
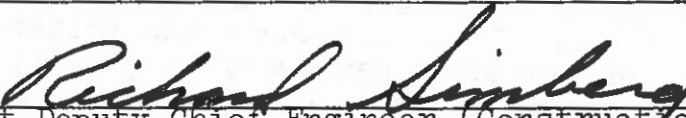


TO: <table border="1"> <tr> <td>PREL.</td> <td>FINAL</td> </tr> <tr> <td colspan="2">PHOTOGRAM. LANDSCAPE</td> </tr> <tr> <td colspan="2">RECEIVED</td> </tr> <tr> <td colspan="2">DIVISION</td> </tr> <tr> <td colspan="2">FEB 7 1973</td> </tr> </table> MODIFIED BY EI 74-114 EFFECTIVE 12/13/1974	PREL.	FINAL	PHOTOGRAM. LANDSCAPE		RECEIVED		DIVISION		FEB 7 1973		 <h2 style="text-align: center;">ENGINEERING INSTRUCTION</h2> <p style="text-align: center;">NEW YORK STATE DEPARTMENT OF TRANSPORTATION</p> <p>SUBJECT: AGREED PRICES AND ESTIMATED FORCE ACCOUNTS FOR NEW ITEMS OF WORK ON CONSTRUCTION PROJECTS Subject Code: 7.30</p>
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Distribution: <input checked="" type="checkbox"/> Main Office <input checked="" type="checkbox"/> Regions <input type="checkbox"/> Special	Code: <u>EI-73-4</u>										
APPROVED:  <u>Assistant Deputy Chief Engineer (Construction)</u>	Date: <u>2/1/73</u> Supersedes:										

This instruction provides a basis for the uniform development of agreed prices and force account estimates for new items of work. Examples of the necessary analysis and format are attached.

Response to change is a key element in the supervision of complex transportation construction contracts. This principle is recognized by the unit bid price system which allows changes to be made within a framework of competitively established unit prices. However, new items of work for which prices have not been established by competitive bidding must occasionally be added to ongoing contracts.

To establish payment for new items, it is necessary to make the most reasonable estimate of the work to be done and, if possible, obtain an agreement with the Contractor regarding the cost for which he will be reimbursed for that work. If the work cannot be estimated in sufficient detail, or if an agreed price cannot be established with the Contractor, the work must be performed under the force account procedures outlined in MURK. In either case, an order on contract is required, and no authorization to order materials or proceed with the work can be made without prior documented authorization from the Construction Subdivision.

Prior authorization is also necessary for agreed price or force account work under Item 900, Temporary Erosion Control. However, orders on contract are required only when the total cost of all additional work exceeds the amount bid for Item 900.

The following should be considered as a check list when additional work appears to warrant a new item added to the contract. In addition, Example Number 1 is attached as a detailed itemized reference.

- 1 - DETERMINE WHETHER THE WORK IS A NEW ITEM OR IF UNIT CONTRACT BID PRICES APPLY. This is the fundamental and sometimes most difficult determination which must be made. Original contract amounts are determined by the sum of estimated quantities multiplied by the Contractor's bid price for each item. The exact point at which any added work can no longer be considered equivalent to

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contract items must be uniformly determined, with the final decision made by the Main Office. Therefore, any orders on contract submitted by Regions which incorporate a new contract item for necessary work must include a specific explanation as to why that work cannot be considered as an increase in original contract bid items. This, of course, is in addition to the explanation as to why this work is necessary in the first place.

- 2 - ASCERTAIN THE REASONABLENESS OF THE CONTRACTOR'S DESCRIPTION OF THE WORK. This instruction is intentionally placed prior to any regarding the final agreed price. There are those who believe a price analysis to be only an appendage necessary to justify a previously agreed price established by their own judgment and bargaining with the Contractor. These methods are appropriate for more exotic fields such as horse racing, the stock market or international politics, but not as a substitute for engineering judgment as to the details of work required.

From their very initiation, discussions with the Contractor should center about the type and amount of labor, equipment and material necessary to perform the work. We are fortunate to have a wealth of experienced and capable engineers in all Regions who can make reasonable judgments as to what is required for a particular item in terms of necessary manpower, equipment and materials. These should be the subject of negotiations with the Contractor and not some abstract overall price. It is not necessary to start with all details of a complete and final price analysis during the early stages of an agreed price determination. If agreement can be reached on the above factors, the remaining items such as profit, overhead insurance, etc., are automatically added on in accordance with the Specifications.

- 3 - ENSURE THAT THE CONTRACTOR HAS USED ACTUAL UNIT LABOR, MATERIALS, EQUIPMENT AND FRINGE BENEFIT COSTS ALONG WITH THE SPECIFIED OVERHEAD AND PROFIT TO ESTABLISH THE AGREED PRICE. Although it is unlikely that an agreed price analysis will precisely anticipate each detail of the work, the analysis must be developed in as accurate a manner as possible. Therefore, once the most reasonable estimate of manpower, equipment and materials has been made any further estimates are unnecessary, and will only weaken the analysis.

Every effort should be made to insure that quoted materials prices are reasonable in relation to the size of the order and that claimed union manpower requirements are actually part of the union contract.

- 4 - COMPARE THE RESULTANT AGREED PRICE WITH AVERAGE BID PRICES AND OTHER INDEPENDENT SOURCES TO PROVIDE A "BALL PARK" CHECK. These factors can be very useful as an independent approximate check of the results of labor, equipment and materials analyses. Should

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the price estimates arrived at by the latter method show extreme deviations from such approximate prices, they should be double checked and, if possible, assignable causes found for such deviations. However, price analyses found to be reasonable by experienced engineers must be the final price determining criteria.

As a guide for the establishment of future price analyses, it is suggested that the Engineer follow up and compare the actual manpower equipment and material to those previously estimated. Any data so obtained must be considered strictly as informational only and not included as part of the project records. Once an agreed price is obtained, authorized and work commenced, it is equivalent to a bid price and cannot be revised.

- 5 - IF AN AGREED PRICE CANNOT BE OBTAINED WITHIN A REASONABLE PERIOD OF TIME SUBMIT A FORCE ACCOUNT ESTIMATE. If a Contractor is adamant about discussing only total price for a new item rather than necessary labor, equipment and materials, the Engineer should make his own analysis of the work required and use it as either the basis of an agreed price or a force account estimate. Force account estimates must include the same estimate analysis details as are required for agreed price items.

If an agreed price cannot be obtained, the Regional estimate analysis should be used as the basis for a force account estimate by order on contract. Upon receipt of authorization, the work is to be performed under force account and records shall be kept in accordance with the Specifications and MURK.

A "reasonable period of time" is largely a function of the urgency of the work. However, an obvious reluctance by the Engineer to go to Force Account procedures can only encourage higher agreed prices. Conversely, demonstration that he will not hesitate to utilize Force Account when unreasonable agreed prices are adamantly proposed, will in the long haul, reduce the number of force accounts required.

There is an exception to the above procedure. When contract bid prices can be verified as reasonable by methods such as described in the above paragraph 4, they may be extended to include very similar items of work. The only types of work where the above has been accepted so far are for demolition and signing items. In the former case, where the contract contains bid items for similar demolition, an agreed price for the additional work can be based upon the volume of the added demolition multiplied by a unit price calculated by the average bid amount for the similar contract items divided by their volume. Attached Example Number 2 illustrates this method.

Similar calculations may be made for sign panels where the cost for bid items for similar size signs are expressed in terms of square foot of panel and extended to the new items.

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If other types of work can be analyzed similarly, they should be submitted to the Construction Subdivision for review. Please note that it is highly unlikely that methods developed on the basis of Statewide unit bid prices or other factors extraneous to the contract will be approved.

RNS:LG
Attachments

EXAMPLE NO. 1 - PRICE ANALYSIS FOR ITEM 78 - HEAVY STONE FILLING

Due to unusually heavy rains during September 1972, heavy erosion occurred between Stations 100+00 and 200+00 where the highway embankment borders paperwork creek. The Regional office with assistance from the Soil Mechanics Bureau has determined that it will be necessary to replace 100 cubic yards of Heavy Stone Fill and provide an additional 150 cubic yards to prevent future erosion as per field change sheet 20F-1. Since this contract does not provide any stone fill items, Specification Item 78 is hereby incorporated into the contract at an agreed price established as follows with the Contractor. Necessary excavation under Item 2 has been provided by an increase of 100 cubic yards at its unit contract bid price.

Materials

<u>Description</u>	<u>Quantity</u>	<u>Unit Price</u>	
Heavy Stone Fill	250 Cu. Yds.	(\$12 cu. yd.	= \$3,000.00
		(\$ 3 cu. yd.	= \$ 750.00
		(Transportation)	
		7% Sales Tax	= \$ 262.50
			<u> </u>
		Total Material Cost	= \$4,012.50

Equipment

<u>Description</u>	<u>Hours</u>	<u>Rate</u>	
15 Ton Truck Crane	20@ 90%	16.11	= \$ 322.20
Page 26 AED - 17.90/ hr	20@ 80%	14.32	= \$ 286.40
	40@ 45%	8.06	= \$ 322.40
			<u> </u>
		Total Equipment Cost	= \$ 931.00

Labor

<u>Type</u>	<u>Rate</u>	<u>Hours</u>	
1 Foreman	5.34/hr	80	= \$ 427.20
1 Crane Operator	6.15/hr	80	= \$ 492.00
2 Laborer	4.84/hr	160	= \$ 774.40
			<u> </u>
		Total Direct Labor	= \$1,693.60

**LABOR RATES & BENEFITS SHOULD BE
VERIFIED BY PAYROLL**

Fringe Benefits

1 Foreman	.60/hr	80	= \$ 48.00
1 Crane Operator	.90/hr	80	= \$ 72.00
2 Laborer	.60/hr	160	= \$ 96.00
			<u> </u>
			\$ 216.00
			<u>\$1,693.60</u>
		Total Labor Cost	= \$1,909.60

Payroll Insurances & Taxes

<u>Type</u>	<u>%</u>		
FICA	5.2		
Unemployment	4.4		
Workman's Comp.	4.3		
Property & Liab. Ins.	6.0		
	<u>19.9</u>	x direct labor \$1,693.60	= \$ 337.03

**SEE INSTRUCTION NO. 71-29 FOR
PROPER OVERHEAD & PROFIT BASIS**

Overhead and Profit

20% x (direct labor \$1,693.60 + Cost Matl. f.o.b. \$3,000.00)	= \$ 938.72
*5% x (direct labor \$1,693.60 + Cost Matl. f.o.b. \$3,000.00)	= \$ 234.68
	<u> </u>
Total O & P	= \$1,173.40

*The work will be accomplished by an approved subcontractor.

SUMMARY

Materials	\$4,012.50
Equipment	931.00
Labor	1,909.60
Ins.&Taxes	337.03
Overhead & Profit	<u>1,173.40</u>
	<u>\$8,363.53</u>

Agreed price per cu. yd. = \$8,363.53 divided by 250 cu. yd. = \$33.45/cu. yd.

Contractor agrees to \$33.00 per cubic yard.

**NOTE: WHENEVER POSSIBLE A UNIT AGREED PRICE
IS PREFERABLE TO A LUMP SUM AGREED PRICE**

EXTENSION OF CONTRACT BID PRICES TO SIMILAR NEW ITEMS OF WORK

EXAMPLE NO. 2 (continued)

Item	Map & Par. No.	Location	Hwy. #	Cu.Ft.Vol.	Type	Price	Total Cost
220-37	545 782	417 Islip Ave. Islip	8445	12760	2-Sty. Wood Frame House	.07	\$ 893.20
37A				5565	1½ Sty. Wd. Fr. Gar.	.04	222.60
220-38	461 496 487	N.Y. Ave. Huntington S/E Cor. Tuthill St. & 110	794	72462	2½ Sty. Wood Frame House	.07	5072.34
220-39	441R1-476	N.Y. Ave. S/W Cor. Academy St. Huntington	794	65909	2½ Sty. Conc. Black	.08	5272.72
220-39A	" "	" "	"	10764	1 Sty. Wood Fr.	.07	753.48
220-40	437 472	995 N.Y. Ave. Huntington	"	54480	1½ Sty. Con. Bl.	.08	4358.40
220-40A	" "	" "	"	729	1 Sty. Wood Frame Shed	.04	29.16
220-41	442 447	6 Academy St. Huntington	"	20785	2½ Sty. Wood Frame House	.07	1454.95

EXTENSION OF CONTRACT BID PRICES TO SIMILAR NEW ITEMS OF WORK

EXAMPLE NO. 2

Item	STYP	Description	Quantity	Unit
106TX		Trench & Culvert Excavation		210 CY
205		Temporary Wire Fence		720LF
220-37		Special Borrow		1092 CY
220-37A		Demolition Structure	37	100% LS
220-38		"	37A	100% LS
220-39		"	38	100% LS
220-39A		"	39	100% LS
220-40		"	39A	100% LS
220-40A		"	40	100% LS
220-41		"	40A	100% LS
		"	41	100% LS

This Contract provides for the demolition of buildings at various locations. Since the award of the Contract, the Real Property Division has transferred title on 11 additional units. Due to vandalism and fires, these units are a definite threat to public safety and it is in the best interest of the State to have these units demolished immediately.

Due to the obvious difficulty of arriving at a labor and equipment breakdown for each of these units, it is proposed that the agreed price for the demolition Item (220) be arrived at on the basis of a pre-determined unit cost based on the volume of the structure to be demolished. The agreed price of \$0.07/CF for wood frame, \$0.08/CF for concrete block and \$0.04/CF for wood frame outbuildings, is in line with the bid prices contained in this contract (average unit volume cost).

In addition, Items 5TYO, 106TX, and 205, have been increased to provide the necessary excavation for cesspools and tanks, temporary wire fence for protection of excavations and provide the necessary fill for grading the sites. These Items will be paid at the Contract bid price.