

Chapter 8 – Construction Orders

1-800 General

Construction Orders are issued to authorize changes to the Contract. They may make increases and decreases in quantities of Contract items, add extra work essential for the satisfactory completion of the project, increase or decrease the Contract time, add or modify Contract Plan sheets, or alter the sequence or character of the work. A Construction Order must be processed to gain approval of the change.

For the purpose of this manual the terms Construction Order and Contract Order are interchangeable.

The terms of an executed Construction Order are enforced as though they were part of the original Contract. It is essential that Construction Orders explicitly describe the change proposed, including:

- the character and scope of the change,
- where and within which limits the change applies,
- the method of compensation, and
- any changes in the allowed Contract time.

The Construction Order needs to explain why it has been prepared. It should be short and concise yet detailed enough to provide persons with no knowledge of the project with an understanding of why the change is needed.

When a Construction Order is done properly it will identify:

- What is the change
- Who initiated the change
- Where is the specific location of the change
- Why was the change needed
- When the change is initiated

1-801 Review of Proposed Changes

Changes and extra work should be held to the minimum and limited almost exclusively to revisions and additions necessitated by conditions that could not reasonably be anticipated before the project was advertised for bid. The Department must carefully review changes that involve a substitute material or product or a change in the method of construction.

Review of a proposed change will involve the following considerations:

- Is the change in the public interest?
- Does it provide an equal or better material or product than originally planned?
- Does it provide a better method of construction than originally planned?
- Does the Contractor benefit from the change, and if so, is there a corresponding benefit to the project?

Design changes, substitution of materials, revised methods of construction, and specification modifications must satisfy the criteria to provide adequate justification for consideration and approval.

1-802 Need for Construction Orders

Inspectors should use the following criteria in determining the need for a Construction Order.

Construction Orders are required for design-initiated changes in the plans or typical sections, when any changes result in monetary increases or decreases, and/or when an adjustment in Contract time is required. The changes can be made part of the Contract only through Construction Orders. Design changes and cost-plus work should be submitted promptly with estimated quantities, rather than waiting until accurate quantities are available.

Revised quantity determinations are to be made as the work progresses, and final-quantity revisions are to be included on intermediate Construction Orders as items are completed. Updating quantities on intermediate Construction Orders reduces the time required to prepare the final Construction Order, enables one to keep better track of the projected Project cost, and avoids unnecessary revisions to the performance bond which may increase costs (Refer to Chapter 1-19).

Additional Contract time is to be processed on intermediate Construction Orders whenever a Contractors request for an extension of Contract time is approved. A full explanation justifying the additional time must be attached to the Construction Order. Refer to the section "Time Extensions".

1-803 Construction Order Preparation

The process to initiate a Construction Order should be started as soon as the potential need for a change is identified. Work that will be authorized by a Construction Order, other than minor increases and decreases in existing contract items where no change in the Contract plans has occurred, should not be initiated until the Supervising Engineer reviews the requested change and the work is approved. In addition, when a Construction Order may exceed \$100,000 the Office of Financial Management, Office of Construction, and the District Engineer should be notified in advance of the forthcoming Construction Order.

The Chief Inspector is the primary project staff member responsible for the preparation and content of Construction Orders. Construction Orders are prepared and processed using the procedures and format of SiteManager. For detailed explanation on how to create a Construction Order (Change Order) refer to the SiteManager Help Files. All Method of Measurement/Basis of Payment changes to existing contract items must have prior approval from the Office of Construction.

Construction Orders that involve price adjustments, differing site conditions, or claim settlements cannot be initiated until the Supervising Engineer obtains required approvals. For all price adjustments that involve articles 1.04.02, 1.04.03, and 1.04.04 the Supervising Engineer must obtain concurrence from the Principal Engineer or Assistant District Engineer. For price adjustments that involve Article 1.04.03 or 1.04.04 and are less than \$100,000 the Assistant District Engineer must obtain concurrence from the District Engineer; if the total adjustment is greater than \$100,000, the District Engineer must obtain concurrence from the Office of Construction. Generally claim settlements will not be processed by Construction Order unless directed to do so by the Office of Construction. **This approval will be documented by memorandum unless the approval authority signs the approval letter sent to the Contractor.**

1-804 Federal Oversight Projects

On all full federal oversight projects, the FHWA must be notified of when changes to the project plans and/or specifications affect the project scope or add significantly to the cost of the project. A significant cost increase shall

be defined as a Construction Order increase in excess of \$100,000. Ordered changes are not to be intentionally spread out over two or more Construction Orders to avoid this threshold.

Federal Oversight Projects are:

- 1) All projects on the National Highway System (NHS), including interstate projects, with construction costs greater than \$10 million, unless specifically exempted by FHWA
- 2) All Intelligent Transportation System (ITS) projects on the NHS, including Interstate, with a construction costs greater than \$1 million.
- 3) Any project on the NHS, including Interstate, with an estimated cost between \$1 million and \$10 million where FHWA has determined the project to be significant.
- 4) Any project involving unusual structural features, unusual hydraulic structures, movable structures and tunnels – an unusual structure is one that is determined to have: a) difficult or unique foundation problems; b) new or complex designs with unique operational or design features; c) bridges with exceptionally long spans; or d) bridges designed with procedures that depart from currently recognized acceptable practices; examples of unusual bridges include cable-stayed, suspension, arch, segmental concrete, movable or truss bridges.
- 5) Any project where either FHWA or the Department elects FHWA to provide oversight

As soon as the Project Engineer is aware of conditions that result in or require a change in scope/cost increase in excess of \$100,000, FHWA must be notified via telephone or email. This includes ordered changes that need to be further increased on a subsequent Construction Order that results in an aggregate increase greater than \$100,000 for that change. The notification is to include a description of the change, approximate cost estimate, and information as to whether the work is proceeding or is delayed. The documentation of FHWA notification in the form of a telephone call report or an email message shall be attached as back-up to the Construction Order.

Upon receipt of any Change Order proposal from the Office of Engineering, the Project Engineer must confirm that the Office of Engineering has advised FHWA of the change. If there has been no notification by the Office of Engineering to FHWA, the Project Engineer must request the Design Project Engineer to obtain federal concurrence before proceeding with the change order request.

1-805 Content

Construction Orders are subject to review by others. They should be complete, yet simple and clear so that auditors and other reviewers will understand them. In preparing Change Order Explanations, remember that the auditor or reviewer of a Construction Order usually is unfamiliar with the project. The explanations provided must clearly explain the need and authority for the change and provide an analysis that people unfamiliar with the project can understand. Use the following guidelines:

- Dimensional Changes or a Change in the Plans or Typical Sections (with the exception of minor revisions in the location of culverts, manholes and catch basins): Incorporate revised plan sheets when available. When the change is being made to benefit the contractor make sure to indicate as such and also identify the corresponding benefit to the Department if one exists.
- Overruns/Underruns (no design change): Provide a detailed Change Order Explanation whenever both of the following conditions are met: 1) the cumulative quantity change of an item varies by 10 percent or more from the original estimate, and 2) the value of the quantity change is more than \$5,000. If the item was increased or decreased on more than one Construction Order, an item summary must be provided. The reason why the quantity differs from the design estimate should be explained in detail whenever possible.

Avoid simply stating that Design overestimated or underestimated the item. If the designer provided insufficient detail to determine why there is an overrun or underrun, indicate so. Note. Do not include quantity changes caused by design revisions when determining overrun/underrun percentages.

- For federal-aid projects, when non-participating work is involved apply the item change to the appropriate non-participating section (line item). Unused construction materials transferred to State Stores are always non-participating.
- When an item relates to more than one project section the quantity applicable to each section (line item) must be specified.
- Cost-plus work must be authorized by a Construction Order before any payments can be made for the work. The initial estimate for anticipated costs for a cost-plus item must be established using reasonable assumptions. Attach a copy of the letter ordering or confirming the work done on a cost plus basis to the Construction Order. If not included in the body of the letter, also attach the calculations or assumptions made to establish the reasonable estimate. When the Contractor has submitted a price that is unacceptable, use the assumptions made to analyze the Contractor's proposal to establish the initial estimate. If a CON-9 is used to calculate the initial estimated value, this form must be clearly labeled "For Estimate Purposes to Get on Change Order" and the Scope Estimate box must be checked. A sample Estimate using a CON-9 is shown in Figure 1-8.1.
- On completion of the cost-plus operation, another Construction Order must be processed, showing the exact cost of the work. The same item number and line item(s) are used when the adjustment is made. The detailed explanations for this Construction Order will list any adjustments made and reference the original and any supplemental Construction Orders.
- Documentation used to support the Construction Order must be referenced and identified in the Change Order Explanations, i.e. memorandum requesting design revision, price approval letter establishing price for new items, etc.
- Supplementary Construction Orders are to be initiated to increase or decrease the original construction order item, so that appropriate project funding can be maintained. The change order explanations to these Construction Orders need to reference the original Construction Order.
- Each item in a Construction Order must have at least one standard explanation applied to the specific item (line item) to classify the change. With the exception of minor overruns and underruns of existing Contract items, additional explanations must be provided to describe in detail the change. For further explanation on how to create explanations for Change Orders in SiteManager refer to the *SiteManager Help Files*.

1-806 Standard Explanations - Classification of Line Item Changes

Use the following Table to identify the appropriate standard explanation to apply to specific items (line items) to classify the change:

Figure 1-8.2 - Table of Standard Change Order Explanation IDs

ID	Standard CO Explanation	Reason for Use	Attachments Required
PC-A	Miscalculation on Original Computations Or Omissions	Review of Original Computations or Detailed Estimate Sheet (Use when increase/decrease is greater than 10% and more than \$5,000)	Extensive explanation as to what you have determined to apply to this class. If new items are being incorporate, the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-B	Design Revision – Bridge	Memo from Bridge Design	Memorandum from Design. If new items are being incorporated the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-E	Environmental Protection	All Environmentally Related Item Numbers (+ and/or -)	As required. If new items are being incorporated the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis Price approval letter by Department
PC-I	Normal Increases/Decreases	Normal Increases and/or Decreases Due to Field Measurements and/or computations	Not applicable unless a new item is being incorporated, then the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis Price approval letter by Department

Figure 1-8.2 - Table of Standard Change Order Explanation IDs (Continued)

ID	Standard CO Explanation	Reason for Use	Attachments Required
PC-N	Drainage Revision	Memo from Highway Design	Memorandum from Highway Design. If new items are being incorporate, the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis Price approval letter by Department
PC-P	Adjustment of Contract Price	Result of the Nature of the Work being More Extensive or Less Extensive than When the Bids were Made. (See Article 1.04.03 of the Standard Specifications.)	Memorandum from Design. If new items are being incorporated the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-R	Design Revision - Roadway	Memo from Highway Design	Memorandum from Highway Design. If new items are being incorporated the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-S	Specification Change	Memo from Highway Design, Bridge Design or OOC (With Specification)	Memorandum from Highway Design, Bridge Design or Office of Construction. If new items are being incorporated the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-T	Design Revision - Traffic	Memo from Traffic Division	Memorandum from Traffic Division. If new items are being incorporated the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-V	Vertical Construction	Salt Sheds or Maintenance Facilities	If new item are being incorporated, then the following is also required: <ul style="list-style-type: none"> • Price submittal by Contractor • Price approval analysis • Price approval letter by Department
PC-X	Time Extension	Approval Memo	Approval memorandum.

1-807 Documentation

Generally, the documentation should include the following:

- The District's letter to the Contractor advising of additional work and requesting a price submittal for new-Contract items.
- The Contractor's letter outlining requested prices, with breakdowns showing the methods of computation.
- The District's letter to the Contractor approving prices or, if the prices cannot be substantiated, notifying the Contractor that work will be done on a cost-plus basis.
- The District's Justification for Agreed Price sheets with the supporting back-up documentation.

1-808 General Processing Guidelines

Construction Orders are processed according to the following guidelines:

- As each new project is initiated, the District must determine if the project is excluded from the Certification Acceptance (CA) procedure. Construction Orders must be submitted to FHWA for approval on CA-excluded projects.
- The Project Engineer and Chief Inspector must make regular checks of the project records to identify any need for a Construction Order.
- All Construction Orders that have been initiated should be processed and sent to the Contractor within a 60-day period, with appropriate backup information.
- Draft Construction Orders for emergency work or work of a critical nature must be submitted to the District within 5 working days after the start of the extra or additional work. If actual costs are not known, they should be estimated and processed as "estimated cost-plus".
- Funding for the Construction-Order work must be checked out as soon as the cost is estimated.
- Project modifications and Work Orders must be processed as soon as possible.
- Any Construction Orders not returned or returned unsigned by the Contractor must be noted as such and processed unsigned.
- Contractor objections for not signing a Construction Order will be investigated and the Contractor will be advised in writing of the action the Department has taken. The letter must be included with the Construction Order.
- *Deleted bullet*

1-809 Review and Processing Procedure

Each District will implement a review process that enables the majority of the Construction Orders to be sent to the Contractor for signature within 60 days of initiation. The only Construction Orders not sent to the Contractor within 60 days should be those where the Project is waiting for documentation from the Contractor. A routing slip is to be used to document the review process. See Figure 1-8.3.

Figure 1-8.3 – Construction Order Routing Slip

Construction Order Routing Slip			
Project No. : _____	Received in Office : _____		
C.O. No. : _____	C.O. Value: \$ _____		
% of Original Contract Value: _____%	Cumulative % of Original Contract Value: _____%		
Given to Secretary for Correspondence : _____		Secretary provided Correspondence : _____	
Approval Level Required: _____			
Review / Approvals		Date Reviewed	
TE2 Office : _____		_____	
Project Engineer : _____		_____	
Supervising Engineer : _____		_____	
Returned By		Date Returned	
Returned to Project Engineer: _____		_____	
Returned to Project Engineer: _____		_____	
Returned to Project Engineer: _____		_____	
		Fund Project	Fund Value
Free Balance After this Construction Order	_____	_____	_____
Free Balance After this Construction Order	_____	_____	_____
Free Balance After this Construction Order	_____	_____	_____
Insufficient Funds OK'd By : _____		Date : _____	
This C.O. is approved for processing and forwarding to the contractor.			
Approving Authority : _____		Date : _____	

1-809A Review by Project Engineer

The Project Engineer has the primary review responsibility.

They will:

- Review the Construction Order for scope, completeness, and accuracy. Check for appropriate specification references and accurate descriptions of any changed conditions.
- Review the explanations and attachments to ensure an adequate basis is established for the changes contemplated and that all relevant attachments are provided.
- If the Construction Order will trigger the need for a new performance bond, confirm with the Chief Inspector that quantities have been revised or finalized to accurately reflect the work remaining.
- Make minor revisions.
- Return the Construction Order to the Chief Inspector if major revisions are required. Note the reason and date returned on the routing slip.
- Sign and date the routing slip and forward package to the Transportation Supervising Engineer.

1-809B Review by Supervising Engineer

The Supervising Engineer ensures that the Construction Order complies with current Department policies.

They will:

- Review the Construction Order and attachments as necessary.
- Determine the appropriate level for approval of the draft Construction Order in accordance with the guidelines listed below.
- Meet with the Transportation Principal Engineer or the Assistant District Engineer, as appropriate, to obtain approval of the draft Construction Order.
- Returns the Construction Order to the Project Engineer if revisions are required.
- Signs and dates the routing slip and returns to District staff for initial processing.

1-809C Authorization to Process Construction Order

The Transportation Principal Engineer or the Assistant District Engineer must authorize the processing of Construction Orders when:

- the Construction Order value exceeds \$150,000;
- the Construction Order value exceeds 2 ½% of Original Contract Value;
- the cumulative value of all Construction Orders reaches 5%, 10%, 15% etc. of the original contract value;
- the Construction Order adjusts the price of an item under Article 1.04.02, 1.04.03, or 1.04.04;
- the Construction Order addresses a potential claim issue;
- the Construction Order grants additional time; or
- the Construction Order contains an item change that involves a design error or material change.

The Supervising Engineer will authorize the processing of Construction Orders for:

- routine quantity revisions,
- extra and additional work that has received prior approval by the Department, and
- any other item not reserved for other authorities.

1-809D Review and Initial Processing by District

The District Office Staff performs the following when processing a Construction Order:

- Check funding (both Federal and State).
- Review general format.
- Ensure required corrections are made. Return to the Chief Inspector or Project Engineer, if necessary.
- Prepare the package with a cover letter to the Contractor.
- Return the completed package to the Project Engineer for signature.

1-809E Processing by Project Engineer

The Project Engineer reviews the completed package to ensure comments have been incorporated, signs all copies and sends it to the Contractor for signature. Typically only two copies of the Construction Order are sent to the Contractor for signature.

If the Contractor does not return the Construction Order within 15 days, a follow-up letter is sent to the Contractor to determine the status. See sample letter in Figure 1-8.4. A copy of this letter is included with the Construction Order.

Figure 1-8.4 – Second Letter to Contractor Transmitting Construction Order

CONTRACTOR NAME CONTRACTOR ADDRESS
Gentlemen:
Subject: PROJECT NO. FAP NO. Description Town
In a letter dated _____, we sent to you for signing Change Order No. _____ for the above referenced project.
This Change Order has not yet been returned to the District Office by your firm. Please sign and return the Change Orders by _____. If it is not returned by this date we will process this order and you will receive an approved copy in the mail.
If you have not received the Change Order in question, please contact me and I will send out a new one for your signature. If you have any questions, please contact me at telephone number (860) 823-3286.
Very truly yours, District Representative (TE3 or above)
cc: Construction File

1-810 Guidelines for Approval of Construction Orders

The Supervising Engineer has the primary responsibility for approval of Construction Orders.

The District Office receives the Construction Order from the Contractor and sends it directly to the Transportation Supervising Engineer for approval.

If the Contractor fails to return a Construction Order after the second notice, the District Office provides the Transportation Supervising Engineer with copies of the Construction Order for approval.

The Transportation Supervising Engineer signs the Construction Order and forwards it to the District Staff for further processing.

When a Contractor returns a Construction Order unsigned, and the Contractor has stated their objection, preferably in writing (a copy of this letter is included with the Construction Order), the stated objections are investigated to the satisfaction of the Transportation Supervising Engineer. The Transportation Supervising Engineer will consult with the Transportation Principal Engineer or Assistant District Engineer as appropriate. If the objections are determined to be invalid, the Construction Order is processed unsigned and the Contractor is notified of the action. If the objections are determined to be valid, a subsequent Construction Order is processed with the appropriate corrections; the Construction Order is processed unsigned, and the Contractor is notified that the corrections will be addressed by a future Construction Order.

1-810A Final Processing by District

The District Office Staff completes the final processing:

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- Adds the explanations (addendum) and attachments to the Construction Order copies, as required.
- Sends an approved copy to the Contractor and, if necessary, to FHWA. The District number must be placed in the upper right-hand corner of the first sheet of the copy sent to FHWA.
- Files the approved copies.

1-810B Distribution

Once a Construction Order is approved, hard copies are distributed in accordance with the charts in Figure 1-8.5. Only the copy marked “Second—Head of Division—To Central Files” is sent to the Office of Construction.

All Construction Order addenda are sent from the Assistant District Engineer to the Construction Division Chief for information and reference. On Contracts reimbursable by Department of the Army, Corps of Engineers, one extra copy of the Construction Order is required for its records.

1-811 Final Construction Orders

A project must not be accepted, and retainage must not be released, prior to receipt of all required paperwork from the prime Contractor. Once the project has been accepted, the State is required, by Statute, to make full and final payment to the Contractor within 60 days of acceptance or pay interest at the rate of 6 percent per annum on the unpaid balance of the final estimate. In many cases, the interest charge could be a significant amount of money, and in all cases, it is an unnecessary cost that requires much extra work and explanation by the District.

Occasionally, delays resulting from disagreements on quantities, submission of agreed prices, incomplete final quantities, or disagreement on the interpretation of the special provisions or plan notes contribute to the overall delay in the processing of the final Construction Order and estimate. The Assistant District Engineer should be advised promptly of any problems that may affect the expeditious processing of the necessary papers.

When all of the work pertinent to a Contract item has been completed, the original or revised estimated quantity is adjusted to the final pay quantity by Construction Order, for payment on an estimate. Minor adjustments to quantities, due to actual field measurements, computation corrections, etc., can be made on final Construction Orders; however, no new or cost-plus items can be initiated. New items must be introduced on intermediate Construction Orders.

If the final Construction Order has been accepted and quantity changes are required for any reason, a supplemental final may be initiated. The Construction Order is designated "Supplemental Final Construction Order" on the front sheet.

Figure 1-8.5 - Distribution of Construction Order Copies

Type of Project		#s	INDEX										Notes		
			Contractor	Office of Construction	Central Files	District	Inspector	Laboratory*	FHWA	FHWA	Bureau of Public Transportation	Bureau of Aviation and Ports			
FHWA Funded (Federal Oversight)	Construction Order	2/6	■	■											Send Construction Orders to Designated FHWA representative @ FHWA 628-2 Hebron Ave. Suite 303 Glastonbury, CT 06033-5007
	Specifications	4													
	Addendum	4													
	Attachments	4													
FHWA Funded (Non - Federal Oversight)	Construction Order	2/3	■	■	see note									After review and acceptance by the Office of Construction, the Department's Original Construction Order is sent to Central Files	
	Specifications	3													
	Addendum	3													
	Attachments	3													
100% State Funded (Emergency, Salt Shed, etc.)	Construction Order	2/4	■	■											
	Specifications	3													
	Addendum	3													
	Attachments	3													
FTA and other Projects involving funding through Bureau of Public Transportation	Construction Order	2/5	■	■											
	Specifications	4													
	Addendum	4													
	Attachments	4													
FAA and other Projects involving funding through Bureau of Aviation and Ports	Construction Order	2/6	■	■										Changes that affect the overall cost of the project by more than 10% should be discussed with Aviation and Ports before implementation	
	Specifications	4													
	Addendum	4													
	Attachments	4													
<p>General Note: Whenever a Project includes funding from the Army Corps, a copy of the Construction Order will have to be sent to that Agency.</p> <p>* The Laboratory only needs copies of COs if new items are being incorporated. The District has to coordinate with the Laboratory to establish and or setup the testing requirements for new items.</p>															