

North Texas Tollway Authority Construction Manual



October 2011

NTTA Construction Manual

TABLE OF CONTENTS

1.0	OVERVIEW	14
1.1	Introduction	14
1.1.1	Contract Administration	15
1.1.2	NTTA General Oversight	15
1.2	General Definitions.....	16
2.0	CONSTRUCTION MANAGEMENT - ORGANIZATION AND QUALIFICATIONS	22
2.1	Construction Manager General Qualifications.....	22
2.2	Construction Manager Staff	22
2.3	CM Staff Qualifications	23
2.3.1	Project Manager.....	23
2.3.2	Resident Engineer	23
2.3.3	Office Engineer.....	23
2.3.4	Chief Inspector.....	23
2.3.5	Inspectors/Lab Technicians	23
2.3.5	TABLE 1 - Lab Technician Qualifications.....	24
2.3.5	TABLE 2 - Inspector Qualifications	24
2.3.6	Professional Land Surveyor.....	25
2.3.7	Erosion and Sediment Control Site Representative	25
2.3.8	Traffic Control Plan Representative	25
2.3.9	Record Keeper	25
2.3.10	Quality Manager	25
2.3.11	Material Coordinator.....	25
2.3.12	Administrative/Clerical.....	25
2.3.13	Wall Engineer or Wall and Structures Engineer	25
2.3.14	Electrician	26
2.3.15	Landscape Inspector	26
2.3.16	Utility Construction Coordinator	26
2.3.17	ROW Support and Coordination.....	26
2.3.18	Environmental Quality Coordinator.....	26
2.4	Administrative Authority of the Construction Manager	26
2.5	Contractor's Superintendent.....	28
2.6	List of Acronyms Used in this Construction Manual	28
3.0	SCOPE OF WORK.....	30
3.1	General	30
3.2	Responsibilities of the Construction Manager	31
3.2.1	Construction Manager Review Prior to Contractor starting operations	31
3.2.2	Construction Manager Ongoing Responsibilities	32
3.2.3	Authority of the Construction Manager	34
3.2.4	Construction Manager/Resident Engineer Acceptance Decision Delegation	35
3.2.4	TABLE 3 - Construction Manager Engineering Judgment Opportunities	37
3.2.5	Management of the Construction Contract	38
3.2.6	Items Furnished to the Construction Manager	40
3.2.7	Workers and Equipment	41
3.2.8	Cooperation with the Contractor.....	42

NTTA Construction Manual

3.2.9	Contact with the Public.....	42
3.3	Public Relations	42
3.3.1	Public Safety and Convenience	43
3.3.2	Protection of Adjoining Property.....	43
3.3.3	Using Explosives	43
3.4	Contractor’s Responsibility for Work.....	43
3.5	Electrical Work.....	44
3.6	Work near Railroads.....	44
3.7	Noise Abatement.....	44
3.8	Conflicts of Interest and Ethics	44
3.9	Gifts, Benefits, and Favors.....	44
3.10	Computers and Cellular Telephones	45
4.0	PRE-CONSTRUCTION.....	47
4.1	Showing the Project.....	47
4.2	Bidding Proposals.....	47
4.3	Pre-Bid Conference	47
4.4	Optional Attendance.....	48
4.5	Mandatory Attendance	48
5.0	CONSTRUCTION.....	50
5.1	Public Information Act	50
5.2	Pre-Construction Conference.....	50
5.3	Pre-Construction Conference Agenda.....	50
5.3.1	TABLE 4 - Pre-Construction Conference Agenda.....	51
5.3.1	TABLE 4 - Pre-Construction Conference Agenda continued.....	52
5.3.1	TABLE 4 - Pre-Construction Conference Agenda continued.....	53
5.3.1	TABLE 4 - Pre-Construction Conference Agenda continued.....	54
5.3.1	TABLE 4 - Pre-Construction Conference Agenda continued.....	55
5.3.1	TABLE 4 - Pre-Construction Conference Agenda continued.....	56
5.4	Barricades, Warning and Detour Signs, and Traffic Handling	56
5.4.1	Contractor Responsible Person (CRP).....	56
5.4.2	Speed Limit Signage.....	57
5.4.3	Contractor responsibility to maintain all traffic control devices.....	57
5.4.4	Construction Manager TCP Documentation (TxDOT Form 599).....	57
5.4.5	Emergency Lane Closure Request Procedure.....	58
5.4.6	TCP Documentation Exempt from Disclosure under Public Information Act.....	58
5.5	Project Records.....	59
5.6	Electronic Records.....	59
5.6.1	Construction Manager’s Use of EPDS	60
5.6.2	Construction Records Requirements	60
5.7	Construction Documentation.....	61
5.7.1	Work Documents	62
5.7.2	Working Drawings.....	63

NTTA Construction Manual

5.7.3	Shop Drawings.....	63
5.7.4	Coordination of Contract Documents	65
5.7.5	Daily Diary	65
5.8	Value Engineering	66
5.9	Construction Surveying	66
5.9.1	Method A	67
5.9.2	Method B	67
5.9.3	Method C	67
5.9.4	Contractor Responsibility	67
5.10	Inspection by the Construction Manager	67
5.10.1	Defective and Unauthorized Work	67
5.10.2	Interim/Milestone/Substantial Completion	68
5.10.3	Final Acceptance.....	69
5.11	Inspection by Outside Organizations.....	69
5.11.1	Texas Department of Licensing and Regulation (TDLR) Inspections	69
5.11.2	FHWA/TxDOT (Non-Exempt Federal-aid Projects)	70
5.12	Utility Coordination	70
5.12.1	General Requirements	71
5.12.2	Coordination of Utility Work.....	72
5.12.3	Documentation	72
5.13	Control of Materials	72
5.13.1	Material Source Information	74
5.13.2	Local Material Sources.....	75
5.13.3	Material Certification from the Contractor.....	75
5.13.4	Royalty Payments.....	75
5.13.5	Use of Designated Materials	75
5.13.6	Storage of Materials	76
5.13.7	Stockpiling Aggregates	76
5.13.8	Purchasing Excess Materials	76
5.13.9	Material Testing	76
5.13.9	TABLE 5 -Actions and Responsibility for Tests	77
5.13.10	Test Methods and Testing Equipment.....	78
5.13.11	Project Tests.....	78
5.13.12	Acceptance Tests.....	78
5.13.13	Monitoring Tests	79
5.13.14	Independent Assurance Program.....	79
5.13.15	System Approach	79
5.13.16	Sampling and Testing.....	79
5.14	Materials Acceptance	79
5.14.1	Portland Cement Concrete Plant Inspection.....	81
5.14.2	Quality Monitoring Programs (QMP)	81
5.15	Pay Estimates and Computations	82
5.15.1	Monthly Progress Payments	82
5.15.2	Material on Hand (MOH).....	83
5.15.3	Semi-Final Pay Estimate	83
5.15.4	Final Pay Estimate.....	83
5.16	Buy America.....	84
5.17	Change Orders.....	84
5.17.1	Obtaining Prior Approval Authorization.....	86
5.17.2	Change Order Approval Authority.....	86

NTTA Construction Manual

5.17.3	Change Order Preparation	86
5.17.3	TABLE 6 -Preparing Change Orders.....	87
5.17.4	Change Orders Requiring TxDOT Review	88
5.17.5	Other Factors Affecting Change Orders	88
5.17.6	Advance Funding Agreements	88
5.17.7	Texas Department of Licensing and Regulation (TDLR) Submissions	89
5.17.8	Federal Letter of Authority (FLOA) Federal-Aid Projects	89
5.17.8	TABLE 7 - Major/Minor Change Orders for FHWA Oversight Projects.....	90
5.17.9	State Letter of Authority (SLOA) Federal-Aid Projects	90
5.17.10	Federal Participation	90
5.17.11	NTTA Funded Projects	91
5.17.12	Extending or Adding Project Limits to the Contract with TxDOT/FHWA Oversight	91
5.17.13	Federal Participation	91
5.17.15	Exception for Allowing Federal Participation Related to Added Limits.....	92
5.17.16	Submission Requirements Related to Added Limits	92
5.17.17	Force Account and Interim Adjustments to the Contract	93
5.17.18	Change Orders Involving Interim Adjustments.....	93
5.17.19	Supplemental Agreements.....	93
5.17.20	Assignments	93
5.17.21	Changing the Legal Name of the Contractor.....	94
5.18	Terminations	94
5.19	Hazardous Materials or Waste.....	95
5.19	TABLE 8 - Options for Handling Contamination.....	95
5.19.1	Hazardous Materials Anticipated during Construction	96
5.19.2	Unanticipated Hazardous Materials Encountered during Construction	97
5.19.3	Use of Consultants	97
5.19.4	Remediation.....	98
5.19.5	Cost Recovery and Accounting	98
5.19.6	Responsible Parties	98
5.20	Environmental Coordination.....	99
5.20.1	Endangered Species Act Requirements	99
5.20.2	U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department Reviews (TPWD).....	99
5.20.3	Storm Water Discharges	99
5.20.4	TPDES Construction General Permit (CGP)	100
5.20.5	Certification Requirements	101
5.20.5	TABLE 9 - Documents Required to be Certified by TCEQ's CGP.....	101
5.20.6	Storm Water Pollution Prevention Plan (SW3P)	101
5.20.7	Notice of Intent (NOI) and Construction Site Notice (CSN)	103
5.20.8	Contractor Involvement	103
5.20.9	Inspections	103
5.20.10	TPDES Construction General Permit Notice of Termination (NOT).....	104
5.20.11	Work in Waters of the United States	104
5.20.12	Work in Navigable Waters of the United States.....	105
5.20.13	Work Over the Recharge or Contributing Zone of Protected Aquifers	105
5.20.14	Completion of a Project and Release of a Contractor.....	105
5.20.15	Texas Antiquities Code (Chapter 191 of the Texas Natural Resources Code).....	105
5.20.16	National Historic Preservation Act as Amended (16 U.S.C. §470 and 36 CFR Part 800)	106
5.20.17	Project Specific Locations.....	106
5.20.18	Federal Safety and Health Laws.....	107
5.20.19	Contractor Performance	107
5.20.20	Pre-Construction Preparation	107
5.20.21	Pre-Construction Conference (Safety)	107
5.20.22	Construction Surveillance	108

NTTA Construction Manual

5.20.23	Violations	110
5.20.24	Definitions (Safety)	110
5.20.25	Incident Reporting Requirements	111
5.20.26	Investigations by Other Agencies	111
5.21	EEO Requirements.....	111
5.21.2	Contractor Federal EEO Requirements.....	112
5.21.3	Equal Employment Opportunity	112
5.21.4	EEO Officer	112
5.21.5	Dissemination of EEO Policy	112
5.21.6	Recruitment.....	113
5.21.7	Personnel Actions	113
5.21.8	Training and Promotion	114
5.21.9	Selection of Subcontractors, Procurement of Material, and Leasing of Equipment	114
5.21.10	Records and Reports.....	114
5.21.11	Nonsegregated Facilities	115
5.21.12	EEO Correspondence and Reports	115
5.21.13	Labor Requirements	116
5.21.14	Contract Work Hours and Safety Standards Act (29 CFR Part 5).....	116
5.21.15	Copeland Anti-Kickback Act (29 CFR Part 3).....	116
5.21.16	Davis-Bacon and Related Acts (29 CFR Parts 1, 3, 5, 6 and 7)	117
5.21.17	Fair Labor Standards Act (29 CFR Chapter V).....	117
5.21.18	Prevailing Wage Rates (Title 10, Chapter 2258 of the Texas Government Code)	118
5.21.19	Contract Labor Requirements	119
5.21.20	Construction Manager Monitoring for Federally Funded Projects.....	120
5.21.21	Additional Labor Classifications.....	121
5.21.22	Labor Interviews	121
5.21.22	TABLE 10 - Payroll Errors Problems and Resolution	121
5.21.23	Payroll Review	121
5.21.24	Semiannual Labor Compliance Enforcement Report (Federally Funded Projects only).....	122
5.21.25	Wage Rate Survey	122
5.21.26	Posters and Notices	122
5.21.26	TABLE 11 -Job Site Posters and Notices.....	123
5.21.27	TxDOT Forms on Federal-Aid Projects	124
5.22	Daily Progress Drawings.....	124
5.23	Progress Schedules	124
5.23.1	Schedule Types.....	125
5.24	Contract Time.....	126
5.24.1	Temporary Suspension of Work or Working Day Charge.....	126
5.24.2	Reasons for Temporary Suspension of Work	126
5.25	Subcontracting.....	127
5.25.1	Minority/Women/Disadvantaged Business Enterprise (M/W/DBE) Prime Contractors	127
5.25.2	Subcontracts Exceeding 70% of the Total Contract Amount	127
5.25.3	Subcontractor Approval Procedure.....	128
5.26	Contractor Default	128
5.26.1	Contract with Performance Bond.....	129
5.26.2	Contract without Performance Bond.....	129
6.0	POST CONSTRUCTION	132
6.1	Disputes	132
6.2	Partnering and Issue Escalation.....	132
6.3	Record Drawings	132

NTTA Construction Manual

Appendix

- MAN-06-Appendix A** Contractors Quality Control Program
- MAN-06-Appendix B** Quality Assurance Program
- MAN-06-Appendix C** Guide Schedule of Sampling and Testing
- MAN-06-Appendix D** Quality Assurance Guide Schedule
- MAN-06-Appendix E** Forms Index
- MAN-06-Appendix F** Constructor Checklists
- MAN-06-Appendix G** File Management Plan
- MAN-06-Appendix H** Emergency Communication Plan

Forms

- MAN-06-F1** NTTA Inspector's Daily Diary Report
- MAN-06-F2** NTTA Quantity Summary Report
- MAN-06-F3** Project Environmental Quality Review
- MAN-06-F4** PSL Environmental Quality Review
- MAN-06-F5** NTTA Daily Pay Item Report Form
- MAN-06-F6** NTTA Form 2118-3P Construction Storm Water Pollution Prevention Plan Field Inspection Report
- MAN-06-F7** NTTA Form 8901 Request for Approval of Subcontractor
- MAN-06-F8** NTTA Form 8901a Subcontractor Approval Tracking
- MAN-06-F9** NTTA Pre-Construction Meeting Agenda Template

NTTA Construction Manual

Checklists

- MAN-06-F10** Clearing and Grubbing Checklist
- MAN-06-F11** Excavation and Embankment Checklist
- MAN-06-F12** Earthwork Geotextiles Checklist
- MAN-06-F13** Topsoil Checklist
- MAN-06-F14** Sod and Seeding Checklist
- MAN-06-F15** Plants, Trees, Shrubs, Vines and Groundcovers Checklist
- MAN-06-F16** Gabions and Revet Mattresses Checklist
- MAN-06-F17** Asphalt Tack Coat Checklist
- MAN-06-F18** Asphalt Prime Coat Checklist
- MAN-06-F19** Asphalt Surface Treatment Checklist
- MAN-06-F20** Hot Asphalt Concrete Pavement Checklist
- MAN-06-F21** Concrete Pavement Inspection Checklist
- MAN-06-F22** Structure Excavation and Backfill Checklist
- MAN-06-F23** Structure Excavation and Backfill for Major Structures Checklist
- MAN-06-F24** Mechanically Stabilized Earth (MSE) Walls Checklist
- MAN-06-F25** Reinforced Concrete Retaining Walls Checklist
- MAN-06-F26** Steel Structures Checklist
- MAN-06-F27** Structural Concrete Checklist
- MAN-06-F28** Reinforcing Steel Checklist
- MAN-06-F29** Minor Concrete Structures Checklist
- MAN-06-F30** Bearing Devices Checklist
- MAN-06-F31** Temporary Work Checklist
- MAN-06-F32** Culverts and Drains Checklist
- MAN-06-F33** Manholes, Inlets, and Catch Basins Checklist
- MAN-06-F34** Bridge Railing Checklist
- MAN-06-F35** Waterproofing Checklist
- MAN-06-F36** Riprap Checklist
- MAN-06-F37** Underdrains Sheet Drains and Pavement Edge Drains Checklist

NTTA Construction Manual

MAN-06-F38 Concrete Barriers and Precast Guardwalls Checklist

MAN-06-F39 Guardrail Checklist

MAN-06-F40 Curb and Gutter Checklist

MAN-06-F41 Fences and Gates Checklist

MAN-06-F42 Monuments and Markers Checklist

MAN-06-F43 Permanent Traffic Control Checklist

MAN-06-F44 Signal Lighting and Electrical Systems Checklist

MAN-06-F45 Permanent Pavement Markings Checklist

MAN-06-F46 Drill Shaft Report

Attachments

MAN-06-A1 TxDOT Material Certification Letter Sample

MAN-06-A2 SAMPLE MAN-06-F8 Subcontractor Approval Tracking

MAN-06-A3 Subcontractor Approval Letter SAMPLE

MAN-06-A4 SAMPLE – PGBT EE Section 31 Precon Agenda 2009

MAN-06-A5 NTTA Lane Closure Request Form

MAN-06-A6 NTTA Lane Closure Guidelines

MAN-06-A7 SAMPLE Lane Closure Request for Service Road

MAN-06-A8 SAMPLE NTTA Lane Closure Request for Main Lane

MAN-06-A9 SAMPLE NTTA Lane Closure Request Form – As Approved

MAN-06-A10 NTTA Emergency Communication Plan Template 092208

MAN-06-A11 SAMPLE SWP 2C ECP-Revised 122110

MAN-06-A12 460IL013 North Texas Tollway Interlocal Agreements

MAN-06-A13 Dropbox Instructions for Non-TxDOT personnel

MAN-06-A14 Sample Letter TxDOT Source Inspection -02559 Letter to TxDOT Plans and Specs

MAN-06-A15 Sample Spreadsheet Material Sourcing in requesting TxDOT Inspection

MAN-06-A16 NTTA LCA Table 4 Ramp Codes

NTTA Construction Manual

NTTA QMS Procedures

- CON-01** Construction Request for Information (RFI) Review Process
- CON-02** Construction Submittal Review Process
- CON-03** Construction Contract Change Order (CO) Process
- CON-04** Construction Administration
- CON-06** Construction Contract Closeout
- CON-07** Control of Nonconforming Items During Construction
- CRV-01** Sampling, Testing and Report Requirements
- CRV-02** Random Number Table-Based Random Sampling Requirements
- CRV-03** IA Compliance of Testing Laboratory and Personnel
- CRV-04** Test Results Analysis, Dispute Resolution and Reporting
- CRV-05** Quantity Tracking and Test Frequency Verification
- DM-01** Management of Controlled Documentation
- DM-02** Project Delivery Records Management Requirements
- DM-03** Administrative Record
- PI-01** Media Relations & External Communications Process
- QM-08** Quality Management System Audit
- QM-10** Corrective & Preventive Action
- VQ-03** Visual Quality Control of Nonconforming Product
- ENV-01** Storm Water Management
- ENV-02** Environmental Documentation Review and Submittal Process
- ENV-03** Control of Environmental Nonconformance
- CA-02** Invoicing & Payment
- CA-03** Professional Services Change Management
- CA-04** Contract Closeout – Professional Services, Goods and Services,
- CA-08** Independent Cost Estimate Process

NTTA Construction Manual

Reference Documents

1. FHWA Form 1494 Semiannual Labor Compliance Report
2. TCEQ Form 20022 NOI for Storm Water Discharge
3. TCEQ Form 20134 General Permit Payment Submittal Form (last page)
4. TCEQ Form 20023 NOT for Storm Water Discharge
5. Instructions for Completing TCEQ Form 20023 NOT for Storm Water Discharge
6. TxDOT TDLR Architectural Barrier Inspection Form
7. TxDOT Public Interest Finding
8. US Dept of Labor Form WH-347 Payroll
9. FHWA Form 1391 Federal-Aid Highway Construction Annual EEO Report
10. TxDOT Form 2220 Labor Standards Review
11. TxDOT Form 2235 Final Inspection of Federal-Aid Project
12. TxDOT Form 599 Traffic Control Devices Inspection Report with Instructions
13. FHWA Form 1392 Summary of Employment Data
14. TxDOT Form CST-C1 Additional Classification and Wage Request
15. TxDOT Form 1914 Request for Payment of Materials on Hand Summary Page
16. TxDOT Form 1915 Request for Payment of Material on Hand
17. TxDOT Form 2177 Prompt Payment Certification (Federal-Aid Projects and Projects with SBE Goals)
18. TxDOT Form 2178 DBE Joint Check Approval
19. TxDOT Form 2182 Commercially Useful Function (CUF) Project Site Review (Construction Projects)
20. TxDOT Form CSTM NRM-1 (Contractor's Checklist) under Recycled Materials
21. TxDOT Form CSTM NRM-2 (Contractor's Environmental Certification) under Recycled Materials
22. TxDOT Form CSTM NRM-3 (Supplier's/Producer's Environmental Certification) under Recycled Materials

NTTA Construction Manual

Tables

TABLE 1	Section 2.3.5	Lab Technician Qualifications
TABLE 2	Section 2.3.5	Inspector Qualifications
TABLE 3	Section 3.2.4	Construction Manager Engineering Judgment Opportunities
TABLE 4	Section 5.3.1	Pre-Construction Conference Agenda
TABLE 5	Section 5.13.9	Actions and Responsibility for Tests
TABLE 6	Section 5.17.3	Preparing Change Orders
TABLE 7	Section 5.17.8	Major/Minor Change Orders for FHWA Oversight Projects
TABLE 8	Section 5.19	Options for Handling Contamination
TABLE 9	Section 5.20.5	Documents Required to be Certified by TCEQ's CGP
TABLE 10	Section 5.21.22	Payroll Errors Problems and Resolution
TABLE 11	Section 5.21.26	Job Site Posters and Notices

NTTA Construction Manual

Section 1



NTTA Construction Manual

1.0 OVERVIEW

1.1 Introduction

It shall be understood that this Manual shall be contractually a part of and directly pursuant to the Proposal and Agreement for Construction Engineering Services. Procedures, expectations, and nomenclature presented in this Manual are subject to change at any time upon notification from NTTA. The current revision applies to all current and future Construction Manager Agreements. Each Construction Manager shall furnish services assigned to him/her per Agreement with NTTA and in accordance with this Construction Manual. Such services shall be performed under the direct administration of NTTA.

Any exceptions to the requirements of this manual, or its supplemental referenced NTTA documents, shall be justified in writing with a supplemental agreement for approval in accordance with the procedural requirements of QMS procedure CA-03 Professional Services Change Management

The Construction Manager is advised that NTTA has retained a Program Manager, General Engineering Consultant (GEC), Corridor Managers, Design Section Engineers and in selected corridors a Corridor Construction Manager. The Construction Manager shall cooperate fully with these representatives of NTTA in the performance of their duties and functions while reporting to the designated NTTA staff member). The Construction Manager's responsibilities are expanded upon within this manual. The Construction Manager shall keep NTTA Project Delivery and its representatives informed of the activities of his/her own operations, as well as those of the Contractor, by making accessible at all reasonable times job related documents and reports, through electronic upload to NTTA's EPDS Content Management system and via execution of appropriate EPDS workflows.

NTTA projects may be constructed as Design-Bid-Build, Design-Build or other alternative method. This Manual unless otherwise specified is for traditional Design-Bid-Build projects. Design-Bid construction projects have a Design-Build Agreement that controls and shall take precedence over any direction herein if conflicts occur. Throughout this manual, references to the Construction Manager will be taken to apply to the entity performing daily construction management. Full access to the project and project records must be provided to NTTA or their representatives.

The Contract Documents provided to the Construction Manager have been prepared by the Designer using design criteria and standards approved by NTTA. These bid documents can be assumed to be complete (unless otherwise stated) and accurate as far as the available information and assumptions made of the existing conditions are accurate, but, minor changes are expected to occur as the work progresses.

NTTA Construction Manual

1.1.1 Contract Administration

Contract Administration is one of the most important jobs related to construction projects and involves numerous tasks occurring before and after contract execution and work order issuance. All work must be administered in accordance with the contract specifications, terms and conditions, state and federal laws and regulations, and NTTA policies and procedures.

Proper contract administration includes:

- complying with contract documents and specifications
- timely processing of RFI's (CON-01), Submittals (CON-02), Construction NCR's (CON-07), CAR's / PAR's (QM-10), in accordance with QMS procedure listed.
- monitoring contractor's CPM schedule submittals, in accordance with QMS PC-06
- proactively addressing project issues, so as to prevent avoidable cost and schedule impacts
- monitoring construction safety
- coordinating through the Construction Manager's Environmental Quality Coordinator with the Contractor and NTTA Project Delivery Environmental Compliance Manager to monitor SW3P documentation.
- generating and maintaining comprehensive project records / photographs
- coordinating material testing needs
- comprehensive project progress reporting
- assuring Traffic Control Plan compliance
- conducting efficient project closeouts in accordance with QMS CON-06
- generating comprehensive and accurate record drawings, with GPS locations of utilities, etc., if included in the Scope of Work for the Construction Manager
- complying with NTTA policies and procedures
- enforcing state and federal regulations
- submitting a Quality Plan for review and acceptance in accordance with QMS QM-02
- ensuring quality control by overseeing, inspecting and reviewing sampling and testing of all materials and work, including Wall Engineer Reports if included in the Construction Manager's Scope of Work.
- keeping and maintaining accurate project records, and uploading them to NTTA's EPDS Content Management system.
- recording, verifying and preparing monthly pay estimates
- negotiating and processing of independent cost estimates (CA-08), change orders and invoice price justifications (CON-03), supplemental agreements (CA-03) and other contract modifications in a timely manner
- promoting good public relations
- setting and maintaining a high professional standard

1.1.2 NTTA General Oversight

NTTA provides general oversight of the letting management and administration of highway construction contracts including:

NTTA Construction Manual

- prequalification of construction contractors
- construction letting management
- claims analysis and processing support
- materials and testing specifications
- NTTA Business Diversity Policy

1.2 General Definitions

Whenever in this Manual the following terms are used, their intent and meaning shall be as follows:

- **Agreement for Adjustment of Utility (AAU):** An order to a Utility for the removal, rearrangement, relocation, protection, or construction of its facilities on NTTA right-of-way. Such order, usually prepared and issued by NTTA, specifies both the work to be done by the Utility and the basis of payment for such work.
- **Agreement:** The legal written instrument executed between the North Texas Tollway Authority and the Construction Manager for the performance of services in accordance with this Construction Manual. The term "Agreement" includes all supplemental Agreements.
- **Authority:** The North Texas Tollway Authority (NTTA).
- **Construction Cost Change Control Committee (C5):** NTTA committee responsible for evaluating and recommendation for approval of all Construction Change Orders.
- **Change Order (CO):** A written order to the Contractor approving a change in the work, typically resulting in an increase or decrease in the quantity of, creation of new pay items or cancellation of any one or more of the contract unit price or lump sum items. This may include addition or deletion of portions of the work.
- **Completion Date:** The calendar date of final completion of the work as designated by NTTA in the Bid Documents and as may be subsequently changed by NTTA.
- **Contract Documents:** All the documents mentioned under the definition of "Construction Contract."
- **Contractor:** The individual, partnership, firm, or corporation (or any combination thereof) that, after being selected by NTTA as the successful bidder, has entered into the Construction Contract with NTTA.
- **Construction Contract:** The written agreement executed between NTTA and the Contractor covering the performance and construction of the work including the furnishing of labor, materials, and equipment. The Construction Contract includes the duly executed Agreement, Plans, Contract Requirements, Standard Specifications, Special Specifications, Special Provisions, References, Permits, and any and all Supplemental Agreements, including Change Orders.
- **Construction Manager:** The Engineer or firm of Engineers contracted by NTTA to act as its duly authorized agent in accordance with the scope of the particular duties delegated to them by the terms of their Agreement.
- **Construction Non-Conformance Report (NCR):** A QMS procedure (CON-07) using EPDS that defines how to handle all items not meeting plans or specifications in NTTA construction projects and creates a means for the NTTA to accept substandard work. The procedure includes the ability to isolate the item(s) not meeting plans or specs, stopping

NTTA Construction Manual

all work related to the item(s) and ensuring a timely resolution of the matter. NCRs have been separated for Visual Quality (VQ-03) and Environmental (ENV-03).

- **Construction Section (or Segment):** Any one of the many divisions, within specifically defined project limits, into which construction of the roadway, facilities and appurtenances may be divided for the purpose of awarding Contracts.
- **Corrective Action Request (CAR):** Written notice to the Construction Manager, Contractor, or other involved party requesting that specific actions be taken to correct noncompliance to processes or procedures. A CAR requires the determination of the root cause of the non-conformance, as well as a corrective action plan to prevent recurrence.
- **Corridor Construction Manager (CCM):** The Engineer or firm of Engineers contracted by NTTA to assure proper coordination and procedural consistency within the assigned corridor, at times when NTTA may elect to implement such assignments.
- **Corridor Manager:** The representative of NTTA Project Delivery assigned to be the primary technical and administrative liaison between NTTA and its various Contractors, Construction Managers, Designers, Program Manager, and Consulting Engineers, charged with lead responsibility for project quality, schedule and budget on an NTTA designated Corridor.
- **Daily Progress Drawings** – the plans prepared showing work done each day with any changes to the issued plans and specifications noted for reference purposes.
- **Design Section Engineer (DSE):** The Engineer, or firm of Engineers, that is contracted by NTTA to prepare the Bid Documents to provide plans, and specifications to complete the work.
- **Design Section:** Any one of the many divisions within specifically defined project limits, into which design of the roadway, facilities, and appurtenances may be divided for the purposes of design.
- **Engineer:** The Assistant Executive Director of Project Delivery (AEDPD) and/or his/her duly authorized subordinates, agents and representatives acting within the scope of the particular duties delegated to them.
- **Final Completion Date:** The Final Completion Date is the date all Contract items, including punch list, have been completed, all final quantities have been determined, Liquidated Damages have been terminated and all Contractor submittals including Final Shop Drawings, warranties, and manuals have been received.
- **General Engineering Consultant (GEC):** The Engineer or firm of Engineers retained by NTTA for the purpose of carrying out the duties imposed on the General Engineering Consultant (GEC) pursuant to the terms and conditions of any trust indenture, and any additional requirements, entered into, by, or on behalf of NTTA.
- **Geotechnical Engineer:** The Engineer or firm of Engineers contracted by NTTA or Design Section Engineer to perform work in the field of Soil Mechanics and Foundation Engineering for the Design Section and/or the Construction Section.
- **Independent Assurance (IA):** The independent evaluation of materials testing laboratories, by NTTA, to ensure their personnel are qualified and competent (based upon examination), that laboratory equipment is within calibration to national standards, and that appropriate test methods are being used. The IA program is established using the System approach, and evaluates all sampling and testing procedures, personnel and equipment used as part of an acceptance decision.

NTTA Construction Manual

- **Inspect:** Check and document whether or not the work is completed in general conformance with the requirements of the Construction Contract and follow up as required to achieve compliance.
- **Inspector:** The authorized representative of the Construction Manager, or Contractor when required, who must perform the necessary verification, and documentation of the work to determine whether or not it conforms to the requirements of the Contract Documents, as well as the measures implemented to achieve compliance.
- **Interim Completion Dates:** Interim Completion Dates are the dates specified for the completion of certain milestones as established in the Plans.
- **Invoice Price Justification:** NTTA Change Order Process detailed in QMS CON-03 using form CON-03-F5 when the dollar value of the Change Order (CO) is less than or equal to \$10,000 and the work to be added is a Lump Sum Extra Work per Item 9.5 Force Account in the TxDOT Standard Specifications.
- **Laboratory Technician:** The authorized representative of NTTA, the Construction Manager or Contractor who may make necessary laboratory inspections and testing of materials specified to be furnished by the Contractor under the Construction Contract.
- **Manage:** Provide and direct adequate and qualified personnel to check the work and document conformance or non-conformance with the requirements of the Construction Contract, and take corrective action when necessary to achieve conformance with same.
- **Materials Testing Firm:** An independent commercial testing laboratory or quality control company authorized to represent NTTA, the Construction Manager or Contractor for testing or inspection of materials to be used in the work.
- **Nonconformance:** Failure to meet plans and/or specifications upon the completion of a discrete and measurable element of construction.
- **Owner Verification Testing (OVT):** In Design-Build Agreements when contractor does QC Material Testing the Owner's Verification Testing firm is responsible for QA Material Testing.
- **Private Laboratory:** Any construction materials testing or design facility not operated by NTTA. This includes contractor, producer, consultant, or Local Agency testing facilities performing Quality Control, Quality Assurance, acceptance, independent assurance, or any other required or contracted testing on a project.
- **Program Manager:** The Engineer or firm of Engineers retained by NTTA for the purposes of carrying out the duties imposed on the Program Manager, pursuant to the terms and conditions of an authorized Program Management Contract. Also known as the Program Management Office (PMO).
- **Project Closeout:** The process of completing the Record Drawings, project records, performing a final audit and making final payments to the Contractor, and submitting all required project closeout documents to the NTTA.
- **Project Delivery Construction Management Oversight:** Includes cross-corridor monitoring to assure consistent and effective work performances of the PGBT EE Corridor Construction Manager and all NTTA Construction Managers, conducting ongoing quality management audits, Construction Cost Change Control Committee (C5) Oversight, Visual Quality Oversight, Special Project assignment teams for project closeout oversight, bidability review and as required claims analysis.
- **Public Agency:** Any public body, whether local, state, or federal, charged by law with the responsibility of administering and/or controlling public facilities, which may be

NTTA Construction Manual

affected by the construction or reconstruction of the roadway, facilities and appurtenances of NTTA.

- **Quality Control (QC):** Materials inspection, sampling, and testing performed as process control to ensure conformance with specification requirements.
- **Quality Assurance (QA):** Auditing and/or testing services required to verify that the requirements of an approved QC Plan are being complied with.
- **Quality Management System (QMS):** The collective set of procedures that manage and control processes related to the delivery of corridors and capital improvement projects for the NTTA.
- **Record Drawings** – the drawings prepared after project completion incorporating any changes to the issued plans and specifications, daily progress drawings and any other information needed to accurately identify and locate the completed work items of the project.
- **Request for Information (RFI):** A formal written request from the Contractor, or any other party, to the Designer or NTTA, seeking clarification of a specific element of the Contract.
- **Resident Engineer: (RE)** The Engineer employed by the Construction Manager who manages the Construction Manager's Agreement with NTTA, supervises the Field Staff and manages, at the site of the work, all the duties and responsibilities of the Construction Manager. This individual acts as the duly authorized representative of NTTA Project Delivery - Construction.
- **Standard Specification:** The current version of the TxDOT, "Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges".
- **Substantial Completion Date:** When indicated in the Plans, the Substantial Completion Date is the date that traffic has been established in its final configuration, and there will be no further staged mainlane closures or realignments, unless otherwise specified.
- **Superintendent:** The representative of the Contractor, present at the site to control and direct the work at all times during its progress, authorized to receive and fulfill instructions from the NTTA's Construction Manager. The Superintendent shall be in control of the work and supervise and direct the construction of the work in conformance with the requirements of the Construction Contract.
- **Temporary Items:** Materials, items, or equipment that perform a function during construction but are not a permanent part of the completed work. They shall be removed when no longer necessary (e.g. traffic control, fences), or they may have a single-use short life (e.g. straw bales).
- **The Work:** The improvement described in the Construction Contract, including all References, and authorized Change Orders and Supplemental Agreements.
- **Utility:** The privately, publicly or cooperatively owned lines, facilities and systems for transporting persons or properties for producing, transmitting or distributing communications, electric power, light, heat, gas, oil, crude products, water, steam, waste, sewerage or storm water not connected with highway drainage, and other similar commodities, including non-NTTA, publicly owned fire and police signal systems and street lighting systems, which directly or indirectly serve the public or any part thereof. The term "Utility" shall also mean the Utility Company, inclusive of any wholly owned or controlled subsidiary.

NTTA Construction Manual

- **Visual Examination:** Assessment of an item's markings, physical dimensions, obvious defects or damage and conformance of concrete items to color and finish continuity within defined tolerances for acceptance or rejection and/or close conformity with Contract requirements.
- **Visual Quality Assurance:** The NTTA's Project Delivery Visual Quality Manager and Visual Quality support staff are a resource for the Construction Manager's responsibility to enforce requirements of fit, finish and color consistency of concrete and other elements of the work specified in the plans for consistency. Such support may include providing Visual Quality Inspectors in the casting yard, pre-cast plant, construction site and also consists of providing as required training and support for the Construction Manager representatives.
- **Wall Engineer:** NTTA's representative to observe and document Retaining Wall Construction either as a member of the Construction Manager's team or as a separate contract with NTTA.
- **Other Definitions:** Terms not defined herein will be found in the Standard Specifications under Item 1, "Definition of Terms".

Section 2



NTTA Construction Manual

2.0 CONSTRUCTION MANAGEMENT - ORGANIZATION AND QUALIFICATIONS

2.1 Construction Manager General Qualifications

The Construction Manager shall provide a competent and qualified field organization, consisting of a Project Manager (if included in the Scope of Work), Resident Engineer(s) and all additional qualified Engineers, Quality Manager(s), Material Coordinator(s), Office Engineer(s), Technician(s), Inspector(s) and all specialty staff requested in the Scope of Work as necessary to monitor and report on conformance to the contract requirements. The Construction Manager shall provide and maintain an Organization Chart and Staffing Plan for review and approval by NTTA Project Delivery. Both shall be kept current for review, approval, and modification by NTTA Project Delivery-Construction and shall be updated when requested by NTTA.

The Construction Manager firm must have on its present staff, Texas Licensed Professional Engineers, well versed in structure, drainage and roadway design that will be available at all times to provide NTTA with analysis service(s) when required in support of the field staff.

Where sub-consultants, including M/W/DBEs, are anticipated, the names, work experiences, and qualifications of the individual staff members are required to be submitted to the Construction Manager along with the sub-consultants QC/QA plan for the approval/disapproval of NTTA. The applicable work experience, in addition to the verification of the required training and certification for the Laboratory Technician and Inspectors and the registration of any Professional Land Surveyor(s) and Professional Engineer(s), shall be included with the individual resumes of any sub-consultant. Records of applicable training and certifications shall be maintained and made available to the NTTA upon request,

2.2 Construction Manager Staff

The Construction Manager's project staff, including sub-consultant's, may include the following key personnel:

- Project Manager (If included in Scope of Work)
- Resident Engineer
- Office Engineer
- Chief Inspector
- Inspector(s)
- Professional Land Surveyor(s)
- Erosion & Sediment Control Site Representative
- Traffic Control Plan Representative(s)
- Record Keeper
- Material Coordinator(s)
- Administrative/clerical Assistance
- Quality Manager(s)
- Wall Engineer or Wall and Structures Engineer
- Electrician

NTTA Construction Manual

- Landscape Inspector
- Utility Construction Coordinator
- ROW Support and Coordination
- Environmental Quality Coordinator

2.3 CM Staff Qualifications

The Construction Manager's project staff, including Sub-consultants, shall possess the following minimum qualifications, unless waived in writing by NTTA:

2.3.1 Project Manager

Shall be a Texas Licensed Professional Engineer in the direct employ of the Construction Manager and shall be responsible for the performance of all services required by the Construction Manager's agreement with NTTA. The Project Manager must be fully knowledgeable in construction engineering and construction management, client-oriented, assertive, well-rounded in technical training and experience, a strong personnel manager who is able to delegate effectively, and a good communicator.

2.3.2 Resident Engineer

Shall be a Texas Licensed Professional Engineer and shall have substantial administrative ability plus extensive experience in the construction of projects of similar type and magnitude of the work. All Resident Engineers must possess the technical competence and the ability to represent NTTA professionally in the field and to determine Contractor compliance with the requirements of the Contract Documents. These skills must be satisfactorily demonstrated on prior assignments as Resident Engineers. The extent and nature of individual experience and the possession of the attributes listed will be considered in relation to project size and complexity.

2.3.3 Office Engineer

This individual should have substantial administrative ability including computer and organizational skills and a working knowledge of applicable terminology. The Office Engineer shall preferably be a degreed Engineer.

2.3.4 Chief Inspector

The Chief Inspector should have substantial administrative ability, including computer skills, and must be able to read and interpret complex plans and specifications. Unless waived in writing by NTTA, this person should have at least five years experience as a Chief/Lead Inspector, or ten years of progressively more responsible inspection experience, and must be familiar with testing requirements.

2.3.5 Inspectors/Lab Technicians

Must be able to read and interpret plans and specifications in order to make a determination whether or not the work meets the requirements of the Construction Contract. Inspectors shall have relevant technical certifications (See Tables 1 & 2) unless waived in writing by NTTA.

NTTA Construction Manual

2.3.5 TABLE 1 - Lab Technician Qualifications

	LT I	LT II	LT III	LT IV	LT V
Years of Experience	0	5	10	15	20
Knowledge					
Laboratory testing procedures	S	W	C	T	E
Materials used in highway construction		W	W	C	C
Techniques used to lead the work of others			W	C	C
Basic Math and science to analyze laboratory results	S	S	S	W	W
Alternate Certification(s)					
NICET I					
NICET II			X		
NICET III				X	X
NICET IV					X
TxDOT HMA Level IA*			X	X	X

*Technician will obtain the appropriate HMA certification prior to performing tests requiring the certification.

LT - Laboratory Technician	C - Considerable knowledge
S - Some knowledge	T - Thorough knowledge
W - Working knowledge	E - Extensive knowledge
	X - Required

2.3.5 TABLE 2 - Inspector Qualifications

	CI I	CI II	CI III	CI IV	CI V	SCI I	SCI II	SCI III
Years of Experience	0	5	7	10	12	15	20	25
Knowledge of:								
Highway Construction plans, construction inspection procedures, and specifications	S	W	C	C	T	T	E	E
Materials used in highway construction		S	S	W	C	T	E	E
Materials testing procedures	S	W	W	C	C	T	T	E
Construction Project document auditing techniques					S	W	C	T
Personal computers and the use of applicable software	S	S	S	W	W	W	W	W
Algebra, geometry, and trigonometry			W	W	W	W	C	C
Basic Mathematics	S	W						
TMUTCD/MUTCD	S	S	W	W	W	C	C	C

Certification(s)

NICET I Transportation Engineering Tech (Hwy)		R						
NICET II Transportation Engineering Tech (Hwy)			R					
NICET III Transportation Engineering Tech (Hwy)				R	R			
NICET IV Transportation Engineering Tech (Hwy)						R	R	R

CI – Construction Inspector	C – Considerable knowledge
SCI – Senior Construction Inspector	T – Thorough knowledge
S – Some knowledge	E – Extensive knowledge
W – Working knowledge	R - Recommended

NTTA Construction Manual

2.3.6 Professional Land Surveyor

A Texas Registered Professional Land Surveyor shall be required for contracts including work to set monuments and markers by the Construction Manager, or at other times when NTTA may opt to direct the Construction Manager to conduct field survey work.

2.3.7 Erosion and Sediment Control Site Representative

This individual shall have verification of attending an approved certification seminar on Erosion and Sediment Control or equivalent acceptable to NTTA.

2.3.8 Traffic Control Plan Representative

The TCP Representative should have substantial knowledge of the Texas Manual of Uniform Traffic Devices (TMUTCD) and the ability to read and interpret traffic control plans (TCP). Unless waived in writing by NTTA, this person should have at least five years of experience with implementing and inspecting TCPs. Acceptable training may be substituted for the experience, with Authority approval.

2.3.9 Record Keeper

The Record Keeper shall have substantial knowledge of NTTA, TxDOT and/or FHWA record requirements. The Record Keeper shall be responsible for implementing the file plan and keeping the records current. Additionally, the Record Keeper will assist audit teams during audits.

2.3.10 Quality Manager

The Quality Manager shall have substantial knowledge of key elements of a Quality Management System and shall have the organizational independence to maintain compliance.

2.3.11 Material Coordinator

For projects which include asphalt and/or concrete placement, the Construction Manager or Contractor may provide a Material Coordinator. The Material Coordinator shall be pre-qualified to manage the approved QA Program. The Material Coordinator, Construction Site Manager (CSM) or a member of the NTTA consultant team selected to be the Materials Testing firm for the project or contract shall have passed TxDOT's Level II Hot Mix Asphalt and Level II Portland Cement Concrete training courses for QC/QA management.

2.3.12 Administrative/Clerical

They shall have substantial knowledge of technical office management and systems.

2.3.13 Wall Engineer or Wall and Structures Engineer

Shall be a Texas Licensed Professional Engineer and shall have a minimum of ten (10) years structural engineering expertise in the design and construction management/oversight of bridges, retaining walls and drainage structures or geotechnical engineering experience with MSE, Drilled Shaft, Cast-In-Place, and Soil Nail Retaining Wall projects.

NTTA Construction Manual

2.3.14 Electrician

Shall have substantial knowledge of all project related work defined in the TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Section 7.15 Electrical Requirements with capabilities and background acceptable to NTTA and with sufficient experience to inspect all electrical items on the project.

2.3.15 Landscape Inspector

Shall be a Licensed Irrigator by the Texas Commission on Environmental Quality (TCEQ) to perform landscape and irrigation inspection with two (2) years progressively responsible experience on large landscape improvement projects for tollways, highways, streets, airports, railways or light rail projects with extensive knowledge of methods, materials and procedures used in landscape and irrigation construction and maintenance work, with an emphasis on drip irrigation, irrigation central control systems, landscape planting, miscellaneous concrete flatwork and joint sealing.

2.3.16 Utility Construction Coordinator

Shall have substantial knowledge of utility companies and how they interact with highway construction dealing with known and unknown utilities to be relocated. Shall be able to communicate and act as a liaison between the Contractor and the Utility Company and coordinate with NTTA Project Delivery and make recommendations as required to minimize impacts to the project schedule and budget.

2.3.17 ROW Support and Coordination

Shall have substantial knowledge of NTTA or TxDOT land acquisition procedures and be the liaison to NTTA Project Delivery to coordinate when parcels become clear and to keep the Contractor within all standing agreements related to each parcel.

2.3.18 Environmental Quality Coordinator

This individual shall have a Bachelors degree in Environmental Science or Natural Science plus a minimum of three (3) years experience in environmental compliance management. They shall also have extensive knowledge and field experience in the administration of Storm Water Pollution Prevention Plans (SW3P), storm water management and permitting, waters of the U.S. permitting, cultural resources, and hazardous materials mitigation.

2.4 Administrative Authority of the Construction Manager

Article 5.1, "Authority of the Engineer," of the Standard Specifications outlines the Engineer's authority to observe, test, inspect, approve and accept the work. The Engineer decides all questions about the quality and acceptability of materials, work performed, work progress, contract interpretations, and acceptable contract fulfillment. The Construction Manager's responsibility for assuring contract compliant work includes concrete color and finish requirements specified within the construction contract. The Engineer acts as a referee in all questions arising under the terms of the contract. The Engineer's decisions are final and binding.

NTTA Construction Manual

The Contractor may dispute the instructions through proper channels when in disagreement with the Engineer's decisions.

Usually, the methods or procedures used in doing the work are the responsibility of the Contractor. If the specifications or plans specify the methods or procedures to follow in doing the work, the Engineer has the authority to reject work done by other methods. The contract requirements prevail even though the Contractor may claim that the other methods will result in equally good or better results.

The Construction Manager shall issue written direction or approval to the Contractor in a timely manner as needed and when required by the contract. Note verbal direction or approval provided to the Contractor in the project diary. Subsequent to verbal direction or approval, issue a written notification to the Contractor documenting the Engineer's actions. Construction NCR's shall be promptly generated in accordance with requirements of QMS CON-07, utilizing EPDS workflow.

The Construction Manager/Resident Engineer shall have the delegated authority to issue the Contractor to proceed with extra work estimated to cost less than \$10,000, needs to be performed in a timely manner and can be processed with an NTTA Invoice Price Justification (IPJ) under QMS CON-03 and Item 9.5 Force Account in TxDOT Standard Specifications.

Article 5.7, "Inspection," of the Standard Specifications outlines the inspector authority and responsibilities. Inspectors are authorized to inspect all the work, materials, and equipment used on the project. An inspector must thoroughly understand the contract, the relevant plans, specifications, special provisions, and the work schedule. This enables the inspector to inspect and judge the quality and thoroughness of the Contractor's work, in comparison to the contract.

Inspector duties may include, but are not limited to:

- reporting the progress of the work and Contractor performance to the Engineer
- notifying the Engineer and Contractor when materials furnished or work performed fail to fulfill contract requirements
- communicating to the Contractor all problems in a timely manner
- documenting in the project diary all matters related to the prosecution of the contract and the progress of the work as required for payment
- following the plans and specifications and acting as the authorized NTTA representative.

When a dispute arises, the inspector may reject materials or suspend work while the Engineer makes decisions on the issue.

The inspector must not act as foreman, work for the Contractor, or interfere with the management of the work. The inspector must not tell the Contractor how to do the work unless specified in the contract.

NTTA Construction Manual

2.5 Contractor's Superintendent

In accordance with Article 5.5, "Cooperation of Contractor," of the Standard Specifications, the Contractor must designate, in writing, a competent English-speaking superintendent employed by the Contractor. The superintendent must be experienced with the work being performed and capable of reading and understanding the contract. The Contractor must ensure that the superintendent is available at all times, and able to receive instructions and act for the Contractor. Work may be suspended if a qualified superintendent is not available, however working day charges will not be suspended.

2.6 List of Acronyms Used in this Construction Manual

- PM.....Project Manager
- RE.....Resident Engineer
- QM.....Quality Manager
- OM.....Office Manager
- CCM.....Corridor Construction Manager
- PLS.....Professional Land Surveyor
- CI.....Chief Inspector
- RK.....Record Keeper
- GC.....General Contractor
- DSE.....Design Section Engineer
- CSM.....Construction Site Manager
- EQC.....Environmental Quality Coordinator

NTTA Construction Manual

Section 3



NTTA Construction Manual

3.0 SCOPE OF WORK

3.1 General

It is intended that all Engineering and Management Services necessary to verify and assure NTTA that the Contractor's work is in conformance with contract requirements will be performed by Construction Managers and/or by others retained to perform services in specialized fields. The extent and types of services to be performed by the Construction Manager or others retained to perform services in specialized areas are set forth in Proposals and Agreements, NTTA QMS Procedure CON-04 Section 2.3 Construction Manager and in Quality Management Systems (QMS) and EPDS workflow and document management procedures and this Manual. The services provided by a Construction Manager for NTTA may be directly managed by NTTA Project Delivery-Construction or by other representatives retained by NTTA, such as Corridor Construction Managers (CCM) and/or the Program Manager, and the Construction Manager shall cooperate fully with these NTTA designated representatives.

Prior to the start of construction, the Construction Manager must review the Plans, Special Provisions, and Specifications, approved M/W/DBE Plan including goals and approved Contractors, Special Provisions and applicable QMS procedures and thoroughly familiarize his/her staff with the nature of the work and the requirements of the Construction Contract. During construction, NTTA expects the Construction Manager's staff to be fully aware of all the requirements of the Construction Contract, relevant QMS and EPDS procedures, content within this Manual, and other applicable criteria.

Before beginning work on the project, the Construction Manager in coordination with the Contractor, NTTA Project Delivery and other affected parties will prepare an Emergency Communications Plan. A template for the plan is included in Appendix H. A sample plan has been included in the Appendix H to give an example and see what a completed plan looks like. The plan will be submitted to NTTA for review and approval. After the plan has been approved, it will be distributed to all parties by the Construction Manager. This plan should be reviewed quarterly by the Construction Manager to see that all information is current and updates issued as changes occur in the information contained therein.

The Construction Manager will also prepare a project specific communications plan. It will include an organization chart showing the various parties and their responsibilities with the project, their designated contact persons and the lines of communications between the parties. The plan will be submitted to NTTA for review and approval. After approval, the Construction Manager will distribute to all parties, as defined within Appendix H.

Enable and facilitate the completion of compliant NTTA construction projects within budget, on schedule and with minimum disruption and delays to patrons, by fostering an innovative and collaborative effort with the Contractor to achieve a quality product meeting the requirements of the Contract Documents.

NTTA Construction Manual

3.2 Responsibilities of the Construction Manager

The Construction Manager and the Resident Engineer, as the duly authorized representatives of NTTA Project Delivery-Construction, shall protect the interests of NTTA and shall proactively manage the administrative processes of the Construction Contract to determine whether or not the completed work conforms to the requirements of the Contract Documents, and to recommend both progress monthly payments and the Final Payment by NTTA to Contractors for work satisfactorily completed. The Construction Manager shall be responsible for verifying that the work performed, the materials supplied, and the equipment and labor considered necessary for the work is in conformance with the Plans and Specification, including the M/W/DBE Plan and Special Provisions, and any other contract Documents. This shall be accomplished by verifying through inspection of the work performed, documentation with passing testing of the materials supplied and assuring that the work is in conformance with the Contract Documents. All inspection shall be documented as detailed in this Manual and other criteria as applicable.

The Construction Manager shall be responsible for notifying the Contractor and NTTA Project Delivery-Construction of all items not meeting the plans or specifications in NTTA construction projects utilizing EPDS workflow for a Construction NCR per QMS procedure CON-07. The Construction Manager shall be responsible for notifying the Contractor, in writing, to stop all work related to the item(s) not meeting plans or specification until the matter is resolved.

The Construction Manager shall be responsible for notifying NTTA's Business Diversity Department (BDD) staff of any deviations from the approved M/W/DBE Plan, (including any M/W/DBE contractor substitutions and M/W/DBE-awarded work performed by unauthorized others), potential M/W/DBE-related issues, and documenting the corrective action being taken by the Contractor. The Contractor has the sole responsibility for and controls the work.

3.2.1 Construction Manager Review Prior to Contractor starting operations

Furthermore, the Construction Manager shall be responsible for and be expected to review the Contract Plans and Specifications prior to the Contractor's operations with emphasis on the following:

1. Preparing and submitting to NTTA Project Delivery a documented Quality Plan describing methods controls and oversight activities to maintain compliance to all requirements.
2. Work closely with the Contractor, as required to assure that the Contractor fully complies with applicable NTTA procedures as QMS and EPDS workflows to manage RFI's, submittals, NCR's, CAR's and other applicable procedures.
3. Identify, document, and attempt to resolve errors, omissions, and oversights found in the Plans and Specifications by direct action, if within delegated authority or, if not, by requesting action of others. Engineering judgment shall be used to determine if the Designer and NTTA must be involved in the resolution prior to informing the Contractor. The Construction Manager is not expected to redesign or change the Contract Documents.
4. When directed by NTTA Project Delivery, perform a constructability review in accordance with approved NTTA procedures.

NTTA Construction Manual

3.2.2 Construction Manager Ongoing Responsibilities

1. Review and recommend acceptance of the Contractor's detailed progress schedule and updates. Monitor and document construction progress with timely notification to NTTA Project Delivery of deviations from the approved progress schedule. Review any revised/updated detailed progress schedule(s) submitted by the Contractor and advise NTTA Project Delivery of any circumstances which may affect the Completion Date. Recommend acceptance, extensions of time, payment of incentives, and/or assessment of Liquidated Damages for Interim Completion Dates, Substantial Completion Dates and/or Final Completion Dates, as applicable, to NTTA Project Delivery. The Construction Manager shall prepare draft letters for the AEDPD's signature documenting NTTA's decisions relative to the dispositions of these Dates and acceptance of the Contractor submittals. The Construction Manager shall notify the Contractor, in writing, prior to the approach of any of these Dates, that the Date is approaching and that failure to meet the Date may subject the Contractor to the assessment of Liquidated Damages.
2. Conduct, chair, and document weekly progress meetings with the Contractor. The Construction Manager shall prepare updated Change Order (CO), Submittal, RFI, and NCR logs on a weekly basis for review at this weekly progress meeting. The Construction Manager shall also review the Contractor's schedule for work anticipated in the upcoming 2 weeks.
3. Monitor the movement of traffic through construction zones. Immediately notify the Contractor, in writing, of any and all deficiencies noted that require corrective action necessary for conformance with the Contract Documents. Determine and document, in consultation with the Contractor, Designer, and NTTA, acceptable corrective action as applicable. The Construction Manager will conduct quarterly evaluations of contractor compliance and submit to NTTA Project Delivery-Construction.
4. The Construction Manager shall utilize Procedure QM-10 from the QMS Manual for Corrective and Preventative Action as the documentation means to achieve the items above.
5. **ANTICIPATE**, ascertain, recommend, and document the necessity for any field changes. The Construction Manager shall notify NTTA Project Delivery-Construction utilizing the C5 notification process in advance of all such changes, including plan quantity revisions, with complete documentation, including independent cost estimate (ICE) per procedure CA-08 in the QMS Manual, of any change which may result in alterations, cancellations, deductions or extra work.
6. Request, prepare, review, and recommend Change Orders to C5, following procedures specified within CON-03 and CA-08. Change Orders must be reviewed and monitored for any impact upon the approved M/W/DBE Plan. Change Orders and Invoice Price Justifications shall follow QMS Procedure CON-03.
7. Implement, provide, and expedite the processing of all documentation necessary to acceptably administer the Construction Contract and Construction Manager Agreement, including but not limited to Submittals, RFI's, Inspection Reports, Correspondence, etc. Keep logs and records and document all activities and proceedings in accordance with all the various requirements of this Manual. Documentation of work progress, meetings, conferences, changes, etc., shall be timely, factual, concise and complete. Documentation shall utilize the NTTA EPDS per QMS Procedure DM-01

NTTA Construction Manual

8. Prepare and submit signed Contractor Pay Estimates to NTTA for payment processing. Pay Estimates shall be processed monthly at a minimum. Records of payment to the Contractor and of invoicing by the Construction Manager shall be such as to withstand periodic audit.
9. Maintain records of material test data collected by the NTTA hired Materials Testing firm, NTTA hired TxDOT plant inspection, Contractor (if applicable) and other Lab Firms. The Construction Manager shall promptly notify the Contractor and NTTA Project Delivery-Construction of all material test results and of equipment utilizations that are unacceptable or otherwise fail to meet the requirements of the Contract. The Construction Manager shall use QMS procedures CON-07 (Control of Nonconforming Items During Construction) and DM-01 (Management of Controlled Documentation).
10. Evaluate and provide recommendations to NTTA of any value engineering proposals submitted by the Contractor.
11. Review, make recommendations to NTTA, and process Contractor's submittal of Subcontractor Approval Request(s). Send notification to the Director of Business Diversity regarding any request to mobilize a subcontractor that deviates from the approved M/W/DBE Plan.
12. Coordinate and inspect NPDES (National Pollutant Discharge Elimination System) compliance efforts and determine whether or not erosion and sediment control items performed by the Contractor are in conformance with the requirements of the Construction Contract. Immediately notify the Contractor in writing of any and all deficiencies noted that require corrective action necessary for conformance with the Contract Documents. The Construction Manager's Environmental Quality Coordinator (EQC) shall follow QMS procedure ENV-01 (Storm Water Management).
13. Establish and maintain a document control system per QMS procedure DM-02.
14. Monitor access control as it applies to the Construction Section along all NTTA right-of-way limits. The Construction Manager shall verify right-of-way limits (usually through the Surveyor in the Corridor Manager contract) to ensure trespassing does not occur from either side of the established right-of-way.
15. Coordinate and monitor activities performed or related to utility work orders, railroad operations, or contract work administered by any outside agency within the Construction Section for which the Construction Manager is responsible and within the scope of the Construction Manager's Proposal and Agreement. If work order activities are to be reimbursed by NTTA, maintain records of actual labor, materials, equipment, and supervision to verify costs.
16. Determine whether or not the terms of any NTTA authorized agreements associated with the work are being implemented including, but not limited to, the M/W/DBE Special Provisions. In instances where agreements are not being implemented, notify and consult with NTTA and implement corrective measures as directed by NTTA. NTTA will provide copies of all pertinent agreements.
17. Coordinate interaction with adjacent property owners. Act as the representative of NTTA to answer questions, inform property owners of upcoming work affecting their property, and initiate resolution of right-of-way encroachments, temporary easement impacts, and other property owner related issues.

NTTA Construction Manual

18. Provide a critique of the Design Plans, recommend improvements to NTTA, and attend meetings after completion of the project with NTTA and the Designer to aid the development of future projects and/or plan preparation.
19. Monitor the Contractor's Minority/Women/Disadvantaged Business Enterprise (M/W/DBE) Policy participation as defined in the M/W/DBE Plan, and ensure accurate and timely reporting.
20. Coordinate with NTTA on any work in the vicinity of toll gantries.
21. Interface with NTTA to provide project information, assist with press releases and exhibits, and attend meetings.
22. Develop punch lists and monitor and encourage the Contractor's timely completion of all punch list items. Punch lists shall be generated by the Construction Manager prior to Substantial Completion, separately from the Final Completion punch listing, and the Construction Manager shall coordinate with representative of NTTA's Maintenance Department to assure adequate opportunity for Maintenance representatives to also review status of work completion, prior to both Substantial and Final Completion milestones.
23. Manage the Construction Manager's Agreement with NTTA including services of Sub-consultants.
24. Document the project status on a regular basis by photographs, video recording or written reports.

Note: The Construction Manager shall be subject to routine Quality Audits by NTTA Project Delivery to ensure compliance per procedure QM-08 in the QMS Manual..

3.2.3 Authority of the Construction Manager

For the effective discharge of his/her responsibilities and as NTTA Project Delivery's duly authorized representative, the Construction Manager is authorized, delegated, and expected to perform the following duties:

1. Check and report whether or not the work performed, the materials supplied, and the equipment, labor, and supervision provided by the Contractor conforms to the Plans, Specifications, Special Provisions, M/W/DBE Plan, including applicable M/W/DBE Special Provisions, and other Contract Requirements and Criteria.
2. Notify the Contractor of all items not meeting plans or specifications by following QMS procedure CON-07.
3. Create a Corrective or Preventive Action Request, per QMS procedure QM-10 for the Contractor to respond to if it is deemed appropriate by the Construction Manager.
4. Notify the Contractor, in writing, to correct work in progress when continuation is likely to result in an unacceptable element of construction.
5. Provide a copy of all correspondence to the Contractor concerning unacceptable work being performed by an M/W/DBE Subcontractor. If the Contractor or M/W/DBE Subcontractor fails or refuses to follow the notification, immediately contact the NTTA Director of Business Diversity and NTTA Manager of Construction Project Delivery to recommend whether or not the work in question should be temporarily suspended. If work is suspended, consult with NTTA Project Delivery Construction to expedite the acceptable resolution necessary to allow work to resume.

NTTA Construction Manual

6. The Construction Manager shall participate and act as an objective party in meetings concerning performance issues and/or substitution requests as they may relate to M/W/DBE issues and compliance. Consult the NTTA Director of Business Diversity to determine what corrective action, if any, is necessary and ensure approved corrective measures are implemented.
7. Request the Contractor to submit a revised Progress Schedule whenever the Construction Manager determines the Contractor has failed to acceptably comply with the approved Progress Schedule as required by contract.
8. Inform the Contractor whenever new or improved means and methods become available that may enhance acceptable results without, however, having responsibility or authority to supervise the Contractor's operations or coordinate Contractor activities.
9. Recommend to NTTA disbursement of payments to the Contractor on the basis of work completed, or withholding of such payments where work is incomplete, in non-conformance, or for any reason the work is deemed unacceptable. NTTA retains final discretion for the disbursement of payments.
10. Recommend to NTTA the acceptance of equipment, materials and mix designs proposed by the Contractor. Submittals shall follow QMS Procedure CON-02.
11. Determine the locations from which unsuitable material and/or topsoil must be removed and make required changes if the actual limits and/or depths differ from what is shown on the Contract Plans.
12. Prepare independent estimates of, hold preliminary negotiations for, and initiate necessary changes to the Contract and recommend to NTTA approval of such changes, associated payments, and extensions of time by following procedure CON-03 (Construction Change Order Process) and procedure CA-08 (Independent Cost Estimate) in the QMS Manual.
13. Any proposed extra work or proposed contract change that impacts previously issued permits should be brought to the attention of The NTTA Environmental Compliance Manager for a recommendation to C5 if this proposed extra work or proposed contract change may need to be evaluated by the permitting agency prior to final approval.
14. Notify the Contractor, in writing, to perform changed work once the changes are approved by the NTTA through the Change Order Process.
15. Notify the Contractor, in writing, to immediately correct any observed deficiencies in the management of traffic through construction zones. The Contractor remains solely responsible for all traffic control work. If the Contractor fails or refuses to follow the notification, and the Construction Manager is unable to promptly resolve the issue, immediately consult with NTTA Project Delivery to determine the proper course of action.

3.2.4 Construction Manager/Resident Engineer Acceptance Decision Delegation

The Construction Manager shall follow the below guiding principles for Construction Manager / Resident Engineer Acceptance Decision Delegation, for those items listed below:

Authority of Engineer as specifically identified in the current edition of the TDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Item 5.1:

NTTA Construction Manual

- 1) Engineering decisions will be delegated no lower than the “Project Engineer” in charge of a project or section, said “Project Engineer” must be a Registered Professional Engineer in the State of Texas.
- 2) Inspectors are limited to authority described in Item 5.7 in the current edition of the TDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges.
- 3) Where indicated in the current edition of the TDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges that the Engineer has approval of drawings, methods, etc. related to the design of elements of work involving safety of the public or workers, the Engineer will be the Design Engineer responsible for the element in consultation with the NTTA Design Manager.
- 4) Exercising engineering judgment to accept material failing specification requirements will be completed by an employee, or consultant to the NTTA. Determinations as to whether a material failing to meet specification requirements and not within applicable tolerances should be accepted, or not accepted, shall be based on sound engineering principles, experience, and/or related results of applicable material tests.

Engineering judgment to accept material or work failing specification requirements:

- 1) Engineering judgment to accept material or work failing specifications will never be applied solely to promote “partnering” or to help out the contractor. The project quality will be regarded as the highest order of concern. Schedule is a secondary consideration with respect to quality delivery of the Project.
- 2) Engineering judgment to accept materials or work failing specification requirements will be applied only in cases where natural resources may be lost that will otherwise meet the intent of the design, (i.e. strength tests versus slump requirements), rejection of material endangers quality or loss of larger / more significant item (i.e. by rejecting load of concrete, structure element subject to a cold joint, reflective cracking, etc.) or some other issue that unduly threatens the overall quality/schedule of the project.
- 3) Failed results of material tests may be accepted only for individual tests. Patterns of failure will not be accepted.
- 4) The individual making the engineering judgment shall apply sound engineering practices to ensure quality of accepted material by making additional tests, through engineering analysis, etc. and will document his / her acceptance and justification.
- 5) Engineering judgment in acceptance of material or work not meeting specification requirements will be applied only to situations that are technically sound, in consideration of localized conditions. Engineering judgment will not be utilized to waive specification for conditions that have project wide implications. The acceptance of material or work

NTTA Construction Manual

not meeting specifications in one instance at a location will not become a corridor wide or project wide decision. Each situation will be judged on the merits of its unique characteristics.

- 6) It is understood by all parties that TxDOT and FHWA commonly have oversight agreements in place that require specific documentation relating to nonconforming material that is allowed to remain in place. Any instance of the application of these Guiding Principles will be accompanied by appropriate documentation.
- 7) NTTA may, at any time, remove engineering judgment authority from the Construction Manager in specific circumstances.

3.2.4 TABLE 3 - Construction Manager Engineering Judgment Opportunities

The following Table represents opportunities extended to the NTTA Construction Manager to exercise Engineering Judgment with respect to corresponding assigned NTTA construction projects.

Specification Issue	Comment
1 Concrete slump deviation from specification	The Construction Manager may exercise sound Engineering Judgment and accept materials that do not meet the specified requirement. The basis of acceptance shall be documented with the test result and compiled into a list for attachment to the Letter to the FHWA of Certification of Materials Used, where applicable.
2 Concrete air content not meeting specification requirements	The Construction Manager may exercise sound Engineering Judgment and accept materials that do not meet the specified requirement. The basis of acceptance shall be documented with the test result and compiled into a list for attachment to the Letter to the FHWA of Certification of Materials Used, where applicable.
3 Concrete Mix revolutions	The Construction Manager may exercise sound Engineering Judgment.
4 Deviation from specified concrete discharge time	The Construction Manager may exercise sound Engineering Judgment. The basis of acceptance shall be documented with the test result and compiled into a list for attachment to the Letter to the FHWA of Certification of Materials Used, where applicable.

NTTA Construction Manual

5	Materials not meeting plan or specification density test requirements	The Construction Manager may exercise sound Engineering Judgment and accept materials that do not meet the specified requirement. The basis of acceptance shall be documented with the test result and compiled into a list for attachment to the Letter to the FHWA of Certification Of Materials Used, where applicable.
6	Materials acceptance while deviating from optimum moisture requirements	The Construction Manager may exercise sound Engineering Judgment and accept materials that do not meet the specified requirement. The basis of acceptance shall be documented with the test result and compiled into a list for attachment to the Letter to the FHWA of Certification Of Materials Used, where applicable.
7	Reinforcing steel cover required on plans	The Construction Manager may exercise sound Engineering Judgment.
8	Hot Mix Asphaltic Concrete Pavement Placement Air Temperature	The Construction Manager may exercise sound Engineering Judgment to determine acceptable limits of deviation from pertinent specification requirements for air temperature prior to placing mix.
9	Concrete temperature	The Construction Manager may exercise sound Engineering Judgment to determine acceptable limits of deviation from pertinent specification requirements for concrete temperature prior to placing concrete.

3.2.5 Management of the Construction Contract

Management work performed by the Construction Manager and verification of field Quality Control inspection and testing performed by the NTTA hired Material Testing firm, NTTA hired TxDOT plant inspection, other Lab Firm or Contractor shall be thoroughly documented in accordance with contractual and regulatory requirements in compliance with the requirements of this Manual and in accordance with generally accepted good engineering practices.

The Construction Manager shall:

1. Check, verify, and document the work, as specified in the Contract Documents, for conformance with the Construction Contract. Keep daily records and measurements of the quantities involved. Proactively monitor and regularly report to NTTA Project Delivery-Construction on the progress of the Contractor in achieving the established schedule and budget. Anticipate and provide suggested remedies to scheduling and budgeting problems should they arise.

NTTA Construction Manual

2. Effectively and efficiently process all documentation necessary to acceptably administer the Construction Contract and Construction Manager Agreement, utilizing all active EDPS Workflows and NTTA QMS Procedures including but not limited to Submittals, RFI's, NCRs, Corrective Action Requests, Correspondence, M/W/DBE goal attainment, etc. Consult with NTTA Project Delivery-Construction for proper routing of documentation for any non-EPDS projects. Keep logs and records and document all activities and proceedings relevant to the administration of the Contract in accordance with all the various requirements of this Manual. Documentation of work progress, M/W/DBE goal progress, meetings, conferences, changes, etc., shall be timely, factual, concise and complete and made available to the NTTA upon request.
3. The Construction Manager shall assure that their representatives as well as those of the Contractor comply with requirements of the QMS DM-02 (Project Delivery Records Management Requirements), which defines the naming, filing, retention, destruction and permissions of NTTA Project Delivery records. This same file naming convention shall apply also to subject and title headings for most project documents, including Correspondence, RFI's, Submittals, Meeting Minutes, and NCR's.
4. Monitor the performance of all on-site and off-site testing of all construction materials as required in the Contract Documents and review the test results. All material test data shall be verified by the Construction Manager to be organized and maintained in an efficient, logically organized and readily retrievable manner, throughout the duration of the construction projects.
5. Monitor soils inspection and testing as required by the Standard Specifications and Special Provisions and as determined by NTTA to verify proper control of density and moisture content of embankments, backfills and other earthwork items, including documentation of compliance verification for all soils located within the zone of influence of all MSE Retaining Walls. Monitor soil testing and recommendation of borrow sources for approval by NTTA.
6. Monitor field quality control of Portland Cement Concrete used in paving and structures.
7. Monitor field quality control of HMA mixtures and mix designs used in the work.
8. **ANTICIPATE** the need and prepare documentation for and perform any field work and negotiations required to construct items covered by Change Orders and Supplemental Agreements.
9. Assure that the Contractor complies with requirements for concrete color and finish uniformity, as specified within the construction contract.
10. Monitor all pavements and structures for thickness, omissions and surface tolerance as required by the Standard Specifications and Special Provisions including visual quality requirements for concrete structure color and finish.
11. Monitor and coordinate utility and railroad work as it relates to the work. Maintain daily records of labor, equipment, materials, and supervision for all reimbursable work.
12. Monitor all Traffic Control Plan (TCP) items as directed by NTTA and document and report whether or not all TCP activities are in conformance with the Contract Documents, to the Contractor and NTTA Project Delivery-Construction.
13. Maintain Quality Control charts of all QC data to determine when test results appear marginal and to demonstrate conformance with the Standard Specifications and display test results and to take appropriate action when results do not meet targets.

NTTA Construction Manual

14. Exercise sound Engineering Judgment, in accordance with guidelines within this Construction Manual for those items where acceptance decisions have been delegated to the Construction Manager.
15. Verify the calibration against nationally accepted standards, of all equipment the Contractor uses that directly affects the quantity of a respective pay item (e.g., mobile concrete mixers, liquid asphalt distributors, slurry seal machines, etc.).
16. Check and document the Contractor's construction equipment to determine its conformance with the requirements of the Contract Documents and its capability to perform the work properly within the required time limit.

3.2.6 Items Furnished to the Construction Manager

The following is a list of items which may be furnished to the Construction Manager from various sources. The Corridor Manager will coordinate delivery of these items to the Construction Manager. Generally, only those portions of these listed items applicable to the particular Construction Section will be furnished to the Construction Manager to the extent deemed necessary. Reimbursement for direct costs related to expenditures for any of the following items shall be in accordance with the applicable Proposal and Agreement with NTTA.

1. One full-size (11X17) set, an electronic copy of the files in Micro Station format, and a reproducible electronic copy of the plans for each awarded Construction Contract assigned to the Construction Manager and from which the Construction Manager shall make additional prints of the size wanted.
2. NTTA QMS Manual is available through web access at www.ntta.org/WorkingWithUs.
3. One hard copy and one reproducible electronic copy (PDF) of the Contract Requirements for each awarded Construction Contract assigned to the Construction Manager.
4. Up to 5 copies of the applicable Standard Specifications and Supplemental Specifications.
5. One reproducible electronic copy each of the Structure Soils Report and the Roadway Soils Report prepared by the Geotechnical Engineer.
6. One copy of the Environmental Documentation
7. NTTA standard forms and TxDOT/FHWA standard forms displayed in this Manual's Appendix, are available through the NTTA QMS Manual online as needed, for quantity reproduction by the Construction Manager.
8. One reproducible electronic copy of each AAU, Railroad Agreement and/or Agency Agreement applicable to the Construction Section. A utility relocation job file for each utility conflict along with executed Agreements or Permits affecting each Utility company will be provided.
9. One reproducible electronic copy of this Manual including the Appendices are available online through the QMS Manual.
10. One electronic copy of the following prepared by the Designer:
 - Design Calculations
 - Quantity Calculations
 - Bridge Condition Report(s)
 - Design Survey Books
 - Pre-final set of Plans and specifications

NTTA Construction Manual

- Permits
 - Project Design Report
 - Earthwork Cross-Sections
11. One copy of any permits and/or agreements secured by NTTA.
 12. Right-of-way plats and/or strip maps applicable to the Construction Section which supplement the Plans and Specifications.
 13. One copy of all approved Requests for Approval of Subcontractors

3.2.7 Workers and Equipment

Monitor to verify that the Contractor furnishes suitable machinery, equipment, and construction forces for the proper completion of the work. If applicable, monitoring of these activities should include but not be limited to the reporting of adequate lighting during nighttime work to properly document conformance to contract requirements. Notify the Contractor of failure to comply with these requirements. If the Contractor does not correct the identified deficiencies, suspend the work without suspending the working day charges and withhold all future estimates until the Contractor complies.

Contractor employees or representatives may be removed from the work locations when the following conditions are determined to exist:

- work is not performed in a proper and skillful manner
- employees or representatives are:
 - disrespectful
 - intemperate
 - disorderly
 - uncooperative
 - otherwise objectionable

Work may be suspended without suspending working day charges until the Contractor complies with these requests.

In accordance with Article 7.1, "Laws to be Observed," of the Standard Specifications, the contractor must comply with all federal, state, and local laws, ordinances, and regulations that affect the performance of the work. Monitor the Contractor's compliance with laws and regulations that relate to the contract. Some contract requirements fall under the jurisdiction of other federal and state agencies. Cooperate and assist the regulatory agencies whenever possible. Work may be suspended or funds withheld from the Contractor to assist other enforcement agencies in ensuring compliance with applicable laws, rules and regulations. Other regulatory agencies may include:

- United States Department of Transportation (USDOT):
 - Federal Aviation Administration (FAA)
 - Federal Highway Administration (FHWA)
 - Federal Railroad Administration (FRA)
 - Federal Transit Authority (FTA)
- United States Department of Labor (USDOL)

NTTA Construction Manual

- Occupational Safety and Health Administration (OSHA)
- Office of Federal Contract Compliance Programs (OFCCP)
- Employment Standards Administration (ESA)
- Environmental Protection Agency (EPA)
- U.S. Army Corps of Engineers
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of Licensing and Regulation (TDLR)

3.2.8 Cooperation with the Contractor

Work with the Contractor in a congenial and professional manner. Provide clear, precise and concise instructions to authorized personnel with no trace of malice, unfriendliness, or anger. Limit instructions to the Contractor to those within the scope of the contract. Ask the Contractor if there are questions about any instructions. Resolve misunderstandings with the Contractor promptly.

Provide instructions on major issues to the Contractor through the EPDS Workflows in writing and maintain the written instructions in the project records. Record all verbal instructions given to the Contractor on minor and on major issues in the project diary.

Discuss minor irregularities with individual Contractor employees only if authorized to do so by the Contractor.

Resolve differences of opinion regarding the contract promptly and fairly within the scope of the contract. If disagreements cannot be satisfactorily resolved, refer the matter to NTTA Project Delivery.

3.2.9 Contact with the Public

NTTA personnel are public employees. The public will judge NTTA by its work and by the actions and attitudes of each employee. Take responsibility to create good will for NTTA and earn the respect and confidence of the public.

Extend courtesy and patience to the public. Take precautions in those instances where it is necessary to inconvenience the public due to construction operations. Ensure adequate warning signs, barricades, directional signs, flaggers, access to property, etc., are provided to move traffic quickly and safely through the work area. Make every effort to maintain access to private property at all times during operations. When access to any property is temporarily interrupted, provide a minimum of one calendar day advance notice of the interruption to the property occupant, or as directed by the Plans. Include with the notice a courteous explanation of the reasons for the interruption. Provide courteous and prompt responses to questions received.

3.3 Public Relations

All public relations activities will be coordinated through the NTTA Communication Department. The Construction Manager will assist the NTTA Communications Department in preparing news releases, conducting project tours, briefing Board members, briefing legislators and other assistance that involves contact with the public when directed by the NTTA to do so.

NTTA Construction Manual

3.3.1 Public Safety and Convenience

Ensure that the Contractor provides and maintains adequate, neat, and sanitary accommodations for all project personnel, including NTTA employees, in compliance with the requirements and regulations of the Texas Department of Health or other authorities having jurisdiction.

Ensure that the Contractor satisfies the requirements of Article 7.7, “Public Safety and Convenience,” of the Standard Specifications in accordance with the contract. Take any corrective action deemed necessary to ensure safety and convenience for the public. Deduct the cost of any corrective action work from money due or to become due to the Contractor.

Complete the following to provide safety and convenience to the traveling public:

- have the Contractor maintain the road in a good and passable condition
- coordinate the placement of regulatory speed zone signs with the Contractor
- use regulatory speed limits as needed only
- coordinate with area law enforcement to ensure the posted regulatory speed limits are enforced
- check the project site for flaggers' compliance with contract requirements
- make careful effort to reduce damage caused by loose gravel
- use appropriate work zone signing to warn the public of driving and traffic handling precautions
- other actions deemed necessary

3.3.2 Protection of Adjoining Property

Ensure the Contractor protects adjacent property from damage and takes corrective action to restore damaged property to a condition similar or equal to that existing before the damage occurred. Do not reimburse the Contractor for corrective action to restore damaged property. If the Contractor fails or refuses to restore damaged property, notify the Contractor of such damages in writing and request corrective action.

3.3.3 Using Explosives

Obtain a written blasting plan from the Contractor when required by the contract or as deemed appropriate. Observe and monitor the Contractor's operations to ensure compliance with federal, state, and applicable local laws, ordinances, and regulations pertaining to the storage and use of explosives. Ensure the Contractor provides at least a 48-hr. advance notice to the appropriate Road Master (defined in the Standard Specifications) before performing any blasting work involving the use of electric blasting caps within 200 ft. of any railroad track.

3.4 Contractor's Responsibility for Work

Open any roadway or portion of the roadway to traffic if deemed in suitable condition for travel. Ensure the Contractor repairs damage until final acceptance. If deemed appropriate, relieve the

NTTA Construction Manual

Contractor from maintenance for isolated work locations, vegetative establishment and maintenance periods or work suspensions.

3.5 Electrical Work

If required by the contract, obtain from the Contractor the name and contact information for the certified person or licensed electrician. Ensure that all electrical work is completed as required by Article 7.15, "Electrical Requirements," of the standard specifications.

3.6 Work near Railroads

Ensure the Contractor complies with railroad company requirements for work within the railroad right of way. Do not reimburse the Contractor for any costs associated with railroad company requirements. If work near a railroad will require railroad company flaggers, reimburse the Contractor for use of the railroad company flaggers. Do not reimburse the Contractor for costs associated with temporary railroad crossings.

Unless otherwise shown in the contract, do not allow the Contractor to:

- store material or equipment in the railroad's right of way within 15 ft. of the centerline of any track
- place any forms or temporary false work within 8.5 ft. horizontally from the centerline or 22 ft. vertically above the top of rails of any track

Refer to specific requirements in the plans and railroad agreement.

3.7 Noise Abatement

Ensure the Contractor minimizes noise throughout all phases of the contract. Do not allow the placement of mobile or stationary equipment that will disrupt normal adjacent activities. For equipment in use on the project, ensure that the Contractor does not remove or make ineffectual manufacturer installed noise attenuation devices such as mufflers, engine covers, insulation, etc.

3.8 Conflicts of Interest and Ethics

Avoid the appearance of unprofessional behavior. Treat other employees, Contractor employees and representatives, other project related personnel and the general public with respect and fairness. Maintain a courteous demeanor and employ restraint at all times when representing NTTA.

Do not participate in any activity that could be considered a possible conflict of interest.

3.9 Gifts, Benefits, and Favors

Do not accept or agree to accept gifts, benefits, or favors from any person, company, organization, or other entity that:

NTTA Construction Manual

- could influence or reasonably appear to influence personnel in performing their duties
- conducts any business with NTTA
- could reasonably be expected to do business with NTTA in the future
- is regulated by NTTA in any way, including:
 - auditing
 - monitoring
 - inspecting
 - testing
 - supervising
 - measuring

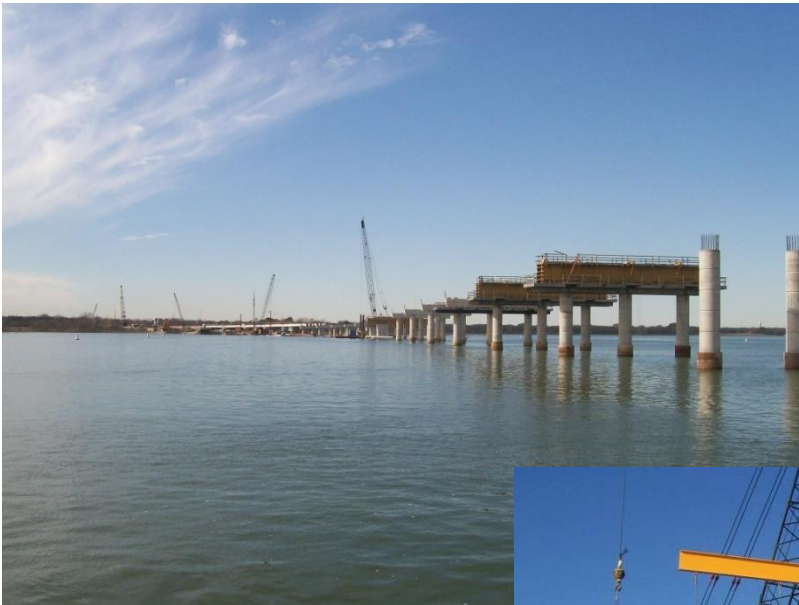
However, employees may:

- accept ordinary business lunches
- accept token items that do not exceed an estimated value of \$25 where the items are distributed generally as a normal means of advertising
- visit dining or hospitality rooms or similar facilities, provided they have no restrictions on visitors, and are in conjunction with a conference, meeting, or other event approved by NTTA.

3.10 Computers and Cellular Telephones

When shown in the contract, or included by change order, Contractor provided computers and cellular telephones may be used by Construction Manager employees. Comply with NTTA computer and cell phone usage policy and requirements when using Contractor provided computers and cell phones.

Section 4



NTTA Construction Manual

4.0 PRE-CONSTRUCTION

4.1 Showing the Project

When showing a project, provide all interested parties the opportunity to review the project and any pertinent information requested. Keep a record of all questions asked and answers provided. Ensure all interested parties are treated fairly and equitably. Any explanations, information or handouts made available to one prospective bidder must be made available to all prospective bidders. Never make statements regarding the possibility or probability of changes in plans, specifications, or quantities.

If errors are pointed out by a prospective bidder, analyze the errors to determine the overall effect on the contract. Correct major errors prior to the letting by issuing an addendum to all prospective bidders. Minor errors, including but not limited to, minor quantity errors or misspelled words do not require correction prior to letting. Addenda for these changes are released by NTTA.

4.2 Bidding Proposals

NTTA issues all bidding proposals. Informational proposals are available by request from NTTA.

4.3 Pre-Bid Conference

NTTA Mandatory pre-bid conferences will be conducted by NTTA Bid Purchasing to provide specific project information, explain any unusual aspects of the project and address any potential bidder questions with assistance from the Corridor Manager, Designer and if directed by NTTA Project Delivery, the Construction Manager.

If directed by NTTA to conduct a pre-bid conference the Construction Manager shall maintain minutes for all pre-bid conferences, both mandatory and optional; minutes may be written or recorded. Provide a copy of these minutes to all conference attendees and bidders. Include all pre-bid conference information (such as type, date, time, location, etc.) in the Notice to Contractors. Schedule pre-bid conferences approximately two weeks prior to letting to allow sufficient time to prepare and issue any needed addenda. Provide Contractors adequate notification of a scheduled pre-bid conference.

When conducting a pre-bid conference, adhere to the following requirements:

- Ensure the location and the starting time for the conference is as specified in the Notice to Contractor. Make reasonable consideration for individuals who arrive late due to circumstances beyond their control, such as weather related difficulties.
- Ensure the attendance list contains the Contractor representative's signature, the printed name, complete firm's name and address, and telephone and fax numbers.

NTTA Construction Manual

- Ensure that the conference is conducted at least two weeks prior to letting.
- Ensure the pre-bid conference agenda covers a general review of the completed plans and specifications plus a detailed review of the contract's special requirements.
- Ensure that issues discussed during the pre-bid conference are not considered contractual.
- Issue an addendum to correct a proposal as bid documents cannot be altered by a pre-bid conference.

4.4 Optional Attendance

Pre-bid conferences where attendance is optional may be conducted at the discretion of NTTA for contracts with special conditions or requirements. Provide notice of the date and time of the optional pre-bid conference to all contractors. Do not exclude a contractor from bidding on a contract because of failure to attend the optional pre-bid conference.

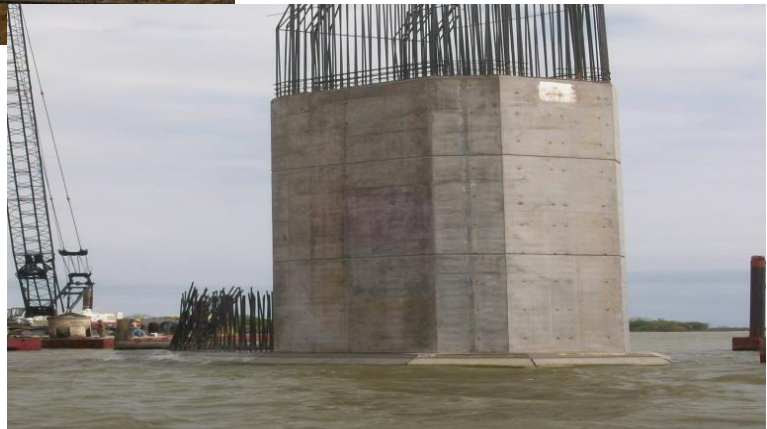
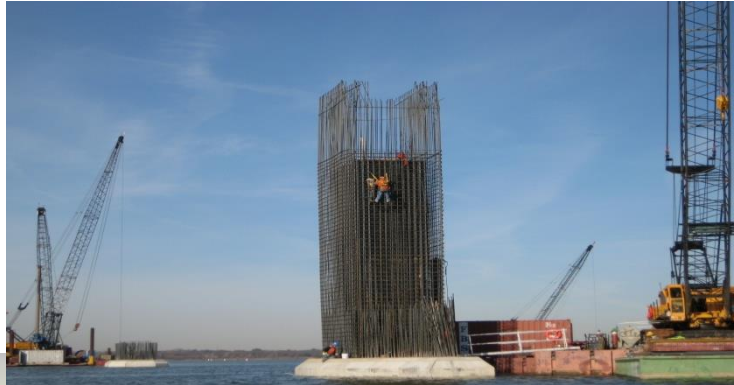
4.5 Mandatory Attendance

Do not conduct mandatory pre-bid conferences unless absolutely necessary to provide information to bidders that cannot be conveyed in writing. Mandatory pre-bid conferences are not recommended due to contractor concerns regarding bidding confidentiality and conference scheduling difficulties. Pre-bid conference procedural errors may result in bid rejection.

If a mandatory pre-bid conference is approved, include the requirement in the proposal and the Notice to Contractors. Conduct a second pre-bid conference at least seven calendar days prior to letting for large, complex, highly technical projects that require attendance at a mandatory pre-bid conference.

Contractors failing to attend a mandatory pre-bid conference will not be eligible to bid.

Section 5



NTTA Construction Manual

5.0 CONSTRUCTION

5.1 Public Information Act

The Public Information Act, formerly known as the Open Records Act, is located in Chapter 552 of the Government Code and provides a mechanism for citizens to inspect or copy government records. The Act also allows for requesting permission to withhold information contained in governmental records from the public in certain instances, such as documents related to litigation. Governmental entities must respond "promptly" to information requests.

Immediately date stamp all written requests for information. Contact NTTA Project Delivery as soon as possible for guidance.

Conduct a pre-construction conference with the Contractor after NTTA has awarded the contract and prior to commencement of construction operations. The Construction Manager will coordinate with NTTA and the Designer to ensure that the list of invitees is complete.

Ensure meeting attendees include:

- appropriate representatives from NTTA and the Construction Manager
- the Contractor's organization
- subcontractors
- news media (as required)
- utility companies (as required)
- emergency entities such as hospitals or fire departments (as required)
- local governmental entities (as required)
- local law officers (as required)
- resource agencies (if an invitation is required; some projects with conditional permits require resource agency notification).

5.2 Pre-Construction Conference

At the conference, the NTTA, Construction Manager and Contractor's staff become acquainted, establish lines of authority and communication, determine the responsibilities and duties of the Contractor's personnel, subcontractors, NTTA and Construction Manager personnel, clarify potential sources of misunderstanding and work out the detailed arrangements necessary for the successful completion of the contract. The meeting will be recorded and a written record of the meeting (e.g., meeting minutes) will be placed in EPDS and in the contract file, together with any required documentation provided to resource agencies.

5.3 Pre-Construction Conference Agenda

Prepare and submit to NTTA Project Delivery - Construction for review a pre-construction conference agenda to discuss specific items. MAN-06-F9 is the NTTA Pre-Construction Agenda Template for use in preparing the agenda. MAN-06-A4 is a sample NTTA Pre-Construction

NTTA Construction Manual

Agenda. The following table lists items which should be considered for inclusion in the pre-construction meeting agenda. Discussion items should be developed to fit the specific project under discussion. The agenda will be drafted in outline form as shown in Appendix E.

5.3.1 TABLE 4 - Pre-Construction Conference Agenda

Agenda Item	Topic/Comments
Introduction	<ul style="list-style-type: none"> • staff introductions • purpose of meeting • review of contract location, type, size, special problems or designs, right of way (ROW) and utilities • number of work days • material and source approval • identify any local entity agreements and local entity's role • other topics as appropriate.
Identity of Representatives	Identify the Contractor's representatives, subcontractors, engineer, law enforcement agencies, utility companies, and other relevant parties giving name, address and phone number.
Contractor's Work Plan	<ul style="list-style-type: none"> • start date • completion date • major phases of the contract • progress schedule chart briefly outlining the manner of prosecution of work intended to complete work in allotted time • revisions • work plans • criteria on working day charges and temporary suspension of work <ul style="list-style-type: none"> ○ notify the Construction Manager at least 24 hrs. before beginning work in any new operation • field office and/or lab • special traffic problems • present the subcontractors proposed for the project and the work they will perform (M/W/DBEs discussed below) • railroad insurance, if required in the contract

NTTA Construction Manual

5.3.1 TABLE 4 - Pre-Construction Conference Agenda continued

Agenda Item	Topic/Comments
Construction Requirements	<p>Usual requirements:</p> <ul style="list-style-type: none"> • water truck weight • roller qualifications • truck measurement • asphalt distributor calibration • truck weight limit • copies of papers accompanying material delivered to the project • stump dumping, etc. <p>Special requirements — discussion of pertinent items:</p> <ul style="list-style-type: none"> • staking • earthwork • base • pavement • structures • miscellaneous.
Utility Adjustments	<ul style="list-style-type: none"> • All utilities should be clear before the letting date; however, if plans include a date when the utilities are to be clear, adhere to that date. If utilities are not clear by the given date, it may be necessary to amend the contract to allow additional work days. • The Contractor should not damage utilities located within the right of way.
Environmental	<ul style="list-style-type: none"> • Inform Contractor of securing proper environmental/archeological clearances pertaining to Project Specific Locations (PSL). <ul style="list-style-type: none"> ○ transmit to the Contractor information about any environmental commitments that apply to the project • Review the Contractor's implementation of the Storm Water Pollution Prevention Plan (SW3P). Pay attention to areas of earth susceptible to erosion, haul road and material pits, contamination of streams and lakes, and damage to adjacent property, etc. • Review mitigation requirements for the contract • Determine if there are possible conflicts between the Contractor's work schedule and the SW3P • Discuss environmentally sensitive areas (such as, wetlands, archeological finds, endangered species, etc.)

NTTA Construction Manual

5.3.1 TABLE 4 - Pre-Construction Conference Agenda continued

Agenda Item	Topic/Comments
Traffic Control	<ul style="list-style-type: none"> • review plans, standards, and specifications • discuss signs, barricades and lights: inspection and reports, repair and compliance, special conditions and detours • discuss speed zones • discuss flagging procedures • explain the Traffic Control Plan (TCP) and its sequence during the course of the contract • determine the Contractor's plans for implementing the TCP • discuss any Contractor proposed alternate TCP • stress to the Contractor that deficiencies noted during construction must be corrected as soon as possible • ensure the Contractor provides the scheduled sequence of work to the respective utility owners • request a letter designating Contractor's responsible person (CRP) and Construction Manager responsible person (RP).
Traffic Laws	<p>The Contractor and Construction Manager personnel must be aware of the Texas Traffic Laws regarding the legal limit of axle load (legal weights) for trucks hauling materials to the site. Copies of the law can be obtained from the Texas Department of Public Safety.</p>
Materials	<ul style="list-style-type: none"> • request a letter designating sources of all materials proposed to be used on project • certification requirements • testing requirements • Quality Control/Quality Assurance (QC/QA) • storage of materials • inspecting and testing.
Storage of Equipment and Materials	<p>Review specifications, especially the need to keep the travel way clear.</p>
Law Enforcement	<p>The responsibility of the Construction Manager is to guarantee that open lines of communication have been established between Contractor and law enforcement. Discuss the use of law enforcement personnel on the project, if needed. The Construction Manager should ensure that specific needs for traffic supervision will be met. The interested parties must determine exactly how they will share traffic-related information (accidents, safety hazards, etc.).</p>
News Media	<p>Develop a plan for educating the public about construction activities through media announcements.</p>

NTTA Construction Manual

5.3.1 TABLE 4 - Pre-Construction Conference Agenda continued

Agenda Item	Topic/Comments
<p>Safety Issues*</p> <p>*For more information on construction safety, see Health and Safety Items, and Article 7.7, "Public Safety and Convenience," of the Standard Specifications.</p>	<p>Ask the Contractor to answer the following questions:</p> <ul style="list-style-type: none"> • Does the Contractor have a defined safety program? List the goals and people responsible, a letter designating a safety officer, minutes of the safety meeting, issue resolution, etc. • How does the Contractor's management support the safety program? • Does the Contractor's safety program include discussion with employees to promote safe conditions and practices in their work? • How are job-related injuries and illnesses investigated, recorded and reported by the Contractor? • OSHA compliance. What does the Contractor do to keep informed on government safety regulations and standards?
<p>Contractor Estimates</p>	<ul style="list-style-type: none"> • partial payments, monthly estimates, closing dates, etc. • payment for material-on-hand (MOH)
<p>Subcontracts</p>	<p>Letter notifying NTTA of proposed subcontractors to be used (refer to Article 8.8, "Subcontracting," of the standard specifications).</p>
<p>Minority/Women/Disadvantaged Enterprise (M/W/DBE)</p>	<ul style="list-style-type: none"> • Contractors will be advised of requirements in the M/W/DBE Special Provision. • Contractors should also be directed to contact the Construction Manager's office concerning anticipated changes to their M/W/DBE commitment, any disputes, or inability to meet the goal • NTTA is responsible for approving any requests from the Contractors, for M/W/DBE removals, substitutions, and Good Faith Efforts resulting from removal of an M/W/DBE. • Reports of all payments made to the M/W/DBE, regardless of commitment.

NTTA Construction Manual

5.3.1 TABLE 4 - Pre-Construction Conference Agenda continued

Agenda Item	Topic / Comments
EEO, Training and Labor Compliance	<p>Equal Employment Opportunities (EEO) Compliance Program requirements are contained in the following special provisions:</p> <ul style="list-style-type: none"> • Required Contract Provisions Federal-Aid Construction Contracts (Form FHWA 1273) (See Appendix E). • Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246) <ul style="list-style-type: none"> ○ Including Form FHWA 1391 – Certification of Nondiscrimination in Employment and Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246). (See Appendix E). <p>In addition, the applicable wage determination, the M/W/DBE special provision, and the prompt payment requirement must be included in subcontract agreements.</p> <p>Form FHWA1273 must be physically attached to all federally assisted contracts, subcontracts, and purchase orders of \$10,000.00 or more.</p> <p>Prevailing wage rate requirements: Contractors and subcontractors must pay employees, at a minimum, the classification wage rates specified in the contract. The minimum wage rates must also be conspicuously posted and accessible on the project site.</p> <p>Payroll records: Payroll records certifying compliance with the contract's minimum wage rates, overtime and payroll deduction requirements must be submitted within 7 calendar days on federal-aid construction projects. On 100% NTTA funded construction contracts, the Contractor or subcontractor must keep the payroll records and make them available for review by NTTA</p> <p>Bulletin Board Requirements: The U.S. Department of Labor, Federal Highway Administration, and U.S. Department of Transportation require certain posters to be posted on bulletin boards in places accessible to the employees on a job site. The bulletin board requirements only apply to federal aid construction contracts.</p> <p>EEO Meeting Requirements: EEO meetings with supervisory and personnel office employees must be conducted before the start of work and then at least once every six months. EEO meetings with non-supervisory employees must be conducted at least annually.</p>

NTTA Construction Manual

5.3.1 TABLE 4 - Pre-Construction Conference Agenda continued

Agenda Item	Topic/Comments
Partnering	<ul style="list-style-type: none">• issue escalation and rocks in the road (review of potential problems).
Other Matters	<ul style="list-style-type: none">• procedures• shop drawings• erection details• forming details.
Comments and Adjourn	summary and follow up, etc.

5.4 Barricades, Warning and Detour Signs, and Traffic Handling

The Contractor is responsible for providing, installing, moving, replacing, maintaining, cleaning, and removing all traffic control devices in accordance with the contract. Take any corrective action deemed necessary to ensure requirements are met. Deduct the cost of any corrective action work from money due or to become due to the Contractor. The Construction Manager is not to assume the responsibility of the contractor or direct this work, but is charged to see that the contractual requirements are met in all weather conditions in a timely manner.

5.4.1 Contractor Responsible Person (CRP)

Obtain from the Contractor the name and contact information for the Contractor Responsible Person (CRP). The CRP is responsible for taking or directing corrective measures of noted deficiencies associated with the Traffic Control Plan (TCP). The Construction Manager shall have the CRP correct all noted deficiencies as soon as possible.

Ensure the Construction Manager Responsible Person (RP) observes the implementation of the TCP on each project. The RP will perform a daytime and nighttime inspection each month. The inspections will be at least two weeks apart.

The Contractor will erect warning and regulatory signs called for in the traffic control plan (TCP) at the appropriate locations. Use signs only when necessary. Cover signs placed prior to their need and do not leave in place longer than necessary. Remove or cover signs that restrict the speed limit in a construction or maintenance work zone during any period for which a restricted speed limit does not apply. Discuss the timing of sign erection and removal requirements at the pre-construction conference.

NTTA Construction Manual

5.4.2 Speed Limit Signage

Erect regulatory speed limit signs in the construction zone designating the limits of the roadway section where speed reduction is necessary for the safe operation of traffic and protection of construction personnel. Install the signs only to the limits needed. Regulatory speed zone signs must have an applicable NTTA authorization or City Ordinance.

Advisory speeds are the desirable speeds for curves, intersections, or other locations where design standards or physical conditions of the roadway restrict safe operating speeds to values less than the maximum legal speeds or posted regulatory speed limit. Advisory speed signs may be erected within a regulatory speed zone to advise drivers of a safe operating speed to negotiate roadway features.

Locations of speed zone signs shall be set by the Engineer. The Contractor will ensure speed limit signs erected on posts are properly covered at all times when the reduced speed limits are not necessary. Remove construction speed limit signs when reduced construction speed limits are not necessary for the operation in progress.

5.4.3 Contractor responsibility to maintain all traffic control devices

It is also the Contractor's responsibility to properly maintain all traffic control devices and ensure they are legible at all times, and in conformance with the contract, the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD), and the "Traffic Signals Manual" volume of the TxDOT Traffic Operations manual collection.

5.4.4 Construction Manager TCP Documentation (TxDOT Form 599)

The Construction Manager is to document the TCP activities in the diaries and on the TxDOT Form 599 Traffic Control Devices Inspection Report. (See Reference Documents for TxDOT Form 599). If accidents occur, limit the documentation to the incident, date and time. In addition to TxDOT Form 599 Traffic Control Devices Inspection Report forms, document compliance with contract requirements and deficiencies with the date of correction in the contract diary on a more frequent basis than that required for the TxDOT Form 599 Traffic Control Devices inspections.

Perform a detailed inspection of TCP's in the field immediately after traffic alignment changes. Documentation of these detailed inspections may be made by photograph, video, use of the TxDOT Form 599 Traffic Control Devices Inspection Report, memorandum or other media.

Document changes to the TCP shown in the plans prior to or immediately after implementing the changes. Document changes that:

- alter the original TCP
- make changes that increase or decrease sign or design traffic control requirements.

NTTA Construction Manual

The change in TCP documentation requirements applies generally to project specific TCPs and changes to non-project-specific TCP standards. Minor adjustments to meet practical placement requirements in the field do not necessarily require documentation. Place the documented changes to the TCP with the plans or in the files, as appropriate, and provide copies to inspectors and the Contractor.

Changes to TCP plan sheets are under the direct supervision of the Engineer and require signing, sealing and dating. These requirements apply to sketches and marked up copies of plan sheets as well. The Engineer's written instructions to the field for the TCP changes require the Engineer's Professional Engineer (PE) designation and the date.

5.4.5 Emergency Lane Closure Request Procedure

If it becomes necessary for an emergency lane closure, the Construction Manager will coordinate the lane closure request between the Contractor and the appropriate NTTA Maintenance section. The request should include the reason for the closure, the duration of the closure, any measures needed to control traffic and the responsible party. See MAN-06-A5 NTTA Lane Closure Request Form, MAN-06-A6 NTTA Lane Closure Guidelines and sample completed forms in Attachments.

5.4.6 TCP Documentation Exempt from Disclosure under Public Information Act

File TxDOT Form 599 Traffic Control Devices Inspection Reports, videos and photographs of detailed inspections, accident investigations, and other specific inspection documentation separate from the project files with a folder labeled "DO NOT DISCLOSE - EXCEPTED FROM DISCLOSURE BY 23 USC §409."

Forward all open records requests associated with TxDOT Form 599 Traffic Control Devices Inspection Report checklists to NTTA Project Delivery - Construction as soon as they are received.

The following opinion applies to open records requests that pertain to the subject form:

“TxDOT Form 599 Traffic Control Devices Inspection Reports fall under the category of safety information that federal law exempts from discovery, which makes them exempt from disclosure under the Public Information Act. The Attorney General’s Office routinely allows withholding these checklists, but not unless each time a request is received, NTTA requests an opinion from the Attorney General’s Office within ten business days. The only time they may be given out is to the responsible contractor during routine monthly inspections.”

Based on this opinion, TxDOT Form 599 Traffic Control Devices Inspection Reports, for both ongoing and completed projects, are not subject to disclosure except as noted above.

NTTA Construction Manual

File documents containing information identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings separate from the project files in a folder boldly labeled "DO NOT DISCLOSE - EXCEPTED FROM DISCLOSURE BY 23 USC §409." This includes information generated as part of the project such as TxDOT Form 599 Traffic Control Devices Inspection Reports. This information may only be provided to the responsible contractor during routine monthly inspections. Barricade Inspection Report folders may be separated from the primary project file and maintained at the Construction Manager's office.

Release of this file, except as noted above, must be approved by NTTA. Forward all open records requests associated with the contents of this file to the NTTA Project Delivery - Construction as soon as the request is received. NTTA will facilitate communication with the Attorney General's office. If an Attorney General's opinion is not obtained, denial of release of copies may be disallowed.

5.5 Project Records

Complete and accurate records are important for proper administration of all contracts. Document all important information related to the performance of the work. Contract records provide documentation of the following and are required for legal purposes:

- facts and details of all tests, inspections and work performed
- proof of, and support for, the decisions, actions, and fulfillment of the Construction Manager's responsibilities
- documentation of the Contractor's compliance or noncompliance, with the plans and specifications

Maintain complete, clear and accurate records that provide documentation of Contractor delays, quantity variations, unacceptable work, quality of materials, surveying problems and other points of contention. Complete documentation supports NTTA's position if a formal dispute or claim is made.

The Construction Manager will be responsible for the physical security of the project records. Records which contain material exempt from disclosure by the Public Information Act (PIA) will be maintained in a secure location and access will be limited to those specifically authorized. The current version of the PIA should be consulted to determine the specific items exempted.

5.6 Electronic Records

NTTA has implemented a Web-based project management system for all official project communications - Enterprise Project Delivery System (EPDS). This system provides all project team members:

- Simplification of communications
- Automated tracking of time-sensitive information
- Automated reporting
- Common document storage and management audit trail of information
- Secure, real-time 24/7 access and exchange of information

NTTA Construction Manual

5.6.1 Construction Manager's Use of EPDS

Construction Manager's shall be required to use this system for all official project communications and interactions, including:

- Correspondence
- Quality Management plan and submittals
- Issues
- Meetings
- Design Management
- RFIs
- Submittals
- Schedule submittals
- Nonconformance reporting
- Resident Engineer's Daily Diary
- Daily Activity Reports (See Appendix E)
- Punchlists
- Reporting
- Document Management
- Construction Drawing Management
 - (including management markups, versions and revisions)
- Project Archiving and Closeout
- Record Drawing Management

The software is accessed via the Internet and there is no licensing cost to consultants or contractors. In addition, NTTA will provide training at no cost to the Consultants and Contractors. All project team members must complete training prior to gaining access to their project websites.

Consultants and Contractors will be responsible for coordinating with NTTA to establishing and furnishing NTTA high-speed Internet connectivity to access their project websites. NTTA will typically furnish all hardware and software required to establish and maintain access to the project websites, unless specifically excluded by the Construction Manager Agreement. Consultants and Contractors shall be responsible for including the provision of any small or large format scanning hardware, plotter devices, printers, or means of obtaining scanned or plotted documents from a printing/plotting service, to support the electronic submittal review process via the websites.

Computers and automation equipment may be used for the collection, storage, and retrieval of documentation generated for a contract. Electronic collection and retention of records must be acceptable from an engineering, audit, and legal standpoint. Therefore, any record system should allow for the reconstruction of the chain of events that occurs on a contract.

5.6.2 Construction Records Requirements

Records must meet the following requirements:

- information recorded at or near the time of the events

NTTA Construction Manual

- information recorded by or from a person with direct knowledge of the event
- kept during the course of business
- ensure only authorized personnel enter information
- provide adequate backup and recovery to protect against information loss due to either human error or system failure
- prevent unauthorized alteration or erasure
- provide authorized user retrieval capability
- include adequate software programs and hardware dependency documentation
- provide an accurate audit trail by indicating the steps followed in processing the data and the methods used to prevent loss of data
- store on appropriate media
- maintain jobsite copies of SW3P requirements, as generated by the Environmental Compliance Manager.

5.7 Construction Documentation

The following construction documentation shall be maintained in EPDS or in separate files and kept up-to-date during the course of the Construction contract for review by NTTA Project Delivery - Construction) and shall be submitted to the NTTA Manager of Construction Project Delivery by the Construction Manager at the completion of the work.

- Diary (diaries will be objective and consist of documented facts and statements only.)
- Inspector Daily Reports
- Pay Item Computation
- Field Books - Indexed and Numbered
- Embankment, Sub-grade, Sub-base and Base Course Testing
- Concrete Plant and Concrete Related Field Inspection Reports (calibrations, gradations, admixtures, slump, air content, etc.)
- Concrete Delivery Tickets with an attached adding machine tape indicating date, pay item(s), placement location and cumulative quantity.
- HMA Plant Reports
- HMA and Concrete Mix Designs
- HMA Tickets (for HMA binder, surface or leveling course binder mixes and tack coat) indicating date, pay item(s), placement location, cumulative total, and any additional information needed.
- Drilled Shaft drilling logs
- Concrete Volume Checks
- Miscellaneous and Material Certifications
- Off-Site Testing and Inspection Reports
- Accident Reports for major accidents within the work zone (medical treatment required)
- Miscellaneous documents (source of aggregate, Shop Drawings, Subcontractor acceptance and purchase orders)
- Weekly Progress Reports and Weekly Meeting Minutes.
- Change Orders, Partial and Final Pay Estimates
- Correspondence between Construction Manager and others.

NTTA Construction Manual

- Request for Information (RFI) files and Log.
- Submittal log.
- Approved M/W/DBE Utilization Plan, all M/W/DBE related correspondence, and Contractor daily headcounts
- Letters from the NTTA Project Delivery to the Contractor documenting acceptance, time extension(s), and/or assessment of Liquidated Damages for all Interim Completion Dates, Substantial Completion Dates, and/or Final Completion Date, as applicable.
- Final Record Drawings
- Comprehensive construction contract progress reporting with weekly frequency of reporting for all large contracts.

5.7.1 Work Documents

Article 5.3, “Conformity with Plans, Specifications, and Special Provisions”:

“NTTA will not pay for material rejected due to improper fabrication, excess quantity or any other reasons within the Contractor’s control.”

Article 9.2, “Plans Quantity Measurement,” of the Standard Specifications states the following regarding plans quantities:

“Plans quantities may or may not represent the exact quantity of work performed or material moved, handled, or placed during the execution of the Contract. The estimated bid quantities are designated as final payment quantities, unless revised by the governing specifications or this Article.” Article 9.3, “Scope of Payment,” of the Standard Specifications:

“NTTA will only pay for material incorporated into the work in accordance with the Contract. Payment of progress estimates will in no way affect the Contractor’s obligation under the Contract to repair or replace any defective parts in the construction or to replace any defective materials used in the construction and to be responsible for all damages due to defects if the defects and damages are discovered on or before final inspection and acceptance of the work.”

Excess materials acquired by NTTA are handled by using the following procedures:

- The Contractor suitably stores or stockpiles materials and the materials meet specifications at the time the Contractor turns them over to NTTA.
- The Construction Manager/Resident Engineer shall contact NTTA Maintenance to determine the location and timing for delivery of the excess materials.
- A duly executed change order (CO) between NTTA and the Contractor shall cover the acquisition.
- After completion of the CO and the work, make payment to the Contractor by including the agreed compensation in the next estimate.

NTTA Construction Manual

Purchase excess material from the Contractor due to significant quantity errors in the plans. Reimburse the Contractor at the material invoice price. An additional add-on of 5% is permissible.

NOTE: When purchased materials are not used on a federal-aid project, note the material cost as "non-participating" on the final estimate and the CO.

5.7.2 Working Drawings

The contract may require that the Contractor furnish working drawings such as:

- shop drawings
- supplementary bridge plans, or erection drawings for bridge structure components
- sign supports
- illumination facilities
- other items

A licensed professional engineer must sign, seal, and date working drawings in accordance with Article 5.2, "Plans and Working Drawings," of the Standard Specifications. Handle the review and approval of these drawings and other required information according to instructions found in the specifications. Reviews will be completed and returned within 10 business days.

For temporary construction, the Working Drawings shall be reviewed for general conformance with the Contract Documents by the Construction Manager unless otherwise specified.

The Construction Manager shall check that all Working Drawings submitted by the Contractor are prepared by an Engineer licensed by the State of Texas.

If the Plans include specific details for beam or girder jacking or erection procedures, these shall be submitted to the Designer. If no such details are included in the Plans, then drawings shall be reviewed by the Construction Manager for general conformance with the Contract Documents.

Drawings of erection procedures, including dimensional and weight specifications of proposed erection equipment/bridge loading calculations, shall be submitted to the Designer, as directed, for review.

The Contractor must submit five (5) copies of all Working Drawings to the Construction Manager including one reproducible transparency or acceptable electronic copy. The Contractor must maintain document control over contractor produced working drawings.

5.7.3 Shop Drawings

The Contractor is required to submit Shop Drawings for certain items which will remain as part of the completed work, which will be fabricated away from the site of the work, and/or for which complete fabrication detail is not included in the Contract Plans. All submitted items shall use the associated EPDS Workflow and will be reviewed according to NTTA QMS Procedure CON-

NTTA Construction Manual

02 (Construction Submittal Review Process). The review will be completed and returned in EPDS within 15 business days.

Such items may include, but are not limited to:

- Structural steel
- Reinforcing steel (bending and placement diagrams)
- Sign structures
- Roadway lighting fixtures
- Expansion joint closure devices
- Bridge bearing devices
- Pre-cast concrete items, whether conventionally reinforced or pre-stressed
- Mechanical and electrical equipment and installations
- Mechanically Stabilized Earth (MSE) Wall Panel Systems

Shop Drawings for mechanical and electrical items, structural components for which there are not complete details in the Plans, and particularly any item or product to which the phrases "or equal" or "approved equal" are applicable, shall be submitted in accordance with QMS procedure CON-02 shall first be reviewed by the Construction Manager for equality then forwarded to the Designer for similar review and recommendation to be returned to the Construction Manager for final recommendation.

When the Plans or Special Provisions stipulate certain products or methods, the Construction Manager shall verify that the Shop Drawings indicate full compliance with those requirements. A statement of the Construction Manager's findings as to equality or product compliance shall accompany these transmittals prior to forwarding to the Designer or designated Reviewer in QMS Procedure CON-02 within the EPDS Workflow.

When the Construction Manager finds that the Shop Drawings do not adequately indicate equality or do not represent specified products or methods, he/she will promptly return the submitted items to the Contractor with appropriately detailed explanations and request re-submittal.

The Construction Manager shall process, track, follow-up, and advise the NTTA Project Delivery - Construction of any excessive delay in scheduled checking of all Shop Drawings with the Designer to assist in a timely review process.

Submittal distribution shall be within EPDS according to Section 6.4 of QMS Procedure CON-02.

NOTE: If the Shop Drawing(s) contain items to be inspected by TxDOT under contract to NTTA for Material Inspection (see Section 5.13) these Shop Drawing(s) will need to be sent to NTTA Project Delivery Construction for packaging and subsequent delivery to TxDOT, and shall contain properly reviewed and approved stamps and signatures.

NTTA Construction Manual

5.7.4 Coordination of Contract Documents

Article 5.4, “Coordination of Plans, Specifications, and Special Provisions,” of the Standard Specifications states the following regarding the coordination of plans, specifications and special provisions:

“The specifications, accompanying plans (including additional plans for non-site specific work), special provisions, COs, and supplemental agreements are intended to work together and be interpreted as a whole.

Numerical dimensions govern over scaled dimensions. Special provisions govern plans (including general notes), which govern over standard specifications and special specifications. Job-specific plan sheets govern over standard plan sheets.

However, in the case of conflict between plans (including general notes) and specifications regarding responsibilities for hazardous materials and traffic control in Items 1 through 9 and Item 502, “Barricades, Signs, and Traffic Handling,” special provisions govern over standard specifications and special specifications, which govern over plans.”

5.7.5 Daily Diary

The Chief Inspector shall within EPDS keep a daily diary. Daily diary entries include:

- Date
- Weather conditions
- Contract time charged and reason charged if not using calendar days
- Work in progress, including temporary erosion control
- Location of work
- Approximate quantities of work
- Contractor and subcontractor’s work force
- Arrival and departure of equipment
- Quantity and type of equipment and activity at the project site
- Important instructions to the Contractor
- Names of official visitors and a summary of any discussions with the visitors
- Unusual construction or work conditions
- Decision-making discussions with the Contractor
- Direction provided to the Contractor
- Disagreements with the Contractor
- Detailed information that may have a connection with a probable dispute or claim
- Utility or other construction conflicts
- Project completion and final inspection activities
- Other important features of the projects
 - Such as discussions concerning Business Diversity, EEO, CUF reviews, etc.

The detail of the construction activity is to be of a high level but specific enough to tell the general type of activity and general location. The same exact note should not be listed word for word day after day, week after week, but should show general progress by type of work and

NTTA Construction Manual

location on the project in a general sense in the Daily Diary. If appropriate for the nature of the contract the Chief Inspection can list work by the Prime Contract and major sub-contractors.

These entries should be completed as much as possible at the end of the same day the work was done using the daily inspection reports and other observations or the next morning if not possible in the evening. The Daily diary should be entered as stated above and approved in EPDS, once reviewed for content and typos, within a day or two after being entered.

5.8 Value Engineering

Upon receipt of a Value Engineering proposal from the Contractor, the Construction Manager will:

- Review the Contractor's written concept submittal and provide the NTTA Project Delivery his/her recommendation as to whether the concept qualifies for consideration as Value Engineering.
- Notify the Contractor of NTTA's acceptance or rejection of the Contractor's concept proposal.
- If NTTA has approved the concept and the Contractor has elected to proceed with a complete Value Engineering proposal, the Construction Manager shall provide a detailed recommendation regarding cost and time impacts of the proposal to NTTA Project Delivery.
- When authorization from NTTA to proceed with the proposal and direction regarding the type of document to be prepared has been received, the Construction Manager will prepare the Value Engineering proposal document.
- Submit document for initiating payment to the Contractor, i.e., Change Order.

5.9 Construction Surveying

Construction stakes are set to establish lines and grades for roadway work. They also establish centerlines and benchmarks for bridge layouts. Ensure that these stakes are set sufficiently in advance of the work to avoid delay of the project and in accordance with Article 5.6, "Construction Surveying," of the Standard Specifications.

Use Method A, B or C as shown in the plans. Allow the Contractor to copy available earthwork cross-sections, computer printouts or data files, and other information necessary to establish and control work. Deduct the cost of work performed by the CM to repair disturbed control points, stakes, marks, or right of way markers from money due to the Contractor.

Measurements and surveys may be made to determine pay quantities and the accuracy of the work. These measurements and surveys do not relieve the Contractor's responsibility for accuracy of the work.

NTTA Construction Manual

5.9.1 Method A

Set control points for establishing lines, slopes, grades, and centerlines and for providing both vertical and horizontal control at maximum intervals of 1,500 ft. The Contractor will furnish materials, equipment, and qualified workforce necessary for the construction survey work. The Contractor will also place construction points, stakes, and marks at intervals sufficient to control work to establish tolerances. Ensure that construction stakes are placed at intervals of no more than 100 ft., or as otherwise determined. Ensure that stakes and marks do not interfere with normal maintenance operations.

5.9.2 Method B

Set adequate control points, stakes, and marks to establish lines, slopes, grades, and centerlines. The Contractor will furnish additional work, stakes, materials, and templates necessary for marking and maintaining points and lines.

5.9.3 Method C

The Contractor will set adequate control points, stakes, and marks to establish lines, slopes, grades, and centerlines.

5.9.4 Contractor Responsibility

The Contractor is responsible for:

- maintaining the integrity of control points
- preserving all control points, stakes, marks and right of way markers
- cost and responsibility of replacing disturbed control points, stakes, marks and right of way markers

5.10 Inspection by the Construction Manager

The Construction Manager / Resident Engineer shall either personally and/or designate a team member or approved subconsultant to inspect the work to determine if performance is according to the contract. The Contractor is required to provide safe access to all parts of the work and provide information and assistance to the Construction Manager to allow a complete and detailed inspection. The Contractor is required to provide the Construction Manager with sufficient notice in order to inspect the work. When practical, provide suitable inspection as the work is being done. Article 5.7, "Inspection," provides that inspection or lack of inspection will not relieve the Contractor from the obligation to provide materials or perform the work in accordance with the contract. Article 5.7 does not justify **inadequate, unsuitable, or negligent** inspection. Document the inspection of survey work in the project diary.

5.10.1 Defective and Unauthorized Work

The Construction Manager / Resident Engineer shall inform the Contractor of all failures to meet contract requirements as soon as possible after being discovered. All items discovered that meet

NTTA Construction Manual

the requirement of a significant item needing engineering judgment for acceptance shall also be sent utilizing NTTA QMS Procedure CON-07 (Control of Nonconforming Items During Construction). The Construction Manager / Resident Engineer shall not alter, add, or waive contract provisions, issue instructions contrary to the contract, act as foreman for the Contractor, or interfere with the management of the work. Inspectors may reject work or materials and may suspend work until any issues can be referred to and decided by the Engineer.

Inspectors may direct the Contractor to remove or uncover portions of finished work for inspection purposes. Once inspected, the Contractor will restore the work to contract requirements. If the uncovered work is acceptable, reimburse the Contractor for the cost to uncover, remove, and replace or make good the parts removed in accordance with Article 4.2, "Changes in the work." If the work is unacceptable, the Contractor will assume all costs associated with repair or replacement, including the costs to uncover, remove, and replace or make good the parts removed. Defective work to remain in place shall be documented as a Construction NCR and approved by NTTA within EPDS following NTTA QMS Procedure CON-07 (Control of Nonconforming Items During Construction).

NTTA resources may be used for the correction of defective work, removal and replacement of defective work, or removal of unauthorized work if the Contractor fails to perform the corrections in a timely manner. Deduct the cost of work performed by NTTA from any money due to the Contractor.

Approval may be provided to the Contractor to work beyond the lines and grades given or shown on the plans, as deemed appropriate. Do not reimburse the Contractor for extra work performed without written authority in the form of an NTTA approved Change Order.

5.10.2 Interim/Milestone/Substantial Completion

The Construction Manager / Resident Engineer shall prepare a letter for the Contractor stating the NTTA has inspected and is following the Interim, Milestone or Substantial completion(s) per the specifications as bid or modified by Change Order that specifically lists the type of work to be complete and available to open to traffic or available for NTTA IT to do loop work and other work at toll gantries.

The Construction Manager / Resident Engineer shall send the Contractor a letter at least one month before each one of these contract date(s) so it is clear when the date is and to give the Contractor the current status of the work and what remains in order to meet the contractual requirement. The direction shall be clear and concise for the Contractor to determine if they are meeting the requirements and what the potential bonus is, or if accomplished what the actual amount earned is. This should always be sent in the form of a letter in addition to any verbal communication and minutes of regularly scheduled weekly meetings or monthly progress schedule meetings.

NTTA Construction Manual

Unless included in the contract the Construction Manager / Resident Engineer shall have a Change Order prepared to pay the incentive amount earned by the Contractor (if any) or prepare any disincentive amount (if any) for meeting or not meeting the specified contractual requirement.

5.10.3 Final Acceptance

In accordance with Article 5.8, “Final Acceptance,” of the Standard Specifications, NTTA QMS Procedure CON-06 (Construction Closeout), work completed includes work for vegetative establishment and maintenance, test, and performance periods and work to meet the requirements of Article 4.6, “Final Cleanup.” After all work is complete, the Contractor will request a final inspection and the Construction Manager/Resident Engineer will schedule the date and time to include all appropriate NTTA staff (such as Maintenance, Information Technology, etc in addition to Project Delivery), TxDOT/FHWA staff (if applicable to the project), and any other third parties financially contributing to the project (such as a City). Conduct the final inspection as soon as possible but not later than ten calendar days following the Contractor’s request. Do not charge working days between the date of the request and the final inspection.

If the work is satisfactory after the final inspection, notify the Contractor in writing of the final acceptance of the work. Final acceptance relieves the Contractor from further contract responsibilities. If the final inspection finds any work to be unsatisfactory, provide the Contractor a written list of all deficiencies in the work requiring correction. Resume working day charges if these deficiencies are not corrected within seven calendar days, unless determined otherwise. Inspect the work to verify that all deficiencies were corrected satisfactorily. Provide the Contractor written notice of the final acceptance.

5.11 Inspection by Outside Organizations

When a governmental entity, utility, railroad company, or other entity accepts or pays a portion of the contract, that organization’s representatives may inspect the work but cannot direct the Contractor. The right of inspection does not make that entity a party to the contract and does not interfere with the rights of the parties to the contract. The Construction Manager is responsible for inspection of a construction contract and for determining compliance with the contract provisions. Any deficiencies noted by an outside agency shall be documented as a Construction NCR following QMS procedure CON-07.

5.11.1 Texas Department of Licensing and Regulation (TDLR) Inspections

The Texas Architectural Barrier Act of 1991 (TABAA) requires accessible construction in Texas. It is similar, but not identical, to the federal Americans with Disabilities Act (ADA). TABAA empowers the Texas Department of Licensing and Regulation (TDLR) to develop the Texas Accessibility Standards (TAS), and to inspect for compliance with these standards. Again, the standards are similar, but not identical, to the federal ADA Accessibility Guidelines (ADAAG).

NTTA Construction Manual

Ensure the construction of pedestrian facilities complies with both the TABA and ADA which are the state and federal laws that provide access to persons with disabilities.

Pedestrian elements, including sidewalks, curb ramps and landings, pedestrian signal push buttons, crosswalks, etc., must be constructed to be accessible to all users, including disabled users. Ensure fixed objects such as sign and signal supports, controller cabinets, etc., are located where they will not obstruct the accessible path.

Project review will have been coordinated with TDLR to ensure compliance with the guidelines established in the TAS during the time plans are reviewed. Project inspection by TDLR is required when the construction cost of the pedestrian elements totals more than \$50,000.00. Inspections are also required for all buildings and hike and bike paths. When a TDLR inspection is required, inform TDLR staff using the procedure below and coordinate an appropriate time for a site visit and inspection of pedestrian-related elements. TDLR inspection requirements will usually be noted on the title sheet. Schedule this inspection at least two weeks prior to completion of the work so the inspection can occur as soon as the pedestrian-related elements are complete. Submit all requests to TDLR in Austin. Do not contact a local registered accessibility specialist regarding the inspection.

NOTE: These inspections do not make TDLR a party to the contract.

Follow these steps to request a TDLR inspection:

1. Complete a TDLR Inspection Request form. (See Appendix E).
2. Fax the form to TDLR.

If a CO increases the value of pedestrian elements in a contract so the new total is over \$50,000, submit the plans to TDLR.

5.11.2 FHWA/TxDOT (Non-Exempt Federal-aid Projects)

FHWA/TxDOT representatives periodically inspect projects financed with federal funds in accordance with the “Federal-Aid Policy Guide”. This inspection does not make the FHWA/TxDOT a party to the contract.

Arrangements may be made to observe project and independent assurance sampling and testing with the FHWA/TxDOT representatives upon their arrival. Securing these samples should not delay the Contractor’s normal operations. Maintain a complete file of the results of all tests performed and make them readily available for FHWA/TxDOT inspection. When FHWA/TxDOT approval of a CO is required prior to performance of work, contact the NTTA C5 as soon as possible to coordinate FHWA/TxDOT approval of the Change Order.

5.12 Utility Coordination

Existing utility facilities located within or adjacent to the project may need to be abandoned, protected, adjusted, or relocated (utility facilities may include NTTA systems). The Construction

NTTA Construction Manual

Manager shall review, monitor, document, and perform other Engineering Services as described under this section.

All work associated with the relocation of utilities shall be in accordance with Texas State law, Utility Agreements or Permits, and NTTA's policies and guidelines. The work shall also be in accordance with TxDOT, county, and municipal requirements if applicable. The Construction Manager shall assist NTTA in carrying out the utility relocation process in accordance with the terms and conditions of the Agreements and applicable documents and policies.

5.12.1 General Requirements

- Maintain a presence in the field at each utility relocation site to monitor the utility work.
- Assist the Utility in verifying horizontal and vertical control points and other survey information to facilitate the installation of proposed utility relocation work.
- Verify that the utility work does not conflict with NTTA's construction project and verify compliance with the Utility Work Order.
- Schedule regular utility coordination meetings between Utility representatives, the Contractor, and NTTA Project Delivery to discuss the Contractor's requirements, perform and coordinate utility work and to resolve construction and scheduling conflicts on the project.
- Check and keep a log of all utility work performed on NTTA's construction projects and any off-site utility work related to the project. Include applicable information in the Weekly Progress Report. The log will consist of:
 - Utility Identification
 - Type of Utility
 - Status of utility
 - Contractor Critical Path
 - Start Date
 - Expected Completion Date
 - Contact Information
- Create and maintain a file and a schedule for the relocation of each utility associated with the project.
- Verify, during the installation and as the work progresses, that the utility relocation work eliminates conflicts between NTTA's projects and does not conflict with other utility facilities being relocated in the same general location. Consult with and request the assistance of the Designer, if applicable.
- The Construction Manager shall monitor, quantify and verify all lost time due to inactivity or delinquency of a utility to relocate its facilities.

All of the above listed requirements shall be performed in accordance with this Manual and NTTA policies and procedures.

NTTA Construction Manual

5.12.2 Coordination of Utility Work

The Construction Manager shall meet regularly with NTTA Project Delivery, the Utility Provider, and the Contractor to review, analyze and coordinate the utility schedules with the approved construction schedule for the construction project.

The Construction Manager shall coordinate requests to locate NTTA's electrical and telecommunication facilities, as well as, consult and coordinate with the Designer, if applicable, to provide prompt and complete recommendations requested by NTTA Project Delivery or the Contractor to evaluate changes or extra work.

The recommendations shall be supported by, but not limited to, photographs, drawings, Plan sheets, sketches, schedules, cost estimates, Shop Drawings, and any other exhibits that may be reasonably required to support a change in the Plans or extra work and shall be comprehensively described in sufficient detail to fully explain the recommended course of action.

The Construction Manager shall:

- review and make recommendations regarding approvals for the reimbursement of costs on all reimbursable utility relocation work on the project.
- review and verify utility reimbursement invoices by comparing the documentation recorded during the observations.
- assist NTTA in negotiating, evaluating, and justifying the costs for field changes or extra work, including preparing and presenting potential change orders to NTTA C5.

5.12.3 Documentation

The Construction Manager shall:

- maintain and return to NTTA a utility job file for each utility relocation project.
- keep daily material, equipment and records of utility construction activities by the Utility and the Utility Contractor.
- observe and monitor the progress of the utility work and submit to NTTA a Weekly Progress Report for each utility relocation project.
- identify and make known to NTTA any change in the work or Plans that may affect the roadway Contractor's construction schedule or the construction schedule of the Utility.
- document and maintain a log of all communications and meetings between the Utility, the Utility's Contractor, Utility representatives and NTTA's Contractor.
- record all relocated utility facilities and the utility conflict numbers on the record drawings. Data to be recorded for each utility relocation will include; beginning station, ending station, type of utility, utility owner, beginning elevation, ending elevation, elevation at vertical transitions and any other information necessary to prevent future conflicts.

5.13 Control of Materials

Control of materials involves the Construction Manager, Contractor (when directed by the construction contract), NTTA's Lab Firms, the TxDOT Construction Division (CST), and

NTTA Construction Manual

commercial and manufacturer's laboratories. Notify NTTA Project Delivery Construction as soon as possible so that proper arrangements can be made for sampling and testing of the various materials. See MAN-06-A12 for the current NTTA Agreement with TxDOT for source Inspection including what the Construction Manager / Resident Engineer shall request from the Contractor including source information so NTTA can send TxDOT notification of the request for testing. See MAN-06-A13 for information only on the Drop Box Instructions on how to transmit large files (plans, shop drawings, etc.) to TxDOT for source inspection by non-TxDOT personnel. A sample letter for information only from NTTA Construction Manager to TxDOT is located in MAN-06-A14. This same type of information shall be transmitted to NTTA Project Delivery Construction so it can be sent to TxDOT by NTTA. See MAN-06-A15 for a sample spreadsheet for material source to be sent to NTTA for use in requesting TxDOT source inspection. Instruct the Contractor to order materials sufficiently in advance of related work to allow time for sampling and testing. In addition, instruct the Contractor to identify the project and the contract item number on all material orders.

Accept only those materials that comply with the contract requirements. Maintain records of the test results that substantiate acceptance or rejection of the materials. The Construction manager shall keep a record of both failing and passing tests with documentation of the disposition of the failing material (i.e., reworked, re-tested, disposed of, etc.)

Contract specifications identify which tests are used for each material. The sampling and control of materials are in the appropriate testing procedures and the current TxDOT Guide Schedule of Sampling and Testing. (See link in Appendix C). Apply tolerances specified in the contract in determining acceptance of the work.

Sample materials for testing at the locations and frequencies shown in the Guide Schedule. The test procedures do not generally specify sampling points. Establish locations to receive the samples when there are no established sites. Notify the Contractor of the sampling points as soon as possible to provide opportunity to make corrections when the materials do not meet the contract requirements. Determine if stockpiled materials are acceptable prior to payment as material-on-hand.

Article 6.4 of the Standard Specifications states:

“All materials used are subject to inspection or testing at any time during preparation or use. Material tested and approved at a supply source or staging area may be reinspected or tested before or during incorporation into work, and rejected if it does not meet Contract requirements.”

Ensure that the method and location of materials sampling is consistent and uniform. Retest previously accepted materials if the material shows visible changes, does not conform to specifications, or if further testing is required by the contract or Guide Schedule.

NTTA Construction Manual

5.13.1 Material Source Information

For all project materials, obtain accurate and complete material source information in accordance with Standard Specifications Item 6, "Control of Materials," before granting approval to the source supplier. Ensure that all materials are sourced to their original location.

Materials used in the project must be free of any hazardous material. If materials delivered to the project are found to be contaminated, ensure that the Contractor removes and disposes of the material in accordance with TxDOT Standard Specification For Construction and Maintenance of Highways, Streets and Bridges Article 6.10, "Hazardous Materials." Be aware that some contaminated materials are easily identified by visual observation or smell, while others are not. In order to determine material quality when there are potential concerns regarding contamination, obtain full disclosure of the source of supply in accordance with TxDOT Standard Specification For Construction and Maintenance of Highways, Streets and Bridges Article 6.4, "Sampling, Testing, and Inspections," which states:

"If requested, provide a complete written statement of the origin, composition and manufacture of materials."

Do not allow materials containing recycled hazardous waste. Standard Specifications Article 1.58 defines hazardous materials or waste as:

"Hazardous materials or waste include but are not limited to explosives, compressed gas, flammable liquids, flammable solids, combustible liquids, oxidizers, poisons, radioactive materials, corrosives, etiologic agents, and other material classified as hazardous by 40 CFR §261, or applicable state and federal regulations."

Non-hazardous recyclable material (NRMs) may be used if the NRM satisfies contract requirements. Standard Specifications Article 1.83 defines NRMs as:

"A material recovered or diverted from the nonhazardous waste stream for the purposes of reuse or recycling in the manufacture of products that may otherwise be produced using raw or virgin materials."

While NRMs are not hazardous by definition, they may be contaminated and could present a problem depending on their use. For this reason, identify such materials and ensure proper evaluation in accordance with TxDOT DMS-11000. Specifically, DMS-11000 identifies the following materials with an established history of TxDOT use:

- aluminum
- compost
- glass beads
- ground granulated blast furnace slag
- shredded brush
- steel
- tire rubber

NTTA Construction Manual

- ceramics, glass cullet, plastics, and crushed concrete from non-industrial sources
- reclaimed asphalt pavement
- fly and bottom ash from electrical utility plants

These established NRMs, as well as materials shown on the Material Producer List for NRMs at http://www.txdot.gov/txdot_library/consultants_contractors/forms/materials.htm under Recycled Materials has the following NRM TxDOT Forms:

- CSTM NRM-1 (Contractor's Checklist)
- CSTM NRM-2 (Contractor's Environmental Certification)
- CSTM NRM-3 (Supplier's/Producer's Environmental Certification)

5.13.2 Local Material Sources

Local material sources are secured for project use as either **Required** or **Listed** sources.

When specified in the contract as "**Required**," the Contractor must use local material sources. NTTA assumes full responsibility for the quantity of acceptable material available from the required source. Provide another source if the required source cannot produce enough acceptable material.

Compensate the Contractor for all additional costs to produce material from an alternate source. As appropriate, include the cost of dismantling, moving, and reassembling equipment, additional haul, and other additional costs associated with material production in the payment.

When specified in the contract as "**Listed**," the Contractor may use local material sources for which NTTA has secured options or easements on sources to allow access to the material source for testing and removal. Make test results for all listed sources available to prospective bidders. The Contractor determines and assumes all responsibility for the availability of acceptable material at the listed sources. In lieu of using the listed source, the Contractor may provide acceptable material from another source at his or her expense.

5.13.3 Material Certification from the Contractor

Material certifications provided by the Contractor from the manufacturer may be used as a basis for accepting certain materials (i.e., cement, lime, concrete admixtures, electrical cable, etc.). Detailed information must be included with this certification if required by the contract.

5.13.4 Royalty Payments

Process royalty payments in accordance with contract requirements. The Contractor may be required to negotiate royalty payments with the owner of a listed source.

5.13.5 Use of Designated Materials

Assume full responsibility for the quantity and quality of acceptable designated materials. If the designated material is unacceptable, compensate the Contractor through a change order (CO) for any justifiable additional cost in securing acceptable material.

NTTA Construction Manual

5.13.6 Storage of Materials

Inspect material storage facilities to determine if the materials are stored in a manner that will prevent their deterioration. Covers, wooden platforms, hard clean surfaces or any combination may be required of the Contractor. This applies to all material storage including MSE Wall panels. Reject any material that becomes unfit for use due to improper storage.

5.13.7 Stockpiling Aggregates

The Contractor is responsible for maintaining the quality of accepted stockpiled material. Re-sample and retest stockpiled materials that have been subject to incorrect or careless handling resulting in excessive degradation, segregation, or contamination. Reject all failing material. If required by the contract, conduct acceptance sampling from the windrow.

5.13.8 Purchasing Excess Materials

Excess materials may be acquired from the Contractor as follows:

- Contractor suitably stores or stockpiles materials.
- Materials meet contract requirements at the time NTTA takes ownership
- Change order (CO) is processed through C5 and executed to cover the acquisition.
- Payment is made to the Contractor as stipulated in the CO with the next estimate.

Accept only those materials that have potential NTTA use unless contractually obligated to accept the material.

NOTE: When purchased materials are not used on the federal-aid project, note the material cost as “non-participating” on the final estimate and/or the CO.

If the plans require material to be salvaged and returned to NTTA, the Contractor will complete the Material Transfer Form (See Appendix E) before transferring the material. The form should be submitted to NTTA for their review and approval. Any special conditions required for the material handling or transfer should be noted. The Construction Manager will review the approved form for any special requirements added by NTTA before authorizing the Contractor to proceed.

5.13.9 Material Testing

For Design-Bid-Build projects, NTTA may elect to provide Lab services from a commercial firm under contract to NTTA, require the CM to provide Lab services from a firm under contract to the Construction Manager or require the Contractor to provide QC testing. Should a Contractor be required to provide QC testing, he will submit a proposed QC plan for review and approval. For Design-Build type or other alternate project delivery projects, it will be the responsibility of the Design Build team to provide QC testing. Prior to beginning construction operations, the Design Build team must submit their proposed QC program to NTTA Project Delivery for

NTTA Construction Manual

review and approval. The Design Build team must perform the functions shown for the Construction Manager throughout this manual.

It shall be the responsibility of the Lab Firm contracted to NTTA, the Construction Manager or Contractor to perform/provide sufficient sampling and testing by qualified personnel to determine that materials incorporated into the work meet the requirements of the Contract Documents. The extent and frequency of sampling and testing shall be specified in the TxDOT Guide Schedule. QC/QA HMA and QC/QA Concrete sampling and testing will follow their appropriate specifications for frequency of testing and sampling. The Construction Manager shall be responsible for validating the material sampling and testing to assure the test results are in conformance with Contract documents.

Sampling and testing of materials may be divided into the following:

- Project Tests
 - Acceptance
 - Monitoring
 - Independent Assurance Tests.

Construction Non-Conformances when identified shall be handled in accordance with CON-07 “Control of Nonconforming Items During Construction”.

The following table identifies actions and responsibility for the different types of tests.

5.13.9 TABLE 5 -Actions and Responsibility for Tests

Type of Test	Results	Action	Test Performance
Project: Acceptance	Pass or Fail	Passing material is acceptable. Failing material is: <ul style="list-style-type: none"> • rejected and replaced OR • reworked and re-tested OR • accepted at reduced price for specific items only with NTTA PD approval in accordance with CON-07, Control of Nonconforming Items During Construction. 	NTTA, Construction Manager or Contractor Project Lab
Project: Monitoring	Pass or Fail	Passing material is acceptable. Failing material may be accepted; however, Contractor must modify the process to bring the product into a passing condition.	NTTA, Construction Manager or Contractor Project Lab

NTTA Construction Manual

Independent Assurance (IA)	Meets tolerance or does not meet tolerance	Compare the Independent Assurance test to acceptable tolerances established in the Quality Assurance Program for Construction. Document results of the comparison. If the result is out of tolerance, determine the cause and take remedial action.	NTTA IA Lab.
----------------------------	--	---	--------------

Also see NTTA QMS Section 3.7 Contract Requirements Verification (CRV) with the following procedures:

- CRV-01 Sampling, Testing and Reporting Requirements
- CRV-02 Random Number Table-Based Random Sampling Requirements
- CRV-03 IA Compliance of Testing Laboratory and Personnel
- CRV-04 Test Results Analysis, Dispute Resolution and Reporting
- CRV-05 Quantity Tracking and Test Frequency Verification

5.13.10 Test Methods and Testing Equipment

Ensure that all the testing equipment is in good working order in accordance with the appropriate testing procedure. In addition, ensure that a qualified laboratory technician makes an independent check or calibration on each piece of testing equipment used on project testing at least once each year or as required by the equipment manufacturers. Examples of equipment needing calibration include, but are not limited to: cylinder breakers, air meters, nuclear gauges, volume meters, and scales. Display the date of the last check or calibration on each piece of testing equipment. Maintain records of equipment calibration.

Note: Equipment utilized for acceptance testing shall be calibrated against national standards.

5.13.11 Project Tests

Use either acceptance or monitoring tests to verify that the material conforms to the contract requirements.

5.13.12 Acceptance Tests

Use acceptance tests to determine if the quality of the materials or the quality of the construction work satisfies contract requirements. Select one of the following solutions when an acceptance test fails:

- reject and remove
- rework, then retest for acceptance
- accept and adjust the unit price as provided by the contract.

NTTA Construction Manual

5.13.13 Monitoring Tests

Use monitoring tests to determine if the Contractor's operations or materials need adjustment. Instruct the Contractor to adjust operations to comply with the contract. The Construction Manager does not reject and remove materials or products represented by a failing test unless the Construction Manager determines that it is clearly unacceptable for the purpose intended.

5.13.14 Independent Assurance Program

The Independent Assurance (IA) Program goals are to ensure the accuracy of the equipment and procedures and techniques used by testing personnel. NTTA employs the system approach to accomplish these goals. See NTTA QMS Procedure CRV-03 IA Compliance of Testing Laboratory and Personnel.

5.13.15 System Approach

Compared to "Project Tests", the system approach reduces the amount of testing required. Use the system approach and implement testing schedules for testers, laboratories, and testing equipment qualified in accordance with the Quality Assurance Program for Construction. The minimum number and types of required tests are shown in the QA Guide Schedule in Appendix D. Ensure that IA sampling and testing is conducted by split or proficiency samples and complies with the TxDOT "Frequency for System Approach Independent Assurance Testing". Do not accept or reject material based on the results of IA testing.

5.13.16 Sampling and Testing

Guide Schedule tables apply to all construction contracts. The minimum acceptable project test frequency is shown in these tables as a guide. Perform additional testing as necessary. Unless otherwise specified in the contract, testing is conducted by independent laboratories employed by NTTA. When specified by the contract, Contractor-performed QC sampling and testing may be used as part of the acceptance decision. In all other cases, Contractor testing is for information only and is conducted at the Contractor's expense. Unless specified in the contract, do not replace NTTA testing with Contractor testing.

For non-exempt federal-aid (Federal Letter of Authority [FLOA]) projects, use the "Letter of Certification of Materials Used" (See Appendix E) to document reasons for material acceptance when a test fails. Do not include failing material which has been reworked, re-tested, and meets the specifications in the list of exceptions in the documentation.

5.14 Materials Acceptance

Materials not meeting the Specifications as determined by the Construction Manager or Contractor, if required by the construction contract, shall not be used in the work: (1) unless an analysis of the material and its proposed use is made by the Construction Manager with a written request for Substitution made by the Contractor; or (2) in the Construction Manager's best judgment and after consultation with NTTA Project Delivery - Construction, the material is allowed to be used under terms and conditions acceptable to NTTA. In the case of a Substitution

NTTA Construction Manual

request, the Construction Manager shall evaluate this request and shall make a written recommendation to NTTA Project delivery - Construction. The NTTA Project delivery - Construction will then rule on the request and will advise the Construction Manager of its decision. Rejected materials shall be ordered disposed of by the Contractor to ensure that none are incorporated into the work. Re-tests of materials may be authorized whenever there is sufficient reason to question the accuracy of the original tests. If re-tests are made, at least two samples should be tested for each sample that failed. Both of the re-tests should meet the Specifications before the material is reconsidered for acceptance.

With HMA and Portland Cement Concrete mixtures, the Construction Manager may reject materials, suspend mixture production, or take appropriate action if the Contractor does not control the quality of the mixture for acceptance. The acceptance will be based on the following:

- The Contractor's compliance with required actions and documents for quality control.
- Validation of the Contractor's quality control by NTTA's independent assurance process using split samples, to the extent described above, and/or independent samples obtained by the CM.
- Comparison of NTTA's independent assurance test results with specification limits using independent samples obtained by the NTTA project lab.

The Construction Manager is responsible for checking that all materials are inspected and approved. It is understood that the Construction Manager may not perform all these duties personally. The Construction Manager must check that all inspection, sampling, and testing are done in accordance with the instructions in this Manual and the pertinent project specifications. The Construction Manager shall communicate with NTTA Project Delivery-Construction when work is in progress to check and report that all required testing is accomplished.

The Construction Manager must assure that only materials which have been properly inspected and approved are used in the work.

- If material arrives on the job without evidence of inspection, the Construction Manager must contact the NTTA Manager of Construction Project Delivery immediately to determine the proper course of action. If the decision is made to accept material not in conformance with the pertinent Contract requirements by using acceptance samples and tests, this condition shall be documented as a Construction NCR with recommended disposition of Accept-As-Is and must obtain NTTA Project Delivery approval prior to proceeding, in accordance with CON-07, Control of Nonconforming Items During Construction.
- The Construction Manager shall not include any item of material on a progress payment estimate for which there is no inspection or approval. A source letter can be requested from the Contractor for all materials to determine who NTTA has retained for material inspection or approval.
- The Construction Manager as the duly authorized agent of NTTA Project Delivery, is authorized to and delegated the responsibility to question, sample, and/or reject any material arriving on the project.
- Force Account Work – Inspection documentation requirements for materials incorporated into force account items are the same as for standard Contract pay items, except as

NTTA Construction Manual

follows: The Construction Manager shall prepare a specification to describe the extra work and the acceptance requirements.

The Contractor is responsible for producing work in conformance with the plans and project specifications. NTTA expects the Contractor to cooperate and communicate with the Construction Manager and the Contractor's supplier(s) to facilitate and provide adequate inspection coverage.

Contractor's Responsibilities

- As far in advance as possible, furnish NTTA, through the Construction Manager, information on the sources of materials that will be used on the project.
- Order materials as early as possible, and notify the Construction Manager so that proper arrangements may be made for inspection.
- Notify the supplier that NTTA or State inspection is required and warn the supplier not to ship without inspection.
- For products with source inspection, the Contractor must plan the work so that the Construction Manager or NTTA has sufficient advance notice to perform the sampling and testing requirements.

5.14.1 Portland Cement Concrete Plant Inspection

A Lab Technician may be present at the concrete batch plant when batching concrete for:

- bridge decks
- concrete with high range water reducer
- concrete for post tensioned members
- mass concrete with temperature control
- critical concrete such as latex modified concrete
- instances when the maturity method is used for estimating concrete strength
- instances specified by the Engineer.

The Technician will ensure:

- practices, such as stockpiling and loading at the plant, contribute to maximum uniformity and durability
- only materials conforming to the contract are used
- batching and mixing practices are satisfactory.

5.14.2 Quality Monitoring Programs (QMP)

The TxDOT QMP provides the requirements and procedures for product acceptance and allows the use of materials from qualified rated sources without project testing by NTTA. Subject only Aggregate Quality Monitoring Program (AQMP) materials to job control tests for final acceptance. Refer to the TxDOT CST-M&P Operations Manual for a list of materials covered by the QMP. "Tex-499-A, Aggregate Quality Monitoring Program," for example, provides continuous quality assurance of aggregate products, including:

- quality monitoring of aggregate products representing normal production at a single source

NTTA Construction Manual

- statistical evaluation of recent aggregate quality test histories (aggregate suppliers are added to AQMP based on test history of aggregated products)
- assurance of sufficient aggregate resources by reducing project tests prior to use.

Refer to the “Materials Directory” in the Operations Manual to obtain detailed information and rules regarding the QMP for specific materials.

5.15 Pay Estimates and Computations

5.15.1 Monthly Progress Payments

The Construction Manager shall prepare Progress Payments as a monthly estimate of quantities completed and certify this for payment to the Contractor using the current NTTA Pay Estimate electronic format. The Construction Manager shall not pay for unacceptable work nor withhold payment from progress payments of acceptably completed and measured quantities of work. The Construction Manager shall withhold all items found to be in nonconformance or dispute until resolved and also withhold any accrued penalties to the Contractor.

The pay estimate cutoff is normally the 25th day of the month. Each Construction Manager/Resident Engineer shall discuss with the Contractor the quantities to be paid, receive all documentation from the Contractor for any requested adjustments made for Material on Hand (MOH) and make any other payment adjustments in a manner that the electronic Progress Payment is sitting in the in-box of the NTTA Manager of Construction Project Delivery by 10:00am on the first day of each month (or next workday if that is a weekend or holiday) or payment may be withheld until the next pay cycle. It is very important for the Construction Manager/Resident Engineer to resolve all issues with the Contractor regarding quantities and recommend MOH properly adjusted and documented in the time period specified to ensure timely payments to the Contractor.

Reports for each pay item shall be kept current at all times in the field office to support Progress Pay Estimates and to facilitate review and audit of these records by NTTA Project Delivery-Construction or by TxDOT/FHWA at an unannounced visit. Inspector(s) shall record quantities for all pay items on a daily basis.

Immediately upon completion of any work item, the Construction Manager shall make the final measurement and/or calculation for that item. The Construction Manager shall advise the Contractor of these quantities no later than one week after item completion. Any disagreement in final quantity between the Construction Manager and the Contractor shall be brought to the NTTA Manager of Construction Project Delivery’s attention immediately.

The Progress Pay Estimate shall be accompanied by a written transmittal containing a statement from the Construction Manager relating actual job progress to the latest approved progress schedule and latest approved budget. This transmittal or a separate letter shall be written by the Construction Manager/Resident Engineer that shows the current month and running total of days charged against the contractor and the contract amount.

NTTA Construction Manual

5.15.2 Material on Hand (MOH)

Allowances for material on hand may be included in Progress Pay Estimates as specified in Item 9.7 of the TxDOT Standard Specifications if the Contractor requests in writing with documentation of material cost with sufficient time to review the request and is allowed by the Engineer. Such allowances will pay the Contractor for costs incurred in supplying non-perishable materials delivered to the work site, or to acceptable storage places, which will be used in the work at a later date. The Contractor must provide material and freight bills (if delivered to the job site) which clearly identify the material supplier and shipper.

The Construction manager/Resident Engineer shall evaluate the requested MOH in the following manner:

- Can locate item(s) on job site or approved storage place
- Request for MOH doesn't exceed 90% of final bid pay item
- Using TxDOT Forms 1914 & 1915:
 - Identify applicable pay item(s)
 - Delete MOH as the item(s) is incorporated into the work and paid on the monthly progress pay estimate to the Contractor
 - Verify this matches with Contractor request of item used (on Form 1915)

The Construction Manager/Resident Engineer shall keep track of all requested MOH in a spreadsheet in a manner to easily tell what is requested and incorporated into payment on each monthly pay estimate that is then delete from MOH for each line item of payment. As each individual pay item reaches its full amount of payment MOH becomes \$0.00 for that pay item.

5.15.3 Semi-Final Pay Estimate

In the event NTTA desires to authorize preparation of a Semi-Final Pay Estimate, the Construction Manager shall prepare such Semi-Final Pay Estimate. This action shall be preceded by a request from the Contractor, review and recommendation by the Construction Manager. This includes Contractor requests to pay for remaining mobilization and possibly reduce retainage (if withheld on the contract) after all work items have been completed, but before contract close-out has occurred. Concurrence from the NTTA is required before processing of this type of payment and should include enough monies withheld to complete any unfinished work remaining on the project.

5.15.4 Final Pay Estimate

Following NTTA QMS Procedure CON-06 (Construction Contract Closeout) after all required elements from the checklist are complete the Contractor may request the Final Pay Estimate be submitted, and the Contractor shall provide any forms or certifications required in CON-06. The Director of Business Diversity is to be advised of the Final Pay Estimate submittal, and shall receive the final BDD Report required. The Director of Business Diversity will provide an BDD performance report to the NTTA Manager of Construction Project Delivery, and advise same on the Contractor's BDD Program goal attainment.

NTTA Construction Manual

Before the Final Pay Estimate is prepared, the Construction Manager must finalize all Contract quantities and shall update and advise the NTTA Manager of Construction Project Delivery of any and all outstanding claims or requests for extensions of time by the Contractor, and where applicable, update and advise the NTTA Manager of Construction Project Delivery of liquidated damages assessed to the Contractor. The Construction Manager must advise the NTTA Manager of Construction Project Delivery of all agreements between the Contractor and owners of private property, off-site dumps, adjacent to the job site, securing from the Contractor confirmed copies of releases from such owners, and any other such documents which may be required by NTTA.

The Construction Manager must also secure from the Contractor, prior to Final Payment, any required manufacturer warranties and any special insurance bonds (such as roofing bonds) that were not submitted and which NTTA has agreed to accept in lieu of other indemnities. The Construction Manager may be required to procure from the Contractor, Waivers of Lien, Releases of Lien, Affidavits, or a Guaranty against Defective Work. The Construction Manager will, in any case, provide the NTTA Manager of Construction Project Delivery a statement of the dollar amount equal to five percent (5%) of the final Contract price for determining the final amount of the guaranty bond.

5.16 Buy America

Unless otherwise specified in the contract, Standard Specifications Article 6.1.A, "Buy America," requires the following of the Contractor:

Comply with the latest provision of Buy America as listed at 23 CFR 635.410. Use steel and iron materials melted and manufactured in the United States except when:

- cost of materials, including delivery, does not exceed 0.1% of the total contract cost or \$2,500, whichever is greater
- contract contains an alternate bid item for a foreign source steel or iron product and the contract is awarded based on the alternate item
- materials are temporarily installed.

Buy Texas provisions, as listed at Texas Government Code 2155.4441, apply only to contracts without federal funds. Unless otherwise specified in the contract, Standard Specifications Article 6.1.B, "Buy Texas," requires that the Contractor buy materials produced in Texas when the materials are available at a comparable price and in a comparable period of time.

5.17 Change Orders

Contract quantities or alterations in the work may be added or amended, in writing and at any time, to satisfactorily complete the project. As agreed in the original contract, the Contractor will perform the work as increased, decreased, or altered. Amend the contract work by Change Order (CO) (See QMS Procedure CON-03), whenever a significant change in the character of the work occurs, to grant a warranted time extension or an overrun of an existing pay item will occur that exceeds \$50,000 even if all of the work in the pay item is not complete nor exceeded the pay limit for that item yet. Ensure that the CO is approved before beginning the changed or altered work.

NTTA Construction Manual

The CM's are directed at all times to anticipate the need for extra work and changes, in a timely manner, in order for NTTA to approve the change prior to the respective work. In most cases, these needs will become apparent with sufficient lead time for orderly approval action through:

- Continual scrutiny of the Contract Plans and Special Provisions and Designer quantity calculations with respect to work in progress.
- Daily updating of Project Quantity Records.
- Alert and expeditious guidance through the complete approval process of Shop Drawings, Working Drawings, and Contractor requests for substitutions.
- Alert and knowledgeable monitoring of the movement of traffic through construction zones.
- Alert and knowledgeable observation of work in progress.

Prior to developing a CO, work with the Contractor to define the scope of the problem that requires a change to the contract and notify the NTTA C5 of a potential change order. Evaluate possible solutions with the Contractor. The Construction Manager / Resident Engineer shall prepare an Independent Cost Estimate (ICE) per QMS procedure CA-08. All ICE greater than \$100,000.00 require NTTA approval. All ICE less than or equal to \$100,000.00 but greater than \$25,000.00 are to be included in the information submitted to C5 for review. Include cost breakdowns and price justifications for any added items. Unit prices that are comparable to bid prices for the same character of work are acceptable without additional justification. Obtain Contractor agreement regarding the scope of work and basis of payment for the CO. Following QMS Procedure CON-03 present the change order to C5 for evaluation. Provide the Contractor the opportunity to sign the CO and follow QMS Procedure CON-03 for Change Order Review and Approval.

Article 4.2, "Changes in the work," of the Standard Specifications provides that the work may proceed under Article 9.5, "Force Account," or by making an interim adjustment to the contract when an agreement cannot be reached with the Contractor or the Contractor refuses to sign the CO.

QMS Procedure CON-03 provides direction for a change less than \$10,000.00 and the Invoice Price Justification (CON-03-F5) procedure.

Unless otherwise specified in the contract, a significant change in character of the work occurs when:

- the character of the work for any item as altered differs materially in kind or nature from that in the contract or
- a major item of work varies more than 25% from the original contract quantity. (The 25% variance is not applicable to non-site-specific contracts.)

Unless otherwise specified in the contract, Article 1.75 of the Standard Specifications defines a major item as follows:

- An item of work included in the Contract that has a total cost equal to or greater than 5% of the original contract or \$100,000, whichever is less.

NTTA Construction Manual

Note that a major item at the time of bid will remain a major item. An item that is not originally a major item does not become one through overruns, COs, etc.

COs are not required for the contract amendments listed below. Show these amendments in the Record Drawings.

- slight change, relocation, or adjustment in the flow line, grade, or skew of a drainage pipe or culvert
- of a crossroad drainage facility
- of the road grade line
- to a drainage channel
- to a traffic sign, traffic signal pole, or illumination pole foundation
- to the Traffic Control Plan
- addition or deletion of a driveway pipe.

For Federal participating COs due to consultant errors where reimbursement is received from the engineering firm as compensation for error, credit the reimbursement amount to the contract.

5.17.1 Obtaining Prior Approval Authorization

NTTA's administrative policies provide that no extra work or substantive quantity changes to the Contract will be undertaken until issuance of written authorization from NTTA.

In exceptional cases, such as in an emergency, see CON-03 Section 6.1 Emergency Change Order Development.

5.17.2 Change Order Approval Authority

A CO is approved only after being reviewed and a recommendation submitted by the C5 Committee and then signed by NTTA, TxDOT or FHWA as appropriate per QMS Procedure CON-03.

5.17.3 Change Order Preparation

Prepare COs using the guidelines in this chapter when contract revisions, additions, or deletions to the work are necessary. COs may be required due to:

- an error or omission in the contract
- differing site conditions
- adding a specification
- adding new items of work
- resolving a dispute
- changing the sequence of work
- other contract changes

NTTA Construction Manual

Ensure that any COs meeting either of the following conditions are signed and sealed by a licensed professional engineer:

- proposing major modifications to the TCP
- modifying structural designs.

Use a supplemental agreement for project termination.

Send all COs with original signatures to NTTA Project Delivery Program Support. Approved COs must be maintained in the original contract file in the field office.

If an agreement is not reached with the Contractor regarding the scope of work and basis of payment for the CO, indicate on the CO form whether the work will proceed under force account or interim adjustment to the contract.

Use the following table for CO preparation:

5.17.3 TABLE 6 -Preparing Change Orders

Step	Action
1	Determine the most feasible solution while ensuring that contract parameters are satisfied. Estimate the cost of the proposed work using contract costs and information provided by the Contractor.
2	Number each CO consecutively. Note: Do not reuse CO numbers.
3	Insert the Contractor's name as it appears in the contract.
4	Show the limits of the proposed change in station-to-station numbers.
5	Indicate if a change is major or minor according to the definition in this manual for federal-aid (Federal Letter of Authority [FLOA]) projects.
6	For FLOA projects, indicate any federal non-participating amounts and days. A single CO cannot be set up as both federal participating and non-participating.
7	State the reason(s) for the CO listing the primary reason(s) if needed.
8	Describe clearly and concisely a description of and the reason for the work to be done. If a time extension (TE) is granted, state the reason for granting time.
9	Show only those bid items involved in the change, plus any force account work.
10	Attach a half-size copy of the applicable drawings.
11	If additional time is granted as part of the CO, number the TE consecutively and include in the appropriate blank on the CO form.
12	If the CO involves third party funding, complete the funding notification form. Provide notice to the local government or other third party. Ensure that an authorized third party representative signs the Third Party Funding Notification Sheet.
13	Sign COs.
14	Submit the original COs to NTTA.

NTTA Construction Manual

The Construction Manager's Environmental Quality Coordinator shall review all proposed COs to determine if amended or additional environmental clearance permits or authorizations are required. Presentation of a proposed change order to C5 should include a statement this step has occurred or documentation if additional permit work is required.

5.17.4 Change Orders Requiring TxDOT Review

If a project is subject to TxDOT/FHWA oversight, TxDOT must review all COs requiring the Assistant Executive Director for Engineering Operations (AED, EO) or Federal Highway Administration (FHWA) approval (FLOA projects). After the CO has been reviewed and approved by the C5 Committee. The NTTA Manager of Construction Project Delivery will submit these COs to TxDOT with a transmittal memo.

Include in the transmittal memo, at minimum, the following information:

- name of the person or firm that prepared the plans
- reason for the change
- status of the work
- cost breakdown and price justification for newly added items (Price justification from a Contractor is not required if the price compares favorably to current NTTA average prices for similar work. Only a statement in the transmittal memo to that effect is needed.)
- average bid prices for newly added items
- environmental clearance coordination

Include, in the transmittal memorandum, a statement of justification for the cost breakdown and price for newly added items similar to the following:

“Cost justification has been reviewed and supports the cost for this work on this project. The proposed unit price(s) is fair and reasonable based on a comparison to NTTA average unit bid price reports, or the small quantity of work involved, or the difficulty of construction conditions, or an independent cost analysis (attached).”

Failure to provide the information listed above may result in the delay of AED, EO or FHWA approval. If expedited approval of the CO is needed, include a notation to that effect in the transmittal memo.

5.17.5 Other Factors Affecting Change Orders

Other factors affecting COs include Advance Funding Agreements and the Texas Department of Licensing and Regulation (TDLR) submissions.

5.17.6 Advance Funding Agreements

An Advance Funding Agreement (AFA), or Donation Agreement, is used when some, or all, of a project's funding is from an outside source, also referred to as third party funding. If the third

NTTA Construction Manual

party is a local government, an AFA is used. If the third party is a private entity, a Donation Agreement is used.

Under standard AFA, the local government (LG) is responsible for all non-federal or non-state participation costs associated with the project, including any overruns in excess of the approved local project budget. Obtain payment from the LG within 30 calendar days of the written notification date, unless otherwise provided in the AFA. Include in the required written notice to the LG the exact language in the AFA concerning funding.

Refer to the Contract Donation Agreement to determine if the private sector donor is required to fund overruns. Follow the procedure outlined above for the AFAs if the private sector donor is responsible for funding overruns.

The AFA or Donation Agreement must be amended if the CO expands the scope of the original agreement or the third party contribution is for a fixed amount.

5.17.7 Texas Department of Licensing and Regulation (TDLR) Submissions

TDLR performs site inspections on projects submitted to them for review. Keep TDLR apprised of any changes that affect pedestrian elements on these projects. If COs on these projects affects pedestrian elements, indicate the changes.

If the CO causes the total contract amount for the pedestrian elements to exceed \$50,000, NTTA will coordinate plans submission to TDLR.

5.17.8 Federal Letter of Authority (FLOA) Federal-Aid Projects

Time extensions (TEs) on FLOA projects must be approved by the Federal Highway Administration (FHWA) for the determination of federal participation. Verbal concurrence (documented) from the FHWA is satisfactory.

COs on FLOA projects are categorized as either major or minor as defined in the table below. Major COs on FLOA projects are not approved for federal participation until the CO is signed by the FHWA. Identification of the funding source is needed in order to properly request reimbursements from the FHWA.

Minor COs on FLOA projects do not require FHWA approval, either written or verbal, prior to beginning of work. However, FHWA does require approval of minor COs (i.e., signed CO) before the project is completed.

Work on all FLOA COs should be discussed with the appropriate FHWA Area Engineer prior to approval. Any discussions will be coordinated by the PMO and/or Corridor Manager.

Use the following table to determine if the CO is major or minor:

NTTA Construction Manual

5.17.8 TABLE 7 - Major/Minor Change Orders for FHWA Oversight Projects

Type of Change	Scope of Change
Major	<ul style="list-style-type: none">• reduces the geometric design or structural capacity below project design criteria (any reduction in geometric design which would normally have required a design exception)• increases the contract by 25% of the original contract or by \$300,000 whichever is less• changes project limits• any change in the Traffic Control Plan (TCP), which reduces the capacity as shown on the plans for the through traffic or the traffic on major cross streets• settlement of a dispute• changes the access on a controlled access highway
Minor	Everything not described above.

5.17.9 State Letter of Authority (SLOA) Federal-Aid Projects

Assume FHWA oversight responsibilities on State Letter of Authority (SLOA) projects. Use the Federal-Aid Policy Guide to determine federal participation for TEs and COs.

5.17.10 Federal Participation

The Federal Project Authorization and Agreement (FPAA) must reflect accurate project limits. For COs that change project limits, include detailed drawings showing the new project limits.

Federal-aid funds may be used to participate in COs which are:

- in conformance with federal and state laws and
- allowed by the Federal-Aid Policy Guide (CFR-23), or
- in compliance with an FHWA policy or procedure.

Federal-aid participation may be granted if:

- the work on the CO did not adversely affect the public and
- NTTA acted in good faith and did not willfully violate a federal requirement and
- the work was performed in full compliance with federal and state laws and
- the federal participation does not exceed the cost that would have been incurred had full compliance been achieved and
- the work was performed according to the contract.

Federal Non-Participation

- Examples of COs not eligible for federal participation are:
 - work performed prior to the “effective date” provided in the Federal Letter of Authorization.
 - work performed outside the project limits, unless the additional work is an emergency, is to provide a transition at the existing project limits, is covered by

NTTA Construction Manual

an approved “Public Interest Determination” and is approved in writing by FHWA prior to beginning work.

Examples of individual contract items not eligible for federal participation are:

- work performed by State forces or other “non-competitively bid” work unless covered under an approved “Public Interest Determination”.
- completed work that is determined not to be in substantial compliance with the contract
- materials that do not meet specifications (federal participation may be allowed for the reduced price of materials determined to serve the intended purpose of the contract. Accept for federal participation minor deviations at the full price of materials.)
- additional time or cost caused by unacquired right-of-way or incomplete utility adjustments
- purchase of unused contractor materials placed in NTTA stock (If the material is subsequently used on another federal-aid project, charge the material cost to that project.)
- negotiated prices that are determined to be unjustified
- work done for the convenience of the Contractor
- unaudited claim settlements, unless the audit requirement is waived in writing
- contract work paid through another means, such as "Incidental Construction."

5.17.11 NTTA Funded Projects

COs on NTTA funded projects are approved in accordance with the signature authority provided under NTTA policies and procedures. CO work may not begin until written approval is obtained.

5.17.12 Extending or Adding Project Limits to the Contract with TxDOT/FHWA Oversight

NTTA may extend or add project limits without TxDOT / FHWA approval only if all of the following conditions are met:

- transition or tie in work is less than 1,500 feet
- the work has a value of less than \$50,000
- no changes made to unit bid prices
- the scope of work remains the same
- the funding category remains the same

If all the above conditions are not met, a change order must be submitted for TxDOT/FHWA approval, regardless of amount.

5.17.13 Federal Participation

The Federal Highway Administration (FHWA) will participate in the following types of added limit change orders:

- emergency work
- transition work at the end of projects requiring a change order.

NTTA Construction Manual

5.17.14 NTTA Participation

Use NTTA funds, non-participating,

- when the conditions, referenced in ‘Federal Participation’ are not met and when both of the following conditions are met:
 - imminent needs (i.e., when delaying the work would cause accelerated deterioration to the pavement or bridge, significant loss in service to the public will be seen if the work was not performed, etc.) and
 - the public will see clear saving by not reletting the project (i.e. the cost of reletting the project exceeds the cost of the change order).

5.17.15 Exception for Allowing Federal Participation Related to Added Limits

An exception may be made when FHWA determines the added limits change order is in the “public interest.” A public interest finding must be approved by the FHWA for all federal aid participants, state or federal oversight.

If an exception for allowing federal participation is sought, coordinate with the FHWA, in advance, and submit a request with justification along with the change order to TxDOT for federal approval.

5.17.16 Submission Requirements Related to Added Limits

The approval of added limit change orders will require:

- Statement of environmental clearance status
- Notice of Intent threshold impacts
- Texas Department of Licensing and Regulation review for Texas Accessibility Standards (TAS) compliance
- Explanation of the reason(s) this change order is needed
 - Justification, such as a description of:
 - emergency work
 - transition end work
 - explanation of cost saving over cost of reletting
 - discussion on imminent need
- Request for federal participation
 - discussion notes on change order coordination, to date, with the FHWA including the FHWA contact
 - request for public interest finding (if required)
- Funding source category
- Status of verbal approval.

NTTA Construction Manual

5.17.17 Force Account and Interim Adjustments to the Contract

Include the following information on all change orders (COs) involving force account work.

- the equipment description:
- brand
- year
- model
- serial number
- type
- size
- horsepower
- other identification.
- equipment rates established in accordance with Article 9.5.D, “Equipment,” of the Standard Specifications
- all labor classifications with applicable wage rates
- material costs associated with the force account work
- Contractor’s invoice
- any additional information necessary to support the CO.

COs for force account work include the Contractor’s actual costs for labor, equipment, material for completed work less than \$10,000.00 unless given written permission from NTTA before starting the Force Account work to exceed that amount.

5.17.18 Change Orders Involving Interim Adjustments

If an agreement cannot be reached with the Contractor regarding the basis of payment for the CO, notify C5 and seek NTTA direction on how to proceed. If so directed by NTTA the work may proceed by making an interim adjustment to the contract. Subsequent to performance of the work, consider modifying compensation to the Contractor based on actual work performed.

5.17.19 Supplemental Agreements

A supplemental agreement (SA) is a formal agreement between the contracting parties amending the contract. According to NTTA Special Provision to Item 1 “Definition of Terms” in Article 1.133 Use a Supplemental Agreement to:

- assign the contract from one entity to another
- change the legal name of the Contractor
- an agreement with the Surety to complete a defaulted contract
- other cases desired by the Authority (e.g. to settle a dispute)

5.17.20 Assignments

Do not allow the Contractor to assign, sell, transfer or otherwise dispose of the contract or any portion, rights, title or interest (including claims) without the approval of NTTA.

Submit assignment requests received from the Contractor to NTTA Project Delivery. They will:

- prepare a supplemental agreement

NTTA Construction Manual

- send the supplemental agreement and bond forms to the Contractor for execution
- execute the supplemental agreement
- notify the Contractor

Ensure the new Contractor provides the standard project information and forms (payroll clerk, etc.) Do not alter any other terms and conditions of the contract or suspend time during the assignment process.

5.17.21 Changing the Legal Name of the Contractor

When a Contractor changes its legal name they must advise NTTA so that any incomplete contract may be modified to reflect the new legal name. A supplemental agreement is used to accomplish the modification of the contract. Submit name change requests received from the Contractor to NTTA Project Delivery for approval. NTTA Project Delivery will:

- verify the legal filing of the name change
- prepare the supplemental agreement
- obtain the executed agreement, insurance and applicable bonds in the new name of the Contractor for construction contracts
- send copies to the Contractor.

5.18 Terminations

As stated in Article 8.7, "Termination of Contract," of the Standard Specifications, contracts may be terminated whenever:

- the Contractor is prevented from proceeding with the work as a direct result of an executive order of the President of the United States or the Governor of the State
- the Contractor is prevented from proceeding with the work due to a national emergency, or when the work to be performed under the contract is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor as the result of an order or a proclamation of the President of the United States
- the Contractor is prevented from proceeding with the work due to an order of any federal authority
- the Contractor is prevented from proceeding with the work by reason of a preliminary, special, or permanent restraining court order where the issuance of the restraining order is primarily caused by acts or omissions of persons or agencies other than the Contractor
- NTTA determines that termination of the contract is in the best interest of the State or the public. This includes, but is not limited to, the discovery of significant hazardous material problems, right of way acquisition problems, or utility conflicts that would cause substantial delays or expense to the contract.

NTTA will provide written notice of termination to the Contractor specifying the extent and effective date of the termination. The notice will include specific instructions to the Contractor regarding the scope of termination and continued work performance associated with the contract. Ensure that the Contractor complies with the specific instructions contained in the written notice.

NTTA Construction Manual

Obtain a final termination settlement proposal from the Contractor within 60 calendar days of the date of the written termination notice. Prepare a change order (CO) reducing the affected quantities of work and add acceptable costs for termination. Do not include anticipated profits. Include reasonable and verifiable termination costs as provided in Article 8.7.B., "Settlement Provisions," of the standard specifications.

5.19 Hazardous Materials or Waste

Known hazardous materials or waste should be removed from work locations using an NTTA specialty contractor prior to letting. Ensure that the Contractor uses materials that are free from hazardous materials. Unless otherwise specified in the contract, hazardous materials or waste are defined in Article 1.58 of the Standard Specifications. Take responsibility for testing and removing, or disposing of hazardous material not introduced by the Contractor on sites owned or controlled by NTTA. Ensure that the Contractor takes responsibility for testing and removing, or disposing of hazardous material introduced by the Contractor onto the work locations.

Implement any preventative action plans developed during the design stage for contamination anticipated during construction. Develop and implement procedures in consultation with the NTTA Environmental Compliance Manager to handle or manage unanticipated contamination that may be encountered during construction. Document all actions taken regarding hazardous materials or waste from the time of discovery through closure with regulatory agencies

In accordance with Article 6.10, "Hazardous Materials," of the Standard Specifications, the Contractor must provide notice when a visual observation or the Designer indicates that materials in required material sources or on sites owned or controlled by NTTA may contain hazardous materials. When notified and if test results indicate that the materials are hazardous, remove the materials from the site of work in accordance with all applicable federal, state, and local laws, ordinances, and regulations. If deemed appropriate, suspend work during this timeframe.

Use the following options for handling contaminated materials during construction. These options may be used individually or in combination:

5.19 TABLE 8 - Options for Handling Contamination

Option:	Description:
Option 1	Obtain an emergency contract for a specialty contractor to handle contamination during construction.
Option 2	Use a purchase order for a specialty contractor or an environmental consultant to handle contamination during construction.
Option 3	If the Contractor is licensed and/or certified, willing and able, amend the contract to allow the Contractor to handle contamination during construction.

NTTA Construction Manual

Option 4	Coordinate activities with the responsible party (when the responsible party does cleanup).
----------	---

Evaluate the following to determine which option to use

- scope and complexity of the contaminant related work and its impact on the construction schedule
- potential for causing additional contamination
- expertise of the Contractor to perform the contaminant related work.

Responsibilities for anticipated hazardous materials include:

- coordination between the prime construction contractor, specialty contractors, consultants and other subcontractors.
- implementation of provisions for worker and public safety as well as the appropriate handling and disposal of hazardous materials or waste
- implementation of oversight provisions for preventive action aspects of the contract
- documentation of the actions taken for the preventive action.

At a minimum, take the following steps for unanticipated hazardous materials or waste encountered during construction:

1. secure the site to protect workers and the public
2. notify the NTTA Environmental Compliance Manager
3. notify the proper authorities and responsible parties
4. determine the worker safety and public exposure concerns
5. characterize the contaminants
6. develop and implement hazardous materials/waste management measures in consultation with the NTTA Environmental Compliance Manager.

5.19.1 Hazardous Materials Anticipated during Construction

This section covers hazardous materials identified during the project development process where preventive action has been incorporated into the contract.

When using Option 2 in Table, “Options for Handling Contamination,” ensure that activities are coordinated between the Contractor, specialty contractors, consultants and subcontractors. Consider phasing of the work, conducting a pre-bid conference, and partnering to facilitate this coordination and minimize scheduling conflicts.

When using Option 3 in “Options for Handling Contamination,” amend the contract in accordance with “Supplemental Agreements,” of this manual. Allow the Contractor to obtain their own environmental or safety consultant to assist them in performing the work. Consider special bid and pay Items for work involving the hazardous materials or waste.

Ensure compliance with contract requirements for worker and public safety, participation of consultants, specialty quality control contractors, or environmental agencies, and the handling and disposing of hazardous materials or waste. Make the Contractor aware of these

NTTA Construction Manual

requirements prior to beginning work on the contract. Document any preventative actions taken.

5.19.2 Unanticipated Hazardous Materials Encountered during Construction

This section covers unanticipated hazardous materials that may be encountered during construction after the contract is awarded. The following may indicate hazardous materials:

- rusted barrels and containers
- stained or discolored earth in contrast with adjoining soil
- fill material containing debris other than construction-related items
- household trash covered by earth or other material that appears to be interspersed with industrial debris
- gasoline smells or other odors which emanate when the earth is disturbed
- oily residue intermixed with earth
- sheen on groundwater
- cinders and other combustion products like ash
- structures such as asbestos cement (transite) pipe, abandoned oil and gas lines, and underground storage tanks.

Complete the following when notified by the Contractor of the possible existence of hazardous materials or waste:

- Notify the NTTA Environmental Compliance Manager.
- Suspend work in the impacted area and consider granting a time extension.
- If possible, relocate the Contractor on the construction project to avoid or minimize construction downtime.
- Coordinate with the NTTA Environmental Compliance Manager to determine whether special action is needed.
- Secure the suspected area for worker and public safety as needed
- Coordinate with the NTTA Environmental Compliance Manager to identify applicable regulatory requirements. If notification is required or if additional regulatory assistance is desired, the NTTA Environmental Compliance Manager shall contact the local office of the Texas Commission on Environmental Quality (TCEQ)
- If possible or practical, identify and notify responsible parties to arrange for preventive action or cost recovery.

Follow the procedures listed in “Project Records” when suspending and resuming work.

5.19.3 Use of Consultants

If determined necessary, obtain a consultant to identify and characterize the contamination through sampling and analytical testing. The objectives of the consultant's investigation include:

- determination of the soil, groundwater and vapor characteristics (for example, groundwater recovery rates; vertical and horizontal extent of contamination; and chemicals of concern, etc.)
- assessment of worker safety and public exposure concerns

NTTA Construction Manual

- determination of the handling or disposal requirements for any contaminated media unearthed during construction
- recommendation of a preventive action plan to ensure the problem is not aggravated and to avoid or minimize NTTA liability
- determination of the requirements necessary so that construction may continue.

Allow consultants to develop special specifications (such as groundwater treatment or filtration systems, ventilation systems, ongoing site monitoring, contaminated material disposal or reuse options, and permitting).

5.19.4 Remediation

Remediation projects for contaminants discovered during construction can be divided into small and large scale remediation efforts. Refer to Table, “Options for Handling Contamination,” to complete remediation. Use Option 2 to complete small scale remediation. Use Options 1, 2, or 3 of the referenced table to perform small and large scale remediations. Use Option 3 only if the Contractor is licensed and/or certified and able to perform the remediation work. Prepare a supplemental agreement to ensure that the Contractor and his or her Surety agree that the Contractor can perform the work.

5.19.5 Cost Recovery and Accounting

Maintain detailed records of all circumstances and actions taken for unanticipated contamination discovered during construction. At a minimum, include the following information in these records:

- coordination with regulatory authorities
- worker/public safety plan actions
- step-by-step preventive action measures
- costs attributable to hazardous material issues on sites (consider assigning a unique numbering system to Pay Items related to the hazardous material on site).

These records may be used for:

- consideration of federal participation by the FHWA
- litigation
- claims
- recovery of costs from responsible parties

5.19.6 Responsible Parties

If possible or practical, contact identified responsible parties before costs are incurred. Allow responsible parties the opportunity to participate in developing preventive action measures. If the responsible party is undergoing other corrective action, they may have the resources to handle the contamination in an acceptable time frame for the construction project.

NTTA Construction Manual

5.20 Environmental Coordination

5.20.1 Endangered Species Act Requirements

Ensure the Contractor is aware of state or federally listed endangered species that may occur and any endangered species coordination specific to the project. This would include avoidance, and minimization measures written in the construction plans and/or environmental permits and commitments. Ensure the Contractor is aware of the steps necessary to comply with any incidental take (ESA compliance) that has been granted through consultation with the USFWS.

Ensure the Contractor has the necessary information to recognize the endangered species present in the project area. This information is available from the NTTA Environmental Compliance Manager. Immediately notify the NTTA Environmental Compliance Manager of any observed listed species. Construction in the presence of listed species should be conducted only after coordination with the NTTA Environmental Compliance Manager.

5.20.2 U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department Reviews (TPWD)

Ensure the Contractor adheres to any USFWS or TPWD requirements or recommendations included in the contract. The requirements or recommendations could include avoidance and minimization measures stated in the plans, such as avoidance of sensitive wildlife and wildlife habitats in the project area. Ensure the Contractor has the necessary information to identify and recognize sensitive wildlife and wildlife habitats. Contact the Environmental Compliance Manager for specific project information.

Ensure the Contractor adheres to restrictions on impacts to any of these water features:

- stream channels in existing, unmaintained ROW
- stream channels in new rights-of-way (ROW)
- new channel easements
- new disturbance to existing channel easements

USFWS and TPWD may make requirements or recommendations for mitigation of impacts to wildlife and habitats. Ensure the Contractor implements any USFWS or TPWD requirements or recommendations included in the contract. If implementation of requirements or recommendations is impractical contact the NTTA Environmental Compliance Manager prior to additional action.

5.20.3 Storm Water Discharges

Ensure compliance with the Construction General Permit (CGP) issued by the Texas Commission on Environmental Quality (TCEQ) under its Texas Pollutant Discharge Elimination System (TPDES) permitting program for construction activities.

The CGP became effective on March 5, 2008 and expires at midnight on March 5, 2013. It authorizes the discharge of storm water associated with construction activities that result in the

NTTA Construction Manual

disturbance of one acre or more of total land area, including areas that are part of a larger common plan of development that will result in the disturbance of one acre or more of total land area. Apply the CGP requirements only during site construction. The requirements of the CGP are complete once the earth-disturbing activities are completed, the area is finally stabilized, and appropriate coverage termination procedures described in Part II.F of the CGP have been executed.

5.20.4 TPDES Construction General Permit (CGP)

For large construction activities (activities in which five (5) or more acres will be disturbed including smaller construction activities which are part of a larger common plan of development that will ultimately disturb an area equal to or greater than five (5) acres) verify that the following have been performed to obtain coverage under the CGP:

- Develop Storm Water Pollution Prevention Plans (SW3P).
- Submit a Notice of Intent (NOI) (See Appendix B) to TCEQ and post a copy of all NOI pages at the site.
- Complete a Construction Site Notice (CSN) and post a copy of the CSN at the site.
- Provide a copy of the signed NOI to the operator of any Municipal Separate Storm Sewer System (MS4) receiving the discharge at least seven (7) calendar days prior to commencing construction activities.
- Implement the SW3P prior to beginning construction activities.
- Perform scheduled inspections, together with maintenance and improvement actions, consisting of best management practices (BMPs) to prevent the discharge of pollutants.
- Submit a NOTICE of Termination (NOT) (See Appendix E) to the TCEQ and a copy of the NOT to the operator of any MS4 receiving the discharge within 30 days after completion of all required activities and final stabilization of the site.

For small construction activities (activities which will result in land disturbance equal to or greater than one (1) acre and less than five (5) acres of land) verify that the following have been performed to obtain coverage under the CGP:

- Develop Storm Water Pollution Prevention Plans (SW3P).
- Complete and certify the appropriate CSN and post a copy of the CSN at the site.
- Provide a copy of the signed and certified CSN to the operator of any MS4 receiving the discharge at least two (2) days prior to commencement of construction activities.
- Implement the SW3P prior to beginning construction activities.
- Perform scheduled inspections, together with maintenance and improvement actions, consisting of best management practices (BMPs) to prevent the discharge of pollutants.
- Remove the CSN after completion of all required activities and final stabilization of the site. Complete the applicable portion of the CSN relating to removal, and submit a copy of the complete CSN to the operator any MS4 receiving the discharge within 30 days.

Verify that the following has been performed to obtain coverage under the CGP:

- develop Storm Water Pollution Prevention Plans (SW3P) for each project requiring one
- submit a Notice of Intent (NOI) (See Appendix E), to TCEQ and post a completed Construction Site Notice (CSN), if required
- implement the SW3P prior to beginning construction activities

NTTA Construction Manual

- provide a copy of the signed NOI, construction activities, or CSN, to the operator of any municipal separate storm sewer system receiving the discharge, at least two calendar days prior to commencing construction activities
- perform scheduled inspections, together with maintenance and improvement actions, consisting of best management practices (BMPs) to prevent the discharge of pollutants
- submit a Notice of Termination (NOT), (See Appendix E), if required after completion of all required activities and final stabilization.

5.20.5 Certification Requirements

The table below lists the documents requiring certification and individuals authorized to make certification.

5.20.5 TABLE 9 - Documents Required to be Certified by TCEQ's CGP

Document	Authorized Individual or Position (For Projects Managed)	Legal Basis
Notice of Intent (NOI)	<ul style="list-style-type: none"> • Assistant Executive Director of Project Delivery (AEDPD) • Director of Project Delivery • Executive Director • Deputy Executive Director 	30 TAC 305.44, Signatories to Applications, requires principal executive officer having responsibility of overall operations over a geographic unit.
Notice of Termination (NOT)		
Notice of Change (NOC)		
Low Rainfall Erosivity Waiver Application		
Construction Site Notice (CSN)		
Inspection report certifications	<ul style="list-style-type: none"> • Construction Manager • Project Resident Engineer • Environmental Compliance Manager, and • Others that are specifically delegated by the NTTA in writing to the TCEQ 	30 TAC 305.128, Signatories to Reports, requires position having responsibility for the overall operation of the facility activity, or environmental matters.
All other reports and information requested by the TCEQ executive director.		

As determined appropriate, use TxDOT Form 2118, "Construction Storm Water Pollution Prevention Plan Field Inspection and Maintenance Report," (See Appendix E), or an alternate form containing all required information, to satisfy the CGP reporting requirements. Include in the inspection report summary items that have been corrected with the date completed and items requiring additional time to complete. Document completion of items listed in the inspection report summary requiring additional time to complete and place in the SW3P contract file.

5.20.6 Storm Water Pollution Prevention Plan (SW3P)

The Construction Manager/Resident Engineer shall verify a SW3P has been prepared for all construction projects that that will result in disturbance of one (1) or more acres or are part of a larger common plan of development in which one (1) or more acres will be disturbed.. The

NTTA Construction Manual

NTTA through a Corridor Manager may have this prepared for use on each individual construction contract in their corridor. The Construction Manager is responsible for preparing a SW3P if it is included in their Scope of Work negotiated with NTTA for the current contract or Work Authorization. If not previously prepared or included in the Scope of Work then the Construction Manager should notify the NTTA Environmental Compliance Manager and verify a SW3P is required and see that it is completed if required for the construction contract assigned to them. The intent of the SW3P is to reduce pollutants in storm water discharges from the project site. Ensure the SW3P includes and addresses the following to the detail specified in the CGP:

- detailed site or project description including areas that are the responsibility of the Contractor either within the ROW or within 1 mile of the ROW
- description of best management practices that will be used to minimize pollution in a runoff
- description of any structural control practices used to divert flows away from exposed soils or to lessen the off-site transport of eroded soils
- description of any measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed.
- description of other controls, for example, off-site vehicle tracking of sediments, generation of dust, etc.
- ensure compliance with any state and local plans
- maintain all erosion and sediment control measures and other protective measures identified in the SW3P in an effective operating condition
- inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, and structural controls for evidence of, or the potential for, pollutants entering the drainage system
- identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-storm water components of the discharge.
- detailed responsibilities of all project operations
- signed operator's agreement to share SW3P responsibility for plans shared by multiple operators.

The above list is only a brief summary of the required contents of the SW3P. A more detailed discussion is outlined in the CGP.

The Construction Manager/Resident Engineer through their Environment Quality Coordinator (EQC) shall review the SW3P regularly and keep it current by noting any changes in the plan. If any Best Management Practice (BMP) does not function adequately, modify the SW3P to correct the problem. Repair, replace, or modify all failing Best Management Practices according to the revised SW3P. The Environment Quality Coordinator (EQC) should obtain approval from the Construction Manager/Resident Engineer, the NTTA Manager of Construction Project Delivery and the NTTA Environmental Compliance Manager for any changes to the SW3P. Maintain the SW3P, together with any revisions, in the contract files at the field office until project close-out.

NTTA Construction Manual

5.20.7 Notice of Intent (NOI) and Construction Site Notice (CSN)

To receive coverage under the CGP, operators of large construction activities that are part of a larger common plan of development that will disturb an area equal to or greater than five (5) acres, shall submit a paper NOI to TCEQ at least seven (7) calendar days prior to commencing construction activities or submit an electronic NOI to TCEQ prior to commencing construction activities. Submit the NOI only after the SW3P has been prepared. Ensure that the NOI is signed by an authorized NTTA representative and contains the certification shown on the TCEQ NOI form. Prior to any construction activities, post an NOI and CSN. A copy of the NOI must be submitted to the operator of any MS4 receiving the discharge at least seven (7) days prior to commencing construction activity. For small construction activities that do not require a NOI (that is, those involving total disturbed areas equal to or more than one acre but less than five acres), sign, certify, and post the appropriate CSN and provide a copy to any MS4 operator receiving the discharge at least two (2) days prior to commencing construction activity.

5.20.8 Contractor Involvement

In certain situations, the Contractor is responsible for SW3P preparation and obtaining authorization under the CGP. When Contractor facilities (Project Specific Locations [PSLs]) such as asphalt or concrete plants are within the ROW, the Contractor is responsible for preparing an SW3P for these operations and obtaining any CGP authorization. Obtain a sketch indicating their location, other required information and the Contractor CGP authorization number when issued and maintain the information with the contract SW3P.

CGP authorization obtained by NTTA does not cover Contractor facilities off the ROW. For these off-ROW facilities, the Contractor must prepare a separate SW3P and obtain his or her own CGP authorization to construct the facility.

5.20.9 Inspections

The Construction Manager's designee shall conduct regular inspections of the construction site at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, or once every 7 calendar days regardless of rainfall. Verify that the erosion control measures and devices are working in accordance with Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls," of the Standard Specifications. Summarize the results of the inspection in a manner similar to that shown in the TxDOT Form 2118, "Construction Storm Water Pollution Prevention Plan Field Inspection and Maintenance Report and ensure that the report is signed by the person and in the manner outlined in 30 TAC 305.128."

Include the following project areas in the inspection:

- disturbed areas of the construction site that have not been finally stabilized
- areas used for storage of materials that are exposed to precipitation
- discharge locations
- structural control for evidence of, or the potential for, pollutants entering the drainage system
- sediment and erosion control measures identified in the SW3P to ensure correct operation

NTTA Construction Manual

- locations where vehicles enter or exit the site for evidence of off-site sediment tracking

Conduct inspections at least once every month:

- where sites have been finally or temporarily stabilized
- where runoff is unlikely due to winter conditions (for example, site is covered with snow, ice, or frozen ground exists)

Modify the SW3P based on the results of the inspection as necessary to include additional or modified Best Management Practices (BMPs) designed to correct problems identified (for example, show additional controls on the site map; revise description of controls).

Complete revisions to the SW3P within 7 calendar days following inspection. If existing BMPs need to be modified or if additional BMPs are necessary, complete implementation before the next anticipated storm event or as soon as practicable.

5.20.10 TPDES Construction General Permit Notice of Termination (NOT)

Construction activities that are required to submit an NOI must also submit an NOT. Ensure that the NOT is signed by an authorized NTTA representative and submit to TCEQ after completion of the project and final stabilization of all disturbed areas. Additionally, a copy of the NOT must also be submitted within 30 days to the operator of any MS4 receiving the discharge.

5.20.11 Work in Waters of the United States

Obtain any required Section 404 permits from the U.S. Army Corps of Engineers before work begins. Ensure that the contractor is provided a copy of the 404 permit and understands it prior to initiating construction in waters of the U.S. Ensure that the Contractor adheres to all agreements, impact thresholds, mitigation plans, and standard best management practices required by the permit.

The following general types of construction projects require a Corps permit:

- bridge crossings
- temporary fills in jurisdictional waters including streams, wetlands, and some stock ponds
- dredged material that flows back into water from an upland dredged material placement site
- land clearing in Corps jurisdictional waters

Depending on the contract, either a Corps Nationwide Permit (NWP) or Individual Permit (IP) may be required. NWPs are a type of general permit issued for minor activities with minimal impacts to relieve the time consuming administrative burden for minor discharges. Procedures for an IP are very time-consuming and have extensive requirements. Ensure that all terms and conditions of the contract permit are satisfied.

Review and approve any changes in the contract that alter the Corps permit prior to work being conducted. When Contractor-initiated changes in the construction method changes the impacts to

NTTA Construction Manual

Waters of the U.S., ensure that the Contractor obtains new or revised Section 404 permits. Any and all new or revised Section 404 permit submittals shall be approved by the NTTA Environmental Compliance Manager prior to submittal to the Corps. Failure to comply with all permit conditions may result in contract work stoppages being issued by the Corps or NTTA.

5.20.12 Work in Navigable Waters of the United States

Obtain any required Section 9 permits from the U.S. Coast Guard before work begins. Ensure that the Contractor adheres to the stipulations of the permits and associated best management practices required by the permit. When Contractor initiated changes in the construction method changes the impacts to navigable water of the U.S., ensure that the Contractor obtains new or revised Section 9 permits. Any and all Section 9 permit submittals must be reviewed and approved by the NTTA Environmental Compliance Manager prior to submittal to the U.S. Coast Guard or Corps.

5.20.13 Work Over the Recharge or Contributing Zone of Protected Aquifers

Ensure that the Contractor makes every reasonable effort to minimize the degradation of water quality resulting from impacts relating to work over the recharge or contributing zones of protected aquifers, as defined and delineated by TCEQ. Ensure the use of BMPs and performance of the work in accordance with contract requirements.

5.20.14 Completion of a Project and Release of a Contractor

Unless otherwise specified in the contract, release the Contractor after satisfactory completion of the contract and achievement of 70% perennial vegetative cover, or equivalent natural ground cover in the area. Final acceptance of the project may be granted if measures to control erosion, sedimentation, and water pollution, have been employed. Use the following to implement SW3P:

- standard maintenance operations
- contract
- another construction contract

5.20.15 Texas Antiquities Code (Chapter 191 of the Texas Natural Resources Code)

Ensure compliance with any contract permits issued by the Texas Historical Commission (THC). If necessary, do the following as required in the contract:

- Become aware of the commitments pertaining to cultural resources in the Environmental Permits, Issues, and Commitments (EPICs) section in the PS&E.
- Ensure the barriers or other obstacles required by commitments are installed to prevent accidental impacts to protected resources
- Ensure no construction related activities occur in specifically designated project areas until NTTA's commitments to the Texas Historical Commission (THC) have been completed.

If archeological materials or human remains are identified within the ROW, or an NTTA designated material source, cease all construction related activities and report the find to the

NTTA Construction Manual

NTTA Environmental Compliance Manager or the Corridor Manager in accordance with the contract. Notify the Contractor when work may resume.

If archeological materials or human remains are introduced into the ROW or easements in materials obtained from a material source under option to the Contractor, cease all use of materials from this source and notify the NTTA Manager of Construction Project Delivery and the NTTA Environmental Compliance Manager. Notify the Contractor when work may resume.

5.20.16 National Historic Preservation Act as Amended (16 U.S.C. §470 and 36 CFR Part 800)

Ensure compliance with any contract permits issued by a federal agency, such as the Corps of Engineers. If necessary, do the following as required in the contract:

- obtain THC approval to proceed to construction with the commitment to avoid construction or other transportation activities that may impact significant cultural resources until the commitment has been met,
- ensure that no construction related activities occur in specifically designated project areas until NTTA's commitments to the THC have been completed.

Ensure that properties outside the ROW are not impacted. If archeological materials or human remains are identified within the ROW, or material source under option to NTTA, cease all construction related activities and report the find. Notify the Contractor when work may resume.

5.20.17 Project Specific Locations

For all project specific locations (PSLs) (material sources, waste sites, parking areas, storage areas, field offices, staging areas, haul roads, etc.) signing of the contract certifies Contractor and subcontractor compliance with all applicable laws, rules and regulations pertaining to the preservation of cultural resources, natural resources, and the environment as issued by the following or other agencies:

- Occupational Safety and Health Administration
- Texas Commission on Environmental Quality
- Texas Department of Transportation
- Texas Historical Commission
- Texas Parks and Wildlife Department
- Texas Railroad Commission
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- U.S. Department of Transportation
- U.S. Environmental Protection Agency
- U.S. Federal Emergency Management Agency
- U.S. Fish and Wildlife Service

The Construction Manager/Resident Engineer shall review Contractor requests for all PSLs in the right of way not specifically addressed in the plans and forward recommendations for

NTTA Construction Manual

approval to the Mark Bouma, NTTA Technical Oversight Leader for NTTA review and approval. The Contractor's request for use of NTTA Right-Of-Way for any PSL shall contain documentation of Contractor certification activities including environmental consultant reports, documentation on certification decisions, and contacts and correspondence with the resource agencies. If approval is granted by NTTA the Construction Manager/Resident Engineer will provide written approval to the Contractor and monitor periodically to verify any allowed PSL use does not exceed that given by NTTA in the written permission.

5.20.18 Federal Safety and Health Laws

Review the project site to ensure that the Contractor provides for the safety of their employees, NTTA and CM personnel, and the traveling public on the construction site. Refer to OSHA regulations published at Title 29 of the Code of Federal Regulations, Part 1926, "Safety and Health Regulations for Construction," and Part 1910, "Occupational Safety and Health Standards," for more information.

5.20.19 Contractor Performance

The Contractor must protect the safety of the public and the life and health of project personnel. This chapter describes the necessary steps to take before work begins and during the operation. Construction safety regulations and standards published by OSHA contain detailed requirements. Exact information is located in Title 29, Code of Federal Regulations, Part 1926 and 1910. Additional information on safety is contained in the American Association of State Highway Transportation Officials (AASHTO) publication, "Informational Guide on Occupational Safety on Highway Construction Projects".

5.20.20 Pre-Construction Preparation

Review the OSHA regulations and be familiar with violations of safety requirements. Review the contract to identify hazardous types of work, such as trenching and underground/overhead utilities. If the contract provides for special work that presents a danger to the public or workers on the project, discuss the Contractor's safety plan with the Contractor at the pre-construction conference, emphasizing safety requirements. This may include a discussion of requirements for special equipment, unique procedures and necessary permits or reports.

5.20.21 Pre-Construction Conference (Safety)

Cover the following safety points at the pre-construction conference:

- State and federal construction safety standards requirements the Contractor must meet
- Discuss Contractor's written Safety/Incident Prevention Plan and ensure it includes:
 - Organization
 - Staff
 - Names of responsible individuals
 - Meetings
 - Training
 - Reports

NTTA Construction Manual

- Other components deemed appropriate.
- Ensure that a copy of the plan is submitted to the Construction Manager for review and retention in the contract file
- Contractor's responsibility for subcontractor compliance with safety regulations
- The Contractor's plans for meeting specific specialty job safety requirements and eliminating potentially critical hazards on the projects.

Add to the contract files written records of the safety measure reviewed at the pre-construction conference.

5.20.22 Construction Surveillance

Record any violations of applicable safety requirements in the contract diary. The following brief discussion is based on the 29 CFR 1926 construction safety standards and lists some of the principal safety requirements of specific OSHA safety standards. These apply to the Contractor to be notified by the Construction Manager of any observable and obvious safety violations:

- **First aid and medical services.** The Contractor must provide readily accessible first aid kits and conspicuously post telephone numbers of doctors, hospitals, and ambulances, per 29 CFR 1926.23 & .50.
- **Housekeeping.** Clear scrap and used materials from work areas (scattered debris and combustible scrap) that would constitute hazards to workers, per 29 CFR 1926.25.
- **Noise exposure.** If the Contractor cannot provide means to lower noise level exposures to permissible levels, personal protective equipment must be provided, per 29 CFR 1926.52.
- **Head protection.** Employees must wear protective helmets to avoid injuries, per the requirements of 29 CFR 1926.100.
- **Eye and face protection.** Eye and face protection must be provided to protect against eye or face injury, per 29 CFR 1926.102.
- **Safety nets.** Safety nets are used as protection for unprotected sides, leading edges, working on the face of formwork or reinforcing steel, overhead or below surface bricklaying, work on roofs, and pre-cast concrete work. For further information about "Fall Protection," see 29 CFR 1926, Subpart M.
- **Power-operated hand tools.** Only employees trained in operating power tools are permitted to use them. Certain hand-held powered tools must be equipped with a constant pressure switch that will shut off the power when the pressure is released. These include circular saws, chain saws, and percussion tools without positive accessory holding means. Electrically powered hand tools must be of the double-insulated type or grounded. Pneumatic power tools must be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected. Additional requirements for the safety operation of power tools are found in 29 CFR 1926. 302.
- **Ladders.** Required characteristics:
 - must be free of defects
 - adequately supported or anchored
 - fixed ladders must have cages per the requirements of 29 CFR 1926.1053.
- **Scaffolds.** All scaffolding shall be erected in accordance with the requirements for the specific scaffold type as provided in 29 CFR 1926 Subpart L.

NTTA Construction Manual

- **Cranes and derricks.** Operations must comply with the requirements of 29 CFR 1926.550. Other material handling requiring the use of overhead lift equipment must comply with applicable standards of Subpart N. Rated load capacities must be posted on the equipment. A trained person must make frequent inspections of the equipment and a thorough annual inspection of the hoisting machinery. Electrical distribution lines near operating equipment must be de-energized and grounded, or insulating barriers erected to prevent contact with the lines. Otherwise operation must allow at least ten feet clearance from live electrical power lines.
- **Earth moving equipment.** Equipment must have brakes capable of stopping and holding the equipment when fully loaded. All bi-directional machines (rollers, compactors, front-end loaders, bulldozers, and similar equipment) must have an operable horn. Audible back up warning devices must be in place and in good operating condition on equipment, which has an obstructed view to the rear. Other applicable specific requirements as found in 29 CFR 1926 Subpart O, .600 through .605 must be followed.
- **Excavation.** Existing trees, boulders, and other surface obstructions creating a hazard to employees working on or near excavations must be removed or made safe before excavation is begun. All excavation operations must be done in accordance with the requirements of 29 CFR 1926 Subpart P, .650 through .652 and all appropriate/applicable appendices.

NOTE: There may be special contract requirements beyond the minimum requirements stated above.

- **Concrete forms.** Concrete forms must be erected and braced to withstand all vertical and horizontal loads that may be imposed on them during concrete placement. Concrete forms must be removed and stockpiled promptly after stripping. Protruding nails, wire ties, etc., must be removed to eliminate a hazardous condition. Other requirements per 29 CFR 1926.700 through .706 must be followed as applicable.
- **Structural steel assembly.** During structural steel erection the hoisting line must be retained on the members until there are two bolts at each connection or two erection clamps wrenched tight at each welded connection. The safety standards in Subpart R of 29 CFR 1926 provide the complete requirements for structural steel erection and must be followed as applicable.
- **Cofferdam.** If high water overtopping of the cofferdam is possible, a methodology must be provided for controlled flooding. At least two means of rapid egress from the work area must be provided, per the requirements of 29 CFR 1926.802.
- **Explosives.** Cigarettes, firearms, and matches are prohibited while handling, transporting or using explosives. All other requirements for the handling of explosives are found in 29 CFR 1926 Subpart U.
- **Handling traffic through and around construction.** Temporary roadways and detours must be properly maintained. Use the Traffic Control Plan and Texas Manual on Uniform Traffic Control Devices (TMUTCD) to check signs, barricades, and flaggers. Flaggers must be trained using a recognized training course, such as offered by the Texas Engineering Extension Service (TEEX).

NOTE: NTTA and Construction Manager employees, as well as the Contractor's employees,

NTTA Construction Manual

must continually follow safety practices. Follow all requirements for personal safety.

5.20.23 Violations

Violations of safety and health regulations may be minor in nature, or they may be a serious threat to human life. Inform the Contractor by written notice or orally of the failure to fulfill the specific safety regulation.

5.20.24 Definitions (Safety)

Incidents are those events involving NTTA or Construction Manager personnel, equipment, or operations that result in personal injury or property damage.

Equipment (for incident reporting purposes) includes any vehicle, road building/maintenance equipment, boat, air compressor, or other machine or device, powered by an internal combustion engine.

Near-Miss Events are unplanned events involving NTTA or Construction Manager personnel, equipment or operations that clearly demonstrate the potential for injury or property damage but which do not produce these results.

Third-Party Incidents are those incidents involving someone in addition to NTTA or Construction Manager personnel and equipment.

Report all incidents resulting in any property damage or injury that involve NTTA personnel, equipment, or operations to the NTTA Manager of Construction Project Delivery.

NOTE: Incidents and near-miss events that do not involve NTTA operations are exempt from the FHWA reporting requirement unless:

- there are five or more deaths
- ten or more vehicles are involved in a chain collision
- there is a school bus incident resulting in one or more fatalities or disabling injuries
- there is major damage to a highway facility
- it is a commercial vehicle incident with extensive property damage
- it is an incident on a federally funded construction contract causing deaths or disabling injuries to workers or the public.

The Construction Manager/Resident Engineer shall report all incidents involving only NTTA or Construction Manager equipment, regardless of the extent of damage, unless the damage is appearance damage that can be classified as normal wear and tear.

All near-miss events are those incidents in which equipment failures or deficiencies are known, or suspected cause factors exist.

NTTA Construction Manual

5.20.25 Incident Reporting Requirements

Rather than attempting to tell the Contractor how to correct the deficiency, take the following steps when an apparent violation is noted:

1. Inform the superintendent at once so immediate corrective action may be taken.
2. Document all discussions and interactions.
3. For immediate hazardous condition, follow guidelines as detailed in the Emergency Communications Plan (See template in Appendix H).
4. Work may be suspended in the area of the hazard. If work is suspended, provide notice to the Contractor as required in the contract.
5. After determining that adequate corrective measures have been taken, work may resume.
6. If corrective action is not taken, send a written notice to the Contractor requesting immediate correction. Also state that, without correction, the U. S. Department of Labor (USDOL) will be notified.

5.20.26 Investigations by Other Agencies

Cooperate with the FHWA, United States Department of Labor (USDOL) and other agencies during inspections or services.

5.21 EEO Requirements

NTTA imposes specific nondiscrimination and affirmative action obligations on federal-aid highway contractors relating to their employment practices under the authority of 23 CFR Part 230, Subpart D.

“It is the policy of NTTA that every federal-aid contractor, subcontractor or material supplier perform all employment related activities in full accord with applicable equal employment opportunity (EEO) statutes, executive orders, regulations, and policies enunciated thereunder, to assure equal employment opportunity and the treatment of employees without regard to race, color, sex, age, disability, religion, or national origin.”

5.21.1 Contract Provisions

As a recipient of federal funds, NTTA has the responsibility to ensure that Federal Highway Administration (FHWA)-required equal opportunity requirements are included in direct federal and federal-aid contracts and that Contractors are in compliance with those requirements under NTTA’s authority. A Contractor’s minimum equal opportunity requirements are set forth in the following contract provisions:

“FHWA 1273, Required Contract Provisions Federal-Aid Construction Contracts. This is a standard document containing required federal EEO contract provisions and proposal notices physically required to be incorporated in each direct federal and federal-aid highway construction contract and subcontract (at any tier) of \$10,000 or more. When a Contractor signs a direct federal or federal-aid contract of \$10,000 or more, the non-discrimination provisions in the Form FHWA 1273 constitutes the Contractor’s EEO/Affirmative Action Plan standards for that contract.”

NTTA Construction Manual

5.21.2 Contractor Federal EEO Requirements

The primary purpose of an Equal Opportunity Contract Compliance review is to determine whether a federal contractor is in compliance with its contractual nondiscrimination and affirmative action requirements. Compliance reviews are conducted by the NTTA Director of Business Diversity to determine a contractor's compliance with the federal EEO requirements.

5.21.3 Equal Employment Opportunity

The Contractor will work with NTTA and the federal government in carrying out EEO obligations and in their review of his/her activities under the contract. The Contractor will accept as his operating policy the following statement:

“It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training.”

5.21.4 EEO Officer

The Contractor will designate and make known to NTTA an EEO officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

5.21.5 Dissemination of EEO Policy

All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or who are substantially involved in such action, will be made cognizant of, and will implement the Contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure the above agreement will be met, the following actions will be taken as a minimum:

- Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less than once every six months, at which time the Contractor's EEO policy and its implementation will be reviewed and explained. The meeting will be conducted by the EEO officer.
- All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO officer, covering all major aspects of the Contractor's EEO obligations within 30 days following their reporting for duty with the Contractor.
- All personnel who are engaged in direct recruitment for the project will be instructed by the EEO officer in the Contractor's procedures for locating and hiring minority group employees.
- Notices and posters setting forth the Contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment, and potential employees.

NTTA Construction Manual

- The Contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5.21.6 Recruitment

When advertising for employees, the Contractor will include in all advertisements for employees the notation, "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

- The Contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the Contractor will identify sources of potential minority group employees, and establish with such identified sources, procedures whereby minority group applicants may be referred to the Contractor for employment consideration.
- The Contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5.21.7 Personnel Actions

Wages, working conditions and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

- The Contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
- The Contractor will periodically evaluate the spread of wages paid within each job classification to determine any evidence of discriminatory wage practices.
- The Contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
- The Contractor will promptly investigate all complaints of alleged discrimination made to the Contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform every complainant of all the avenues of appeal.

NTTA Construction Manual

5.21.8 Training and Promotion

The Contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

Consistent with the Contractor's work force requirements and as permissible under federal and state regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance.

The Contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

The Contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

5.21.9 Selection of Subcontractors, Procurement of Material, and Leasing of Equipment

The Contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors including procurement of materials and leases of equipment.

- The Contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.
- Disadvantaged Business Enterprises (DBE) as defined in 49 CFR Part 26, shall have the equal opportunity to compete for and perform subcontracts which the Contractor enters into pursuant to this contract. The Contractor will use his best efforts to solicit bids from and to utilize M/W/DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of M/W/DBE construction firms from NTTA Business Diversity.
- The Contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

5.21.10 Records and Reports

The Contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of NTTA, TxDOT and the FHWA when applicable.

The records kept by the Contractor shall document the following:

- The number of minority and non-minority group members and women employed in each work classification on the project;
- The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees;
- The progress and efforts being made in securing the services of M/W/DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

NTTA Construction Manual

- The Contractors will submit an annual report to NTTA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. The information is to be reported on Form FHWA 1391 (See Appendix E).
- The Construction Manager will be responsible for coordinating diversity submittals from the Contractors and/or subcontractors. Upon receipt of the submittals, the Construction Manager will prepare and submit to the BDD Office any diversity reports required by the current version of the BDD Plan.

5.21.11 Nonsegregated Facilities

The federal-aid construction contractor, subcontractor, material supplier, or vendor certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained.

The term “segregated facilities” means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

5.21.12 EEO Correspondence and Reports

Federal-Aid Highway Construction Contractors Annual EEO Report - Form 1391 – Each prime contractor and subcontractor with federally funded contracts of \$10,000 or more, not including material suppliers and regardless of tier, and that have workforce activity during the last full pay period in July (ending July 31st) must complete the FHWA Form 1391. The form must include the number of employees, minority, women and non-minority, engaged in each work classification required by the contract who worked all or any part of the specified time period. Contractors who do not perform any work during the last full pay period of July must submit a negative report. Write “Not Applicable” across the form, sign and date and return the form.

The Construction Manager should distribute the Form 1391 to the Contractors. Once completed the Contractor must submit three copies of Form 1391 to the Construction Manager by August 12th each year. The Construction Manager must retain one copy and submit the original and one copy to NTTA Project Delivery Construction.

Federal-Aid Highway Construction Summary of Employment Data – The Form 1391 data is to be compiled into the FHWA Form 1392 by NTTA and the originals submitted to TxDOT.

NTTA Construction Manual

5.21.13 Labor Requirements

Contractors must be familiar with and comply with all laws, ordinances, and regulations regarding labor related requirements which affect the contract. Monitor the Contractor and subcontractor to ensure compliance with contract labor provisions.

5.21.14 Contract Work Hours and Safety Standards Act (29 CFR Part 5)

The Contract Work Hours and Safety Standards Act is a federal law and:

- applies to all construction contracts
- provides that any laborer, worker, mechanic, watchman or guard must be paid on the basis of a forty-hour workweek. Overtime must be paid at 1-½ times the regular rate for every hour worked more than 40 hrs per week. Overtime payments are based on time actually worked (including break periods but not lunch) and cannot include holiday, vacation or other time paid but not worked
- gives NTTA the primary responsibility for ensuring compliance with the requirements of this Act.

The Contract Work Hours and Safety Standards Act does not apply to:

- Contractor's supervisory and office employees
- contracts or subcontractors furnishing supplies and equipment when such operations are located off site of the project
- contracts with a political subdivision
- contracts or work agreements for construction work or services with railroads or public utilities when the work or services is done by their employees.

5.21.15 Copeland Anti-Kickback Act (29 CFR Part 3)

The Copeland Anti-Kickback Act, a federal law, provides regulations concerning the construction and repair of public works contracts and subcontracts exceeding \$2,000 and financed in whole or in part by federal funds. A portion of the Act concerns the payment of wages to the Contractor and subcontractor employees. The Act authorizes the U.S. Department of Labor (USDOL) to develop regulations, including payroll records and submission requirements.

The Copeland Anti-Kickback Act permits certain payroll deductions, such as:

- bona fide fringe benefits
- any deduction made in compliance with the requirements of federal, state, or local law, such as income and social security taxes
- any deduction required by court process, such as child support
- any deduction for the cost of safety equipment for the employee's own protection such as safety glasses provided the cost is nominal and the employer is not otherwise required to furnish the equipment pursuant to law

The Act also permits certain payroll deductions from the wages of laborers and mechanics when the employee's written consent is provided, such as:

- life insurance, hospitalization and medical insurance, retirement plan, vacation plan, safety shoes, and safety hats

NTTA Construction Manual

- other deductions require a written application and approval of the USDOL. For example, gasoline and uniforms that are required by the employer as a condition of employment.

No monitoring responsibilities are required for certain types of personnel, contracts, and employers, such as:

- supervisory and office employees
- contracts or subcontractors furnishing supplies and equipment when such operations are located off-site of the project
- contracts with a political subdivision
- contracts or work agreements for construction work or services with railroads or public utilities when the work or services is done by their employees

5.21.16 Davis-Bacon and Related Acts (29 CFR Parts 1, 3, 5, 6 and 7)

These federal Acts apply to all federally funded construction contracts, except for projects with TxDOT functional class code 6 (rural minor collector) or 7 (local road or street). The Davis-Bacon Act:

- sets a prevailing minimum wage rate for various labor classifications predetermined by the U. S. Secretary of Labor to be paid to laborers and mechanics
- requires the laborers and mechanics be paid weekly at prescribed rates for all hours worked
- provides that fringe benefits, or wage equivalent, are to be paid laborers and mechanics when included in the U. S. Secretary of Labor's prevailing minimum wage rate decision
- requires that the Contractor post the prevailing minimum wage rates at the job site.

The Davis-Bacon Act does not apply to:

- Contractor's supervisory and office employees
- Contractors or subcontractors or suppliers furnishing supplies and equipment when such operations are located off site of the project
- contracts with a political subdivision
- contracts or work agreements for construction work or services with railroads or public utilities when the work or services is done by their employees

5.21.17 Fair Labor Standards Act (29 CFR Chapter V)

The Fair Labor Standards Act (FLSA), a federal Act, applies to all contracts and requires Contractors and subcontractors compliance with USDOL regulations.

Many of the requirements contained in this Act mirror those in the previous laws described. FLSA does, however, provide additional requirements regarding child labor, as follows:

- Children of any age are generally permitted to work for businesses entirely owned by their parents EXCEPT those under 16 years of age may not be employed in mining or manufacturing and NO ONE under 18 years of age may be employed in any occupation determined to be hazardous by the U. S. Secretary of Labor.
- Children under 14 years of age may not be employed on NTTA contracts.

NTTA Construction Manual

- Young persons 14 and 15 years of age may be employed in non-manufacturing and non-hazardous jobs for limited periods of time and under specified conditions.
- Young persons 16 and 17 years of age may work an unlimited number of hours in any occupation other than those determined by the U. S. Secretary of Labor to be hazardous in nature.
- Individuals 18 years of age and older are no longer subject to the Child Labor Provisions of the FLSA.

The FLSA establishes an 18-year minimum age for all nonagricultural occupations determined to be hazardous in nature by the U. S. Secretary of Labor. The following are considered hazardous occupations:

- manufacturing or storing explosives
- driving a motor vehicle or work as an outside helper on motor vehicles
- mining
- logging and sawmilling
- power-driven woodworking machines*
- exposure to radioactive substances and ionizing radiation
- power-driven hoisting apparatus
- power-driven metal-forming, punching and shearing machines*
- power driven meat processing machines, slaughtering and meat packing plants*
- power driven bakery machines
- power driven paper-products machines*
- manufacturing of brick, tile and related products
- power-driven circular saws, band saws and guillotine shears*
- wrecking, demolition, and ship-breaking operations
- roofing operations*
- trenching and excavation operations.*

*Limited exemption is provided for apprentices and student-learners who are at least 16 years of age and enrolled in approved programs.

Additional detailed information may be obtained from the USDOL website regarding FLSA Child Labor Provisions.

5.21.18 Prevailing Wage Rates (Title 10, Chapter 2258 of the Texas Government Code)

Title 10, Chapter 2258 of the Texas Government Code requires payment of prevailing wage rates for each craft needed to execute a public works contract on behalf of the State of Texas. This statute mirrors the federal Davis-Bacon Act and may be referred to as a state mandated “little Davis-Bacon Act.” This statute:

- sets a prevailing minimum wage rate for various labor classifications predetermined by the Secretary of Labor to be paid to laborers and mechanics
- requires the Contractor and all subcontractors keep, or cause to be kept, copies of weekly payrolls for review for a period of 3 years from the date of the completion of the contract.

NTTA Construction Manual

5.21.19 Contract Labor Requirements

At the preconstruction meeting, advise the Contractor of their contract labor requirements and obligations.

Contractor Labor Obligations

- All mechanics and laborers working on an NTTA construction project must be paid at least once a week.
- Mechanics and laborers must be paid at least the minimum prevailing wage as shown in the contract for the work classifications being performed (mechanics and laborers performing in more than one classification must be paid at the rate specified for each classification for the time actually worked in each).
- The prevailing wage rates applicable to the contract must be posted at the project site where they can easily be seen by all employees.
- If an employee is performing in a work classification that does not appear in the prevailing wage rate, the Contractor must submit an “Additional Classification and Wage Rate Request” form to the Construction Manager.
- For federally funded projects, Contractors must submit weekly statements listing the wages paid to each employee. [USDOL Form WH-347](#), (or form providing same information) is to be used for this payroll submission. These weekly payroll statements must be submitted to the appropriate Construction Manager’s office within 7 calendar days after the end of the payroll period.
- All weekly payroll records must be retained for a period of 3 years from the contract completion date. These payroll records must be made available at all times for inspection by NTTA and authorized representatives of the USDOL.
- Only the following payroll deductions are permissible without prior approval from the USDOL (for more detailed information, please refer to 29 CFR Part 3.5):
 - deductions made in compliance with federal, state or local law (that is, federal or state withholding income taxes, and federal social security taxes)
 - deductions of sums previously paid an employee (prepayment of wages), but only if such deduction is made without discount or interest
 - deductions of amounts required by court order
 - deductions authorized by the employee which constitute a contribution for the purpose of providing medical or hospital care; pensions or annuities on retirement; death benefits; compensation for injuries, illness, accidents, sickness or disability (or similar payments) for the benefit of the employee. These deductions are permissible provided they are not otherwise prohibited by law and are included in a bona fide collective bargaining agreement between the Contractor and subcontractor and its employees or are pre-approved by the employee and serve the convenience or interest of the employee. In addition, the Contractor and subcontractor may not profit or otherwise receive benefits (such as, commissions and dividends) for any employee payroll deductions
 - deductions contributing toward the purchase of U.S. Defense Stamps and Bonds when voluntarily authorized by the employee

NTTA Construction Manual

- deductions requested by the employee to enable repayment of loans or to purchase shares in credit unions
- deductions voluntarily authorized by the employee for contributions to governmental or quasi-governmental agencies (such as, American Red Cross)
- deductions voluntarily authorized by the employee for contributions to Community Chests, United Givers funds and similar charitable organizations
- any deductions to pay regular union initiation fees and membership dues provided that a collective bargaining agreement exists between the Contractor and subcontractor and its employees and the deductions are not otherwise prohibited by law
- deduction for the “reasonable cost” of reimbursement for board, lodging or other facilities meeting the requirements of the FLSA (see 29 CFR Part 531)
- deduction for the cost of nominal value safety equipment (such as, hard hats, safety shoes, safety glasses, and safety gloves) provided that such equipment is purchased by the employee as their own property for personal protection in work. This deduction is permissible provided the deduction is only for the actual cost of the safety equipment and such deduction is provided for in a bona fide collective bargaining agreement between the Contractor and subcontractor and its employees or voluntarily consented to by the employee in writing.
- All payment of wages must be made by cash or negotiable instruments payable on demand.
- Payments of fringe benefits are limited to those benefits as stated in the contract wage determination. Fringe benefits not included in the contract wage determination must be paid as an hourly cash equivalent.
- Employees who work in excess of 40 hrs. in any given work week must be paid at a rate of 1-1/2 times their regular rate for all hours worked in excess of 40 hrs. Such work hours are exclusive of payments made for non-work hours (such as vacation, holiday, or illness). For more complete information regarding the payment of overtime wages, please refer to 29 CFR, Part 778.

5.21.20 Construction Manager Monitoring for Federally Funded Projects

Conduct periodic site inspections of the work to ensure that the Contractor and subcontractor labor requirements as listed in “Contractor Labor Responsibilities” are being completed. Ensure that the contract prevailing wage rates are posted on the work site in an area accessible to all Contractor and subcontractor employees.

The names of truck owner-operators are to appear on the Contractor’s weekly payroll under the heading “Truck Owner-Operator.” No other information is required.

Recommend the use of the standard job classifications contained in the booklet “Standard Job Classifications and Descriptions for Highway, Heavy, Utilities and Industrial Construction in Texas” for the Contractor’s and subcontractor’s payrolls. The Contractor may use other code numbers or abbreviations on the payroll forms, provided the Contractor attaches a list of the code numbers or abbreviations with the corresponding title classification to each payroll.

NTTA Construction Manual

When no work is performed, obtain from the Contractor a statement of compliance with the statement “No work done this week.” When no work is performed for long periods of time, the statement “No work until further notice” should be shown, and weekly statements are not required.

5.21.21 Additional Labor Classifications

When the contract wage schedule does not include a job classification used on the contract, the Contractor must submit an “Additional Classification and Wage Rate Request.” (See Appendix E). On NTTA funded contracts, review and approve these requests. Ensure that recommended wage rates are proportionate to similar wage rates contained in the contract wage decision and conform to like wage rates in surrounding areas.

5.21.22 Labor Interviews

Conduct at least three employee labor interviews for each project per quarter to determine if the Contractor and subcontractors are in compliance with labor laws. Randomly select employees to be interviewed. Inform the Contractor when payroll errors are found. Refer to the following table for guidance in resolving payroll errors.

5.21.22 TABLE 10 - Payroll Errors Problems and Resolution

If	then
payrolls do not match interview information	notify the Contractor to correct the problem
the Contractor does not correct the problem	notify NTTA Project Delivery Construction

5.21.23 Payroll Review

Review at least 10% of all payrolls for each contract. Determining the composition of this 10% is left to the Resident Engineer’s discretion. Verify that the payrolls submitted include the following information for each employee:

- name
- social security number
- address
- classification
- rates of pay
- daily and weekly number of hours worked
- deductions made
- actual wages paid

NTTA Construction Manual

NOTE: Employee's full name, social security number and address need only appear on first payroll in which the employee's name appears.

Ensure that legal holiday work is paid at the regular prevailing per diem wage rate. Overtime pay is for actual hours worked in excess of 40 hr., per workweek and is compensated at a rate not less than 1-1/2 times the basic rate of pay.

Review selected payrolls to ensure that employees are compensated at least the appropriate prevailing minimum wage for the actual work performed. Document in the project file the review results, review date and reviewer name. Bring any discrepancies or questionable wage rates to the attention of the Contractor for explanation or correction. Bring any Contractor failures to correct or adequately address deficiencies and requests for information by the Contractor to the attention of NTTA Project Delivery Construction.

Payroll records contain sensitive information which may be exempt from the disclosure requirements of the Public Information Act. These records must be maintained in a secure location and access limited to authorized personnel only.

5.21.24 Semiannual Labor Compliance Enforcement Report (Federally Funded Projects only)

Submit Form FHWA 1494, Semiannual Labor and Compliance Enforcement Report (See Appendix E) to the CM on or before **April 15th** and **October 15th** of each year. Reporting periods are October 1st through March 31st and April 1st through September 30th each year. Provide data for questions 4 through 11. The completed report is provided to the Federal Highway Administration.

5.21.25 Wage Rate Survey

Wage rate surveys are conducted periodically as mandated by the USDOL and State statutes. These surveys determine applicable prevailing wage rates for highway construction in Texas.

5.21.26 Posters and Notices

Ensure that the Contractor displays the following EEO posters and required notices to be displayed on project-site bulletin boards. The government referral line for questions regarding required posters for any state is 1-800-688-9889.

NOTE: Subcontractors may use the prime contractor's project-site bulletin board to display the required EEO officer information.

NTTA Construction Manual

5.21.26 TABLE 11 -Job Site Posters and Notices

Poster/Notice Name	Source
*Equal Opportunity is the Law *EEOC-P/E-1 (EEO Poster) *EEOC-P/E-S (Spanish Version) *Fed. 5 in 1 Labor Law Poster	Required by 41CFR60-1.4(b)(1) Available at Department of Labor (DOL) or call 1-800-669-3362 G. Neil Co. 1-800-999-9111
*Contractor's EEO Policy *Statement with Project EEO Officer's Name and Phone No.	Required by 41 CFR 60-741.44
*Wage Rate Information *FHWA 1495 *FHWA 1495A (Spanish Version)	May be substituted for DOL-1321 per FHWA 1273, IV(1)(a) Call Thomas Molock at (301) 322-5377
Notice to Employees (Davis-Bacon Wage Rate Poster) USDOL-1321	Required by 29 CFR5.5(a)(1) DOL or download poster
*Project Wage Rates	May be obtained from project contract
*Your Rights-Federal Minimum Wage *WH 1088 *WH 1088 SP (Spanish Version)	Needed on projects where Davis-Bacon wage rates are not established. Available at DOL website or Call (972) 850-2647
Job Safety and Health Protection OSHA-3165 OSHA-3167 (Spanish Version)	Required by 29 CFR 1903.2(a)(1) Call (202)693-1888 or download poster
Texas Payday Law Poster **T.E.C. Y-10c **T.E.C. Y-10s (Spanish Version)	Texas Workforce Commission Call (512) 463-2747
Worker's Compensation Poster Notice 6 Notice 6s (Spanish Version)	Texas Worker's Compensation Commission Call (512) 804-4333
Family/Medical Leave Act WH-1420 WH-1420 (Spanish Version)	Required by 29 CFR 825.300(a) for employers of more than 40 people. Available at DOL. Call (202) 693-0023
Falsified Statements FHWA 1022	Notice required by 18 CFR 1020 and 23 CFR 635.119 Call (301) 322-5377 or fax: (301) 386-5394
Employee Polygraph Protection Act WH-1462 WH-1462A (Spanish Version)	Required by 29 CFR 801.6 Available at DOL Or call DOL office (202) 693-0067
Hazard Communication Program Notice	OSHA Reg. 1926.59 To be developed by Contractor
Emergency Telephone Number Notification	OSHA Reg. 1926.50 To be developed by Contractor

NTTA Construction Manual

*Required by FHWA for federally funded projects.
**Firm name, address and account number required on this poster.

5.21.27 TxDOT Forms on Federal-Aid Projects

All NTTA projects using Federal-Aid funding on any portion of the project shall include the following TxDOT construction forms:

- TxDOT Form 2177 (Prompt Payment Certification)
 - Submit prior to the end of the month following payment
 - Engineer may withhold payment or suspend work for failure to submit this form
- TxDOT Form 2178 (DBE Joint Check Approval)
- TxDOT Form 2182 [Commercially Useful Function (CUF) Project Site Review (Construction Projects)]
 - Per 49 CFR 26.55 field staff will perform CUF reviews on DBE subcontractors and material suppliers.
 - A minimum of one review is to be performed for each DBE for each project with a DBE goal.
 - The review should happen when the DBE first begins work and compliance monitored through the life of the project.

5.22 Daily Progress Drawings

The Construction Manager shall maintain one set of record prints, i.e. latest revised sealed sheets plus redline field mark-ups of the Contract Plans, which shall be kept up-to-date during the course of construction. Such up-to-date record prints shall be available to NTTA, the Corridor Manager, and the General Engineering Consultant (GEC) for review as the work progresses.

5.23 Progress Schedules

The Construction Manager shall review, analyze, and provide comments and recommendations to NTTA regarding the Contractor's proposed Preliminary Detailed Progress Schedule, Detailed Progress Schedule, Revised Detailed Progress Schedules, and Monthly Progress Schedules for acceptance or rejection by NTTA. If Contractor does not start work at the start of time charges then the Construction Manager / Resident Engineer shall send a Letter of possible default to notify the Contractor.

Do not allow the Contractor to begin work until the "Notice to Proceed" is sent by NTTA. Ensure the Contractor begins work within 30 calendar days after the date of the authorization, unless otherwise specified in the plans or specifications.

Use project schedules obtained from the Contractor to:

- ensure contract completion within the allowable number of working days
- ensure milestone completion in accordance with the contract, if applicable
- assure coordination of all entities involved in the project
- monitor the progress of the work

NTTA Construction Manual

- administer the contract time requirements.

5.23.1 Schedule Types

Progress schedules must be submitted by the Contractor to the Construction Manager/Resident Engineer in the form specified in the NTTA Special Provision to Item 8 “Prosecution and Progress based on the construction contract amount. Ensure the Contractor’s duration of work activities for any type of schedule do not exceed 20 working days, unless otherwise specified in the contract.

The Detailed Progress Schedules shall be based on controlling items, shall show the critical path of the Contractor's activity, and shall show the scheduled delivery dates of critical materials as well as all critical submittals and associated review periods.

The Construction Manager shall monitor construction progress, particularly as it compares to the Contractor's approved Detailed Progress Schedule, Revised Detailed Progress Schedules, and Monthly Progress Schedules, and M/W/DBE goal attainment (M/W/DBE) as applicable. The Construction Manager is to advise NTTA Project Delivery on a weekly basis, unless directed otherwise, of any of the following situations:

- The Contractor is on schedule and has agreed he/she will complete on time.
- The Contractor is on schedule, but has filed a time extension request.
- The Contractor is on schedule, but an impending change in the work may/will cause a time extension claim by the Contractor.
- The Contractor is behind schedule and a request has been made of the Contractor to revise the project schedule to effect the assigned completion date.
- The Contractor is behind schedule and no request has been made of the Contractor to revise the project schedule to effect the assigned completion date.
- The M/W/DBE goals are not being met, or there may be a need to adjust the Plan goals. Construction Manager is to report on Plan attainment when the project is 30, 60, and 90 percent complete. .

Any request for an extension of time from the Contractor justified by unforeseen causes should be only for those items within the critical path. The Construction Manager shall submit to the NTTA Manager of Construction Project Delivery the Contractor's request together with his/her evaluation and recommendation based on contractual obligation only. His/her evaluation should address the following questions:

1. Could the Contractor change his/her critical path to avoid delay or expedite to make up for it?
2. Is the Contractor complying with the requirements of the Contract with respect to utilization of his/her forces, working hours and working days?

Requests for extensions of time based on changes or extra work should be addressed in the Change Order requesting the extra work.

If progress is behind schedule or if significant items and dates become critical, the Construction Manager must request and NTTA will require that a Revised Detailed Progress Schedule be

NTTA Construction Manual

submitted by the Contractor. It shall be the responsibility of the Construction Manager to review the progress schedule and see that progress on the controlling items is maintained.

The Construction Manager shall maintain and submit weekly progress reports, detailed as specified herein, including Two week look aheads and As-Built drawings or as directed in writing by NTTA Project Delivery Construction.

5.24 Contract Time

Begin working day charges 10 calendar days (7 calendar days for routine Maintenance contracts) after the date of the written authorization to begin work unless specified otherwise in the contract. For contracts involving multiple work orders, such as a traffic signal project, begin working day charges as established for each individual work order on a separate basis. Charge working days in accordance with the contract as specified in Article 8.3.A., “Working Day Charges,” of the NTTA Special Provision to Item 8 “Prosecution and Progress”.

Do not suspend working day charges without suspending work. Do not suspend working day charges or grant additional contract working days for activities relating to handling hazardous material delivered by the Contractor. Do not consider weather conditions or material availability when suspending working day charges. Consider increasing the number of contract working days under extraordinary circumstances.

5.24.1 Temporary Suspension of Work or Working Day Charge

When work is suspended, wholly or in part, provide written notice and reasons of suspension to the Contractor. Provide written notice to the Contractor to resume work. When only a portion of the work is suspended, working day charges may be suspended only when conditions not under the control of the Contractor prohibit the performance of critical activities. Suspend working day charges when all of the work is suspended for reasons not under the control of the Contractor.

5.24.2 Reasons for Temporary Suspension of Work

Work may be suspended for the following reasons:

- Failure to comply with the contract or supplemental agreement
- Failure to keep insurance coverage in force as provided in Article 7.4, “Insurance and Bonds,” of the Standard Specifications
- Failure to provide workers or equipment as provided in Article 8.9, “Workers and Equipment,” of the Standard Specifications
- Abandonment of work or default of contract upon written notice as provided in Article 8.6, “Abandonment of Work or Default of Contract,” of the Standard Specifications
- Unsuitable weather or soil conditions
- Unusual conditions which affect the work and are not usually associated with highway construction
- Conditions which threaten the safety of the workers, public or nearby property.

NTTA Construction Manual

5.25 Subcontracting

A subcontractor is defined in Article 1.128 of the Standard Specifications as "An individual, partnership, limited liability company, corporation or any combination thereof that the contractor sublets, or proposes to sublet, any portion of a contract, excluding a material supplier, a hauling firm hauling only from a commercial source to the project, truck owner-operator, wholly owned subsidiary, or specialty-type businesses such as security companies and rental companies."

Ensure that the Contractor performs at least 30% of the total contract amount, less any specialty items, with the Contractor's organization. The Contractor's organization includes:

- workers employed and paid directly by the Contractor
- equipment owned by the Contractor
- rented or leased equipment operated by the Contractor's employees
- materials incorporated into the work if the majority of the value of work involved in incorporating each material is performed by the Contractor
- labor provided by leasing firms licensed under Chapter 91 of the Texas Labor Code for non-supervisory personnel if the Contractor maintains direct control over the activities of the leased employees and includes them in the weekly payrolls (payrolls may be submitted by either the Contractor or the licensed staff leasing firm).

Allow the Contractor to subcontract any specialty items contained in the contract. Specialty items are work items not commonly found in contracts for similar work and may include:

- Removing an underground storage tank on a widening project
- Plumbing on a widening project
- Electronic work on a typical road construction project
- Work designated as specialty work in the contract.

Submit all proposed subcontractors to NTTA for approval. The Construction Manager / Resident Engineer shall not let any subcontractors work on a project unless they have been approved. Do not apply the subcontracting limitations to subcontractors. Refer to Standard Specifications Article 8.8 for further information.

5.25.1 Minority/Women/Disadvantaged Business Enterprise (M/W/DBE) Prime Contractors

Ensure that M/W/DBE certified prime contractors perform at least 25% of the total contract amount, less any specialty items, with the Contractor's organization. When approving subcontracts for M/W/DBEs being used to satisfy a contract goal, ensure that the M/W/DBEs perform a commercially useful function.

5.25.2 Subcontracts Exceeding 70% of the Total Contract Amount

Do not approve subcontracts that exceed 70% of the total contract amount after deducting the cost of specialty items. Include in the total contract amount known quantity overruns that will not require a change to the contract. If the reduction or elimination of work quantities that are

NTTA Construction Manual

being performed by the prime contractor's organization results in the subcontracted amount exceeding 70%, no action is needed. In such an instance the intent of Standard Specification Article 8.8 is satisfied. When overruns occur or work is reduced or eliminated, do not adjust any contract requirements that are related to the original contract amount, such as BDD goals or liquidated damage amounts.

5.25.3 Subcontractor Approval Procedure

Have the Prime Contractor submit a MAN-06-F7 (NTTA Form 8901 – Request for Approval of Subcontractor) for each subcontractor. This form is signed by the Prime Contractor, reviewed and signed by Construction Manager/Resident Engineer if recommended for approval and then signed by NTTA giving approval for use of that subcontractor.

5.26 Contractor Default

A contract default may be declared if the Contractor:

- fails to begin the work within the time specified
- fails to prosecute the work to assure completion within the number of days specified
- fails to perform the work in accordance with the contract requirements
- neglects or refuses to remove and replace rejected materials or unacceptable work
- discontinues the prosecution of the work without the Engineer's approval
- fails to resume work that has been discontinued within a reasonable number of days after notice to do so
- is uncooperative, disruptive or threatening
- fails to conduct the work in an acceptable manner.

Do not overrun the quantities on a different contract with the same Contractor or allow performance of the work by changing the project limits on another contract. Refer to "Assignments" for procedures to allow another Contractor to complete the work.

Do not default a Contractor if they have filed for bankruptcy protection. Permission must be obtained from the bankruptcy court to default a Contractor that has filed for bankruptcy protection. Perform work determined necessary to maintain safety for the traveling public. Document this work in the diary and charge the work to the contract.

Do not default a Contractor for insufficient insurance or Surety bond coverage. Do not allow a Contractor with insufficient insurance or Surety bond coverage to perform work. Suspend all work until the Contractor submits an acceptable certificate of insurance. Should a Contractor's Surety bond become inadequate for any reason, suspend all work for 15 calendar days or until an acceptable Surety bond is provided, whichever is less. If an acceptable Surety bond is not provided at the end of the 15 calendar days, the Contractor may be defaulted for inability to perform the work.

Do not default a Contractor at the request of the Surety company. Allow work to proceed and continue making payments to the Contractor until the Contractor is declared in default according

NTTA Construction Manual

to the contract.

5.26.1 Contract with Performance Bond

Do not re-let the project. Do not accept monetary settlement or payment of the remaining contract balance from the Surety. Prepare a Takeover Agreement with the Surety and require that the Surety complete the work as originally contracted. The Surety is responsible for any liquidated damages.

As soon as possible, schedule a meeting with the Surety to arrange contract completion. Allow the Surety to have an attorney present at the meeting. Make all future progress payments to the Surety. Continue contract working day charges from the point where the original Contractor was defaulted.

In obtaining a contractor to complete the contract, the Surety may use the original Contractor or enter into an agreement with a new contractor. Suspend the 70% subcontracting limitation requirement. Approve all subcontract use in accordance with “Subcontracting” of this chapter.

Ensure that the original BDD goals are satisfied in accordance with the contract. Require that the Surety use the original M/W/DBE subcontractors, or approve substitutions in accordance with the contract.

Do not make any payments to the defaulted Contractor, even if the payment is for work performed prior to the default. Make all payments, including payment of retainage, to the Surety subsequent to the contract default. In rare instances, usually when contract default occurs near the end of a contract, work may be completed with NTTA maintenance forces. Deduct the cost of this work from future estimates.

5.26.2 Contract without Performance Bond

For a contract without performance bond, work may be completed by:

- NTTA maintenance forces
- Re-letting of the contract
- An emergency contract

At the time of default, if the contract has a negative balance, send a letter to the Contractor outlining the charges and requesting payment. Require that the payment submitted reference the appropriate project number.

Use the following procedures in initiating and processing contractor defaults:

1. Except when default is at the request of the Contractor, send the Contractor a certified letter with return receipt requested explaining the performance deficiencies and reason for potential default. State in the letter that the Contractor must correct the deficiencies and resume work within 10 calendar days. Be specific about the reason for default and quote directly from the contract.

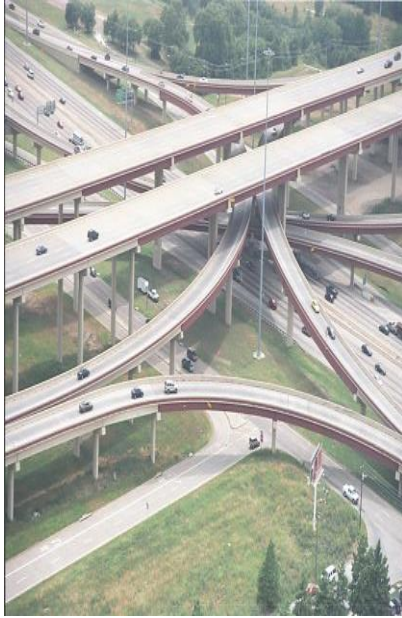
NTTA Construction Manual

2. If applicable, send the Surety a certified copy of the letter with return receipt requested.
3. Begin the 10 calendar day time period on the date the Contractor signs the receipt. If the certified letter to the Contractor is returned or the return receipt is not received, note this information in the project diary and make the default effective 10 calendar days from the date of the letter.
4. Do not default the Contractor if work is resumed and a concerted attempt is made to correct the problem within 10 calendar days.
5. If the Contractor does not resolve the problem in 10 calendar days or default is at the request of the Contractor, stop all payments to the Contractor. Do not suspend working day charges. Continue working day charges until contract completion. Send the Contractor a certified letter of default with return receipt requested. Do not suspend time. Time charges will continue until completion of the contract. Be specific about the reason for default and quote directly from the contract.
6. If applicable, send the Surety a certified copy of the letter that was originally sent to the Contractor with return receipt requested.

If determined necessary, perform work to ensure the safety of the traveling public between the time of default and the time that work resumes. Establish a force account to track costs associated with this work. If applicable, charge the Surety for these costs. Continue working day charges until the project is completed.

NTTA Construction Manual

Section 6



NTTA Construction Manual

6.0 POST CONSTRUCTION

6.1 Disputes

A dispute is a disagreement between NTTA and the Contractor on a contract issue. Disputes may only be submitted by the prime contractor. Make every effort, within the provisions of the contract, to resolve disputes at the lowest level possible. Resolution of problems at the time they occur generally provides the lowest cost and least time-consuming solution.

Administer highway construction contracts equitably. Promote a cooperative attitude consistent with ethical standards for contractual relationships. However, do not yield to requests from Contractors solely to avoid claims.

In administering the contract, do not:

- require the Contractor to perform work outside the scope of the contract
- impose additional risks or costs to the Contractor.

Notify FHWA when a dispute is submitted on a FLOA project.

6.2 Partnering and Issue Escalation

Analyze issues or situations carefully and in a timely manner to determine if they are within the scope of the contract, or require more or less work than called for in the contract.

For significant deviations from the contract, negotiate change orders (COs) in accordance with “Change Orders.”

6.3 Record Drawings

The “mark-ups” on the Daily Progress Drawings shall be incorporated onto the Record Drawings as well as the following:

- All revisions made by Change Order or other means shall be incorporated into the Record Drawings.
- The Record Drawings shall be prepared as a mylar using the Contract Plans or Revised Contract Plan sheets supplied to the Construction Manager by the NTTA and also delivering an electronic version (such as a PDF).
- All data pertinent to changes, including final quantities, shall be placed on the mylars.
- No erasures on the original drawings will be permitted.
- All changes shall be dated, a description and the date shall be in the Revision Box at the bottom of the Plans, and black ink (marker) only shall be used or similar electronic mark-ups produced as a mylar sheet approved by NTTA Project Delivery Construction.
- Should the modifications to an NTTA supplied Mylar or electronic equivalent is to such an extent that a new drawing should be made to replace it, the deleted drawing shall be marked with a large “X” and referenced to the replaced drawing and should still be included in the Record Drawings.

NTTA Construction Manual

- Contractor supplied shop drawing reproducible mylars or electronic equivalent shall be included in the Record Drawings.
- All added drawings including Shop Drawings shall be full size, numbered and included in the Record Drawing Index.
- The cover sheet shall be signed and sealed by the Construction Manager verifying the Record Drawings are completed in full. The words "Record Drawing" shall be added at the top of the cover sheet in one (1) inch high letters.

The Record Drawings shall show any alterations made. The following is a partial list of items that the Construction Manager can add to as necessary:

- Storm Sewers
- Foundation alterations
- Station locations
- Pipe lengths
- Structure type
- Pipe culverts - length, size, type
- Paved ditches - location, slope, invert, type
- Permanent erosion control (rip-rap)
- Verify storm water detention volume provided

Electrical Systems

- Conduit - location, length, size
- Locate direct buried cables
- Locate cables in uniduct, streetlights, hand holes, pull boxes and surveillance boxes
- Cable and wire gauge and number of conductors
- Changes to lighting under bridges and sign lighting

Utilities

- Water mains - size, type, valves, hydrants, meters
- Sanitary sewers - same as storm sewers including force mains and lift stations
- Other utilities - fiber optics, cable, gas
- Limits of pipe encasement and location of crossings

Traffic Signage

- Location and off-set
- Post type and size
- Sign size and text

Pavement

- Cross sections at 50 foot intervals or as shown on Plans
- Pavement elevation at PGL, all lane lines and edges of paved shoulders
- Cross sections at P.C./P.T. for super-elevation verification

Roadway

- Undercut limits - unsuitable removal and PGE replacement
- Rock excavation limits
- Fencing
- Any modifications - pull posts, corner post, stream crossing lengths and locations
- Bridges

NTTA Construction Manual

- Drill Shaft length, type, location
- Any foundation alternations
- Vertical clearance (minimum low beam)

Quantity Sheet

Revisions to final quantities on quantity sheet

Add all extra work items also shown on plan sheets

Location of Anything Abandoned In Place

Light pole foundations

Sign foundations`

Conduits/direct buried cables

Temporary sheet piling - location and elevation

List of Permanent Benchmarks (after construction is completed)

- One for each bridge structure
- One for each toll plaza
- One every ± 2000 feet on mainlane

After final acceptance of the project and the records are audited for conformance with NTTA Policies and Procedures, the Construction Manager will complete the Project Closeout Matrix and Chain of Custody forms. They will be attached to the project records prior to delivering the records to the Manager of Construction Project Delivery. Records containing sensitive information will be separated and placed in secured containers and delivered only to authorized personnel.