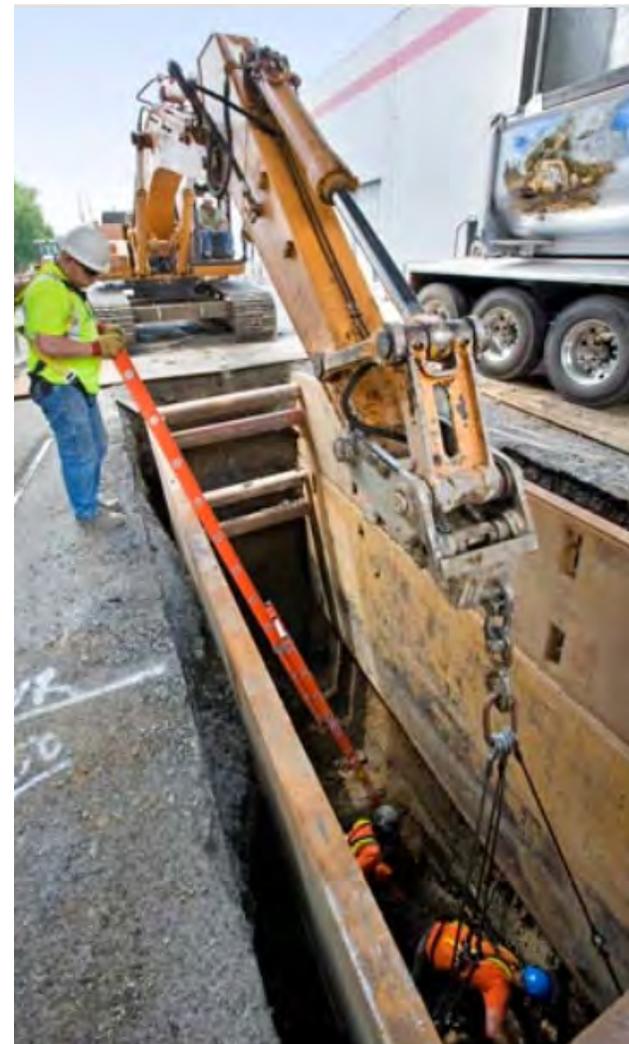
The RE has the overall responsibility for management of the construction project, including oversight of the safety and health of all personnel on the job site. The RE is charged with providing safety leadership at all times and safety enforcement when required. The RE should give instruction to employees under their direction on the safe use of tools, materials, equipment, and safe work practices while carrying out their responsibilities. All project personnel are required to wear proper Personal Protective Equipment (PPE) while working within the ROW (Reference Policies and Procedures [06E-02](#)). Each employee has responsibility for the safety of others, using their knowledge and influence to prevent accidents and contribute ideas and suggestions for the improvement of project safety.

Section [00820](#) cites the requirements for the compliance with all federal, state, and local laws and ordinances, as well as the [Occupation Safety and Health \(OSH\) Act](#) and the [UDOT Safety and Health Manual](#).

The Contractor is required to provide and maintain safe access to work for purposes of inspection or testing. The RE and staff should not attempt to inspect work where there is not adequate and safe access. Such situations should be brought to the Contractor's attention and the Contractor notified that any work installed that is not inspected because of inadequate or unsafe access will not be included for payment until safe access is provided for proper inspection.

Before entering an area for purposes of inspection, each employee should make certain the area is safe. For example, a trench should be properly shored and braced in accordance with [OSHA 1926.651 \(Subpart P\)](#) requirements. Employees working in the vicinity of bridge construction, pile driving, pipe laying, or other operations involving the use of cranes should take extra precautions. Personnel should never walk under any load suspended by a crane and remain a safe distance away from cables under load or work in the vicinity of power lines.

Concrete batch plants, asphalt plants, precast yards, etc., present many hazards such as moving machinery, vehicular traffic, overhead operations, ladders and stairs, etc. The



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seriousness of the hazards is compounded by a high level of noise. Hard hats should always be worn and extra precaution taken when working in these areas.

The RE is also responsible for conducting weekly toolbox meetings with staff, completing the [OSHA 10 course](#), and participating in safety inspections with the Region Safety/Risk Manager. For more information, refer to the [UDOT Safety and Health Manual](#).

**Any accidents on a project should be recorded and reported immediately to the RE, District Engineer, and Region Safety Loss Coordinator.**

## Owner Controlled Insurance Program (OCIP)

Insurance requirements are described under Section [00820](#). Section [00820](#) requires Contractor participation in the Department's OCIP when projects have an Engineer's Estimate greater than \$75M. The Department may also select specific projects from time to time that will include a special provision requiring the Contractor to be a part of the [OCIP Enrollment form](#), [OCIP General Conditions](#) and the [OCIP Manual](#) can be found on the Department's [OCIP web page](#).

## Responsibility for Damage Claims

(Reference Policies and Procedures [08B-94](#))

The Contractor's responsibility for damage claims and insurance requirements are established in this article under Section [00820](#).

## Hauling by Truck

(Reference Section [00820](#) and [Federal Project Plan Sheets Part XII - Bid Conditions](#) Disadvantaged Business Enterprise (DBE) Section F)

This article provides information on on-site and off-site hauling and the situations requiring a subcontract for material hauling.

## Measurement and Payment

(Reference Sections [01280](#), [01282](#), [01284](#), 23 CFR [635.122](#), 23 CFR [635.123](#), and [Development and Use of Price Adjustment Contract Provisions Technical Advisory](#))

Section [01280](#) describes procedures for determining or measuring quantities paid for under the contract. Section [01282](#) describes method of payment for work included in the contract, changed and added work, force account, and specifies compensation for fuel and asphalt cost adjustment due to price volatility. This section also includes contract requirements for compensation for variations in quantities and significant changes to character of work, differing site conditions, excusable delays, and "payment for material on hand" (stockpile payments).

## **Materials Quality Requirements**

(Reference Section [01455](#))

Section [01455](#) establishes requirements for testing, certification, and acceptance of materials. This section also describes “Buy America” requirements for Federal-aid projects. Reference 23 CFR [635.410](#) and the FHWA Contract Administration Core Curriculum Manual and Reference Guide – Other Contract Provisions – [Buy America](#).

## **Public Involvement/Public Information Services**

(Reference Section [01315](#))

Requirements cited in Section [01315](#) are intended to apply specifically to those contracts that include an item for this work in the bid proposal. The type and extent of public information services will vary from project to project. Public information services is intended to create an open two-way communication forum where the public is informed in advance of construction impacts and has an opportunity to provide input and feedback on construction activities.

When an item for this work is included in the contract, the Contractor is required to designate the Contractor Public Information Coordinator (PIC). Section [01315](#) specifies the PIC’s responsibilities. The RE is expected to work closely with the PIC, Region Public Involvement Coordinator, and PM in monitoring and facilitating the public information services effort.

On projects having a significant potential for construction activities to adversely impact access or otherwise affect businesses, a Public Relations (PR) firm will often be included as part of the CEM team. The Department may also include provisions in the construction contract to provide for a Community Coordination Team (CCT). The CCT is typically comprised of business owners and/or community members



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that reside or work in the project area. Generally, the Contractor is required to work closely with the CCT to minimize or mitigate impacts to businesses. In turn, the CCT periodically evaluates this aspect of the Contractor's performance, with the evaluations tied to incentives as may be provided for in the contract.

## **Public Relations**

Department personnel are in daily contact with a large number of citizens. As a public service organization, the Department is judged by its employees as well as by its work. People are logically demanding the right to be involved in work that affects their community. Many major construction projects are a source of pride to a community and as a result, the RE is expected to be involved in Public Relations activities, consistent with Department policies.

Every employee should bear in mind they have a responsibility to build good will toward the Department. The most effective public relations tool is to always conduct oneself professionally in matters involving the public. Courtesy is of prime importance and every member of the public and their representatives must be treated with courtesy and respect. The RE and staff must not respond negatively to provocation and remain considerate, calm, and respectful at all times.

All contacts with non-construction personnel should be recorded in a log. The log should indicate the name and address of the person, the reason for the contact along with any complaint, information, suggestions, and any action or follow up item resulting from the contact.

If a complaint is made regarding Contractor operations involving dust, mud, noise, obstruction or trash accumulation, the RE should instruct the Contractor to remedy the situation immediately. The RE should treat every complaint seriously. The immediate resolution of complaints will do a great deal for maintaining good community relations.

In the event of contact with news media, Department representatives and personnel should direct the media to the Region Public Involvement Coordinator. Department personnel should only answer questions or furnish information on matters for which they have personal responsibility and are well informed.

Never offer personal comments about Department policies, supervisors, co-workers, contractors, and politely turn aside all questions on those subjects. Questions concerning policy or programs should be referred to the Region Public Involvement Coordinator or Region Director. If additional information or direction is needed, contact the Region Public Involvement Coordinator.

## Survey

(Reference Section [01721](#))

Section [01721](#) includes construction survey requirements including stake spacing and maintenance requirements for various work types. The RE must enforce the minimum survey requirements to permit survey verification in the field by inspection staff. Inspection staff is expected to periodically review staking in the field and compare it to the plans and nearby reference points. The RE should be notified of potential discrepancies immediately. If resources allow, the RE should also periodically perform survey verification. Both constructed features and staking should be checked to verify survey tolerances are being met.



Section [01721](#) also requires the Contractor to stake all potential points of conflicts with utilities being relocated so they can be relocated to their proper final position. The Contractor is responsible for costs incurred to relocate any utility more than once due to inaccurate or incomplete staking. This requirement must be clearly conveyed to the Contractor when utility relocations are included in the project. The RE must designate adequate inspection staff to document the Contractor's survey and staking for utilities. Documentation must be sufficient

to determine whether the Contractor's staking was inaccurate or incomplete, in order to protect the Department from any unnecessary additional utility relocation costs. (See also *Construction Survey* under Preconstruction Activities)

## As-Constructed Drawings

(Reference Section [01721](#) and Policies and Procedures [08-03](#))

As-Constructed drawings are a record of changes made to the originally intended physical product of the contract. They should reflect the same degree of detail as the original plan drawings and are necessary as a way of preserving the historical detail of what occurred on the project. As-constructed drawings can also be used as a basis to plan and design future projects in the same location and to make repairs to damaged structural components or other facilities.

Section [01721](#) requires the Contractor to provide all surveying and design data and a red-lined plan set showing as-constructed features indicating all changes from the original design. This Section also specifies

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acceptable formatting. The RE is responsible for reviewing this information and the final as-constructed drawings for accuracy and completeness.

As-constructed drawing requirements should be discussed during the preconstruction conference. The Contractor must have a clear understanding of the RE's expectations and should be asked to describe their as-constructed drawing preparation methods. All corrections, revisions, and any additional sketches or detailed drawings necessary to clearly depict the as-constructed work needs to be included. The as-constructed drawings must show all features located or constructed differently from the original approved plans. These changes and corrections are to be recorded in a manner resulting in neat and legible plan sheets. A red pen that writes sharp, clear, and dark with a medium width line should be used for these notations. Fine lined pens do not reproduce well when scanned and should not be used.

To verify accuracy and completeness, the RE must have a systematic method for identifying and documenting field changes. The Field Engineer and inspection staff are expected to keep as-constructed changes and the record of these changes in mind throughout the project. Any changes that are contemplated or identified from the original design must be confirmed with the RE and documented in accordance with the RE's selected method. While it is the Contractor's responsibility to provide survey and design information for the final as-constructed drawings, it is generally necessary for the RE to maintain a full-size plan set to record all changes as they occur to facilitate the review of the Contractor's submitted drawings for acceptance.



Other specifications or special provisions, such as those for ATMS work, may include separate or specialized as-constructed drawing requirements. The RE must be aware of these requirements and make certain the Contractor submits all required documentation.

When a project includes third party utility work, utility agreements typically require the utility company to adhere to the specifications and procedures contained in

Utah Administrative Rule [R930-6](#), Accommodation of Utilities and the Control and Protection of State Highway Rights of Way. Section 5.4 of this rule requires the utility companies to maintain a set of certified reproducible plans and an electronic file showing the location of all utility facilities in the State Highway ROW. For new facility installations, the utility company uses survey grade Global Positioning System (GPS) to survey their facilities to establish its location. Points to locate include major junction points, manholes, valves, changes in line or grade, and any other significant feature that will assist in future planning.

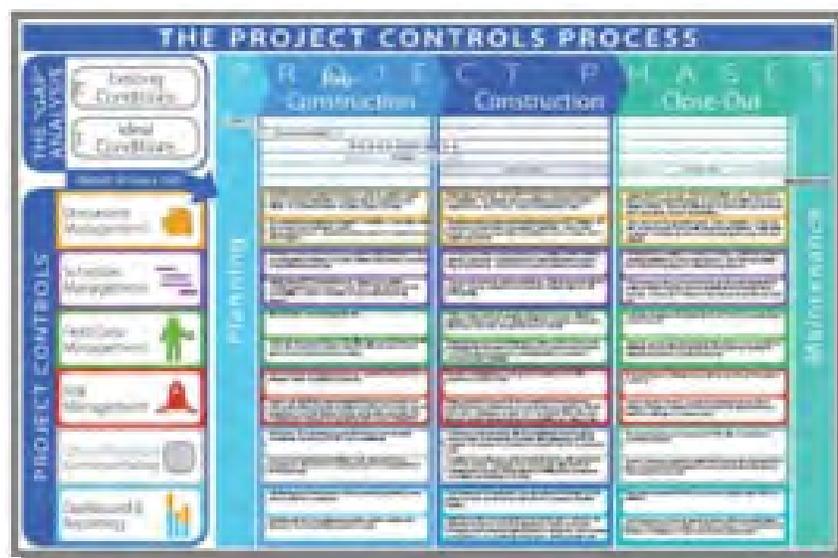
The utility is responsible to maintain an accurate file that is used by the Department in future planning to avoid utility relocations. These plans include appropriate vertical and horizontal ties to the highway control points so the location of the facility may be established when necessary. Because the utility company does not have to submit these plans to the Department unless requested, the RE should periodically verify the utility company is performing as-constructed survey as required by the administrative rule.

## Project Controls

The RE is ultimately responsible to make certain the project meets all contract requirements. To meet this responsibility and provide sufficient documentation, the RE must implement project control systems. All team members including the Field Engineer, inspection staff, and office manager play an important role in project controls and must understand the systems.

These include tools to control and manage:

- Project staffing, staff qualifications, and required training
- Project commitments
- Requests for information (RFIs)
- Field data
- Item quantities/submittals
- Change orders
- Project scope, schedule, and budget
- Materials test reports, Inspection reports, and Acceptance determinations, and
- All other project records and documents



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Unless otherwise directed by the PM and District Engineer, the RE is required to use PDBS, ProjectWise, and the [UDOT Materials Database](#) for project accounting, administration, and project document storage.

To obtain access to PDBS and ProjectWise, refer to new user information on the PDBS and ProjectWise web sites for instructions. Refer to the [Engineering Technology Services \(ETS\)](#) website for assistance with [ProjectWise](#), [Electronic Program Management \(ePM\)](#), and [PDBS](#).

## **Staff Qualifications and Training**

Adequate project staff is necessary to make certain inspection and documentation requirements are fulfilled. Staff must have the applicable qualifications and training as required by the UDOT [Inspector Qualifications Program \(IQP\)](#), [Transportation Technician Qualification Program \(TTQP\)](#), and [Construction Engineering Management Training \(CEMT\)](#).

The RE is ultimately responsible for the training and proper assignment of the staff. The Field Engineer must be aware of staff qualifications when working with and assigning responsibility in the field. A staffing plan should be developed and cross referenced with the bid items to verify the appropriate staff is available for the required work.

## **Commitment Tracking**

Projects may include various commitments in several areas, including environmental, public information, right of way, and civil rights. The manual includes some basic information about these commitments in their respective sections. It is important the RE and Field Engineer be familiar with all project commitments. Some may be summarized in matrices included in the plans while some are in separate documents, such as permits and agreements. The RE is strongly encouraged to create a project wide commitment matrix for quick reference and commitment tracking. During construction, the RE is responsible for ensuring the contractor is fulfilling their commitments and obtaining the documentation required by the contract. Before contract closeout, the RE must verify that all commitments, including those the Department is responsible for, have been satisfied according to applicable agreements.

## **Requests for Information (RFI)**

RFIs can be initiated by the Contractor or the RE. RFIs initiated by the Contractor must go through the RE. The RE should either respond to RFIs or forward them to the appropriate party for response. The RE should maintain an RFI log to track and document responses and dates. The log should include the date of submission, RFI ID, the party responsible for responding, date a response is required, and final response. The log should be reviewed at the weekly project meeting. All RFIs should be processed in a timely manner

and the RE must document all conversations and responses regardless of whether a log is maintained. (See also *RFI Log* example in Appendix)

## Field Data Management

The RE requires documents to substantiate acceptance of materials and work items for both quality and quantity. The majority of this documentation is generated through observations and testing done in the field. The basis of acceptance for quality, method of measurement, and basis of payment are established by specifications. Documentary evidence on which to base payment will be in accordance with accepted Department methods for each bid item. The RE also requires documentation of daily work activity and progress.

## Quantity Tracking

(Reference Section [01280](#) and the contract's Measurement and Payment Document)

The specifications and contract [Measurement and Payment \(M&P\)](#) document provide method of measurement and basis of payment information.

Inspection staff is responsible for daily quantity tracking with assistance from the Field Engineer or RE when required. Quantities should be measured and recorded by the inspection staff as work is completed, including the on-site receipt of weight tickets and placement verification for items measured by weight for payment. Quantities for items measured by weight (weight tickets) must be verified, checked, and documented based on acceptance lots that match PDBS ledger entries, with each ledger entry representing an individual acceptance lot.

Inspection staff should use measurement methods consistent with sound engineering practice.

Inspection staff may either enter quantities directly into PDBS or submit quantities to the Field Engineer or RE. The RE should determine who is responsible for entering quantities into PDBS before beginning work.

No payment is to be made to the Contractor for work performed before receipt of all required submittals, certifications, or acceptable test reports required for acceptance. (Refer to the [Acceptance and Documentation Guide \(A&D\)](#) for additional information).

Project No: 11M-STP-80-4(36)186  
 Location: 80, Castle Rock to Whatch  
 Contractor: W. W. CLYDE & CO  
 Name: DERYL MAYHEW

Item	Description	#	Date	Type	Description	Qty	Unit	Amnt	Block	Page	Est
8	Fiber Roll	1	04/25/2007	PLACED		653.60		\$3,922.08	Fltr		1
		2	04/26/2007	PLACED		2197.47		\$13,184.82	Fltr		1
9	Check Dam (Stone)	3	04/27/2007	PLACED		1512.30		\$9,073.80	Fltr		1
		4	04/30/2007	PLACED	STA 944+00 TO 860+00 WB OUTSIDE SHOULDER	5754.10		\$34,524.60	Fltr		2
		5	05/01/2007	PLACED	STA 944+00 TO 860+00 WB OUTSIDE SHOULDER	6799.86		\$40,795.16	Fltr		2
10	Drop-Inlet Barrier (Fiber Roll)	6	05/02/2007	PLACED	STA 860+00 TO 770+00 WB OUTSIDE SHOULDER	5962.46		\$35,774.88	Fltr		2
		7	05/03/2007	PLACED	STA 754+00 TO 770+00	439.10		\$2,634.60	Fltr		2
		8	05/08/2007	PLACED	STA 751+00 TO 800+00	5399.31		\$32,395.86	Fltr		2
11	Dust Control and Watering	9	05/09/2007	PLACED	STA WB 751+00 TO 696+50 & EB 94+75 TO 12	5624.55		\$33,747.30	Fltr		2
		10	05/10/2007	PLACED	STA EB 127+00 TO 179+00 OUTSIDE SHOULDER	5914.25		\$35,465.50	Fltr		2
		11	05/11/2007	PLACED	STA EB 189+32-196+00&219+00-236+00&WB925	5287.91		\$31,727.46	Fltr		2

# CONSTRUCTION MANUAL OF INSTRUCTION

The RE must notify the PM when any item quantity is expected to, or may potentially, vary significantly from the estimated quantity listed in the Engineer's Estimate for the project

Quantities of work performed, item comments, placement comments, and estimated quantities for payment are required to be entered into PDBS. Item comments include general comments related to the item such as work location, subcontractor ID, or conversations or observations, but are not related to placement.

Placement comment entries in PDBS are used to document a placed quantity and generally include supporting notes, measurements, and calculations. When it is impractical to include this information in the placement comment, the placement comment must include reference to the PW location of any drawings or sketches, supporting notes, measurements, and calculations that are located elsewhere. When placement information is documented outside of PDBS placement comments, ledger entry quantities should be underlined in red to be able to verify proper ledger entry for the placement.

Quantities should be tracked and entered into PDBS daily, but must be entered at least weekly. Ultimately, all supporting locations, dimensions, and calculations and unit conversions must either be included in PDBS or with the final ledger.

All entries in PDBS must have the first and last name of the individual who measured the work entered in the "verified by" field. For entries requiring calculations, the calculations must be checked for completeness and accuracy. A first and last name, clearly identifying the individual who checked the calculations, must be entered into the "checked by" field in the placement comment field of PDBS.

Estimated quantities for as-constructed (unit measurement) items must be backed out of the ledger and replaced with actual measured quantities as these items are completed.

**There are three basic methods of measuring contract items for payment:**

## Plan Quantity

A "plan quantity" is the accepted estimated quantity in the bid proposal and is the final quantity for which payment will be made unless the RE revises the plan dimensions through an approved change order. Although verification the work is completed is necessary, no detailed measurement is required. If the RE revises or adjusts the dimensions of a work item that is identified as a plan quantity, a change order is required. Plan



quantity items cannot overrun without an approved change order. The Contractor may also initiate a change to plan quantity items if they discover an error in the plan quantity. Before proceeding with any adjustment to a “plan quantity”, the RE needs to carefully review the contract specifications and M&P information governing the payment for item of work, as the contract requirements may establish differing thresholds for variations in quantities before any adjustment can be considered.

The Contractor is responsible for providing all plots, computations, and supporting documentation necessary to substantiate the plan quantity revision to allow verification by the RE. Unless specified otherwise in the contract, if the verified error is more than 10 percent, the Department will compensate the Contractor for the costs of providing plots, computations, and supporting documentation. If the error is less than 10 percent, the costs are borne by the Contractor.

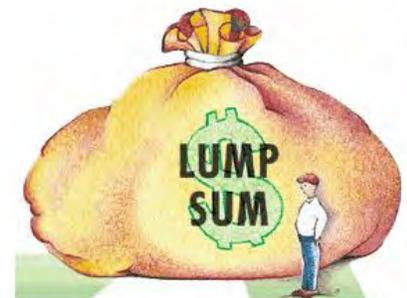
Unless only one entry is required for the entire plan quantity, plan quantity entries in PDBS must have basis for the estimated quantity. This includes estimated dimensional limits with calculations or incremental completed sections with reference to the applicable plan sheet containing the plan quantity summary. When the work is complete, the final PDBS quantity must match the plan quantity. (Reference Section [01280](#))

## Lump Sum

The Department measures the complete structure or structural unit, signal or lighting system, or other items of work specified in the bid proposal to be measured by lump sum to include all necessary work, fittings, and accessories for a complete unit or system. Although verification the work is completed is necessary, no detailed re-measurement is required.

Lump sum payment is considered full compensation to the Contractor for all resources necessary to complete the work. If adjustment to the lump sum payment amount is determined necessary by the RE, a change order must be processed to either create a new item with the new lump sum amount or create a new item which makes up and explains the difference.

Progress payments for lump sum items in PDBS must have an explanation as to the estimated percent complete. When the work is complete, the final PDBS quantity must be “one”.



## As-Constructed Quantity (Unit Measurement)

An as-constructed quantity based on unit measurement such as length, area, volume, or weight. Actual work performed is verified, measured, computed, and paid for. The RE should keep track of all quantities for budget monitoring purposes.



# CONSTRUCTION MANUAL OF INSTRUCTION

For as-constructed quantities, placement comment entries in PDBS must include locations, measured dimensions describing measurement methods, and calculations. In the case of stationing references, indicate whether the stationing shown is approximate. All calculations, including unit conversions, should be included. If this data cannot be entered into PDBS, or it is more practical to use other documentation methods, this data must be included in PW with a reference to its location in the ledger entry placement comment.

Unit quantities are entered into PDBS in one of two ways:

1. Recorded to two decimal places, or
2. Rounded if the RE determines that rounding is consistent with good engineering practice. The RE should consider the item unit price and field measurement accuracy before rounding, using statistical rounding methods.

Whichever method is used, entries must be consistent and only one method should be used per item.

## ***Major Items and Quantity Changes***

Section [00570](#) defines contract items that are considered “major” contract items. Contract items not meeting the definition of a major contract item according to Section [00570](#) are considered minor.

Major items are significant in having not only the potential for considerable impacts to the project budget, but contract specifications (Section [00725](#)) allow either the Contractor or the Department to renegotiate unit prices if their quantity increases or decreases by more than 25 percent. Depending on the circumstances, changes in quantity exceeding 25 percent may increase or decrease the Contractor’s costs. The RE is expected to evaluate these situations and request renegotiated unit prices in favor of the Department when alterations reduce the Contractor’s costs. If renegotiation is initiated by the Contractor, the RE is responsible to make certain fixed costs are considered but not paid for more than once. A change order is necessary to revise unit prices for the quantity of work eligible to be renegotiated in accordance with Section [00725](#).

Note that when the total quantity of any item varies by less than 25 percent from the estimated quantity, payment is made at contract unit prices and no price adjustment is warranted or allowed. It should also be noted that no price adjustment is warranted or allowed when the total quantity of a minor item varies by more than 25 percent from the estimated quantity, except in rare circumstances when it can be determined the variation represents a significant change in accordance with Section [00725](#). If the Contractor requests an adjustment for a minor item of work, the RE should consult with the District Engineer.

## Scope Management

(Reference Section [00725](#))

Section [00725](#) establishes conditions and procedures under which alterations may be made to the project through contract modification (Change Order). This Section also cites requirements for the use of on-site materials, Contractor's responsibility for work, and railway/highway provisions (Reference Policies and Procedures [08A4-1](#), [08E-01](#), [08E-03](#), [08B-29](#), 23 CFR [627](#), 23 CFR [645](#), 23 CFR [646](#), and Value Engineering (VE) proposals.)

When differing site conditions, extra work, work beyond the scope of the contract, or requests or claims for additional compensation or time become known or are anticipated, consult with the PM and District Engineer before authorizing any changed or added work, or otherwise modifying the contract or entering into discussion or negotiation with the Contractor.

The RE must have a good understanding of the project scope. The project scope is defined as the work established in the original contract as bid, limited to the original bid items and pricing. Work beyond, or outside, the project scope is not allowed without prior approval from the District Engineer. Generally, additional work that needs to be accomplished to complete the intended overall project work within the established project limits should be eligible for Federal-aid funding.



To be eligible for Federal-aid funding, the District Engineer must concur in any work beyond the project scope. Work outside the project limits (termini) is considered a change to the project scope. The RE should make every effort to control changes to remain within the established project scope and budget. When quantity overruns, adjustments or additional work cause costs to exceed budget, the RE should consider the possible reduction or elimination of work, provided any changes are coordinated with the PM and the project's established scope and goals can still be achieved.

If the proposed change is within the previously authorized scope of work, FHWA will generally concur with the added work and approve the use of federal funds, when adequate justification is provided. However, there may be circumstances in which participation in the full scope of the change order work is not allowed. For example, a change order on a pavement rehabilitation project may provide for the installation of additional edge drains at and beyond the project limits. A change of the project limits and modification of the project agreement would be needed in order for the cost of edge drains outside the project limits

# CONSTRUCTION MANUAL OF INSTRUCTION

to be eligible. Otherwise, Federal-aid participation would be limited to the cost of edge drains up to the original project limits.

There may be other circumstances where major contract modifications are proposed which are beyond the original scope of work. In these cases, it must be determined whether the additional work is a minor modification of the original scope or a significant change that would benefit from competitive bidding. The individual circumstances associated with the magnitude and quality of the change, as well as the cumulative impact upon the whole project, should be reviewed. Considerations include:

- Have the contract work elements changed?
- How does the additional work impact quantities and cost?
- Does the proposed change impact the complexity of the work?
- What is the cumulative impact on the project?
- Would the public benefit from competitive bidding rather than a negotiated change?

Refer to the [FHWA Contract Administration Core Curriculum Participant's Manual and Reference Guide – Change Orders - Impact on the Original “Scope of the Work”](#).

The RE must always coordinate potential changes in project scope with the PM.

## **Change Orders**

(Reference Policies and Procedures [08B-10](#), 23 CFR [635.102](#), 23 CFR [635.109](#), 23 CFR [635.120](#), 23 CFR [635.121](#) and [FHWA Contract Administration Core Curriculum Participant's Manual and Reference Guide – Change Orders](#)) (See also *Scope of Work* under Preconstruction Activities)

When the probability of a need for a change order becomes evident, and before beginning a discussion with the Contractor about an authorization to proceed with extra or changed work, the RE needs to involve the PM and communicate the reasons why the change order is necessary. The PM and RE need to jointly agree there is a need to execute a contract change order before the RE issues an authorization to the Contractor to proceed with extra or changed work. In the case of local government projects, the local government representative must also be involved in these discussions. If the PM and RE cannot agree on the issue, the District Engineer should be involved immediately.

In determining the need for a change order, both the RE and PM need to be mindful of the Contractor's schedule and the importance of timely decisions by the Department to avoid impacts to the project schedule that may result in the award of additional time or compensation, or both, to the Contractor.

The RE and PM also need to be aware there are times when contractual requirements, such as standardized changed condition clauses, demand the consideration of additional compensation to the Contractor regardless of the available project budget. (See also *Scope of Work* and *RE Coordination with the Project Manager* under Construction Activities)

Change orders modify the contract and are required for, but not necessarily limited to, the following conditions:



1. Plan or specification changes or additions, excluding approved plan revisions issued by the DOR
2. Differing site conditions or significant changes in the character of work (Reference Section [00725](#) and 23 CFR [635.109](#))
3. Change in DBE commitment
4. Change or extension of contract time
5. Extra work required that cannot be tied to an original bid item
6. Acceptance of a value engineering change proposal (VECP) (Reference Section [00725](#))

Refer to the *FHWA Contract Administration Core Curriculum Participant's Manual and Reference Guide – “[Change Orders \(Extra Work and Time Extensions\)](#)”* under State Procedures.

Prepare change orders to be self-explanatory. Approving authorities are not as familiar with the aspects of the work as the RE and must understand the intent, governing specifications, and cost analysis with a minimum of research. Decisions made by the RE, District Engineer, or others that result from either partnering escalation or other agreements need to be fully documented to support reimbursement by the FHWA on Federally-funded contracts.

Completed attachments, cost analysis, authorization to proceed, and any other documentation applicable to the change order must be included when transmitted to the approving authorities. Contract time adjustments related to changes or extra work should be submitted at the same time as the respective changes or extra work. Change orders that include additional contract time must be in accordance with Section [00555](#) and include a schedule impact analysis documenting the excusable delay and basis for adjustment. As with all original work items in the contract, changed or added work items require complete supporting documentation before issuing payment to the Contractor.

On Federally-funded projects, the [Federal-aid Policy Guide \(FAPG\)](#) requires proposed major extra work or major changes in the contract plans and provisions be formally approved in advance by the FHWA

# CONSTRUCTION MANUAL OF INSTRUCTION

Division Administrator. Under the FHWA/UDOT Stewardship and Oversight Agreement, the District Engineer represents the FHWA Division Administrator, except for projects identified for full oversight by the FHWA. (See also *District Engineer* under Region Organization)

The definition of a major change or major extra work, according to 23 CFR [635.102](#), is: A change that will significantly affect the cost of the project to the Federal Government or alter the termini, character, or scope of the work.

The Department, with FHWA's concurrence, has established that the following types of changes or extra work are considered major changes or major extra work:

1. Significant changes in the character of work in accordance with Section [00725](#) (Reference 23 CFR [635.109](#))
2. Revisions in conflict with approved standards
3. Revisions to pavement structural section (excluded are changes to nominal maximum size mixture for HMA, provided volumetric design Nvalues remain unaffected)
4. Revisions in geometric design (alignment, and/or grade), which affect the design speed, or change the structural design of a major structure
5. Revisions involving addition, deletion, or relocation of bridges
6. Any change requiring a revision in controlled access, including changes to median openings and changes requiring additional ROW (On uncontrolled access projects, changes in access locations will be considered minor as long as the change does not violate Administrative Rule [R930-6](#), Accommodation of Utilities and the Control and Protection of State Highway Rights-of-Way.)
7. Changes in any feature of design or construction which may be contrary to the intent of the environmental document (changes must be coordinated with the Region environmental staff)
8. Any change related to the type or quality of materials to be furnished and incorporated into the finished project on a major item

Changes and extra work that do not fall into the above types of changes are considered non-major.

A fully executed change order or *Authorization to Proceed with Extra Work or Contract Revision* (Form [C-107](#)) is required before proceeding with any change or extra work.

When emergency or unusual conditions justify, the District Engineer may give advance verbal approval and ratify such approval with formal approval, as soon as practicable. Reference 23 CFR [635.120](#).

The RE's formal approval of a change order for changed or added work with an estimated total cost of less than \$25,000 is considered authorization for the Contractor to proceed with the changed or added work. For Federal-aid projects, the District Engineer will ultimately determine federal participation.

Change orders modifying or adding specifications require the approval of the District Engineer.

## Authorization to Proceed with Extra Work or Contract Revision

When there is a need for the Contractor to proceed with emergency work or a contract change and the time necessary to prepare, submit, and obtain approval of a change order would delay the orderly progress of the work, the RE uses Form [C-107](#) to permit the Contractor to proceed. The Form [C-107](#) specifies the extra work to be completed, the reason for the change, and the total estimated cost of performing the work.

Form [C-107](#) is used to document *verbal approval* for:

- Emergency work
- Non-major changes
- Non-major extra work

The Contractor may proceed with work upon verbal approval but written approval should be obtained as soon as is realistically possible.

Form [C-107](#) is used to document *written approval* for:

- Major changes
- Major extra work

The Region Director's signature is required when the additional work is valued at \$100,000.00 or more.

Once the Form [C-107](#) is completed, the Contractor can proceed with the additional work or change.

The RE must complete a change order within 30 days of completing the [C-107](#).

The completed Form [C-107](#) is then attached to the change order to provide a record of the Contractor's authorization to proceed with the work ahead of the fully executed change order.

## Time Extensions

(Reference Policies and Procedures [08B-10](#), 23 CFR [635.121](#), and Section [00555](#))

Contract time extensions must be handled in accordance with Section [00555](#). The different types of delays that impact the Contractor's schedule are defined in Section [00570](#). (See also *Schedule Management* under Project Controls)

# CONSTRUCTION MANUAL OF INSTRUCTION

Change orders must be completed in PDBS and combined with completed attachments when submitted for review. In the Form [C-101](#), text must be entered into all four fields. If no text is applicable, this needs to be indicated. The RE should consider measurement and payment when writing change orders and include any necessary language in the cost analysis section of the Form [C-101](#). The order of items in the Form [C-100](#) should follow the same sequence of the cost analyses and reasons for change. It is important the proper Specification Section number is assigned to change order items. This number not only dictates the governing Specification Section but also impacts the method of PDBS payment such as automatic calculation. In any case, it is the RE's responsibility to make certain the changed or added work described in the change order includes, either directly or by reference, the details and specifications applicable to the work along with measurement and payment information and acceptance requirements. The RE should contact the Region Contract Specialist for assistance if any questions arise.

Department personnel's responsibility for processing and approving construction contract change orders are described in Policies and Procedures [08B-10](#).

ATTACHMENT A Form C-101 Rev. 12/07  
TO CONSTRUCTION CONTRACT CHANGE ORDER NO. \_\_\_\_\_

PAGE 1 OF \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_ LOCATION: \_\_\_\_\_

**LETTER OF EXPLANATION**

**REASONS FOR CHANGE ORDER:**

**PROJECT ENGINEER'S COST ANALYSIS:**

**CONTRACT TIME ADJUSTMENT:**

**COORDINATED WITH:**

## Change Order Approval Authority

(Reference Policies and Procedures [08B-10](#))

Change Order Type	Approval Authority
Specification Change	District Engineer
Additional Contract Time > 20 cumulative days <sup>4</sup>	District Engineer
< \$25,000 <sup>1</sup>	RE
< \$100,000 <sup>1</sup>	PM
> \$100,000 <sup>2,3</sup>	Region Director
> 25% of CAA or \$500,000	Transportation Commission

*1 As long as Total Project Cost (TPC) does not exceed Commission Approved Amount (CAA)*

*2 Up to 125% of the TPC or \$500,000 above CAA, whichever is less, provided funds are available*

*3 Limited to a maximum of \$250,000 on projects where funding is administered by Metropolitan Planning Organizations (MPOs) or the Joint Highway Committee (JHC)*

*4 The RE reviews the change with the District Engineer before negotiation with the Contractor. In addition, the District Engineer, jointly with the Project Manager and Region Director decides if the Central Construction Staff or a Consultant should assist in evaluating the Change Order.*

Note that the District Engineer has responsibility for determining Federal-aid participation on Local Government and Federal-aid projects administered by Department.

## Force Account

(Reference 23 CFR [635.120](#))

Force account is only to be used when absolutely necessary, such as when the Contractor and RE cannot agree on a price for extra work 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 work may then be performed on a force account basis.

All extra work to be performed by the Contractor on a force account basis must be approved through the standard change order process before beginning work (using contract change order forms C-100, C-101, or C-107). The approval request will include a description of the work to be performed, reason for extra work, and a cost estimate broken down to show costs for labor, materials, and equipment.

The RE will keep accurate daily records of the work as it is completed using Form [C-104 Daily](#) or Form [C-104 Weekly](#) (Labor, Materials, and Equipment Record). The record will be submitted in duplicate to the Contractor’s representative each day for signature. The RE and Contractor will each receive one



# CONSTRUCTION MANUAL OF INSTRUCTION

signed copy acknowledging the labor, materials, and equipment used each day for the work being performed on force account.

Upon conclusion of the work, force account charges will be summarized. The Contractor will furnish invoices, payrolls, etc., to support the costs.

Change orders in PDBS must be indicated as force account by selecting the force account basis of payment option. To comply with policy, force account change orders must be completed before work proceeds or within 30 calendar days of authorization to proceed as documented using Form [C-107](#). To complete change orders before work proceeds or is complete, the item in the change order should be set up with a unit of dollars and the estimated quantity equal to the estimated total cost. Once the work is complete, the required force account cost documentation must be included in the bid item documentation.

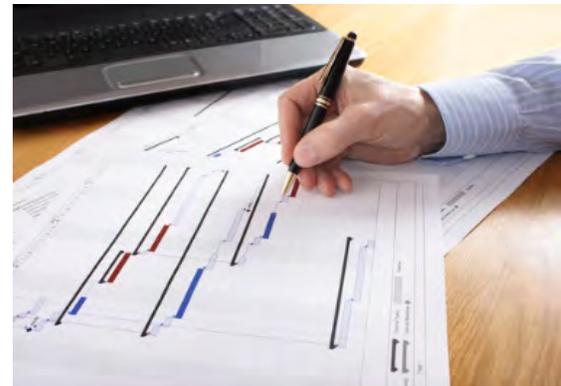
## **Schedule Management**

(Reference Section [00555](#) and [00727](#))

Section [00555](#) specifies the Contractor's responsibility to develop and maintain a project schedule. The Contractor must use the baseline construction schedule to coordinate all activities on the project, including those with other entities such as subcontractors, vendors and suppliers, utilities, local governments, special service districts, and the Department. Unless required by special provision, construction schedules are not required to be cost or resource loaded. However, if the Contractor does not resource load the schedule, no delay associated with resource shortages will be considered.

The RE is responsible for monitoring the Contractor's work progress and comparing it to the Contractor's CPM schedule. The RE is encouraged to review the project, particularly critical path activities, on a weekly basis to judge the status of the schedule.

The Field Engineer and inspection staff must be familiar with and understand the Contractor's schedule and critical path. It is the RE's responsibility to make certain start and finish dates of schedule activities is clearly noted and documented. Progress of schedule activities should be documented through inspection daily reports or an alternative system approved by the RE. Whenever possible, an activity ID should be included in inspection daily reports. When critical path activity durations are expected to exceed, or are discovered to exceed, the original duration the RE must be notified immediately. It is important to document what is causing the duration to increase and engage the Contractor in discussion regarding



the observation. Discussions with the Contractor should be documented for delay documentation and mitigation purposes.

The Contractor is responsible for submitting monthly schedule updates and narratives coinciding with the closing of partial estimates. The updates must accurately show completed and progressed work and address revisions to the upcoming schedule and approach. Section [00555](#) specifies the requirements for schedule updates and narratives. The RE is responsible for reviewing and accepting or rejecting schedule updates. Rejected updates must be revised to the satisfaction of the RE before acceptance and payment of the partial estimate. The RE should consult the Field Engineer and inspection staff during the review of the schedule update to verify start and finish dates are accurate and activity percent completes are reasonable.

Section [00555](#) requires contractors to provide written notification to the RE within seven calendar days of the occurrence of an alleged excusable delay. The notification must justify the request for a time extension and additional compensation, where applicable. The RE must respond to written requests within seven calendar days of receiving notification from the Contractor. Section [00727](#) specifies requirements for the RE's response. If the Contractor does not meet notification requirements of the contract for delays, it is imperative the RE deny requests for time extensions and delay compensation associated with events beyond the seven-calendar day notification window.

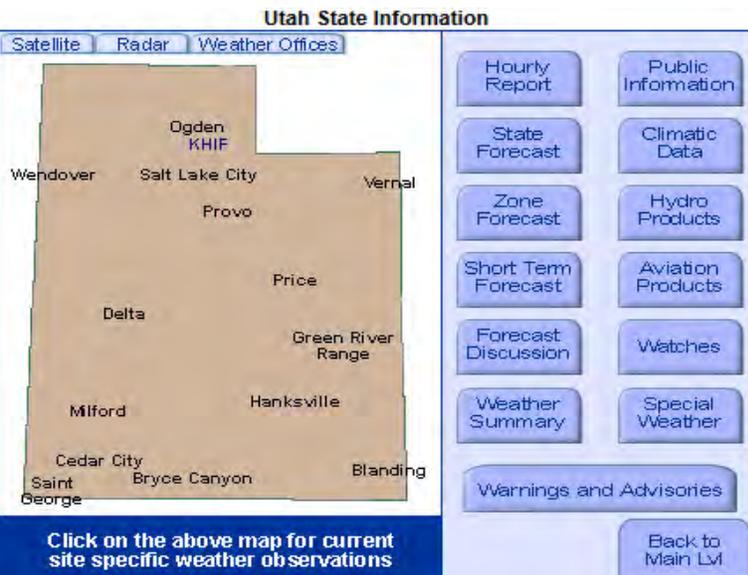
To assist in mitigating delay claims, the RE should always ask the Contractor if they have experienced any delays beyond their control. This can be asked during weekly coordination meetings or during the monthly schedule update review. The Contractor's answer must be documented by the RE. If the Contractor indicates they have experienced delays beyond their control, the RE is required to follow up on this indication and remind the Contractor of the notification requirements. Delays and associated time extensions should be dealt with immediately, while events are still fresh in the minds of those involved.

If requesting a time extension, the Contractor is required to submit a time impact analysis demonstrating how the critical path was delayed. If the critical path was not delayed no time extension is allowed.

The RE is expected to anticipate potential delays by monitoring the critical path and near critical path activities and identifying any potential delays to those activities. Potential delays can come from many sources, but may include unsuitable soils, utility relocation work or conflicts, plan error or omission, and added work. Mitigation strategies should be developed for the potential delays.

# CONSTRUCTION MANUAL OF INSTRUCTION

For all potential and actual schedule impacts, the RE must communicate with and keep both the PM and District Engineer informed.



## Severe Weather Delays

Non-compensable delays will be considered by the Department when work at the project location experiences unusually severe weather. Unusually severe weather is defined as 1) an unusual number of days of severe weather at the work site; and 2) unusually severe weather conditions (e.g., unusually heavy snow or rain, or unusually high or low temperatures) during a particular time period at the project site.

Determining the extent of unusually severe weather at the project location includes:

1. Determining the historical average number of days of expected severe weather that can be anticipated in each month; and
2. Finding as excusable only the number of days of unusually severe weather that exceeds the historical average. Historical average weather conditions can be found at the [National Oceanographic and Atmospheric Association's \(NOAA\) National Weather Service website](#).

Demonstrating entitlement to a time extension for weather is the responsibility of the Contractor and requires establishing both entitlement and impact. For a Contractor to be entitled to a weather-related time extension they must first demonstrate the unusually severe weather experienced at the project site limited their ability to perform work on the weather-affected days. The second is to determine the impact (delay) to the project due to the unusually severe weather and requires that the Contractor establish the weather-affected work was on the project's critical path. Non-critical path work will not be considered for severe weather-related delays.

Contractors must provide unusually severe weather-related time extension requests in writing, accompanied with all supporting documentation. The RE should encourage the Contractor to submit any weather-related time extension requests with the first monthly schedule update following the severe weather event. The decision to process a change order for a weather-related time extension is the responsibility of the RE, in collaboration with the PM, and must be made in a timely manner.

## **Budget Management**

The RE needs to implement an effective method to track and monitor the budget. This includes tracking and managing impacts from bid item under and overruns, incentives and disincentives, price adjustments, fuel and asphalt binder adjustments, change orders, and third party utility work. Updates should be provided to the PM on a regular basis and when potential or actual significant cost impacts are identified.

Screen 505 and Report 506, Active Project Summary, in [ePM](#) and the overrun/underrun statement in PDBS are useful tools the RE may use to manage the budget. The overrun/underrun statement provides a quick summary of the amount and percent each item is overrunning or underrunning based on the quantity entries in PDBS. This statement does not take into account future quantities which are not yet entered into PDBS. Methods to account for future quantities are necessary to accurately estimate the at-completion cost. Additional consideration should be given to utility and construction engineering costs, when applicable.

During the early stages of the project, the RE should work with the PM to understand the project's available contingency and establish thresholds which require immediate PM notification.

## **Project Diaries**

The RE is required to keep a daily diary on each project. The RE's diary need not repeat information contained in the Inspector's Daily Reports, but should contain general information about operations or communication between the RE and the Contractor. Information should be recorded with a date and time. The daily diary must be kept in PDBS, in electronic format capable of applying date stamps and documenting the date and time of any revisions, or in a composition notebook (or equivalent bound notebook). Any of these formats are acceptable.

The Field Engineer should also keep a daily diary on each project. This diary need not repeat information contained in the Inspector's Daily Reports, but should contain similar information as the RE's diary. The diary must be kept in PDBS, in electronic format capable of applying date stamps and tracking date and times of revisions, or in a composition notebook (or equivalent bound notebook). Any of these formats is acceptable.

# CONSTRUCTION MANUAL OF INSTRUCTION

## **Inspector's Daily Reports (IDR)**

(Reference [Inspectors Manual](#))

Each inspector assigned responsibility for major activities or operations must prepare a Form [C-111](#) (Inspector's Daily Report). This report should contain a day-by-day record of all significant events relating to the project. Since it may become important evidence in the decision of claims or establishment of responsibilities or liabilities, it is essential the record be complete. Diary entries should be factual, concise, complete, and legible. Entries should avoid vague generalizations such as "Contractor operations remain inefficient." Instead, entries should state why they are inefficient and how long they have been that way. It is intended that the information recorded include sufficient detail so that the events can be reconstructed later as they actually happened. Daily reports should capture each major activity or operation in each major area, according to the Contractor's baseline schedule, and make record of any factors that delay or hinder the Contractor's progress. The person recording the information must sign the daily report.

Alternatively, this information may be entered directly into PDBS. Labor and equipment should be entered into the labor and equipment entry fields. Observations, discussions, and other pertinent information should be entered into the item comments or diary comments fields. Visitors should be entered into the visitor entry field.

Both the uses of Form [C-111](#) and PDBS entry are acceptable methods of documentation and duplication of information is not required. However, contract time charges and weather must be entered into the time reporting/progress report module of PDBS even when Form [C-111](#) is used.

Principal items to be noted are:

1. Weather
2. Any unusual or unexpected conditions or incidents
3. Safety Violations or concerns
4. For major or critical activities:
  - a. Work hours
  - b. Manpower and major equipment working on the activity, including arrival and departure of equipment and work crews – identify subcontractors
  - c. Work performed or completed and location
  - d. Work or materials rejected, reasons, and explanation of how it affected work progress
  - e. Length and cause of any delay or shutdowns, things that impeded the work progress – Did the work performed approximate the work scheduled?
  - f. Contractor CPM schedule activity ID
5. Important discussions with the Contractor – disputes or directions given

6. Directions received from the RE or Field Engineer
7. Labor and equipment spent on disputable items of work
8. Official visitors and inspections
9. Roadway conditions and Traffic Control – Comments on compliance with TCP, contract requirements, and apparent effectiveness

Any issues such as delays, non-conforming work or materials, accidents, unsafe work conditions, etc. should be immediately brought to the attention of the RE. The RE should make an effort to review the Inspector Daily Reports each day, but is required at minimum to review these reports on a weekly basis.

When Form [C-111](#) is used, reports should be filed in ProjectWise after they are reviewed by the RE. If PDDBS is used, the reported information is included in the Engineer's Daily Report, which can be generated at any time. **Note that only one of these methods should be used on any particular project.** In other words, the choice of the RE to use either PDDBS or Form [C-111](#) should be applied consistently for the entire project.

### **Visual Inspection Reports (VIR)**

Visual Inspection Reports ([VIRs](#)) are used to document visual observations of material and placement. The [MS&TR](#) requires [VIRs](#) for acceptance of very small quantities of material that are not sampled and tested in accordance with the general sampling frequencies cited in the [MS&TR](#). The [A&D](#) also indicates the use of [VIRs](#), or other inspector's notes in either [C-111](#) reports or diaries as required supporting documentation for work and materials acceptance.

All documentation supporting work and materials acceptance must be specifically identified with a bid item number or other contract pay item identification and organized to be easily accessible in the project records by reference.

The RE requires documentation substantiating acceptance of work and materials. In addition to materials acceptance testing performed in accordance with the [MS&TR](#), documentation of acceptable placement is necessary to support payment. An example of this would be the sampling and testing of materials used for MSE wall backfill. While all required materials sampling and testing may indicate acceptable backfill placement, without documentary evidence to support the proper placement of blocks or panels, connections, and reinforcing grid in accordance with the approved plans and specifications, there is insufficient documentation to support payment for the MSE wall.

# CONSTRUCTION MANUAL OF INSTRUCTION

PROJECT VISUAL INSPECTION  
FOR  
MATERIALS FURNISHED FOR STATE AND FEDERAL AID HIGHWAY PROJECTS

Project No: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Contractor: \_\_\_\_\_  
Subcontractor: \_\_\_\_\_  
Supplier: \_\_\_\_\_  
(Manufacturer or Vendor)

Item Specification (Bid Item and Description): \_\_\_\_\_  
Bid Item (s): \_\_\_\_\_  
Related Materials Standards: \_\_\_\_\_  
\_\_\_\_\_

Description\* of Material Placed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Description\* of Placement Practices: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*See Related Specifications and *Minimum Sampling and Testing Requirements* for details on what to address.

I hereby acknowledge that the above documentation is a true representation of the material and placement practices in the field.

\_\_\_\_\_  
Technical Inspector                      Date

\_\_\_\_\_  
Resident Engineer                      Date

NOTE: Copy to be retained in Project Materials Certification File

The use of a [VIR](#) is an acceptable method for documenting this information. The [VIR](#) form requires the item specification, related specifications, bid item and description, and detailed information regarding the material and placement techniques. The individual observing and inspecting the work is responsible to complete the [VIR](#) and sign the form. The RE (or designee) must review the report to make sure the materials and placement meet the contract requirements and then sign the report. The [VIR](#) should be characterized with a bid item number or other contract pay item identification. (See also *Inspecting Work and Materials*)

Some materials are not tested as part of the Minimum Sampling and Testing Requirements. For these materials, material information such as manufacturer, model, product label information, size, and other relevant data must be documented along with placement methods to demonstrate compliance with the specifications and support Contractor payment. (See also *Manufacturer's Information/Certifications and Submittals* under Work and Materials)

## **Materials Acceptance Testing and Reporting**

Together with daily quantity tracking, the RE must maintain a system that clearly and easily tracks the type, number, and results of tests by date. The purpose of this system is to demonstrate compliance with the [MS&TR](#) and provide a quick reference and summary of materials testing on the project. The system should be able to separate and sort tests by bid item number, date, and material type.

Material test results should be reported immediately to the RE or the Field Engineer. If results do not meet contract requirements, the Contractor must be notified immediately. Results must be recorded on the applicable UDOT reporting form. Forms or reports should include the project number; project name; bid item, if applicable; placement limits using station, offset, and depth; material source; sample or test identification number; and the required test results. For certain materials such as HMA, asphalt surface courses, and concrete, raw test results are entered into the [UDOT Materials Database](#) with applicable project reports generated through this system.



Materials that are tested and approved at their source, or otherwise previously approved but that have become damaged or contaminated before use in the work, are subject to rejection by the RE. The RE has the right to prohibit delivery of any material to the job site until tests indicate full compliance with contract specifications and to re-inspect or retest plant inspected materials, rejecting those that do not comply with the contract requirements.

# CONSTRUCTION MANUAL OF INSTRUCTION

The RE should review all final material reports before filing or distributing to verify all contract requirements are met, including test results and test methods. If required by the form, the RE should sign the report. All reports must also have the name or signature, or both, of the technician performing the tests shown. Material reports should be characterized by bid item number unless otherwise indicated in this Manual or agreed upon by the RE, RME, and District Engineer. Reports should be made available to the Contractor upon request.

Additional Materials information may be found on the [Materials Division](#) web page. (See also *Materials Database* under Work and Materials)

## Work and Materials

(Reference Section [01455](#), Policies and Procedures [08B-31](#) and 23 CFR [637](#))

The service life of a project is dependent upon the quality of the materials used in its construction as well as the methods employed during construction. 23 CFR [637](#) cites requirements for Quality Assurance Procedures for Construction. In addition to other requirements each State Transportation Department (STD) must develop a Quality Assurance Program, Independent Assurance Program, and laboratory and personnel qualification requirements. Materials acceptance requirements including point of acceptance, test methods, acceptance documentation and reports, sampling and testing frequencies, etc., are established in the [MS&TR](#) or contract special provisions. The Department's Quality Assurance Program, Independent Assurance Program, Laboratory Qualification Program (LQP), and Transportation Technician Qualification Program (TTQP) are described in the [Materials Manual of Instruction \(MMOI\)](#).

The inspection staff, including the project materials lab and technicians, must have a thorough understanding of the [MS&TR](#) and the [MMOI](#). They are responsible for inspecting, sampling, and testing of materials as required by the contract specifications and the [MS&TR](#). They are directly responsible to the RE and operate under the supervision of the RE or the Field Engineer. Inspectors must meet qualification requirements of the [Inspector Qualification Program \(IQP\)](#). Laboratories and technicians must meet qualification requirements of [1013](#) and [1014](#) of the [MMOI](#), respectively. They are responsible for keeping qualifications and certifications current. It is the responsibility of the RE to make sure inspectors, labs, and technicians are properly qualified and certified in the respective fields before performing sampling and testing.

The RE and/or Field Engineer should be aware of the Contractor's schedule to arrange for material inspection, sampling, and testing on a daily basis. The Field Engineer should coordinate testing activities throughout the day to maximize efficiency while meeting the [MS&TR](#). It is important to note that it is the

Contractor’s responsibility to notify project staff and request the required sampling and testing. The RE and Contractor should use a notification and request system to coordinate inspection, sampling, and testing activities. Material incorporated without required documentation, sampling, and testing should be removed, replaced, or reprocessed so the necessary inspection, sampling, and testing may be performed at the proper frequency and point of acceptance.

Pre-activity meetings are an important and useful tool for understanding and coordinating sampling and testing requirements.

### **Pre-Activity Meetings**

Pre-activity meetings should be used as determined by the RE. At a minimum, project activities that include the incorporation of significant quantities of material, rarely used or new processes or in-depth acceptance testing should be preceded by a pre-activity meeting. The meeting should be used to review the contract specifications governing the work, [MS&TR](#), testing procedures, Contractor methods, coordination, and special lines of communication.



Pre-Activity meetings should include the participation of the RE, Field Engineer, materials technician(s), inspection staff, and Contractor staff - including foremen, superintendent(s), Field Engineer(s), along with any subcontractors involved in the particular activity. RMEs and other appropriate region support staff should also be invited. The Contractor should lead the pre-activity meeting with the RE providing input, interpretation, and clarification as needed.

### **Acceptance Determination**

Specifications establish that only materials conforming to the requirements of the contract are to be used and that the Contractor is responsible for furnishing materials meeting the specified requirements. Materials, unless otherwise permitted by the specifications, cannot be incorporated in the work until properly documented, tested and approved by the proper authority. The Department must base the acceptance of materials incorporated in the work on process inspection, material use, sampling, testing, and measurements to provide complete and positive verification of compliance.

# CONSTRUCTION MANUAL OF INSTRUCTION

Without this verification of compliance the Department cannot fulfill its responsibilities under the contract for the commitment of public funds. The RE must determine and make record that all material has been properly accepted before permitting its use in the work and issuing payment to the Contractor.

The [MS&TR](#) and [MMOI](#) identify three types of acceptance determinations:

1. Acceptance based on manufacturer information. (See also *Manufacturer's Information/Certifications and Submittals* under Work and Materials)
2. Acceptance based on [Quality Management Plans \(QMPs\)](#). (For more on this type of acceptance, see *Quality Management Plans/Qualified Suppliers*)
3. Acceptance based on sampling and testing. (For more on this type of acceptance, see *Sampling and Testing*)

Final project materials acceptance is documented using UDOT Form [C-196](#) - Project Materials Certification (Reference Policies and Procedures [08B-31](#)). Whenever materials not meeting contract specifications (reject) are allowed to remain in place on a project or the acceptance decision differs from the Department's acceptance program or procedures, both the RME and District Engineer must concur in this decision. Concurrence is documented using Form [C-196](#) (Project Materials Certification) and [C-196 Attachment A](#) (Exceptions to the approved plans, specifications, and QA program).

## **Manufacturer's Information/Certifications and Submittals**

(Reference Section [01455](#))

Contract specifications identify required certifications and submittals. Where the contract specifications are silent and acceptance is not covered by the [MS&TR](#) or a [QMP](#), the RE is responsible for documenting the material meets contract specifications. The [MMOI](#) allows three types of acceptance documentation based on manufacturer's information:

1. Manufacturer's certificate of compliance (COC);
2. Manufacturer's product data, specifications, and recommended installation instructions; and
3. Manufacturer product labeling.

Certificates of compliance must meet the requirements of Section [01455](#). It is important COCs clearly state



what contract specifications and requirements are met. Certificates should be signed by a manufacturer's representative who is in a position to legally bind the manufacturer. Note it is extremely rare that manufacturer's will recognize a supplier as an individual who can legally bind them. The following Standard Specifications cite COCs as acceptance for some materials:

- 02078 Asphalt Overlay Fabric
- 02610 Pipe, Pipe-Arch, Structural Plate Pipe, and Structural Pipe Arch (for joint pressure requirements)
- 02622 Underdrain
- 02633 Concrete Drainage Structures
- 02645 Precast Concrete Box and Three-Sided Culvert Structures (for grout)
- 02735 Micro-Surfacing (for mineral filler & emulsion)
- 02789 Slurry Seal Coat (for mineral filler & emulsion)
- 02841 W-Beam Guardrail
- 02893 Overhead Sign/VMS Structure (for nut proof load tests)
- 03211 Reinforcing Steel and Welded Wire
- 03311 Joint Closure (for reinforcing steel)
- 03338 Precast Substructure Elements (for grout)
- 03339 Precast Concrete Deck Panel (for grout)
- 03340 Precast Approach Slab (for grout)
- 03372 Thin Bonded Polymer Overlay (for all materials)
- 03921 Concrete Slope Protection Repair
- 05120 Structural Steel (for nut, bolt, and washer proof tests)
- 05822 Bearings (for polytetrafluoroethylene (PTFE) coefficient of friction values)
- 05832 Expansion Joint (for AISC Simple Bridge Structure (SBR))
- 05835 Modular Expansion Joint ((for AISC Simple Bridge Structure (SBR))
- 07921 Sealing Existing Concrete Slope Protection Joints
- 09981 Concrete Coating

Manufacturer's product data must indicate the material meets the applicable contract specification requirements, including [ASTM](#) or [AASHTO](#) specifications. The RE must also verify the material delivered to the site is the material represented by and from the manufacturer corresponding to the product data. This may be accomplished through Contractor invoices identified with the project number and description, which can be matched to the materials described in the product data, by visual observation ([VIR](#) or inspector's documentation) of labeling, or markings indicating the manufacturer and product match the manufacturer's description and product data information.

# CONSTRUCTION MANUAL OF INSTRUCTION



Note that the Contractor must follow the manufacturer's recommended installation instructions unless different methods are specified in the contract.

Product labeling source documentation is the material delivered to the project site. The labeling must indicate the material meets the applicable contract specification requirements, including [ASTM](#) or [AASHTO](#) specifications. Labeling should be documented through photographs, [visual inspection report \(VIR\)](#), or inspector daily report notes.

Submittals required by the contract must be reviewed by the RE and other individuals if required by the contract specifications. The RE must review the submittals for conformance with the contract requirements. Reviews

must be done within the timeframes specified in the contract and submittals returned to the Contractor as approved, approved with comments, or rejected with comments. It is acceptable to use any of the following terms or phrases when reviewing documents: Approved; Accepted; or Authorized for use. Any of these indicate the document has been reviewed for conformance to the contract requirements. After review, the RE must mark the submittal with the appropriate term or phrase and date and sign the document before returning it to the Contractor and including in the project file.

The Contractor should indicate which bid items each certification or submittal is intended for. The RE should verify the correct bid items are marked on the document before including it in the project file. Some certifications indicate a quantity with units of measurement that don't necessarily correspond to the bid item units. For these certifications, the RE should document the converted bid item quantity, showing calculations used to determine the bid item quantity represented by the certification, and include this documentation along with the certification.

The RE is expected to develop and maintain a certification and submittal tracking system. For submittals, a complete list of all required submittals should be developed and shared with the Contractor to facilitate timely submission and efficient contract closeout. As submittals are received, the list is updated to indicate which submittals have been received, approved, rejected, etc. with dates of receipt and return. For certifications, a similar system is necessary that also tracks the quantity of certifications by the bid item unit of measure.

Certifications and submittals are required before material is incorporated into the project. There are instances when the Contractor intends to incorporate material without the necessary certifications,

submittals, and approvals. The RE must notify the Contractor of their contractual obligation to provide the necessary documentation before incorporation and if they continue, they do so at their risk. This notification must be documented by the RE. Payment for materials or work without the required certifications, submittals, or sampling and testing is not permitted. Sufficient documentation must be included in the project file to document the acceptance determination before issuing payment.

### **Quality Management Plans/Qualified Suppliers**

The Central Materials group accepts certain materials from qualified suppliers through their compliance with [Quality Management Plans \(QMPs\)](#). Refer to the [Qualified Suppliers](#) site for a complete listing. Many of these materials require additional sampling and testing, Manufacturer’s information, or both, as required by the contract specifications.

Part 2 of the [MS&TR](#) identifies materials that the Central Materials Division has determined to be acceptable through a combination of inspection, testing, and [QMPs](#). These materials include: precast/pre-stressed concrete structures, asphalt emulsions, hydrated lime, overhead sign structures, portland cement, etc. Refer to the [MS&TR Part 2](#) for a complete listing of materials. Note that samples of any material may be taken at any time. Any material found to be out of specification must be rejected and removed from the project site at the Contractor’s expense or be subject to applicable price adjustments.

### **Sampling and Testing**

The [MS&TR](#) and contract specifications identify materials which are accepted through sampling and testing and specify the required test method, lot size, frequency, point of acceptance, and report/form. The RE is responsible for ensuring the minimum frequencies are met and the required test method and reporting platform are used. Labs and technicians performing sampling and testing must meet qualification requirements of [1013](#) and [1014](#) of the [MMOI](#), respectively.

The [MMOI](#) provides two options for acceptance determinations based on sampling and testing. Option 1 includes traditional acceptance



# CONSTRUCTION MANUAL OF INSTRUCTION

testing conducted by Department personnel or a Department-designated agent in Department-qualified labs according to the [MS&TR](#) and contract specifications. Sampling and testing activities are validated by independent assurance (IA) activities according to [1012](#) of the [MMOI](#). IA sampling and testing is performed by Department-qualified lab personnel or a Department-designated agent in qualified testing labs.

Option 2 includes non-traditional acceptance testing which includes quality control (QC) test results in the acceptance decision. This allows using all available test results for the best statistical evaluation of acceptance properties. QC test results are used in the acceptance decision only when the Department's verification sampling and testing and IA programs validate the results. The Department compares the test results statistically, which indicates whether the results contained in each set of data are consistent. The [MMOI](#) details additional requirements when using option 2, including an approved QC Plan and verification and validation testing.

It is important the RE and Field Engineer be familiar with the [MMOI](#) and the two options allowed for sampling and testing acceptance. Design-Build (DB) projects typically involve option 2 and require a detailed quality control and management plan before starting work.

## ***Inspecting Work and Materials***

Proper inspection requires good judgment, diplomacy, common sense, and a thorough knowledge of the work, plans, and specifications. It is the duty and authority of all inspectors to enforce the specifications. When differences in interpretation arise with the Contractor, the RE will decide the matter. In the event of materials related disputes, involve the RME and follow the escalation process as described in the [UDOT/AGC Partnering Field Guide](#) and Section [01456](#).

The conduct of relations with the Contractor should be fair, courteous, and based on sound judgment backed up by specifications and Department policy. The RE's decisions should be firmly conveyed to the Contractor without personal opinions. Good relations with the Contractor should be promoted by advising of unacceptable work while the operation is in progress, rather than waiting until the work is completed and then requiring its removal or price reduction.

The Department does not manage the Contractor's operations. All instructions regarding the work should be given to the Contractor's superintendent, rather than the Contractor's workers or subcontractors. Project personnel should not make derogatory remarks about the organization, personnel, equipment, the Contractor's methods, or subcontractors.

Project personnel should fulfill any reasonable Contractor request that will allow accomplishment of work in accordance with the contract provisions and without delay, but should not perform tasks that are the responsibility of the Contractor or subcontractors.

The inspector should always bear in mind that the management of the work is the Contractor's business. However, if any methods are employed which the inspector has reason to believe will impair the quality of the finished job, the Contractor will be advised accordingly and the RE 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 will in no way attempt to supervise work for the Contractor or become obligated to the Contractor or their personnel.

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 seem to render it impractical to enforce the specifications, the inspector will contact the RE immediately.

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 done. If anything is found which is not fully understood, the inspector will consult with the RE.

## UTAH DEPARTMENT OF TRANSPORTATION INSPECTOR'S DAILY REPORT

***NOTE: PRIOR TO STARTING ANY INSPECTION ON A PROJECT, ALWAYS REVIEW AND HAVE IN YOUR POSSESSION THE PROJECT SPECIFICATIONS, STANDARD DRAWINGS, AND PROJECT SCHEDULE PERTAINING TO THE SPECIFIC ITEMS INSPECTED!!!***

<b>PIN No.:</b>	<b>Project No:</b>	<b>Project Name:</b>	
<b>Prime Contractor:</b>			
<b>Project Time:</b> <input type="checkbox"/> Working Day <input type="checkbox"/> Calendar Day <input type="checkbox"/> Completion Date		<b>Date:</b>	<b>Day Of Week</b> S M T W T F S
<b>Prime Contractor Hrs. Worked:</b> From _____ AM/PM to _____ AM/PM Shift: _____			<b>Weather:</b>
<b>Contractor/Subcontractors:</b>	<b>Hrs:</b> _____	<b>Supervisor:</b> _____	<b>Skilled:</b> _____ <b>Unskilled:</b> _____

# CONSTRUCTION MANUAL OF INSTRUCTION

The Contractor is responsible to provide assistance and safe access to all parts of the work to allow the RE, Field Engineer, inspection staff, or other authorized representatives to obtain a complete and detailed inspection. If work is performed or materials used and covered without inspection, the RE may order the Contractor to remove and replace or uncover work at no cost to the Department to allow adequate inspection. The RE must understand the Department pays for the additional cost to uncover, remove and replace or make good the work removed as extra work if the uncovered work is found acceptable. If work is found to be unacceptable, the Department is not responsible for any extra work costs. (Reference Section [00727](#), Work Inspection)

Inspections should be documented using an applicable Department form, [visual inspection form \(VIR\)](#), or the inspection section of the [Inspector's Daily Report \(IDR\)](#). Any of these methods are acceptable. Item comments in PDBS are also acceptable in lieu of IDRs. The individual performing the inspection should document placement practices, note specifics about the work or materials documenting contract conformance, and sign and date the form. For PDBS entries, the user name should be replaced by the name of the individual who performed the inspection. Similar to Inspector Daily Report entries, inspection notes should be factual, concise, complete, and legible.

The representative of any government agency, utility, or railroad company that pays a portion of the contract cost may inspect that portion of the work. The right to inspect does not make the entity a party to the contract and does not interfere with the rights of parties to the contract.

## **Risk Based Inspection**

Risk based inspection (RBI) is a method used to prioritize and plan inspection activities based on risk. This approach was initially developed by the energy industry, related to pipeline and offshore drilling rigs and structures. Consequently, many of the standards and practices describing the methodologies and implementation of RBI are found in American Petroleum Institute (API) standards. Essentially, items with a high probability of failure



and high consequence (high risk) are assigned a higher priority for inspection than items potentially having the same probability of failure, but for which a failure has low consequences (low risk). RBI can be used to make the best use of inspection resources and activities based on risk analysis and help to ensure inspection methods and practices are based on an understanding of potential failure modes.

Over the last several years, state departments of transportation (DOTs) have seen an increase in construction projects while experiencing reduced resources and inspection staff. In response to this issue, some states have outsourced inspection of construction activities and have adopted quality control and quality assurance certification programs. One approach to help reduce inspection workload is the prioritizing of construction activities for inspection. With reduced inspection potentially resulting in reduced service life and higher maintenance costs, inspection resources should be assigned to those activities having significant risk consequences from reduced inspection. The objective of RBI is to allow for an efficient allocation of available inspection resources to minimize the risks associated with reduced inspection.

Ideally, risk consequences associated with reduced inspection are identified for various construction activities. These risk consequences include reduced service life, increased maintenance costs, reduced safety, or other factors. The greater the risk impacts are due to reduced inspection, the higher the priority would be for inspection of that activity. In other words, resource allocation is based on the risk impacts. Prioritized construction activities for inspection can assist REs and PMs in better allocating limited inspection resources while reducing the risks resulting from reduced inspection.

### ***Non-Conforming Work or Material***

Materials or workmanship not in conformance with the contract plans and specifications are unacceptable. The inspection staff and Field Engineer are responsible for immediately notifying the Contractor's foreman or superintendent when non-conforming work is identified. The lead inspector or person in charge of inspection is responsible for immediately notifying the RE. The RE is responsible for determining work or material acceptability and must immediately provide written notification to the Contractor when work or material is found to be unacceptable. The RME and District Engineer should be copied on all notifications of unacceptable work or material and kept informed about any potential substandard work or material issues.

Form [C-106](#) (Notice of Unacceptable Work or Material) should be used to notify the Contractor of any non-conforming work or material. Separate forms should be used for each occurrence. The RE should complete this form according to instruction and transmit to the Contractor. It is expected the RE will notify the

# CONSTRUCTION MANUAL OF INSTRUCTION

Contractor verbally and discuss any relevant information concerning the non-conforming work or material before issuing formal written notification.

The Contractor has three working days after receipt of the Form [C-106](#) to either accept the RE's direction or request consideration of an alternative action. A request for an alternative action requires the Contractor to submit an engineering analysis as specified in Section [01456](#). If the Contractor does not respond within three days of the notification, the RE's direction is considered to be accepted. Form [C-106](#) is not used for incentives, disincentives, or pay factors applied in accordance with contract specifications. The Contractor is kept informed of incentives, disincentives, or pay factors in accordance with contract specifications through the transmittal of test results and acceptance reports by the RE.

The RE, in collaboration with the RME and District Engineer, determines whether unacceptable work or material is removed and replaced, corrected, or allowed to remain incorporated in the project at an adjusted price. (Refer to Section [00727](#), Plans and Specifications Conformance) The RE uses specified price adjustments for payment when the contract provides for these adjustments. In the absence of specified price adjustments, the RE determines an appropriate price adjustment for unacceptable work or material that is allowed to remain in place.

When allowing unacceptable work or material to remain in place, the Department acknowledges receiving some benefit or value for the work. In most cases, the Department will pay at least 50 percent of full payment for acceptable work. However, there may be cases where the Department will pay less than 50% and may in fact allow the work or material to remain in place at no cost to the Department. Each situation demands a thorough and independent evaluation.

Allowing unacceptable work or materials to remain in place requires an engineering analysis as specified in Section [01456](#) for the review, approval, and concurrence of the RME and District Engineer. It is preferred their concurrence is documented on the Form [C-106](#) by signature. However, concurrence may also be documented by correspondence such as email. For contract closeout, all unacceptable work remaining in place must be listed on Form [C-196 Attachment A](#). The RE should prepare and maintain this documentation throughout the project, rather than waiting until contract closeout to complete.

Regardless of the action determined by the RE for unacceptable work or material, the RE must clearly document how the determination was made. This documentation should be attached to the Form [C-106](#).

## **Exceptions to Plans, Specifications and Materials Acceptance Program**

In addition to unacceptable materials or work, the RE must document all exceptions and deviations from the plans, specifications, and [materials acceptance program \(MAP\)](#). This may include testing materials at a reduced frequency, not following specified procedures, or construction changes to plan details. There are many other circumstances that may result in exceptions. All exceptions must be documented on Form [C-196 Attachment A](#), throughout construction, with the form and attachment being submitted at the end of the project for final review and the concurrence and approval of the RME and District Engineer. The RE should document and coordinate all exceptions with these individuals throughout construction to avoid delaying contract closeout or non-participation on Federally-funded projects.

## **Buy America (Federal-aid Projects Only)**

(Reference Section [01455](#), 23 CFR [635.410](#), and [FHWA Contract Administration Core Curriculum Manual and Reference Guide – Other Contract Provisions – Buy America](#))

Buy America provisions require that no Federal-aid highway construction project is to be authorized for advertisement or otherwise authorized to proceed unless the project either includes no permanently incorporated steel or iron materials or, if steel or iron materials are to be used, all manufacturing processes, including application of a coating for these materials, must occur in the United States. Coating includes all processes which protect or enhance the value of the material to which the coating is applied. Alternatively, if a Contractor submits a bid that is based on furnishing foreign steel and iron and the lowest bid based on furnishing domestic steel and iron exceeds that bid by more than 25 percent, that Contractor may incorporate foreign steel and iron.

Manufacturing processes include, but are not limited to, melting, rolling, extruding, machining, bending, grinding, drilling, and coating. Raw iron ore may be of foreign origin but all subsequent manufacturing processes must occur in the United States. Because the domestic supply of pig iron and processed, pelletized, and reduced iron ore is not adequate, a nationwide waiver of the Buy America requirements

was granted for these specific iron components in 1995 and remains in effect. Pig iron is made from molten iron which has been cast in the shape of “pigs”, as it comes from a blast furnace. Processing, pelletizing, and reducing



# CONSTRUCTION MANUAL OF INSTRUCTION

iron ore are methods by which raw iron ore is improved to produce enriched ore. Items not specifically included in the waiver remain subject to the Buy America requirements. This waiver permits the use of pig iron and processed, pelletized, and reduced iron ore manufactured outside of the United States to be used in the domestic manufacturing process for steel and/or iron materials used in Federal-aid highway construction projects.

Buy America requirements apply to all steel or iron materials that are “permanently incorporated” in a project. Permanent incorporation includes items specified in the contract documents (or bid options specified in the contract documents) that must remain in place at the end of the project. It includes items that are impractical to remove due to design, construction staging, or other functional requirements. If an item specified in the contract documents is impossible or impractical to remove, then Buy America provisions apply.

Other steel or iron items specified in the contract documents not required to be permanently incorporated are considered temporary and not subject to Buy America. These include items specified in the contract documents for one stage of the project but that, for all practical purposes, may be removed during a subsequent phase (or left in place if requested by the Contractor and approved by the RE).



A different regulation entitled the “Buy American Act” also exists. This regulation applies to all federal direct procurements and should not be confused with the Buy America Act. The Buy American Act ([41 USC 10a-c](#)) has completely different rules than the Buy America Act ([23 USC 313](#), [23 CFR 635.410](#)). For example, the Buy American Act recognizes certain trade agreements with the United States. Because of the differences between regulations, it is possible to have material meeting the Buy American Act that does not meet, or comply with, the Buy America Act. The RE should review certifications carefully to assure the Buy American Act is not confused with the Buy America Act.

Contractors indicate their intention to use either foreign or domestic steel or iron at the time of bid. This is included in the contract special provisions at the end of the bidding schedule. If neither option is selected, the domestic option is assumed. If the intention to provide domestic steel and iron is either selected or assumed, the Contractor must comply with the Buy America provisions and the RE is responsible for obtaining all related documentation to verify compliance with the contract’s Buy America provisions.

Specification Section [01455](#) requires the Contractor to submit certificates of compliance for all products manufactured with steel or iron and specifies the minimum information requirements for the certificates of compliance. Mill test reports and/or certificates of compliance are required from each manufacturer or fabricator involved in the overall manufacturing process of the product. COCs from suppliers are not allowed. Certificates must include a means of tracking material throughout the manufacturing process and identify the quantity represented. Similar to other certifications, the RE must calculate and document the equivalent bid item quantity the certification represents and include this documentation with the certification if the unit of measure on the certification is different or not representative of the bid item unit. It is important to note that it is the Contractor’s responsibility to obtain these certifications from their manufacturers and submit them to the RE. The RE may assist in this effort, but it is not the RE’s responsibility. The RE is responsible for collecting certifications from the Contractor and reviewing them to assure materials are of domestic origin, each manufacturing step is represented, and the minimum documentation requirements of the contract are met.

If submitted certifications are not sufficient to document compliance with the Buy America provisions, the material must be assumed to be foreign. The cost of all foreign steel and iron as delivered to the site must be documented by invoices or quotes for equivalent materials and the total amount continuously monitored. The total amount of foreign steel and iron cannot exceed 0.1 percent of the total contract amount or \$2,500, whichever is greater. For documenting the use of foreign iron and steel materials on Federal-aid projects, use the RE should use the [C-500](#), Buy America Foreign Steel Documentation form.

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Buy America documentation for state-furnished material is maintained by Traffic and Safety and does not need to be maintained by the RE in the project office. Documentation for steel girders is compiled by the Department's Pre-Fabrication Testing Assurance group. A copy of the documentation is available upon request; however, it is not necessary for the RE to maintain a copy of this documentation in the project office. For all pre-cast concrete items including girders, barrier, noise walls, drainage structures, etc., the UDOT Central Materials Laboratory will collect, maintain, and furnish all Buy America documentation. These items must be accompanied by the Department's R256 Inspection/Test Report when delivered to projects. This report will indicate the material has been verified to comply with Buy America by the Central Materials Laboratory and should be kept in the project record. If the report does not indicate compliance, the RE must verify compliance by contacting the Central Materials Laboratory.

Buy America applies to donated materials if they are permanently incorporated into the project and the RE is responsible for obtaining the Buy America documentation.

Buy America also applies to all third party utility work if the work uses Federal-aid funds. The RE must contact the PM to identify which utility contracts use Federal-aid funding. For those that do, it is the RE's responsibility to collect and maintain Buy America documentation for steel and iron materials. As with all other work, materials should not be incorporated or paid for until the required documentation has been received. Utility company compliance with Buy America can potentially be difficult to document or verify. It is imperative the RE discuss the requirements with the utility company and work proactively with the PM on funding options if there are potential issues.

Although waivers to Buy America provisions are possible pursuant to Federal regulation, they are rarely granted and must be obtained before advertising. No waivers are allowed during construction and Buy America provisions cannot be removed from a contract through a change order.

During the preconstruction phase, the RE should review the plans and specifications and identify all bid items which may include steel or iron products. When performing this review, the RE must consider the bid item and its components. FHWA considers a manufactured product subject to Buy America requirements if the product consists of at least 90% steel or iron content when it is delivered to the job site for installation. Miscellaneous steel or iron components, subcomponents, and hardware necessary to encase, assemble and construct many products (or manufactured components not predominantly steel or iron) are not subject to Buy America. Examples include, but are not limited to, cabinets, covers, shelves, clamps, fittings, sleeves, washers, bolts, nuts, screws, tie wire, spacers, chairs, lifting hooks, faucets, door hinges, etc. (Reference [Buy America Memorandum December 21, 2012, Clarification of Manufactured Products](#))

The Field Engineer and inspection staff must also be aware of items that include steel or iron. They are expected to communicate closely with the RE when any steel or iron is being incorporated to verify certifications have been received before incorporation in the work. Most steel and iron products indicate the place of manufacture somewhere on the product. Inspection staff should review products whenever possible to verify material is not foreign. If foreign material is identified, the RE must be notified immediately.

In the event of questions concerning Buy America, contact either the District Engineer or Deputy Construction Engineer assigned to the project.

### **Targets/Mix Designs**

The contract specifies which materials require targets and/or mix designs. When targets are required, the specifications will also include a band and tolerance. The target must be within the band and the allowable interval is then calculated using the tolerance and target. It is possible and acceptable for the allowed interval to go beyond the band; however, the target must be within the band.

When mix designs are required, the Contractor must submit them to the RE before use. The RE reviews and processes them accordingly. Some mix designs may be reviewed and approved by the RE, while others must be reviewed and approved by the RME. The table below summarizes review and approval requirements.

### **Mix Design Review and Approval Authority**

Material	Specification	Review/Approval Authority
Grout for grouted rip rap	02374	Region Materials Engineer
Lean Concrete Base Course	02712	Region Materials Engineer
Micro-surfacing	02735	RE
Hot mix asphalt	02741	Region Materials Engineer
Hot mix asphalt – Bike and Pedestrian Paths	02743	Region Materials Engineer
Bonded Wearing Course	02787	Region Materials Engineer
Asphalt Slurry Seal Coat	02789	RE
Portland Cement Concrete <sup>1</sup>	03055	Region Materials Engineer
Self-Consolidating Concrete <sup>1</sup>	03056	Region Materials Engineer

<sup>1</sup> Mix Designs for precast products are reviewed and approved by the Central Materials Concrete Engineer.

Targets and mix designs must be approved before material placement. The RE is responsible for making certain production does not begin until they are approved. All approved targets and mix designs should

# CONSTRUCTION MANUAL OF INSTRUCTION

be provided to the inspection staff, including the materials lab and technicians. Mix designs in particular include important details such as mix proportions, admixtures, mixing and compaction temperatures, and approved sources. Concrete mix is required to meet the air content, temperature, slump, and strength requirements of the contract specifications, regardless of what the mix design indicates.

## **Materials Database**

The [UDOT Materials Database](#) (or Database) includes test reports and approved mix designs for pavement marking paint, reinforcing steel, asphalt materials, asphalt binder, and concrete. The Database also includes modules for test data input and report generation for certain materials and the creation of sample labels and witness forms, which allow either blank or project specific labels and witness forms to be produced.

### **Pavement Marking Paint**

REs are expected to use this module to verify pavement marking paint has been previously sampled by the Department and meets specifications. The RE should generate sample labels and witness forms for pavement marking paint from the Database and include test reports from this module in the project record.

### **Asphalt Materials**

This module can be used to access project specific mix design verification and approval letters. HMA and surfacing modules are used to generate acceptance reports showing specified incentive and disincentive amounts.

### **Asphalt Binder**

REs are expected to use this module to create sample IDs and generate sample labels and witness forms for binder samples. These samples are tested by the Department's Central Materials Lab with the test results filed in the Database. REs should check the Database on a regular basis to verify asphalt binder samples meet the project specifications. Before contract completion, the RE should include the Database's asphalt binder project report in the project record.



## Concrete

REs are expected to use this module to verify approval of mix designs and print approval letters. REs should print, sign, and file approval letters for all mix designs used on the project. Mix designs must be approved for use in the applicable region. Mix designs approved in other regions must be forwarded to the RME for approval before use on the project. Mix design documentation, including trial batch and approval history, can also be retrieved in this module.

When sample labels are created, a sample ID is generated. The Department’s various labs expect samples for all sample IDs; therefore, if an improper or incorrect sample ID is created but not used, the RE should notify the appropriate lab or the Material’s Database manager so the incorrect and unnecessary sample ID can be deleted.

Current procedures allow Department REs to enter test results into the Database for project-generated results for concrete. Consultant REs should continue to use Department test reports and forms until further notice.

The Database includes an “Issue” link on the home page which allows users to notify the Department of problems encountered during Database use. Users are encouraged to use this link to keep the Database as functional and efficient as possible. The home page also includes the current Database manager’s contact information. The Database can limit user access and rights by username. If a user needs their access and rights updated, they should contact the Database manager.

## State Furnished Materials

Signal, lighting, and ATMS structures and equipment are typically state-furnished. These materials must be ordered from State Furnished Materials. The Contractor is responsible for informing the RE when state-furnished materials are needed and the project plans generally include advanced notification requirements the Contractor must meet. Project plans also typically include a state-furnished material summary. Once notified, the RE is responsible for

STATE FURNISHED ITEMS		UTDOT Contacts		Designer:	
Submit form to: <a href="mailto:sfmaterials@utah.gov">sfmaterials@utah.gov</a> by Final Review or sooner. CC: Project Manager and Resident Engineer Questions? Call Phil Pettersson (801) 419-1462		R.E. Ph: Fax:			
Pin #: Date: Project #: Project Name: Signal Location:		P.M. Ph: Fax:			Ph: Fax:
Accounting Line		Special Orders: <input type="checkbox"/> Powder Coat Finish Poles Color:		Electrical Sub-Contractor:	
Unit (Org): Approp: Activity: Function: Program # (CID) Phase:		Drop Ship Poles: 100 day lead time <input type="checkbox"/> Yes <input type="checkbox"/> No	Drop Ship Address		Ph: Fax:
Commodity Code	Description	Units	Quan	Unit Price	Amount
55085000201	MAST ARM SIGNAL POLE (30' TO 65')	EACH		\$2,175.00	
55085000204	MAST ARM SIGNAL POLE (70' TO 75')	EACH		\$2,494.00	
55085000203	DUAL MAST ARM SIGNAL POLE (30' TO 45')	EACH		\$2,500.00	
5508500208H	HARDWARE KIT, UPRIGHT POLE CAP (ONLY IF NOT USING LUM. EXTENSIONS)	EACH		\$40.00	
5508500201H	HARDWARE KIT, SIGNAL POLE UPRIGHT	EACH		\$96.00	
55085000311	30' MAST ARM (FIELD CUT TO 25')	EACH		\$1,010.00	
55085000311	30' MAST ARM	EACH		\$1,010.00	
55085000312	35' MAST ARM	EACH		\$1,050.00	
5508500311H	HARDWARE KIT, 30/35' MAST ARM	EACH		\$54.00	
55085000313	40' MAST ARM	EACH		\$1,412.00	
5508500313H	HARDWARE KIT, 40' (25') MAST ARM	EACH		\$54.00	
55085000314	45' MAST ARM BASE SECTION	EACH		\$1,225.00	

# CONSTRUCTION MANUAL OF INSTRUCTION

coordinating the material ordering. Often the designer completes the order form and the RE must get the order form from the designer and submit it. If the designer does not complete the order form, the RE is responsible for completing it and coordinating with the designer to make certain the information on the order form is accurate. Order forms should be submitted through State Furnished Materials at [sfmaterials@utah.gov](mailto:sfmaterials@utah.gov). Order forms and contact information for the State Furnished Materials Coordinator can be found at [State Furnished Materials Order Forms](#).

## Utilities and Railroads

(Reference Section [00725](#), [00727](#), and [01721](#), Policies and Procedures [08E-02](#), [08B-29](#), 23 CFR [645](#), 49 CFR [18.36](#), [UDOT Railroad Coordination MOI](#), [Contractor Orientation Railroad Courses Contractor Safety Website](#), and [FHWA Contract Administration Core Curriculum Manual and Reference Guide – Salvage Credits](#))

When utility facilities are affected by the construction or improvement of a highway, the utility companies are obligated to relocate, adjust, or protect, or a combination thereof, such portions or sections of their installations as necessary to accommodate the construction. In some instances the Department shares in the cost of such work. In others it may be necessary for the Department to bear the total cost of such work.

When the cost of the necessary relocation and adjustment of a utility is totally or partially an obligation of the Department, a reimbursement agreement is negotiated between the Department and utility company for performing the relocation work. In some cases the utility relocation work is accomplished by including the necessary items of work in the general contract on a unit price basis.

The RE must be familiar with the requirements included within reimbursement agreements established for purposes of constructing the project. The RE should also make early contact with appropriate representatives from the involved utility companies and invite them to the project preconstruction conference to help facilitate and coordinate the scheduling of their work with the Contractor. Consideration should be given to establishing a weekly utility coordination meeting.

The RE should also consult and maintain regular communication with the Region Utility Coordinator during all utility work and work within or adjacent to railroad property.

The RE is responsible for maintaining daily records and performing physical inspection for all work accomplished by utility and Railroad Company forces. Safety training is required for all personnel working in the vicinity of railroad property ([Contractor Orientation Railroad Courses Contractor Safety Website](#)). In addition to the “Orientation for Contractor’s Safety” training required by Union Pacific Railroad (UPRR), all personnel employed by the Contractor and all subcontractors must complete a Utah Transit Authority (UTA)

specific safety training course when working near UTA track lines. To obtain UTA safety training, contact the Rail Safety Administrator, 900 North 500 West, Salt Lake City, Utah to schedule this mandatory training. Both courses are required to be completed annually.

Form [C-104 Daily](#) or Form [C-104 Weekly](#), Labor, Materials, and Equipment Record, is used to document the labor, materials, and equipment used in performing the work and must be signed by both the utility company and the RE or a designated representative. The RE must also record the salvage value of material removed and not incorporated into the new work. The value of salvaged material must be approved by FHWA and the RE should work with the District Engineer to obtain this approval. (See also *Salvaged Items* under PS&E Review)

Partial payment invoices from the utility company are forwarded to the RE, who must review and verify that the invoiced work is complete. The RE must return the reviewed invoices to the Contracts, Estimates, and Agreements Manager indicating whether or not the work is verified.

If additional work not covered by the original reimbursement agreement is found necessary to complete the relocation as planned, the RE is responsible for preparing a change order in PDBS for the additional work. Utility change orders are processed in the same manner as Contractor change orders. In conjunction with the change order, the RE must complete Form [C-118U](#), Utility Contract Overrun Funding Need (uCOFN), to request additional utility work funding.



Upon receipt of final payment invoices, the RE must complete Forms [C-193](#) (Utility Fiscal Review Report) and [C-193A](#) (Salvage Credit Report for Utilities and Railroads) and forward the complete reimbursement agreement information to the Region Contract Specialist. Complete documentation includes records, inspection notes, salvage material documentation, change orders, and other documents pertaining to the work, including any correspondence.

Policies and Procedures [08E-02](#) and [08B-29](#) also apply to work performed by railroad companies. Unless revised through special

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provision, railroad flagging and inspection costs are paid directly by the Department and deducted from payments to the Contractor. The RE is responsible for verifying railroad flagging and inspection costs are invoiced correctly.

Contract specifications require the Contractor to cooperate and coordinate their work with utility and railroad companies. They also require the Contractor to provide survey for utility companies to avoid conflicts with contract work (Reference Section [01721](#), Utilities). It is important the RE understands these requirements and documents the Contractor's compliance. Additional work and associated costs and delays are not compensable or excusable if the Contractor has not fulfilled their contractual obligations.

Buy America provisions apply to all utility reimbursement agreements which are partially or wholly Federally-funded. (See also *Buy America* under Work and Materials and *Utilities and Railroads* under Preconstruction)

## Progress and Final Payment

(Reference Section [01282](#) and [01284](#))

The RE prepares progress payments, referred to as partial estimates, at least once each month as work progresses. The RE and Contractor must agree to a Saturday closing date to be used throughout the project. This date should be determined before beginning work. More frequent payments may be made during any period when the RE determines the value of work performed during the period is sufficient to warrant a payment. No payment is made when the value of work is less than \$1,000.

Progress payments are based on the RE's estimate of the value of work completed during the period. Payment may be made for material on hand that is not yet incorporated into the project. Section [01282](#) specifies criteria that must be met for payment for material on hand. The Department deducts and retains 5 percent from the total value of work until after the entire contract has been completed in an acceptable manner.

Section [01284](#) applies to Federally-funded projects and requires payment of retention for subcontracted work upon satisfactory completion and acceptance by the RE. Detail 111 must be added to the ledger in PDBS and should be used for all subcontractor retention payments. The RE may prepare a semi-final estimate with the consent of the Surety, from which the Department retains 1.5 percent of the original contract amount when no less than 95 percent of the work has been completed. The Department certifies the remainder for payment, less all previous payments. Once a semi-final estimate has been processed, subcontractor retention payment cannot be processed with Detail 111; the Contractor is responsible for paying subcontractor retention with the retention released by the semi-final estimate.

When preparing progress payments, the RE must ensure payment is not made for material and work without complete acceptance documentation. In the event of incomplete documentation, the value for such material or work may be entered into PDDBS with a hold placed on the payment or no value entered. If the payment hold method is used, an equivalent payment release must be processed in PDDBS once acceptance documentation is received. The value of payment holds must equal the value of payment releases in PDDBS to close the contract. Progress payments must be reviewed and approved by the Contractor before the RE submits for processing. Before submitting the progress payment for processing, the Contractor's monthly schedule update must be accepted by the RE.



Price adjustments are documented in project accounting under the item and must include all supporting information.

Once the RE has received all required documentation and the Contractor has approved the progress payment, the RE forwards to the Contracts, Compliance and Certification Manager for processing.

Once the project has been accepted as specified in Section [00727](#), the RE prepares the final payment (referred to as the final estimate) of work performed. This is the last opportunity for the RE to review total quantities and values of work. A thorough review of the final payment must be completed and previous quantities and values of work adjusted if necessary. Once complete, the final payment is sent to the Contractor for review and approval.

The Contractor has 30 calendar days from the date of receiving the final estimate to submit quantity or price adjustment requests. The Contractor must submit an itemized written statement to the RE within this time period justifying the adjustment if the Contractor determines additional payment from the Department is due. The RE is responsible for reviewing this statement and revising the final payment if adjustment is warranted. If an itemized and complete statement is not submitted, the RE does not make any adjustments.

The RE must submit the final estimate for processing once the Contractor approves the final payment amount or does not object to the quantities and prices within 30 calendar days. Before submitting the final estimate for processing, the RE must get approval from the RCS and receive the consent of the Surety if a semi-final estimate was not processed.

If the amount due the Contractor exceeds the original contract amount, the RE must prepare a Form [C-118](#) - Construction Overrun Funding Need (COFN) requesting additional funding and submit it to the PM for approval. The form includes processing instructions depending upon the availability of funds. The RE is

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expected to anticipate the need for COFNs through budget management processes and proactively coordinate this with the PM. Subsequent COFN forms are required to be completed when Contractor payments exceed previously approved additional funding requests.

## Traffic Control

(Reference Section [00555](#) and [01554](#), Policies and Procedures [06C-61](#) and [08-05](#), [Utah Manual on Uniform Traffic Control Devices \(Utah MUTCD\)](#), and [Work Zone Operations – Best Practices Guidebook](#))

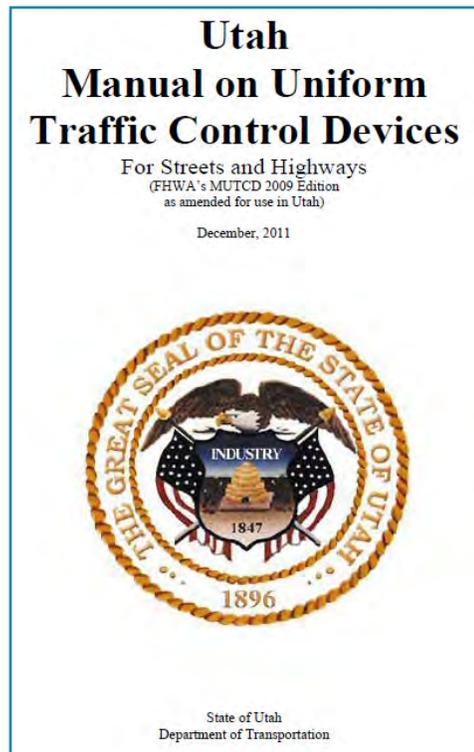
Section [01554](#) specifies the Contractor's responsibilities for traffic control and Section 00555M will include project specific limitations of operations. At a minimum, the Contractor must provide a traffic control maintainer and plans and is responsible for maintaining traffic control that provides for the safe and efficient movement of traffic through the work zone.

Even when the proposed traffic control plan seems straight forward and standard, all projects have location-specific factors that must be considered. Many projects include special provisions with additional limitations. Because of this, an authorized traffic control plan is required for each phase of construction, regardless of how standard the proposed plan seems. Before plan authorization, the RE is responsible for arranging and attending a mandatory meeting with the Contractor's Traffic Control designer, Traffic Control Maintainer, and the Region Traffic Engineer or designated representative. This meeting is to review the traffic control plan, discuss review comments, and answer questions. Hazard mitigation and positive protection issues covered under Department Standard Drawing [TC3B](#) should be identified and addressed with the Contractor during construction.

The Contractor is responsible for coordinating all plan modifications with the RE. Acceptable modifications should be shown in the traffic control plan and may be made with red-lined revisions or CAD revisions as determined by the RE. An authorized plan must be implemented before beginning work.

The RE is expected to coordinate activities with the Region Traffic Engineer related to the project traffic control plan, authorized revisions, and traffic incidents or issues.

The Contractor's traffic control maintainer is the designated point of contact for traffic control issues and is responsible for setting up, maintaining, inspecting, and removing traffic control devices. The maintainer



must be certified by the Department or the [American Traffic Safety Services Association \(ATSSA\)](#) and is required to be available at all times to address traffic control issues. Section [01554](#) includes minimum inspection requirements the Contractor must perform. The RE is required to have a means of monitoring compliance with these requirements and verifying that the Contractor’s inspection reports accurately represent traffic control conditions at the time of the inspections.

The RE and all project staff must be cognizant of the traffic control plan and traffic control standards. When issues are identified, they must contact the Contractor’s traffic control maintainer or the RE immediately. While everyone should take notice of the traffic control set up, the RE is encouraged to designate an individual responsible for daily traffic control inspection and documentation. This individual must have a current copy of the authorized traffic control plan and should perform daily inspections of the traffic control on the project. Inspections should document the current traffic control set up including where and what; which plan sheet is applicable; overall effectiveness and observed queues; accidents; and non-conforming items. Pictures and video are an effective means of providing supporting documentation.

The RE is responsible for making certain non-conforming items are corrected within a reasonable time. Ineffective traffic control resulting in queuing, accidents, traffic confusion, or unsafe work conditions must also be corrected immediately. Section [01554](#) requires price adjustments when traffic control is not in compliance with the traffic control plan or when the Contractor fails to meet all requirements cited or referenced in the specifications.

## Right of Way (ROW)

It is the responsibility of the RE to be familiar with all ROW documentation and ensure the terms and commitments in the ROW agreements are fulfilled. It is the responsibility of all project staff to be familiar with the ROW requirements and be alert to possible issues. When issues are suspected, notify the RE. Ideally, commitments which the Contractor must fulfill are included in the project plans and specifications. However, if this is not the case, the RE must make sure the Contractor is aware of these commitments and their responsibilities before commencing work. Developing a matrix of ROW parcels and commitments is recommended if one is not provided or included in the contract.



The Contractor is only permitted to work within cleared ROW and easements. If the Contractor needs to perform any work or disturbance outside of these limits, the Contractor must obtain right of entry agreements, property releases, and necessary environmental clearances. Contract specifications require

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the Contractor to survey and stake ROW limits. Project staff should be mindful of these limits and notify the RE if any work or disturbance occurs outside of them.

Before physical completion, the RE must verify all ROW commitments have been fulfilled and any damage to property beyond the ROW limits is repaired by the Contractor at no cost to the Department, or accepted by the property owner in its current condition. In addition to property outside the Department's ROW some features are located within the ROW, such as irrigation sprinklers in park strips. The RE must understand what features are included in the ROW commitments and document they are properly functioning before physical completion. If they are not properly functioning, the RE should determine the cause and have the Contractor repair the feature to the extent determined necessary by the RE.

## Civil Rights

(Reference [Federal Project Plan Sheets Part XII - Bid Conditions](#), Section [01284](#), and Policies and Procedures [08B-05](#), [08B-06](#), [08B-21](#), and [08B-110](#))

Civil Rights include the EEO, labor compliance, DBE and prompt payment programs. The Department has specifications and policies and procedures for assisting and documenting Contractor compliance with these programs.

### **Equal Employment Opportunity (EEO)**

The EEO program assures that employment in connection with all proposed projects approved on or after August 23, 1968, will be provided without regard to race, color, creed, sex, or national origin. To assist in providing this assurance, the RE is responsible for being familiar with [FHWA 1273](#); performing Labor and EEO interviews and collecting EEO policies that include commitments to provide a workplace free of harassment, intimidation, and coercion.

### **Labor Compliance**

(Reference Policies and Procedures [08B-21](#) and [FHWA 1273](#))

As part of the contract it is required that all labor regulations are followed. Requirements of the Contractor and Department regarding contract labor provisions are covered in the contract proposal and referenced regulations. A working knowledge of these regulations is expected of Department personnel to ensure Contractor compliance. The Department is responsible for enforcement of the contract labor provisions to the same extent as any other contract requirements. To ensure compliance, the RE is responsible for performing labor interviews, bulletin board reviews, and reviewing certified payrolls to verify compliance with the [Davis Bacon Act](#).



## Labor and EEO Interviews (Federal-aid Projects only)

Labor interviews are performed and reported on Form [C-136](#) (Labor and EEO Interview of Workers). The RE or appropriate designee should conduct interviews during the second and fourth week the Contractor or each subcontractor, or any combination thereof, is on the project. As each new subcontractor begins working on the site, employee interviews must be conducted. If the Contractor’s workforce is comprised of eight persons or less, all employees must be interviewed. Otherwise, a random number of employees should be interviewed and the RE should make certain that a representative from each craft is interviewed. Additionally, when possible, interviews of at least one minority, one female, and one Caucasian should

be performed. Form [C-136](#) includes complete instructions. It is important that the interviewee and the interviewer understand the information gathered during interviews is confidential. Only authorized staff has access to interview information. In order to ensure interview requirements are met, the RE must track the number and frequency of interviews and compare that to project records to verify all subcontractors working have been interviewed in accordance with this requirement.

## Harassment, Intimidation, and Coercion (HIC) Requirements (Federal-aid Projects only)

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 their EEO Policy a commitment to provide a workplace free of harassment, intimidation, and coercion; and take other affirmative actions as necessary to satisfy the requirements of 41 CFR 60 4.3.7a. UDOT will ensure compliance by conducting Contractor employee interviews (C-136) and asking the question; “have you been harassed, intimidated, or coerced at work?”

## Employee Training (Federal-aid Projects only)

All Federal-aid projects must evaluate the feasibility of assigning a training goal. Training goals are determined by the Department’s Civil Rights Division and are included in the contract [Federal Project Plan Sheets Part XIV – Specific Equal Employment Opportunity Responsibilities](#). Contractors are required to meet training goals and must submit Form [C-130](#), OJT Training Commitment, to the RE at the preconstruction conference. If a Contractor fails to meet the goal, fails to provide acceptable good faith efforts, or fails to get prior approval from the Civil Rights Division, liquidated damages are assessed. Damages are equal to the sum of the base plus fringe multiplied by the number of hours for each classification that the hours were short of the OJT Training Commitment amount on Form [C-130](#). If the goal is exceeded, a maximum of two times the total training goal is eligible for reimbursement.

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Credit is only given for certified apprentices working in [Bureau of Apprenticeship Training \(BAT\)](#) approved training programs. BAT serves as the registration agency for apprenticeship programs in the state of Utah. BAT ensures that programs meet standards and criteria established by the US Secretary of Labor. The RE is responsible for monitoring training hours, apprentice certifications, and apprentice to journeyman ratios. If issues are identified or possible, the RE must notify the Contractor and the Civil Rights Division immediately so appropriate action can be taken.

## Required Notices and Posters – Bulletin Board (Federal-aid Projects only)

The Contractor is required to erect and maintain a project bulletin board displaying required notices and posters. Required notices and posters are listed on Form [C-131](#) (Equal Employment Opportunity Bulletin Board Project Review). The required notices and posters must be posted on the project in a conspicuous place so that interested persons may be readily aware of their contents. The RE should perform a review within the first two weeks after beginning work on the project to verify the Contractor's compliance with these requirements. Reviews will then be conducted bi-monthly throughout the duration of the project. All reviews are to be documented on Form [C-131](#). If the bulletin board is missing required information, the RE must notify the Contractor immediately and follow up with another review.



## Certified Payrolls and Davis Bacon Act (Federal-aid Projects only)

The UDOT Civil Rights Division determines when the [Davis Bacon Act](#) applies to any construction project funded wholly or partially with Federal funds and specifies minimum wage rates which laborers, operators, and mechanics must be paid. All Contractors who work on the site of work must submit electronic certified payrolls in PDDBS. Payrolls must be submitted weekly and within seven days of the previous week ending date. The RE is responsible for reviewing submitted payrolls for errors and omissions, which include payment of unsatisfactory wage rates for the respective worker classification, improper worker classification, payment of apprentice wage rates for apprentices not registered with an approved BAT program, improper reporting of exceptions, and lack of overtime wage rates. The Contractor is responsible for ensuring all subcontractors submit payrolls within the time required. However, the RE is still responsible to review subcontractors' payrolls.

## Disadvantaged Business Enterprise (DBE) Program (Federal-aid Projects only)

The objective of the DBE program is to ensure no discrimination in the award and administration of Federally-funded projects and to create a level playing field on which all firms can compete free from the effects of discrimination. The Department's DBE special provisions are included in the contract of each

Federally-funded project. They are included in the [Federal Project Plan Sheets Part XII - Bid Conditions](#). The RE must be thoroughly familiar with the DBE special provisions. These special provisions identify the project goal and the Contractor's DBE commitment. The Contractor's approved commitment becomes a contract specification and the minimum goal for contract performance. The RE and project staff must be familiar with the approved commitment and understand what bid items are committed to what subcontractors, whether they are complete or partial services, and whether the commitment is race conscious or race neutral.

The RE is responsible for monitoring the status of DBE commitments and verifies they are fulfilled. As part of this monitoring, the RE or designated representative must complete at least one commercially useful function review for each DBE subcontractor using Form [C-141](#) (UDOT DBE Commercially Useful Function Project Site Review). Any issues identified during the reviews must be immediately brought to the attention of the Civil Rights Manager. DBE commitments are composed of three parts: the subcontractor, the item, and the dollar amount. All three must be met to be in compliance with the Department's DBE special provisions. No DBE subcontractors may be substituted with another DBE or a non-DBE without submitting necessary documentation and prior approval by the RE and Civil Rights Manager. The RE and project staff are responsible for monitoring committed items and who is performing them. If committed items of work are being completed by the prime contractor or subcontractors other than the committed DBE, the RE must notify the Contractor and the Civil Rights Manager immediately. If the race conscious DBE commitment is not met, the RE will need to determine if a DBE commitment change order is necessary. Sanctions may apply depending upon the reason for failing to meet the commitment.

### ***Prompt Payment (Federal-aid Projects only)***

Section [01284](#) includes the Department's prompt payment requirements. On Federally-funded projects only, the Contractor is required to pay subcontractors for satisfactory completion of work within 30 days of receiving payment from the Department. The Contractor must enter the dates that payments are sent to the subcontractors into the PDDBS Subcontractor Payment Screen within 30 calendar days of receiving payment from the Department. The RE must monitor prompt payments in PDDBS and compare payments entered to the work performed. If payments or payment entries are made beyond 30 days or are missing, the RE must notify the Contractor in writing of failure to make prompt payment. Once notified, the Contractor must make payment within three working days or the Department may take additional measures to enforce the prompt payment requirements, up to and including forfeiting the Contractor's privileges to bid on projects or debarment.

# CONSTRUCTION MANUAL OF INSTRUCTION

The Contractor must also require subcontractors to provide written notification once their work is complete. The RE must verify the work is complete in accordance with the contract. Once verified, the RE should release retention in the appropriate amount. The Contractor is required to pay subcontractors their retention within 30 calendar days of receiving payment from the Department.

If the RE receives prompt payment complaints from subcontractors or suppliers, the RE is responsible for investigating the complaint and requiring all parties involved to comply with the contract requirements.



## Environmental Compliance

(Reference Section [01355](#) and [01571](#) and [UDOT Erosion and Sediment Control Field Guide](#))

Section [01355](#) describes basic pollution prevention measures during construction, steps to take if hazardous materials are discovered, steps to take if hazardous spills occur, measures to reduce construction noise, environmental clearances for off-site activities, and permits necessary for working near water resources such as streams and wetlands. Section [01571](#) describes temporary

measures for installing, maintaining, and inspecting erosion and sediment control features, requirements of the Environmental Control Supervisor (ECS), and the [UPDES](#) permit process for storm water discharges from construction sites. An ECS must be provided by the Contractor only when it is included as a bid item or included in another bid item in the measurement and payment document.

It is the responsibility of all employees to be familiar with the environmental requirements contained in the plans and Sections [01355](#) and [01571](#). Project staff must be alert to possible violations. When violations are suspected, the RE should be notified. The RE has the responsibility to be familiar with all commitments in the environmental document.

Environmental commitments are measures taken and actions performed to help compensate for adverse impacts to the environment. To successfully implement these measures, there needs to be good communication from design to construction. Environmental commitments are identified in environmental documents for projects. In the construction phase, all commitments must be followed, monitored, and tracked. Long term commitments are tracked even into maintenance. Commitments are communicated to construction staff in several ways. They can be shown in roadway drawings, detail drawings as individual items, and in Special Provisions. In project plans, there may be commitments listed in a spreadsheet and on one or more plan sheets.

Examples of short term commitments during construction include installing and maintaining sediment and erosion control measures as per the [UPDES](#) Storm Water General Permit for Construction Activities; avoiding existing wetlands near the construction site; following the “Invasive Weed Control” Special Provision; maintaining access to businesses during construction; providing an archeologist to monitor earthwork activities during construction; and following all conditions in environmental permits. Examples of long term commitments installed during construction and maintained afterward include creating and monitoring new wetland mitigation sites; permanent slope stabilization; wildlife fencing; storm water detention ponds; and noise walls.



Following all conditions outlined in environmental permits is also a commitment. Unless otherwise indicated, it is the contractor’s responsibility to follow and fulfill permit requirements. There are several permits that may be necessary depending on project scope. Department of the Army Permits are necessary to discharge dredged or fill material into wetlands or other special aquatic sites such as mudflats and playas. This permit is also needed for doing more than minor alterations to streams. The Department of the Army Permit outlines general and special conditions that must be followed. This permit is included in project contract documents before the project is advertised for construction.

A [Stream Alteration Permit \(PGP-40\)](#) is necessary to modify a natural stream channel. A natural stream channel is defined as a natural drainage feature with a defined bed and bank and an ordinary high water mark. Modification activities may include bridge crossings, bank stabilization, scour mitigation, rock spur installation, etc. Stream Alteration Permits have general conditions associated with every permit and special conditions that are project specific. These conditions must be followed during construction and are typically included in contract documents as a Special Provision.



Contractors are required to submit a Fugitive Dust Emission Control Plan to the state Division of Air Quality for approval before construction. This plan will describe specific requirements for emission control and monitoring efforts throughout the construction phase of a project. Measures to control fugitive dust may include watering, covering trucks, mulching disturbed slopes, and planting vegetation.

# CONSTRUCTION MANUAL OF INSTRUCTION

[Utah Pollutant Discharge Elimination System \(UPDES\)](#) Storm Water General Permit for Construction Activities is necessary for all projects that will disturb one acre or more of natural ground surface. This permit authorizes the permit holder to discharge storm water from a construction site. This permit must be obtained before construction activities by the contractor. The process for obtaining this permit consists of preparation and submittal of a [Notice of Intent \(NOI\)](#) form to the State [Division of Water Quality \(DWQ\)](#). A storm water pollution prevention plan (SWPPP) must be prepared and available to file an [NOI](#). The SWPPP is prepared by design staff and is supplied to the contractor and construction staff by inclusion in the project plans or at the preconstruction conference. As the permit holder, the contractor is responsible for meeting the requirements of the permit, including updating the SWPPP. A complete and updated SWPPP should be provided to the RE as part of the final project documentation. At the completion of the project, the permit is terminated by preparing and submitting a [Notice of Termination \(NOT\)](#) form to the [DWQ](#).

The [UPDES](#) permit requires vegetative cover with a density of 70 percent of the native background vegetative cover on natural ground and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geo-textiles). At the conclusion of a project, this requirement is not always met due to the time required for re-vegetation in Utah's arid climate. In this case, the contractor may transfer the permit to UDOT and the Department becomes the permit holder and is responsible for maintaining erosion control features until permanent stabilization is achieved. The RE must coordinate with the Region Landscape Architect at the end of the project to determine if the contractor must remove or leave temporary erosion and sediment control measures in place. If left in place, the Department will maintain them. It is important to note removal of these features is incidental to the bid item and no additional compensation is due for removal.

The Department has developed the [UDOT Erosion and Sediment Control Field Guide](#) to provide additional guidance on the design, installation, inspection and maintenance of temporary erosion control measures. The guide is intended to give designers, contractors, installers, and inspectors the tools they need to implement practical and efficient SWPPPs.

The contractor must stay within the right of way and easements. If borrow sites, stockpile sites, work areas, staging areas, or any other disturbances are to be located outside of these areas, the contractor is responsible for obtaining the required environmental clearances as detailed by Section [01355](#). In addition, the contractor must get right-of-entry agreements and property releases to utilize private property. The agreements document their right to access the property and the terms of the agreement. The property release protects the contractor and the Department from action taken by the property owner should the contractor not fulfill the terms of the agreement. The RE must obtain copies of this documentation before contract closeout.



## **Discovery of Historic Objects and Artifacts**

It is in the public interest to preserve historical, archeological, or paleontological objects, features, sites, or human remains that may have significance from a historical or scientific standpoint. On a construction project when it appears significant historic, or prehistoric, objects have been or are about to be encountered, the RE should immediately take steps to preserve them and immediately notify the PM.

## **Closeout Preparation**

During the construction phase, it is the responsibility of all project staff to consistently follow project control processes. The RE and Office Manager should champion this effort and review documentation on a weekly basis to verify project staff is following proper protocol. The Field Engineer should assist the RE in these reviews as much as possible. It is important that documentation remains current. All individuals are responsible for keeping up to date on their reporting responsibilities.

If process reviews or internal quantity control reviews are performed, the RE and Office Manager should take full advantage of the review findings. Policies and Procedures [08B-28](#) requires the RE to evaluate findings based on Form [C-120](#) and prepare corrective action plans to correct deficiencies and make necessary corrections to staff practices to comply with established Department procedures. The RE is also required to resolve all material documentation deficiencies found through review by the RME or their representative.

## **Warranty Periods/Bonds**

(See also *Warranty Clauses* under the Preconstruction)

The RE needs to understand the requirements of all warranty provisions included in the contract and the documents required from the Contractor for the Department to be able to exercise these warranty provisions. Warranties required under the contract are generally satisfied through either a Warranty Bond or Letter of Credit. Upon contract closeout, the RE should deliver a copy of the Warranty Bond or Letter of Credit to the PM.

# CONSTRUCTION MANUAL OF INSTRUCTION

## Post Construction Activities

### Project Acceptance and Contract Completion

(Reference Section [00555](#), [00570](#), and [00727](#))

Section [00555](#) includes details regarding the Contractor's failure to complete the project on time. Section [00727](#) outlines the process for project acceptance and contract completion.



The Contractor may request partial acceptance when a unit or portion of the project is complete or when the unit or portion is considered or determined necessary for the convenience of the public. Examples may include a structure, interchange, roadway section, intersection, substation, or a portion of highway lighting or traffic signal system. Upon such request, the RE may make written acceptance of a unit as complete when it has been completed according to the contract, thereby relieving the Contractor of further responsibility for the completed unit. It is important to note partial acceptance neither voids nor alters any contract terms.

### Substantial Completion

Upon notification of project substantial completion from the Contractor, the RE performs an inspection and identifies any work remaining to reach substantial completion and all work necessary for physical completion. The RE should invite the District Engineer, RME, PM, Region Maintenance Superintendent, Region Traffic Engineer, and any other Region or Central personnel who will have maintenance and operations interaction with the project once accepted. The RE must also be sure to include other stakeholders such as local governments and utility companies. The RE notifies the Contractor in writing using Form [C-190](#) (Project Acceptance Report), and stops contract time when the project is found to be substantially complete. Contract time is not charged for days necessary for the RE to perform the inspection. The Contractor is required to meet the requirements for physical completion within 30 calendar days from receipt of the notice of substantial completion.

## **Physical Completion**

Upon notification of physical completion from the Contractor, the RE performs the final inspection and identifies any necessary corrective work. When the project is determined to be physically complete, the RE notifies the Contractor in writing of the date of physical completion using Form [C-190](#) and identifies any documents and Contractor obligations required to complete the contract. The Contractor is required to provide all necessary documentation to the RE and complete all remaining obligations under the contract within 30 calendar days from receipt of the notice of physical completion.

## **Contract Completion**

Upon receiving all remaining documentation and remaining obligations are fulfilled by the Contractor, the RE notifies the Contractor in writing of the date of contract completion using Form [C-190](#).

## **Post Construction Conference**

It is important the RE conducts a post construction meeting with the Contractor, DOR, and other stakeholders and interested parties for purposes of documenting lessons learned with respect to the plans, specifications, and overall execution and administration of the contract. It is also important to identify any potential claims or outstanding issues that might prevent timely contract closeout. The RE uses Form [C-199](#) (Post Construction Conference Report) to document this meeting.

For projects involving additional stakeholders with a contractual interest, or third parties who will maintain portions of the project once accepted, the RE will involve these parties in the project acceptance process. This includes local governments for which betterment work was completed or utility companies whose facilities were relocated or reconstructed by Contractor. The RE is encouraged to obtain documented acceptance from these parties of the work completed. This can often be difficult to obtain. The RE should document efforts made and opportunities allowed these parties and provide them with reasonable deadlines for providing punch lists and acceptance determinations. These deadlines should include language indicating lack of response will be construed to indicate their acceptance of the work.

In accordance with the FHWA/UDOT Stewardship and Oversight Agreement, FHWA retains responsibility and authority for project acceptance on high profile projects. For all other projects, the District Engineer has responsibility and authority for project acceptance.

The Department has 90 calendar days following the date of contract completion to issue final payment to the Contractor.



# CONSTRUCTION MANUAL OF INSTRUCTION

## Contract Closeout

The RE must submit complete project documentation in accordance with contract requirements and this Manual to the Region Contracts Specialist within 30 calendar days of the date of contract completion. During this time, the RE should conduct a final project review to make certain documents are organized and that the project records meet the requirements of this Manual. The RE and office manager must complete all final forms and documents. Refer to the *Required Project Forms and Documents* table in this Manual.

The Region Contracts Specialist will review the project records for completeness and accuracy.

If the Region has any questions or comments concerning the project records, the RE must respond to these immediately and address any noted errors and omissions.

Once the project documentation has been accepted by the Region Contracts Specialist, the RE is notified to process the final estimate. The Region Contracts Specialist also provides a Contract Closeout tracking spreadsheet to the RE. If the project office required time in excess of the 30 calendar days allowed for contract closeout, the RE must provide a memo explaining what caused the need for additional time. If the contractor was allowed time for project acceptance and contract completion in excess of that allowed by the contract without being assessed liquidated damages, the RE must provide a memo explaining what caused the need for additional time and why liquidated damages are not being assessed. Both memos are submitted to the Region Contract Specialist and the District Engineer. (See also Project Timeline and Project Acceptance and Contract Completion)

## Project Closeout

Project closeout is the term used to describe the collective activities performed by the Construction, Materials, and Civil Rights Division, Consultant Services, and Right of Way (ROW) section in preparation for audit review and final Contractor payment authorization through the UDOT Comptroller. These activities include, but are not necessarily limited to, the following:

- **Region Offices:** Conclusion of warranty bonds/letter of credit
- **Central Construction:** Closeout of utility agreements, outstanding change orders, subcontract agreements, progress reports, and issuance of the Construction Contract Final Letter (CCFL) to the Comptroller



- **Civil Rights:** Certified payroll compliance, outstanding prompt payment entries, DBE compliance
- **Consultant Services:** Consultant contracts closeout
- **Right of Way:** ROW contracts, Right of Occupancy agreements, etc.

Once the activities of all parties are complete, the UDOT Comptrollers secure reimbursement from the Federal Highway Administration (FHWA) for Federally-funded projects and Program Finance releases any remaining financial obligation of the project. (See also *Project Timeline* and *Project Acceptance and Contract Completion*)

# CONSTRUCTION MANUAL OF INSTRUCTION

## ALTERNATIVE DELIVERY PROJECTS

(Reference [FHWA Construction Program Guide, Design-Build Project Delivery](#), [FHWA Every Day Counts 2012 Initiatives, Design-Build, Design-Build-Operate \(Maintain\), Design Build Finance Operate, Construction Manager General Contractor, Expedited Delivery Contracting, Public-Private Partnerships](#), and the UDOT [Innovative Contracting](#) web page)

The Department may elect to deliver projects using alternative contracting methods such as [Design-Build \(DB\)](#), [Construction Manager/General Contractor \(CM/GC\)](#), [Expedited Delivery Contracting \(EDC\)](#), etc., using a [Qualification-Based Selection \(QBS\)](#) process.

Apart from the contracting method used to deliver a particular project, many requirements remain constant. Labor and EEO requirements for Federal-aid projects are applied uniformly and equally, regardless of the contracting method used. The [UDOT Materials Manual of Instruction](#) Section 1011, [Materials Acceptance Program](#) and the [Minimum Sampling and Testing Requirements \(MS&TR\)](#) remain applicable unless the Department has obtained FHWA approval for changes before the construction contract is awarded.

When the Department contracts with a consultant to assist with or perform activities normally assigned to the UDOT PM, Designer, RE, or other UDOT staff, the consultant is responsible for all tasks associated with



# Alternative Delivery

contract administration, unless specific tasks are described in the contract documents as being reserved by the Department. Contract administration tasks include, but are not necessarily limited to, inspection, review and acceptance of work and compliance with all applicable standards, specifications, and state and federal requirements. The Consultant will administer the project as described in the contract documents and the most current UDOT Construction Manual of Instruction, UDOT Standards, and other applicable guidance and design standards (such as the [UDOT Construction Inspection Manual](#), Structures Manual, Hydraulics, Environmental, AASHTO, [Utah MUTCD](#), etc.).

The Consultant has administrative authority to enforce all contract provisions, perform engineering and inspection duties, material testing, and other functions for the Department as required under current UDOT and Federal Highway Administration (FHWA) policies, procedures, and requirements.

The Department's Project Manager and District Engineer have overall responsibility for the project. This includes but is not limited to such items as budget control measures, process reviews and periodic audits as described in the contract documents or as determined by the Department.

The UDOT District Engineer has ultimate authority on all questions regarding the quality and acceptability of construction materials furnished, work performed, rate of work progress, interpretation of the construction contract documents, and the acceptance of the work performed by the contractor under the construction contract. If during the construction phase of a project there are instances where the requirements of the construction contract may be unclear or need clarification, the Department is the final authority in interpreting and enforcing the contract.

The Consultant will obtain the concurrence of the UDOT Project Manager and District Engineer before any changed or added work is performed by the Contractor and follow the change order process described in UDOT policies and procedures [08B-10](#).

The Consultant will obtain and process all Contractor payment requests through the Department with the approval of the District Engineer and PM. All direction to the Contractor must be documented in writing. Careful consideration and pre-planning should be given to determining the methods to be used for documenting the progress, quality acceptance, and payment options for alternative delivery projects.

It is important the RE and staff understand how alternative or innovative, contracting can affect administration and documentation requirements. For example, because of the methods used to determine Contractor payment under DB contracting, it can be challenging for the RE and project staff to clearly document compliance with [MS&TR](#) requirements.

# CONSTRUCTION MANUAL OF INSTRUCTION

## LOCAL GOVERNMENT PROJECTS

### Local Government/Consultant Managed Projects

(Reference 23 CFR [1.11](#), 23 CFR [635.105](#), [FHWA Federal-aid Program Administration - Consultant Services, Local Public Agency](#), Policies and Procedures [07-94](#), and [Local Public Agency Stewardship Issues Memo – February 13, 2012](#))

The Department is responsible for the construction of all Federal-aid projects, including those of local governments (sometimes referred to as local public agencies, or LPAs) or other Federal agencies. This responsibility includes ensuring adequate supervision and inspection to ensure projects are completed in conformance with the approved plans and specifications. When consultants are employed to provide CEM services, the Department is required to provide a full-time state-employed engineer to be in responsible charge of the project.

On Local Government projects using Federal-aid funds, a District Engineer or RE must be in responsible charge in accordance with the definition found in the [FHWA Contract Administration Core Curriculum Participant's Manual and Reference Guide](#) (Reference "[Project Supervision and Staffing](#)" under "State Procedures.") The Region Director assigns this Engineer through the District Engineer.

Consistent with the definition of "Engineer" in accordance with Section [00570](#), a Consultant Engineer responsible for construction engineering and contract administration is considered an extension of the Department and has the same responsibility and authority as an RE.

# Required Forms

## REQUIRED FORMS AND DOCUMENTS

(Reference UDOT [Construction Forms](#))

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<b>Correspondence</b>						
Project Correspondence	Correspondence/ ProjectWise	RE/Project Office	Project Files	Throughout the project	Document all communication between parties	Construction MOI Project Controls
<b>Administration</b>						
Accident/Incident Reports	Administration/ ProjectWise	Contractor	RE/Project Office	Within 24 hours of occurrence		<a href="#">UDOT Safety and Health Manual</a>
Audio Files	Administration/ ProjectWise	RE/Project Office	Project Files	Throughout the project	Record meeting minutes/project related discussion	
<a href="#">C-115</a> Request to Sublet Work	Administration/ PDPS	Contractor (PDPS entry printed and signed by Contractor)	RE/Project Office/ Region Contracts Specialist Contracts, Compliance & Certification Manager	Before subcontractor performs any work on the project	Documents percent of work performed by the Contractor RE must approve before any work begins	Specification <a href="#">00555</a>
<a href="#">C-116</a> Subcontract Agreement Certification for Federal-aid Projects	Administration/ PDPS	Contractor (PDPS entry printed and signed by Contractor)	RE/Project Office/ Region Contracts Specialist Contracts, Compliance & Certification Manager	Before subcontractor performs any work on the project	Certification that required Federal-aid provisions are included in subcontract agreement	<a href="#">FHWA 1273 VII 4 23 CFR 633</a>
Comprehensive Fall Protection Program	Administration/ ProjectWise	Contractor	RE/Project Office	Before employee exposure	Evaluate fall exposure and outline safety methods/ requirements	<a href="#">UDOT Safety and Health Manual</a>
Contact Information for Contractor's On-Site Safety Person	Administration/ ProjectWise and posted at site of work	Contractor	RE/Project Office/ Region Safety Risk Manager	Before beginning work	Make all project staff aware of safety contact person	Section <a href="#">00727</a> and <a href="#">UDOT Safety and Health Manual</a>
Description of Survey Methods and Equipment	Administration/ ProjectWise	Contractor	RE/Project Office	Before beginning work	Submit survey methods and equipment to RE for approval	Section <a href="#">01721</a>

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Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Employee Orientation Log	Administration/ ProjectWise	Contractor	RE/Project Office/ Region Safety Risk Manager	Throughout the project	Document all employees receive necessary orientation before work	<a href="#">UDOT Safety and Health Manual</a>
Field Books (if used)	Administration	RE/Project Office	Project files	Throughout the project	Documentation of work & accepted quantities of work performed organized by item & date	
Final Estimate	Administration/ ProjectWise and PDBS	RE/Project Office	Central Construction/ Contracts, Compliance & Certification Manager	Immediately after contract completion	Process final payment to the contractor	
Hazardous Chemical & Fuel Storage Container Plan	Administration/ ProjectWise	Contractor	RE/Project Office	Before bringing chemicals and fuels on site	Develop and document safety and health precautions to be implemented	<a href="#">UDOT Safety and Health Manual</a>
Job Safety Analysis (JSAs)	Administration/ ProjectWise & posted at site of work	Contractor	RE/Project Office/ Region Safety/Risk Manager	Before beginning work and as required throughout construction for new work activities	Review scope of work, identify hazards, and develop mitigation measures	<a href="#">UDOT Safety and Health Manual</a>
List of Hazardous Materials to be brought on site & MSDS Sheets	Administration/ ProjectWise & posted at site of work	Contractor	RE/Project Office/ Region Safety/Risk Manager	At beginning of project and as needed thereafter for any new materials	Provide employees with necessary safety information	<a href="#">UDOT Safety and Health Manual</a>
Notice of Award	Administration/ ProjectWise	Central Construction	Project files	Before issuing Notice to Proceed	Document notice of contract award	Section <a href="#">00515</a>
Notice to Proceed	Administration/ ProjectWise	Central Construction	Project files	Before beginning work	Document notice to proceed	Section <a href="#">00515</a> and <a href="#">00555</a>
Partnering Charter	Administration/ ProjectWise	Contractor/RE	All attendees/PM/ District Engineer	Before beginning work	Discuss partnering and develop charter	<a href="#">UDOT/AGC Partnering Field Guide</a> and Section <a href="#">00725</a>
Partnering Evaluations	Administration/ ProjectWise & Dept Website	Contractor/RE	All individuals involved with project on regular basis	Weekly, or as agreed upon by RE and Contractor for projects of varying time frames	Evaluate partnering relationships and efforts on the project and determine ways to improve partnering	<a href="#">UDOT/AGC Partnering Field Guide</a> and Section <a href="#">00725</a>

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Photos/Video Files (Includes Preconstruction Survey Data, when applicable)	Administration/ ProjectWise - Preconstruction Survey videos/ photos are delivered to PM	Contractor/RE/ Project Office	Project files/PM	Throughout the project	Document project activities and pre-existing conditions	Construction MOI
Preconstruction Conference Agenda, Minutes, and Roster	Administration/ ProjectWise	Contractor/ RE	PM/District Engineer and all attendees	After NOA and before NTP	Discuss contract, work, approach, and unique contract items/features, involve stakeholders	Construction MOI Refer to Preconstruction/ Partnering Conference ( <a href="#">UDOT/AGC Partnering Field Guide</a> ) and Section <a href="#">00555</a>
Progress Payments and Signature Sheets	Administration/ ProjectWise and PDBS	RE/Project Office/ Contractor	Central Construction/ Contracts, Compliance & Certification Mgr	Monthly - on agreed upon closing date	Process progress payments to the contractor	Construction MOI and Section <a href="#">01282</a>
Project Survey Control Verification Statement	Administration/ ProjectWise	Contractor	RE/Project Office	Before beginning work	Document the contractor's surveyor has verified control and agrees required survey tolerances can be met	Section <a href="#">01721</a>
Public Information Services – Communication Logbook	Administration/ ProjectWise	Contractor Public Information Coordinator	RE/Region Public Involvement Manager	Weekly	Document public information requests and inquiries and the resolution and resulting action; document communication to the Department and the RE; document published updates to the public	Section <a href="#">01315</a>
Public Information Services – Fliers and Notifications	Administration/ ProjectWise	Contractor Public Information Coordinator	RE/Region Public Involvement Manager	Before beginning work and weekly; Provide to RE/ Region PIM for review before distribution	Update the public of upcoming construction activities and impacts	Section <a href="#">01315</a>

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Public Information Services – Stakeholder and Stakeholder Contact Database	Administration/ ProjectWise	Contractor Public Information Coordinator	RE/Region Public Involvement Manager	Before contract completion	Develop and maintain list of stakeholders and contact information	Section <a href="#">01315</a>
RE/ Field Engineer Daily Diaries	Administration/ PDBS or other acceptable form of documentation per the MOI	RE/Project Office	Project files	Throughout the project	Document general information about operations or communication between the RE and the Contractor	Construction MOI (Refer to Project Controls, Project Diaries)
ROW Contracts (R193S)	Region Folders (ProjectWise)	CONTACT PROJECT MANAGER OR REGION PRECONSTRUCTION ENGINEER FOR INFORMATION				
Surety Consent Letter	Administration/ ProjectWise	Contractor/ Surety	RE/Project Office	When processing semi-final estimate or when processing final estimate if no semi-final estimate was processed	Document consent of Surety to release part or all of the retention	Section <a href="#">01282</a>
Survey Plat	Administration/ ProjectWise and locations specified by Section 02896	Contractor	RE/Project Office	Survey must be complete by physical completion and plat must be on record by contract completion	Record project right of way information	Section <a href="#">02896</a>
Weekly Progress Meeting Minutes	Administration/ ProjectWise	RE/Project Office	Project files/ Contractor/Meeting attendees	After weekly progress meeting	Document meeting topics and discussion	
Weekly Safety Toolbox Meetings	Administration/ ProjectWise	Contractor	RE/Project Office/ Region Safety/Risk Manager	Weekly	Document safety meetings are being held and topics	<a href="#">UDOT Safety and Health Manual</a>
Weekly Schedule (Four-Week Look-Ahead)	Administration/ ProjectWise	Contractor	RE/Project Office	At weekly progress meeting	Provide look at upcoming work	Section <a href="#">00555</a>
Working Drawings	Administration/ ProjectWise	Contractor	RE/Project Office	As specified by contract	Provide review of proposed materials and design for specific contract items and document acceptance of materials and design	Contract

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<u>Contract Documents</u>						
<a href="#">C-100</a> Construction Contract Change Order	Contract Docs/ ProjectWise & PDBS	RE/Project Office	Region Contracts Specialist/Project Manager/Contracts, Compliance & Certification Manager	Before performing any extra work or change to the contract, and within 30 calendar days following the execution of a Form <a href="#">C-107</a>	To establish the basis of payment for extra work and/or contract modification	23 CFR <a href="#">635</a> , Sections <a href="#">00570</a> , <a href="#">00725</a> , and <a href="#">01282</a> , Policies and Procedures 08B-10
<a href="#">C-101</a> Construction Contract Change Order Attachment A (Reason Cost Analysis Time Adjustment)	Contract Docs/ PDBS	RE/Project Office	Region Contracts Specialist/ Project Manager/ Contracts, Compliance & Certification Manager	When Change Order is initiated	Cause or basis and justification for contract modification	23 CFR <a href="#">635</a> , Sections <a href="#">00570</a> , <a href="#">00725</a> , and <a href="#">01282</a>
<a href="#">C-102</a> Construction Contract Change Order Attachment B (Special Provision)	Contract Docs/ PDBS	RE/Project Office	Region Contracts Specialist/ Project Manager/ Contracts, Compliance & Certification Manager	When modifying an existing, or creating a new, contract specification	Identify change or addition to contract specifications	23 CFR <a href="#">635</a> , Sections <a href="#">00570</a> , <a href="#">00725</a> , and <a href="#">01282</a>
<a href="#">C-103</a> Construction Contract Change Order Cost Analysis/ Itemized Statement	Contract Docs/ ProjectWise - Attached to change order	RE/Project Office	Region Contracts Specialist/Project Manager/Contracts, Compliance & Certification Manager	For Force Account work May be used for cost analysis for Agreed Unit Price	Cost justification and support	23 CFR <a href="#">635</a> , Section <a href="#">01282</a>
<a href="#">C-104 Daily</a> Labor, Materials, and Equipment Record	Contract Docs/ ProjectWise - Attached to change order	RE/Project Office	Project files/ Attachment to change order when applicable	When performing utility work, force account work, or documenting disputed work.	Documenting utility, force account, or disputed work	23 CFR <a href="#">635</a> , Section <a href="#">01282</a>
<a href="#">C-104 Weekly</a> Labor, Materials, and Equipment Record	Contract Docs/ ProjectWise - Attached to change order	RE/Project Office	Project files/ Attachment to change order when applicable	When performing utility work, force account work, or documenting disputed work.	Documenting utility, force account, or disputed work	23 CFR <a href="#">635</a> , Section <a href="#">01282</a>

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<a href="#">C-107</a> Authorization to Proceed with Extra Work or Revision of Contract	Contract Docs/ ProjectWise - Attached to change order	RE/Project Office	District Engineer/ Project Manager/ Contractor/Contracts, Compliance & Certification Manager	For emergency work, or when unusual conditions justify	Authorization for emergency work, or for authorizing extra work in advance of a fully executed change order	23 CFR <a href="#">635</a> , Policies and Procedures <a href="#">08B-10</a>
<a href="#">C-114</a> Signature Sheet	Contract Docs/ ProjectWise	RE/Project Office	Project files/Region Contracts Specialist	Throughout the project	List of personnel working on and providing documentation for the project	
<a href="#">C-118</a> Construction Contract Overrun Funding Need (COFN)	Contract Docs/ ProjectWise	RE/Project Office	Project Manager/ Contracts, Compliance & Certification Manager	When amount to pay contractor exceeds original contract amount and subsequently if amount due Contractor exceeds revised authorized amount	Request additional funding and coordinate approval and budget updates with Project Manager	Construction MOI
<a href="#">C-118U</a> Utility Contract Overrun Funding Need (uCOFN)	Contract Docs/ ProjectWise	RE/Project Office	Region Contracts Specialist	When amount to pay the Utility Contractor exceeds original contract amount and subsequently if amount due Contractor exceeds revised authorized amount	Request additional funding and coordinate approval and budget updates with Project Manager	Construction MOI
<a href="#">C-119</a> Contractor Performance Rating Report	Contract Docs/ UDOT Website	RE/Project Office	Region Contracts Specialist	At contract completion	Contractor rating	
<a href="#">C-119A</a> UDOT Team Performance Rating Report	Contract Docs/ UDOT Website	RE/Project Office	Region Contracts Specialist	At contract completion	UDOT Team Rating	

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<a href="#">C-193</a> Utility Fiscal Review Report	Contract Docs/ ProjectWise	RE/Project Office	Region Contracts Specialist	Upon completion of utility work	Analysis of actual vs. estimated costs – used by FHWA, Department Comptroller, and Internal Audit	23 CFR <a href="#">645</a> 49 CFR <a href="#">18.36</a>
<a href="#">C-193A</a> Salvage Credit Report for Utilities and Railroads	Contract Docs/ ProjectWise	RE/Project Office	Region Contracts Specialist	Upon completion of utility work	Documents the disposition of any salvaged material	23 CFR <a href="#">645</a> 49 CFR <a href="#">18.36</a>
<a href="#">C-300</a> Fuel Cost Adjustment	Contract Docs/ ProjectWise	RE/Project Office	Project Files	When provision requirements become effective	Document fuel cost adjustment	Section <a href="#">01282</a>
<a href="#">C-302</a> Asphalt Cost Adjustment	Contract Docs/ ProjectWise	RE/Project Office	Project Files	When provision requirements become effective	Document asphalt cost adjustment	Section <a href="#">01282</a>
Contractor's Claim Procedure	Contract Docs/ ProjectWise	Contractor	RE/Project Office	At preconstruction conference	Document acceptable claim procedure is in place and have it available for reference and use	Section <a href="#">00820</a> and <a href="#">UDOT Safety and Health Manual</a>
Cooperative Agreements	Region Folders (ProjectWise)	CONTACT PROJECT MANAGER OR REGION PRECONSTRUCTION ENGINEER FOR INFORMATION				
CPM Baseline Construction Schedule and Construction Schedule Updates	Contract Docs/ ProjectWise	Contractor	RE/Project Office	Monthly with data date set as Sunday after the progress payment close date	Document project progress, delays, issues, and schedule	Section <a href="#">00555</a>
Environmental Clearances – Contractor	Contract Docs/ ProjectWise	Contractor	RE/Region Environmental	Any time contractor works or disturbs areas beyond Department cleared limits	Environmental Compliance	Section <a href="#">01355</a>
Environmental Clearances – Department	Contract Docs/ ProjectWise	Region	Contractor/ Project files	All projects unless Category Exclusion completed	Environmental Compliance	Section <a href="#">01355</a>

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Monthly Status of Contract Time/ Progress Report	Contract Docs/ ProjectWise and PDBS	RE/Project Office	Contractor	At the end of each month before processing the next progress payment	Document contract time charges, days worked, percent complete	Section <a href="#">00555</a>
<a href="#">Notice of Intent (NOI)</a>	Contract Docs/ ProjectWise- SWPPP	Contractor	RE/Project Office	Before obtaining UPDES permit and starting work	File notice of intent to discharge storm water off construction site and obtain UPDES permit from Utah Division of Water Quality	<a href="#">Utah DEQ</a>
<a href="#">Notice of Termination (NOT)</a>	Contract Docs/ ProjectWise- SWPPP	Contractor	RE/Project Office	After physical completion and UPDES permit is ready to be terminated	File notice of termination of UPDES permit with Utah Division of Water Quality	<a href="#">Utah DEQ</a>
OCIP Enrollment Form ( <a href="#">Contractor</a> or <a href="#">A&amp;E</a> ) (Attached to OCIP Special Provision and Construction Forms on web)	Contract Docs/ ProjectWise	Contractor/ A&E firm	RE/Project Office/ Willis of Utah	Submit with Request to Sublet Work ( <a href="#">C-115</a> )	Required before entering jobsite	<a href="#">OCIP Manual</a> and <a href="#">OCIP General Conditions</a> and Special Provision 00810S
OCIP Insurance Certificate (Min. coverage per Section 14 – OCIP Special Provision)	Contract Docs/ ProjectWise	Contractor	RE/Project Office/ Willis of Utah	Attachment to Enrollment form	Required before entering jobsite	<a href="#">OCIP Manual</a> and <a href="#">OCIP General Conditions</a> and Special Provision 00810S
OCIP Final Deductions	Contract Docs/ PDBS	RE/Project Office	PDBS	Before contract completion	Deduct payment from Contractor for OCIP deductions	<a href="#">OCIP Manual</a> and <a href="#">OCIP General Conditions</a> and Special Provision 00810S
<a href="#">R-5</a> Transfer of Material & Equipment	Contract Docs/ ProjectWise	Contractor	RE/Project Office/ Operations Office	At time of transfer	Transfer of materials or equipment	
Request for Information (RFI)	Contract Docs/ ProjectWise	RE/Contractor	RE/Project Manager/ Designer/ District Engineer	Requesting information regarding contract	Document request for information and the formal response	

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Safety Meeting Rosters	Contract Docs/ ProjectWise	Contractor and sub-contractors	RE/Project Office/ Region Safety/Risk Manager	At beginning of project and as needed thereafter for new employees	Roster of attendees at meetings where safety topics were discussed – roster should show items discussed	<a href="#">UDOT Safety and Health Manual</a>
Storm Water Pollution Prevention Plan (SWPPP) The entire binder should be scanned for archive. (Include Cover page, project descript, sig. page, project contacts)	Contract Docs/ Project Site of Work and ProjectWise at contract completion	Region Environmental or Contractor	RE/Project Office	When UPDES permit is required; if SWPPP not provided with plans the permit holder (Contractor) is required to develop SWPPP; redlined copy of SWPPP required before contract completion	Establish and document storm water pollution prevention plan for UPDES permit	
Corrective Action forms (any taken during project construction)	Contract Docs/ ProjectWise	Region Environmental or Contractor	RE/Project Office	When UPDES permit is required	To document actions taken. This is part of the SWPPP.	
Spill Response Documentation (ie: spill notification, evaluation, reporting and proof of mitigation)	Contract Docs/ ProjectWise	Region Environmental	RE/Project Office	If spill happens, before contract completion	To document environmental actions taken to respond to spills.	
Environmental Commitments Tracking (as applicable)	Contract Docs/ ProjectWise	Region Environmental	RE/Project Office	Before contract completion	To track commitments - if applicable	
Documentation that the Certificate of Compliance was sent to USACE (as applicable)	Contract Docs/ ProjectWise	Region Environmental	RE/Project Office	For projects that had a stream alteration permit or the Corps 404 permit	To document C of C was sent	

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Utility Agreements	Contract Docs/ ProjectWise	Contracts, Compliance & Certification Manager/Utility Coordinator	RE/Project Office	Before utility company beginning reimbursable work	Document terms of agreement with utility company	
Utility Betterment Agreements	Region Folders (ProjectWise)	CONTACT PROJECT MANAGER, REGION UTILITY COORDINATOR, OR REGION PRECONSTRUCTION ENGINEER FOR INFORMATION				
Utility Invoices	Contract Docs/ ProjectWise	Contracts, Compliance & Certification Manager/Utility Coordinator	RE/Project Office/ Contracts, Compliance & Certification Manager/Utility Coordinator	Before payment issued to utility company	Document utility company billing and RE verification of work	
<a href="#">C-104 Daily</a> Labor, Materials, and Equipment Record	Contract Docs/ ProjectWise Record of Utility Work	RE/Project Office	Project files/ Attachment to Utility Invoices applicable	When performing utility work	Documenting utility work	Utility Reimbursement Agreement
<a href="#">C-104 Weekly</a> Labor, Materials, and Equipment Record	Contract Docs/ ProjectWise Record of Utility Work	RE/Project Office	Project files/ Attachment to Utility Invoices applicable	When performing utility work	Documenting utility work	Utility Reimbursement Agreement
Warranty(s)	Contract Docs/ ProjectWise Original(s) given to PM, copied to District Engineer	Contractor	RE/Project Office	As specified by contract specifications	Provide warranty of work beyond contract completion	Construction MOI
<b>Civil Rights (Federal-aid projects)</b>						
Apprenticeship BAT Certification	Civil Rights/ ProjectWise	Contractor	RE/Project Office	Before apprentice/trainee begins work on project	Certification proving registration of apprentice/ trainees in program w/dates and ratios – renew every 90 days	<a href="#">FHWA 1273 IV 4a</a> and FHWA LCM 507-3
<a href="#">C-131</a> EEO Bulletin Board Project Review	Civil Rights/ ProjectWise	RE/Project Office	Region Contracts Specialist	At beginning of project and bi-monthly thereafter	Verify all required posters and notices, including wage rates, complaint procedures and EEO officers are posted	Special Provisions, Specific EEO Responsibilities Sheet 2 of 4, Part 4 a(5) <a href="#">FHWA 1273 IV 1a</a>

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<a href="#">C-136</a> Labor and EEO Interview of Workers	Civil Rights/ ProjectWise - in Confidential Folder	RE/Project Office	Project files (Notify Region Contracts Specialist if having problems or complaints)	At beginning of project and once a month thereafter	Verify employees are being paid and treated as required by regulations	<a href="#">FHWA 1273 V (2) (g)</a> <a href="#">29 CFR 5.5(a) (3)(iii)</a>
<a href="#">C-138</a> Civil Rights Final Payment Checklist	Civil Rights/ ProjectWise	RE/Project Office	RE/Project Office/ UDOT Civil Rights Office/Contracts, Compliance & Certification Manager	With first progress payment after 95% completion reached	Verify civil rights commitments are met	UDOT Civil Rights Manual
<a href="#">C-130</a> OJT 100 Training Commitment Form	Civil Rights/ ProjectWise	Contractor	RE/Project Office	Preconstruction meeting	Submission, for approval, the number and classification of trainees to be trained	Special Provisions, Specific EEO Responsibilities Sheet 3 of 4, Part 5 Training Special Provisions, paragraph 6
<a href="#">C-139</a> OJT Training Hours Reimbursement Affidavit (Prime)	Civil Rights/ ProjectWise	Contractor and sub-contractors	RE/Project Office/ UDOT Civil Rights Office	After training reimbursement has been made and before contract completion	Document and verify training agencies and subcontractors reimbursed for training payments	
<a href="#">C-139A</a> OJT Training Hours Reimbursement Affidavit (Subcontractor)	Civil Rights/ ProjectWise	Contractor and sub-contractors	RE/Project Office/ UDOT Civil Rights Office	After training reimbursement has been made and before contract completion	Document and verify training agencies and subcontractors reimbursed for training payments	
<a href="#">C-141</a> DBE Commercially useful function (CUF) Project Site Review	Civil Rights/ ProjectWise	RE/Project Office	Project files	Minimum once per project for each DBE working on project	Checking DBE compliance of performance and conduct requirements	<a href="#">Part XII Bid Conditions</a> – Disadvantaged Business Enterprise (DBE), 49 CFR <a href="#">26</a>
<a href="#">C-257</a> Project Employment Data EEO and Labor Compliance Review	Civil Rights/ ProjectWise	Contractor and sub-contractors	EEO Compliance Specialist – UDOT Civil Rights Office	When requested for EEO and labor compliance review	To determine compliance with minority and female employment requirements	<a href="#">FHWA 1273 II 23 CFR 230</a>

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Contractor and Subcontractor Complaint Procedure	Civil Rights/ ProjectWise and Bulletin Board	Contractor and sub-contractors	RE/Project Office	Preconstruction meeting & before new subcontractors begin work	Document and disseminate complaint procedure	<a href="#">FHWA 1273 II 2</a>
Contractor & Subcontractor Employee Complaint form	Civil Rights/ ProjectWise and Bulletin Board	Contractor and sub-contractors	RE/Project Office	At beginning of project	Document contractor has complaint forms available	<a href="#">FHWA 1273</a>
DBE Item Payment Analysis	Civil Rights/ PDBS	RE/Project Office	Region Contracts Specialist	Reviewed during the project for compliance – final report at contract completion	Determine and document the Contractor has met established goal	49 CFR <a href="#">26</a>
DBE Commitment	Civil Rights/ PDBS	Contractor	Central Construction	At time of bid	Document & establish DBE commitment	49 CFR <a href="#">26</a>
EEO Officer(s) – Notify RE at Preconstruction Meeting	Civil Rights/ ProjectWise and Bulletin Board	Contractor and sub-contractors	RE/Project Office	At beginning of project	To designate and make known EEO Officer to administer EEO program in company	<a href="#">FHWA 1273 II 2</a>
EEO Policy	Civil Rights/ ProjectWise and Bulletin Board	Contractor and sub-contractors	RE/Project Office	At beginning of project	Document Federal EEO requirements	<a href="#">FHWA 1273 II 3</a>
EEO Meetings (every 6 months)	Civil Rights/ ProjectWise and Bulletin Board	Contractor and sub-contractors	RE/Project Office	At beginning of project	Document Federal EEO requirements	<a href="#">FHWA 1273 II 3</a>
<a href="#">FHWA-1391</a> Yearly EEO Report	Civil Rights/ PDBS	Contractors and sub-contractors	RE/Project Office/ UDOT Civil Rights Office	For month of July – once a year, due in Civil Rights Office by August 6	Reports employees of contractors & d subcontractors by race & classification for month of July	<a href="#">FHWA 1273 II 9 b</a>
<a href="#">Form 1444</a> Request for Authorization of Additional Classification & Rate	Civil Rights/ PDBS	Contractor and sub-contractors	Labor Specialist, UDOT Civil Rights Office	At beginning of project and/or when needed, thereafter	Requests for those classifications & rates not listed in wage determination – project specific – prime must sign even when sub makes request and signs	<a href="#">FHWA 1273 IV 2(a – b)</a>

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<a href="#">WH-347</a> Payroll Form/ Compliance Certification (For Contractor's optional use)	Civil Rights/ PDBS	Contractor and sub- contractors	PDBS	Weekly (Submitted in PDBS; however, original hard copies may be requested by Engineer)	Reports hours worked and wages paid for all employees working on the project – information required on <a href="#">WH-347</a> must be on payrolls when a different format is used	29 CFR <a href="#">3.4 (a)</a> <a href="#">FHWA 1273 V 2</a>
<b>Inspection</b>						
<a href="#">ATMS 5-Day Testing Pre- Notification</a>	Inspection/ ProjectWise	Contractor	RE & ATMS/ITS Project Manager/ TOC	At least 5 days before starting ATMS testing	Serves as notice to project office and schedules Department representative for witnessing	Section <a href="#">13551</a>
<a href="#">ATMS 30-Day Burn-in Test Report</a>	Inspection/ ProjectWise	Contractor	RE & ATMS/ITS Project Manager/ TOC	Throughout burn-in period; completed report submitted after successful burn-in	Document authorization from the RE to begin burn-in and provides a record of device or system performance during burn-in	Section <a href="#">13551</a>
<a href="#">ATMS Cable and Conductor Test</a>	Inspection/ ProjectWise	Contractor	RE & ATMS/ITS Project Manager/ TOC	Throughout ATMS cable and conductor testing	Verify that all cables and conductors are in acceptable condition	Section <a href="#">13551</a>
<a href="#">ATMS Completion Notification</a>	Inspection/ ProjectWise	Contractor	RE & ATMS/ITS Project Manager/ TOC	When Local Field Operation Tests (FOT) are complete and acceptable	Serves as notice that ATMS components have successfully passed FOT and are ready to begin acceptance testing/ burn-in	Section <a href="#">13551</a>
ATMS Field Operations Testing (FOT): <a href="#">CCTV</a> , <a href="#">Loop</a> , <a href="#">NID (Volume</a> , <a href="#">Occupancy</a> , <a href="#">105</a> <a href="#">Speed</a> , <a href="#">HD Speed</a> ), <a href="#">Ramp Meter</a> , <a href="#">VMS</a> , <a href="#">WIM</a>	Inspection/ ProjectWise	Contractor	RE & ATMS/ITS Project Manager/ TOC	Within 5 days of test completion	Specifies test equipment, success criteria, testing instructions, and verifies and demonstrates the functionality of ATMS devices/system	Section <a href="#">13551</a>

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<a href="#">C-111</a> Inspector's Daily Report	Inspection/ ProjectWise or PDBS	RE/Project Office	Project files	Daily during construction	Daily record of project activities	Construction MOI
<a href="#">C-120</a> Construction Process Review Report	Inspection/ ProjectWise	Deputy Construction Engineer	RE, District Engineer, and State Construction Engineer	As Needed	To accomplish intent of Policies and Procedures <a href="#">08B-31</a> and comply with Policies and Procedures <a href="#">08B-28</a>	Policies and Procedures <a href="#">08B-28</a>
<a href="#">C-150</a> Culvert Inspection Form	Inspection/ ProjectWise	RE/Project Office	Project files	Upon placement of pipe culvert	Document for acceptance	Section <a href="#">02610</a> and Pipe Culvert Inspection Aids
Environmental Control Supervisor (ECS) Certifications	Inspection/ ProjectWise and SWPPP	Contractor	RE/Project Office	When ECS included as bid item or in M&P	Designate individual responsible for maintaining and inspection BMPs and SWPPP	Section <a href="#">01571</a>
ECS Inspection Reports	Inspection/ ProjectWise and SWPPP	Contractor	RE/Project Office	Per Section 01571	Compliance with contract Section 01571	Section <a href="#">01571</a>
Project Inspection Reports - FHWA or Other	Inspection/ ProjectWise	FHWA/ Inspection Team	RE/District Engineer/ State Construction Engineer	When inspections performed	Monitoring of FHWA's programs	<a href="#">23 CFR</a>
Safety Inspections	Inspection/ ProjectWise	RE/Region Safety/Risk Manager	Contractor/Project files	At least monthly	Inspect project safety, identify risks and safety issues, and mitigate those issues	<a href="#">UDOT Safety and Health Manual</a>
Traffic Control Daily Inspection Reports	Inspection/ ProjectWise	Contractor	RE/Project Office	Daily	Demonstrate compliance with contract and authorized Traffic Control Plan	Section <a href="#">01554</a> and the Manual on Uniform Traffic Control Devices ( <a href="#">Utah MUTCD</a> )
Traffic Control Maintainer and Flagging Certifications	Inspection/ ProjectWise	Contractor	RE/Project Office	At preconstruction conference and before new traffic control maintainers or flaggers are used	Document staff has appropriate training and certifications	Section <a href="#">01554</a> and <a href="#">Utah MUTCD</a>

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Traffic Control Plan	Inspection/ ProjectWise	Contractor	RE/Project Office	Before implementing any traffic control not covered by an accepted Traffic Control Plan	Resolve discrepancies between standards and Utah MUTCD and design plan for project specific geometry, scenarios, etc.	Section <a href="#">01554</a> and <a href="#">Utah MUTCD</a>
Punch List	Inspection/ ProjectWise	RE/Project Office	Contractor	Physical Completion	Identify all remaining work required for Physical Completion	Construction MOI
Visual Inspection Report (VIR) <a href="#">C-160</a>	Inspection/ ProjectWise	RE/Project Office	Project files	As specified by <a href="#">MS&amp;TR</a> or as required by RE to document acceptable placement	Accept small quantities of materials not sampled and tested per <a href="#">MS&amp;TR</a> and document placement and observations	Construction MOI
<b>Materials</b>						
Buy America Certifications and Documentation (Federal-aid Projects)	Materials/ ProjectWise	Contractor	RE/Project Office	On Federal-aid projects for all steel and iron materials	Document compliance with Buy America Act	Construction MOI (Refer to Materials, Buy America), Section <a href="#">01455</a> , and 23 CFR <a href="#">635.410</a>
<a href="#">C-106</a> Notice of Unacceptable Work or Material	Materials/ ProjectWise	RE/Project Office	Contractor	Within 2 working days from determination of work or material out of specification	Notification of unacceptable work or material and action required of Contractor	Policies and Procedures <a href="#">08B-31</a>
<a href="#">C-112</a> Crash Cushion, Barrier End Treatment Certification Letter	Materials/ ProjectWise	Contractor	RE/Project Office	After installing crash cushion or barrier end treatments and before they are exposed to traffic	Document contractor certification product is installed in accordance with manufacturer's requirements	Section <a href="#">02843</a>
<a href="#">C-247</a> UDOT Materials Request for Testing	Materials/ ProjectWise	RE/Project Office	Central Materials	When samples are submitted to Central Materials	Request Central Materials testing of submitted materials	QMP <a href="#">509</a>

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<a href="#">C-251</a> Concrete Cylinder Test Report (For use by Consultant REs only)	Materials/ ProjectWise and Material Database	RE/Project Office	Consultant REs (Department REs report thru Materials Database)	For Concrete Cylinder Compressive Strength Reporting	Report all concrete strength test results	<a href="#">MS&amp;TR</a>
<a href="#">C- 258</a> Aggregate Physical Properties Report	Materials/ ProjectWise	RE/Project Office	Project files	Any time aggregate is placed and/or sampled	Report all test results for aggregate (sieve analysis, soil classification, proctor, etc)	<a href="#">MS&amp;TR</a>
<a href="#">C-348</a> Weekly Density Report	Materials/ ProjectWise	RE/Project Office	Project files	Any time density testing is performed	Report density test results	<a href="#">MS&amp;TR</a>
<a href="#">C-350</a> Density Testing Summary	Materials/ ProjectWise	RE/Project Office	Project files	Throughout the project	Document compliance with MS&TR and Materials Acceptance Program	Construction MOI
<a href="#">C-500</a> Buy America Foreign Steel Documentation (Federal-aid Projects)	Materials/ ProjectWise	RE/Project Office	Project files	Throughout the project	Document amount of foreign steel incorporated into project and compliance with Buy America Act	Construction MOI (Refer to Materials, Buy America), Section <a href="#">01455</a> , and 23 CFR <a href="#">635.410</a>
<a href="#">Form 509</a> Asphalt Binder Sampling Witness Statement	Materials/ ProjectWise and Material Database	RE/Project Office	Central Materials	When sampling asphalt binder	Document acceptable sampling methods	QMP <a href="#">509</a>
<a href="#">C-513</a> Paint Sample ID/ Sampling Witness Statement	Materials/ ProjectWise	RE/Project Office	Central Materials	When sampling pavement marking paint	Document acceptable sampling methods	MMOI <a href="#">932</a>
<a href="#">C-520</a> Concrete Placement Log	Materials/ ProjectWise	RE/Project Office	Project files	Throughout the project	Document concrete placements and verify compliance with MS&TR and Materials Acceptance Program	Construction MOI
Central/Region Material Lab Reports	Materials/ ProjectWise and Material Database	Central/Region Materials Lab	Materials Database/ RE/ Project Office	Anytime Central or Region labs test materials	Document test results	

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Concrete Strength Reports	Materials/ ProjectWise and Material Database	Central/Region Materials Lab	Materials Database/ RE/ Project Office	Anytime Central or Region labs test materials	Document test results	
Laboratory and Technician Certifications	Materials/ UDOT Materials Webpage	RE/Project Office	Project files	Before any acceptance or verification testing	Compliance with UDOT Materials Acceptance Program	MMOI <a href="#">1014</a>
Manufacturer's Certificates of Compliance, Product Data and Specifications, and Data Labeling	Materials/ ProjectWise	Contractor	RE/Project Office	Throughout the project before issuing payment for materials and work	Document acceptance decision	Construction MOI (Refer to Materials), Section <a href="#">01455</a> , and Materials Manual of Instruction (MMOI)
R256 UDOT Central Materials Inspection/Test Report	Materials/ ProjectWise and Material Database	Central Materials and Supplier	RE/Project Office	When materials designated by MS&TR Part 2 are delivered to the project	Document Central Materials inspection and testing of pre-cast concrete products	<a href="#">MS&amp;TR Part 2</a> and <a href="#">QMP 505</a>
Random Test Calculations – Field or Lab	Materials/ ProjectWise	RE/Project Office	Project files	All materials or high risk?	Document random location calculations	MMOI <a href="#">981</a>
Scale/Meter Certifications	Materials/ ProjectWise	Contractor	RE/Project Office	Before materials measured and paid by weight are delivered to the project site	Verify and document scales are certified and accurate	Section <a href="#">01280</a>
Stockpiled Material Payment Documentation	Materials/ ProjectWise	Contractor	RE/Project Office	Before stockpiled material payments issued	Verify material is committed to project and suppliers are paid	Section <a href="#">01282</a>
Supplier's List	Materials/ ProjectWise	Contractor	RE/Project Office	Before beginning work and updated throughout the project	Provide RE with materials source information	Section <a href="#">01455</a>
Targets/Mix Designs	Materials/ ProjectWise and Materials Database	Contractor	RE/Region Materials Engineer	When specified in contract	Review and approve submitted material targets and mix designs proposed for use on projects	Construction MOI (Refer to Materials, Targets and Mix Designs)
Weight and Batch Tickets	Materials/ ProjectWise	Contract	RE/Project Office			

# CONSTRUCTION MANUAL OF INSTRUCTION

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
<u>Close-Out Documents</u>						
As-constructed Plans	Close-out Docs/ ProjectWise	Contractor	RE/Project Office	Before contract completion	Document as-constructed features	Section <a href="#">01721</a>
<a href="#">C-127</a> Final Estimate Package Check List	Close-out Docs/ ProjectWise	Region Contracts Specialist	Contracts, Compliance & Certification Manager	When processing final estimate	Ensure complete documentation for closing of contract	
<a href="#">C-128</a> Report on Assembly of Final Estimate (Generated by PDBS)	Close-out Docs/ PDBS	PDBS/Region Contracts Specialist	Contracts, Compliance & Certification Manager	When processing final estimate	Ensure complete documentation for closing of contract	
<a href="#">C-190</a> Project Acceptance Report used for Substantial, Physical, and Contract Completion milestones	Close-out Docs/ ProjectWise	RE/ Project office	Contractor, PM, Region Contracts Specialist	Upon Notice from the Contractor of Substantial and Physical Completion Upon RE determination of Contract Completion	To document Substantial, Physical, and Contract Completion	Section <a href="#">00555</a> and <a href="#">00727</a>
<a href="#">C-196</a> Project Materials Certification	Close-out Docs/ ProjectWise	RE/Project Office	District Engineer	At contract completion	Certification of project materials	23 CFR <a href="#">637</a>
<a href="#">C-196 Attachment A</a> Exceptions to the approved plans, specifications, and QA program	Close-out Docs/ ProjectWise	RE/Project Office	District Engineer	At contract completion	Certification of project materials	23 CFR <a href="#">637</a>
<a href="#">C-197</a> Project Final Packet Checklist	Close-out Docs/ ProjectWise	RE/Project Office	Region Contracts Specialist	At time of notifying Region that project records are complete	Ensure complete documentation	
<a href="#">C-199</a> Post Construction Conference Report	Close-out Docs/ ProjectWise	RE/Project Office	Region Contracts Specialist	At completion of post construction meeting	Document any outstanding disputes or issues Lessons learned	Section <a href="#">00727</a>
<a href="#">C-200</a> Certificate of Receipt and Release By Property Owner	Close-out Docs/ ProjectWise	Contractor/ Land Owner	RE/Project Office/ Region Contracts Specialist	At physical completion	Document Contractor's agreement with landowner has been satisfied	Section <a href="#">01455</a>

# Required Forms

Form or Document	ProjectWise Form or Document Type & Location	Initiated By	Submitted Through/To	When Required	Purpose	Reference
Explanation of Overruns/Underruns	Close-out Docs/ PDBS	RE/Project Office	PDBS	After final estimate processed before notifying Region project records are complete	Explain overruns and underruns exceeding specified amount	
Item Status Report	Close-out Docs/ PDBS	RE/Project Office	PDBS	After final estimate processed before notifying Region project records are complete	List all items and notes which have been Over/Under run	
OCIP Deductions entered into PDBS (when applicable)	Close-out Docs/ PDBS	RE/Project Office	PDBS	At physical completion		<a href="#">OCIP Manual</a> and <a href="#">OCIP General Conditions</a> and Special Provision 00810S
Project Ledger	Close-out Docs/PDBS & ProjectWise	RE/Project Office	RE/Project Office	After final estimate processed before submitting project records to Region	Check calculations and comments for all quantity entries in PDBS	

# CONSTRUCTION MANUAL OF INSTRUCTION

## A PPENDIX

### Abbreviations and Acronyms

In addition to the definitions in Section 00570, the following abbreviations and acronyms are used in the Manual.

- A&D** – [Acceptance and Documentation Guide](#)
- AASHTO** – [American Association of State Highway Transportation Officials](#)
- AGC** – [Associated General Contractors of Utah](#)
- ASTM** – [American Society for Testing and Materials](#)
- ATSSA** – [American Traffic Safety Services Association](#)
- BAT** – [Bureau of Apprenticeship Training](#)
- CAA** – Commission Approved Amount
- CCFL** – Construction Contract Final Letter
- CCT** – Community Coordination Team
- CEM** – Construction Engineering Management
- CEMT** – [Construction Engineering and Management Training](#)
- CFR** – [Code of Federal Regulations](#)
- CM/GC** – [Construction Manager/General Contractor](#)
- CML** – [Central Materials Laboratory](#)
- COC** – Certificate of Compliance
- COFN** – Contract Overrun Funding Need
- CRE** – Consultant Resident Engineer
- CUF** – [Commercially Useful Function](#)
- DB** – Design-Build
- DBB** – Design-Bid-Build
- DBE** – [Disadvantaged Business Enterprise](#)
- DBFO** – [Design Build Finance Operate](#)
- DBOM** – [Design-Build-Operate \(Maintain\)](#)
- DOR** – Designer of Record (The licensed engineer responsible for the design plans)
- DWQ** – [Division of Water Quality](#)
- EA** – Environmental Assessment
- ECS** – [Environmental Control Supervisor](#)
- EDC** – Expedited Delivery Contracting
- EEO** – [Equal Employment Opportunity](#)
- EIS** – Environmental Impact Statement
- ePM** – [Electronic Program Management System](#)

ETS – [Engineering Technology Services](#)  
 FAPG – [Federal-aid Policy Guide](#) (FHWA Directives)  
 FHWA – [Federal Highway Administration](#)  
 GPS – Global Positioning System  
 HMA – Hot Mix Asphalt  
 HIC – Harassment, Intimidation, and Coercion  
 IA – Independent Assurance  
 I/D – Incentive/Disincentive  
 IDR – [Inspector’s Daily Report \(C-111\)](#)  
 IQP – [Inspector Qualification Program](#)  
 JHC – [Joint Highway Committee](#)  
 LG – Local Government (Also [Local Public Agency](#))  
 LPA – [Local Public Agency](#) (Also Local Government)  
 LQP – [Laboratory Qualification Program](#)  
 M&P – [Measurement and Payment](#)  
 MAP – [Materials Acceptance Program](#)  
 MMOI – [Materials Manual of Instruction](#)  
 MOT – Maintenance of Traffic  
 MPO – [Metropolitan Planning Organization](#)  
 MSE (Walls) – Mechanically Stabilized Earth Walls  
 MS&TR – [Minimum Sampling and Testing Requirements](#)  
 MUTCD – [Utah Manual of Uniform Traffic Control Devices](#)  
 NCHRP – [National Cooperative Highway Research Program](#)  
 NEPA – [National Environmental Policy Act](#)  
 NOA – Notice of Award  
 NOAA – [National Oceanographic and Atmospheric Administration](#)  
 NOI – [Notice of Intent](#)  
 NOT – [Notice of Termination](#)  
 NTP – Notice to Proceed  
 OCIP – [Owner-Controlled Insurance Program](#)  
 OGSC – [Open-Graded Surface Course](#)  
 OSH – [Occupational Safety and Health \(Act\)](#)  
 OSHA – [Occupational Safety and Health Administration](#) (USDOL)  
 P3 – [Public-Private Partnerships](#)  
 PCC – [Portland Cement Concrete](#)  
 PCCP – [Portland Cement Concrete Pavement](#)  
 PIC – Public Information Coordinator  
 PIM – Public Involvement Manager  
 PM – Project Manager  
 POP – Public Outreach Planner

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PPE – Personal Protective Equipment  
P+T – *Price plus Time (P+T)*  
PR – Public Relations  
PS&E – Plans, Specifications, and Estimate  
PW – [ProjectWise](#)  
QA – Quality Assurance  
QBS – Qualification-Based Selection  
QC – Quality Control  
QMP – [Quality Management Plan\(s\)](#)  
RBI – *Risk Based Inspection*  
RCS – Region Contracts Specialist  
RE – Resident Engineer  
RFI – Request for Information  
RFP – Request for Proposals  
RME – Region Materials Engineer  
ROW – Right of way  
SEP – [Special Experimental Project 14](#)  
SES – State Environmental Study  
SMA – Stone Matrix Asphalt  
STD – State Transportation Department  
SWPPP – Storm Water Pollution Prevention Plan  
TMP – [Transportation Management Plan](#)  
TPC – Total Project Cost  
TTQP – [Transportation Technician Qualification Program](#)  
USC – [United States Code](#)  
UDOT – Utah Department of Transportation (Department)  
UPDES – [Utah Pollutant Discharge Elimination System](#)  
UPRR – [Union Pacific Railroad](#)  
USDOL – [United States Department of Labor](#)  
UTA – [Utah Transit Authority](#)  
VE – Value Engineering  
VECP – Value Engineering Change Proposal  
VIR – [Visual Inspection Report](#)

## Applicable Policies and Procedures

Policy Number	Policy Title
<b>Comptroller (02)</b>	
<a href="#">02-21</a>	Closing Projects
<b>Human Resource Management (05)</b>	
<a href="#">05-30</a>	Rules of Conduct and Code of Ethics
<b>Maintenance (06A)</b>	
<a href="#">06A-41</a>	Work Done by the Highway Department
<b>Traffic and Safety (06C)</b>	
<a href="#">06C-05</a>	Traffic Engineering Order (TEO)
<a href="#">06C-23</a>	Use of Variable Message Signs
<a href="#">06C-61</a>	Work Zone Speed Limits
<a href="#">06C-62</a>	Work Zone Traffic Control and Maintenance of Traffic
<b>Risk Management (06E)</b>	
<a href="#">06E-01</a>	Government Records and Management Access Act, Process for Releasing UDOT Records
<a href="#">06E-02</a>	Personal Protective Equipment and Safety Clothing
<b>Program Development (07)</b>	
<a href="#">07-94</a>	Construction Engineering on Local Government Projects
<b>Project Development (08)</b>	
<i>General</i>	
<a href="#">08-02</a>	
<a href="#">08-03</a>	
<a href="#">08-04</a>	
<a href="#">08-05</a>	
<a href="#">08-06</a>	
<i>Preconstruction (08A)</i>	
<a href="#">08A-09</a>	Determination of Contract Time
<a href="#">08A-11</a>	Design-build Projects
<a href="#">08A-12</a>	Advertising and Awarding Design/Build Contracts
<a href="#">08A-13</a>	Price plus Time (P+T) Bidding

Policy Number	Policy Title
<i>Value Engineering (08A4)</i>	
<a href="#">08A4-1</a>	Value Engineering
<i>Construction (08B)</i>	
<a href="#">08B-01</a>	Prequalification of Contractors
<a href="#">08B-10</a>	Change Orders
<a href="#">08B-12</a>	Advertising and Awarding Construction Contracts
<a href="#">08B-21</a>	Contractor's/Subcontractor's Labor Payrolls on Federal-aid Projects
<a href="#">08B-25</a>	Retention of Construction Project Records Issued by the Office of Construction
<a href="#">08B-27</a>	Bid Bond Forfeiture of Surety Bond, Cash, or Other Security Instrument
<a href="#">08B-28</a>	Review of Construction Practices and Procedures
<a href="#">08B-29</a>	Accomplishment of and Payment for Utility Relocations Required in Connection with Highway Work (Including Railroad Relocation)
<a href="#">08B-30</a>	Construction Site Safety Inspection
<a href="#">08B-31</a>	Projects Materials Certification
<a href="#">08B-91</a>	Claims Review Board
<a href="#">08B-94</a>	Claims Re-Examination Board
<a href="#">08B-110</a>	Disadvantaged Business Enterprise (DBE) Program
<i>Structures (08C)</i>	
<a href="#">08C-01</a>	Minimum Design Loads, Structures
<i>Utilities (08E)</i>	
<a href="#">08E-01</a>	Railroad Participation and Maintenance Responsibilities for Railway-Highway Projects
<a href="#">08E-02</a>	Accommodation of Utilities on Highway Rights of Way
<a href="#">08E-03</a>	Plans, Specifications and Estimates, and Railroad Agreements for Railway-Highway Crossing Projects as Authorized by the 1973 Federal-aid Highway Act (Sections 203 and 230)

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## Constructibility Review Checklist

### General

- Keep design simple and flexible
- Verify utility locations on plans and check for underground conflicts
- Assure utility construction coordination with other agencies/service districts
- Provide construction access and work/staging areas when practical
- Consider access for routine maintenance in design
- Is all of the required work covered by pay items?
- Are there any unnecessary pay items?
- Are pay items in the bid tabulation covered by the specs?
- Does the Measurement and Payment document include sufficient detail?
- Are all necessary materials available?
- Consider construction methods that “drive” the design
- Is weather going to be a factor?
- Standardize design elements
- Do specifications allow work efficiency?
- Are specifications clear, and conform to current practices?
- Do items on Engineer’s Estimate match the plan summaries?
- Is all work shown in the plans (project scope) represented in the Engineer’s Estimate?
- Do the estimated unit prices reflect the project locale and site and market conditions?

### Earthwork & Grading

- Clear & grub - how will brush/trees be disposed of?
- Check local agency requirements for environmental issues
- Is special slope treatment required - how is it paid?
- Are structure removal limits clearly shown?
- Review disposal alternatives for PCCP/asphalt pavements
- Is blasting allowed?
- Are there available stockpiling sites?
- Are all removal/sawcut limits specified?
- Does HMA removal widths concur with equipment capabilities?
- Can existing roadway materials be salvaged for other use?
- Is earthwork phasing compatible with construction requirements?
- Can easements be economically obtained for temporary detours?
- Do driveways/turnout/intersection grades meet allowable standards?
- How is shrink/swell factor applied to earthwork tabulation?
- Are shrink/swell factors reasonable?
- Provide a quantity cushion on large earthwork jobs
- Attempt to balance between several projects on corridor work
- Which material is more economical - borrow or waste?

- ( ) Designate temporary crossings for overloads
- ( ) Consider material type available during staged construction
- ( ) How long can the highway be closed for blasting/clearing?
- ( ) Are rock cuts wide enough to accommodate equipment?
- ( ) Will excavated rock fit into available fills?
- ( ) Is satisfactory plating material available for rock cuts?
- ( ) Are roadway grading/fill widths compatible with equipment size?
- ( ) Is a local source available for shoulder material?
- ( ) Is there a local source available which will meet topsoil specs?
- ( ) Are slopes for plating flat enough for conventional equipment?
- ( ) Can access be constructed to remote locations?
- ( ) Consider overload hauling @ job for large volumes
- ( ) Is there any presence of ground water or active streams?
- ( ) Minimize restricted areas that prevent normal equipment use

## Bases & Pavements

- ( ) Minimize low production or hand work areas
- ( ) Are truck turnaround areas available?
- ( ) Can overloads/widths be hauled through the job?
- ( ) Are permits for over length loads to the job feasible?
- ( ) Design widening which will accommodate standard equipment
- ( ) Check out haul routes @ metropolitan areas - restrictions?
- ( ) Do the phasing plans allow for PCCP equipment clearance?
- ( ) Are special material sources available and reasonable in the haul?

## Pipelines & Drainage

- ( ) Identify utility conflicts on plans
- ( ) Is underground work sequenced with roadway operation?
- ( ) Are soils conditions conducive for trenching?
- ( ) Consider the use of multiple catch basins in sag vertical curves
- ( ) Try to standardize catch basins for the job
- ( ) Check for catch basin conflicts with underground utilities
- ( ) Keep catch basin location in the gutter pan
- ( ) Compare roadway/pipe grades to insure cover
- ( ) Do designed grades of drainage system encourage silting?
- ( ) Do dikes/berms fit field needs and can they be accessed?
- ( ) Are typical sections shown for dikes or channels?
- ( ) Allow alternates for channel lining designs
- ( ) Will linings be needed for detention/retention basins?
- ( ) Review potential drainage problems thru temporary construction
- ( ) Has the ponding area on the upstream ends of culverts been considered?

# CONSTRUCTION MANUAL OF INSTRUCTION

- ( ) Has offsite drainage been considered (beyond construction limits)?
- ( ) Is drainage properly controlled at the ends of structures?
- ( ) Does sidewalk pond water at transition to bridge deck?
- ( ) Confirm minimum pipe sizes with maintenance for clean out work

## Structures

- ( ) Do special provisions fit the job?
- ( ) Verify screed elevations and dead load camber for accuracy
- ( ) Will caisson drilling require special measures?
- ( ) Is dewatering required?
- ( ) Strive for simplicity in bridge design
- ( ) Avoid heavily skewed bridges
- ( ) Standardize pier shapes for the job
- ( ) Avoid irregular shapes for walls of footings
- ( ) Provide sufficient room for jacking P/T bridges.
- ( ) Minimize architectural details
- ( ) Allow for vibrator space around reinforcing steel
- ( ) Reduce reinforcing steel congestion at pier caps
- ( ) Design uniform heights when possible for retaining walls
- ( ) Use two foot minimum steps for retaining walls
- ( ) Consider working area needs around structures
- ( ) Check for overhead utility conflicts
- ( ) Consider access to structure site
- ( ) Does falsework over traffic provide 16.5 ft clearance?
- ( ) Use precast units when possible.
- ( ) Do bridge bearings require special manufacture?
- ( ) Show clear installation procedures in the plans for bearings
- ( ) Minimize the use of concrete slope protection at abutments
- ( ) Check sign/light foundations on bridges for utility conflicts
- ( ) Is design required for temporary utility ductwork support?

## Incidentals

- ( ) What is available locally for rip rap materials?
- ( ) Is the existing embankment suitable for guardrail posts?
- ( ) Design flatter slopes to eliminate guardrail
- ( ) Is the fencing plan clear and understandable?
- ( ) Is temporary fencing needed to protect work sites?
- ( ) Is the debris fence visible and accessible from the roadway?
- ( ) Use standard curb and gutter sections whenever possible
- ( ) Check driveways/sidewalks for conflicts with utilities
- ( ) Consider possible concrete supply for small remote jobs

## Examples and Links

Buy America Documentation Examples

Change Orders/Cost Analysis Examples

Force Account Documentation Examples

[Issues/Action Item Log](#)

[RFI Log](#)

[Submittal Log](#) Sample Meeting/Conference Agendas

# CONSTRUCTION MANUAL OF INSTRUCTION

## Preconstruction Conference Agenda

(Reference the [UDOT/AGC Partnering Field Guide](#))

Attendees of the preconstruction conference will vary depending on project size, complexity, scope, location, and other factors. The RE should coordinate project specific attendees with the District Engineer and Project Manager. A sample conference roster is below:

- a. Project Manager
- b. Region Preconstruction Engineer
- c. Designer
- d. District Engineer
- e. Region Maintenance Engineer/Station Supervisor
- f. Region Materials Engineer
- g. Region Utility Coordinator
- h. Region Safety/Risk Manager
- i. Region Traffic Engineer
- j. Region Signal Manager
- k. Region Public Involvement Coordinator
- l. Region Contract Specialist
- m. Resident Engineer
- n. Field Engineer
- o. Lead Inspector/Lead Materials Technician
- p. Office Manager
- q. FWHA Area Engineer
- r. Contractor Project Manager
- s. Contractor Project Engineer
- t. Contractor Superintendent
- u. Major Subcontractor Project Manager
- v. Utility and Railroad Company Representatives
- w. Local Government Representatives



## Construction Manual of Instruction

[udot.utah.gov/go/construction](http://udot.utah.gov/go/construction)