

Transportation
Kentucky Transportation Center Research
Report

University of Kentucky

Year 1985

Feasibility of Computerization of the Bid
Item Section of Bid Proposals

Jesse G. Mayes
University of Kentucky

Mark Isenhour
University of Kentucky



C. LESLIE DAWSON
SECRETARY

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
FRANKFORT, KENTUCKY 40622

MARTHA LAYNE COLLINS
GOVERNOR

January 29, 1986

Mr. R. E. Johnson
Division Administrator
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Dear Mr. Johnson:

Subject: IMPLEMENTATION STATEMENT
Research Project KYHPR 85-108, Subtask 7
Research Report UKTRP 85-14
Feasibility of Computerization of Bid Item Section
of Bid Proposal

The purpose of the subject study was to determine the feasibility of computerizing the bid item listing in bid proposals with the ultimate goal to produce a restricted version of the program which would enable the contractor to produce a computerized bid proposal.

It was determined that the computerization of the bid sheet portion of the bid proposals was feasible. As a result, the revised bidding procedures were implemented for the September 20, 1985 letting. As of the December 13, 1985 letting, eighty-two diskettes had been purchased by prospective bidders. The response was that thirty-seven of the eighty-two were submitted as computer bids.

The Department's personnel responsible for the bidding process is impressed with the new system and thinks it substantially benefits the Department. Additionally, feedback from the contracting industry has been very positive. We are convinced that, with time, a greater use of the computerized bid process will be made by the contractors.

Very truly yours,

A handwritten signature in dark ink, appearing to read "R. K. Capito".

R. K. Capito, P.E.
State Highway Engineer

c: C. S. Layson
Bennie L. Wheat
R. C. Deen
FHWA File

Research Report
UKTRP-85-14

FEASIBILITY OF
COMPUTERIZATION OF THE BID ITEM SECTION
OF BID PROPOSALS

by

Jesse G. Mayes
Research Engineer Chief

and

Mark Isenhour
Entry System Analyst Programmer

Kentucky Transportation Research Program
College of Engineering
University of Kentucky
Lexington, Kentucky

in cooperation with
Transportation Cabinet
Commonwealth of Kentucky

and

Federal Highway Administration
US Department of Transportation

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May 1985

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16. Abstract The feasibility of computerizing the bid item listing in bid proposals has been studied. As a result, a system of computer programs for the IBM PC microcomputer has been written and submitted to the Division of Contract Procurement, Kentucky Department of Highways, for implementation. This software is menu driven and provides the capability of building and maintaining a bid item code file and interactively building a bid sheet file for producing blank bid sheets as well as a bid estimate. Additionally, a restricted version of this program has been provided to allow the contractor to produce a computerized bid proposal.			
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FEASIBILITY OF
COMPUTERIZATION OF THE BID ITEM SECTION OF BID PROPOSALS

In February 1985, the office of the State Highway Engineer requested that the Kentucky Transportation Research Program of the University of Kentucky do a "quick response study" to determine the feasibility of computerizing the bid item listing in bid proposals. On February 19, 1985, an organizational meeting was held in Frankfort. Those present included representatives from the Department of Highways, Department of Information Systems, Federal Highway Administration, Kentucky Association of Highway Contractors, and the Kentucky Transportation Research Program. The discussion included current procedures and ideas about some possible changes; namely, the computerization of the bid sheet production in DOH and the computerization of the bid by the contractor.

After the February 19, 1985, meeting and subsequent discussions with Chuck Knowles of Contract Procurement, it was decided to address the "feasibility" question by writing computer software meeting the apparent requirements and presenting it to the Study Advisory Committee for review and critique.

The first step was to design a computer file containing the bid item code numbers, descriptions, and units. That would allow DOH to construct a bid sheet (on the computer) and retrieve the item code information instantaneously, without rekeying information each time (as is presently done by typewriter). This would save time and minimize the potential for errors. The file was designed as a random access file allowing for 100 characters for each description and unit. (Abbreviating the currently used descriptions was deemed unsatisfactory.) The file will require from 0.5 to 1.3 megabytes of storage and, therefore, must reside on a hard disk. An interactive computer program (bid item code program) was written to facilitate keying data into the file. It should be noted that the file may be useful in computerizing other processes involving the bid item codes.

A second computer program (bid sheet program) was written to allow DOH personnel to interactively construct bid sheets for a proposal. Figure 1 shows a current bid sheet produced by typewriter; Figure 2

shows a proposed computer produced bid sheet. The program will allow DOH to construct the blank bid sheets to go into the proposal as well as to prepare a bid estimate once the bid sheet file is complete. It was desired that the program provide a means for checking for errors (such as leaving out a unit price for a required bid item) in addition to preparing and printing the bid. Due to the ambiguity of current bid sheet terminology, this was not possible. However, beginning and ending a set of choices (separated by "OR") with "EITHER" and a blank line, respectively, not only allows for computer checking, but makes the bid sheet more readable and less ambiguous to the noncomputerized contractor (see Figures 3 and 4).

A third computer program was written for use by the contractor. That program is simply a modified version of the bid sheet program used in DOH; however, the contractor would have only the capabilities of changing a unit bid price and printing.

On April 18, 1985, a progress report was presented at a Study Advisory Committee meeting and the software was demonstrated. The response of the group was very favorable. Modifications were requested and KTRP was asked to make presentations at the DOH/Highway Contractors meetings in Lexington (4/22/85) and in Bowling Green (4/25/85). Those presentations were made and additional comments were received from DOH as well as from the contractors.

It has been determined that the computerization of the bid sheet portion of the bid proposals is indeed feasible and the basics are depicted in Figures 5 and 6. Following is a description of software and hardware that have been designed and configured and are recommended for implementation.

SOFTWARE FOR THE DEPARTMENT OF HIGHWAYS

1. Bid Item Code File -- a file containing all bid item codes along with descriptions (92 characters) and units (8 characters). This is a stand-alone, random access file that will be keyed into storage one time using the Bid Item Code Program mentioned below. The file will be stored on a hard disk.

2. Bid Item Code Program -- an interactive computer program to allow additions, deletions, or changes to the Bid Item Code File.

3. Bid Sheet Program (DOH) -- an interactive computer program to

3.1 Construct bid sheets (add, delete, or change). The item code description may be changed or appended; however, changes only affect the bid sheet and not the Bid Item Code File.

3.2 Insert unit bid prices for preparing a bid estimate.

3.3 Print bid sheets (with or without unit prices).

3.4 View a bid sheet (at any stage of preparation).

The Bid Sheet Program also checks for errors during preparation of a bid estimate or a contractor's bid; e.g.,

-- calculates subtotals and provides bounds on mobilization and demobilization,

-- checks for non-bid items (when using "EITHER/OR" terminology), and

-- when too many items are bid, program takes the lowest nonzero bid.

HARDWARE FOR THE DEPARTMENT OF HIGHWAYS

-- IBM PC/XT or IBM PC with a hard disk (at least 10 Megabyte)

-- IBM PROPRINTER or comparable printer capable of printing 12 characters/inch

SOFTWARE FOR CONTRACTOR

Bid Sheet Program (Contractor) -- Same as for DOH except, instead of constructing a bid sheet, the contractor can change only the unit price for any particular bid item. This program is small and may be sent to a contractor on the bid sheet disk each time desired.

HARDWARE FOR CONTRACTOR

- IBM PC compatible computer
- IBM PROPRINTER or comparable printer capable of printing 12 characters/inch

GENERAL COMMENTS

Software is menu driven and written in BASIC for the IBM PC and the IBM PROPRINTER. The code is flexible and could be adapted to other machines and printers (capable of 12 characters/inch); however, each configuration would have to be addressed separately.

The following implementation procedures are recommended by KTRP:

1. EITHER/OR terminology -- It is recommended that the "EITHER/OR" terminology described previously be adopted for clarity and to provide computer checking capabilities.

2. Bid sheet disk contents -- An IBM DS/DD formatted disk could hold about 2,500 bid sheet lines, which would generally correspond to several project files. The information could be sent to the contractor in the following forms:

2.1 One project per disk -- preparation easy, but may require several disks, or

2.2 Several projects per disk -- preparation must be customized, however, may get all of a contractor's requests on one disk in many cases.

3. Bid sheet revisions -- new disk sent to contractor - he must reinput unit bid prices for that project.

Additional possibility to consider is to have the contractor submit a completed disk with the bid proposal. This would provide for

1. the capability of running DOH program against contractor's data for a check for alteration and

2. the capability of reading contractor bid data directly from contractor disk to mainframe for bid tabulation system (additional program would have to be written) and avoid keypunching (and keypunching errors).

NOTE: Problems with using the contractor's completed disk could arise due to the fact that he may pencil in (and initial) changes on his submitted bid sheet and never make the changes on his disk. However, the attractiveness of using this already computerized data remains.

Appendices A and B contain user's guides for the Department of Highways' and Contractors' software, respectively.

TRANSPORTATION CABINET
Department of Highways
FRANKFORT, KENTUCKY 40622

SHEET NO 3

JEFFERSON County

Project I 65-5 (49) 129,
I 264-1 (86) 11

Letting: 2-15-85

THE BIDDER MUST MAKE THE EXTENSIONS AND ADDITIONS
SHOWING TOTAL AMOUNT BID USING FIGURES ONLY

Item No.	Code No.	ITEMS	Approx. Quantity	Unit	Unit Bid Price		Amount
					Dollars		Dollars
38.0	8269	Electrical Conduit (Sta. 2203 + 16.66 NB)	1	L.S.			
39.0	8269	Electrical Conduit (Sta. 2203 + 16.66 SB)	1	L.S.			
40.0	8269	Electrical Conduit (Sta. 2208 + 39.81 NB)	1	L.S.			
41.0	8269	Electrical Conduit (Sta. 2208 + 39.81 SB)	1	L.S.			
42.0	8269	Electrical Conduit (Sta. 2135 + 05.75)	1	L.S.			
43.0	8269	Electrical Conduit (Sta. 2121 + 64.86)	1	L.S.			
44.0	8269	Electrical Conduit (Sta. 408 + 28.47)	1	L.S.			
45.0	8170	Shear Connectors (Sta. 2121+64.86) (Approx. 4155 Lbs.)	1	L.S.			
		ALTERNATE TYPES OF RETAINING WALL					
46.0	8026	Reinforced Earth Retaining Wall Alt. A	29047	Sq.Ft.			
		-AND-					
47.0	8029	Select Granular Backfill Alt. A	2200	Cu.Yd.			
		-AND-					
48.0	8037	Cast In Place Concrete Retaining Wall Alt. A	7877	Sq.Ft.			
		-OR-					
49.0	8026	Reinforced Earth Retaining Wall Alt. B	33508	Sq.Ft.			
		-AND-					
50.0	8029	Select Granular Backfill Alt. B	2200	Cu.Yd.			

Figure 1. Current Bid Sheet.

TRANSPORTATION CABINET
 Department of Highways
 FRANKFORT, KENTUCKY 40622

SHEET NO. 4

KENTON COUNTY, KENTUCKY AND
 HAMILTON COUNTY, OHIO

Project I-IR 75-8 (52) 190

LETTING 2-15-85

THE BIDDER MUST MAKE THE EXTENSIONS AND ADDITIONS
 SHOWING TOTAL AMOUNT BID USING FIGURES ONLY

Item No.	Code No.	Item	Approx Quantity	Unit	Unit Price Dollars	Amount Dollars
53.0	2599	FABRIC	8546	SQ YD	.	.
54.0	9067	BACKFILLING UNDERCUT	2850	CU YD	.	.
55.0	9068	REMOVE EXISTING PAVEMENT MARKINGS	47076	LIN FT	.	.
56.0	2107	BREAKING AND SEATING PAVEMENT (24"	17456	SQ YD	.	.
57.0	9069	GROOVE FOR MARKER	120	EACH	.	.
58.0	9070	CRASH CUSHION - TYPE VI A (KY IR LOWER DECK)	1	L S	.	.
59.0	9071	CRASH CUSHION - TYPE VI F (KY I)	1	L S	.	.
		ALTERNATE TYPES OF RETAINING WALL				
		-EITHER-				
60.0	2754	METAL BIN-TYPE RETAINING WALL	16320	SQ FT	.	.
		-OR-				
61.0	9072	RETAINING WALL MACCAFERRI GABION	15650	SQ FT	.	.
		-OR-				
62.0	9073	RETAINING WALL DOUBLEWAL PRECAST	16044	SQ FT	.	.
		-OR-				
63.0	9074	RETAINING WALL RETAINED EARTH	16034	SQ FT	.	.
		-OR-				
64.0	9075	RETAINING WALL REINFORCED EARTH	16693.9	SQ FT	.	.

Figure 2. Computer-Produced Bid Sheet

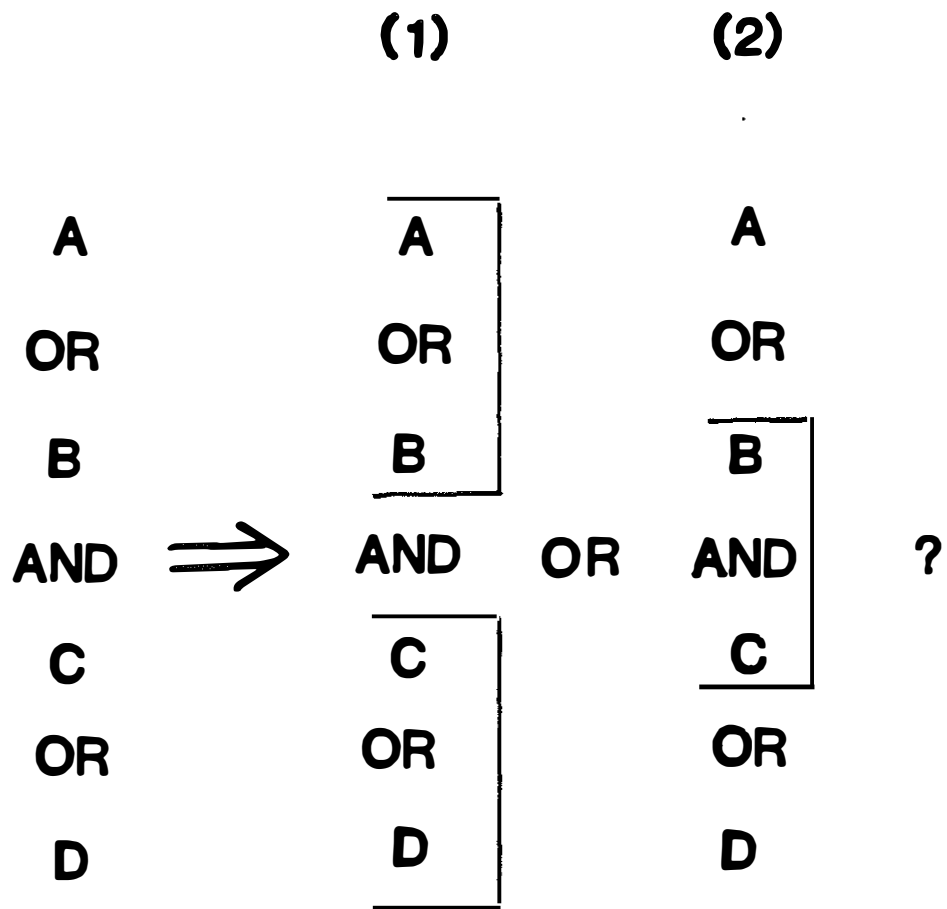


Figure 3. Current Bid Sheet Terminology.

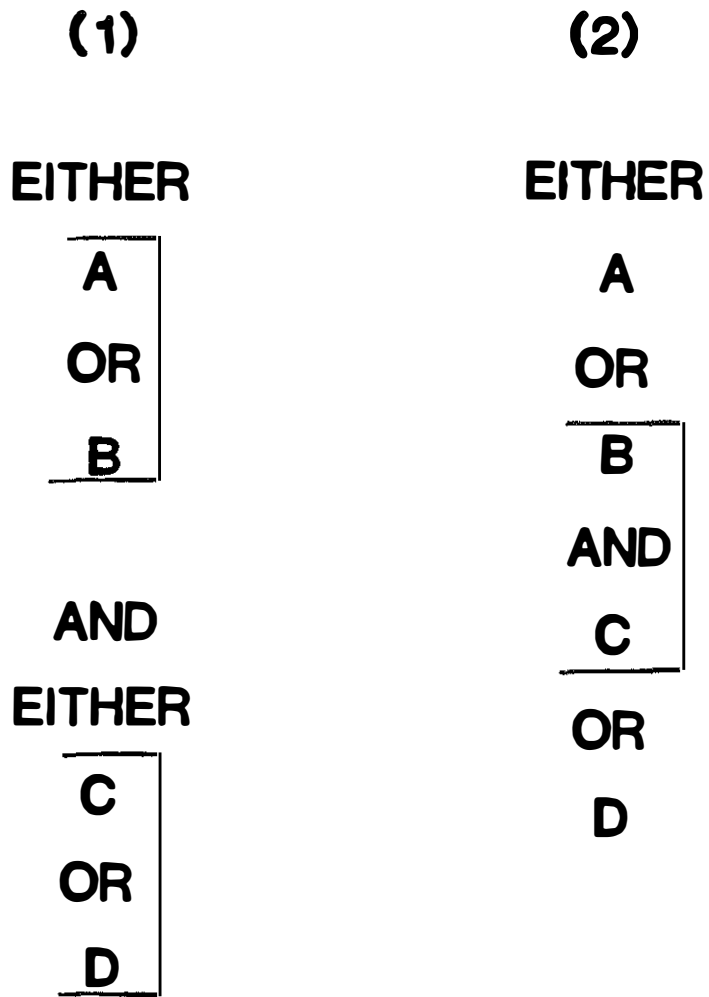


Figure 4. Suggested Bid Sheet Terminology.

**DEPARTMENT OF HIGHWAYS
BID SHEET PREPARATION**

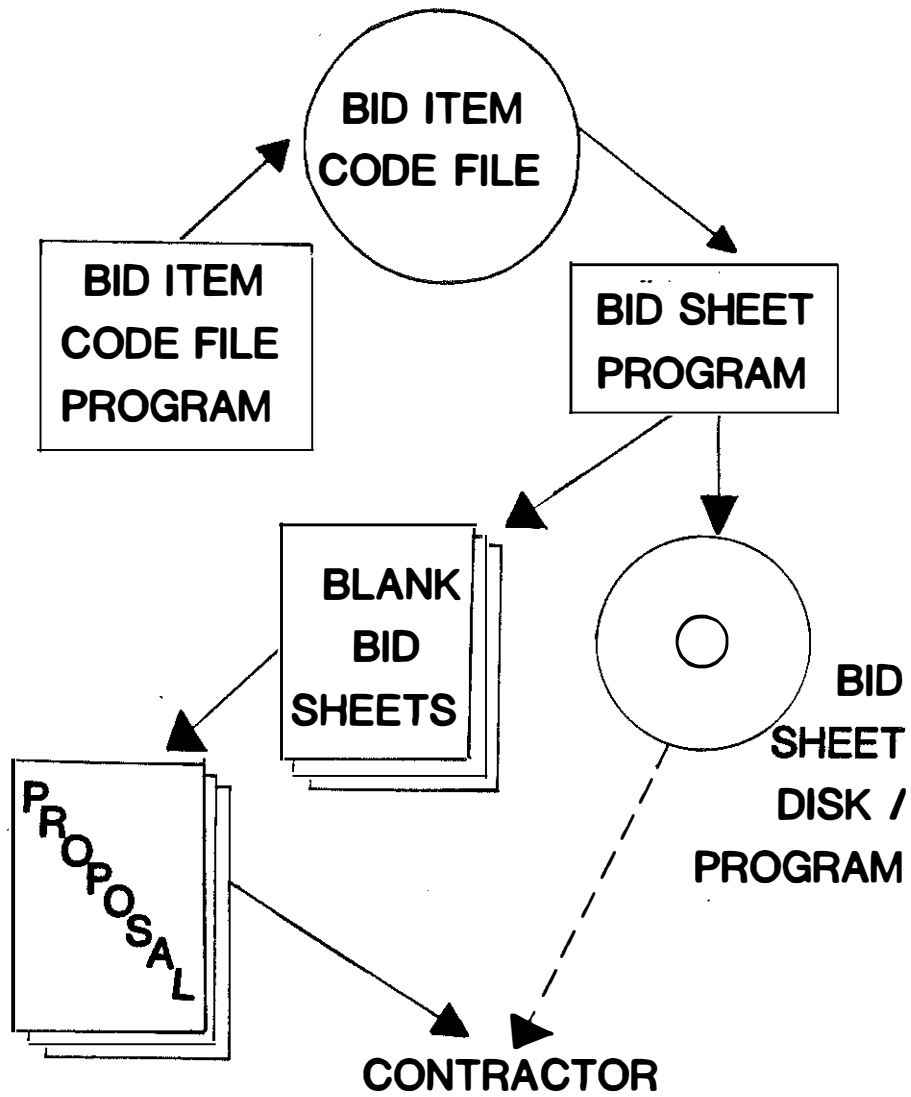


Figure 5. Bid Sheet Preparation in DOH.

CONTRACTOR BID PREPARATION

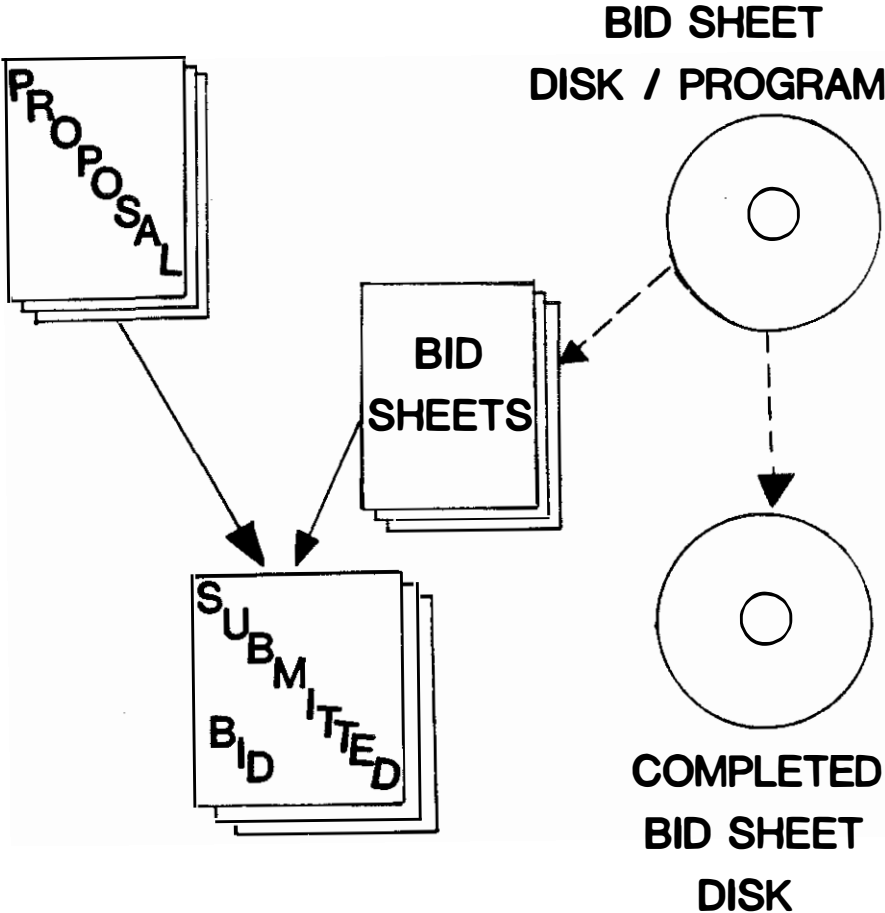


Figure 6. Bid Preparation by Contractor.

APPENDIX A

USER'S GUIDE


(Department of Highways' Version)

for

BID

INTRODUCTION

This User's Guide is designed for use by Department of Highway personnel to assist with the usage of the menu-driven BID program. Following are some general notes pertaining to the usage of this manual as well as the BID software.

In this guide, the word ENTER implies that the  key should be hit after the appropriate information has been typed on the screen.

Use of this software centers around choices taken from a "main menu". Control may be returned to the main menu from the various work screens by keying the ESC key. (It may be necessary to answer, or hit ENTER for the questions on the work screen and then hit ESC).

Most of the responses allowing only one character have been designed to be automatically entered when keyed. Variable length responses must be ENTERED by striking the ENTER key.

A Bid Sheet File is identified to (and by) the user as the proposal number (one to five characters, usually an integer) even though the files are stored on the disk (and show up on the disk directory) as being prefaced with PCN. For example, the file associated with bid proposal number 742 would be referenced as 742, but would be stored on the disk as PCN742.

A "record" consists of one bid item or a text (non-bid item) line (or several lines input together). Text lines, including blank lines (with the exception discussed below), may be placed in the file for clarity at the user's discretion.

Five pseudo item codes have been introduced to provide better readability for the user and/or logical error checking capabilities. Each pseudo item MUST be input into the bid sheet program using the appropriate code number. None of these is assigned an item number in the bid sheet file and the pseudo item code number does not print on the bid sheet printout. These are

- 9995 -TOP OF PAGE-
- 9996 -AND-
- 9997 -WITH-
- 9998 -EITHER-
- 9999 -OR-

The "-TOP OF PAGE-" (9995) can be used to force the print to go to the top of the next page. This line can be seen in the edit mode, but does not appear in the proposal printout.

The "-AND-" (9996) and "-WITH-" (9997) may be included for readability. Both imply a logical "AND" and the meaning to the user and the computer software would be the same if these were omitted.

Optional choice groups MUST be preceded in the file by "-EITHER-", using the item code 9998. This will look like a text line in the printout, but, through the code number, has a very special meaning to the software. Additionally, optional choices MUST be separated by "-OR-", input using the code 9999. Finally, the end of a choice group MUST be indicated by a blank line. Optional groups may be nested within optional groups, following the format that each group be preceded by "-EITHER-" and followed, immediately, by a blank line. There must be a blank line corresponding to each "-EITHER-". If two groups end simultaneously, two consecutive blank lines are necessary.

Once the bid files have been created, contractor disks may be made by putting a blank unformatted disk in Drive A and using the batch command CREATE xxxx FORMAT, where "xxxx" is the number of the bid sheet file to be copied. Note that if the disk is already formatted, the command CREATE xxxx should be used.

STARTING UP AND RUNNING THE BID SOFTWARE

1. Turn on and start up the system using DOS.
2. Start BASIC by ENTERing the command BASIC after the DOS prompt, C>.
3. Set the printer to 12 characters per inch by ENTERing the appropriate code, e.g., ENTER
LPRINT CHR\$(27);":"; for the IBM Proprinter,
LPRINT CHR\$(27);"M"; for the Epson FX80 (or FX100), etc.
4. Load the program into the system memory and run by entering the command RUN "BID".

After running the program, the main menu (shown below) appears on the screen.

```
*****  
*  
*  
*  
*  
*          BID SHEET PROGRAM          *  
*  
*  
*  
*  
*****
```

```
          MAIN MENU  
  
          (A) ATTACH TO DESIRED BID FILE  
          (B) BID SHEET PRINTOUT  
          (C) CHANGE UNIT PRICE  
          (D) DISPLAY FILE TO SCREEN  
          (E) EXIT  
          (F) FILE EDIT
```

What is your request?

To choose one of the options, the user must type the option letter (A through F). Following is a more detailed description of each option.

(A) - Attach to the Desired Bid File - This option allows the user to open a bid sheet file for processing. It should be chosen immediately after running the BID program and thereafter anytime a different file is desired. After this option is chosen, the user will be asked to input the proposal number. After keying the proposal number, the user must hit ENTER. The user may then choose any of the processing options (B through F). If an Option B through F is chosen without a bid file having been opened, the user will be prompted for a file. Asking for a nonexistent file will result in a new file being created and opened. Inadvertently ENTERing a blank (no file name) will result in control being returned to the main menu.

(B) - Bid Sheet Printout - This option produces printed bid sheets. If no bid prices are in the file, the program produces blank bid sheets. If bid prices (even one) are in the file, the program will print the bid sheets with prices followed by a listing of errors at the top of the next page. If more than one choice is made from an optional group, the program will choose and print the choice leading to the lower bid. If any bid items are omitted or any EITHER/OR choices are improperly bid,

the error listing will be indicated. When a bid estimate has been completely and properly entered, the bid sheet printout will not have an error listing printed. Furthermore, only then will a "TOTAL" be printed. The program will return control to the main menu after printing is complete. Hitting ESC during printing will cause the printing to terminate and control to return to the main menu.

(C) - Change the Unit Price - This option allows the user to change (or set initially) the unit price for a bid item. (A unit price set by Kentucky Department of Highways may not be changed by the contractor; this is controlled by the software.) The user is prompted for the item number for the first change. If a blank (no item number) is ENTERed, control will go to the first item. Hitting ENTER after each change will cause the change to be recorded, the screen to be cleared, and the next item in sequence to appear. Additionally, a few lines previous to the change line will be displayed for clarity. Hitting ESC causes the program to return control to the main menu. Note that, for a change to be effected, the value must be ENTERed before ESC is hit. Scattered changes may be made by sequentially hitting ENTER and proceeding through the unchanged items or by ESCing and choosing Option C repeatedly for different item numbers.

(D) - Display File to Screen - This option displays the bid sheet/price information to the screen. Because of the screen width, this display is formatted differently than the paper printout. Each time the screen is filled, the user is prompted for the next item number to display. ENTERing a blank immediately after choosing this option causes the display to begin with Item 0 (zero) - the bid proposal header information. ENTERing a blank thereafter will cause the display to continue sequentially. Hitting ESC causes control to return to the main menu.

(E) - Exit - This option causes the program to be dropped and control returned to BASIC.

(F) - File Edit - This option allows the user (Kentucky Department of

Highways) to edit a Bid Sheet File or the Bid Item Code File. Immediately after choosing this option, the user must input (or verify by hitting ENTER) the letting date, the project number, and the project county. When editing a previously created file, it is essential that the user take this opportunity to verify that the correct file has been opened. After this information has been input (or verified), the following edit menu will appear (after the first few records of the file).

ITEM CODE	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
----- TOP OF FILE -----				
BRIDGE QUANTITIES				
1 0001	Dense Graded Aggregate Base (Limestone)	30000 Ton	0.0000	0.00
2 3003	Bituminous Surface	4000 Ton	0.0000	0.00
	(A) - INSERT AFTER	(D) - DELETE BID FILE ENTRY		
	(B) - INSERT BEFORE	(E) - EXPEDIENT ENTRY		
	(C) - CHANGE BID FILE ENTRY	(F) - CHANGE CODE FILE		
	NUMBERS - MOVE AROUND IN THE BID FILE			
	What would you like to do?			


The "current record" will be the record displayed between the dashed lines and will be the reference for Options A, B, C, and D (of the edit menu) as well as for moving up or down in the file. As previously discussed, a record may consist of one or several lines on the printed bid sheet. Following is a more detailed description of the file edit options.

(A) - Insert After - This option allows the user to input a new entry to be inserted immediately after the current record; bid items are renumbered if necessary.

(B) - Insert Before - This option allows the user to input a new entry to be inserted immediately before the current record; bid items are renumbered if necessary.

(C) - Change Bid File Entry - This option gives the user the opportunity to change any or all of the fields associated with the current record.

(D) - Delete Bid File Entry - This option causes the current record to be deleted, bid items are renumbered if necessary.

(E) - Expedient Entry - This option allows the user to make sequential additions to the Bid Sheet File without returning to the file edit menu after each entry. The cursor can be moved backward to correct a mistake using the  key located directly above the ENTER key. Hitting ESC anytime causes control to be returned to the file edit menu.

(F) - Change Code File -- This option allows the user to change (or add) entries in the Bid Item Code File. After choosing this option, the user is asked the question "Change which Code Number?" The item code number to be changed should be ENTERed and the change made and ENTERed. The program then brings up on the screen the next (sequential) bid item code number. The user may continue with changes or hit ESC to return to the "Change which Code Number?" screen. Hitting ESC again will return control to the file edit menu.

ENTERing a positive or negative number (from the file edit menu screen) will cause the program to move forward or backward through the file, respectively, thereby making a different record the current record. Since each record may consist of several lines it may be necessary to iterate this process to cause the desired record to become the current record. A large negative number will change the current record to the first record, while a large positive number will change the current record to the last record of the file.

APPENDIX B


USER'S GUIDE
(Contractor's Version)

for

BID

INTRODUCTION

This User's Guide is designed for use by contractor personnel to assist with the usage of the menu-driven BID program. Following are some general notes pertaining to the usage of this manual as well as the BID software.

In this guide, the word ENTER implies that the  key should be hit after the appropriate information has been typed on the screen.

Use of this software centers around choices taken from a "main menu". Control may be returned to the main menu from the various work screens by keying the ESC key. (It may be necessary to answer, or hit ENTER for the questions on the work screen and then hit ESC).

Most of the responses allowing only one character have been designed to be automatically entered when keyed. Variable length responses must be ENTERed by striking the ENTER key.

A Bid Sheet File is identified to (and by) the user as the proposal number (one to five characters, usually an integer) even though the files are stored on the disk (and show up on the disk directory) as being prefaced with PCN. For example, the file associated with bid proposal number 742 would be referenced as 742, but would be stored on the disk as PCN742.

A "record" consists of one bid item or a text (non-bid item) line (or several lines input together). Text lines, including blank lines (with the exception discussed below), are placed in the file for clarity.

Pseudo item codes have been introduced to provide better readability for the user and/or logical error checking capabilities. None of these is assigned an item number in the bid sheet file and the pseudo item code number does not print on the bid sheet printout. Those of interest to the contractor are

- 9996 -AND-
- 9997 -WITH-
- 9998 -EITHER-
- 9999 -OR-

The "-AND-" (9996) and "-WITH-" (9997) are included for readability. Both imply a logical "AND" and the meaning to the user and the computer

software would be the same if these were omitted.

Optional choice groups are be preceded in the file by "-EITHER-". This will look like a text line in the printout, but, through the code number, has a very special meaning to the software. Additionally, optional choices are separated by "-OR-". Finally, the end of a choice group is indicated by a blank line. Optional groups may be nested within optional groups, following the format that each group be preceded by "-EITHER-" and followed, immediately, by a blank line. There must be a blank line corresponding to each "-EITHER-". If two groups end simultaneously, two consecutive blank lines are necessary.

STARTING UP AND RUNNING THE BID SOFTWARE

1. Turn on and start up the system using DOS.
2. Set the printer to 12 characters per inch. This may be done using BASIC. Start BASIC by ENTERing the command BASIC after the DOS prompt, A>, then ENTER the appropriate code, e.g., ENTER
LPRINT CHR\$(27);":"; for the IBM Proprinter,
LPRINT CHR\$(27);"M"; for the Epson FX80 (or FX100), etc.
3. Return to the DOS prompt, A>. (ENTER the command SYSTEM if you are in BASIC).
4. Place the desired bid disk in Drive A.
5. Load the program into the system memory and run by ENTERing the command BID after the A> prompt. (Note BID program has been compiled and is run from DOS and not from BASIC.)

After running the program, the main menu (shown below) appears on the screen.

```
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*****
```

BID SHEET PROGRAM

MAIN MENU

- (A) ATTACH TO DESIRED BID FILE
- (B) BID SHEET PRINTOUT
- (C) CHANGE UNIT PRICE
- (D) DISPLAY FILE TO SCREEN
- (E) EXIT

What is your request?

To choose one of the options, the user must type the option letter (A through E). Following is a more detailed description of each option.

(A) - Attach to the Desired Bid File - This option allows the user to open a bid sheet file for processing. It should be chosen immediately after running the BID program and thereafter anytime a different file is desired. After this option is chosen, the user will be asked to input the proposal number. After keying the proposal number, the user must hit ENTER. The user may then choose any of the processing options (B through E). If an Option B through E is chosen without a bid file having been opened, the user will be prompted for a file. Inadvertently ENTERING a blank (no file name) or a nonexistent file will result in control being returned to the main menu.

(B) - Bid Sheet Printout - This option produces printed bid sheets. If bid prices (even one) are in the file, the program will print the bid sheets with prices followed by a listing of errors at the bottom of the last page. If more than one choice is made from an optional group, the program will choose and print the choice leading to the lower bid. If any bid items are omitted or any EITHER/OR choices are improperly bid, the error listing will be indicated. When a bid estimate has been completely and properly entered, the bid sheet printout will not have an error listing printed. Furthermore, only then will a "TOTAL" be printed. The program will return control to the main menu after

printing is complete. Hitting ESC during printing will cause the printing to terminate and control to return to the main menu.

(C) - Change the Unit Price - This option allows the user to change (or set initially) the unit price for a bid item. (A unit price set by Kentucky Department of Highways may not be changed by the contractor; this is controlled by the software.) The user is prompted for the item number for the first change. If a blank (no item number) is ENTERed, control will go to the first item. Hitting ENTER after each change will cause the change to be recorded, the screen to be cleared, and the next item in sequence to appear. Additionally, a few lines previous to the change line will be displayed for clarity. Hitting ESC causes the program to return control to the main menu. Note that, for a change to be recorded, the value must be ENTERed before ESC is hit. Scattered changes may be made by sequentially hitting ENTER and proceeding through the unchanged items or by ESCing and choosing Option C repeatedly for different item numbers.

(D) - Display File to Screen - This option displays the bid sheet/price information to the screen. Because of the screen width, this display is formatted differently than the paper printout. Each time the screen is filled, the user is prompted for the next item number to display. ENTERing a blank immediately after choosing this option causes the display to begin with Item 0 (zero) - the bid proposal header information. ENTERing a blank thereafter will cause the display to continue sequentially. Hitting ESC causes control to return to the main menu.

(E) - Exit - This option causes the program to be dropped and control returned to BASIC. A session should ALWAYS be terminated using the EXIT option.