
PROBID — Evaluation Pack

This evaluation pack will assist you in assessing ***PROBID*** prior to purchasing a full user licence. (The cost of the pack will be credited against the cost of any ***PROCON*** software licence purchased within the following 90 days.)

Any commercial use of the evaluation system, or attempt to copy, transfer, adapt or reproduce the code, displays, or ideas contained within the program, contravenes the licence purchase agreement and will cause material damage to ***PROCON Construction Systems***.

The evaluation program has a number of restrictions and capacity limitations. These are:—

- It is useable for ***90 days*** only.
- Jobs you create may be accessed only ***EIGHT*** times.
- Markup ***method*** and ***rate*** is fixed.
- Report ***header*** cannot be changed.
- ***Capacity*** is limited to the tutorial size.
- ***Digitiser*** use can only be simulated.

Install the evaluation system on your hard disk by placing the program disk in drive A, then change to drive A by typing **A:**
Enter. Then type **I N S T A L L Enter**
and follow the directions.

Part B — Tutorial

Preamble

If you have not yet installed **PROBID** on your computer, read **Getting Started** in *Appendix 1*. (If you have the **DIGITIZER** version of the program, you should also read the digitizer installation instructions in *Appendix 11*.)

If you have not viewed the **PROCON** “slide show” **DEMONSTRATION** program describing **PROBID**, you may wish to look at it *before* starting the tutorial.

Running the Demo

When you install **PROBID**, the demonstration is automatically copied to your harddisk. To run it just type **CD \PROCON** and press to change to the directory, type **DEMO** and press . If the demonstration has been removed—or you wish to install it on another machine—place the program or demonstration disk in **drive A**, type to change to that drive. Then type **DEMO**, press , and follow the instructions.

The Tutorial

The tutorial assumes that the program is installed on **drive C** and that you are using the directories created by the installation program. If this is not so, you must interpret the following instructions appropriately. The tutorial introduces **PROBID** and covers all the basic functions you will need to start *preparing estimates*.

It is assumed that you understand the terminology of *Estimating* and *Tendering*, and have at least some basic acquaintance with the computer and operating system. If you are not familiar with the terminology of *estimating* and *tendering*, contract *Bills of Quantities*, *Schedules of Rates*, etc., read *Appendix 3* before continuing.

If you have already used other **PROCON** software packages—such as the **PROBILL Contract Billing System** or the **PROPLAN Project Scheduling System**—you should be able to run quickly through the early material, as the user’s interaction with all **PROCON** programs is similar.

To illustrate basic *principles*, the **PROBID** tutorial uses simple examples from *general construction* and *building*. This ensures the material is easily understood by a wide variety of users—regardless of whether they are pricing **civil**, **mechanical**, **electrical**, **electronic**, **fabrication**, **building**, or **manufacturing** work. (In fact, **PROBID** has unique capabilities—and data capacities—that make it particularly valuable on some of this more complex and specialised work.)

Starting PROBID

Type `CD \PROBID\SYS` and press `[Enter]` to change to the **System** directory. Type `PROBID` and press `[Enter]`. A logo appears with some system information and then...

Menu System

The **PROBID** header line and menu system appear. The **Master menu** is currently active. It looks like this:–

| PROBID - ESTIMATING & TENDERING SYSTEM | | | | System date: Fri, 28NOV97 | | | |
|---|---------|--------|------|---------------------------|----------|-----|------|
| MASTER | UTILITY | EXPORT | ITEM | SUPPLIER | RESOURCE | SET | HELP |
| <div style="border: 1px solid black; padding: 5px;"> New Estimate Bid Preparation Print Reports List Estimates Edit Estimate Remove Estimate Data Directory Customisation </div> | | | | | | | |

PROBID is menu driven. The menus are “intelligent” and try to suggest the most appropriate continuation to you at all times. Currently this is the **Customisation** option—which allows you to *choose a printer, define cost types, set currency and date formats*, and change other program parameters to suit your preferences.

Selecting from Menus

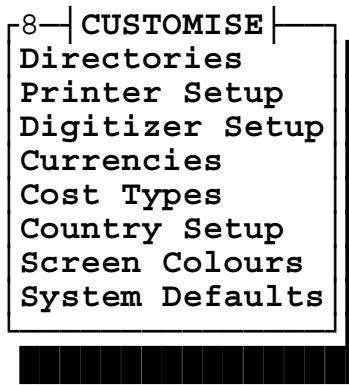
You do not have to accept a suggested menu option. An alternative choice may be made from the same menu in several different ways:–

- by keying the **highlighted letter** shown for the **desired choice**, or...
- by keying the **number** of the **desired choice**, or...
- by **moving the highlight** to the **choice** and pressing `[Enter]`.

`[Spacebar]` or `[↓]` move the highlight *down*. (If the keyboard does not have a separate cursor keypad, make sure `[Num Lock]` is off.) `[↑]` moves the highlight up. (The highlight “rolls around” if you go beyond the *top* or *bottom* selections.) `[PgUp]` and `[PgDn]` move directly to the *first* or *last* choice.

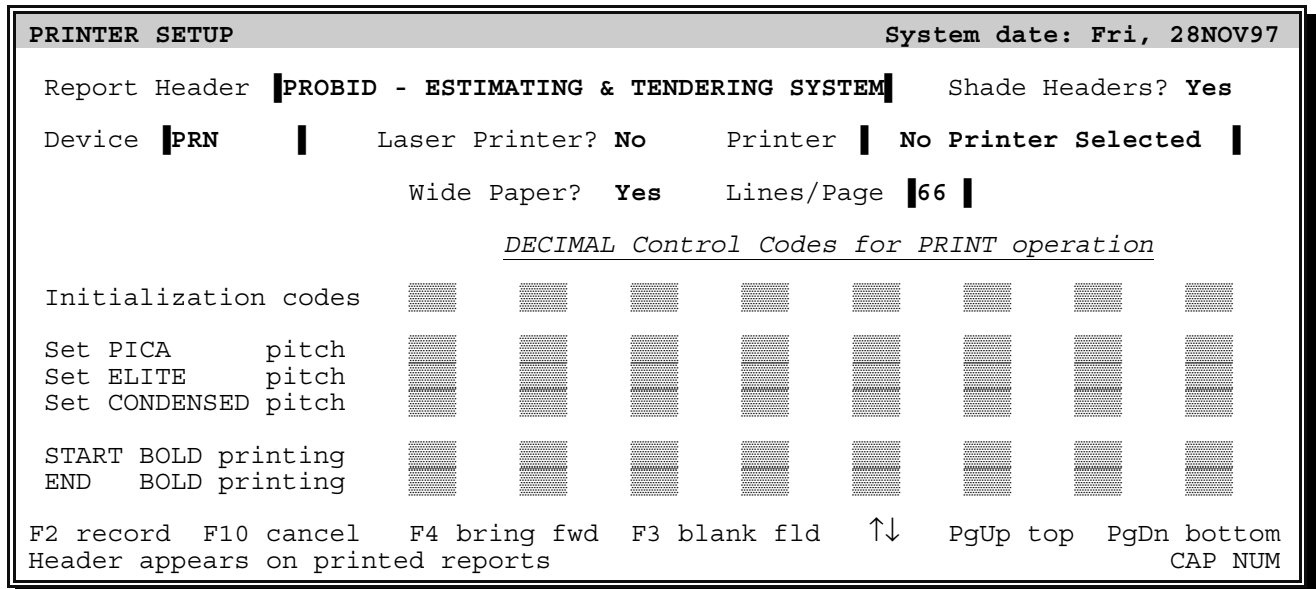
Customising PROBID

Hit `[C]` for **Customisation** and this selection list (“picklist”) appears:–



(Choice appears only in DIGITIZER version.)
 (Choice appears only in Multi-Currency edition.)

PROBID is essentially “ready to run” as installed, so the **Customisation** options will not be examined in great depth in the tutorial. (*Appendix 8* in *Part D* of the manual covers **Customisation** in detail.) However, you should *at least* provide PROBID with some *printer details* and define your own *cost types*. Use the and arrow keys to move the highlight to **Printer Setup**. Press to select it. The following screen appears:—



The first *box* (called a “field”) is for the standard **Report Header**. Other fields allow you to specify the **type of printer** and **size of paper** you are using. While you may not *have* to change most of these values, we will practice *moving through the fields, requesting help and editing field contents*.

Moving from Field to Field

Move around the screen—as you did with the menu—using , , and . The —or —key moves the cursor to the *next field*. Fields are originally solid white but open up and show “sidebars” once accessed. To catch your attention, the active field (the one containing the cursor) has highlighted sidebars.

Field Information Messages

As you move from field to field, you will notice that specific information appears on the bottom line. Press **[PgUp]** to return to the first field—the **Report Header**.

Help System—**[F1]**

[F1] is always the **HELP** key. Press it to obtain help with the current field. A window of information on the **Report Header** field appears in the centre of the screen. The *help system* explains that the **Report Header** appears on all printed reports and suggests that—in all commercial versions of the program—you might use your organisation or department name here.

The *help system* allows you to **list** *key assignments* and *help topics*, **find** *help topics*, or **follow** a *hypertext chain* through the screens, etc. For more details hit **[F5]** while still within *help* and enter the keyword “**HELP**”—or see **Getting Help** on *page C-2*.

The **[Esc]**ape key **CANCELS** a function, so press it to remove the help window and return to the **Report Header** field.

Field Editing

Spend a minute to familiarise yourself with text entry. To make editing as easy as possible, input is in a special “word processor” mode. **[←]** and **[→]** move the cursor *one character* left or right.

[End] moves to the *end of any text in the field*. If the cursor is already at the end of the text—or the field is blank—it moves to the *right edge of the field*. If pressed again, it moves to the *last field*. **[Home]** returns the cursor to the *left margin*. If pressed a second time, it moves to the *first field* on the screen. **[F3]** completely *blanks* a field.

[Del]ete *removes* the character under the cursor and moves text back to close the gap. **[Bksp]**—usually marked with a large left arrow—moves the *cursor and text to the left*—overwriting any character there. **[Ins]**ert toggles between *overstrike* and *insert* mode. The cursor is a full block—like this **█**—in insert mode.

[Caps Lock] can be toggled, enabling *upper case* characters to be typed without using the **[Shift]** keys. While it is engaged, a small **CAP** is shown in the bottom right corner of the screen and the cursor changes to a half block—like this **▀**.

Experiment with the edit keys. If you change a field, hit **[Esc]**ape to *restore its original contents*. Newly entered—or changed—text is “*highlighted*” (bright yellow on a colour monitor) to draw your attention to amendments. If you change several fields, you can use **[F10]**—the **CANCEL** key—to restore the complete screen.

Single Character Fields

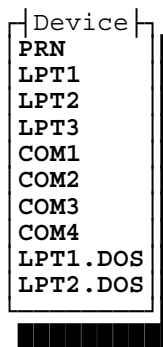
Press **[Enter]** to move to the **Shade Headers?** field. (This field setting determines whether the title line on reports is *background shaded*. Shading can improve the appearance of reports but not all printers do it effectively. More on this later...)

When a *single character field* offers several alternatives, use the **[Spacebar]** to roll through the choices and hit **[Enter]**—or just the *first letter* of your choice. (Upper or lower case responses are accepted so don't worry about **[Shift]** or **[Caps Lock]**.) Your selection *expands* to “**Yes**” or “**No**” and the cursor moves on to the next field.

Selection Lists—**[F6]**

The **Device** field allows you to change the *print destination*. You **could** change this setting by typing in the new value. However, typing is *tedious* and *error prone*. As there are only a limited number of valid entries it is better to get **PROBID** to list them.

To do this hit **[F6]**—the **SELECT** key (or the *left* mouse button). A small *picklist* opens near the field and lists all valid choices for this field. It looks like this:—



Hit **[Esc]** to *remove* the list *without* changing the field's contents. (The setting should always be left at **PRN** if your printer is connected to the standard parallel port—or if a serial port has been configured to emulate the parallel port.)

Don't know what a device is? It doesn't really matter. **PROBID** can direct reports to printers on different “devices” or “ports”. **PRN** almost always works and is usually the *best* setting...

Press **[Enter]** (or the *right* mouse button) to move on to the **Laser Printer?** field.

Laser Printers

Hit **[F6]** to pop up a *picklist*.

A *trivial* list when there are only *two* choices! But it illustrates the point that a picklist is *always* available from fields offering a limited range of choices...

You may choose from these simple lists in several ways. The *first letter* of a choice—from the highlight down—selects it. (So you can still select **yes** by pressing **[Y]**.) The

highlight can be moved with and . (and) reposition the window itself.) Pressing —or the *right* mouse button—transfers your choice into the field and removes the window. ape—or pressing the *left* and *right* mouse buttons together—cancels the function.

If you are using an **HP Laserjet** compatible printer, select es. Fields appear for the printer's **Paper Size**—usually the same as the **tray size**—and to indicate whether it supports **Scalable Fonts**.

If you have to change the paper tray size, hit to list the various paper size options and choose a paper size. Leave the **Scalable Fonts?** field set to es unless you have an older laser printer. Then skip forward to **Recording a Screen** on page **B-6**. **PROBID** directly manages laser printers to relieve you of printer control worries...

Printer Selection Field

If you set the **Laser Printer?** field to “**no**” the cursor moves on to the **Printer** field. Press —the **SELECT** key—to pop up a *picklist* of pre-defined printers.

You *can* provide **PROBID** with all the page size and control code information for your printer by directly entering it in fields in the lower portion of this screen. However, selecting from a list is much easier. (If you *do* wish to provide these details yourself—perhaps because you have an unusual printer, or wish to add some special enhancements to reports, see **Printer Setup, page D-2**).

The list is too long to *show* all printers—even in 50 line video mode. This is shown by an arrow at the *top* and *bottom* of the *right side* of the “frame”. Scroll through the list with the cursor keys. (The rectangular “scroll bar” shows the relative position of the current choice in the list by its position between the top and bottom of the frame. The figure at the *top left* of the window is the total number of choices in the selection list.) If you type the first few characters of a printer's name, the list sorts alphabetically and the highlight advances to the first choice matching the characters entered.

This list is actually “user definable”. You could change it or even delete it and create your own list covering just the printers your organisation uses. The list of *devices* mentioned earlier is another example. **User Defined lists** are discussed in more detail later...

Select a printer. (If your printer is not included in the list, choose one of the **EPSON** printers. Most dot matrix printers can emulate the **EPSON FX** or **LQ** printer.) Lower fields are filled with the correct information for the printer you have chosen.

Recording a Screen—

Press —the **RECORD** key—to save the changes made to this screen.

IMPORTANT! Screen changes are *not* saved until you hit to **RECORD** them!

A prompt appears:– “**Print a Test Sheet? (Y/N)**”. Switch your printer *on* and respond es. The printer will print a *test page* that should look like this:–

```

Report Header: PROBID - ESTIMATING & TENDERING SYSTEM
Shaded Title:  ESTIMATE MASTER

Device: PRN out to Star Micronics XR-1520

Lines/Page = 66 for a Page Length of 11.00"

|-----1"-----2"          PICA, Symset:  ▣ ▤ ▥ ▦ ▧ ▨ ▩, BOLD
|-----1"-----2"          ELITE, Symset:  ▣ ▤ ▥ ▦ ▧ ▨ ▩, BOLD
|-----1"-----2"          CONDENSED, Symset: ▣ ▤ ▥ ▦ ▧ ▨ ▩, BOLD
    
```

(Laser printer output is slightly different.) Check that the pitch setting commands are producing approximately the correct pitch, the characters in the symbol set match those shown, and that the shaded header is legible. Confirm the settings are correct by answering es to the prompt. (If the printout shows the codes are *not* correct, select o to return to the screen. See **Printer Setup, page D-2** for more information.)

PROBID returns to the **Master menu**. Now select **Customisation** and then **Cost Types** from the picklist that appears.

PROBID returns to the **Master menu**. Select **Customisation** and then **Cost Types**.

Defining Cost Types

The **Cost Types** definition screen appears.

```

COST TYPES                                     System date: Fri, 28NOV97
Enter a description for cost types you wish defined. Leave other fields blank.
The FIRST letter (or number) of each description must be unique.

          Cost Type 1  |Labour   |
          Cost Type 2  |Equipment|
          Cost Type 3  |Material|
          Cost Type 4  |Subcontract|
          Cost Type 5  |Provisional|
          Cost Type 6  |         |
          Cost Type 7  |         |
          Cost Type 8  |         |
          Cost Type 9  |         |

F2 record  F10 cancel  F4 bring fwd  F3 blank fld  ↑↓  PgUp top  PgDn bottom
Description, (e.g. Labour, Plant, Materials)                                NUM
    
```

The screen has *nine* identical fields. (Each field may contain a “**cost type**” description, *Labour, Materials, Transport, Plant, Subcontracts, Shop Labour, Consumables*, etc.)

The descriptions can reflect industry or job specific cost breakdowns—perhaps into separate classes of labour or foreign currency components.)

Each description must start with a *different* character—or digit—which becomes a “*shorthand*” way of referring to that cost type. Default descriptions are provided for five cost types, but you can define your own. Let’s do so now...

Cut & Paste—AltD—AltI

In the tutorial we will be using different cost types for *internal* (company owned) and *external* (rented) plant—and we will *not* be using the *Provisional* cost type.

The required changes are:–

| Existing: | Required: |
|-------------|-------------|
| Labour | Labour |
| Equipment | Own eqpt |
| Material | Rented eqpt |
| Subcontract | Material |
| Provisional | Subcontract |

Amend the second field to read **Own eqpt**. You could retype *all* changed fields. However, this is a good time to introduce some additional edit functions. Sets of *identical fields*—such as these cost types—can be **inserted** and **deleted**. “**Cut and paste**” techniques can be used to move and rearrange the fields. The third field will be similar to the second, so key AltD to delete the field you have just typed!

AltD means hold down the Alt key and then press D. The Alt and Ctrl keys are used like the Shift key to change the meaning of standard keys. Lower fields move up to close the gap. The deleted field is saved in a hidden “cut buffer” and can be recalled.

Key AltI *twice* to insert the cut buffer into *two* fields. Move to the third field and change it to **Rented eqpt**. Then delete the last field (**Provisional**), and press F2 to **RECORD** the screen.

PROBID returns to the **Master menu**. Now select **Customisation** and then **System Defaults**.

Changing System Defaults

The **System Defaults** screen looks like this:–

| SYSTEM DEFAULTS | | System date: Fri, 28NOV97 | |
|--------------------------------|--|-----------------------------|-----------------------------|
| Colour ON? (Y/N) | Yes | Sound ON? (Y/N) | Yes |
| Password facility ON? (Y/N) | Yes | Archive facility ON? (Y/N) | Yes |
| Gestalt matching ON? (Y/N) | Yes | Standard VIDEO lines? (Y/N) | Yes |
| Switch MOUSE Buttons? (Y/N) | No | MOUSE Sensitivity Level | 4 |
| TENDER ROUNDING: TOTAL to Five | | UNIT RATES to Smart | AMOUNTS to Cent |
| Prefix ID character for: | SETS @ | SUBCONTRACTORS | \$ |
| Department/Project Name: | ██ | | |
| Estimator's Name: | ████████████████████████████████████ | | |
| F2 record | F10 cancel | F4 bring fwd | F3 blank fld |
| No if text is unclear | | ↑↓ | PgUp top PgDn bottom NUM |

(*System defaults, page D-2* explains all these fields in detail. In the tutorial, we will leave most at their default values.) Press **[PgDn]** to move to the last field—the **Estimator's Name** field.

Primary Estimator's Name

Type the *Chief Estimator's name*, **John Wilkes Booth**, and hit **[↑]** to move back up to the previous field...

Department or Project Name

Sensible defaults avoid the need to key the same information into every new contract. For instance, assume all users belong to just one section—**Building & Civil**. Enter:—
Building & Civil Division.

(A “beep” warns you that the cursor is at the end of the field.) Press **[F2]** to **RECORD** the changed screen. The **Master menu** returns.

Creating an Estimate

Hit **[N]** to select **New Estimate**. A prompt will appear for the “**New Estimate Name**”. *Page A/1 of Appendix A*—in *Part D* of the Manual—contains a tender item list for a *Schedule of Rates* contract. (An artificial example, but it does illustrate some of the various item numbering schemes found in practice.) Please refer to that now.

Estimate Name & Password

Type in the estimate name:—
 “ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2”

and press **[Enter]**. (As it heads the *Tender Submission*, the full name should be given.)
 The **Password** option in **System defaults** was left *on* so you will be prompted to enter a *password*. Leave the field *blank* and press **[Enter]**.

A password restricts access to the estimate. Any word or phrase *could* be used. You would then be required to provide the password each time you accessed the job. Passwords should only be used if they are properly secured and there is no danger of forgetting them!

Estimate Details Screen

A screen then appears for entry of some *general estimate* and *tender details*. Some fields already have defaults. All entries are *optional*—the fields may be left blank.

| ESTIMATE DETAILS | | System date: Fri, 28NOV97 | |
|--|--|----------------------------|------------------------------------|
| Department or Project Code | BU | Department | Building & Civil |
| Estimate Number | ██████████ | Approximate Contract Value | \$ ██████████ |
| Primary Estimator's Name | ██ | | |
| Owner | ██ ██ ██ | | |
| Tender Submittal time is | 00:00pm | on | ██████████ |
| Start date | ██████████ | Duration | ██████ days Finish date ██████████ |
| Estimate Name | ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | Password ██████████ |
| ADD Mode Alt Notepad Alt Jotter Alt = PROCALC Alt - Calendar F2 record F10 cancel F4 bring fwd F3 blank fld ↑↓ PgUp top PgDn bottom Identify overall department OR project responsible NUM | | | |

Change the **Department code** to **BC**—for **Building & Civil**—and move down to the **Estimate Number** field and enter **T97/12345**. Then enter a figure of **3 000 000.00** in the **Approximate Contract Value** field.

Numeric Fields

The **Approximate Contract Value** field only accepts *numeric* input. Other characters just produce beeps. Entry is “free form” and whole dollars may be entered without cents. Values may be *left* or *right justified* with spaces used to “set off” the thousands.

Owner's Name & Address

Move down to the **Owner's name** and **address** fields. The name and address is given on *page A/1* of *Appendix A* so you *could* just type it in. However, let's assume you have priced jobs for this Client before. *Surely* we can avoid having to retype this detail on each new job...

User Defined Lists—**F6** and **Shift F6**

Hit **F6** in the **Owner's name** field. A picklist appears containing several names. Use the mouse—or **PgDn** and **Enter**—to select the:—

ETTAMOGAH CULTURAL TRUST & BREWING CO.

The name *and* address is transferred into the respective fields and the cursor moves on to the next field.

New names and addresses may be added to the list with **Shift F6**. This is just *one* example of *one* type of **User Defined List** you can create and manage yourself. (The **Device** and **Printer** lists used earlier are others.) *Many* **PROBID** fields can have **User Defined Lists** associated with them. *Appendix 12* in *Part D* of the manual describes this feature in more detail.

More Field Editing

You may want to amend some of this detail. To help you get around screen fields and make changes, let's try out a few more edit commands:—

Ctrl with **←** or **→** jumps to the *previous* or *next* “word” in the field.

Shift F7 converts a character to *lower case* while **Shift F8** makes it *UPPER case*. **Shift F9** *switches* the case of the character. In each instance, the cursor moves on to the next character, so *holding down one of these key combinations* quickly changes the case of *complete words or phrases*.

Ctrl End—or **Ctrl Enter**—*deletes all text* from the cursor *to the end of the field*.

NOTEPAD—**Alt N** or **F11**

There are some general *tender conditions* to be recorded, and the **NOTEPAD** provides a convenient way to do this. It allows you to attach “*free form*” notes to any record. Press **Alt N** and an edit window appears. Text is entered in much the same way as in single line fields. Hit **F1** for **HELP** on the extended editing and formatting functions. (The sixteen line “viewport” is only a small portion of the available notepad.) **Esc**ape from **HELP** and enter the following notes:—

Bid deposit \$25,000 bank draft.
 Liquidated damages \$350 per day.
 Retention 10% to maximum of \$100,000.
 5 year guarantee and performance bond required on sealants.
 Dame Kiri to be co-opted for the official opening.

Press to save the **NOTEPAD** and close the window.

Tender Submittal Time & Date

Enter a tender closing time of 3:00pm on 15DEC97. (Time may be in *any* format, but dates must be in the “international” ddMMMy style—or one of the numeric formats set through **Customisation, Country Setup**.)

Project Start, Duration, & Finish

The project is due to start on 3FEB98 and must be complete by 24NOV98. Enter the **Start date**, *bypass* the **Duration**, and *enter* the **Finish date**. An implied **duration** of 295 days is shown.

When *two* of the fields are completed, the *third* is calculated and shown. You *can* provide a **Start date** and **Duration**, and leave the **Finish date** to be calculated. But why bother providing *timing* information in an estimate? There are several reasons. It may be convenient to have this information “at hand” during estimating. Also, you will be able to use it—with another **PROCON** program—to produce **Bar Charts** for the project. But more on that later...

Press to **RECORD** the **Estimate Details** screen. (If you pressed in the *last field*, the prompt “Proceed? (Y/N)” will have appeared. Replying **RECORDs** the screen just as does). **PROBID** now shows the **Item menu**, **Add mode** as the default—implying that this might be the next logical step. For the purposes of the tutorial, we will ignore this suggestion and instead add some *resources* first. Press twice to move to the **Resource menu**. Press to select **Add Resources**.

You do *not* have to follow any particular order in entering *items*, *resources*, *suppliers*, etc. Once you are more familiar with **PROBID** you can *automate* much of the data entry by creating libraries and special “batch” files to read the libraries into new estimates. However, if you already knew all that, you would not be doing this tutorial, so let’s continue...

Data Entry

Add Resources mode

The **Resource entry** screen looks like this:–

| | | | |
|--|----------------------|---------------------------|--------------------------------------|
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | System date: Fri, 28NOV97 | |
| #1 | ADD RESOURCES SCREEN | | |
| Resource Code | L | Description | |
| Supplier Code | | Supplier | |
| Measure Unit | | Unit Cost \$ | / Is Cost Final? No |
| Estimator ID | JWB | Cost Type | Labour Record Changed 28NOV97 |

Enter the *code* and *description* for the first resource:—

LH10 **LABOUR, Unskilled Class II**

making sure that the code **LH10** is entered into the *first four positions* in the **resource code** field, i.e., it is “left-justified”.

See *Appendix A, page A/3*. Resources are of various cost types—**Labour**, **Materials**, etc. The *resource code* must be **unique** but can contain *any alphanumeric characters*. Codes should be assigned in a *systematic—and standard—*way. The tutorial illustrates one coding scheme. The first letter indicates the cost type (“**L**” for **Labour**, “**M**” for **Materials**, etc.) with subsequent characters defining the *class* or “*size*” of the resource. “**E**” is used in the tutorial for both company and rented equipment. We will see later why this is probably not the best choice...

Mandatory fields

Bypass the **Supplier Code** and go to the **Measure Unit** field. Leave it blank and press **Enter**. Flashes and beeps warn you that this is a “*must enter*” field—it *cannot* remain blank. Enter a measure unit of **MH** (**Manhours**) and a **Unit Cost** of **17.80**.

When a record lacks some *essential* information, **PROBID** will *insist* that you provide it. (Some mandatory fields—such as the **Unit Cost**—will still accept **ZERO** as a valid entry.)

Flagging Plug Costs

The **Is Cost Final?** field asks if you consider this unit cost to be acceptable, or whether it should be reviewed *before* the tender submittal. Hit **F8** to toggle it to **Yes**. (Otherwise **PROBID** will remind you it is incomplete when you print the *Tender Submission* report.)

Estimator ID

The **Estimator ID** field is used to “tag” a record with the initials—or perhaps some other identification—of the person who last modified it. (This field is particularly

useful on multi-estimator jobs where parts of a tender are prepared by different estimators. The default initials are taken from the estimator's name entered in the "master" screen.)

Assigning Cost Types

A resource must be classified as one of the **Cost Types** you defined earlier. Here the default of **Labour** is correct.

Record Date Stamping

The **Record Changed** field is maintained by **PROBID**. It "date stamps" *all* records as they are created or modified.

An *incorrect* system date would show as "Invalid". "**Date stamping**" helps you keep track of changes—a good reason to be sure your machine always has the correct date set!

Press **[F2]** to **RECORD** the screen. The record is saved—with a distinctive sound—and most fields blanked for entry of the next resource. Many fields for the *second* resource are similar to the *first*, so you should be able to "short cut" the typing...

The Bringforward Command—**[F4]**

Press **[F4]**. In **Add mode**, this copies data entered in the *previous* record to the *current* record. (If pressed in the first field, *all* fields are "**brought forward**". In subsequent fields, only the current field is copied.)

BRINGFORWARD is particularly handy when entering *repetitive resources* or **items**. Editing a "template" is both *quicker*, and *less error prone*, than re-keying data. If you are interrupted, it also serves as a "bookmark" of your position in a list of records.

Amend the brought forward details to:—

LH20 LABOUR, Skilled Class IV

with a unit cost of **20.40** per **MH**. Key **[Alt][N]** to attach a note to the resource record. Type in "**Site Enterprise Agreement Standard Rate**" and *hit* **[F2]** to **RECORD** the note.

Record Number & NOTEPAD Indicator

The record number—“#2 N”—appears at the *top left* corner of the screen. The “N” indicates that the resource has a **NOTEPAD** entry. (If your display is in 50 line mode, the text remains visible in the bottom half of the screen.) Hit **[F2]** to **RECORD** this resource.

We could go on and add *all* the **resources**—but, at this stage, that would be less instructive than looking at other functions. In any case, real estimates don’t “come together” in such a methodical and mechanical way!

Press **[Esc]**. The menus reappear. Move to the **Item menu**. **PROBID** shows **Add Items** as the default. Press **[Enter]** to accept it.

Add Items Mode

The **Item entry** screen looks like this:—

| | | | | | |
|--|---------------|--------------|----------------|---------------------------|-----------|
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | System date: Fri, 28NOV97 | |
| #1 | CODE | DESCRIPTION | ESTIMATE DATA | | |
| Group | | | 0 | Groups | |
| Section | | | 0 | Sections | |
| Item | L I | | 0 | Items | |
| Measure Unit | | Contract Qty | | 0 | Suppliers |
| | | | | 2 | Resources |
| Item Type | Normal | Estimator ID | JWB | 0 | Sets |
| | | Is Final? | No | | |
| | | Date | 28NOV97 | | |

Sections & Groups

Item entry is similar, *in principle*, to **resource entry**. However, you have the option of organising *items* into **sections** and, in turn, *sections* into **groups**. The item listing on *page A/1* of *Appendix A* suggests that this estimate has only a single subtotalling level—so a section breakdown should be sufficient.

Follow the *Client’s* structuring of the contract—if one is given or implied. When there are only a few items, you can skip *both* the **section** and **group** divisions. If—as in this case—only one summary level is used, this can be at *either* the **group** or **section** level. Only the reports are affected. **Groups** form natural “*page breaks*”—**sections** do not.

Item Codes

Key in the **Item Code** **A100** and press **[↑]** to move up to the **Section Code** field.

Group, section, and item codes may use any **alphanumeric** character. *Case and position* are both significant. Be sure the item code is “left justified” in the five character field like this:—

A100 rather than **A100**, and has not been entered as **a100**. (If the item code is *not* left justified return to the code field and hit **[Shift][F3]**—the **LEFT JUSTIFY** command.)

Characters such as **0** and **O** and **1**, **I** and **l** are easily confused, so, where practical, avoid using numbers and letters in the *same* field position.

Type **1000** and press **[Enter]**. Key in the **Section Description** of **CIVIL ENGINEERING** and press **[↓]** to drop down to the **Item Description**. Enter **Tree clearing and disposal**. Then enter a **Measure Unit** of **Ha (Hectares)** and a **Contract Quantity** of **45.5** (just ignore the other fields for the moment). Hit **[F2]** to **RECORD** the item.

PROBID now assumes you will proceed with *pricing*, so the **pricing (operation entry)** screen appears. You may price the item directly, or break it down into any number of simpler “operations” (sub-items).

You do not have to follow any fixed “estimating” sequence. Sometimes it is easier to enter the items and return later to price them. That is the approach we will follow in this tutorial...

Hit **[Esc]** in the **Operation Description** field to return to the **Item entry** screen. (As you previously defined a *Section*, the cursor moves automatically to the **Section Code** field.) Press **[F4]** to “bring forward” the last item. Change the code to **A200**. Enter its **description** and **quantity** (see *page A/1* of *Appendix A*). Press **[F2]** to **RECORD** the screen. (**PROBID** knows that you did *not* proceed to price the first item, so it naturally assumes you will now continue in the same way and does not move to the **pricing screen**.)

Enter and **RECORD** item **B100a**, then enter the **code** and **description** of **B100b**. This item has a **Contract Quantity** of **245,000 m³ (cubic metres)**. However, the quantity is *wrong!* Your own takeoff found the *correct* figure to be **274,350 m³**.

Contract vs. Actual Quantity

This estimate happens to be for a *Schedule of Rates (Unit Price)* contract so you *will* be paid for the *actual quantity* of excavation performed. The error is therefore *not* as dangerous as it would be in a *Lump Sum* contract. Nevertheless, if you fail to allow for this difference, your tender is “incorrect”—and *less competitive* than it should be.

PROBID initially assumes that **Actual** and **Contract Quantities** are the same. (Notice that the **Actual Quantity** field *defaults* to the entered **Contract Quantity**.) Change the **Actual Quantity** to **274350**.

Actual quantities are used in all cost calculations to ensure markup percentages and overhead recovery are *correctly* calculated. This protects you from some of the subtle hazards of wrongly “billed” quantities in “*remeasurable*” contracts...

All these items are in the *same* section, so you have not had to re-enter the **section code** or **description**. But what if the description were wrong? How would we change

it? Press **[↑]** until the cursor returns to the **Section Description** field and **[End]** to go to the end of **CIVIL ENGINEERING**. Add “**WORK**” to the text and press **[F2]** to **RECORD** the item.

Changing Group & Section Descriptions

The **section description** has been changed *throughout*. If you amend a *section* or *group description*, it is changed wherever it appears.

Rather than complete the entry of *all* items, we will first look at some alternative ways of *examining* and *amending* records...

Switching Modes—**[F9]**

Press **[F9]**—the mode **SWITCH** key. A one line “menu” appears at the bottom of the screen. It offers choices of **Add**, **Change**, **Delete** or **Browse**. A choice is made in the same way as with any other menu. Press **[Enter]** for the default—**Browse**. The last item appears. (The “**H**” after the record number at the top left of the screen indicates that the item is still only a “**Header**” record—it has *no* operations or pricing detail.)

Switching “modes” is an alternative to exiting and making a choice from the main menu system. Regardless of the route followed, the destination is the same!

Browse Mode

Browse mode is a convenient *passive* way of viewing records—whether it be **Items**, **Operations**, **Resources**, **Suppliers**, or **Sets**. **[Home]** and **[End]** move to the *first* and *last* record respectively, while the arrow keys (and **[F7]**–**[F8]**) move *backwards* and *forwards* through the records. If you go past the first or last record, the record number “wraps around”.

Press **[F5]**, key in **A200** and **[Enter]** to search for that item—it becomes the new point for browsing. Repeat the search but key in **V100b**.

This is *not* the quickest way to **find** a particular item. **[F6]** is actually more convenient. Also, if you were in **Change mode**, you could *edit* the record. But more on that later...

Gestalt Pattern Matching

Item **V100b** doesn’t exist, so **PROBID** has moved to **B100b**! It searched for the item but couldn’t find it. Knowing you thought it *did* exist, (after all, you are in **Browse mode** *not* **Add mode**) **PROBID** assumed you probably mistyped the code. It decided that—most likely—you meant to type **B100b** but hit **[V]** instead of **[B]**.

This “Gestalt” matching capability is used throughout **PROBID** (unless turned *off* in the **Customisation, System Defaults** screen) and makes finding *codes, keywords, etc.*, easier. For example, key [F1] for **HELP** and [F5] to find a keyword. Enter “GSTTT”. **PROBID** guesses you meant “**GESTALT MATCHING**” and provides help on that topic.

Suppose you want to *amend* an item? Perhaps change the **contract quantity**—or the **item description**? [Esc]ape from **HELP** and hit [F9]—the mode **SWITCH** key. Then hit [C] for **Change items** mode.

Change Mode

The displayed item is the one last viewed in **Browse mode**. Move the cursor to the **item description**, edit it in some way, and press [F2] to **RECORD** the change. Amendments are as simple as that!

Changing Codes

To change the **Item code** itself—or its **Group** or **Section code**—just amend the code and press [F2] to **RECORD** the item.

If the code change would cause duplication, **PROBID** vetoes it. Every record’s code must be unique—although the same *item code* may be used in different **sections**—just as the same *section code* may be used in more than one **group**. It requires a *full Group-Section-Item code* to *uniquely* identify each item.

Paging through records—[F7]–[F8]

Reverse any experimental changes you have made. In **Change mode**, you can still move through the records. Move the cursor to the **group, section, or item code** field. ([PgUp] returns the cursor to the first field.) [F7] and [F8] then “page” through the items.

Selecting Records—[F6]

Pressing [F6] (or the **LEFT** mouse button) in the **item code** field will popup a picklist. This is quicker than “paging” when you have to jump around in the item list...

Delete mode

Delete mode is like **Change mode** but, before deleting a record, you must confirm.

Operation Entry Screen

Before entering any more items, let’s price those already entered. Move to item **A100** and key **[Alt][O]** to access the **Operations** screen.

Change Items mode would normally go to **Change Operations** mode. However, this item has *no* defined operations, so **PROBID** warns you of this and automatically switches to **Add mode**.

The top half of the **Operation entry screen** is like this:–

```

Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2      System date: Fri, 28NOV97
Item  -1000-A100      Tree clearing and disposal             45.5 Ha

Operation 1/1 | Measure Unit  Ha      28NOV97

Op units/Item unit    Item units/Op unit    Quantity    Costcode    Act No
  1      Ha/Ha         1      Ha/Ha        45.5 Ha

Code   Resource/Set/Subcontractor  Type    Quantity    Unit Cost    Cost
|||||-----||-||||-||-||-||-||-
||---||---||---||---||---||---||---
|||||-----||-||||-||-||-||-||-
  
```

Skipping the Operations Breakdown

This item is very straightforward—you will be subcontracting this work so there is no need to break it down any further. Leave the description blank and press **[Enter]**. The top portion of the screen clears—indicating you are pricing *directly* to the item. The cursor jumps to the first **code field** in the *centre* portion of the screen.

Pricing an Item or Operation

You may enter the code for any “*cost element*” (**Resource**, **Set**, or **Subcontractor**) in any of the ten code fields.

What is a Subcontractor?

A **Subcontractor** is a special type of **Supplier** who may price **Items** and **Operations** directly. **Suppliers** just provide **Resources**. In practice, the difference can become blurred. **PROBID** only distinguishes between the two when necessary and sensible to do so. They are entered through the *same* screen—and from the *same* menu choices.

What is a Set?

A **Set** is typically an *aggregate of Resources*. (A **labour gang** or **crew**, a **materials assembly**, an **equipment “spread”**—or some similar combination.) **PROBID**’s **sets** are very flexible—they can also contain **Subcontract prices**—and even other **sets**!

received, so key in **950** and press **Enter**. The cursor returns to the **element code** field.

IMPORTANT: When the cursor is in one of the ten **element code** fields, **Enter** and **↓** behave differently. If the field contains a *code*, then **Enter** drops to the lower “production” line while **↓** just moves down through the codes—displaying the pricing detail for each element. When the cursor is in one of the five fields on the *production line*, **Enter** will cycle through the fields, until you change a value. It then returns to the **code** field. (To exit from the production line, *without changing a field*, press **Esc** or **↑**.) Practice moving to and from the production line, and through the code fields.

That’s all there is to placing a *subcontract quote* against an item, so press **F2** to **RECORD** the **pricing screen**. The **item screen** returns and the costs are now shown. Hit **F8** to move to the next item—**A200**. Key **Alt O** for **operations** and **Enter** again to bypass the **operation description**. (**Grubbing**—like the first item—is also too simple to warrant dividing into operations.)

Bringforward Pricing Detail—**F4**

The same subcontractor priced *this item* and the cursor is in the *first code field*, so hit **F4** to **BRINGFORWARD** all fields from the *last item*. Press **Enter** and key in the quoted price of **\$4700/Ha**. Press **Enter** to return to the **code field**. It is time to provide some detail on this “**undefined**” subcontractor. You could exit from both the **operation and item screens** and choose **Add Subs/Suppliers** from the menus, but this would disrupt the “rhythm” of the pricing...

Defining Subcontractors “on the fly”—**Alt S**

Key **Alt S** from the operation **element code** field to jump directly “*thru the field*” to the **Supplier/Subcontractor screen**. As the source field contained a code for an *undefined* subcontractor, **PROBID** assumes you want to define that subcontractor and so switches to **Add mode**. Conversely, if you had “arrived” from a source field containing a *defined* subcontractor, it would switch to **Change mode**—regardless of the “departure” mode. (Of course, if the field had been *blank*, or contained a **resource** or **set**, **PROBID** would have remained in the *same mode*. If these assumptions are wrong you can always use **F9** to switch modes.)

If you like exercising your typing and memory skills, you can key in the **subcontractor code**. Otherwise, just hit **F4** for **BRINGFORWARD**. Fill in the balance of the fields as shown on the following screen:—

Supplier/Subcontractor Screen

```

Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2      System date: Fri, 28NOV97

#1                      ADD SUPPLIERS/SUBCONTRACTORS SCREEN

Supplier Code  [$CL&GB]          Name  GREENTREE LANDSCAPING PTY LTD
                                     97 Willowtree Boulevard
                                     GREENHILLS ESTATE SA 5700

Contact  Mr John Birch, Owner      Quotation Reference  Phone Quote 3/12
Telephone No  (08).2345.7890      FAX No  (08).2345.9870
Mobile No  0412 458 909          Email  johnb@greentree.com.au

Estimator ID  JWB                  Select Codes
Cost Type  Subcontract            Record Changed  28NOV97

ADD Mode  Alt Notepad  Alt Jotter  Alt = PROCALC  Alt - Calendar
F2 record  F10 cancel  F4 bring fwd  F3 blank fld  ↑↓  PgUp top  PgDn bottom
Key Alt N to attach a note.
  
```

Most fields are for optional—but very useful—information about the subcontractor. (The **Cost Type**—which initially had **Material** as the default—switched to **Subcontract** when you entered the **subcontractor ID prefix** [§].)

Before saving this subcontract record, access the **NOTEPAD** and add this comment about the subcontractor’s quotation:–

Quotation EXCLUDES flagmen but INCLUDES all dump charges.

[Alt][N] (or, if you prefer, [F11]) accesses the **NOTEPAD**. [F2] saves the notes and exits to the **subcontract screen**. [F2] *saves* or *accepts* a screen. So would [Alt][N] here. **PROBID** accepts the same command to *access*—and make a *positive* (i.e., data preserving) exit from a function.

Press [F2] to **RECORD** the **subcontractor** and [Esc]ape to return to the *code field* in the **pricing screen**. (As the **subcontractor** is now defined, his name appears beside the code.)

The subcontractor qualified his quotation by *excluding* the cost of flagmen. About 200 manhours will be required, while debris is being removed from site, so you must allow for this cost as *directly employed* labour...

Entering Resource Usage

Use [↓] to move the cursor down to a *blank code field*. (Not [Enter], as this returns to the lower “production” line.) Having an *excellent* memory, you no doubt recall which

resources were defined. One of those *might* cover the flagmen. You *could* type in the **resource code** but even your memory would be taxed if there were *many* resources.

Gestalt Matching—F5

“**Gestalt**” matching *can* help us here. If we key in part of the code—even if it is only a fragment like **1h**—we can then hit F5 to *force* **PROBID** to find the record best matching that code fragment. Of course, this only works if we remember at least *something* about the resource codes...

Gestalt matching is *case insensitive*—and can even recognise *transposed* characters!

Of course, just pressing Enter here does *not* activate **Gestalt** matching. **PROBID** doesn’t know if you are looking for an *existing* resource or if you are entering a *new* resource code—which you intend to define later! F5 *forces* a search for an *existing* match...

Paging thru Resources—F7—F8

The *paging* keys—F7 and F8—may be more convenient. They move backwards and forwards through the resource list in the normal way. This is an improvement on having to remember the code—but it still has some limitations. It does *not* allow you to see a *list of resources* and would be tedious if there were hundreds of them.

Selecting Elements—F6

The **SELECT** function is a better answer! Hit F6. A resource *picklist* appears. Choose:–

LH10 LABOUR, Unskilled Class II

Perhaps you want **Sets** or **Subcontractors** rather than **Resources**? Then set the *first character* in the code field to the **Set** or **Subcontract ID** character. The picklist changes appropriately. So, you can produce a **subcontract** picklist by keying “\$” in the code field and pressing F6. What if the list is *so large* it is still unwieldy—even with a picklist’s *sort* facility? Then the content can be restricted by “**masking**”. But more on that later...

Fixing Resource Consumption

Press Enter in the code field. The cursor drops down to the production line:–

| | | | |
|--|---------------------------------|---------------------------|------------|
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | System date: Fri, 28NOV97 | |
| Item | -1000-B100a Topsoil Stripping | Quantity | 168500 m2 |
| Operation 1/1 | Strip to Stockpile (150mm deep) | Measure Unit | m3 28NOV97 |
| Op units/Item unit | Item units/Op unit | Quantity | Costcode |
| 1 | m3/m2 | 1 | m2/m3 |
| | | 168500 m3 | |

Setting the Operation Quantity

The **Op units/Item unit** field—and the next two fields—provide three *alternative ways* of relating the **operation** and **item quantities**.

These three alternative ways of arriving at an **operation quantity** are analogous to the five alternative ways of specifying **resource** or **set consumption**. Again, if we want our cost model to respond *logically* to changes, the “correct” relationship must be chosen.

The topsoil is stripped to 150 mm so the ratio is simply 0.150 m3/m2—**op units per item unit**. Enter 0.150 in the field and press **Enter**. The two dependent fields are skipped. (While we can see that this results in a quantity of 25275 m3, it would be both “wrong” and less convenient to directly enter this value. That would suggest that the **operation quantity** is *independent* of the **item quantity**.) Use **↓** to bypass the **Costcode** and **Activity Number** fields and move down to the first *element code field*.

You *can* assign an alphanumeric **Costcode** to an operation and also define the operation as a **Scheduling Activity (Task)**. But more on that later...

Defining Resources “on the fly”—**Alt R**

Type in the **resource code**, ES10. Hit **Alt R** to “*jump through*” to the **resource entry** screen and **F4** to *bringforward* the code so the resource can be defined. (*Page A/3 of Appendix A* shows the detail for this **ELEVATING SCRAPER**.)

Defining Suppliers “on the fly”—**Alt S**

While entering this **Resource**, also specify its **Supplier** as ACME. Hit **Alt S** to “*jump through*” to the **Supplier entry screen**. Enter the details from *page A/2 of Appendix A* for **ACME EQUIPMENT RENTALS**. The **Cost Type** default is **Material**. Use **F6** in the **Cost Type** field to “popup” a list and change this to **Rented eqpt**. **RECORD** the supplier.

You are now *two* “levels” deep into element definition (**Resources**, **Sets**, or **Suppliers**) from fields in other screens. Press **Esc** to “back out” one level to the **Supplier Code** field in the **Resource entry screen**. The supplier *name* is now shown and the

resource cost type has changed to **Rented eqpt**—matching the *supplier cost type*. Complete the resource details and **RECORD** the resource. Hit **[Esc]**ape to return to the first level—the *code field* in the **operations screen**.

You may define *any* element—**Resource, Set, Supplier** or **Subcontractor**—“*as you go*” and the process may “nest” many layers deep. This “natural” way of estimating can be paired with a pre-planned approach. Most elements can be defined first or, more commonly, brought in from standard “libraries”, while others are defined as you need them. **Speed and Flexibility!**

Setting a Production Rate

Hit **[Enter]** to move to the “*production line*”. Enter a **Production Rate** of 125 m³/HR. **RECORD** the **operation** with **[F2]** and hit **[Esc]**ape to return to the **item entry screen**.

If you have come this far, *without at least one interruption*, you must work in a very quiet office! Usually *telephone calls, visits*, and other distractions will disturb your concentration. If these relate to the current record, the **NOTEPAD** provides a logical and convenient way to save them. However...

JOTTER—**[Alt][J]** or **[Shift][F11]**

PROBID also has a similar facility for non-record specific “notes”. **[Alt][J]** will “popup” a **JOTTER** which is specific to the *current estimate* (or just the **PROBID** installation, if no estimate is being worked on).

Save paper and time by using the **JOTTER** during the tutorial! Record your *telephone messages*, use it as an “*aide-memoire*”, etc.

Timestamping Notes—**[Alt][T]**

[Alt][T] inserts the *time and date* in the **JOTTER** or **NOTEPAD** text so you may “timestamp” quotations and telephone messages.

CALENDAR—**[Alt][-]** or **[Shift][F10]**

While exploring these “system-wide” facilities, also take a look at the built-in **CALENDAR**. **[Alt][-]** will popup a calendar for the *current month*. (This is accessible even from inside the **JOTTER**—all **PROCON** tools can be overlaid one on another.) The arrow keys allow you to move through the *months* and *years*.

Clearing your desk of calendars and other myriad scraps of paper makes it easier to find that other ubiquitous desktop tool—the *calculator*. Discarding it for something *more flexible and powerful* would be even better...

PROCALC — **Alt**= or **Shift**F12

PROBID has a built-in *arithmetic expression evaluator*—**PROCALC**—with capabilities far surpassing any desktop calculator—and more flexibility and convenience than any spreadsheet. **Alt**= produces an input field into which *arithmetic formulae* may be entered. Formulae can include *parentheses, trigonometric, logarithmic*, and other expressions, as well as many specific “takeoff” functions. (As usual, **F6** lists all the functions and will transfer your selection into the calculation field.) As an example, let’s calculate the *tonnage of ballast in a conical stockpile*. Height is **13.500 m**, angle of repose **35** degrees and the loose density is **1600 Kgs/m3**. Type in:–

H=13.5:A=35:D=1600/1000:D × H × ACIRC(2 * H/TAN(RAD(A)))/3

and press **Enter** to switch to full screen mode and show the result of **8408.07** tonnes.

Let’s quickly look at a few examples of the types of calculations that can be performed—and documented—in **PROCALC**. Hit **Alt**R restore. A picklist of previously saved, multi-line **PROCALC** “template sheets” appears. (The installation program copied these sample files into the **system** directory.) Select **EXAMPLE.PCL**. Page through the screens and then key **Alt**P to print the full file. If **PROCALC** is called from a *numeric* field with **Alt**C, the result can be transferred into the field and the associated formula saved “behind” the field. **PROCALC** is also your “conduit” into the time saving world of automated quantity takeoff! The **DIGITIZER** version allows you to use **Alt**Q from the **PROCALC** field to select a drawing scale and takeoff *counts, lengths, areas, and volumes* directly from plans. (The **EVALUATION** pack allows you to “simulate” using a digitizer. Hit **Alt**Q and follow the instructions displayed on the screen. Hit **Esc**ape to return to **PROCALC**.) More on these refinements later...

After these diversions, return to the **item screen**. It is time to cover program *exit* and *entry* procedures.

Exit to DOS—**Esc** and **Y** or just **Ctrl**End

Press **Esc**ape to return to the **menu system**. A second **Esc**ape produces a prompt asking you to confirm that you *do* wish to exit. Hit **Y**es. The **DOS** prompt reappears.

Queries of this type may be answered *positively* with **Y**, **y** or **1** or *negatively* with **N**, **n**, **0** or **Esc**. The default reply may also be “toggled” with the arrow keys, the **Spacebar** or

the mouse. (You may also exit directly to DOS with **Ctrl****End** or **Alt****F4**. Confirmation is not then required.)

Re-run the program by typing **PROBID** and pressing **Enter**. (**PROBID** automatically reloads any estimate you were working on when you exited and returns to the same default menu selection.) Select **Change Items** from the **Item menu**.

TIP: Go there quickly when you know where you are going! **Alt****I** moves *directly* to the **Item menu** and **C** selects **Change**.

The **Item screen** shows the *last* item you were working on—the **Topsoil Stripping**. Press **F8** to move forward to the next item—the **Earth Excavation**.

PROBID “remembers” the records you were working on when you exited from the estimate. By using these as “defaults” it can save you time in resuming interrupted work. (*Forgotten* which items have been entered? Press **F6** for a picklist of all items, then **End** and **Enter** to select the last one.)

Items with Multiple Operations

This **Earth Excavation** item is much more *complex* than the **Topsoil stripping** item. It involves two *different* **load and haul operations** as well as the **spreading and compacting** of all fill material. To price this work *intelligently* it must be broken down into:—

| | | |
|---------------------------------|------------------|------------|
| 1. Load & Haul – scraper work | 190,000 m3 | |
| 2. Load & Haul – truck & loader | <u>84,350 m3</u> | |
| TOTAL LOAD & HAUL | | 274,350 m3 |
| 3. Spread & Compact fill | | 274,350 m3 |

Go to the **operations screen** and enter the first operation—**Load & Haul – scraper work**. (See *Appendix A, page A/5*.) Enter **190000** *directly* in the **quantity field**—this quantity was determined by *calculation* and is *not* dependent upon the **item quantity**. Move down to the first **element code** field. This is work for a scraper “*spread*”, i.e., a bulldozer “push” loading *three* motorised scrapers. The *four* pieces of equipment will be working together as a *team*—or “**Set**”, in **PROBID** terminology.

Using a Set

Every time the equipment “spread” is used, you *could* individually assign the **dozer** and **scrapers** as **resources**. However, it is more efficient—and *natural*—to define the complete “spread” as one “**Set**”.

Defining Sets “on the fly”—[Alt][T]

Key in the **Set code** @SCSPR. (The “@” character identifies the element as a **Set**.) Then hit [Alt][T] to “jump through” to the **Set entry screen**.

The *natural* mnemonic key combination of [Alt][S] for **Sets** is already used for **Subs/Suppliers**. [Alt][T] is easy to remember if you think of **Sets** as [T]eams.

Set Entry Screen

The code fields in the **Set entry screen** can accept *resources*, *subcontractors*, and other *sets*. Enter the following details:—

Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 System date: Fri, 28NOV97

#1 ADD SETS SCREEN

Set Code [@SCSPR] Description [SCRAPER SPREAD, D9 + 3xCAT631]

Measure Unit [HR] Estimator ID [JWB] Record Changed 28NOV97

| Code | Resource/Set/Subcontractor | Type | Usage Rate | Unit Cost |
|--------------|----------------------------|------------|-----------------|-----------|
| [@DOZD9] ? | [@@@@] Undefined SET | [@@@@] @ | [1] ??/HR | |
| [@SC631] ? | [@@@@] Undefined SET | [@@@@] @ | [3] ??/HR | |
| | | | TOTAL UNIT COST | \$/HR |
| | | | | 0.00 |

Set Elements and Usage

This **Set** is made up of *two other sets*—and the constituent sets are not yet defined! **PROBID** allows you to follow *any* data entry sequence that suits you. If you prefer to define *higher level sets* first—and then work *down* to **resource** definitions—you can do so. If you are more comfortable starting with some *defined resources* and building *them* up into **sets**, you can work that way...

RECORD the screen and define the *constituent sets*, @DOZD9 and @SC631. Next define the *resources* that these **sets**, in turn, use (LH30, MFD000 etc.). **Page A/4** of **Appendix A** shows the **Set** details and **page A/3** the **Resources**. (You should be able to complete this exercise without further detailed guidance.)

Resources and **Subcontractors** can be defined by “jumping thru” the element code fields, using [Alt][R] and [Alt][S]—as in the **operations screen**.

Two equipment resources—**ES30** and **ED09**—have, as a supplier, the company’s own *internal plant department*. Why bother? You are unlikely to issue a formal purchase order to your *own* plant department! The advantage will appear later...

Why define one **set** in terms of other **sets**? Why not define a **push loaded** scraper *directly* as a **resource**—as we did with the **self-loading** scraper? It is because these scrapers are *company owned*, whereas the self-loader was an “*all in*” rental (*operated, fuelled, and maintained*). You will *want to know*—and may *need to change*—the **fuel consumption rates, operator’s servicing times, internal equipment charges**, etc. Breaking the equipment “spread” down into its components makes this information available. Disguising the “makeup” (by pre-calculating “all in” rates for company plant), would be doing manually what **PROBID** does better—and reduce flexibility! (In practice, the list of company owned plant would probably be copied in from a previously saved *resource library*. **Resources** are just copied—either selectively or “in-toto”—for each new estimate. But we haven’t yet covered libraries, and doing things the *hard* way is often the *best* way to learn...)

After *recording* the **sets** and **resources**, press **[Esc]**ape until you return to the *code field* in the **operations screen**. The set—and its constituents—are now defined so the unit cost is shown to the right. Hit **[Enter]** to drop down to the *production line*.

At the haul distance of **600 m**, assume each of the three scrapers can move **18.2 m³/Load** and **7.9 Loads/Hour**. You could key **[Alt][=]** and use the general **PROCALC** facility to get the *total production*. However, in this situation, there is a *better* way to access it:—

PROCALC field version—[Alt][C] or [F12]

When the cursor is in a *numeric* field—**production rate, usage rate, quantity, unit cost, total cost, markup rate, spread rate**, or whatever—you can call a “*field specific*” version of **PROCALC** with **[Alt][C]** or **[F12]**. Key **[Alt][C]** and type in:—

3 [Scrapers] @ 18.2 [m³/Load] @ 7.9 [Loads/Hour - haul 600m]

Comments within PROCALC

[] or { }

Text within square brackets (or braces) is treated as a *comment* and is ignored in calculations. However, it is *invaluable* in documenting the **rationale** and **assumptions** behind a formula.

PROCALC Formula Flag**f**

Use **[Alt][C]** to close the window. The calculated haulage rate of **431.34 m³/HR** appears in the **Production Rate** field. A small ‘*formula flag*’—**f**—appears to the *left* of the field—indicating a formula is “*tied*” to it.

Just as there is a *general* **NOTEPAD** facility (the **JOTTER**) as well as a *record specific* version, there is also a *general* **PROCALC** facility (accessed with **[Alt][=]**) and a *field specific* version (accessed with **[Alt][C]**).

Sensible use of “*tied*” **PROCALC** formulae help in documenting an estimate and avoiding transcription errors. They also make it easier to amend calculations by changing just one parameter. Saving the calculation field updates the production rate field.

RECORD the operation with **[F2]**. The **record number** increments and the screen clears. Now enter the *second* and *third* operation for this item.

Finding Operations—[F6] or [F7]–[F8]

Operations—*unlike* other records—do *not* have an alphanumeric code, or their own menu. They are the “children” of a parent item—always accessed through that item. You can use **[F6]**, in the **operation description** field, to popup a picklist of the item’s operations. Alternatively, you can use **[F7]** and **[F8]** to “page” backwards and forwards through the item’s operations. As usual, **[F9]** switches **modes**. Practice changing modes and moving through the operations.

The *indirect* access to operations is an advantage, as having to assign unique codes would be cumbersome. An item usually has only a handful of operations, so selecting or paging is much more efficient. **[F5]** can also be used to *force* a **Gestalt** match for a partial description...

The balance of the tutorial *data entry* is reasonably straightforward. You *can* enter the information in any order. However, one logical sequence is:—

- **Subcontractors/Suppliers** (*Page A/2 of Appendix A*)
- **Resources** (*Page A/3*)
- **Sets** (*Page A/4*)
- **Items, Operations and pricing detail** (*Page A/5-6*).

Enter the **Supplier**, **Resource**, and **Set** data—but *stop* before entering the rest of the items as there are a few points still to be covered...

If all this typing doesn’t appeal to you—and you are confident you fully understand the principles involved—you can take a shortcut by copying the tutorial files over from the **PROBID** distribution disk. Exit to **DOS**, place the disk in drive **A** and type:—

```
COPY A:\DATA\*.* \PROBID\DATA
```

Be sure to read the sections on *linking items* and *auto-incrementing* item codes. Then skim through the other material before resuming the tutorial at the sub-heading **OVERHEAD Items...**

When pricing item **CX01**—the **Structural Concrete** work—you can use **PROCALC** to calculate and *explain* the **usage rate** for both the *plywood* and *framing timbers* used in the **Formwork operation**. Calculate the **usage rate** for the plywood sheeting as:—

$$1 / (1.2 \times 2.4 \text{ \{Sheet size\}}) / 4 \text{ \{reuses\}} @ 120\% \text{ \{wastage\}}$$

Make sure you *understand* this formula—or derive your own if you prefer. Include some comments to *clarify* and *document* the figures you use. Remember to call **PROCALC** from the **usage field** with **[Alt][C]** and to *save* the formula with **[F2]**. Also *save* the **operation** with **[F2]**. Derive your own formula for the usage of framing timber.

Including Arbitrary Allowances

The **Concrete placing** operation contains an allowance of \$2.00/m³ for **miscellaneous small equipment**. In the **operations screen**, enter a **subcontract code** of **\$ALLOW**. (It is just an “allowance”—there is no such subcontractor.) Hit **[Enter]** to go to the *production line* (you are confined to the two cost fields). Key **2.00** and **RECORD** the screen.

This is the easiest way to enter **arbitrary cost allowances**. If—at a later stage—you wish to extract a list of all operations and items *containing* these allowances, you can define the “**subcontractor**” **\$ALLOW**, and print out a subcontract order!

Finish pricing the *two* items in **Block X**. The **Structural Concrete** and **Reinforcing Steel** items in **Block Y** are *essentially* the same as those in **Block X**. The *Client* split the items by block, for his own purposes. You must *submit* separate prices for each item, but it would be tedious to have to individually *price* them...

Linking Items—**[Alt][L]**

Enter the *code* for the **Structural Concrete** in **Block Y**. Key **[Alt][L]** and fields will appear so you can specify a target item to which you wish to link the current item. Enter the **Group-Section-Item code** of the *equivalent* item in **Block X** (item **CX01**) and **RECORD** the connection.

CX01 is already the *default*—because of *code similarity*. (When **PROBID**'s “guess” is *not* correct, you can use **[F6]** to list the items—or **[F7]**–**[F8]** to page through them.) If the current item's **description**, **unit**, or **quantity** fields are *blank*, **PROBID** will copy in the corresponding information from the target item.

CX01 and **CY01** now *share* the **same** operations. Pricing changes may be made through *either* item—they flow through the pair of linked items. *Quantity differences* between linked items are handled *automatically*. If some operations have **fixed costs**, then, *despite sharing operations*, item **unit costs** must vary. (Linked items are normally created by “cloning” from

the **Utility menu**—to avoid retyping item details. “L” is appended to the listed record number of *linked* items.)

RECORD the concrete item. Then enter the reinforcement item **CY02** and link it to **CX02**.

Start a new section—**2000 BUILDING WORK**—and enter *and* price the **Brickwork** item and the *first* of the **Electrical** items.

Auto-increment Codes—**F5**

The electrical items have sequential codes with a *uniform numeric increment*—going from **A200** to **A210**, **A220**, etc. You can speed up the entry of items with sequential codes like these. Once you have entered the *second* item code in the sequence—item **A210**—hit **F5** to toggle on an “*auto-increment*” mode.

An increment—equal to the *difference* between the numeric portions of the *current* and *previous* item codes—is shown. The item code is *automatically incremented* for each new item—and the field skipped. (Codes are **left justified** if you entered the first that way—and vice versa.)

The increment value may be *fractional*, e.g. item codes **1.00**, **1.20**, **1.40**. *Auto-incrementing* works with **item**, **resource**, **supplier**, and **set codes**, but *not* with **section** or **group** codes. (Of course, **F8** acts as a *single increment key* in *all* code fields—including **groups** and **sections**.)

Complete the electrical items and toggle auto-increment mode *off* with **F5**. Enter the details for the **NOMINATED SUBCONTRACT** item but skip the pricing for the moment.

Token Items

The next item is a **CONTINGENCY ALLOWANCE** with a “*write in*” amount of **\$100,000**. The contract payment provisions give the contractor *no* control over this item. It is just an *awkward*—but unfortunately *typical*—way of listing the amount *budgeted* for **Contract Variations**. (Variations are individually assessed and paid for as they arise.)

This item is not *truly* part of the work to be priced—and the contractor will see none of the money. Nevertheless, a price must be included in the *submitted tender*—without confusing the “true” cost base for purposes of markup. Enter the item details and move the cursor down to the **Item Type** field. Press **F6** for a picklist of choices. The list of **Item Types** looks like this:–

| |
|--------|
| Normal |
| Hidden |
| Token |
| Fixed |
| Marked |

Items may be defined as any one of these **FIVE** types.

Hidden items are used for *overheads*, “*prelims*”, etc.

Token items are used for *Provisional* or *arbitrary allowances*.

Fixed items have had their *submitted rates* fixed.

Marked items are similar to *Fixed* items but they have usually been “fixed” through the Utility menu.

To date, all the items we have worked with have been **NORMAL** types. **TOKEN** items are treated as if they were not part of the “real” estimate—their cost is not considered when percentage markups are determined. They always have submitted rates and amounts *exactly* equal to their **direct costs**. This is *precisely* the way you want to treat the “**Contingency**” item, so set its type to **Token**.

This item has *no* **Bill Number** in the *Contract document*—but the Client obviously expects it to appear *last*. If you leave the section code blank, it will appear *first* in sorted reports! Overcome this problem by giving it a **Section Code** of **CONT**. This will sort *after* blank and numeric section codes. (Common characters sort in the order **blank**, **0–9**, **A–Z** and **a–z**.)

Go to the **operations screen**, *skip* the **description** and enter an arbitrary **subcontract code** \$**CONTG**. Hit to drop to the *production line*. Enter **100000** and **RECORD** the screen.

This is a “**Lump Sum**” item, with a quantity of **one**, so it does *not* matter whether you enter the contingency allowance of **\$100,000** as a **unit** or **total cost**. (When you enter an item or operation measure unit of **LS** or **It** (for “**Item**”)—in upper or lower case—**PROBID** will assist you by entering a default quantity of *one*.)

Nominated Subcontracts

If your contracts do *not* involve **Nominated Subcontracts**, you can skip this section.

Switch to **Item Change mode** and move back to the **NOMINATED SUBCONTRACT** item.

Hitting twice is the quickest way to do this. *Decrementing* the code makes no sense in **Add mode**, so **PROBID** treats the first as a request to switch to **Change mode** and go back to the last record entered...

This item is similar to the **Contingency Allowance** discussed above. It has a specified *submitted amount* of **\$400,000**. Hence, you *could* classify it as a “**Token**” item. However, there is a good case for treating this item differently. The **\$400,000** *includes* a specified markup of **5%** for the *Prime Contractor*. Recovery of this markup is reasonably certain—*unlike* the **Contingency** item.

Fixed Items

You *should* allow for this markup in your estimate but you must “**fix**” the item’s *submitted rate*. Change the **Item Type** to **Fixed**. Additional fields now appear on the line below the **item type** field. You can “fix” in *three different ways* the way in which the **submitted rate** and **amount** is determined, depending upon the field you choose. Move the cursor to the **Amount field** and enter 400000—fixing the **submitted amount**. Hit **F2** to **RECORD** the change in **item type** and **Alt O** to jump into the **pricing screen**.

Move down to the code fields and enter a subcontract code **\$ACSTC**. Press **Enter** *twice* to move to the **total cost** field. This time you must *not* enter the **full amount** as a cost—as it *includes* a 5% markup! Access **PROCALC** with **Alt C** and key in 400000/105% (this is the “**unmarked cost**”). Use **Alt C** to save the formula behind the cost field. (This fixes the cost at 100/105 of the **submitted amount**—so allowing for the markup on the item.) **RECORD** the change.

Overhead Items

At this stage you have finished pricing the *direct cost* items. However, the estimate is still missing “**Site Overheads**”—the **supervision**, **site accommodation**, **permits**, **surveys**, **insurance**, and **design costs**, that must be “priced in”. These costs *must* be included in the estimate—but the items *cannot* appear in the *submitted tender* document.

Terminology varies. **Site Overheads** may be called “*Preliminaries*” or “*Indirects*”; some may be classified as “*Mobilisation*”; “*Global Plant*” may be a separate category; “*Head Office Overheads*” may cover some site costs, and so on.

Hidden Items

Hidden items will *not* appear in the *tender submission*. Their cost is “spread” over the **Normal** items. **Hidden** items are the natural way to handle **Site Overhead** and similar **indirect** costs.

Site overhead items are usually similar for each estimate. You *should* be able to copy in a standard company list—to both *save entry time* and *serve as a checklist*. **PROBID** allows you to do just that...

Using Libraries

If you are using the **STANDARD** version of **PROBID**—which does *not* support libraries—enter the overhead items manually and skip forward to **Requesting Reports** on *page B-39*. (But do read the section on **masking**, as the technique is used throughout the program.)

The installation program copied some short sample library files, **OVERHEAD.ITM**, etc., into the directory **\PROBID\LIB**. (**Alt D**), from the menus, displays the **DATA** and **LIBRARY** directories.)

Escape from the **Item screen** and go to the **Utility menu**. Select **Library access**. A list of “record types” (**items**, **resources**, **sets**, etc.) appears. Select **Items**. This screen appears:—

| | | |
|-----------------------------|---------------------------------------|---------------------------|
| Copy ITEMS FROM Library | | System date: Fri, 28NOV97 |
| Library Path & Filename | .. \LIB_ | |
| Add to/Extract from library | Extract | |
| Include NOTEPAD text? | Yes | |
| Include PROCALC lines? | Yes | |
| Selection Mask: | Group-Sec - Item No ?? ???? ?????? | |

Hit **F6** for a picklist of item *library files*. (There might only be one item file in the directory.) Select **OVERHEAD.ITM**. Leave the other fields as they are (you are **Extracting** records *from* the library, *not Adding to* the library). Let’s just examine the **Mask fields**.

Masking

A library may contain *many* records—only a few of which are needed in the current estimate. Masking is a powerful way to choose (or “filter”) just those records required. The mask is a field—or set of fields—usually containing some “wild” characters.

PROBID uses wild characters in a similar way to **MS-DOS**. The question mark **[?]** matches *any* character in *that* position and the asterisk **[*]** matches *all* characters *from that position on*. Hence, a **resource code mask** of **E?????** (or **E***) selects *all* resources whose code starts with **E**. An **item mask** of **?? M200 A????5** selects *all* items in **M200** sections with item codes *starting with A and ending in 5*.

Masking is used in *many* situations—controlling **report content**, **cloning**, **changing**, or **exporting** records, and **filtering picklists**. If you are pricing an **operation**, and wish to assign a particular **set** to it, entering **@PL*** and **F6** will popup a list of all sets starting with **@PL**. To list all **sections** in group **EX**, enter the group code **EX** in the **item entry screen**, move to the section code field, key **[*]** and hit **F6** (or the *left* mouse button).

When selecting records to be copied to—and from—libraries, you can combine masking with a special type of selection facility called a **Tag List**. This provides *maximum* flexibility in selecting records and allows you to see the records that will be transferred, before committing yourself to the transfer! But that would take us beyond the scope of this introductory tutorial...

Here, it is preferable to bring in *all* overhead items and then—if you wish—delete those *not* needed for this estimate. (An overhead checklist ensures nothing is missed!) The default masks are fully “wild” so just press **[F2]** to accept the screen. Reply **[Y]**es to confirm you do wish to proceed.

Repeat the library extraction procedure for **resources**. (**Operations** are automatically included with their parent items and there are no **sets**, **subcontractors**, or **suppliers** in this small overhead library.) Then bring in the overhead **groups** and **sections**. You will be warned that you are overwriting *existing* **Groups** and **Sections**. (When we imported the items, **PROBID** automatically created any referenced groups and sections.)

Group-Section-Item Structure

Use **Browse mode** to view the items extracted from the library. (Hit **[F6]** for a picklist of *all* items. Select the first of the imported overhead items and browse from there.) A **Group** is defined, as well as **Sections**, so the **items** are organised into a *three level hierarchy*. All are **Hidden** items having *unit* quantity. Operations—if any—and pricing details are included with the extracted items.

In practice, overhead libraries should be *standardised* so you only have to amend the quantities once they are copied into an estimate. If you do *not* need a particular overhead cost in the estimate it is probably better to just remove—or *zero*—the *pricing detail* from the item—rather than *delete the item* itself. This makes it obvious during the tender review that *all* overhead items have been *considered*—even if some carry no costs in this particular job. In the tutorial we will ignore this good advice so we have an excuse to *delete* some items and—later on—will even change the coding structure of the remaining overhead items...

Deleting Records

Hit **[F9]** and then **[D]** to switch to **Delete mode**. Use **[F7]** and **[F8]** to find the item *not* required (see *page A/6, Appendix A*). Press **[Enter]** in the **item code** field and **[Y]**es to confirm that you *do* wish to delete the item. The record disappears and the focus moves on to the next item. Repeat the procedure to remove the other unused item.

Switch to **Change mode** and revise the **Contract Quantity** of the remaining overhead items. (Note that the **Actual Quantity** is adjusted *automatically*—you do not have to change both.) Change the **Establish Offices & Sheds** item cost allowance to \$8500.

We decided earlier that this estimate would *not* be divided into **Groups**. However, the imported overhead items introduced a group structure. *As an exercise* we will now remove the group codes from the overhead items and place them in an overhead *section* instead. You could simply change the group and section code of *each* overhead item—removing the group code and amending the section code to **soh**—but the **Utility** functions are there to handle this pedestrian work...

Mass Code Changes by Mask

First change the **item code** of the **Establish Offices & Sheds** item to **40**, so it will *not* conflict with the **Project Manager** item.

Of course, in practice, overhead coding would be standardised and you would accept the codes without any of this bother. But then we would have to find *a different excuse* to try out some of the **Utility menu** functions...

Select **Find and replace** from the **Utility menu**. A **record type** picklist appears. Select **Groups**. We want to “*blank*” the **group code** of all items in the **SITE OVERHEADS** group.

Let’s also *change item descriptions* like:–

Site Engineer, **Site** Administrator, *etc...*

to:–

Project Engineer, **Project** Administrator, *etc...*

so that the terminology is consistent with **Project Manager**. To make *all* these changes *simultaneously*, fill in the fields as shown in the following screen:–

```

CHANGE GROUPS - SECTIONS - ITEMS BY MASKING          System date: Fri, 28NOV97

Specify masks for Group, Section and Item Codes

      Group-Sec - Item No      Group-Sec - Item No
Source Mask: |SO| |????| |?????|  Destination Mask: | | |????| |?????|

Enter any CHANGES to be made to ITEM Descriptions

FIND this TEXT          REPLACE with this TEXT
|site|                  |project|
    
```

Press **[F2]** to make the change. Once you confirm that you *do* wish to proceed, all items in group **so** will have their group code “*blanked*”. If the word “**site**” appears in those **item descriptions**, it will be replaced with “**project**”.

The **Utility menu** has other options that work in a similar way. **Find and replace**, **Delete by mask**, **Clone by mask**, **Sort/pack files**, and **Pricing changes**, all use *masking* to fix their **source** and—if appropriate—**destination** codes.

You should now be able to change the overhead **section codes** `soh1` and `soh3`, to a *single* section code `soh`, *without* detailed instructions. (Only *one* masking operation is required—think about it first!) Do this and then go to the **Item menu**, **Change Items** to amend the **section description** of `soh` to read “**SITE OVERHEADS**”.

Go to **Resource Browse mode** to view the imported overhead resources. (There is no need to delete *unused* resources—no costs are carried for them, as the items using them have been removed.)

Estimate “pricing” is **complete** so it is time to *print some reports*.

Printing Reports

Switch on the printer. Select **Print Reports** from the **Master menu**. A *report request screen* appears. The cursor drops to the **Report Name** field. (Ignore the fields on the line above this for the moment.) Hit **F6** to list the **PROBID standard reports**.

Requesting Reports

Picklists like this—involving just a few predefined choices—cannot have their content restricted by masking. It would be unnecessarily confusing.

Select **ITEM LISTING** and press **Enter** to move to the **More Reports?** field. Hit **Spacebar** to toggle it to **Yes**. Press **Enter**. The screen looks like this:—

```

Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2      System date: Fri, 28NOV97
Printer: Okidata Microline 393+
Batchfile Name ██████████ Report No 1
Report Name  ITEM LISTING                               More Reports?  Yes
Selection Mask L I ██████████ Sort the Report?  Yes
Summary Only? No                                       Video, Printer or File? Print
Print Pitch? Pica                                     Number of Copies 1
Pause between Pages? No                               Header each Page? Yes
Show NOTEPAD text? No                                Show PROCALC lines? No
    
```

Note: This screen adjusts to suit the settings in **Customisation Printer Setup**. (For example, if you are using a *laser* printer, the **Print Pitch** and **Header each Page?** fields will not appear...)

Hit **F2** to **RECORD** the report request. (You could print one report and request more later, but it is more convenient to specify and print a *set of reports* as a “batch”.) Select

ESTIMATE MASTER, leave the **More Reports?** choice setting to No, and press F2 again. **PROBID** prints the two reports.

Report Formatting Options

Select **Print Reports** again. Other fields in this screen are largely self explanatory—and are fully described in the *Reference section* of the manual (see *Printing Reports, page C-2*). Normally you would accept the defaults given on the screen.

Report content may be *restricted by masking* and the records may be *sorted*—or left in their original order. Item oriented reports sort by **Item code** within *Sections* and by **Section code** within *Groups*. Groups sort by **group code** and page breaks occur on each new group. (Some sample reports are shown in *Appendix B*.)

Print a selection of reports—*excluding* the **COSTCODE LISTING** and **TENDER SUBMISSION** at this stage. Check the printouts to be sure you understand the details. Test your understanding of the estimate and reports:—

- Manually calculate the total **BRICKLAYERS' hours** and compare *your* total with the figure given in the **RESOURCE USAGE** report.
- Do the same for the **quantity** of **DIESEL FUEL** required for the job.
- Check the **SUBCONTRACT ORDER** for **GREENTREE LANDSCAPING**.
- Manually build up the *total* and *unit cost* for the three **Earth Excavation** operations—and the item. Compare your results with the detail given in the **OPERATION ANALYSIS** report.
- The **Reinforcing Steel** has a *supply* cost of 810.00/tonne and a *placing* cost of 200.00/tonne—but the *total* is 1026.20/tonne! Why the extra \$16.20?
- The **RESOURCE USAGE** report lists *both* **CAT 623** and **631** model Scrapers. The **RESOURCE ALLOCATION** report shows *only* the **623** model. Why?

Time Planning

Scheduling the Project

If you do *not* prepare *Bar Charts* or *Network Schedules* with your estimates—or do not have access to *PROCON's Project Scheduling System, PROPLAN*—you can skip forward to *Bid Preparation* on page B-42.

Activity Definition

Any *operation* may be defined as an *activity* for purposes of scheduling. Go to the first operation for item B100b—the **Earth Excavation – Scraper Work**. Move the cursor to the **ActNo** (*Activity Number*) field, enter a code **xx10** (see *page A/7 Appendix A*) and press **Enter**. Additional fields appear and the screen looks like this:–

```

Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2      System date: Fri, 28NOV97
Item      -1000-B100b  Earth excavation                    274350 m3

Operation 1/1 N  Load & Haul - scraper work             Measure Unit  m3  28NOV97

Op units/Item unit      Item units/Op unit      Quantity      Costcode      Act No
0.692546 m3/m3          1.4439474 m3/m3          190000 m3      |      |      |      |      |      |      |      |
Calendar S  Early Start  3FEB98          Duration  295 days      Late Finish  24NOV98
Code  Resource/Set/Subcontractor      Type      Quantity      Unit Cost      Cost
@SCSPR  SCRAPER SPREAD, D9 + 3xCAT631  @          440.49 HR      372.01          163866
  
```

Hit **F8** to roll the **Calendar Number** forward to **1** and then move to the **Early Start** field. Hold down **F8** to increment the date to **15FEB98**. Then enter a **Duration** of **48** days and a **Late Finish** of **27APR98**.

Calendars are *defined* in *PROPLAN*. The **Earliest Start Date** is a “**Push**” date and the **Latest Finish Date** is a “**Plug**” date. The **Duration** is in *working days*. (See your *PROPLAN* manual for an explanation of these terms.) The defaults are the corresponding figures from the **Estimate Details** screen for the Project. All activity *dates* must be within the time span of the Project.

Export Tasks to PROPLAN

RECORD the changes. Then enter the timing information for the other activities shown on *page A/7* of *Appendix A*.

Note that the *last* two activities are associated with **items** rather than **operations**—and those items have no operations! But how do you designate an item without operations as a task? You can't—you must define an operation—at least temporarily. Even if the item has already been priced, this is easy to do. Move to the **operations screen** and press **↑** in the first element code field. The **operation description** field reappears so you can define the operation. Pricing detail remains on the screen but it is then associated with the operation rather than the item. Hit **F5** to copy the **Item description** into the **Operation description** field—or enter anything else you prefer. (You would normally want the task to have a *different* description from the item.) The operation is now a convenient intermediary. (Of course, if you insist on *not* having an explicit operation, there is a way around everything! Having defined the operation and activity, you may then blank the operation description and press **F2**. The operation detail disappears but the activity details remain associated with the item.)

After you enter all five activities, select export **Tasks to PROPLAN** from the **Export menu**. The defined activities and project details are used to set up project files for **PROPLAN**. You can then run **PROPLAN**, define the *calendars*, and immediately print *Bar Charts*. You may add additional **activities**, **hammocks**, **logic links**, and **constraint dates** and create a full **PERT/CPM** network plan. Analysis of that plan could highlight *inconsistencies* in your estimate—possibly requiring reassessment of *overheads*, *staffing levels* or *global plant* requirements.

The files are saved in the directory **\PROPLAN\DATA**—if it exists. Otherwise they will be in **PROBID**'s system directory. An **operation** shared by *linked items* translates into just *one* task. This is both logical and convenient. Linked items usually represent *identical work* carried out in different locations. As this work is often performed sequentially—with the same work force—it is common to depict it on a *Bar Chart* as one activity.

You have completed the project *Cost Estimate*. You must now turn this into a winning and profitable *Tender*...

Preparing the Tender

Bid Preparation

Select **Bid Preparation** from the **Master menu** and you will be presented with a two part screen. The top part of the screen looks like this:–

| | | | |
|---------------------|----------------------|----------------------------|------------------------|
| ROUNDING AND MARKUP | | System date: Fri, 28NOV97 | |
| TENDER ROUNDING: | TOTAL to Five | UNIT RATES to Smart | AMOUNTS to Cent |

Monetary figures in a “real” tender should be properly “presented”—you don’t want your submission to look as if it had been prepared on a spreadsheet or by some mindless automaton! “Raw” unit rates and amounts are *tedious to “write up”, awkward to administer,* and *divulge* too much *confidential information* about costs and markup...

Rounding Rates, Amounts & Totals

PROBID allows you to *independently* set the rounding of *submitted unit rates, amounts* and the *tender total*. (Hit **F1** in each of the three fields in turn, for information on the options available.) Leave the first two fields and change the rounding of **AMOUNTS** to **Dollar**. Press **Enter** to move the cursor down to the lower portion of the screen.

Set the Markup

The **markup** section of the screen looks like this:–

Markup may be fixed by specifying a percentage (or amount) against EACH cost type OR by setting an overall TOTAL percentage (or amount).

| Cost Type | Markable Cost | Markup Percent | Markup Amount | Total Amount |
|--------------|---------------|----------------|---------------|--------------|
| Unassigned | \$ | | | \$ |
| Labour | \$ 734927 | % | | \$ |
| Own eqpt | \$ 81050 | % | | \$ |
| Rented eqpt | \$ 551237 | % | | \$ |
| Material | \$ 704141 | % | | \$ |
| Subcontract | \$ 726521 | % | | \$ |
| OVERALL | \$ 2797875 | % | | \$ 2797875 |
| TOKEN Items | | | | \$ 100000 |
| TENDER TOTAL | | | | \$ 2897875 |

Markup may be set in *three different ways*:–

- as an *overall PERCENTAGE*
- as an *overall DOLLAR AMOUNT*
- as *percentages and/or dollar amounts for each COST TYPE*.

Token items are *excluded* from the costs upon which the markup is calculated. Enter an *overall* markup of **8%** and press **F2**.

Allocating the Spread

The **spread allocation screen** appears, allowing you to vary the way any spread balance will be allocated between items. The screen is like this:—

| SPREAD ALLOCATION | | System date: Fri, 28NOV97 | | |
|--|--------------|---------------------------|---------------|---------|
| SPREAD ANALYSIS | ITEM COSTS | Spread FROM | Spread TO | Percent |
| MARKUP | | \$ 223830 | | |
| HIDDEN items | \$ 189769 | \$ 189769 | | 100.00% |
| FIXED & MARKED items | \$ 380952 | | \$ 19048 | 5.00% |
| NORMAL items | \$ 2227154 | | \$ 394552 | 17.72% |
| <i>Spread rates may be set for SOME cost types - and some must be left "unfixed"</i> | | | | |
| Cost Type | NORMAL Items | Spread Percent | Spread Amount | |
| Unassigned | \$ | % | \$ | |
| Labour | \$ 553658 | % | \$ | |
| Own eqpt | \$ 81050 | % | \$ | |
| Rented eqpt | \$ 551237 | % | \$ | |
| Material | \$ 704141 | % | \$ | |
| Subcontract | \$ 337068 | % | \$ | |
| BALANCE | \$ 2227154 | 17.715551 % | \$ 394552 | |

The “spread” **balance** is the *total of Hidden items, plus markup, less amounts already spread over Fixed and Marked items*. By default, the spread rate is uniform over all **Normal** items. However, this screen allows you to fix special spread rates for each **cost type**. You cannot fix a rate for *all* cost types—at least one must be left “unfixed” to absorb the balance of any spread. (Of course, this does *not* override decisions you made on *fixing* individual items—or groups of items you specified as having a *fixed percentage spread* through the **Utility menu**. **PROBID** offers *three* levels of control over the way the spread is allocated—but we are going beyond the scope of the tutorial...)

In this case, we do not wish to load too much of the “spread” onto the *subcontracted* portion of items, so move down and enter **5%** against the **Subcontract** cost type. Press **[F2]** to **RECORD** the screen. You now have a *completed* tender!

TENDER SUBMISSION

Print a **TENDER SUBMISSION** report. The last page is a *Tender Analysis* sheet which you must detach before submitting the tender. When a tender has:—

- different *contract* and *actual quantities*
- some *token costs*
- some *items with fixed rates*
- a *user specified spread* on some cost types
- “*smart*” *unit rate rounding*, and
- *heavy tender total rounding*,

the setting of item unit rates and maintenance of the tender balance can be very complex. Fortunately **PROBID** does all this for you!

Nevertheless, this *is* a tutorial so you must ensure that you *understand* why particular unit rates have been used and the meaning of the information presented. For instance:—

- Why does item 2000–A900 have a *submitted amount* of \$400,000.00?
- Why has item CONT–100 a *submitted rate* of \$100,000.00?
- Why is the rate on the *brickwork* about 21% above cost, when the rate on the *electrical ducting* is only about 5.6% more than direct cost?
- Why is the *percentage markup* on a **Contract quantity** basis *less* than on an **Actual quantity** basis? How does this *benefit* (or penalise) the tenderer?
- Why are the **TOKEN** item costs *not* included in the *base costs* for markup calculation?
- What is a “*rounding loss*”? Why does it appear in this tender?
- What is the significance of the various *Warnings*?

TENDER ANALYSIS *Warnings*

Whenever you print a **TENDER SUBMISSION** report, **PROBID** checks the estimate for possible “*inconsistencies*”—or evidence of *oversights* and *omissions*. If problems are found, warning messages will appear on the **Tender Analysis** sheet. Examine these messages and either correct the problem, or satisfy yourself that they are not significant. What do the particular warnings on your tender submittal mean?

- ... **Items NOT final** indicates that you have not specifically “flagged” each item as complete. (You can do this conveniently in Browse mode.)
- **Rounding loss \$...** is a byproduct of the adjustment of the submitted total to conform to your request for rounding to five significant digits.
- **Some Subcontractors NOT defined** refers to the arbitrary amounts “plugged” into operations and sets. The “subcontractors” were never defined.
- **Some Resource Costs NOT final** is similar to the first warning.
- **Some Normal items have NEGATIVE spread** results from the low spread rate on the subcontract work and rate rounding. (One item has negative spread.)

Tender Changes

Just prior to tendering, you decide to make the following changes to the estimate:–

- Increase the *diesel fuel cost* to \$0.49/Litre.
- Change the *reinforcement fixing subcontractor* to L Borgia Enterprises and reduce the quoted rate to \$198.00/Tonne.
- Include an employee “*site allowance*” by adding \$0.70/hour to all hourly paid labour rates.
- Reduce company *internal plant rental rates* by 5%.
- Increase *Carpenter productivity* from 2.1 to 2.0 MH/m2.
- Increase the *formwork re-uses* from 4 to 6.

Changing Resource costs

The **Diesel fuel cost** change is straightforward. From the menus, hit **[Alt][R]** for the **Resource** menu and **[C]** for **Resource Change**. Overtyping the start of the code with **M***—a mask for all resources beginning with **M**—and press **[F6]** to list matching resources. Select **DIESEL FUEL**, amend the **unit cost** to 0.49, and **RECORD** the change. Done!

Changing Subcontract details

Two changes must be made to subcontract pricing details. Amending the contractor’s name and details is similar to the resource change discussed above, so do that now. (**[Alt][S]** takes you straight through the **resource screen** to the **subcontractor screen**.) Hit **[F6]** to produce a list of suppliers and subcontractors.

When you request a selection list from a field *already* containing a code for an existing record, **PROBID** assumes you want to see *all* records. You could, of course, have provided the mask “\$ ” to list just subcontractors. **PROBID** accepts *blanks* as alternatives to **?** when evaluating this type of “*loose*” mask—it is more intuitive to non-technical users—and quicker to construct. Of course, there is some ambiguity—the *space* character is valid in a normal code. When the masking action directly results in data or output change (**cloning, deleting, library changes, reports**, etc.), **PROBID** recognises only “*explicit*” masks.

Change the **subcontract price** through the **operations screen**. **[Esc]**ape from the **supplier** and **resource screens** and find item **CY02** in **Item Change mode**. Go to the **operation screen** and move down to the **subcontract code**. Press **[Enter]** to edit the

unit rate. Hit **[F7]** twice to *decrement* the value to **198**, and press **[F2]** to **RECORD** the change.

What about the *other* steel fixing item? Surely the rate must be changed *everywhere*? Check item **cx02**. The rate has *already* been changed—the items are **Linked**. *Any* change to the operations through **one** item appears *immediately* in the **others**!

So far *all* changes have been made using standard editing functions. The increase in the labour rates *could* be made in the same way. But there are several hourly rates—and there might be *dozens* in a real estimate! The *time involved*—and *risk of error*—is too great. There must be a better way...

Mass Price Changes

Select **Pricing changes** from the **Utility menu**. The following screen appears:–

| | | | |
|--|----------------------|---------------------------|---|
| CHANGE ELEMENT PRICING or COSTS | | System date: Sat, 13DEC97 | |
| Element Mask: [?????] Blank MASK field to select by COST TYPE | | | |
| PRODUCTION, USAGE, or QUANTITY | | | |
| Percent Change | <input type="text"/> | % Actual | <input type="text"/> |
| RESOURCE SUPPLY COST | | | |
| Percent Change | <input type="text"/> | % Actual \$ | <input type="text"/> Increase \$ <input type="text"/> |

To restrict the action to the *hourly paid labour resources*, enter the mask **LH????**. Hit **[F6]** to popup a “checklist” of matching resources so you can *confirm* that the mask really does capture *just* hourly paid labour. Hit **[Esc]**ape to remove the list.

A “checklist” is just a *picklist*. (We could use it to find and enter a particular resource code into the mask field.) By requesting—and then *cancelling*—a picklist we can “check” that a mask is correctly formed—and avoid making mass changes to the wrong records!

[PgDn] to the last field and enter the *increase* in the labour rate of **0.70**. Switch on the printer and press **[F2]**. Confirm that you *do* wish to proceed and elect to print the list of changed resources.

This **Utility menu** choice allows you to select **Resources**, **Sets**, or **Subcontractors** by masking (or by **Cost Type** for **Resources** or **Subs**), and change their consumption parameters—or the *supply unit costs* of **Resources**. Resource unit costs may be changed *by* a **percentage** or **amount** or *to* an **actual amount**. Consumption parameters (**Production**, **Usage**, **Quantity**, or **contributory Costs**) may be changed *by* a **percentage** or *to* an **actual amount**. (You could have used this option to change the **Subcontract** cost of reinforcement fixing without having to find the particular items affected.)

This is a powerful facility! *Before* making any change, make sure you understand what you are doing! *Most* changes are reversible—but remember that decreasing a value by 20% and

then increasing it by 20% does *not* restore the value! If you are in doubt about which elements will be captured by the mask, try it with a 0% change first—and print out the result.

Use this option to reduce the *internal plant rental rates*. You can't specify a *mask* that selects *only* company owned plant as *all* equipment resource codes in the tutorial start with "E". However, only the *company plant* has a **cost type** of **Own eqpt**. Return to the screen, *blank* the mask, press and a **Cost Type** field appears. Select **Own eqpt**. Move to the lower line, set the **Percent Change** in the **Unitcost** to **-5** and blank the other two fields. *Proceed*.

Return to the screen, hit and select **CARPENTERS**. Set an actual usage rate of **2.0**, blank all the fields on the lower line and make the change.

Item **CX01** is listed as changed—but *not* item **CY01**? When the **Pricing changes** option operates on **linked** items, only the *primary* item is captured by the mask. This avoids ambiguities that could arise when a mask covers only part of a linked family of items. (Of course, *changes* made to the primary will usually affect the linked items as well.)

The *company plant rental* rate change highlights the vital importance of *intelligently coding Resources* and **Sets**. Masking power is limited only by the information content of the codes!

The increase in formwork reuses could also be handled by a **percentage change** in the **usage rate** for the materials involved. But what is the change? A *50% increase*—or a *33% reduction*? Is *consumption* expressed as a **production rate**, **usage rate**, or **quantity**? It could be confusing to make the change through the **Utility menu**. Better to go to the **operation screen** and amend the **PROCALC** records—as they were carefully annotated to clarify this calculation. Do this now. Both *plywood* and *framing timber* usage will change. Don't forget to **RECORD** the changed formula *and* the operation!

The estimate is now completely revised. Reprint the **OPERATION ANALYSIS** report and check the changes. Then print a new **TENDER SUBMISSION**.

You are now ready to *submit your tender*...

After the Tender

Defining Costcodes

If you are not involved in the preparation of cost control budgets, skip this section.

With such a competently prepared tender you deserve to be successful—and that is the case! The contract is *awarded* on **19JAN98**. You must now prepare for the *construction* and *administration* of the project. The first task is to set up a *budget* for costing and preparation of variance reports.

Costcodes are assigned to **operations**. They can be *manually assigned*—giving complete flexibility—or *automatically assigned* through an option in the **Utility menu**.

Examine the choices offered in the **Utility menu**'s **Assign Costcodes** option. If one of the assignment schemes suits *your* costing system, use it to set the **costcodes**. (Otherwise, you must access each operation and assign codes individually.) Make the assignments and print a **COSTCODE LISTING**.

You could have a **User Defined List** of costcodes—complete with descriptions. You could popup a picklist to enter the codes for each operation. Costcode descriptions would be taken from that list—rather than the *operation* description being used by default.

Export Costs to PROCOST

Select **Costs to PROCOST** from the **Export menu**. A budget will be created and exported.

If you are *not* using **PROCOST**, A file—**BUDGET.PRN**—will be created in the system directory. This is a plain **ASCII** file that can be imported into other costing systems (See *Page D-2*.)

Export Items to PROBILL

If you are not involved in the administration of contracts—or are not using **PROCON**'s *Contract Billing System*, **PROBILL**—you can skip this section.

Monthly *Progress Payment Certificates* are based on the quantity of work completed under each item in the contract document. Exporting the items *directly* to **PROBILL** avoids the need to re-enter this detail. Select **Items to PROBILL** from the **Export menu** to create the necessary files. You are now ready to prepare *Progress Payment Claims*, manage *Variations* and handle contract *Escalation Calculations*.

The files are saved in directory **\PROBILL\DATA**—if it exists. Otherwise, they will be saved in the **PROBID** system directory. See your **PROBILL** manual for more detail on preparing *Progress Payment Certificates* and automatic *“Rise & Fall”* calculation.

The End

Congratulations! You have now completed the tutorial and should be using **PROBID** immediately to prepare better estimates and tenders.

While you will now be reasonably familiar with the mechanics of entering data into **PROBID**, it is also vital that you understand the *principles* **PROBID** uses in *evaluating* the information you provide. There should *not* be one figure produced in the tutorial that you are unable to check manually—even if the arithmetic might be somewhat tedious. *This is most important!*

PROBID is a very powerful system designed to cope with the complexity of *real* estimating and tendering—but you cannot use it to full effect unless you understand what it is doing!

The sample estimate files on the supplied distribution disk are *extensively* annotated. The **NOTEPAD**—and comments within various **PROCALC** screens—amplify points covered in the tutorial and provide many other hints. Copy these files into the data directory and browse through the records and notes. (This is most conveniently done if **PROBID** is set to display 50 lines on a **VGA** screen from **Customisation, System Defaults**.)

The **Reference Section (Part C)** and the **Appendices (Part D)** provide more detailed technical information, cover more advanced program capabilities, and offer practical hints to help you get the most out of **PROBID**.

As you use **PROBID** on your own estimates, you will discover many *ways to save time* and—perhaps more importantly—improve the *quality of the estimates* you prepare. At this stage, you may just wish to skim through the Manual's **Reference Section** and **Appendices**. After several more weeks—or months—of using **PROBID** you will find it well worthwhile to read those parts of the Manual more thoroughly.

Schedule of Rates

Project: **ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2**
 Principal: **Ettamogah Cultural Trust and Brewing Company**
P.O. Box 1792A, 123 Main Street
ETTAMOGAH VIC 3888
 Contracts Officer: **Mr L D Bronstein.**

Tenders Close at **3pm** on **15 December 1997** at the above address.
 Start: **3 February 1998**. Substantial Completion: **25 November 1998**.
 Liquidated damages: **\$350 per calendar day**.

| Item | Description of the work | Quantity | Unit | Extension | |
|---|----------------------------------|----------|------|-----------|-----------|
| Bill 1000 - CIVIL ENGINEERING WORK | | | | | |
| A100 | Tree clearing and disposal | 45.5 | Ha | | |
| A200 | Grubbing to 300mm and disposal | 38.7 | Ha | | |
| B100a | Topsoil stripping | 168500 | m2 | | |
| B100b | Earth excavation | 245000 | m3 | | |
| CX01 | Block X - Struct Concrete 30MPa | 782 | m3 | | |
| CX02 | Block X - Reinforcing Steel | 47.83 | Tn | | |
| CY01 | Block Y - Struct Concrete 30MPa | 1654 | m3 | | |
| CY02 | Block Y - Reinforcing Steel | 94.66 | Tn | | |
| Subtotal | | | | \$ | |
| Bill 2000 - BUILDING WORK | | | | | |
| A100a | Brickwork, Common | 9450 | m2 | | |
| A200 | Elec power connection | 1 | LS | | |
| A210 | Elec ducting, 2 x 4 x 100mm diam | 1645.2 | lm | | |
| A220 | Elec transformers, 150KW | 5 | EA | | |
| A900 | NOMINATED SUBCONTRACT, Acoustics | 1 | LS | 400000.00 | |
| Subtotal | | | | \$ | |
| Bill - CONTINGENCY ALLOWANCES | | | | | |
| 100 | Owner's Contingency Allowance | 1 | LS | 100000.00 | |
| Subtotal | | | | \$ | 100000.00 |
| TENDER TOTAL | | | | \$ | |

Suppliers & Subcontractors

| Code | Subcontractor or Supplier Name | Reference |
|---------------------|--|--|
| \$CL&GB 3/12 | GREENTREE LANDSCAPING PTY LTD 97 Willowtree Boulevard GREENHILLS ESTATE SA 5700 Tel: 2345.7890 Fax: 9870 Mr John Birch, Owner | Subcontractor Phone Quote |
| \$SELECT | SPARKS ELECTRICAL CONTRACTING P.O. Box 220 800a Main Street NEWCASTLE NSW 2488 (049).251.8112 | Subcontractor George Brook - Supv #78-003 Letter |
| \$FIXRB | TYITALL BROS STEEL FIXERS P.O. Box 875 BAULKHAM HILLS NSW 2099 02 - 9957.0055 Fax: 0056 Jack Tyitall | Subcontractor Verbal 11/12/97 |
| ACME eqpt | ACME EQUIPMENT RENTALS PTY LTD 45 Old Range Road HOPETOWN VIC 3777 (03).65.2244X230 | Supplier Plant Dispatcher Rented List less 10% |
| BORAL | BORAL REINFORCEMENT PTY LTD 1321 Northbourne Avenue CANBERRA ACT 2601 (06).2987.4567 | Supplier Shipping Department Material Written Quote |
| GENB&T Quotation | GENERAL BRICK & TILE PTY LTD 975 St Georges Terrace PERTH WA 6000 Fax: 07.2236.1837 Telex: A84321 | Supplier Material Annual |
| INTPLT | COMPANY PLANT DEPARTMENT | Supplier Own eqpt |

Resources used in the Estimate

| Code | Resource Description | Unit Cost | Cost Type |
|---|---------------------------------|-------------|-------------|
| Supplier: None Specified | | | |
| LH10 | LABOUR, Unskilled Class II | 17.80/MH | Labour |
| LH20 | LABOUR, Skilled Class IV | 20.40/MH | Labour |
| LH30 | EQUIPMENT OPERATORS | 22.80/MH | Labour |
| LH40 | CARPENTERS, Formwork | 22.30/MH | Labour |
| LH60 | BRICKLAYERS | 23.20/MH | Labour |
| ET10 | DUMP TRUCKS, 13 m3 boxes | 37.00/HR | Rented eqpt |
| MTP020 | FORM PLYWOOD, Sheet 1200x2400 | 135.00/Sh | Material |
| MTF032 | FRAMING TIMBER, Oregon | 540.00/m3 | Material |
| MCS030 | CONCRETE, Class D Cement, 30MPa | 108.00/m3 | Material |
| Supplier: ACME - ACME EQUIPMENT RENTALS PTY LTD | | | |
| ES10 | ELEVATING SCRAPER, CAT 623 | 105.00/HR | Rented eqpt |
| EC60 | ROLLER, Towed Sheepsfoot | 250.00/WK | Rented eqpt |
| ED06 | DOZER, CAT D6, Operated | 97.00/HR | Rented eqpt |
| EL10 | WHEELED LOADER, CAT 966 | 95.00/HR | Rented eqpt |
| Supplier: INTPLT - INTERNAL PLANT DEPARTMENT | | | |
| ED09 | BULLDOZER, CAT D9, Weekly Rate | 2000.00/WK | Own eqpt |
| ES30 | SCRAPER, CAT 631, Weekly Rate | 2400.00/WK | Own eqpt |
| MFD000 | DIESEL FUEL, Supplied to Job | 0.45/Li | Material |
| Supplier: BORAL - BORAL REINFORCEMENT PTY LTD | | | |
| MRB070 | REINFORCING BAR, cut & bent | 810.00/Tn | Material |
| Supplier: GENB&T - GENERAL BRICK & TILE PTY LTD | | | |
| MMBC00 | BRICKS, Common, 230 x 100 x 76 | 325.00/MB | Material |
| RESOURCES IMPORTED FROM OVERHEAD LIBRARY | | | |
| Supplier: None Specified | | | |
| LS10 | PROJECT MANAGER, Annual Cost | 80000.00/Yr | Labour |
| LS20 | PROJECT ENGINEER, Annual Cost | 43000.00/Yr | Labour |
| LS30 | SITE ADMINISTRATOR, Annual Cost | 46000.00/Yr | Labour |

Sets used in the Estimate

| Code | Set Description Element Code & Description | Set Meas Unit | Element Usage |
|--------|---|---------------|---------------|
| @BLCRW | BRICKLAYING CREW, 2B/L + 1LAB | DY | |
| | LH60 BRICKLAYERS | | 17 MH |
| | LH10 LABOUR, Unskilled Class II | | 8.5 MH |
| @DOZD9 | BULLDOZER, CAT D9, Operated | HR | |
| | ED09 BULLDOZER, CAT D9, Weekly Rate | | 0.02 WK |
| | LH30 EQUIPMENT OPERATORS | | 1.05 MH |
| | MFD000 DIESEL FUEL | | 55 Li |
| @SC631 | SCRAPER, CAT 631, Operated | HR | |
| | ES30 SCRAPER, CAT 631, Weekly Rate | | 0.02 WK |
| | LH30 EQUIPMENT OPERATORS | | 1.05 MH |
| | MFD000 DIESEL FUEL | | 50 Li |
| @SCSPR | SCRAPER SPREAD, D9 + 3xCAT631 | HR | |
| | @DOZD9 BULLDOZER, CAT D9, Operated | | 1 HR |
| | @SC631 SCRAPER, CAT 631, Operated | | 3 HR |

Item Breakdown and Pricing

| Item | Description | Item Actual Qty | Operation Description | Operation Consumption | Consumption |
|---|---|-----------------|--------------------------|-----------------------|--------------------------|
| | Resource/Set/Sub Code & Description | | | | |
| Section: 1000 CIVIL ENGINEERING WORK | | | | | |
| A100 | Tree clearing and disposal <i>(A simple item priced directly)</i> | 45.5 Ha | | | |
| | \$CL&GB GREENTREE LANDSCAPING PTY LTD | | (sub) | | 950.00/Ha |
| A200 | Grubbing to 300mm and disposal <i>(Operation breakdown unnecessary - price directly to the item)</i> | 38.7 Ha | | | |
| | \$CL&GB GREENTREE LANDSCAPING PTY LTD | | (sub) | | 4700/Ha |
| | LH10 LABOUR, Unskilled Class II | | (Flagmen) | | 200 MH |
| B100a | Topsoil stripping <i>(Define an operation to change measure unit to m3)</i> | 168500 m2 | | | |
| | 1. Strip to Stockpile (150mm deep) | | 0.150 m3/m2 | | |
| | ES10 ELEVATING SCRAPER, CAT 623 | | | | 125 m3/HR |
| B100b | Earth excavation <i>(Break the item down into these three operations)</i> | 274350 m3 | (Contract Qty 245000 m3) | | |
| | 1. Load & Haul - scraper work | | 190000 m3 | | |
| | @SCSPR SCRAPER SPREAD, D9 + 3 x CAT 631 | | | | |
| | Output = 3 Scrapers @ 18.2 m3/Load @ 7.9 Loads/hour | | | | |
| | 2. Load & Haul - truck & loader | | 84350 m3 | | |
| | EL10 WHEELED LOADER, CAT 966 | | | | 90 m3/HR |
| | ET10 DUMP TRUCKS, 13 m3 boxes | | | | 24 m3/HR |
| | 3. Spread and compact fill | | 1 m3/m3 | | |
| | ED06 DOZER, CAT D6, Operated | | | | 90 m3/HR |
| | EC60 ROLLER, Towed Sheepsfoot | | | | 4500 m3/WK |
| CX01 | Block X - Struct Concrete 30MPa <i>(Break the item down into two operations)</i> | 782 m3 | | | |
| | 1. Formwork to Structural Concrete | | 2.4 m2/m3 | | |
| | MTP020 FORM PLYWOOD, Sheet 1200x2400 | | | | 20% wastage. 4 reuses |
| | MTF032 FRAMING TIMBER, Oregon | | | | 0.05 m3/m2 over 4 reuses |
| | LH40 CARPENTERS, FORMWORK | | | | 2.1 MH/m2 |
| | 2. Supply & Place Concrete | | 1 m3/m3 | | |
| | MCS030 CONCRETE, Class D Cement, 30MPa | | | | 4% wastage |
| | LH20 LABOUR, Skilled Class IV | | | | 0.8 MH/m3 |
| | \$ALLOW Miscellaneous Equipment Allow. | | (say) | | \$2.00/m3 |
| CX02 | Block X - Reinforcing Steel <i>(Operation breakdown unnecessary - price directly to the item)</i> | 47.83 Tn | | | |
| | MRB070 REINFORCING BAR, cut & bent | | | | 2% rolling margin |
| | \$FIXRB TYITALL BROS STEEL FIXERS | | (sub) | | 200.00/Tn |
| CY01 | Block Y - Struct Concrete 30MPa <i>(Item is similar to CX01 so price on same principles)</i> | 1654 m3 | | | |
| CY02 | Block Y - Reinforcing Steel <i>(Item is similar to CX02 so price on same principles)</i> | 94.66 Tn | | | |

Section: 2000 BUILDING WORK

| | | | | |
|-------|--|--------------|----------------|----------|
| A100a | Brickwork, Common | 9450 m2 | | |
| | <i>(An operation is used to change the measure unit to MB=1000 bricks)</i> | | | |
| | 1. Supply & Lay Common Brickwork | 49 bricks/m2 | (0.049 MB/m2) | |
| | MMBC00 BRICKS, Common, 230 x 100 x 76 | | 1 MB/MB | |
| | @BLCRW BRICKLAYING CREW, 2B/L + 1LAB | | 1.3 MB per day | |
| <hr/> | | | | |
| A200 | Elec power connection | 1 LS | | |
| | <i>(Electrical items have been quoted by a subcontractor)</i> | | | |
| | \$ELECT SPARKS ELECTRICAL CONTRACTING | (sub) | 8000.00 LS | |
| <hr/> | | | | |
| A210 | Elec ducting, 2 x 4 x 100mm diam | 1645.2 lm | | |
| | \$ELECT SPARKS ELECTRICAL CONTRACTING | (sub) | 23.68/lm | |
| <hr/> | | | | |
| A220 | Elec transformers, 150KW | 5 EA | | |
| | \$ELECT SPARKS ELECTRICAL CONTRACTING | (sub) | 6325.00/EA | |
| <hr/> | | | | |
| A900 | NOMINATED SUBCONTRACT, Acoustics | 1 LS | | \$400000 |

Section: CONT CONTINGENCY ALLOWANCES

| | | | | |
|-----|-------------------------------|------|--|----------|
| 100 | Owner's Contingency Allowance | 1 LS | | \$100000 |
|-----|-------------------------------|------|--|----------|

Section: soh SITE OVERHEADS

| | | | | |
|-------|---|-------|----|--------|
| | <i>(Don't enter these items - they will be imported from a library)</i> | | | |
| 10 | Project Manager | 45 Wk | | |
| <hr/> | | | | |
| 20 | Site Engineer | 82 Wk | | |
| <hr/> | | | | |
| 30 | Site Administrator | 50 Wk | | |
| <hr/> | | | | |
| 40 | Establish Offices & Sheds | Allow | LS | \$8500 |

Project Scheduling Information

| Item/Op | Item or Operation Description | | Quantity | | Finish Date |
|--|----------------------------------|-------------|------------|-----------|-------------|
| | Task No | Calendar No | Start Date | Duration | |
| Overall Project Timing | | S | 01FEB98 | 295 days | 22NOV98 |
| B100b/1 | Load & Haul - scraper work | | | 190000 m3 | |
| | XX10 | 1 | 15FEB98 | 48 days | 27APR98 |
| B100b/2 | Load & Haul - truck & loader | | | 84350 m3 | |
| | XX30 | 1 | 19MAR98 | 92 days | 27JUL98 |
| A100a/1 | Supply & Lay Common Brickwork | | | 463.05 MB | |
| | XB00 | 4 | 14MAY98 | 105 days | 21SEP98 |
| <i>(The following two items have NO operations. See the tutorial for help in defining these activities).</i> | | | | | |
| A210 | Elec ducting, 2 x 4 x 100mm diam | | | 1645.2 lm | |
| | XED4 | 4 | 25JUN98 | 17 days | 28SEP98 |
| A900 | NOMINATED SUBCONTRACT, Acoustics | | | 1 LS | |
| | XA00 | S | 16JUL98 | 65 days | 09NOV98 |

ITEM LISTING

| 2:37pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | Page 1 |
|---|----------------------------------|--|-----------|-------------------|
| *** ITEM LISTING *** | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | Sorted |
| ===== | | | | |
| Item | Description | Actual Qty | Unit Cost | Total |
| ===== | | | | |
| Section: 1000 CIVIL ENGINEERING WORK | | | | |
| A100 | Tree clearing and disposal | 45.5 Ha | 950.00 | 43225 |
| A200 | Grubbing to 300mm and disposal | 38.7 Ha | 4791.99 | 185450 |
| B100a | Topsoil stripping | 168500 m2 | 0.13 | 21231 |
| B100b | Earth excavation | 274350 m3 | 2.53 | 693872 |
| CX01 | Block X - Struct Concrete 30MPa | 782 m3 | 292.98 | 229112 |
| CX02 | Block X - Reinforcing Steel | 47.83 Tn | 1026.20 | 49083 |
| CY01 | Block Y - Struct Concrete 30MPa | 1654 m3 | 292.98 | 484592 |
| CY02 | Block Y - Reinforcing steel | 94.66 Tn | 1026.20 | 97140 |
| ----- | | | | |
| Section: 1000 8 Items | | | \$ | 1803705 |
| ***** | | | | |
| Section: 2000 BUILDING WORK | | | | |
| A100a | Brickwork, Common | 9450 m2 | 36.49 | 344865 |
| A200 | Elec power connection | 1 LS | 8000.00 | 8000 |
| A210 | Elec ducting, 2 x 4 x 100mm diam | 1645.2 lm | 23.68 | 38958 |
| A220 | Elec transformers, 150KW | 5 EA | 6325.00 | 31625 |
| A900 | NOMINATED SUBCONTRACT, Acoustics | 1 LS | 380952.38 | 380952 |
| ----- | | | | |
| Section: 2000 5 Items | | | \$ | 804401 |
| ***** | | | | |
| Section: CONT CONTINGENCY ALLOWANCES | | | | |
| 100 | Owner's Contingency Allowance | 1 LS | 100000.00 | 100000 |
| ----- | | | | |
| Section: CONT 1 Item | | | \$ | 100000 |
| ***** | | | | |
| Section: soh SITE OVERHEADS | | | | |
| 10 | Project Manager | 45 Wk | 1538.46 | 69231 |
| 20 | Project Engineer | 82 Wk | 826.92 | 67808 |
| 30 | Project Administrator | 50 Wk | 884.62 | 44231 |
| 40 | Establish Offices & Sheds | 1 LS | 8500.00 | 8500 |
| ----- | | | | |
| Section: soh 4 Items | | | \$ | 189769 |
| JOB TOTALS - 18 Items | | | | \$ 2897875 |
| ===== | | | | |

ITEM UNITCOSTS - Civil Work

| Printed 2:37pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | | | Page 1 | |
|---|---------------------------------|--|----------------|------------|---------------|--------------|---------------|---------------|-------------|---------------------------|---------------|
| *** ITEM UNITCOSTS *** | | | | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | | | | Selected on ?? 1000 ????? | |
| Item No | Description | Actual Qty | Total | Unassigned | Labour | Own eqpt | Rented eqpt | Material | Subcontract | | |
| No | Est Comp Item Type | Changed Contract Qty | Rate/Amt | Rate/Amt | Rate/Amt | Rate/Amt | Rate/Amt | Rate/Amt | Rate/Amt | Rate/Amt | Rate/Amt |
| Section: 1000 CIVIL ENGINEERING WORK | | | | | | | | | | | |
| A100 | Tree clearing and disposal | 45.5 Ha | 950.00 | | | | | | | | 950.00 |
| | JWB Yes Normal 28NOV97 | | 43225 | | | | | | | | 43225 |
| A200 | Grubbing to 300mm and disposal | 38.7 Ha | 4791.99 | | 91.99 | | | | | | 4700.00 |
| | JWB Yes Normal 28NOV97 | | 185450 | | 3560 | | | | | | 181890 |
| B100a | Topsoil stripping | 168500 m2 | 0.13 | | | | 0.13 | | | | |
| | JWB Yes Normal 28NOV97 | | 21231 | | | | 21231 | | | | |
| B100b | Earth excavation | 274350 m3 | 2.53 | | 0.15 | 0.30 | 1.93 | 0.15 | | | |
| | JWB Yes Normal 28NOV97 | 245000 m3 | 693872 | | 42181 | 81050 | 530006 | 40635 | | | |
| CX01 | Block X - Struct Concrete 30MPa | 782 m3 | 292.98 | | 128.71 | | | 162.27 | | | 2.00 |
| | JWB No Normal 28NOV97 | | 229112 | | 100653 | | | 126895 | | | 1564 |
| CX02 | Block X - Reinforcing Steel | 47.83 Tn | 1026.20 | | | | | 826.20 | | | 200.00 |
| | JWB No Normal 28NOV97 | | 49083 | | | | | 39517 | | | 9566 |
| CY01 | Block Y - Struct Concrete 30MPa | 1654 m3 | 292.98 | | 128.71 | | | 162.27 | | | 2.00 |
| | JWB No Normal 28NOV97 | | 484592 | | 212889 | | | 268395 | | | 3308 |
| CY02 | Block Y - Reinforcing steel | 94.66 Tn | 1026.20 | | | | | 826.20 | | | 200.00 |
| | JWB No Normal 28NOV97 | | 97140 | | | | | 78208 | | | 18932 |
| Section: 1000 8 Items | | | 1803705 | | 359284 | 81050 | 551237 | 553650 | | | 258485 |

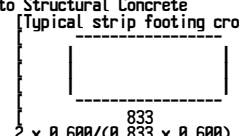
OPERATION UNITCOSTS - Civil Work

| Printed 2:37pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | | | Page 1 | |
|---|---------------------------------|--|-----------------|------------|---------------|--------------|---------------|---------------|-------------|---------------------------|---------------|
| *** OPERATION UNITCOSTS *** | | | | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | | | | Selected on ?? 1000 ????? | |
| Item | Description | Item Actual Qty | Total | Unassigned | Labour | Own eqpt | Rented eqpt | Material | Subcontract | | |
| Operation | Operation Description | Operation Usage Rate | Unit Rate | Unit Rate | Unit Rate | Unit Rate | Unit Rate | Unit Rate | Unit Rate | Unit Rate | Unit Rate |
| Section: 1000 CIVIL ENGINEERING WORK | | | | | | | | | | | |
| A100 | Tree clearing and disposal | 45.5 Ha | 950.00 | | | | | | | | 950.00 |
| | | | ITEM AMOUNTS \$ | 43225 | | | | | | | 43225 |
| A200 | Grubbing to 300mm and disposal | 38.7 Ha | 4791.99 | | 91.99 | | | | | | 4700.00 |
| | | | ITEM AMOUNTS \$ | 185450 | | 3560 | | | | | 181890 |
| B100a | Topsoil stripping | 168500 m2 | 0.13 | | | | 0.13 | | | | |
| | Strip to Stockpile (150mm deep) | 0.15 m3/m2 | 25275 m3 | 0.84 | | | | 0.84 | | | |
| | | | ITEM AMOUNTS \$ | 21231 | | | | 21231 | | | |
| B100b | Earth excavation | 274350 m3 | 2.53 | | | | | | | | |
| | Load & Haul - scraper work | | 190000 m3 | 0.86 | | 0.22 | 0.43 | 0.21 | | | |
| | Load & Haul - truck & loader | | 84350 m3 | 2.60 | | | | 2.60 | | | |
| | Spread & compact fill | 1 m3/m3 | 274350 m3 | 1.13 | | | | 1.13 | | | |
| | | | ITEM AMOUNTS \$ | 693872 | | 42181 | 81050 | 530006 | 40635 | | |
| CX01 | Block X - Struct Concrete 30MPa | 782 m3 | 292.98 | | 128.71 | | | 162.27 | | | 2.00 |
| | Formwork to Structural Concrete | 2.4 m2/m3 | 1876.8 m2 | 67.64 | | 46.83 | | 20.81 | | | |
| | Supply & Place Concrete | 1 m3/m3 | 782 m3 | 130.64 | | 16.32 | | 112.32 | | | |
| | | | ITEM AMOUNTS \$ | 229112 | | 100653 | | 126895 | | | 1564 |
| CX02 | Block X - Reinforcing Steel | 47.83 Tn | 1026.20 | | | | | 826.20 | | | 200.00 |
| | | | ITEM AMOUNTS \$ | 49083 | | | | 39517 | | | 9566 |
| CY01 | Block Y - Struct Concrete 30MPa | 1654 m3 | 292.98 | | 128.71 | | | 162.27 | | | 2.00 |
| | Formwork to Structural Concrete | 2.4 m2/m3 | 3969.6 m2 | 67.64 | | 46.83 | | 20.81 | | | |
| | Supply & Place Concrete | 1 m3/m3 | 1654 m3 | 130.64 | | 16.32 | | 112.32 | | | |
| | | | ITEM AMOUNTS \$ | 484592 | | 212889 | | 268395 | | | 3308 |
| CY02 | Block Y - Reinforcing steel | 94.66 Tn | 1026.20 | | | | | 826.20 | | | 200.00 |
| | | | ITEM AMOUNTS \$ | 97140 | | | | 78208 | | | 18932 |
| Section: 1000 8 Items | | | 1803705 | | 359284 | 81050 | 551237 | 553650 | | | 258485 |

OPERATION LISTING

| Printed 2:37pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | Page 1 | |
|---|----------------------------------|--|----------------------|------------|----------|--------|---------|----------------|------------|
| *** OPERATION LISTING *** | | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | | Sorted | |
| Item | Description | Item Actual Qty | Operation Usage Rate | Operns Qty | Costcode | Act No | Changed | Op Unit Cost | Total Cost |
| Section: 1000 CIVIL ENGINEERING WORK | | | | | | | | | |
| A100 | Tree clearing and disposal | 45.5 Ha | | | | | | 950.00/Ha | 43225 |
| A200 | Grubbing to 300mm and disposal | 38.7 Ha | | | | | | 4791.99/Ha | 185450 |
| B100a | Topsoil stripping | 168500 m2 | | | | | | | |
| | Strip to Stockpile (150mm deep) | 0.15 m3/m2 | 25275 m3 | | CX0040 | | 28NOV97 | 0.84/m3 | 21231 |
| | | | | | | | | ITEM COST | 21231 |
| B100b | Earth excavation | 274350 m3 | | | | | | | |
| | Load & Haul - scraper work | | 190000 m3 | | CX0050 | XX10 | 28NOV97 | 0.86/m3 | 163866 |
| | Load & Haul - truck & loader | | 84350 m3 | | CX0052 | XX30 | 28NOV97 | 2.60/m3 | 219076 |
| | Spread & compact fill | 1 m3/m3 | 274350 m3 | | CX0058 | | 28NOV97 | 1.13/m3 | 310930 |
| | | | | | | | | ITEM COST | 693872 |
| CX01 | Block X - Struct Concrete 30MPa | 782 m3 | | | | | | | |
| | Formwork to Structural Concrete | 2.4 m2/m3 | 1876.8 m2 | | CS0410 | | 28NOV97 | 67.64/m2 | 126951 |
| | Supply & Place Concrete | 1 m3/m3 | 782 m3 | | CS0504 | | 28NOV97 | 130.64/m3 | 102160 |
| | | | | | | | | ITEM COST | 229112 |
| CX02 | Block X - Reinforcing Steel | 47.83 Tn | | | | | | 1026.20/Tn | 49083 |
| CY01 | Block Y - Struct Concrete 30MPa | 1654 m3 | | | | | | | |
| | Formwork to Structural Concrete | 2.4 m2/m3 | 3969.6 m2 | | CS0410 | | 28NOV97 | 67.64/m2 | 268514 |
| | Supply & Place Concrete | 1 m3/m3 | 1654 m3 | | CS0504 | | 28NOV97 | 130.64/m3 | 216079 |
| | | | | | | | | ITEM COST | 484592 |
| CY02 | Block Y - Reinforcing steel | 94.66 Tn | | | | | | 1026.20/Tn | 97140 |
| Section: 1000 8 Items | | | | | | | | 1883785 | |
| ***** | | | | | | | | | |
| Section: 2000 BUILDING WORK | | | | | | | | | |
| A100a | Brickwork, Common | 9450 m2 | | | | | | | |
| | Supply & Lay Common Brickwork | 0.049 MB/m2 | 463.05 MB | | BM1030 | XB00 | 28NOV97 | 744.77/MB | 344865 |
| | | | | | | | | ITEM COST | 344865 |
| A200 | Elec power connection | 1 LS | | | | | | 8000.00/LS | 8000 |
| A210 | Elec ducting, 2 x 4 x 100mm diam | 1645.2 Lm | | | | | | 23.68/Lm | 38958 |
| A220 | Elec transformers, 150KW | 5 EA | | | | | | 6325.00/EA | 31625 |
| A900 | NOMINATED SUBCONTRACT, Acoustics | 1 LS | | | | | | 380952.00/LS | 380952 |
| Section: 2000 5 Items | | | | | | | | 804400 | |
| ***** | | | | | | | | | |
| Section: CONT CONTINGENCY ALLOWANCES | | | | | | | | | |
| 100 | Owner's Contingency Allowance | 1 LS | | | | | | 100000.00/LS | 100000 |
| Section: CONT 1 Item | | | | | | | | 100000 | |
| ***** | | | | | | | | | |
| Section: soh SITE OVERHEADS | | | | | | | | | |
| 10 | Project Manager | 45 Wk | | | | | | 1538.47/Wk | 69231 |
| 20 | Project Engineer | 82 Wk | | | | | | 826.93/Wk | 67808 |
| 30 | Project Administrator | 50 Wk | | | | | | 884.62/Wk | 44231 |
| 40 | Establish Offices & Sheds | 1 LS | | | | | | 8500.00/LS | 8500 |
| Section: soh 4 Items | | | | | | | | 189770 | |
| JOB TOTALS - 10 Items | | | | | | | | 2897875 | |

OPERATION ANALYSIS - Civil Work

| Item | Description | Actual Qty | Usage Rate | Operns Qty | Costcode | Act No | Cal Start | Duration | Finish |
|--|---|-------------|------------------|--------------------------------------|----------|---------------------------|----------------|------------|---------|
| Code | Resource/Set/Sub Description | Cost Type | Production/Usage | Quantity | Quantity | Elem Unit | Cost | Total Cost | |
| Printed 2:37pm 28NOV97 PROBID - ESTIMATING & TENDERING SYSTEM Page 1 | | | | | | | | | |
| +++ OPERATION ANALYSIS +++ | | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | Selected on ?? 1000 ????? | | | |
| ----- | | | | | | | | | |
| Section: 1000 CIVIL ENGINEERING WORK | | | | | | | | | |
| A100 | Tree clearing and disposal | 45.5 Ha | | | | | | | |
| | \$CL&GB GREENTREE LANDSCAPING PTY LTD | Subcontract | | | | | 950.00/Ha | 43225 | |
| | | | | | | | ITEM COST | | |
| | | | | | | | 950.00/Ha | | 43225 |
| A200 | Grubbing to 300mm and disposal | 38.7 Ha | | | | | | | |
| | \$CL&GB GREENTREE LANDSCAPING PTY LTD | Subcontract | | | | | 4700.00/Ha | 181890 | |
| | LH10 LABOUR, Unskilled Class II | Labour | | | | 200 MH | 17.80/MH | 3560 | |
| | | | | | | | ITEM COST | | |
| | | | | | | | 4791.99/Ha | | 185450 |
| B100a | Topsoil stripping | 168500 m2 | | | | | | | |
| | Strip to Stockpile (150mm deep) | 0.15 m3/m2 | 25275 m3 | | CX0040 | | | | |
| | [Assume uniform strip of 6" over complete ROW] 150/1000 = 0.15 | | | | | | | | |
| | ES10 ELEVATING SCRAPER, CAT 623 | Rented eqpt | 125 m3/HR | 202.2 HR | | | 105.00/HR | 21231 | |
| | | | | | | | OPERATION COST | | |
| | | | | | | | 0.84/m3 | | 21231 |
| | | | | | | | ITEM COST | | |
| | | | | | | | 0.13/m2 | | 21231 |
| B100b | Earth excavation | 274350 m3 | | | | | | | |
| | Load & Haul - scraper work | | 190000 m3 | | CX0050 | XX10 | 1 15FEB98 | 48 | 27APR98 |
| | @SCSPR SCRAPER SPREAD, D9 + 3xCAT631 | | 431.34 m3/HR | 440.49 HR | | | 372.01/HR | 163866 | |
| | 3 [Scrapers] @ 18.2' [m3/Load] @ 7.9 [Loads/Hour - haul 600m] = 431.34 | | | | | | | | |
| | | | | | | | OPERATION COST | | |
| | | | | | | | 0.86/m3 | | 163866 |
| | Load & Haul - truck & loader | | 84350 m3 | | CX0052 | XX30 | 1 19MAR98 | 92 | 27JUL98 |
| | 274350 - 190000 {ALL non-scraper dirt handled by trucks} = 84350 | | | | | | | | |
| | EL10 WHEELED LOADER, CAT 966 | Rented eqpt | 90 m3/HR | 937.22 HR | | | 95.00/HR | 89036 | |
| | ET10 DUMP TRUCKS, 13 m3 boxes | Rented eqpt | 24 m3/HR | 3514.58 HR | | | 37.00/HR | 130040 | |
| | | | | | | | OPERATION COST | | |
| | | | | | | | 2.60/m3 | | 219076 |
| | Spread & compact fill | 1 m3/m3 | 274350 m3 | | CX0058 | | | | |
| | ED06 DOZER, CAT D6, Operated | Rented eqpt | 90 m3/HR | 3048.33 HR | | | 97.00/HR | 295688 | |
| | EC60 ROLLER, Towed Sheepsfoot | Rented eqpt | 4500 m3/WK | 60.966666 WK | | | 250.01/WK | 15242 | |
| | | | | | | | OPERATION COST | | |
| | | | | | | | 1.13/m3 | | 310930 |
| | | | | | | | ITEM COST | | |
| | | | | | | | 2.53/m3 | | 693872 |
| CX01 | Block X - Struct Concrete 30MPa | 782 m3 | | | | | | | |
| | Formwork to Structural Concrete | 2.4 m2/m3 | 1876.8 m2 | | CS0410 | | | | |
| | [Typical strip footing cross section is like this | | | | | | | | |
| |  | | 600 | Assume just side forms are required. | | | | | |
| | 2 x 0.600 / (0.833 x 0.600) [m2/m3] = 2.40 | | | | | | | | |
| MTP020 | FORM PLYWOOD, Sheet 1200x2400 | Material | 0.1041667 Sh/m2 | 195.5 Sh | | | 135.00/Sh | 26393 | |
| | 1 / (1.2 x 2.4 {Sheet size}) / 4 {reuses} @ 120% {wastage} = 0.104166667 | | | | | | | | |
| MTF032 | FRAMING TIMBER, Oregon | Material | 0.0125 m3/m2 | 23.46 m3 | | | 539.98/m3 | 12668 | |
| | 0.05 {m3/m2} / 4 {reuses} = 0.0125 | | | | | | | | |
| LH40 | CARPENTERS, Formwork | Labour | 2.1 MH/m2 | 3941.28 MH | | | 22.30/MH | 87891 | |
| | | | | | | | OPERATION COST | | |
| | | | | | | | 67.64/m2 | | 126951 |
| | Supply & Place Concrete | 1 m3/m3 | 782 m3 | | CS0504 | | | | |
| | MCS030 CONCRETE, Class D Cement, 30MPa | Material | 1.04 m3/m3 | 813.28 m3 | | | 108.00/m3 | 87834 | |
| | 104% [Wastage allowance for losses during pouring] = 1.04 | | | | | | | | |
| LH20 | LABOUR, Skilled Class IV | Labour | 0.8 MH/m3 | 625.6 MH | | | 20.40/MH | 12762 | |
| | \$ALLOW \$\$ Undefined SUB/SUPPLIER \$\$ | Subcontract | | | | | 2.00/m3 | 1564 | |
| | 2.00 [Company standard allowance for small tools, etc.] = 2 | | | | | | | | |
| | | | | | | | OPERATION COST | | |
| | | | | | | | 130.64/m3 | | 102160 |
| | | | | | | | ITEM COST | | |
| | | | | | | | 292.98/m3 | | 229112 |
| CX02 | Block X - Reinforcing Steel | 47.83 Tn | | | | | | | |
| | MAB070 REINFORCING BAR, cut & bent | Material | 1.02 Tn/Tn | 48.7866 Tn | | | 810.00/Tn | 39517 | |
| | 102% [Add 2% that must be paid for "rolling margin"] = 1.02 | | | | | | | | |
| | \$FIXRB TYTALL BROS STEEL FIXERS | Subcontract | | | | | 200.00/Tn | 9566 | |
| | | | | | | | ITEM COST | | |
| | | | | | | | 1026.20/Tn | | 49083 |

SUPPLIER LISTING

| Printed 2:37pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | Page 1 | |
|---|---|--|----------------------|------------------|-----------|-------------|---------|--|
| *** SUPPLIER LISTING *** | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | Sorted | |
| Code | Supplier Name | Telephone/Fax | Contact | Quotation Ref | Estimator | Cost Type | Changed | |
| \$CL&GB | GREENTREE LANDSCAPING PTY LTD 97 Willowtree Boulevard GREENHILLS ESTATE SA 5700 | (08).2345.7890 (08).2345.9870 | Mr John Birch, Owner | Phone Quote 3/12 | JWB | Subcontract | 28NOV97 | |
| \$ELECT | SPARKS ELECTRICAL CONTRACTING P.O. Box 220 800a Main Street NEWCASTLE NSW 2488 | (049).251.8112 | George Brook - Supv | #78-003 Letter | JWB | Subcontract | 28NOV97 | |
| Price covers all electrical work. Includes all necessary permits, inspections and final certificates. | | | | | | | | |
| \$FIXRB | TYTALL BROS STEEL FIXERS P.O. Box 875 BAULKHAM HILLS NSW 2099 | (02).9957.0055 (02).9957.0056 | Jack Tytall | Verbal 11/12/97 | JWB | Subcontract | 28NOV97 | |
| ACME | ACME EQUIPMENT RENTALS PTY LTD 45 Old Range Road HOPETOWN VIC 3777 | (03).65.2244X230 | Plant Dispatcher | List less 10% | JWB | Rented eqpt | 28NOV97 | |
| Prices are "all-in", i.e., they include Operator, fuel and maintenance. Rates are ACME's list rates at 1 June 1997 less our 10% discount. | | | | | | | | |
| BORAL | BORAL REINFORCEMENT PTY LTD 1321 Northbourne Avenue CANBERRA ACT 2601 | (061).987.4567 | Shipping Department | Written Quote | JWB | Material | 28NOV97 | |
| GENB&T | GENERAL BRICK & TILE PTY LTD 975 St Georges Terrace PERTH WA 6000 | Telex: 084321 (07).236.1837 | | Annual Quotation | JWB | Material | 28NOV97 | |
| INTPLT | COMPANY PLANT DEPARTMENT | | | Internal List | JWB | Own eqpt | 1JUN97 | |
| 7 Suppliers/Subcontractors | | | | | | | | |

RESOURCE LISTING

| Printed 2:37pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | Page 1 | |
|---|---------------------------------|--|-------|------------------------|--------------------------------|-----|-------------|---------|
| *** RESOURCE LISTING *** | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | Sorted | |
| Code | Resource Description | Unit Cost | Final | Supplier Code and Name | | Est | Cost Type | Changed |
| EC60 | ROLLER, Towed Sheepsfoot | 250.00/WK | Yes | ACME | ACME EQUIPMENT RENTALS PTY LTD | JWB | Rented eqpt | 28NOV97 |
| ED06 | DOZER, CAT D6, Operated | 97.00/HR | Yes | ACME | ACME EQUIPMENT RENTALS PTY LTD | JWB | Rented eqpt | 28NOV97 |
| ED09 | BULLDOZER, CAT D9, Weekly Rate | 2000.00/WK | Yes | INTPLT | COMPANY PLANT DEPARTMENT | JWB | Own eqpt | 28NOV97 |
| EL10 | WHEELED LOADER, CAT 966 | 95.00/HR | Yes | ACME | ACME EQUIPMENT RENTALS PTY LTD | JWB | Rented eqpt | 28NOV97 |
| ES10 | ELEVATING SCRAPER, CAT 623 | 105.00/HR | Yes | ACME | ACME EQUIPMENT RENTALS PTY LTD | JWB | Rented eqpt | 28NOV97 |
| ES30 | SCRAPER, CAT 631, Weekly Rate | 2400.00/WK | Yes | INTPLT | COMPANY PLANT DEPARTMENT | JWB | Own eqpt | 28NOV97 |
| ET10 | DUMP TRUCKS, 13 m3 boxes | 37.00/HR | No | | | JWB | Rented eqpt | 28NOV97 |
| LH10 | LABOUR, Unskilled Class II | 17.80/MH | Yes | | | JWB | Labour | 28NOV97 |
| LH20 | LABOUR, Skilled Class IV | 20.40/MH | Yes | | | JWB | Labour | 28NOV97 |
| LH30 | EQUIPMENT OPERATORS | 22.80/MH | Yes | | | JWB | Labour | 28NOV97 |
| LH40 | CARPENTERS, Formwork | 22.30/MH | Yes | | | JWB | Labour | 28NOV97 |
| LH60 | BRICKLAYERS | 23.20/MH | Yes | | | JWB | Labour | 28NOV97 |
| MCS030 | CONCRETE, Class D Cement, 30MPa | 108.00/m3 | No | | | JWB | Material | 28NOV97 |
| MFD000 | DIESEL FUEL, Supplied to Job | 0.45/Li | Yes | INTPLT | COMPANY PLANT DEPARTMENT | JWB | Material | 28NOV97 |
| MMBC00 | BRICKS, Common, 230 x 100 x 76 | 325.00/MB | Yes | GENB&T | GENERAL BRICK & TILE PTY LTD | JWB | Material | 28NOV97 |
| MRB070 | REINFORCING BAR, cut & bent | 810.00/Tn | Yes | BORAL | BORAL REINFORCEMENT PTY LTD | JWB | Material | 28NOV97 |
| MTF032 | FRAMING TIMBER, Oregon | 540.00/m3 | No | | | JWB | Material | 28NOV97 |
| MTP020 | FORM PLYWOOD, Sheet 1200x2400 | 135.00/Sh | No | | | JWB | Material | 28NOV97 |
| 18 Resources | | | | | | | | |

SET LISTING

| Printed 2:38pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | Page 1 | |
|---|-------------------------------------|--|-----------------|-----------------|---------------|-----|---------|--|
| *** SET LISTING *** | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | Sorted | |
| Code | Set Description | Elem Usage | Elem Unit Cost | Elem Total Cost | Set Unit Cost | Est | Changed | |
| @BLCAW | BRICKLAYING CREW, 2B/L + 1LAB | | | | | | | |
| | LH60 BRICKLAYERS | 17 MH @ | 23.20/MH = \$ | 394.40 | | | | |
| | LH10 LABOUR, Unskilled Class II | 8.5 MH @ | 17.80/MH = \$ | 151.30 | | | | |
| | | | | | 545.70/DY | JWB | 28NOV97 | |
| @DOZD9 | BULLDOZER, CAT D9, Operated | | | | | | | |
| | ED09 BULLDOZER, CAT D9, Weekly Rate | 0.02 WK @ | 2000.00/WK = \$ | 40.00 | | | | |
| | LH30 EQUIPMENT OPERATORS | 1.05 MH @ | 22.80/MH = \$ | 23.94 | | | | |
| | MFD000 DIESEL FUEL, Supplied to Job | 55 Li @ | 0.45/Li = \$ | 24.75 | | | | |
| | | | | | 88.69/HR | JWB | 28NOV97 | |
| @SCG31 | SCRAPER, CAT 631, Operated | | | | | | | |
| | ES30 SCRAPER, CAT 631, Weekly Rate | 0.02 WK @ | 2400.00/WK = \$ | 48.00 | | | | |
| | LH30 EQUIPMENT OPERATORS | 1.05 MH @ | 22.80/MH = \$ | 23.94 | | | | |
| | MFD000 DIESEL FUEL, Supplied to Job | 50 Li @ | 0.45/Li = \$ | 22.50 | | | | |
| | | | | | 94.44/HR | JWB | 28NOV97 | |
| @SCSPR | SCRAPER SPREAD, D9 + 3xCAT631 | | | | | | | |
| | @DOZD9 BULLDOZER, CAT D9, Operated | 1 HR @ | 88.69/HR = \$ | 88.69 | | | | |
| | @SCG31 SCRAPER, CAT 631, Operated | 3 HR @ | 94.44/HR = \$ | 283.32 | | | | |
| | | | | | 372.01/HR | JWB | 28NOV97 | |
| 4 Sets | | | | | | | | |

RESOURCE USAGE

| Printed 2:38pm 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | Page 1 | |
|---|---------------------------------|--|-------------|-------------|-------|---------------|-------------------|--|
| *** RESOURCE USAGE *** | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | Sorted | |
| Code | Resource Description | Supplier Code | Cost Type | Unit Cost | Final | Total Usage | Total Cost | |
| EA10 | OFFICE, Demountable, 8m | INTPLT | Own eqpt | 240.00/Wk | No | | | |
| EC60 | ROLLER, Towed Sheepsfoot | ACME | Rented eqpt | 250.00/WK | Yes | 60.966666 WK | 15242 | |
| ED06 | DOZER, CAT D6, Operated | ACME | Rented eqpt | 97.00/HR | Yes | 3048.33 HR | 295688 | |
| ED09 | BULLDOZER, CAT D9, Weekly Rate | INTPLT | Own eqpt | 2000.00/WK | Yes | 8.8097556 WK | 17620 | |
| EL10 | WHEELED LOADER, CAT 966 | ACME | Rented eqpt | 95.00/HR | Yes | 937.22 HR | 89036 | |
| ES10 | ELEVATING SCRAPER, CAT 623 | ACME | Rented eqpt | 105.00/HR | Yes | 202.2 HR | 21231 | |
| ES30 | SCRAPER, CAT 631, Weekly Rate | INTPLT | Own eqpt | 2400.00/WK | Yes | 26.429266 WK | 63430 | |
| ET10 | DUMP TRUCKS, 13 m3 boxes | | Rented eqpt | 37.00/HR | No | 3514.58 HR | 130040 | |
| LH10 | LABOUR, Unskilled Class II | | Labour | 17.80/MH | Yes | 3227.63 MH | 57452 | |
| LH20 | LABOUR, Skilled Class IV | | Labour | 20.40/MH | Yes | 1948.8 MH | 39756 | |
| LH30 | EQUIPMENT OPERATORS | | Labour | 22.80/MH | Yes | 1850.05 MH | 42181 | |
| LH40 | CARPENTERS, Formwork | | Labour | 22.30/MH | Yes | 12277.44 MH | 273787 | |
| LH60 | BRICKLAYERS | | Labour | 23.20/MH | Yes | 6055.27 MH | 140482 | |
| LS10 | PROJECT MANAGER, Annual Cost | | Labour | 80000.00/Yr | No | 0.8653846 Yr | 69231 | |
| LS20 | PROJECT ENGINEER, Annual Cost | | Labour | 43000.00/Yr | No | 1.5769231 Yr | 67808 | |
| LS30 | SITE ADMINISTRATOR, Annual Cos | | Labour | 46000.00/Yr | No | 0.9615385 Yr | 44231 | |
| LS40 | FOREMAN, Annual Cost | | Labour | 38500.00/Yr | No | | | |
| MCS030 | CONCRETE, Class D Cement, 30MPa | | Material | 108.00/m3 | No | 2533.44 m3 | 273612 | |
| MFD000 | DIESEL FUEL, Supplied to Job | INTPLT | Material | 0.45/Li | Yes | 90300 Li | 40635 | |
| MMBC00 | BRICKS, Common, 230 x 100 x 76 | GENB&T | Material | 325.00/MB | Yes | 463.05 MB | 150491 | |
| MRB070 | REINFORCING BAR, cut & bent | BORAL | Material | 810.00/Tn | Yes | 145.34 Tn | 117725 | |
| MTF032 | FRAMING TIMBER, Oregon | | Material | 540.00/m3 | No | 73.08 m3 | 39463 | |
| MTP020 | FORM PLYWOOD, Sheet 1200x2400 | | Material | 135.00/Sh | No | 609 Sh | 82215 | |
| 23 Resources Defined | | | | | | TOTALS | \$ 2071356 | |

SET USAGE

| 2:38pm 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 1 | | |
|---|--|---------------|-------------|---------------|
| *** SET USAGE *** | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | Sorted | | |
| | | | | |
| Code | Set Description | Unit Cost | Total Usage | Total Cost |
| | | | | |
| @BLCRW | BRICKLAYING CREW, 2B/L + 1LAB | 545.70/DY | 356.19 DY | 194374 |
| @DOZD9 | BULLDOZER, CAT D9, Operated | 88.69/HR | 440.49 HR | 39067 |
| @SC631 | SCRAPER, CAT 631, Operated | 94.44/HR | 1321.46 HR | 124799 |
| @SCSPR | SCRAPER SPREAD, D9 + 3xCAT631 | 372.01/HR | 440.49 HR | 163866 |
| | | | | |
| 4 Sets Defined | | TOTALS | \$ | 522106 |

TENDER SUBMISSION

| 2:38pm 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 1 | |
|---|--|-----------|----------------|
| *** TENDER SUBMISSION *** | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | |
| ===== | | | |
| Item Description | Quantity | Unit Rate | Amount |
| ===== | | | |
| Section: 1000 CIVIL ENGINEERING WORK | | | |
| A100 Tree clearing and disposal | 45.5 Ha | 1000.00 | 45500 |
| A200 Grubbing to 300mm and disposal | 38.7 Ha | 5000.00 | 193500 |
| B100a Topsoil stripping | 168500 m2 | 0.15 | 25275 |
| B100b Earth excavation | 245000 m3 | 2.98 | 730100 |
| CX01 Block X - Struct Concrete 30MPa | 782 m3 | 350.00 | 273700 |
| CX02 Block X - Reinforcing Steel | 47.83 Tn | 1200.00 | 57396 |
| CY01 Block Y - Struct Concrete 30MPa | 1654 m3 | 359.90 | 595275 |
| CY02 Block Y - Reinforcing steel | 94.66 Tn | 1200.00 | 113592 |
| ----- | | | |
| Section: 1000 | 8 Items | \$ | 2034338 |
| ***** | | | |
| Section: 2000 BUILDING WORK | | | |
| A100a Brickwork, Common | 9450 m2 | 44.00 | 415800 |
| A200 Elec power connection | 1 LS | 7932.00 | 7932 |
| A210 Elec ducting, 2 x 4 x 100mm diam | 1645.2 lm | 25.00 | 41130 |
| A220 Elec transformers, 150KW | 5 EA | 7000.00 | 35000 |
| A900 NOMINATED SUBCONTRACT, Acoustics | 1 LS | 400000.00 | 400000 |
| ----- | | | |
| Section: 2000 | 5 Items | \$ | 899862 |
| ***** | | | |
| Section: CONT CONTINGENCY ALLOWANCES | | | |
| 100 Owner's Contingency Allowance | 1 LS | 100000.00 | 100000 |
| ----- | | | |
| Section: CONT | 1 Item | \$ | 100000 |
| ----- | | | |
| JOB TOTALS - 14 Items | | \$ | 3034200 |
| ===== | | | |

TENDER ANALYSIS

2:38pm 28NOV97

PROBID - ESTIMATING & TENDERING SYSTEM

Page 1

TENDER ANALYSIS

Estimate: **ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2**

ANALYSIS BY COST TYPE

| Cost Type | Markable Cost | Percent |
|-------------|---------------|---------|
| Labour | \$ 734927 | 26.27% |
| Own eqpt | \$ 81050 | 2.90% |
| Rented eqpt | \$ 551237 | 19.70% |
| Material | \$ 704141 | 25.17% |
| Subcontract | \$ 726521 | 25.97% |

TOTAL COST \$ 2797875 100.00%

USER REQUESTED ROUNDING

Round TENDER TOTAL to **Five** significant digits
 Round UNIT RATES to **Smart** values
 Round ITEM AMOUNTS to **Dollar**

MARKUP CALCULATION

| Cost Type | Markable Cost | Markup Percent | Markup Amount | Total Amount |
|---------------------|-------------------|----------------|------------------|-------------------|
| OVERALL | \$ 2797875 | 8 % | \$ 223787 | \$ 3021663 |
| TOKEN Items | | | | \$ 100000 |
| TENDER TOTAL | \$ 2797875 | | \$ 223787 | \$ 3121663 |

ANALYSIS OF CONTRACT & ACTUAL MARKUP

| | Contract Quantities | Actual Quantities | Difference |
|---------------------|---------------------|-------------------|-----------------|
| TOTAL COST | \$ 2823645 | \$ 2897875 | \$ 74230 |
| TOKEN Items | \$ 100000 | \$ 100000 | |
| Markable Cost | \$ 2723645 | \$ 2797875 | \$ 74230 |
| MARKUP Amount | \$ 210555 | \$ 223787 | \$ 13232 |
| Percent Markup | 7.73% | 8.00% | 17.83% |
| TENDER TOTAL | \$ 3034200 | \$ 3121663 | \$ 87463 |

SPREAD ANALYSIS BY ITEM TYPE

| SPREAD Type | ITEM COSTS | Spread FROM | Spread TO | Percent |
|--------------------|-------------------|-------------|------------------|---------------|
| MARKUP | \$ | \$ 223787 | | |
| HIDDEN items | \$ 189769 | \$ 189769 | | 100.00% |
| FIXED spread items | \$ 380952 | | \$ 19048 | 5.00% |
| NORMAL items | \$ 2227154 | | \$ 394509 | 17.71% |
| TOTALS | \$ 2797875 | | \$ 413557 | 14.78% |

WARNING:

4 Items NOT final
 Rounding loss \$43
 Some Subcontractors NOT defined
 Some Resource Costs NOT final
 Some NORMAL Items have NEGATIVE spread

SUPPLIER ORDER - Boral

| | | |
|---|---|--|
| 2:37pm 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 1 |
| *** SUPPLIER ORDERS *** | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | Selected on BORAL |
| ----- | | |
| Purchase Order No: BC/T97/12345/0001 | | |
| ----- | | |
| BORAL | BORAL REINFORCEMENT PTY LTD 1321 Northbourne Avenue CANBERRA ACT 2601 | Telephone Number: (061).987.4567 Contact: Shipping Department |
| PLEASE SUPPLY: | | |
| Quantity | Description | Unit Cost Total Cost |
| ----- | | |
| 145.34 Tn | REINFORCING BAR, cut & bent | 810.00/Tn 117725.40 |
| ----- | | |
| TOTAL \$ | | 117725.40 |
| Prepared by: ..S.McAdam..19/1/98..... Approved by: .Alex Smith, 20 Jan 98.. | | |

SUBCONTRACT ORDER - Sparks Electrical

| | | |
|---|---|---|
| 2:37pm 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 1 |
| *** SUBCONTRACT ORDERS *** | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | Selected on \$ELECT |
| ----- | | |
| Subcontract Order No: BC/T97/12345/0001/SUB | | |
| ----- | | |
| \$ELECT | SPARKS ELECTRICAL CONTRACTING P.O. Box 220 800a Main Street NEWCASTLE NSW 2488 | Telephone Number: (049).251.8112 Contact: George Brook - Supv Quotation Ref: #78-003 Letter |
| Gp- Sec -Item | Item Description | Quantity Unit Rate Extension |
| ----- | | |
| 2000 A200 | Elec power connection | 1 LS 8000.00/LS 8000.00 |
| 2000 A210 | Elec ducting, 2 x 4 x 100mm diam | 1645.2 Lm 23.68/Lm 38958.34 |
| 2000 A220 | Elec transformers, 150KW | 5 EA 6325.00/EA 31625.00 |
| ----- | | |
| SUBCONTRACT TOTAL \$ | | 78583.34 |
| Prepared by: ..S.McAdam..17/1/98..... Approved by: .Alex Smith, 20 Jan 98.. | | |

ESTIMATE MASTER

| | | |
|--|--|--------------------------------|
| 2:37pm 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 1 |
| *** ESTIMATE MASTER *** | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | |
| ===== | | |
| Department or Project Code: BC | Department: Building & Civil Division | |
| Estimate number: T97/12345 | Approximate Contract Value: \$ 3000000.00 | |
| Primary Estimator's Name: John Wilkes Booth | | |
| Owner: | ETTAMOGAH CULTURAL TRUST & BREWING CO | |
| | P.O. Box 1792A | |
| | 123 Main Street | |
| | ETTAMOGAH VIC 3888 | |
| | Attention: Mr L D Bronstein | |
| Tender Submittal time is 3:00pm on Mon 15DEC97 | | |
| Start date Tue 3FEB98 | Duration 295 days | Finish date Tue 24NOV98 |
| 18 Items | 7 Suppliers/Subcontractors | 23 Resources |
| | | 4 Sets |
| Bid deposit \$25,000 bank draft. Liquidated damages \$350 per day. Retention 10% to maximum of \$100,000. 5 year guarantee and performance bond required on sealants. Dame Kiri to be co-opted for the official opening. | | |

COSTCODE LISTING

| Printed 2:38pm 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | | Page 1 | | | | |
|--|--|------|-------|-----------------------------------|----------|-------|------------|--------|----------|-------------|----------|-------------|
| *** COSTCODE LISTING *** | | | | | | | | | | | | |
| Estimate: ETTAMOGAH OPERA HOUSE EXTENSION, Phase 2 | | | | | | | Sorted | | | | | |
| ===== | | | | | | | | | | | | |
| Code | Cp | Sec | Item | Operation or Item Description | Quantity | Total | Unassigned | Labour | Own eqpt | Rented eqpt | Material | Subcontract |
| ===== | | | | | | | | | | | | |
| BA0200 | | 2000 | A900 | BUILDING, Nominated Subcontracts | 1 | LS | 380952 | | | | | 380952 |
| BE0200 | | 2000 | A200 | BUILDING, Electrical Subcontract | 1651.2 | ?? | 78583 | | | | | 78583 |
| BM1030 | | 2000 | A100a | BUILDING, Masonry, Brickwork | 463.05 | MB | 344865 | 194374 | | | 158491 | |
| CD0100 | | 1000 | A100 | CIVIL, Site Clearance | 84.2 | Ha | 228675 | 3560 | | | | 225115 |
| CS0100 | | 1000 | CX02 | CIVIL, Structural, Reinf Steel | 142.49 | Tn | 146223 | | | | 117725 | 28498 |
| CS0410 | | 1000 | CX01 | CIVIL, Structural, Formwork | 5846.4 | m2 | 395466 | 273787 | | | 121679 | |
| CS0504 | | 1000 | CX01 | CIVIL, Structural, Concrete | 2436 | m3 | 318238 | 39755 | | | 273611 | 4872 |
| CX0040 | | 1000 | B100a | CIVIL, Excavation, Stripping | 25275 | m3 | 21231 | | | 21231 | | |
| CX0050 | | 1000 | B100b | CIVIL, Excavation, Scraper | 190000 | m3 | 163866 | 42181 | 81050 | | 40635 | |
| CX0052 | | 1000 | B100b | CIVIL, Excavation, Loader & Truck | 84350 | m3 | 219076 | | | 219076 | | |
| CX0058 | | 1000 | B100b | CIVIL, Spread & compact fill | 274350 | m3 | 310930 | | | 310930 | | |
| ZC0000 | | CONT | 100 | CONTINGENCIES, Owner write in | 1 | LS | 100000 | | | | | 100000 |
| soh010 | soh | | 10 | SOH, Staff Costs | 177 | Wk | 181270 | 181270 | | | | |
| soh040 | soh | | 40 | SOH, Accommodation Costs | 1 | LS | 8500 | | | | | 8500 |
| JOB TOTALS - 14 Costcodes | | | | | | | 2897875 | 734927 | 81050 | 551237 | 704141 | 826520 |
| ===== | | | | | | | | | | | | |

Multi-Currency ESTIMATE MASTER

| | | |
|--|---|--------------------------------|
| 9:12am 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 1 |
| *** ESTIMATE MASTER *** | | |
| Estimate: E9823 Kowloon to Tsunwan Pipeline | | |
| ===== | | |
| Department or Project Code: ME | Department: Mechanical Engineering | |
| Base Currency: A\$ | Decimal Places: 2 | |
| Bid Currency: HK | Decimal Places: 1 | |
| Exchange Rate: 0.1778157 A\$/HK | Inverse Rate: 5.6238 HK/A\$ | 19NOV97 |
| Estimate Number: 017-A0039 | Approximate Contract Value: A\$ 21000000.00 | |
| Primary Estimator's Name: Ian John Dunross | | |
| Owner: | Hong Kong Regional Gas Supply Authority 23/D Devon House, Taikoo Place 979 King's Road, Quarry Bay HONG KONG Contact: Xue Zhi-heng | |
| Tender Submittal time is 4:30pm on Fri 27MAR98 | | |
| Start Date Mon 4MAY98 | Duration 320 days | Finish Date Fri 19MAR99 |
| ----- | | |
| 14 Items | 8 Suppliers/Subcontractors | 28 Resources |
| | | 1 Set |
| Liquidated damages HK\$5000 per day. | | |
| Retention 10% to maximum of HK\$1,000,000. | | |

Multi-Currency CURRENCIES LIST

| 9:12am 28NOV97 | PROBID - ESTIMATING & TENDERING SYSTEM | Page 2 | | | |
|--|--|----------|------------------|-------------------|---------|
| C U R R E N C I E S | | | | | |
| Estimate: E9823 Kowloon to Tsunwan Pipeline | | | | | |
| ===== | | | | | |
| Currency | Symbol | Dec Plcs | Exchange Rate | Inverse Rate | Changed |
| Japanese Yen | ¥ | 0 | 0.0116009 A\$/¥ | 86.2 ¥/A\$ | 19NOV97 |
| Thai Baht | Bt | 1 | 0.0374392 A\$/Bt | 26.71 Bt/A\$ | 19NOV97 |
| Hong Kong \$ | HK | 1 | 0.1851852 A\$/HK | 5.40 HK/A\$ | 16OCT97 |
| Malaysian Rg | Rg | 2 | 0.443 A\$/Rg | 2.2573363 Rg/A\$ | 19NOV97 |
| Indonesian R | Rp | 0 | 0.0004175 A\$/Rp | 2395 Rp/A\$ | 19NOV97 |
| Singapore DL | S\$ | 2 | 0.91 A\$/S\$ | 1.0989011 S\$/A\$ | 19NOV97 |
| ----- | | | | | |

Multi-Currency ITEM CURRENCIES

| Printed 9:12am 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | |
|---|------------|--|--------------|--------------|-----------|--------------|--------------|--|
| | | *** ITEM CURRENCIES *** | | | | | | |
| Estimate: E9823 Kowloon to Tsunwan Pipeline | | | | | | | | |
| Group: 01 ESTABLISHMENT | | | | | | | | |
| Item Description | Actual Qty | TOTAL COST | EST CURRENCY | Japanese Yen | Thai Baht | Hong Kong \$ | Indonesian R | |
| 101 Contractor's Site Facilities | 1 It | | | | | | | |
| 102 Engineer's Site Facilities | 1 It | 30,320 | 30,320 | | | | | |
| 107 Provisional Sum - Owner's Signs | 1 LS | 30,000 | 30,000 | | | | | |
| 3 Items | | A\$ | 60,320 | 60,320 | | | | |
| Group: 01 3 Items | | A\$ | 60,320 | 60,320 | | | | |

| Printed 9:12am 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | |
|---|------------|--|--------------|--------------|------------|--------------|--------------|--------|
| | | *** ITEM CURRENCIES *** | | | | | | |
| Estimate: E9823 Kowloon to Tsunwan Pipeline | | | | | | | | |
| Group: 02 STRUCTURAL WORK | | | | | | | | |
| Item Description | Actual Qty | TOTAL COST | EST CURRENCY | Japanese Yen | Thai Baht | Hong Kong \$ | Indonesian R | |
| Section: U-12 Nantsai Viaduct | | | | | | | | |
| 700 Reinforcing Bar - Grade 410Y | 38.6 Tn | 50,489 | | 34,942 | | 15,547 | | |
| 710 Structural Concrete - 30MPa | 139.2 m3 | 102,578 | 3,000 | | 68,414 | 31,164 | | |
| 800 Steel Deck Beams, Type A19 | 64 ea | 615,425 | | | | | | 35,915 |
| Section: U-12 3 Items | | A\$ | 768,491 | 3,000 A\$ | 34,942 A\$ | 68,414 A\$ | 46,711 A\$ | 35,915 |
| Group: 02 3 Items | | A\$ | 768,491 | 3,000 A\$ | 34,942 A\$ | 68,414 A\$ | 46,711 A\$ | 35,915 |

| Printed 9:12am 28NOV97 | | PROBID - ESTIMATING & TENDERING SYSTEM | | | | | | |
|---|------------|--|--------------|--------------|-----------|--------------|--------------|--|
| | | *** ITEM CURRENCIES *** | | | | | | |
| Estimate: E9823 Kowloon to Tsunwan Pipeline | | | | | | | | |
| Group: 04 CAST IRON MJ PRESSURE PIPE | | | | | | | | |
| Item Description | Actual Qty | TOTAL COST | EST CURRENCY | Japanese Yen | Thai Baht | Hong Kong \$ | Indonesian R | |
| Section: A10 Area A10 - Chuen Cheng Street | | | | | | | | |
| 1a Supply & Install 150mm Pipe | 4,740 LM | 260,126 | 193,713 | | | 66,413 | | |
| 1b Supply & Install 200mm Pipe | 2,970 LM | 233,943 | 185,926 | | | 48,017 | | |
| 1c Supply & Install 300mm Pipe | 2,265 LM | 297,603 | 244,559 | | | 53,044 | | |
| 2a Supply & Install 300mm PR Valves | 17 ea | 40,555 | 29,827 | | | 10,729 | | |
| Section: A10 4 Items | | A\$ | 832,227 | 654,024 | | A\$ | 178,203 | |
| Group: 04 4 Items | | A\$ | 832,227 | 654,024 | | A\$ | 178,203 | |

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|---|------------|--|---------------|--------------|--------------|--------------|---------------|--|
| | | *** ITEM CURRENCIES *** | | | | | | |
| Estimate: E9823 Kowloon to Tsunwan Pipeline | | | | | | | | |
| Group: 00 SITE OVERHEADS | | | | | | | | |
| Item Description | Actual Qty | TOTAL COST | EST CURRENCY | Japanese Yen | Thai Baht | Hong Kong \$ | Indonesian R | |
| JOB TOTALS - 14 Items | A\$ | 2,012,373 | 1,068,679 A\$ | 34,942 A\$ | 68,414 A\$ | 224,914 A\$ | 35,915 | |
| Exchange Rate | A\$ | | | 0.0116009/N | 0.0374392/Bt | 0.1851852/HK | 0.0004175/Rp | |
| Local Currency | | | | N 3,011,958 | Bt 1,827,344 | HK 1,214,534 | Rp 86,016,000 | |