THE HISTORY OF

BRANDON CENTRAL DEPOT

B GRIGGS

VOLUME II

VOLUME II

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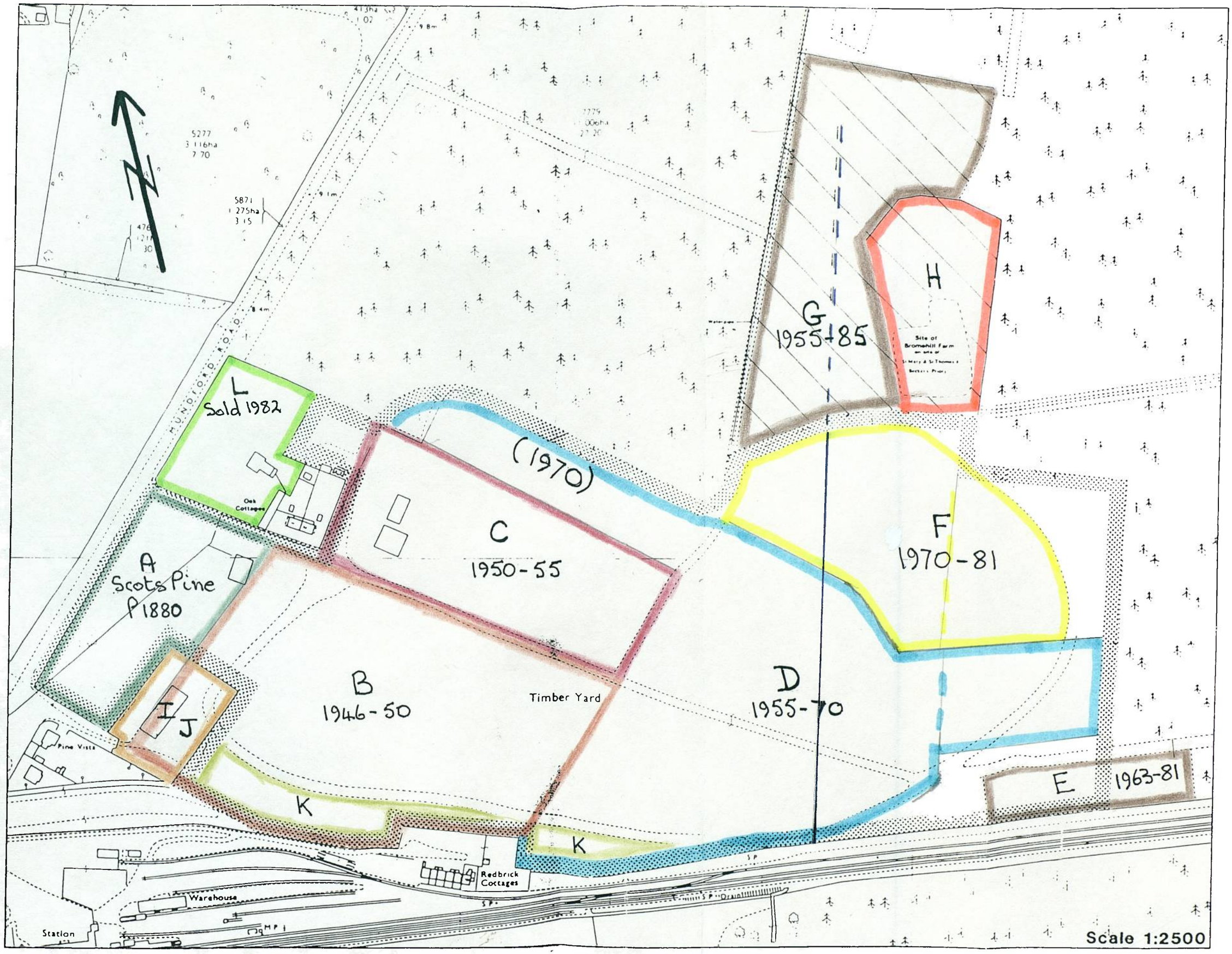
DEVELOPMENT AND EXTENSION OF SITE

Appendix 2a



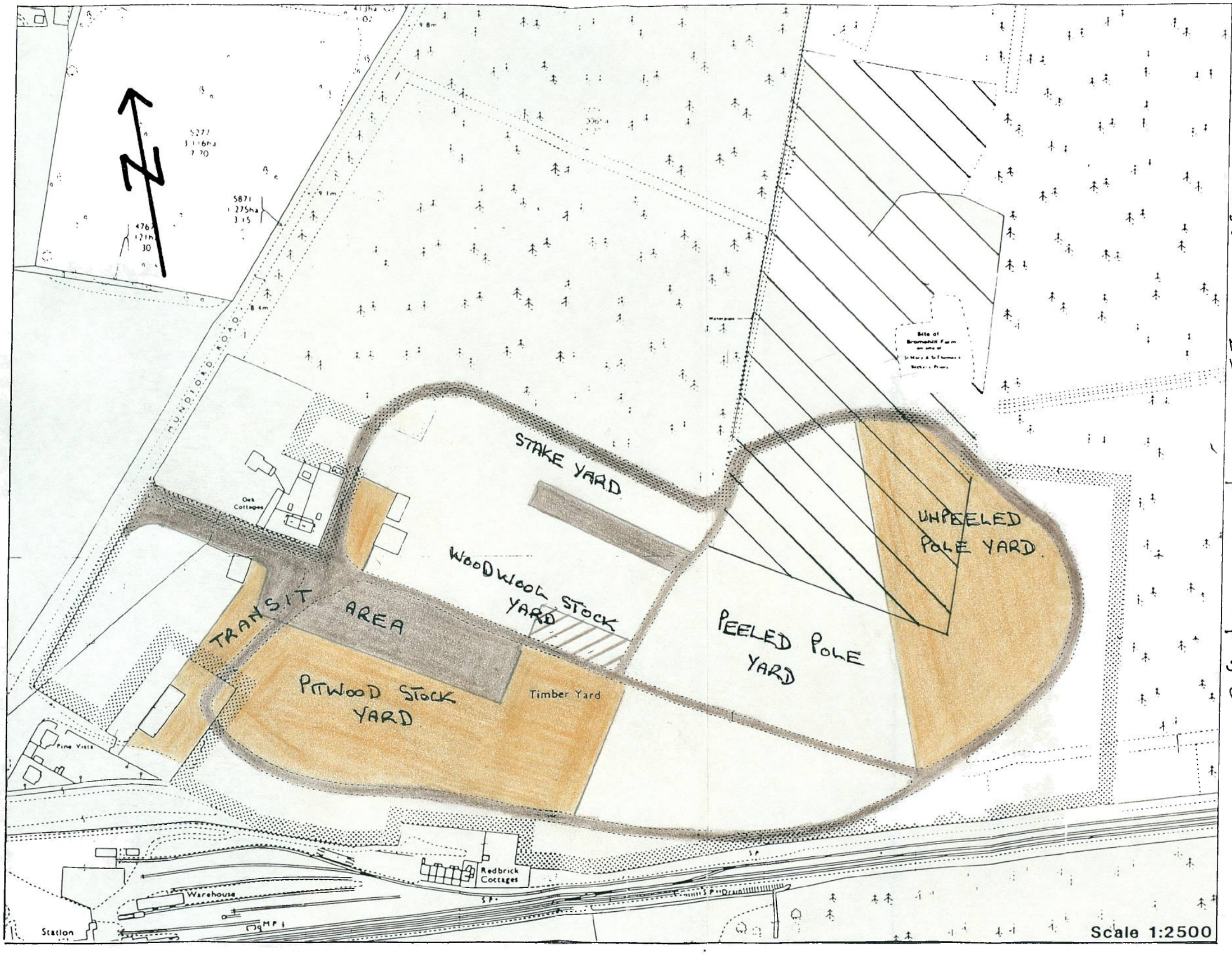
LIST OF THE VASCULAR PLANTS OF BRANDON DEPOT COMPILED BETWEEN 24.10.83 AND 10.10.88

Common Name	Scientific Name	Common Name	Scientific Name
Hop	Humulus Lupulus	Tall Melilot	Melilotus Altissima
Nettle	Urtica Dioica	White Melilot	Melilotus Alba
Knotgrass	Polygonum Aviculare	Lucerne	Medicago Sativa
Black Bindweed	Bilderdykia Convolvulus	Birdsfoot Trefoil	Lotus Corniculatus
Spring Beauty	Montia Perfoliata	Birdsfoot	Ornithopus Perpusill
Common Sorrel	Rumex Acetosa	Black Medick	Medicago Lupulina
Sheeps Sorrel	Rumex Acetosella	Spotted Medick	Medicago Arabica
Broad-leaved Dock	Rumex Obtusifolius	Hop Trefoil	Trifolium Campestre
Good King Henry	Chenopodium Bonus-Henricus	Red Clover	Trifolium Pratense
		White Clover	Trifolium Repens
Fat Hen	Chenopodium Album	Knotted Clover	Trifolium Striatum
Thyme-leaved Sandwort	Arenaria Serpyllifolia	Common Storksbill	Erodium Cicutarium
Fine-leaved Sandwort	Minuartia Hybrida	Dovesfoot Cranesbill	Geranium Molle
Lesser Stitchwort	Stellaria Graminea	Sun Spurge	Euphorbia Helioscopi
Common Chickweed	Stellaria Media	Common Mallow	Malva Sylvestris
Common Mouse-Ear	Cerastium Fontanum	Perforate St Johns Wort	Hypericum Perforatum
Sticky Mouse-Ear	Cerastium Glomeratum		
Corn Spurrey	Spergula Arvensis	Trailing St Johns Wort	Hypericum Humifusum
Heath Pearlwort	Sagina Subulata		
White Campion	Silene Alba	Wild Pansy	Vicla Tricolor
Soapwort	Saponaria Officinalis	White Bryony	Bryonia Cretica
Meadow Buttercup	Ranunculus Acris	Evening Primrose	Oenothera Biennis
Creeping Buttercup	Ranunculus Repens	Rosebay Willowherb	Epilobium Augustifoli
Travellers Joy	Clematis Vitalba	Great Hairy Willowherb	Epilobium Hirsutum
Barberry	Berberis Vulgaris	Broad-leaved Willowherb	Epilobium Montanum
Common Fumitory	Fumaria Officinalis	Ivy	Hedera Helix
Common Poppy	Papaver Rhoeas	Upright Hedge Parsley	Torilis Japonica
Prickly Poppy	Papaver Argemone	Wild Carrot	Daucus Carota
Opium Poppy	Papaver Somniferum	Ground Elder	Aegopodium Podagraria
Greater Celandine	Chelidonium Majus	Hogweed	Heracleum Sphondylium
Hedge Mustard	Sisymbrium Officinale	Hemlock	Conium Maculatum
Treacle Mustard	Erysimum Cheiranthoides	Wild Parsnip	Pastinaca Sativa
Honesty	Lunaria Annua	Heather	Caluna Vulgaris
Shepherds Purse	Capsella Bursa-Pastoris	Scarlet Pimpernel	Anagallis Arvensis
Shepherds Cress	Teesdalia Nudicaulis	Lesser Periwinkle	Vinca Minor
Hoary Alison	Berteroa Incana	Common Centaury	Centaurium Erythraea
Field Pepperwort	Lepidium Campestre	Field Bindweed	Convolvulus Arvensis
Weld	Reseda Luteola	Heath Bedstraw	Galium Saxatile
Wild Mignonette	Reseda Lutea	Ladys Bedstraw	Galium Verum
Biting Stonecrop	Sedum Acre	Common Cleavers	Galium Aparine
Agrimony	Agrimonia Eupatoria	Common Comfrey	Symphytum Officinale
Parsley Piert	Aphanes Arvensis	Houndstongue	Cynoglossum Officinal
Dog Rose	Rosa Canina	Field Forgetmenot	Myosotis Arvensis
Bramble	Rubus Fructicosus	Vipers Bugloss	Echium Vulgare
Hoary Cinquefoil	Potentilla Argentea	Borage	Borago Officinalis
Sulphur Cinquefoil	Potentilla Recta	Bugloss	Lycopsis Arvensis
Silverweed	Potentilla Anserina	Vervain	Verbena Officinalis
Hawthorn	Crataegus Monogyna	Bugle	Ajuga Reptans
Gorse	Ulex Europaeus	Wood Sage	Teucrium Scorodonia
Broom	Cytisus Scoparius	Self-Heal	Prunella Vulgaris
Tufted Vetch	Vicia Cracca	Ground Ivy	Glechoma Hederacea
Common Vetch	Vicia Sativa	White Dead-Nettle	Lamium Album
Hairy Tare	Vicia Hirsuta	Red Dead-Nettle	Lamium Purpureum
Broad-leaved Everlasting Pea	Lathyrus Latifolius	Henbit Dead-Nettle	Lamium Amplexicaule
		Bittersweet	Solanum Dulcamera
Rest Harrow	Ononis Repens	Black Nightshade	Solanum Nigrum

Common Name	Scientific Name	Common Name	Scientific Name
Great Mullein	Verbascum Thapsus	Scots Pine	Pinus Sylvestris
Dark Mullein	Verbascum Nigrum	Sallow	Salix Caprea
Common Figwort	Scrophularia Nodosa	Poplar Spp	Populus
Common Toadflax	Linaria Vulgaris	Walnut	Juglans Regia
Foxglove	Digitalis Purpurea	Silver Birch	Betula Pendula
Red Bartsia	Odontites Verna	Alder	Alnus Glutinosa
Germander Speedwell	Veronica Chamaedrys	Pedunculate Oak	Quercus Robur
Heath Speedwell	Veronica Officinalis	Sycamore	Acer Pseudoplatanus
Eyebright	Euphrasia Officinalis		(162 Species)
Greater Plantain	Plantago Major		
Ribwort Plantain	Plantago Lanceolata		
Buckshorn Plantain	Plantago Coronopus		
Elder	Sambucus Nigra		
Guelder Rose	Viburnum Opulus		
Honeysuckle	Lonicera Periclymenum		
Fi. Scabious	Knautia Arvensis		
Harebell	Campanula Rotundifolia		
Hemp Agrimony	Eupatorium Cannabinum		
Golden Rod	Solidago Virgaurea		
Canadian Fleabane	Conyza Canadensis		
Daisy	Bellis Perennis		
Scentless Mayweed	Tripleurospermum Inodorum		
Pineapple Mayweed	Matricaria Matricarioides		
Michaelmas Daisy	Aster Novi-Belgii		
Blue Fleabane	Erigeron Acer		
Common Cudweed	Filago Vulgaris		
Small Cudweed	Filago Minima		
Yarrow	Achillea Millefolium		
Mugwort	Artemisia Vulgaris		
Field Wormwood	Artemisia Campestris - Record from early 1970s, now probably extinct.		
Ox e Daisy	Leucanthemum Vulgare		
Tansy	Tanacetum Vulgare		
Coltsfoot	Tussilago Farfara		
Ragwort	Senecio Jacobaea		
Groundsel	Senecio Vulgaris		
Globe Thistle	Echinops Sphaerocephalus		
Creeping Thistle	Cirsium Arvense		
Spear Thistle	Cirsium Vulgare		
Goatsbeard	Tragopogon Pratensis		
Smooth Sow-Thistle	Sonchus Oleraceus		
Perennial Sow-Thistle	Sonchus Arvensis		
Prickly Lettuce	Lactuca Serriola		
Nipplewort	Lapsana Communis		
Dandelion	Taraxacum Vulgaria		
Lesser Hawkbit	Leontodon Taraxacoides		
Leafy Hawkweed	Hieracium Umbellatum -	154 Species	

SURFACING

Appendix 2c



No surfacing original soil plus accumulated brash sawdust and bark

Principal area where bark and sawdust dumped

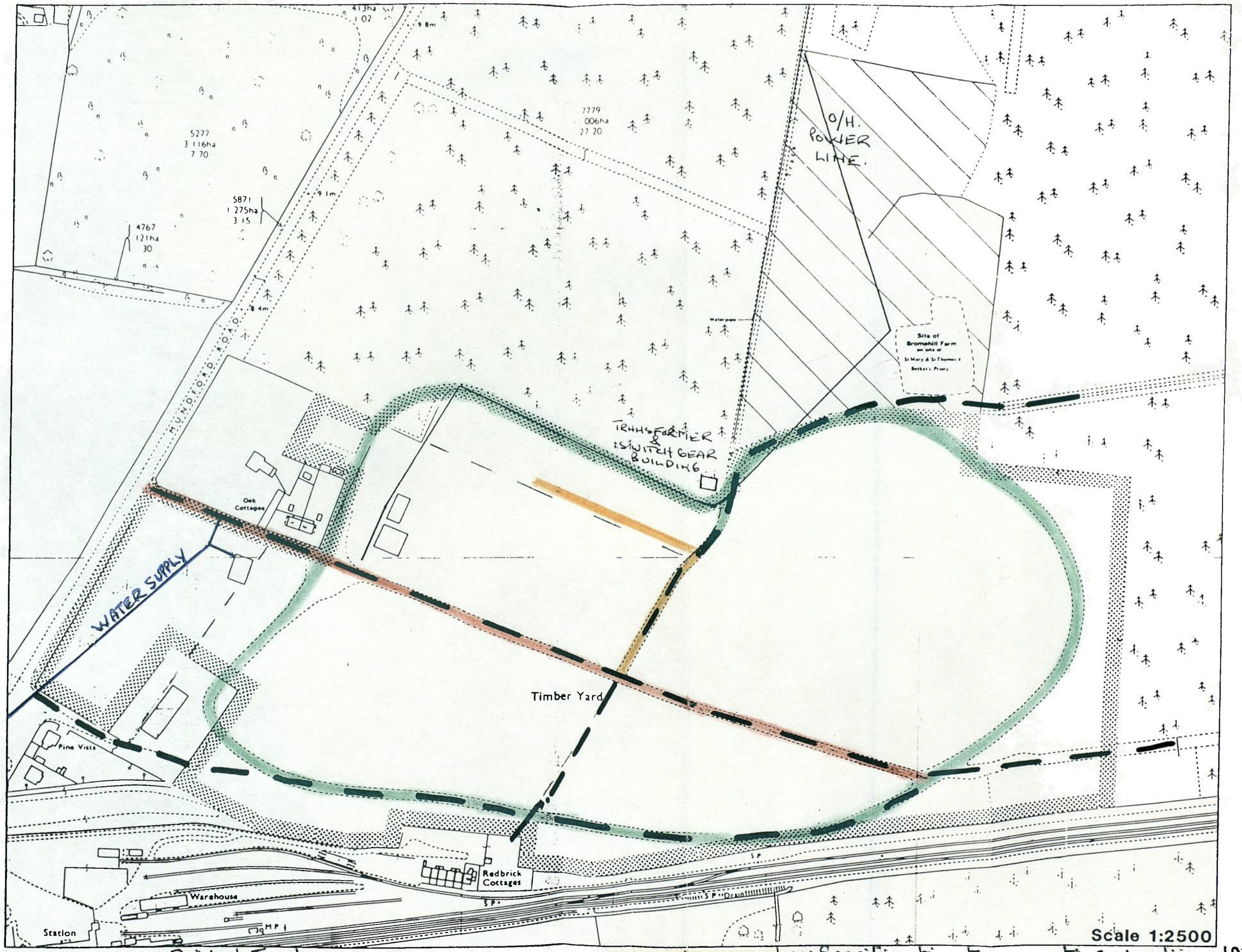
Metalled with haggin rejects on hardcore.

Tar spray with chips

Tarmac of very variable quality.

TRACKS & ROADS

Appendix 2d



Original Tracks.

Low Specification tarmac

Low Specification tarmac to swing line 1975

Tarmac roads, redevelopment 1979 – 1982

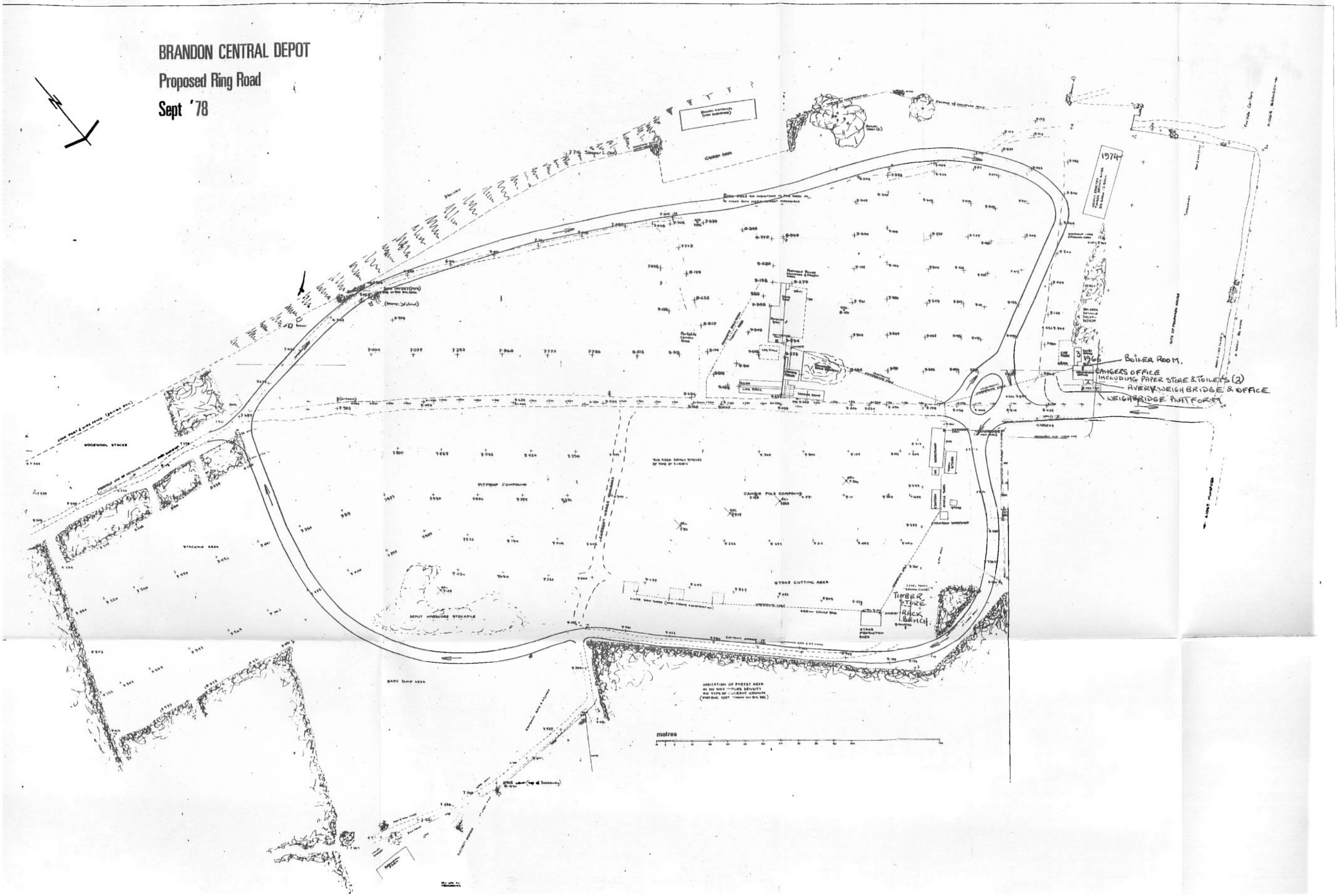
- BRANDON CENTRAL DEPOT BUILDINGS.

Appendix 3a

BRANDON CENTRAL DEPOT

Proposed Ring Road

Sept '78



Year	Conservator	Divisional Officer Assist. Conservator	District Officer	Manager	Assistants
1946				R Walton	J Sealey
1947				(Wrapson)	
1948	A D Hopkinson	G W Backhouse	J W Anderson	B Button	R B Hardy
1949	G W Backhouse	G F Ballance	J L Davidson		S Davis
1950					J M Bruce
1951					G B Axten
1952			)W D Haldane		H W Burnie
1953			)S W Rogers		H C Field
1954			)J L Davidson		
			)I W Kirton		
1955				G Lawson	
1956			D Small		
[illegible]57					
1958					
1959					
1960					A J Butcher
					A Nichols
1961					
1962			)R Chard		D A R Rayner
1963			)P A W Overell		P Hellard
1964			)		P Mitchell
1965		D A Mithen	)		R M Reynolds
1966			B D Hughes	I Campbell)	
1967				)	T G Breed
1968		B D Hughes	D J Perry	)	
1969				)	M Cheesewright
1970				G Hobbs)	
1971				)	
1972	M J Penistan	M Dinning			M Sayer
1973			J Fletcher		
4	B W Holtam				
1975					
1976					
1977			J Kellie		A J A Graver
1978	R M Hewitt				
1979				B Griggs	
1980			L M Simpson		
1981					
1982					
1983				)	
1984				)	R A Hoblyn
1985				)	
1986	M Dinning	N Dannatt		)	A J McKenzie
1987				)	
1988				)	
1989	N Dannatt	G Hatfield			

Staff 1946 to 1989

Notes

1. FC publications were not published during the 1939-45 War and publication really did not restart until 1948/49.

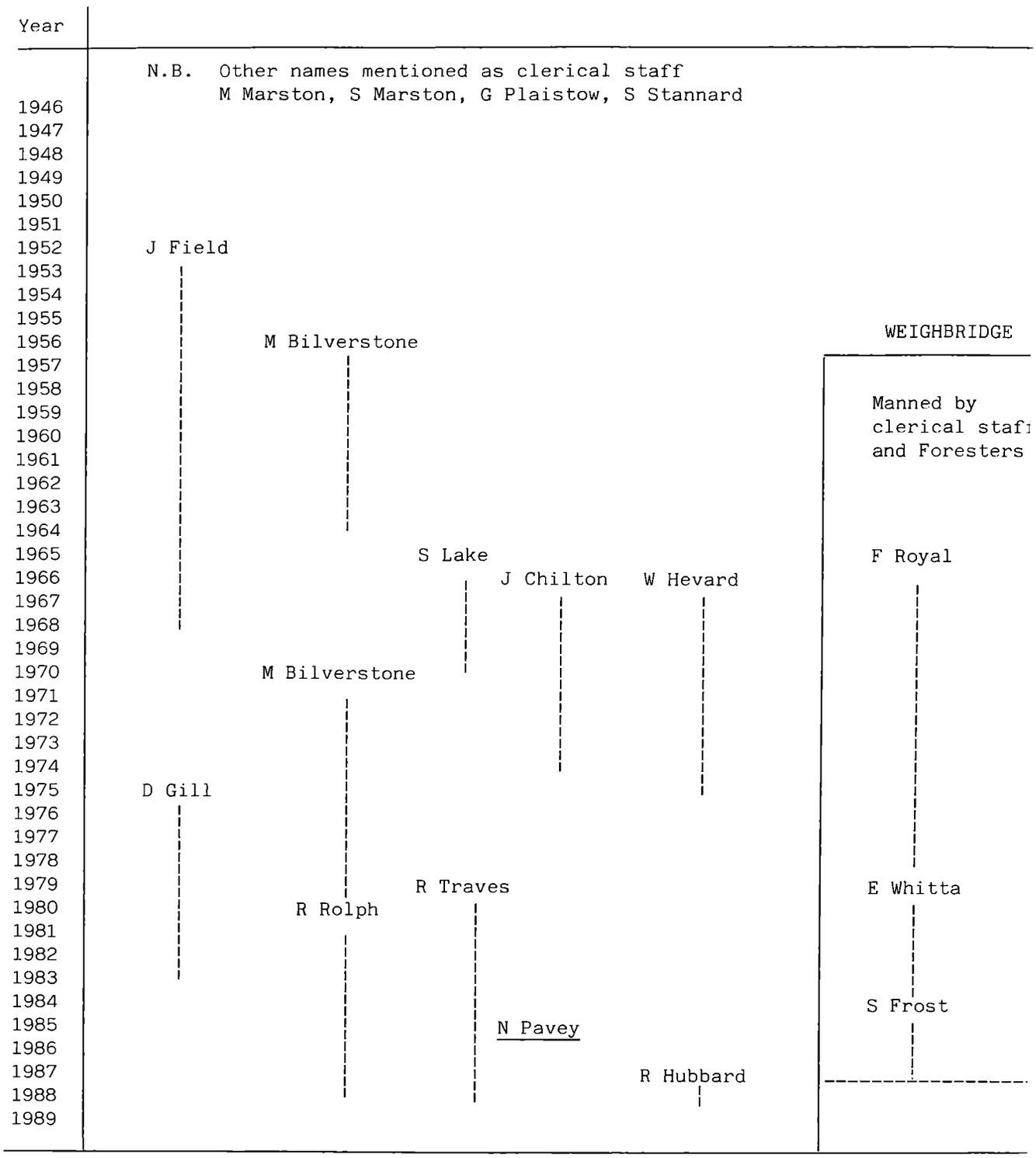
2. Information given regarding Conservators and Divisional Officers/Assistant Conservators I believe to be accurate.

3. Division of responsibility between District Officers in the earlier days is not clear from records and publications. J L Davidson certainly was very closely involved with BCD for a number of years. From 1966 the names listed are the District Officers responsible for the whole of the Thetford Forest District including the Depot.

4. Little is known of Mr Wrapson except that he was appointed from outside the Forestry Commission and did not stay in post for long. All other managers' names and dates are thought to be accurate.

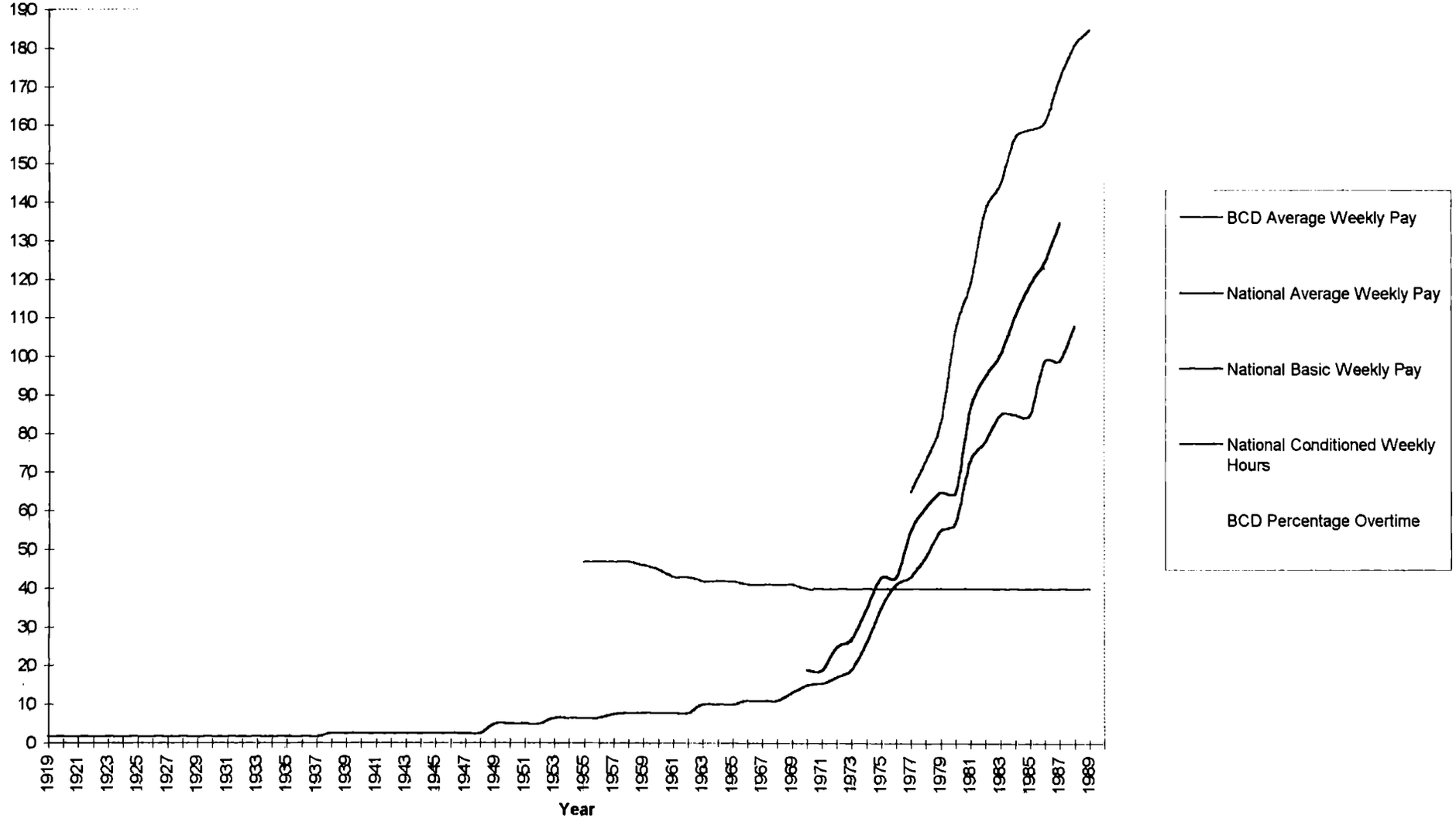
5. Numerous foresters spent varying periods at the Depot. Those listed as having served before 1966 is, I am certain, not exhaustive, nor are the dates necessarily accurate. I apologise for any omissions and for any names misplaced. Those listed after 1966 are as far as I am aware accurate.

CLERICAL AND WEIGHBRIDGE STAFF



Appendix 4c

FORESTRY COMMISSION WEEKLY PAY 1919 to 1988



BRANDON DEPOT RATES OF PAY

1. Rates for Handling Peeled Poles from Pile, Crosscutting, Grading and Stacking.

(a) Pitprops or other Produce cut to precise lengths and diameters.

Length (feet)	Top Diam (inches)	Rate per 100 pieces
2½	2/2½	1/4d
3	2/2½	1/6
1¾	2½	1/3
2	"	1/4
2¼	"	1/5
2½	"	1/6
3	"	1/8
1½	3	1/4
2	"	1/8
2¼	"	1/10
2½	"	2/-
2¾	"	2/2
3	"	2/4
3¼	"	2/6
3⅓	"	2/8
3½	"	2/9
5	"	3/9
2	3½	2/6
2¼	"	2/8
2½	"	2/10
2¾	"	3/-
3	"	3/2
3¼	"	3/4
3½	"	3/6
1¾	4	2/9
2	"	3/1
2¼	"	3/5
2½	"	3/9
2¾	"	4/-
3	"	4/2
3¼	"	4/5
3½	"	4/8
3¾	"	4/11
4	"	5/2
4½	"	5/8
5	"	6/3
Proportionate rates for other sizes.		
2	4½	3/7d
2¼	"	3/11
2½	"	4/5
2¾	"	4/9
3	"	4/11
3¼	"	5/4
3½	"	5/9
3¾	"	6/-
4	"	6/6
4½	"	7/2
5	"	7/10
2½	5	5/6
2⅔	"	5/8
2¾	"	5/11
3	"	6/4
3¼	"	6/9
3½	"	7/3
4	"	8/3
4½	"	9/2
5	"	10/-
5½	"	10/11
6	"	11/7
7	"	13/-
8	"	15/1
2½	5½	7/-
3	"	7/10
3½	"	8/8
3¾	"	9/2
4	"	9/9
4¼	"	10/5
4½	"	11/-
5	"	12/3
5½	"	13/6
6	6	17/8
6½	"	19/9
6½	6½	22/11
7	"	25/-
7	7	29/2
8	7½	37/6
8	8	41/8
9	"	45/10

(b) Boxwood or other produce, except firewood, not cut to precise lengths and diameters Minimum length 1 foot. Minimum Diameter 4½ inches.

Rate per 100 lineal feet - 1/-d.

NB Separate payment not made for firewood. The rates for pitprops and boxwood are adjusted to allow for a normal production of firewood.

BRANDON DEPOT RATES OF PAY

2. Rates for Handling Peeled Butts from Pile, Crosscutting, Grading and Stacking.

(a) Pitprops or other produce cut to precise lengths and diameters.

Rates as for preparing pitprops from Peeled Poles.

(b) Boxwood or other produce, except firewood, not cut to precise lengths and diameters.

Minimum Length - 1 foot. Minimum Diameter - 4½ inches.

Rate per 100 lineal feet 2/d

NB Separate payment not made for firewood. The rates for pitprops and boxwood are adjusted to allow for a normal production of firewood.

BRANDON DEPOT RATES OF PAY

3. Rates for Handling Unpeeled Poles from Pile, Crosscutting, Grading and Stacking.

(a) Pitprops or other produce cut to precise lengths and diameters.

Rates as for preparing pitprops from peeled poles.

(b) Pulpwood

Length	37"/42"	Minimum Diameter		5"	5/6d per 100 pieces.
"	37"/42"	"	"	3½"	3/10 per 100 pieces.
"	37"/42"	"	"	2"	2/1 per 100 pieces.

(c) Celotex

Lengths 3' to 14' Minimum Diameter 2" 3/7 per 1,000 linear foot.
Crates for either 5', 6' or 7' lengths - 9/6d per crate.

(d) Posts and Poles

See Item 5(b).

NB Separate payment not made for firewood. The rates quoted for (a), (b), (c) and (d) above are adjusted to allow for a normal production of firewood.

BRANDON DEPOT RATES OF PAY

5. Rates for Handling Tops and Smalls from Pile, Crosscutting, Grading and Stacking.

(a) Celotex

Lengths 3' to 14' Minimum Diameter 2" 3/7d per 1,000 linear foot.

Crates for either 5', 6' or 7' lengths - 9/6d per crate.

(b) Posts and Poles

Length	Top (ins)	Rates per 100 pieces	Pointing per 100 pieces	Length	Top (ins)	Rates per 100 pieces	Pointing per 100 pieces
8	-1½	2/10	3/4	4	3/4	3/4	4/2
9	"	3/3	"	5	"	4/4	"
10	"	3/8	"	5½	"	4/10	"
				6	"	5/4	"
6½	1¼/1¾	2/8	"	7	"	6/4	"
				8	"	7/6	"
4	1½/2	1/1	"	9	"	8/9	"
4½	"	1/3	"	10	"	10/-	"
5	"	1/5	"	12	"	13/-	"
5½	"	1/8	"	15	"	18/6	"
6	"	1/11	"				
7	"	2/6	"				
7½	"	2/9	"	4½	4/5	6/-	6/3
8	"	3/-	"	7	"	9/10	"
8½	"	3/3	"	8	"	11/6	"
9	"	3/6	"	9	"	13/6	"
				10	"	15/3	"
3½	2/3	1/7	"	11	"	17/6	"
4	2/3	1/10	"	12	"	19/6	"
4½	"	2/1	"	13	"	21/6	"
5	"	2/5	"				
5½	"	2/8	"				
6	"	3/-	"				
6½	"	3/3	"				
7	"	3/7	"				
7½	"	3/11	"				
8	"	4/4	"				
9	"	5/2	"				
10	"	6/-	"				
11	"	6/10	"				
12	"	7/9	"				
13	"	8/7	"				
14	"	9/6	"				

Proportionate rates for other sizes.

(b) Rustics

Length (ft)	Butt Diam	Rates per 100 pieces
8/10	1½/2	3/6d
8/10	2/3	4/-
10/15	2/3	5/-
15/20	2/3	6/-
10/15	3/4	6/-
15/20	3/4	8/4
20 & up	3/4	10/5

(c) Pitprops or other produce cut to precise lengths and diameters.

Rates as for preparing pitprops from peeled poles.

(d) Pulpwood

Length 37"/42" Minimum Diameter 2" 2/1d per 100 pieces.

BRANDON DEPOT RATES OF PAY

6. Rates for Loading

(a) Pitprops or other produce cut to precise lengths and diameters.

Length (feet)	Top Diameter (ins)	Rates per One Handling	100 pieces Two Handlings
2½	2/2½	5½d	8½d
3	"	7	11
1¾	2½	5d	7d
2	"	5½	8½
2¼	"	6	9½
2½	"	7	11
3	"	8	1/0½
1½	3	5½d	8½d
2	"	7	11
2¼	"	8½	1/1
2½	"	10	1/3½
2¾	"	11	1/4½
3	"	1/-	1/6
3¼	"	1/1	1/7½
3⅓	"	1/1½	1/9
3½	"	1/2	1/10
5	"	1/8½	2/9
2	3½	11d	1/5d
2¼	"	1/-	1/6
2½	"	1/1	1/8
2¾	"	1/2	1/11
3	"	1/3½	2/1
3¼	"	1/5	2/3
3½	"	1/7	2/5
1¾	4	1/-	1/6
2	"	1/1	1/8
2¼	"	1/3	1/11
2½	"	1/5	2/2
2¾	"	1/7	2/5
3	"	1/9	2/8
3¼	"	1/10	2/11
3½	"	2/-	3/1
3¾	"	2/2	3/4
4	"	2/4	3/7
4½	"	2/8	4/2
5	"	3/-	4/9
2	4½	1/3d	2/1d
2¼	"	1/5	2/3
2½	"	1/7	2/6
2¾	"	1/9	2/9
3	"	1/11	3/-
3¼	"	2/1	3/3
3½	"	2/3	3/6
3¾	"	2/5	3/10
4	"	2/7	4/2
4½	"	3/-	4/10
5	"	3/4	5/6
2½	5	2/-	3/1
2⅔	"	2/1	3/3
2¾	"	2/2	3/5
3	"	2/4	3/9
3¼	"	2/7	4/-
3½	"	2/9	4/4
4	"	3/2	5/-
4½	"	3/7	5/9
5	"	4/1	6/7
5½	"	4/7	7/5
6	"	5/-	8/2
7	"	6/-	9/10
8	"	7/-	11/5
2½	5½	2/4	3/8
2¾	"	2/6	4/1
3	"	2/9	4/6
3½	"	3/1	5/1
3¾	"	3/5	5/7
4	"	3/10	6/-
4¼	"	4/1	6/6
4½	"	4/4	7/-
5½	"	5/5	8/10
6	6	7/1	11/6
6½	"	7/8	12/6
6	6½	8/2	13/4
6½	"	9/-	14/7
7	"	9/9	15/10
6	7	9/5	15/4
7	"	11/3	18/3
8	7½	19/10	24/2
8	8	16/9	27/3
9	"	19/-	31/-

Proportionate rates for other sizes.

(b) Boxwood One Handling 2/5d per ton. Two Handlings 3/1d per ton.

(c) Pulpwood One Handling 2/5d per ton. Two Handlings 3/1d per ton.

(d) Celotex (hand loading).
14/-d per load.

6. (Contd) Rates for loading.

(e) Stakes, Posts and Poles.

Length (feet)	Top Diam (ins)	Rates per 100 pieces One Handling	Two Handlings
8	-1½	1/1	1/4
9	"	1/2	1/6
10	"	1/4	1/7
6½	1¼/1¾	1/-	1/3
4½	1½/2	10d	1/-
5	"	11	1/1
5½	"	1/-	1/2
7	"	1/3	1/7
8	"	1/7	2/-
8½	"	1/8	2/2
9	"	1/10	2/4
3½	2/3	11d	1/2
4	"	1/1	1/4
4½	"	1/3	1/6
5	"	1/5	1/9
5½	"	1/8	2/-
6	"	1/10	2/3
6½	"	2/-	2/6
7	"	2/3	2/10
7½	"	2/6	3/1
8	"	2/8	3/4
9	"	3/2	3/11
10	"	3/8	4/7
11	"	4/3	5/4
12	"	4/10	6/-
13	"	5/5	6/9
14	"	6/1	7/7
4	3/4	2/1	2/7
5	"	2/8	3/4
5½	"	3/-	3/9
6	"	3/4	4/2
7	"	4/-	5/-
8	"	4/9	5/11
9	"	5/6	6/10
10	"	6/4	7/11
15	"	11/-	13/9
4½	4/5	3/9	4/8
7	"	6/3	7/10
8	"	7/4	9/2
9	"	8/6	10/7
10	"	9/8	12/1
11	"	11/-	13/9
12	"	12/4	15/5
13	"	13/8	17/1

Rustics

Length (feet)	Butt Diam (ins)	Rates per 100 pieces One Handling	Two Handlings
8/10	1½/2	1/-	1/3
8/10	2/3	1/6	1/10
10/15	2/3	2/3	2/9
15/20	2/3	3/-	3/8
10/15	3/4	4/6	5/7
15/20	3/4	6/6	8/-
20 & up	3/4	8/6	10/6

Proportionate rates for other sizes.

(f) Firewood. One Handling - 2/8d per ton.

BRANDON DEPOT RATES OF PAY

7. Rate for Hand Unloading poles from lorries.

1/6d per lorry.

8. Rate for moving Sawbenches.

1½ hours per week at ordinary time rates.

BRANDON DEPOT RATES OF PAY

9. Rates for Peeling and Stacking Pitprops. (Includes knotting).

(a) By Hand.

Length (feet)	Top Diameter (ins)	Rate per 100 pieces
2½	2/2½	7/-
3	"	8/8
2½	2½	8/-
3	"	9/4
2	3	8/-
2¾	"	11/9
3	"	12/9
3½	"	14/8
2	3½	10/-
2¼	"	11/-
2½	"	12/-
2¾	"	13/-
3	"	14/-
3½	"	15/6
1¾	4	10/-
2	"	11/6
2¼	"	12/6
2½	"	13/-
2¾	"	13/6
3	"	14/6
3¼	"	15/3
4	"	17/9
2½	4½	13/9
2¾	"	15/3
3	"	16/8
3½	"	19/7
4	"	22/5
4½	"	25/9
2½	5	15/-
2¾	"	16/6
3	"	18/-
3¼	"	19/3
3½	"	20/6
4	"	24/-
5	"	29/2
3	5½	17/9
3½	"	21/6
5½	"	31/8

And proportionate rates for other sizes.

9. (Contd) Rates for Peeling and Stacking Pitprops. (Includes knotting).

(b) By 'Kingslaw' Machine (hand feeding).

Length (feet)	Top Diameter (ins)	Rate per 100 pieces
1½	3	1/10
2	"	2/6
2¼	"	2/10
2½	"	3/2
3	"	3/4
3¼	"	3/7
3⅓	"	3/10
3½	"	4/-
5	"	5/7
2	3½	3/3
2¼	"	3/6
2½	"	3/11
2¾	"	4/1
3	"	4/7
3¼	"	4/11
3½	"	5/3
1¾	4	3/9
2	"	4/5
2¼	"	4/11
2½	"	5/5
2¾	"	5/10
3	"	6/3
3¼	"	6/6
3½	"	6/8
3¾	"	6/11
4	"	7/2
4½	"	8/-
5	"	8/8
2	4½	4/5
2¼	"	4/11
2½	"	5/7
2¾	"	6/1
3	"	6/9
3½	"	8/-
3¾	"	8/5
4	"	9/3
4½	"	10/1
5	"	11/4
2⅔	5	7/5
3	"	8/5
3½	"	9/10
4	"	11/6
4½	"	13/3
5	"	13/9
5½	"	15/-
6	"	16/5
7	"	18/9
8	"	21/7
3	5½	10/3
3½	"	11/6
3¾	"	12/6
4	"	13/6
4¼	"	15/-
4½	"	17/-
5½	"	19/-

And proportionate rates for other sizes.

10. Bonus Earnings.

Depot Clerks:-

¾d in £1 for every £1 earned by the pieceworkers in excess of their basic wages for full attendance.

Checkers:-

2d in £1 for every £1 earned by the pieceworkers in excess of their basic wages for full attendance.

Crane Driver and Mate:- (together)

1/-d a load over 12 loads per day.

Lorry Driver and Mate:-

1d in £1 for every £1 earned by the pieceworkers in excess of their basic wage for full attendance.

BRANDON DEPOT - PIECE WORK RATES - SEPTEMBER 1963

SMALL WOOD LINE

2. Standard times and rates for handling tops and small poles from the pile, crosscutting and stacking in crates.

A. Celotex 87.0 S.M's 9/6d per crate.
B. Posts, Stakes, Pitprops, Harvest and Rustic Poles.

Size	Standard Minute Per Piece	Price per 100 pieces New	Size	Standard Minute Per Piece	Price per 100 pieces New
5'0" x 1½"	.20	2/2	3'0" x 3"	.32	4/8)
8'0" "	.24	2/7	3'6" 3"	.35	5/0)
9'0" "	.26	2/10	2'3" 3½"	.32	4/8) *
10'0" "	.27	2/11	2'6" "	.33	4/9)
2'0" 1½/2	.21	2/4	2'9" "	.35	5/0)
2'6" "	.21	2/4	3'0" "	.36	5/1)
3' "	.21	2/4	3'3" 3/4	.36	3/11
3'6" "	.21	2/4	4'0" "	.40	4/4
4'0" "	.21	2/4	4'6" "	.42	4/7
4'6" "	.21	2/4	5'0" "	.44	4/10
5'0" "	.21	2/4	5'6" "	.47	5/2
5'6" "	.24	2/7	6'0" "	.49	5/4
6'0" "	.26	2/10	6'6" "	.52	5/8
7'0" "	.29	3/2	7'0" "	.54	5/11
8'0" "	.29	3/2	7'6" "	.57	6/3
9'0" "	.29	3/2	8'0" "	.61	6/8
10'0" "	.32	3/6	8'6" "	.63	6/10
11'0" "	.32	3/6	9'0" "	.66	7/2
12'0" "	.34	3/9	9'6" "	.69	7/6
14'0" "	.37	4/0	10'0" "	.72	7/10
15'0" "	.40	4/4			
			4'6" 3½/4	.59	6/5
1'3" 2/3"	.25	2/9			
2'0" "	.25	2/9	2'6" 4"	.38	4/2
2'6" "	.25	2/9			
3' "	.26	2/10	4'0" 4/5"	.54	5/11
3'6" "	.29	3/2	4'6" "	.57	6/3
4'0" "	.31	3/5	5'0" "	.59	6/5
4'6" "	.35	3/10	5'6" "	.63	6/11
5'0" "	.35	3/10	6'0" "	.68	7/5
5'6" "	.35	3/10			
6'0" "	.36	3/11		Harvest Poles	
6'6" "	.37	4/0			
7'0" "	.38	4/2	6'6" 1¼/1¾	.22	3/7 *
8'0" "	.41	4/6			
9'0" "	.45	4/11		Rustic Poles	
10'0" "	.50	5/6			
11'0" "	.55	6/0	8/10 x 2/3	.14	2/8)
12'0" "	.58	6/4	10/15 "	.17	3/0)
13'0" "	.63	6/11	15/20 "	.21	3/9)
14'0" "	.68	7/5			) *
15'0" "	.72	7/10	8/10 3/4	.22	3/7)
16'0" "	.76	8/4	10/15 "	.27	4/1)
			15/20 "	.37	5/2)

Pointing Stakes 2/3" butt or under, 33 S.M's = 3/7d. per 100
When any of the above pieces are not stacked at the time of crosscutting but are thrown down and stacked later add 11.0 S.M's per 100 pieces = 1/2

Those starred * already have the 1/2 added on

As from 2.9.1963

BRANDON DEPOT PIECEWORK

BONUS RATES

1. Employees will observe all safety regulations, and report any defects which develop in machinery or equipment.

2. Where production of firewood offcuts is unavoidable, the rates for other produce allow for this. (There is no separate rate for firewood). The firewood will be thrown into trailers.

3. Loading and unloading of transport will not be stopped on account of rain. Oilskins will be provided. If a period of rain lasts for two hours or more, but part of the time has been spent in loading or unloading at piecework rates, the balance of the wet time will be paid for at hourly rates even though it is less than two hours. Crane operators will stagger their meal breaks.

4. If exceptional conditions arise, eg exceptional ice and snow, appropriate percentage increases to rates may be agreed, if work can safely continue.

5. Up to 2 hours per week spent by operators in maintaining their machinery will be paid for at hourly rates.

G W Backhouse
Conservator

July 1966

BRANDON DEPOT - PIECEWORK RATES - JULY 1966

1. Rates for handling Long Tops, Long Small Poles, and A poles from the pile. Crosscutting, grading and stacking for crane loading.

(a) Celotex

Crates for any length between 4 ft and 7 ft ..... 11/8d per crate

(b) Posts and poles.

Size	Vol.	Price per 100 pieces
5'0" x 1½"	.07	2/8d
8'0" x "	.15	3/2d
9'0" x "	.17	3/6d
10'0" x "	.20	3/7d
2'0" x 1½/2"	.03	2/10d
2'6" x "	.04	2/10d
3'0" x "	.05	2/10d
3'6" x "	.07	2/10d
4'0" x "	.08	2/10d
4'6" x "	.09	2/10d
5'0" x "	.11	2/10d
5'6" x "	.12	3/3d
6'0" x "	.14	3/6d
6'6" x "	.15	3/8d
7'0" x "	.16	3/10d
8'0" x "	.18	3/10d
9'0 x "	.21	3/10d
10'0" x "	.23	4/4d
11'0" x "	.25	4/4d
12'0" x "	.28	4/7d
14'0" x "	.32	5/-d
15'0" x "	.37	5/6d
1'3" x 2/3"	.03	3/4d
2'0" x "	.06	3/4d
2'6" x "	.08	3/4d
3'0" x "	.09	3/6d
3'6" x "	.11	3/10d
4'0" x "	.13	4/3d
4'6" x "	.15	4/9d
5'0" x "	.17	4/9d
5'6" x "	.20	4/9d
6'0" x "	.22	4/10d
6'6" x "	.24	5/-d
7'0" x "	.27	5/3d
8'0" x "	.32	5/6d
9'0" x "	.38	6/-d
10'0" x "	.44	6/9d
11'0" x 2/3"	.51	7/6d
12'0" x "	.58	7/9d
13'0" x "	.65	8/6d
14'0" x "	.73	9/-d
15'0" x "	.80	9/9d
16'0" x "	.90	10/3d
3'3" x 3/4"	.19	4/10d
4'0" x "	.25	5/6d
4'6" x "	.28	5/9d
5'0" x "	.32	6/-d
5'6" x "	.36	6/3d
6'0" x "	.40	6/6d
6'6" x "	.44	7/-d
7'0" x "	.48	7/3d
7'6" x "	.52	7/9d
8'0" x "	.57	8/3d
8'6" x "	.62	8/6d
9'0" x "	.66	8/9d
9'6" x "	.71	9/3d
10'0" x "	.76	9/9d
11'0" x "	.87	10/9d
12'0" x "	.92	11/9d

Posts and Poles (Contd.)

(c) Pointing - Up to and including 2/3" top diameter ..... 4/6d per 100
3/4" " " ..... 5/3d per 100
4/5" " " ..... 7/9d per 100

(d) Harvest Poles (including stacking)

6'6" x 1¼/1¾ ..... 3/-d per 100

(e) Rustics (includes stacking)

Length (feet)	Butt dia. (ins.)	Rate per 100 pieces
8/10	1½/2"	1/7d
8/10	2/3"	1/11d
10/15	"	2/4d
15/20	"	3/2d
8/10	3/4"	3/-d
10/15	"	3/7d
15/20	"	5/-d
20 and up	"	7/-d

(f) Props

Size	Volume	Rate per 100 pieces
3'0" x 3"	.13	6/-d
3'6" x 3"	.16	6/3d
2'3" x 3½"	.13	6/-d
2'6" x 3½"	.15	6/-d
2'9" x 3½"	.165	6/3d
3'0" x 3½"	.18	6/3d
2'6" x 4"	.19	6/9d
4'6" x 3½/5"	.28	8/-d

(g) Pulpwood. From peeled and unpeeled poles from the pile.

Crosscutting, grading and stacking.

Length 37/42". Minimum diameter 5" - 8/6d per 100 pieces
" " 3½" - 5/6d per 100 pieces
" " 2" - 2/10d per 100 pieces

(h) Boardmill material

Lengths 4 to 7 feet - Crates 3'0" high - 7/3d per crate
3'6" " - 8/3d " "
4'0" " - 9/-d " "

PEELING

Rates for peeling (Kingslaw machine) and stacking. (Includes hand feeding and knotting).

17/6d per 100 6½' pieces

2. Rates for handling peeled Cambio Poles from pile. Crosscutting, grading and stacking for crane loading.

(a) Pitprops and other produce cut to precise lengths and diameters.

Length	Top dia.	Volume		Rate per 100 pcs.
2'6"	2/2½"	.06		2/5d
3'0"	"	.08		2/10d
1'9"	2½"	.05		2/2d
2'0"	"	.06		2/5d
2'3"	"	.07		2/7d
2'6"	"	.08		2/10d
3'0"	"	.09		2/11d
1'6"	3"	.06	2/9	2/5d +4
1'10"	"	.08	3/2	2/10d
2'0"	"	.08	3/2	2/10d
2'3"	"	.09	3/3	2/11d
2'6"	"	.11	3/8	3/4d
2'9"	"	.12	3/11	3/7d
3'0"	"	.13	4/1	3/9d
3'3"	"	.14	4/2	3/10d
3'4"	"	.15	4/5	4/1d
3'6"	"	.16	4/7	4/3d
4'0"	"	.18	5/1	4/7d
4'6"	"	.21	5/7	5/3d
5'0"	"	.24	6/1	5/9d
1'6"	3½"	.08	3/2	2/10d
1'8"	"	.09	3/3	2/11d
1'9"	"	.10	3/5	3/1d
2'0"	"	.11	3/8	3/4d
2'3"	"	.13	4/1	3/9d
2'6"	"	.15	4/5	4/1d
2'9"	"	.17	4/8	4/4d
3'0"	"	.18	4/11	4/7d
3'3"	"	.19	5/1	4/9d
3'6"	"	.21	5/7	5/3d
4'0"	"	.25	6/1	5/9d
4'3"	"	.27	6/7	6/3d
4'6"	"	.28	6/7	6/3d
1'9"	4"	.13		3/9d
2'0"	"	.15		4/1d
2'3"	"	.17		4/4d
2'6"	"	.19		4/9d
2'9"	"	.21		5/3d
3'0"	"	.23		5/6d
3'3"	"	.25		5/9d
3'6"	"	.27		6/3d
3'9"	"	.29		6/6d
4'0"	"	.31		6/9d
4'6"	"	.36		7/9d
5'0"	"	.41		8/6d
6'0"	"	.50		10/-d
8'0"	"	.72		14/-d
10'0"	"	.95		18/6d
5'6"	"			9/3d

Length	Top dia.	Volume	Rate per 100 pcs.
2'0"	4½"	.19	4/9d
2'3"	"	.22	5/3d
2'6"	"	.24	5/9d
2'9"	"	.26	6/-d
3'0"	"	.29	6/6d
3'3"	"	.32	7/-d
3'6"	"	.34	7/3d
3'9"	"	.36	7/9d
4'0"	"	.39	8/3d
4'6"	"	.45	9/3d
5'0"	"	.51	10/3d
5'6"	"	.56	11/6d
6'0"	"	.62	12/-d
6'6"	"	.69	13/6d
2'0"	5"	.22	5/3d
2'3"	"	.25	5/9d
2'6"	"	.29	6/6d
2'8"	"	.31	6/9d
2'9"	"	.32	7/-d
3'0"	"	.35	7/6d
3'6"	"	.41	8/6d
4'0"	"	.48	9/9d
4'3"	"	.52	10/6d
4'6"	"	.55	11/-d
5'0"	"	.61	12/-d
5'6"	"	.69	13/6d
6'0"	"	.76	15/-d
6'6"	"	.83	16/-d
7'0"	"	.91	17/6d
8'0"	"	1.06	20/-d
2'0"	5½"	.26	6/-d
2'6"	"	.34	7/3d
2'9"	"	.37	8/-d
3'0"	"	.41	8/6d
3'3"	"	.45	9/3d
3'6"	"	.49	10/3d
3'9"	"	.53	10/6d
4'0"	"	.57	11/6d
4'3"	"	.61	12/-d
4'6"	"	.65	13/-d
5'0"	"	.73	14/-d
5'6"	"	.82	16/-d
6'0"	"	.90	17/-d
6'6"	"	.99	19/-d
2'0"	6"	.30	6/9d
5'6"	"	.87	16/6d
6'0"	"	1.06	20/-d
7'0"	"	1.16	22/-d
4'0"	"		14/4d

2. (b) Splits (Provisional)

Size	Price (each)
4' x 4" x 2"	1¼d
4½' x 4½" x 2¼"	1¼d
5' x 5" x 2½"	1¾d
6' x 4½" x 2¼"	2d
6' x 5½" x 2¾"	2d
6' x 6" x 3"	2¼d
6' x 6½" x 3¼"	2¼d
6½' x 5½" x 2¾"	2d
6½' x 6" x 3"	2¼d
7' x 6" x 3"	2½d
7' x 7" x 3½"	2½d

5 x 4 x 2	1½
5½ x 4 x 2	1½
3½ x 4½ x 2¼	1¼
4 x 4½ x 2¼	1¼
4 x 5 x 2½	1½

3. Handling 6½ ft. Butts, peeled/unpeeled.

(a) Crosscutting, grading and stacking 1 metre length pulpwood

Minimum dia. 5" - 7/9d per 100 pieces
3½" - 7/3d " " "

(b) Crosscutting, grading and stacking pitrops and woodwool for crane loading.

1'9"	x	3½"	4/-d per 100 pieces	2'0"	x	4"	4/9d per 100 pieces
2'3"	x	3"	3/10d " " "	2'3"	x	4"	5/-d " " "
2'3"	x	3½"	4/8d " " "	3'0"	x	4"	6/-d " " "
2'3"	x	4½"	5/9d " " "	2'9"	x	4½"	6/9d " " "
2'6"	x	4"	5/7d " " "	3'0"	x	4½"	7/-d " " "
2'6"	x	4½"	6/3d " " "	4'0"	x	4½"	8/6d " " "
2'6"	x	5"	7/1d " " "	4'6"	x	4½"	9/6d " " "
2'9"	x	3"	4/3d " " "	3'0"	x	5"	8/-d " " "
2'9"	x	3½"	5/-d " " "	4'0"	x	5"	10/-d " " "
2'9"	x	4"	5/9d " " "	6'6"	x	5"	16/-d " " "
2'9"	x	4½"	6/8d " " "	4'0"	x	5½"	10/9d " " "
3'0"	x	3"	4/7d " " "	5'6"	x	5½"	16/-d " " "
3'0"	x	3½"	5/4d " " "	6'6"	x	5½"	19/-d " " "
3'6"	x	3"	5/1d " " "				
3'6"	x	3½"	5/9d " " "				
3'6"	x	4"	6/9d " " "	5½	x	⅔	5/7
3'6"	x	4½"	7/11d " " "	3¼	x	3½	5/7
3'6"	x	5"	9/1d " " "	3¼	x	4	6/-d
3'9"	x	4"	7/1d " " "	3¼	x	4½	7/-d
3'9"	x	4½"	8/3d " " "	Pulp 5"			7/9
4'0"	x	4"	7/5d " " "	3½ to 5			7/3
4'6"	x	5"	11/8d " " "	6	x	6½	22/6
5'10"	x	5"	12/6d " " "				
5'6"	x	2/3"	5/1d " " "				
6'0"	x	4½"	12/7d " " "				
6'0"	x	5"	15/-d " " "				
6'0"	x	5½"	17/1d " " "				
6'0"	x	6"	20/-d " " "				

(c) Woodwool (per H.Ft.)

18"	=	3.9d	2½	x	3	- 4/8
20"	=	3.3d	2½	x	3½	- 4/10
24"	=	3.0d				

4. Rates for hand loading

(a) Peeled Pitwood

31/-d per standard load.

(b) Pulpwood

Metre lengths. 2/11d per ton pending restudy.

(c) Rustic Poles (provisional)

Length (feet)	Butt diameter	Price per 100 pieces	
8/10	1½/2"	2/5d	2/10
8/10	2/3"	2/11d	3/4
10/15	2/3"	4/-d	4/5
15/20	2/3"	5/8d	6/1
20 and up	2/3"	8/-d	8/10
8/10	3/4"	4/9d	5/2
10/15	3/4"	6/6d	7/-
15/20	3/4"	8/9d	11/-
20 and up	3/4"	12/-d	15/-

(d) Harvest Poles

6½ ft. x 1¼/1¾ ins. 1/7d per 100 pieces.

(e) Firewood

4/-d per ton.

5. Rates for handling peeled logs from the pile, crosscutting by chainsaw, and stacking for crane loading.

(a) Woodwool 6'1"

Top diam.	6"	6½"	7"	7½"	8"	8½"	9"
Per Piece	2.6d	3.0d	3.4d	4.0d	4.6d	5.1d	5.6d

(b) Woodcemair 20"

5.2d per H.ft. using 55% of stacked measure.

(c) Woodcemair 24"

4.7d per H.ft. using 55% of stacked measure.

6. (a) Checkers. 4d in £1 for every £1 earned by the pieceworkers in excess of their basic wages for full attendance. Duties including affixing of labels to seasoned props and other produce as may be required.

(b) Tractor drivers engages in clearing sawdust and bark. 3d in £1 for ditto.

(c) Crane Operators

Unloading lorries. 8.13 Standard minutes per lorry shared equally.

Driver 4.06 x 1.90d = 7¾d per lorry
Mate 4.06 x 1.54d = 6½d " "

Loading. 4.95 Standard minutes per lift or crate shared equally.

Driver 2.48 x 1.90d = 4¾d per lift
Mate 2.48 x 1.54d = 3.8d per lift

BCD REVISED PIECEWORK RATES

1 February 1971

Hand Loading

1.	Pitwood	£2.19p
2.	Woodwool (20" & 24")	£0.57p
3.	Pulpwood	£0.21p
4.	Peeled Firewood	£0.31p

Crane Loading

Bonus per lift

Driver	2.8p	3.1
Mate only	2.2p	2.4

Cambio Peeler

Cambio Poles	2.8p
Long Butts	4.75p

Cundey Peeler (Provisional)

	Price per 100		Price per 100
6½ x 4"	£1.40p	3' x 4"	£0.85p
6½ x 5"	£1.65p	3½ x 4½	£0.92p
6½ x 6"	£1.83p	3½ x 5	£0.98p
7 x 3-4"	£1.40p	4 x 5	£1.40p
7 x 4-5"	£1.65p	5 x 4½	£1.22p

Crosscutting Smallwood

6½ x 1¼ - 1¾	£0.28p
8 x 1½ - 2	£0.42½p
5½ x 2¼ - 3	£0.62p
6 x 2¼ - 3	£0.63p
7 x 2¼ - 3	£0.66p
8 x 2¼ - 3	£0.73p
9 x 2¼ - 3	£0.77p

Rustic Poles

8/10' x 2/3	16½p
10/15 x 2/3	20p
15/20 x 2/3	22½p
8/10 x 3/4	19½p
10/15 x 3/4	26p
15/20 x 3/4	37p

Pointing

2/3"	55p

Bundling only 52½p

Peeling Pointing and Bundling

5½ x 2/3"	£1.65p
5½ x 3/4"	£2.00p

PIM 50p per 100

Compounding, Loading and Feeding Forresian Saw (Provisional)

Compounding Time + (40%)

Loading props and woodwool 29p per 100 h.ft

Feeding Forresian Saw 54p per 100 pieces

PIECEWORK PRICES - CROSSCUTTING PEELED CAMBIO
WITH LINER SAW BENCH. 1 FEBRUARY 1971. O/93/SM

Size	SM/100	Price/100
2 x 3	22	20p
2½ x 3	26	24p
3 x 3	29	27p
3½ x 3	33	31p
4 x 3	36	33p
1'9" x 3½	24	22p
2 x 3½	26	24p
2¼ x 3½	29	27p
2½ x 3½	32	30p
2¾ x 3½	34	32p
3 x 3½	36	33p
3¼ x 3½	37	34p
3½ x 3½	40	37p
4 x 3½	45	42p
2 x 4	32	30p
2¼ x 4	34	32p
2½ x 4	37	34p
2¾ x 4	40	37p
3 x 4	43	40p
3¼ x 4	45	42p
3½ x 4	48	45p
3¾ x 4	51	47p
4 x 4	53	49p
4½ x 4	60	59p
5 x 4	66	61p
5½ x 4	72	67p
6 x 4	78	73p

Long Tops

9 x 4/5	£1.60
6½ x 4/5	£1.15

Size	SM/100	Price/100
2½ x 4½	44	41p
2¾ x 4½	47	44p
3 x 4½	51	47p
3¼ x 4½	55	51p
3½ x 4½	57	53p
3¾ x 4½	60	59p
4 x 4½	64	60p
4½ x 4½	72	67p
5 x 4½	80	74p
5½ x 4½	87	81p
6 x 4½	95	88p
6½ x 4½	105	98p
2¾ x 5	54	50p
3 x 5	58	54p
3½ x 5	66	61p
3¾ x 5	71	66p
4 x 5	76	71p
4½ x 5	86	80p
4¾ x 5	90	84p
5 x 5	94	87p
5½ x 5	105	98p
6 x 5	115	£1.07p
6½ x 5	124	£1.15p
7 x 5	136	£1.26p
4 x 5½	88	82p
4½ x 5½	100	93p
5 x 5½	110	£1.02p
5½ x 5½	123	£1.14p
6 x 5½	134	£1.25p
6½ x 5½	147	£1.37p
4 x 6	104	97p
5 x 6		£1.21p
6 x 6	156	£1.45p
6½ x 6	171	£1.59p
7 x 6	185	£1.72p

PIECEWORK PRICES - CROSSCUTTING LONG PEELED BUTTS

CHAINSAW - 1 FEBRUARY 1971 - 0.93p/SM

Size	SM/Piece	Price/Piece
6½ x 4½	1.03	£0.96p
3¼ x 4½	0.53	£0.49p
4½ x 5	0.68	£0.63p
5 x 5	0.92	£0.86p
5½ x 5	1.04	£0.94p
6 x 5	1.14	£1.10p
6½ x 5	1.25	£1.16p
7 x 5	1.37	£1.27p
9 x 5	1.85	£1.72p
4 x 5½	0.86	£0.80p
5 x 5½	1.10	£1.02p
5½ x 5½	1.25	£1.16p
6 x 5½	1.35	£1.26p
6½ x 5½	1.49	£1.39
7 x 5½	1.62	£1.51p
9 x 5½	2.18	£2.03p
7½ x 5½	1.76	£1.64p
3½ x 6	0.89	£0.84p
4 x 6	1.02	£0.95p
5 x 6	1.59	£1.21p
6 x 6	1.59	£1.48p
6½ x 6	1.74	£1.62p
7 x 6	1.91	£1.78p
8 x 6	2.22	£2.07p
8½ x 6	2.39	£2.22p
9 x 6	2.55	£2.37p

Size	SM/Piece	Price/Piece
6 x 6½	1.85	£1.72p
6½ x 6½	2.03	£1.89p
7 x 6½	2.21	£2.06p
8 x 6½	2.57	£2.39p
9 x 6½	2.96	£2.75p
6 x 7	2.13	£1.98p
6½ x 7	2.33	£2.17p
7 x 7	2.54	£2.36p
8 x 7	2.94	£2.73p
9 x 7	3.38	£3.14p
10 x 7	3.83	£3.56p
20" Woodwool	3.36	£3.12p

PIECEWORK PRICES - FORRESIAN SAW - 1 FEBRUARY 1971

Size	SM/100	Price/100
5 x 4½	64	60p
6 x 4½	67	62p
4½ x 5	65	61p
5 x 5	67	62p
5½ x 5	70	65p
6 x 5	72	67p
9 x 5	89	83p
4 x 5½	66	61p
5½ x 5½	74	69p
6 x 5½	77	72p
6½ x 5½	81	75p
7 x 5½	83	77p
9 x 5½	96	89p
4 x 6	70	65p
6 x 6	83	77p
6½ x 6	86	81p
7 x 6	90	84p
8 x 6	97	90p
9 x 6	105	98p
8½ x 6	101	94p
6 x 6½	89	83p
6½ x 6½	93	86p
7 x 6½	97	90p
8 x 6½	105	98p
9 x 6½	115	£1.07p
7 x 7	105	98p
8 x 8	134	£1.25p
10 x 8	160	£1.49p

B.C.D. RATES OF PAY FROM 7 NOVEMBER 1983

	Hourly rate Productive Time (PW)	% added to basic	
Sawmill Operators	£4.11	95%	
Peeler Operators	£4.11	95%	
Volvo)		68%	
Gremo)	£3.89	70%	
Forklift)		70%	
Tractor Drivers	£3.19	50%	
Crane Slingman	£3.37	60%	
Handyman	£3.37	60%	
Gangers	£3.44	60%	
F anced Daywork	£3.05		Unskilled Forest Workers
Rates for jobs not covered elsewhere	£3.37	60%	Forest Craftsman
Cleaning	£3.05	50%	

LOAD 0.5m WOODWOOL	87p per m^3
HAND LOAD SMALL PROPS	£2.25 per m^3

NB.

(1) Productive time hourly rate will apply to productive overtime with the usual overtime addition.

(2) Where stoppages occur due to breakdown and no other productive work is available, payment will be as previously at basic plus 30%.

B.C.D STAKE LINE RATES FROM 7 NOVEMBER 1983

Rustic Bench

Pieces Per Day	Pieces Per Hour	Hourly rate	38 PW 2 Maint* Weekly Gross	*@ Craftsman rate
1000	125	£3.05	£120.11	2 man team
1100	137	3.15	123.11	
1200	150	3.25	127.71	
1300	162	3.35	131.51	
1400	175	3.45	135.31	
1500	187	3.60	141.01	
1600	200	3.70	144.81	
1700	212	3.80	148.61	

VK 10 Peeler

800	100	£3.05	£120.11	2 man team
900	112	3.15	123.91	
1000	125	3.25	127.71	
1100	137	3.35	131.51	
1200	150	3.45	135.31	
1300	162	3.60	141.01	
1400	175	3.70	144.81	
1500	187	3.80	148.61	

Point Stakes (HY-Point or Liner Bench)

500	62	£3.05	£120.11
600	75	3.15	123.91
700	87	3.25	127.71
800	100	3.35	131.51
900	112	3.45	135.31
1000	125	3.60	141.01
1100	137	3.70	144.81
1200	150	3.80	148.61

NB. (1) Production rate will be assessed on total time on job in a week.

(2) VK10 of Pointing rates to cover pieces 1.7 to 2.4 metres long with top diameter range 3-10 cms.

(3) Rustic Bench rates to cover normal output from smallwood pales including rustics: Wastewood tallied.

B.C.D RATES OF PAY

SUPPLEMENTARY RATE TO AGREEMENT OPERATIVE FROM 7 NOVEMBER 1983

Swingline Conversion smallwood only

Pieces					
Per Day		Per Hour		Per Man Hour	Hourly rate per man
4 man team	7 man team	4 man	7 man		
1760	2800	220	385	55	£3.40
1920	3360	240	420	60	3.50
2080	3640	260	455	65	3.60
2240	3920	280	490	70	3.70
2400	4200	300	525	75	3.80
,60	4480	320	560	80	3.90
2720	4760	340	595	85	4.00

NB.

(1) Production rate to be assessed on total time on job in a week.

(2) Wastewood not tallied, all other products to count by the piece.

SWING LINE PRICES FROM 7 NOVEMBER 1983 Pence per 100 pcs.

100 x 80	18.4p
450	83p
525	97p
600	110p
675	124p
750	138p
825	152p
100 x 80	16.7p
900	150p
1050	175p
1200	200p
100 x 90	22.0p
600	132p
675	148p
750	165p
825	181p
900	198p
100 x 90	19.8p
975	193p
1050	208p
1200	238p
1350	267p
1500	297p
2400	475p
3600	713p
100 x 100	24.6p
675	166p
750	184p
825	203p
900	221p
975	240p
1050	258p
1125	277p
100 x 100	22.7p
1200	272p
1350	306p
1500	340p
1650	375p
1800	409p
2700	613p
3000	681p
4800	1090p

100 x 110	30.0p
750	225p
825	247p
900	270p
915	274p
975	292p
100 x 110	27.9p
1050	293p
1125	314p
1200	335p
1350	377p
1500	418p
1650	460p
1800	502p
1950	544p
2700	753p
100x120/130	32.9p
825	271p
900	296p
975	321p
1050	345p
1125	370p
1200	395p
1350	444p
1425	469p
1500	494p
1650	543p
1800	592p
1950	642p
100x120/130	34.5p
2100	724p
2400	828p
2700	931p
100 x 140	33.6p
900	302p
1050	353p
1200	403p
1350	454p
1500	504p
1650	554p
1800	605p

100 x 140	36.1p
1950	704p
2100	758p
2400	866p
2700	975p
100 x 150	41.2p
750	309p
900	371p
975	402p
1050	433p
1200	494p
1350	556p
1500	618p
1650	680p
1800	742p
100 x 150	41.6p
1950	811p
2100	874p
2400	998p
2700	1123p
2850	1186p
3000	1248p
100x160/170	44.7p
900	402p
1050	469p
1350	603p
1500	671p
1800	805p
1880	840p
1950	872p
2100	939p
2250	1006p
2400	1073p
2700	1207p
100 x 170	48.5p
915	444p
2100	1018p

T&K SAWLOGS

2.0m x 160+	862p
2.4m x 150+	974p

FIREWOOD

2000 x 5cm+	368p

100 x 180	54.0p
1350	729p
1650	891p
1800	972p
1950	1053p
2100	1134p
2400	1296p
2700	1458p
3000	1620p
100 x 190	55.2p
900	497p
1500	828p
1800	994p
1950	1076p
2100	1159p
2250	1242p
2400	1325p
2700	1490p
100 x 200	56.3p
1500	844p
1650	929p
1800	1013p
1950	1098p
2100	1182p
2250	1267p
2400	1351p
2700	1520p
2850	1605p
3000	1689p
1050 x 220	689p

WOODWOOL

0.5m x 130+	1252p
per 1.08m³ (30H.H)	

SHORT SAWLOGS AND 2.0m WOODWOOL x 130 mm +

100mm x AV150	41.6p
100mm x AV180	52.7p

STAKE LENGTHS 5.8cm T.D.

100mm	17.1p
1200	206p
1350	231p
1700	291p
1800	308p
2000	343p
2100	360p
2250	385p
2400	411p
2.1 x 3.5	243p
2.1 x 3.8	345p
2.4 x 3.8	395p
1.8 x 3.8	296p
1.8 x 8-10	308p
2.1 x 8-10	381p
2.4 x 8-10	437p
1.7 x 8-10	308p

STAKES WHEN NO 80/9 PROPS

1.7 x 3-10	18.1p

BRANDON CENTRAL DEPOT

METHODS OF PAYMENT

As new plant became operational during the redevelopment, staff had to be selected, trained and their training consolidated. This period, for the peeler and sawmill combined, extended from May 1981 to December 1983 and in the early stages, payment was by "average earnings" in accordance with laid down procedures.

Because average earnings procedure is based on past earnings it very quickly resulted in men doing the same jobs being paid different wages, and as the redevelopment progressed the situation very quickly became unworkable.

It was agreed with the Trade Union Side that it was essential to rationalize the pay structure and after discussion a proposal was put and accepted both by the Trade Union Side and District and Conservancy level management.

The proposal was based on enhanced day work pay, calculated on agreed percentages above basic pay. This established virtual parity of gross pay in a 40 hour week for all men working in the peeler and sawmill as well as those feeding and removing poles and products. It also established relativities dependent on the degree of skill considered necessary for other jobs. At the same time the stepped bonus systems were introduced for the stake line i.e. Rustic bench conversion VK10 peeling and stake pointing.

The overall objective was to create a fair payment system to serve as an interim measure which would do away with the anomalies created by average earnings, encourage team effort and create a pay structure platform to work from once there was a reasonable bases and climate for incentive payment schemes in the peeler and mill. It also considerably simplified pay recording, calculation and the application of annual pay increases.

A further development was the agreement to accept modified Piece Work rates for the Swing Line which gave ready acceptance to a far greater range of mix of pole type (Cambio, Long Butt, Smallwood) improving our ability to meet the variations in NCB and other demands. Previously any mix other than 1 deck Cambio, 1 deck Long Butts resulted in either excessive or low earnings.

The main package was introduced on 7 May 1983 with minor subsequent additions. Minor adjustments to relativities have been agreed when pay rises have been applied but within the system without increasing the overall bill.

In October 1983 the miners embarked on an overtime ban when the mill staff were still developing the various skills required and various mechanical and electrical teething troubles were still being sorted, not least of all measuring devices for both plants. These were modified and developed to acceptable standards by which time the strike which started in March 1984 was well entrenched.

In spite of this Work Study carried out studies on both peelers and the cross cutting element in the mill.

Output Guides were published for the mill in October 1984 and the peelers in early 1985.

Comparisons have been recorded at intervals between actual wages and theoretical based on the Guides (see appendix I).

Since then considerable discussion has taken place at Board Meetings regarding when incentive payment schemes should be introduced and what form they should take.

The main restraints, decisions and considerations include the following:-

1. To introduce incentive payment on the peelers before circumstances permitted the same in the mill would create dissention and would not therefore be desirable.

2. To date volume peeled has not been a limiting factor on our ability to supply NCB as required despite there being no overtime worked in this Forest Year.

3. Long Butt peeled stocks have been well maintained. Cambio deficiences are due to availability problems in the forest, not peeler output.

4. Peeler output per running hour has continued to improve throughout (see Appendix II table 1).

5. The unit cost of peeling is virtually the same now as it was in FY 82/83.

6. In the sawmill output per running hour in terms of lineal measure is the critical factor.

7. This is conditional on having the optimum demand from NCB in terms of top diamter range as well as volume, and on having adequate supplies of poles in the right diameter to service that demand.

8. Since the mill became operational in January 1983 we are only now beginning to experience anything like optimum demand in both top diameter range and volume.

9. This means that the mill capacity to cope in optimum conditions is only now startin to be fully tested and despite continuing minor modifications all of which have helped to improve performance, we now find that the sorting bay provision on the split side is inadequate (see Appendix III) a situation which results in part because of changes in the pattern of NCB requirements.

10. At the same time the range of diameters in stock in both peeled and unpeeled poles has been and still is almost exactly the reverse to that required. Please see paper presented to the Management Board showing position at 28.7.85 and 1.9.85 Appendix IV.

11. Throughout the period from January 1983 output per running hour (m^3) on the cross cut saws, the roundwood line and the bandsaw line has increased and is still increasing (see Appendix II table 1).

12. Overall unit costs have not risen in proportion to either increases in basic pay, 20%, or the increase in machine costs, 48% (see Appendix II table 2).

It is undisputable that incentive payment schemes must be introduced in order to attemp to further improve productivity, but when is the right time, in what form, and how far should they apply throughout the workforce, are the three crucial questions which have to be answered.

In my view an incentive scheme should fulfil the following objectives.

1. It should be easy to understand and apply.

2. It should enable the men concerned to calculate the results of increased effort readily, preferably on a daily basis.

3. Recording of data, completion of time sheets and related documents and calculation of individual pay should be as simple as possible.

4. It should be based on units easily recognised and monitored by the participants.

5. It should encourage team effort.

6. It should be self financing in that overall unit costs do not rise in proportion to the increase in wages.

7. Given these objectives are met then the primary objective, motivation, will follow so long as the incentive payment offered is fair and pitched at the right level, and then increased productivity will also follow.

Regarding the three crucial questions posed:-

1. When? - it is essential that any incentive scheme is introduced at as near optimum time as possible to give it the maximum chance of acceptance. Any prospect of needing to curtail production for whatever reason in the foreseeable future should give cause for hesitation in my view e.g. the very much reduced demand by NCB which has existed since 1983 and the problems of inadequate supply of Cambio pole material < 150mm. These facts when viewed against the progressive improvements in both performance and unit costs I believe justify our actions to date.

2. What form? - initially the basis considered was lineal measure throughput in both the peeler and the sawmill and this was the basis used by Work Study for their studies.

It is however the case that the most significant improvements result from improved design (modifications and additions) and improving the relationship between gross hours, running hours and load hours.

It might be possible and may be desirable to use output per running hour in lineal metres together with some recognition of improved relationship between gross, running and load hours.

Other possibilities are a stepped bonus system based on volume converted or volume sold or indeed lineal measure. I would prefer converted volume to volume sold as this relates directly to the effort made in the week but the volume converted is very seldom, if ever, affected directly by the volume peeled in that week. There are arguments in favour of the converted volume being that produced in the mill, or that produced throughout the yard with the added complication of where peeling should fit in.

The simplest but by no means the best solution is to restrict a scheme to the mill and peeler operators separately but that leaves all service operators with no incentive

If they are included, for instance Volvo, Gremo and Fork Lift, their time is not exclusive to the peeler or the mill. Loading and servicing forest loaded vehicles places significant demands on their time.

Ultimately every man in the Depot plays a critical part, the machines which service both the peeler and sawmill, the removal of 0.5m woodwool, wastewood and sawdust and the provision of boxes (pallets) for the mill. Flow also depends on the Ganger/Checker's ability to stay on top of counting and checking some 10,000 pieces of wood daily.

To create an incentive payment system or systems to fulfil even some of the objectives in relation to all the staff is extremely difficult and complex.

In the meantime it is my view that the actions taken to date regarding payment, bearing in mind the events of the past four years and the trends indicated in Appendix II, have not been detrimental to either management or the workforce for the following reasons:-

1. All commitments to customers have been met, retail sales have increased by almost 300% and fencing sales are much improved.

2. There has been no overtime worked in FY 85/86 apart from vehicle maintenance thus breaking the overtime tradition.

3. The trends in output, unit costs and unit income are all in the right direction and significant.

4. Good labour relations have been established and maintained throughout.

All proposals relating to incentive payment schemes must aim to improve on this situation and it is imperative that they have a good chance of success before implementation lest we lose much of that we have already gained.

B. Griggs.
February 1986.

SAMPLE COMPARISONS ACTUAL - OUTPUT GUIDES

Sawmill

Date w/e	Lin Metres		Stand Mins	Stand Hrs	Actual Hrs	% Time		Earnings (£)		Mean X Cut Run Hrs	% Earnings Act/WS
	<1200	1200>				WS/ Act	Act/ WS	Stand Time @ 6.85p	Actual		
17.6.84	6736	20132	2011	335.2	460.0	73	137	1377.60	1890.65	-	137
12.8.84	11896	5405	1522	253.7	378.5	67	149	1042.57	1555.66	-	149
16.9.84	6057	18487	1834	305.7	356.5	86	117	1256.29	1465.23	24.1	117
21.10.84	5649	19402	1856	309.3	355.5	87	115	1271.36	1462.54	24.7	115
10.3.85	3789	15691	1425	237.6	311.5	76	131	987.52*	1314.53	18.7	133
17.3.85	4764	19298	1763	293.8	351.0	84	119	1222.18	1481.21	25.1	121
19.5.85	4294	24125	2042	340.3	358.5	95	105	1416.30	1512.87	25.3	107
18.8.85	4320	21628	1877	312.8	357.0	88	114	1301.50	1506.54	25.8	116
									* Pay Increase 6.935p		

Peelers

No 1

Date w/e	Lin Metres	Stand Mins	Stand Hrs	Actual Hrs	% Time		Earnings		% WS/ Act	Mach Hrs	
					Act/ WS	WS/ Act	W/S	Actual		Run	Load
30.9.84	24758	1807	30.1	34	113	89	123.78	139.74	89	26.9	14.8
2.12.84	15342	1120	18.6	36	194	52	76.72	147.96	52	21.5	9.2*
3.2.85	18792	1372	22.9	36	157	64	93.98	147.96	64	23.3	11.4
10.3.85	18147	1325	22.1	36	163	61	91.82	151.92	60	21.9	11.1
17.3.85	18987	1386	23.1	36	156	64	96.05	151.92	63	20.1	11.4
19.5.85	22609	16.50	27.5	36	131	76	114.34	151.92	75	22.1	13.5
18.8.85	19906	1453	24.2	36	149	67	100.70	151.92	66	19.6	12.1
								* Operator Training			

Peelers

No 2

Date w/e	Lin Metres	Stand Mins	Stand Hrs	Actual Hrs	% Time		Earnings		% WS/ Act	Mach Hrs	
					Act/ WS	WS/ Act	WS	Actual		Run	Load
30.9.84	3601 Poles	1955	32.6	29.5	111	110	133.92	121.25	110	28.0	12.7*
2.12.84	2687 Poles	1459	24.3	34.5	142	70	99.94	141.80	70	23.1	9.5
3.2.85	14232	1181	19.7	35.5	180	55	80.89	145.91	55	21.0	8.5
10.3.85	14874	1235	20.6	36.0	175	57	85.59	151.92	56	21.7	9.4
17.3.85	15882	1318	22.0	36.0	164	61	91.33	151.92	60	21.0	10.6
19.5.85	16360	1358	22.6	30.5	135	74	94.10	128.71	73	18.7	11.2
18.8.85	15217	1263	21.05	34.0	162	62	87.53	143.48	61	19.3	10.2
								* Polecount Suspect			

UNIT COSTS

Table 2

FY	For Craft Pay	Vol Converted m^3	Wages Only				Total Direct Cost			
			H&M	£ Per m^3	Total	£ Per m^3	H&M	£ Per m^3	Total	£ Per m^3
82/83	£77.90	36656	219895	6.00	330392	9.01	563307	15.37	724168	19.75
83/84	84.25	34848	237356	6.81	346539	9.94	603392	17.31	771577	22.14
84/85	87.60	29794	240512	8.07	330378	11.09	570297	19.14	720205	24.17
85/86	93.65	28384	175896	6.19	252879	8.90	477573	16.82	608664	21.44
	120.2%			103.2%		98.8%		109.4%		108.5%

* 85/86 figures expressed as percentage of 82/83 figures

VME = 143%

N.B. 85/86 figures as at 29.12.85

INCOME

Table 3

FY	Volume		%	Despatch Income	£/m^3 Net
	Gross	Net			
82/83	55251	40874	74	1,611,332	39.42
83/84	52075	37707	72	1,584,083	42.01
84/85	42033	31376	75	1,234,488	39.34
85/86	35585	28366	80	1,327,410	46.80*
					118.7%

N.B. Net vol excludes bark and sawdust

* @ 29.12.85

OUTPUTS FY 82/83 TO FY 85/86

Table 1A Peelers and Sawmill

FY	Output m^3 per clock hour				
	Peeler		X Cut Mill	Split	Roundwood
	No 1	No 2			
82/83	26.4	9.5	5.0	7.2	Data not available
83/84	27.9	10.1	6.3	8.9	9.0
84/85	27.9	9.9	6.3	8.0	10.0
85/86	31.1 (117.8%)	11.7 (123%)	7.9 (158%)	12.0 (166.6%)	11.4 (126.6%)

Table 1B VK10 and Pointing

Operation	FY	Unit Cost			
		Wages	Cash	VME	Total
Peel VK10	82/83	5.90	0.14	1.11	7.17
	85/86	4.50 (76%)	0.11	1.06 (95%)	5.57 (78%)
Point Stakes	82/83	3.86	0.11	0.31	4.29
	85/86	2.83 (73%)	0.05	0.71 (229%)	3.54 (83%)
		Over 4 yrs			

BCD SAWMILL

The sawmill became operational early in 1983 and by October 1983 when the miners' overtime ban started, we had hardly completed operator selection, training and consolidation.

The overtime ban led into the strike in March 1984 and although it ended in March 1985 we are only just returning to a normal level of demand from NCB.

Thus for the first time we have a near optimum pattern of demand to cut for and it has become increasingly apparent that the existing sorting facilities on the split side are inadequate.

We are regularly putting material into 2m woodwool because we have insufficient sorting bays and estimate that given 4 more bins for mechanical sorting we could produce at least another 50m^3 per week as splits in place of woodwool.

In addition we are certain that at least another 25m^3 would result from improved flow. Cross cutting is stopped much more frequently through problems on the splitline sorting than for any other reason.

	Manual	Mechanical	Total
Propside Bin	10	8	18
Splitside Bin	8*	4	12

* The bandsaw prevents a further 2 bays

Proportion by Volume	NCB Only	All Products
Props	30%	42% Roundwood
Splits	70%	58% Splits

Price Comparison (@ 86/87 Prices)	Splits		—Haul @ £8
2m Woodwool £35.33	100–140	£52.61	£44.61
	150–180	£58.96	£50.96
	190+	£61.83	£53.83

Therefore price advantage splits to NCB over 2.0m woodwool £50.96 - £35.33 = £15.63
Say 2 loads per week @ 25m^3 = 50 @ £15.63 = £781.50

Estimate - M I Edwards (Engineers) Dated 17.1.86

To supply and instal 4 extra mechanical sorting bays (2 pairs) complete with concrete site works as existing line.

£10,300 to stand for 2 months from 17.1.86.

This is not a firm quotation but an estimate provided for the purpose of this appraisal, but I am assured that it is not likely to be far out.

Given this cost and the increased income suggested overleaf, it would take only 13.2 weeks to recoup the expenditure involved.

APPENDIX IIIb

COMPARISON - PROPORTIONS BY VOLUME OF SPLITS AND PROPS BY TOP DIAMETER CLASSES

CONTRACT 80/81 - BACKLOG PLUS DECEMBER-FEBRUARY REQUISITION 85/86

Diam mm	Percentage By Volume					
	Props		Splits		Props and Splits	
	80/81	Dec/Feb 85/86	80/81	Dec/Feb 85/86	80/81	Dec/Feb 85/86
80-140	13.6	14.1	16.6	16.3	30.2	30.4
150-180	19.5)	14.8)	27.1)	39.8)	46.6	54.6
190+	7.5)	3.4)	15.7)	11.6)	23.2	15.0
TOTAL	40.6	32.3	59.4	67.7 +9%	100.0	100.0

N.B.

1. 80/81 are contract figures which include Extra Dry Props with top diameters, ranging from 170mm to 200mm which totalled 3500m^3 .

Although in prospect at the time it may have been reasonable to include them as a likely indication of the future events proved otherwise.

The Dry Props were prepared in order to assist NCB with the import substitution programme.

The figures are taken from the handout presumably supplied to companies showing interest in tendering to build the sawmill.

2. All percentages shown are expressed in terms of total volume.

3. 85/86 figures are those for the position at 1.12.85. They therefore include the requisition for the final quarter plus backlog and are therefore a reasonable indication of the mix required currently and probably in the future.

4. The increase indicated in both overall proportion and particularly in the middle range of top diameters of splits would result in a significant increase in the number of pieces going down the split side. The majority would be in lengths 2100mm or longer, all of which would have a volume greater than 0.04m^3 , this being the volume agreed as the maximum to be handled manually. In addition the market for 3.6m split rails is growing and this is a regular additional product compared with 80/81.

POTENTIAL PEELED POLE STOCK - NCB ORDERS @ 1.9.85

≤ 150mm				160mm Plus			
Stock		Orders		Stock		Orders	
Vol m^3	%	Vol m^3	%	Vol m^3	%	Vol m^3	%
2454	18.5	4371	66.3	10814	81.5	2224	33.7

N.B.

Likely input of Cambio September to November = 1625m^3 peeled. Actual 2692.

Therefore to complete orders by end of November we need to convert all present Long Butt stocks and all present stock plus likely input of Cambio in the period and we would still shortfall by 300m^3.

BRANDON CENTRAL DEPOT INPUT

Analogues - Comparison between 84-85 and 85-86 using 85-86 sales plan volumes

Long Butts	+ 17.1%	£19.11	to	£22.89
Cambio	+ 12.6%	£10.76	to	£12.60
Smallwood	+ 133%	£ 5.40	to	£12.60
Overall	+ 20.3%	£17.59	to	£21.16

+ £174,830 (£3362 per week)

PITWOOD TOP DIAMETER CLASSES

Comparison between proportions by volume of remaining orders and pole stocks

Pole Stocks @ 28.7.85

	Long Buts	Cambio	
PEELED	8944	-	
UNPEELED	4371	420	(Reduced by 15% for bark)
TOTALS	13315	420	

Assuming that all Cambio volume will be suitable for pitwood in the range up to 150mm.

Recent samples taken of Long Butt top diameter indicate that 34% are 150mm TD or less. At the most only 50% of the volume within that TD range will make pitwood in the same range, the remainder having diameters in excess of 150mm.

Therefore:-

Estimated Stock	⩽ 150mm		160mm Plus	
Long Butts	2263*		11052	
Cambio	420		-	
	2683	(19.5%)	11052	(80.5%)
Order Balance	2574	(87.4%)	372	(12.6%)

* $\frac{13315 \times 34}{100 \times 2}$

PITWOOD TOP DIAMETER CLASSES

Comparison between proportions by volume of remaining orders and pole stocks @ 2.3.86

Date	⩽ 150mm				150mm Plus			
	Stock		Orders		Stock		Orders	
	Vol m^3	%	Vol m^3	%	Vol m^3	%	Vol m^3	%
2.3.86	2912	20	5263	55	11338	80	4352	45

N.B.

Likely input of Cambio March April May 1764 UB.

Therefore to complete orders by end of quarter (May) we need to convert all present Long Butt stock plus all Cambio stock plus likely input and we would still shortfall by 587m^3 .

Date	⩽150mm				160mm Plus				Date Relation to NCB quarter
	Stock		Orders		Stock		Orders		
	Vol m^3	%	Vol m^3	%	Vol m^3	%	Vol m^3	%	
28.7.85	2683	19.5	2574	87.4	11052	80.5	372	12.6	End of 2nd month
1.9.85	2454	18.5	4371	66.3	10814	81.5	2224	33.7	Beginning
2.3.86	2912	20.0	5263	55.0	11338	80.0	4352	45.0	Beginning
Feb 86 Desp				42.0				58.0	

N.B.

1. The move towards larger material results from liaison between this office and NCB Doncaster and a definite increase in demand for larger diameters in the coming quarter.

It is impossible to judge whether the demand for larger sizes will continue but it is my opinion that NCB go as far as they are able as a result of liaison to accommodate our preferences.

2. Working tight to Cambio stock results in volume/weight ratios well below specification in the smaller sizes.

		Props			Splits			Total		
		%	Vol m^3	%	%	Vol m^3	%	%	Vol m^3	%
Despatches Feb '86	⩽150mm	52	410	48	36	446	52	42	856	100
	160mm Plus	48	386	32	64	808	68	58	1194	100
	TOTAL	100	796	39	100	1254	61	100	2050	100

B.C.D RATES OF PAY FROM 5TH OCTOBER 1987

	HOURLY RATE PRODUCTIVE PIECE WORK £	% ADDED TO BASIC	
SAWMILL OPERATORS PLEASURE OPERATORS	4.97	93%	
FRONT END LOADERS		67%	
SKIDMO / LOADALL	4.73	69%	
FORKLIFT		69%	
TRACTOR DRIVERS	4.02	56%	
CRANE SLINGMAN	4.72	83%	
HANDYMAN	4.43	72%	
GANGERS	4.20	60%	
ENHANCED DAYWORK RATES FOR JOBS NOT COVERED ELSEWHERE	4.12	60%	FOREST CRAFTSMAN
	3.74	65%	UNSKILLED FOREST WORKER

LOAD BY HAND 0.5 METRE WOODWOOL @ 106P PER M^3

NOTES

i) PRODUCTIVE TIME HOURLY RATE WILL APPLY TO PRODUCTIVE OVERTIME WITH THE USUAL OVERTIME ADDITIONS.

ii) WHERE STOPPAGES OCCUR DUE TO BREAKDOWN AND NO OTHER PRODUCTIVE WORK IS MADE AVAILABLE PAYMENT WILL BE AS PREVIOUSLY @ BASIC + 30%

SWING LINE TRIAL PRICES W.E.F. 5/10/87 PENCE PER 100 PIECES (NORMAL CONVERSION).

100x80	32.2
450	104P
525	122P
600	139P
675	157P
750	174P
825	191P
100x80	32.2
900	188P
1050	219P
1200	251P
100x90	27.6
600	166P
675	186P
750	207P
825	228P
900	248P
100x90	24.9
975	243P
1050	261P
1200	299P
1350	336P
1500	374P
2400	598P
3600	896P
4 x100	21.0
675	209P
750	233P
825	256P
900	279P
975	302P
1050	326P
1125	349P
100x100	23.6
1200	343P
1350	386P
1500	429P
1650	472P
1800	515P
2700	772P
3000	858P

100x110	37.7
750	283P
825	311P
900	339P
975	368P
100x110	35.3
1050	371P
1125	397P
1200	424P
1350	477P
1500	530P
1650	582P
1800	635P
1950	688P
100x120/130	41.4
825	342P
900	373P
975	404P
1050	435P
1125	466P
1200	497P
1350	559P
1425	590P
1500	621P
1650	683P
1800	745P
1950	807P
100x120/130	43.4
2100	911P
2400	1042P
2700	1172P
100x140	48.3
900	331P
1050	444P
1200	508P
1350	571P
1500	635P
1650	698P
1800	761P.

100x140	45.5
1950	887P
2100	956P
2400	1092P
2700	1229P
100x150	51.9
750	389P
900	467P
975	506P
1050	545P
1200	623P
1350	701P
1500	779P
1650	856P
1800	934P
100 x150	58.4
1950	1022P
2100	1100P
2400	1258P
2700	1415P
2850	1493P
3000	1572P
100x160/170	56.3
675	380P
900	507P
1050	591P
1350	760P
1500	845P
1800	1013P
1950	1098P
2100	1182P
2250	1267P
2400	1351P
2700	1520P
100x170	61.1
2100	1283P

100x180	68.1
1350	919P
1650	1124P
1800	1226P
1950	1328P
2100	1430P
2400	1634P
2700	1839P
3000	2043P
100x190	69.6
900	626P
1500	1044P
1800	1253P
1950	1357P
2100	1462P
2250	1566P
2400	1670P
2700	1879P
100x200	71.0
1500	1065P
1650	1172P
1800	1278P
1950	1385P
2100	1491P
2250	1598P
2400	1704P
2700	1917P
2850	2024P
3000	2130P.

NOTES. i) WASTEWOOD NOT VALUED. ALL OTHER PRODUCT COUNTS PER PIECE

ii) BUTT ENDS TO BE SQUARED ON ALL POLES.

STAKE LENGTHS.	
5-8 CMTD	
100 mm	21.5
1200	258P
1500	323P
1650	355P
1800	387P
2000	430P
2100	452P
2250	484P
2400	516P
2700	581P
3000	645P
2.1 x 3/5	307P
1.8 x 8/10	412P
2.1 x 8/10	479P
2.4 x 8/10	552P
WOOLWOOL	
0.5 m x 130+	
1580P	
Per 1.08 m³ (30KG)	
SHORT SAWLOGS	
AVG 2.0 m WOODWOOL	
x 130+	
100 mm x AV 150	
52.4	
100 mm x AV. 180	
606.3	

SWING LINE TRIAL PRICES W.E.F. 5/10/87 FENCE PER 100 PIECES. CAMDIO POLES + 10%

100 x 80	85.5
450	115 P
525	134 P
600	153 P
675	172 P
750	191 P
825	210 P
100 x 80	83.0
900	207 P
1050	245 P
1200	276 P
100 x 90	90.4
600	182 P
675	205 P
750	228 P
825	251 P
900	274 P
100 x 90	87.4
975	267 P
1050	288 P
1200	329 P
1350	370 P
1500	411 P
2400	658 P
3600	986 P
0 x 100	34.1
675	230 P
750	256 P
825	281 P
900	307 P
975	332 P
1050	358 P
1125	384 P
100 x 100	31.5
1200	378 P
1350	425 P
1500	473 P
1650	520 P
1800	567 P
2700	851 P
3000	945 P

100 x 110	41.5
750	311 P
825	342 P
900	374 P
975	405 P
100 x 110	38.8
1050	407 P
1125	437 P
1200	466 P
1350	524 P
1500	582 P
1650	640 P
1800	698 P
1950	757 P
100 x 120/130	45.5
825	375 P
900	410 P
975	444 P
1050	478 P
1125	512 P
1200	546 P
1350	614 P
1425	648 P
1500	683 P
1650	751 P
1800	819 P
1950	887 P
100 x 120/130	47.7
2100	1002 P
2400	1145 P
2700	1288 P
100 x 140	46.5
900	419 P
1050	488 P
1200	558 P
1350	628 P
1500	698 P
1650	767 P
1800	837 P

100 x 140	50.1
1950	977 P
2100	1052 P
2400	1202 P
2700	1353 P
100 x 150	57.1
750	428 P
900	514 P
975	557 P
1050	600 P
1200	685 P
1350	771 P
1500	857 P
1650	942 P
1800	1028 P
100 x 150	57.6
1950	1123 P
2100	1210 P
2400	1382 P
2700	1555 P
2850	1642 P
3000	1728 P
100 x 160/170	61.9
675	418 P
900	557 P
1050	650 P
1350	836 P
1500	929 P
1800	1114 P
1950	1207 P
2100	1300 P
2250	1393 P
2400	1486 P
2700	1671 P
100 x 170	67.2
2100	1411 P

100 x 180	74.9
1350	1011 P
1650	1236 P
1800	1348 P
1950	1461 P
2100	1573 P
2400	1798 P
2700	2022 P
3000	2247 P
100 x 190	76.6
900	689 P
1500	1149 P
1800	1379 P
1950	1494 P
2100	1609 P
2250	1724 P
2400	1838 P
2700	2068 P
100 x 200	78.1
1500	1172 P
1650	1289 P
1800	1406 P
1950	1523 P
2100	1640 P
2250	1757 P
2400	1874 P
2700	2109 P
2850	2226 P
3000	2343 P

STAKE LENGTHS.
5-8 CM TD
100 mm 23.7
1200 284 P
1500 356 P
1650 391 P
1800 427 P
2000 474 P
2100 498 P
2250 533 P
2400 569 P
2700 640 P
3000 711 P
2·1 x 3/5 338 P
1·8 x 8/10 453 P
2·1 x 8/10 527 P
2·4 x 8/10 602 P
WOODWOOL
0·5 m x 130+
1738 P
Per 1·08 m² (30 KG)
SNAKE SAWLOGS
AND 2·0 m WOODWOOL
x 130+
100 mm x AV 150
57·6
100 mm x AV 180
72·9

SAWING LINE TRIAL PRICES W.E.F. 5/10/87 PRICE PER 100 PIECES. (BUTTS - 10%)

100x80	80·9
450	941P
525	110P
600	125P
675	141P
750	157P
825	172P
100x80	18·8
900	169P
1050	197P
1200	226P
100x90	24·8
600	149P
675	167P
750	186P
825	205P
900	223P
100x90	22·4
975	218P
1050	235P
1200	269P
1350	302P
1500	336P
2400	538P
3600	806P
0x100	27·9
675	188P
750	209P
825	230P
900	251P
975	272P
1050	293P
1125	314P
100x100	25·7
1200	308P
1350	347P
1500	386P
1650	424P
1800	463P
2700	694P
3000	771P

100x110	33·9
750	254P
825	280P
900	305P
975	331P
100x110	21·8
1050	334P
1125	358P
1200	382P
1350	429P
1500	477P
1650	525P
1800	572P
1950	620P
100x120/130	37·2
825	308P
900	336P
975	364P
1050	392P
1125	420P
1200	448P
1350	504P
1425	532P
1500	560P
1650	615P
1800	671P
1950	
100x120/130	39·1
2100	821P
2400	938P
2700	1056P
100x140	38·1
900	343P
1050	400P
1200	457P
1350	514P
1500	572P
1650	629P
1800	686P

100x140	41·0
1950	800P
2100	861P
2400	984P
2700	
100x150	46·7
750	350P
900	420P
975	455P
1050	490P
1200	560P
1350	630P
1500	701P
1650	771P
1800	841P
100 x150	47·2
1950	920P
2100	991P
2400	1133P
2700	1274P
2850	1345P
3000	1416P
100x160/170	50·7
675	348P
900	456P
1050	532P
1350	684P
1500	761P
1800	913P
1950	989P
2100	1065P
2250	1141P
2400	1217P
2700	1369P
100x170	55·0
2100	1155P

100x180	61·3
1350	828P
1650	1011P
1800	1103P
1950	1195P
2100	1287P
2400	1471P
2700	1655P
3000	1839P
100x190	62·6
900	563P
1500	939P
1800	1127P
1950	1221P
2100	1315P
2250	1409P
2400	1502P
2700	1690P
100x200	63·9
1500	959P
1650	1054P
1800	1150P
1950	1246P
2100	1342P
2250	1438P
2400	1534P
2700	1725P
2850	1821P
3000	1917P

STAKE LENGTHS

5-8 CM TD	
100 mm	19·4
1200	233P
1500	291P
1650	320P
1800	349P
2000	388P
2100	407P
2250	437P
2400	467P
2700	524P
3000	582P
2·1 x 3/5	276P
1·8 x 8/10	371P
2·1 x 8/10	431P
2·4 x 8/10	497P

WOODWOOL

0·5 m x 130+	
	1422
Per 1·08 m³ (30 M.F.)	

SMART SAWLOGS

And 2·0 m Woodwool	
x 130+	
100 mm x AV 150	
	47·2
100 mm x AV 180	
	59·7

SMALL WOOD CONVERSION ON SWINGLING W.E.F. 5TH OCTOBER 1987

PIECES					HOURLY RATE
PER DAY		PER HOUR		PER MAN HOUR	
4 MAN TEAM	7 MAN TEAM	4 MAN TEAM	7 MAN TEAM		PER MAN
1760	2800	220	385	55	4·14
1920	3360	240	420	60	4·27
2080	3640	260	455	65	4·39
2240	3920	280	490	70	4·51
2400	4200	300	525	75	4·63
2560	4480	320	560	80	4·76
2720	4760	340	595	85	4·88
2880	5040	360	630	90	5·01
3040	5320	380	665	95	5·15
3200	5600	400	700	100	5·36

NOTES: (i) PRODUCTION RATE TO BE ASSESSED ON TOTAL TIME ON JOB IN A WEEK.

(ii) WASTE WOOD NOT TALLIED. ALL OTHER PRODUCTS TO COUNT BY THE PIECE.

(iii) BUTT ENDS TO BE SQUARED ON ALL POLES.

RUSTIC BENCH 2 MAN TEAM

STAKE LINE RATES W.E.F. 5TH OCT 1987.

PIECES		
PER DAY	PER HOUR	HOURLY RATE
1000	125	3.74
1100	137	3.87
1200	150	3.98
1300	162	4.10
1400	175	4.23
1500	187	4.41
1600	200	4.54
1700	212	4.65
1725	216	4.69
1750	219	4.72
1775	222	4.75
1800	225	4.78
1825	228	4.82
1850	231	4.86
1875	234	4.91
1900	237	4.94
1925	241	4.99
1950	244	5.04
1975	247	5.09
2000	250	5.15

POINTING ONE MAN OPERATION

550	69	3.74
630	79	3.87
710	89	3.98
790	99	4.10
870	109	4.23
950	119	4.41
1030	129	4.54
1110	139	4.65
1130	141	4.69
1150	144	4.72
1170	146	4.75
1190	149	4.78
1210	151	4.82
1230	154	4.86
1250	156	4.91
1270	159	4.94
1290	161	4.99
1310	164	5.04
1330	166	5.09
1350	169	5.15

VK10 PEELER 2 MAN TEAM

PIECES		
PER DAY	PER HOUR	HOURLY RATE
800	100	3.74
900	112	3.87
1000	125	3.98
1100	137	4.10
1200	150	4.23
1300	162	4.41
1400	175	4.54
1500	187	4.65
1525	190	4.69
1550	193	4.72
1575	196	4.75
1600	200	4.78
1625	203	4.82
1650	206	4.86
1675	209	4.91
1700	212	4.94
1725	215	4.99
1750	218	5.04
1775	221	5.09
1800	225	5.15

NOTES.

(i) PRODUCTION RATE WILL BE ASSESSED ON TOTAL TIME ON JOB IN A WEEK

(ii) VK.10 & POINTING RATES TO COVER STAKES 1.65 M TO 2.4 M LONG WITH A TOP DIAMETER RANGE OF 3 TO 10 CENTIMETRES.

APPENDIX 4k

FROM C/F BCD

To Cons E(E)
Attn MR N DANNATT, Assist Cons Ops
Copy FDM THETFORD

FILE RED E7/1

22 JAN 1988

BONUS SCHEME

Please find copy of details of a bonus scheme for the sawmill agreed today with Mr Hurrell, the Trade Union Representative for the Depot.

Also enclosed for information is a copy of agreed revised pay rates which resulted from the 1987 National Pay Award which I brought to the November 17th Board Meeting but forgot them due to more pressing considerations related to the closure announcement.

My objective in introducing a bonus scheme at this late stage is threefold.

1) To encourage men to want to stay long enough to complete our programme of conversion.

2) To motivate all those contributing to mill production towards completing by Feb 26th.

3) To assist in maintaining morale.

The system is only possible now because of the very much simplified cutting pattern and because the effort and time of all concerned can be concentrated on the mill operation with no dilution of that effort by the need to service other operations and loading as previously.

We also have a known work programme and there is benefit in completion by a set date as compared with the previous situation where all that was known about the programme was that it was reducing while resources were virtually fixed.

Given the top rate of production which I believe to be possible, I calculate the following would result.

Conversion would be completed by Feb 26th.

Throughput would have increased by 40% against earnings increase on the sawmill operator rate of 27.6%.

Overall wages unit cost would be reduced by around 10% or 60 pence per m^3 with some consequential reductions in VME unit cost.

B Griggs
22nd Jan 1988

BONUS SYSTEM TO OPERATE FROM 18.1.88

VOLUME PER MILL HOUR (3 SAWS) TIMESHEET HOURS	VOLUME PER DAY (7½ HOURS)	VOLUME PER WEEK (36 HOURS)	ADDITION TO HOURLY RATE	WEEKLY ADDITION ON 36 HOURS	
				£	P
UP TO 15.0	112	540	STANDARD RATE		
15.5	116	558	10p	3	60
16.0	120	576	20p	7	20
16.5	123	594	30p	10	80
17.0	127	612	40p	14	40
17.5	131	630	50p	18	00
18.0	135	648	60p	21	60
18.5	138	666	70p	25	20
19.0	142	684	80p	28	80
19.5	146	702	90p	32	40
20.0	150	720	100p	36	00
20.5	154	738	110p	39	60
21.0	158	756	120p	43	20

NOTES

(i) Staff to be included are those engaged in the following operations:-

Cross Cut, Sorting and Kicker Panels, Take Off/Sorting, Feed Mill, Take Away Mill including 0.5m Woodwool. Handle Wastewood, Sawdust, Boxes, check - Measures and Mark.

(ii) Bonus additions per houe will be additional to enhanced hourly rates applicable to each operation as agreed 5th October 1987.

(iii) Assessment of output to determine bonus rate will be on production for a week.

(iv) Continued strict adherence to specification by size and quality is essential and safe working practices must apply at all times.

LOADING RATES

Load 2.0 metre Woodwool 20p per m^3

Load 12.0 metres (40 foot) Artic with sawlogs, Long Butts etc £5.00 per lo

Load other smaller vehicles and stakes 20p per m^3

APPENDIX TO BONUS SYSTEM (FOR 38 HOUR WEEK)

VOLUME PER MILL HOUR (3 SAWS) TIMESHEET HOURS	VOLUME PER DAY (8 HOURS)	VOLUME PER WEEK (38 HOURS)	ADDITION TO HOURLY RATE	WEEKLY ADDITION ON 38 HOURS	
				£	P
15.0	120	570	STANDARD RATE		
15.5	124	589	10p	3	80
16.0	128	608	20p	7	60
16.5	132	627	30p	11	40
17.0	136	246	40p	15	20
17.5	140	665	50p	19	00
18.0	144	684	60p	22	80
18.5	148	703	70p	26	60
19.0	152	722	80p	30	40
19.5	156	741	90p	34	20
20.0	160	760	100p	38	00
20.5	164	779	110p	41	80
21.0	168	798	120p	45	60
21.5	172	817	130p	49	40
22.0	176	836	140p	53	20
22.5	180	855	150p	57	00
23.0	184	874	160p	60	80
23.5	188	893	170p	64	60
24.0	192	912	180p	68	40
24.5	196	931	190p	72	20
25.0	200	950	200p	76	00
25.5	204	969	210p	79	80
26.0	208	988	220p	83	60
26.5	212	1007	230p	87	40
27.0	216	1026	240p	91	20
27.5	220	1045	250p	95	00
28.0	224	1064	260p	98	80
28.5	228	1082	270p	102	60
29.0	232	1102	280p	106	40

APPENDIX 4-L

HEALTH AND SAFETY AT WORK ACT 1974
POLICY STATEMENT PART III (REVISED APRIL 1982)
BRANDON DEPOT E(E) CONSERVANCY

Contents

Para No

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Copies of Standing Instructions referred to in this Statement are held at the Depot Office.

LIST OF AMENDMENTS

NUMBER	DATE MADE	INITIALS	NUMBER	DATE MADE	INITIAL
1	20.5.82.	BL.			
2	20.10.82.	BL.			
3	12.7.83	BL.			

1. INTRODUCTION

1.1 The aims of this statement are:-

a) to provide for the safety, health and welfare of all personnel by ensuring that the planning and organisation of work activities, and the equipment provided, take fully into account safety, health and welfare as far as is reasonably practicable.

b) to create a sense of safety awareness amongst all operatives and supervisors and including the encouragement of suggestions to minimise or remove hazards.

c) to clearly identify the responsibilities of operatives and supervisors in minimising the hazards associated with forestry depot work.

d) to ensure that all operatives and supervisors recognise the need to minimise risks of accident and injury by complying with instructions.

1.2 The safety representative will be consulted by the Chief Forester about any measures to be taken for ensuring the health and safety of employees. He will likewise be consulted about any amendment or modification in respect of this Policy Statement. Amendments will be made as and when necessary and a complete review will be undertaken annually.

1.3 The Chief Forester will maintain one fully up to date copy of this statement and a further copy will be similarly maintained by the Safety Representative.

2. HAZARDS - IDENTIFICATION AND TREATMENT

2.1 a) Brandon Depot comprises an area of 18 ha. situated on the Northern outskirts of Brandon adjacent to the railway station.

Access is off the A1065 Brandon to Mundford Road, leading into a ring road system bisected by a central road, all surfaced with tarmac. The remaining area is relatively flat and level, and is surfaced to a varying degree with concrete, tarmac or hardcore.

b) Brandon Depot functions mainly to peel, season and crosscut conifer poles delivered from the forest, to produce pitwood and woodwool billets. Small wood poles are converted into posts, stakes and rustics.

The working areas are the fixed peeling and saw lines which are mainly under cover, having either concrete or tarmac bases and surrounds.

A high proportion of the remaining area is used to stack and store poles or end products and it is in these areas that unloading, stacking, loading and general movement takes place.

A workshop staffed by Santon Downham Repair Depot based fitters is used for the repair, maintenance and overnight garaging of Depot plant and equipment.

c) Special Hazards.

1) Overhead Power Supply to main switch gear building on the northern edge of the Depot.

2) Overhead Power Supply to houses and office on northern edge of entrance road.

3) Main access road which carries a heavy flow of traffic also provides access for houses within the Depot and is the access route for the charcoal burner who operates on a site beyond the eastern end of the Depot.

4) Special hazards in the workshop are covered by Appendix I to the Policy Statement for the Repair Depot (Santon Downham) copied as Appendix I to this statement.

d) Abnormal conditions can result from high winds during dry weather causing dust to blow, also severe frost and deep snow. In all cases alternative work is found ~~as normal work is affected~~. or work ceases.

Add to para 2.1 d.

"Operatives are encouraged to judge for themselves during the working day if conditions appear to have become hazardous and to cease work and report the matte to their supervisor immediately.

Supervisors inspect new work sites before work begins to identify and warn of hazards. They are required to revisit and issue further warnings when they have reason to believe that site conditions may have changed. Where there has been delay between preparing a site for work and work commencing, a further visit should be paid. It may not always be possible for supervisors to visit all work sites immediately prior to work commencing. In such cases, operatives must not start work if they have reason to believe that conditions have changed significantly".

Exits and entrances to buildings are lit. Emergency lighting systems are installed in the Peeler building and will be in the new sawmill.

Suitable fire extinguishers are situated strategically throughout buildings and work sites as indicated in Appendix II. A water tanker is in attendance during all normal working hours.

2.3 Depot Operations

2.3.1 All powered vehicles and machines are inspected and maintained as laid down in MEM.56. For a list of categories in use - see Appendix III.

2.3.2 The yard supervisor(s) (designated by Chief Forester) will check at frequent intervals that all personal safety equipment, non powered VME and hand tools are in good condition and meet required standards.

2.3.3 All recently published and amended safety instructions will be communicated to the safety representative, supervisors and operators as soon as practical after they are received.

2.3.4 Operatives are required to:-

a) Adhere to recognised work methods and safe working practices as taught.

b) Wear and use safety clothing and equipment as specified in FSC guides or by supervisor in consultation with safety representative and E&T Branch where no guide exists.

c) Be certain that they hold a certificate of authority to operate any item of powered equipment.

d) Comply with all instructions issued by their supervisor.

e) Maintain any tools, plant and equipment that they use in a safe, serviceable condition and to report defects to their supervisor promptly.

f) Ensure that all guards are kept in position and are in good order and fully functional at all times.

g) Ensure that all stacks of poles, pit props, splits, woodwool billets, bark, sawdust, and any other products are built maintained and left in a safe, stable condition.

h) All FC drivers and other workers coming into the Depot will be made aware of and conform to the above requirements.

2.3.5 All operatives who are required to drive FC vehicles and tractors must be in possession of a current driving licence. In addition all drivers are required to undergo periodic medical checks at FC expense to ensure that they are fit to drive.

2.4 The Storage and Handling of Dangerous (Toxic Inflammable or Explosive) Substances.

2.4.1 Storage in buildings

Lubricating and Hydraulic oils are stored in the Oil Store situated in the SW cover of the Workshop building. Use of petrol is limited to small quantities for chainsaws. It is stored ready mixed in explosafe 2 gall. cans in the Oil Store.

i) Oil containers are those supplied and they are marked accordingly by the manufacturers.

Petrol cans are plainly marked by manufacturers.

ii) Keys to exterior and interior door held by Foreman Mechanic and in Depot Office.

iii) Full washing facilities in Mess Building at rear of workshop.

iv) Stock control exercised by Foreman Mechanic using Oil record form No. A154.

2.4.2 Storage at Work Site

Diesel is stored in a 2000 gall. underground tank and it is drawn from a normal fuel pump installed on the concrete apron in front of the workshop. Entry to and control is by individual keys held by machine operators.

Diesel fuel is required in small quantities for diesel engined liner saw benches and to lubricate the feed chain to the band saw. On site storage is restricted to that required for one day.

2.4.3 The use of Dangerous substances

i) The only real potential for pollution to water courses is at the vehicle wash, situated near the workshop, which includes both silt and oil traps. These are emptied by contractors at intervals as required.

ii) Surplus used oil resulting from oil changes is stored in a galvanised tank from which a contractor collects at intervals.

2.5 Public Access

2.5.1 There are no public rights of way but customers regularly travel within the Depot to collect orders. They are normally accompanied by a member of staff.

Organised parties visiting the Depot are always accompanied by an FC guide and normally they stay within their vehicle.

2.5.2 Dangerous trees which may occur on the periphery of the Depot are ultimately the responsibility of Chief Forester Santon Beat.

2.6 Contractors

Contractors are employed for haulage, machinery maintenance and repair and certain building, mechanical and civil engineering projects. Customers also employ contractors for haulage from the forest via the Depot and direct from the Depot.

All contracts will contain the clause as specified in IM.207 para 6 or similar depending on the nature of the contract. The contractor will accept full responsibility for complying with the provisions of the Health and Safety at Work Act 1974.

For guidance reference will be made to IM.207, the Conservancy Safety letter No. 2 to Safety Representatives etc dated 9.1.79 and in the Conservancy Code.

2.6.1 In order to ensure the safety of FC employees and the public, due regard will be given to all aspects of Contractors work, vehicles, machinery and equipment to ensure maximum safety of all those in close proximity to contractors.

In particular all concerned with loading will be required to ensure that loads are safe and haulage contractors reminded of their responsibility for the safety of their loads.

2.6.2 The Chief Forester will be responsible for ensuring that contractors comply with the terms of their contract in every respect.

The Forester and Foreman will monitor Contractor's working methods, vehicles, machinery and equipment used to ensure, that they comply with contractual and legal requirements.

Building, mechanical and civil engineering projects will normally be the responsibility of the functional supervisor at either District or Conservancy level.

2.6.3 Any contractor who fails to comply and found contravening safety regulations will be warned by the Chief Forester and if remedial action is not taken the contract will be suspended or cancelled through higher management channels. (See IM.207, paras 3, 4 and 7).

3. EMPLOYEE PROTECTION

3.1 Operative Training

All necessary training (including updating and refresher courses) will be provided and operatives will not be asked to undertake any job unless adequate instruction and information has been given.

A review of training needs will be conducted at the time of preparation of the forest budget and additional reviews will be carried out whenever circumstances change eg. introduction of new techniques, machines etc.

All machine operators will be tested in the correct use and maintenance of their machines and no employee shall be permitted to operate a machine unless he has been trained, tested and awarded a Certificate of Authority.

Operatives will be given every encouragement to enable them to achieve craftsman status either by attendance at the appropriate City and Guilds courses or attendance at the relevant courses described in the Forestry Commission Training Handbook or any other approved means.

3.2 Supervisor Training

Training of supervisory staff will be reviewed annually in the case of existing staff and additional reviews will be conducted whevever staff changes or changes in working techniques etc are planned. Identified training needs will be advised to Education and Training Branch and the aim will be to ensure that supervisors will not be required to control operations unless they have received adequate instruction and information.

3.3 Safety Equipment and Working Clothing

All items of safety equipment which are required in the interests of personal protection will be provided free of charge. Equipment of this nature will be replaced periodically or when it has been damaged or has worn out. All defective equipment must be reported to the local supervisor as soon as practicable.

Suitable working clothing will be provided on either a subsided or "at cost" basis and every encouragement will be given to employees to take advantage of this scheme. All employees will be provided with a schedule setting out the basis for issue, replacement and cost of working clothing. The Forester and the Safety Representative will each maintain an up to date copy of this schedule.

3.4 Emergency Procedure

a) Procedures to be followed in the event of the following:-

i) a critical incident (notifiable accident) where no personal injury is involved will be investigated immediately by the Chief Forester or his deputy together with the Safety Representative where possible and a report submitted as outlined in Conservancy Code and IM.225 para. 26.

ii) a non-reportable accident where personal injury occurs which only requires an accident book entry will be investigated by the Chief Forester or his deputy.

iii) a reportable accident which requires both an Accident Book entry and Form C49 will be investigated as in (ii) above.

For guidance see IM.225 and Conservancy Code.

b) Accident Book entries will be checked monthly by Chief Forester and at intervals by other levels of management.

c) First Aid training is compulsory and all staff will receive training based on the syllabus given in IM.202 with refresher courses every 2-3 years.

See IM.202, Conservancy Code and FSC Safety Guide No. 34.

d) An Accident Plan operates for the Thetford Forest Area, a copy of which is included as Appendix IV to this statement.

A 'Fire and Accident' card containing instructions, addresses and telephone numbers is issued to all members of staff and is revised and reissued annually.

e) An accident involving the over-turning of a tractor will be reported immediately by telephone to the Health and Safety Executive by the Chief Forester. (See 4.2).

4. LIAISON

4.1 Sources of Advice

Training - Regional Training Officer
Machinery/Vehicles - Conservancy Mechanical Engineer
Buildings - Land Agent
Civil Engineering Works - Area Civil Engineer
Work Methods/Techniques - Work Study and/or Training Branch
Safety Equipment and Working Clothing - Conservancy A&FO
Firearms - Police
Fire Precautions in buildings - Local Fire Officer

4.2 Health & Safety Executive

Address:- Kiln House
Pottergate
Norwich
NR2 1DA Tel. Norwich 615711

a) All notifiable accidents and dangerous occurences will be reported initially by telephone to the H&SE office at Cambridge 358911 Ext. 2551.

b) Form F2508 will be submitted to Establishments Section Conservancy Office within 5 days for onward transmission to H&SE.

See IM.225 and Conservancy Code.

5. SPECIFIC RESPONSIBILITIES AND FUNCTIONS

5.1 The Chief Forester will be responsible for the general oversight of Health and Safety Arrangements. He is responsible for making budgetary provision for items of safety equipment and for allocating the total resources of the Depot so that safety always takes precedence over expediency. He will ensure that the consultation and liaison arrangements specified in Para 4 are maintained and that information in connection with Health and Safety at work is communicated to all staff. He will ensure that the employees' safety representative is available during visits by an inspector of the HSE and he will also ensure that every assistance is afforded to them. He will call for reports on safety performance from supervisors and will examine the Accident Book periodically in order to identify any trends indicated by the entries made. He will be responsible for checking and signing accident reports and for obtaining statements from witnesses. He will particularly draw attention (via the normal management channels) of the Conservancy Administration and Finance Officer to any lessons which may be learned as a result of an accident or "near miss".

5.2 Subordinate Staff, Forester and Industrial Foreman

They will be responsible for checking and ensuring that all working methods, machines and equipment comply with the safety requirements and that all relevant safety equipment is being used. They will report to the Chief Forester any deficiencies in equipment and ensure that adequate supplies of safety equipment are available. They will report all accidents "near misses", new hazards etc, to the Chief Forester.

5.3 The Safety Representative will liaise with the Chief Forester and operatives in maintaining a flow of information in all matters relating to health and Safety at work. He will make himself conversant with work areas and methods and keep up-to-date with new and amended regulations. He will assist at enquiries into accidents or 'near misses' and will be available for consultation when required by an Inspector of the HSE. He will sign and add any necessary comments to the C49, Accident Report Form

The Safety Representative will agree with the Chief Forester any amendments to the Policy Statement.

5.4 Summary of Specific Staff Responsibilities

Chief Forester: para 1.2, 1.3, 2.6.2, 2.6.3, 3.4(a)i, 3.4(a)ii, 3.4(b), 3.4(e).

Forester 2.3.2: 2.6.2, 3.3.

Foreman 2.3.2: 2.6.2

Forester 2.3.2: 2.6.2,

SPECIAL HAZARDS

1. Grinding Machines

No grinding machine shall be used unless the person is wearing eye protectors. All guards are to be in correct position. The abrasive wheels may only be fitted by authorised persons as named in the Register for the purpose of the Abrasive Wheels Regulations 1970. Protective goggles are issued as a personal issue to each of the Repair Depot Staff and a spare pair should be left on the grinder for casual use. See the Protection of Eye Regulations 1974. A Warning Notice should be displayed near the machine.

2. Hydraulic Press

The machine is only to be used by Mechanical Engineering Staff and all guards must be in position before use. A warning notice should be displayed near the machine.

3. Air Compressors and Air Lines

The air compressors are subject to regular inspection by the insurance company arranged by Forestry Commission they shall also be checked and serviced by a member of Repair Depot Staff delegated by the management. When inflating tyres all wheels which are practicable should be inflated in the cage provided and in all cases care should be taken when inflating tyres to see that the tyre rim is fitted correctly. At all times great care must be given to the use of air lines and no parts of the human body should come in contact with full blast of air. Air lines should not be used for blowing out brake drums and brake parts due to the danger of asbestos dust being inhaled. After use the air lines should be disconnected and the outside one should not be left out after working hours. An industrial mask should be worn at all times when blowing out dust.

4. Electric Tools & Equipment

All electric tools and equipment must be kept in good condition at all times sockets, plugs and leads should be regularly checked and replaced when necessary. Leads should not be trailed across from plug points to create a hazard to other workmen, these should be carefully laid out of the way when in use and collected in after use.

5. Welding Equipment

Only authorised staff may use the welding equipment and before use a check should be made that no highly inflammable liquids or materials are in the vicinity. A check should also be made that fire fighting equipment is readily available both in the Workshop or other places of work.

Care should be taken to avoid oil, grease or similar hydrocarbon substance to contaminate oxygen cylinders in particular around the cylinder valve area. If this accidently happens the cylinders should be labelled "Not to be used" and the Foreman or Workshop Manager should be informed.

6. Jacks & Lifting Gear

Only approved jacks and lifting gear should be used and in all cases axle stands should be put in position before work under the vehicle commences.

7. Battery Charger

The battery charger should only be used by authorised staff and great care must be taken to prevent acid spillage, no naked lights or form of ignition must take place near the battery charger.

8. Paint Spraying

Any member of the staff on paint spraying should always do this in a well-ventilated place and they must always wear an industrial mask which is provided.

9. Waste Oil

All waste oil should be put in the tank provided and old filters in the bin, any spillage should be cleaned up at once.

10. Fire Fighting

Repair Depot staff required for forest fire fighting should always ensure that they wear a safety helmet and other protective clothing provided.

11. Asbestos Dust

Where the hazard of asbestos dust exists such as grinding off brake linings etc an industrial mask must be worn. Keep dust down to the minimum and after removing brake drums and clutch housing etc remove the dust from all parts with the vacuum cleaner provided, do not use an air line at any time for this purpose.

12. Cleaning

Special care should be taken when cleaning down vehicles and equipment with either the cold water hose or hot water equipment. Never point the jet of water in the direction of overhead cables. When using the hot water equipment never fit or disconnect the electric cable with the power on, the isolation switch for this is situated in the toilet block close by. Keep the cable as dry as possible and do not run over it. Wear eye protectors at all times.

When cleaning a vehicle or engine with a brush always use a solvent not fuels such as petrol, paraffin or diesel and always disconnect the battery where applicable. Eye protectors again should be worn. Cleaning tanks are available at both Workshops for small items.

13. General

The workshop or place of work should at all times be kept tidy and free of obstructions such as removed parts or anything that could be a danger to any person working in the area. Tools should not be left at high level to fall on persons, machines left uncompleted must be left in a safe condition so as not to be a danger to any person. Safety clothing as recommended should be worn at all times. Any defects to tools or equipment must be reported at once to the management. Washing facilities are provided in a building near the Estate Office, protective hand creams are provided also and all staff should use these facilities. No sky larking about with equipment or tools must take place, this is very dangerous and it is the duty of all staff to ensure this does not happen.

14. An exhaust extraction system has been installed in the workshop and this must be used when running stationary vehicles or machines. Care must be taken to disconnect the equipment before moving the vehicle, care should also be taken of the spare hoses, these should not be left to be run over or create a hazard for persons walking in the workshop.

APPENDIX II
LIST OF BUILDINGS - BRANDON DEPOT

USE	CONSTRUCTION	LIGHTING	HEATING	FIRE EXTINGUISHERS							
				1.5kg Powder	5kg Powder	9kg Powder	9 litre Water	CO^2 2kg	BCF Halon 7kg	Fire Blanket	
Office	Brick and thermalite block, timber clad. Corrugated asbestos roof. Solid concrete floor.	Electric	Wood fired boiler to radiators.	1	1		1				Kitchen Boiler Room Entrance Hall.
Service Bay	Wood frame on brick base wall. Close board external cladding. Internal cladding plywood. Internal partition walls thermalite block. Corrugated asbestos roof with double skin over workshop. Concrete floor.	Electric	Ducted hot air			2					
1. Workshop			Electric night storage					1	2*		*With welding trolley. Workshop has emergency exit door at rear.
2. Fitters Office & Store			Nil								
3. General Store			Ducted hot air		2						
4. Chainsaw Workshop			Nil			1					
5. Oil Store			Nil								
6. Tractor Bays			Wood fueled space heater to hot air ducts as above.		1						
7. Boiler Room											
Mess Building	Brick and thermalite block. Timber clad on external walls. Corrugated asbestos roof. Wooden floors in all but toilet and drying room which have quarry tiles.	Electric	Wood fired boiler to radiators.		1*		2			1*	* Kitchen. All doors from main mess room open outwards. Outside door has emergency release.
Peeler Building	Steel frame, wood clad corr. asbestos roof.	Electric	Nil					2			
Control Cabin	Double metal skin, insulated, double glazed windows.	Electric	Electric Fan					1			

APPENDIX II (Continued)
LIST OF BUILDINGS - BRANDON DEPOT

USE	CONSTRUCTION	LIGHTING	HEATING	FIRE EXTINGUISHERS						
				1.5kg Powder	5kg Powder	9kg Powder	9 litre Water	CO^2 2kg 5kg	BCF Halon 7kg	Fire Blanket
Sawmill	As Peeler building [illegible]	Electric	Air Conditioning in Cabins; otherwise Nil					5		
Switch Gear Building	Brick and thermalite block. Concrete roof and floor.	Electric	Electric					1		
Sawmill (Rack) and Timber Store	Timber and Onduline Sheeting. Open fronted.	Electric	Wood Stove							
Handyman Shed	Timber, wooden floor, felted roof.	Electric	Electric		1					
VX 10 Peeler Shed	Timber and corrugated iron.	Electric	Nil							
Shelters over swing saw line and Rustic Bench	Timber and Onduline sheeting.	Electric	Nil		1					
[illegible]	[illegible]	[illegible]	[illegible]			1				
Clerkenwell Building	Owned by M I Edwards Engineering. To be developed as an engineering workshop.									

VME HOLDING - BRANDON DEPOT
MAJOR ITEMS

CATEGORY	FC NO.	ITEM
11210	52717	Morris Pickup
32020	55364	Bedford Tanker
22300	54657	Coles Aeneas Crane
22400	77064	Bonser Fork Lift Truck
22514	71207	Tractor Ford 3600
	71208	Tractor Ford 3600
	71209	Tractor Ford 3600
22524	57885	Tractor MF 165
23021	70516	Forwarder County 754 (Hiab)
23030	65690	Hy-Mac Loader
33700	47153	Chainsaw Husq.
	7970	Chainsaw Husq.
	7965	Chainsaw Husq.
24134	77831	Volvo 4300
	50446	Volvo 4300
	50447	Volvo 4300
	52091	Volvo 4300
2600		X Cut Saw (New Sawmill)
		X Cut Saw (New Sawmill)
		X Cut Saw (New Sawmill)
26001		Bandsaw (New Sawmill)
26002	71043	Swingsaw
	71044	Swingsaw
	71045	Swingsaw (Rustic)
26003	72663	Swingsaw Conveyor
26005	57881	Pendulum Saw
26006	60825	Dankaert Bandsaw
26300	50811	VK 10 Peeler
26301	51951	Cambio Peeler (45)
	51952	Cambio Peeler (35)
26302	51953	Blackfriars Barkmill
26303	51954	Bark Conveyors
26900	51845	Weighbridge

VME HOLDING - BRANDON DEPOT
MINOR ITEMS

CATEGORY	FC NO.	ITEM
27300	50270	Trailer (Dyson 4 Wheel Flat)
	50271	
	50272	
	50276	
	50277	Trailer (4 Wheel Flat)
	51782	Trailer (2 Wheel Tipping)
	52153	Trailer (2 Wheel Whitlock Tipping)
	52321	Trailer (2 Wheel Whitlock Tipping)
	52852	Trailer (2 Wheel Whitlock Tipping)
	53183	Trailer (2 Wheel Whitlock Tipping)
	53184	Trailer (2 Wheel Ferg Tipping)
	53185	Trailer (2 Wheel Whitlock Tipping)
	54072	Trailer (2 Wheel Weeks Tipping
	54664	Trailer (2 Wheel Baker Flat)
	54682	Trailer (2 Wheel Weeks Tipping)
	54695	Trailer (2 Wheel Weeks Tipping)
	55431	Trailer (2 Wheel Ferg Tipping)
	56532	Trailer (2 Wheel Weeks Tipping)
	56562	
	64864	
	64865	
	64866	
	64867	
	61361	Trailer Trysil (Chieftan Forge 4 Wheel)
17500		VHF Radios Pye 135986 Pye 135984 Pye 136002 Storno K153835 Storno K153834
37600	51625	Hathaway Pump
17800	51648	Mobile Welfare Unit
28000	52601	Liner Saw Bench
	53173	Liner Saw Bench (Electric)
	53628	Liner Saw Bench
	54035	Liner Saw Bench
58500		Fuel Pump
28300		Hydrovane Compressor (Peeler)
29001	59294) 59295)	Pendulum Saw Conveyors
29002		Hy-point Hydraulic Stake Pointer
29003	77147	Rack Bench
	60822	Saga Band Saw
49001	75972	Sturdilux Road Sweeper

ACCIDENT PLAN - THETFORD AND NORTH NORFOLK

In the event of an accident at work

1. A serious injury where the person obviously should not or cannot be moved by car. Dial 999 from the nearest telephone, request an ambulance and state clearly where the ambulance is required. Post a guide for the ambulance at a public road entrance if the site of the accident is difficult to find. Lastly, notify District Office, Thetford 810271 who will contact the Forester if necessary and notify the family.

2. Where the injured person can walk and be conveyed by car (a sitting case), but obviously needs hospital attention. Take directly to the Accident Reception West Suffolk Hospital, Hardwick Lane, Bury St Edmunds, telephone 63131. Stop at the first phone box or available telephone and telephone Thetford 810271 (who will inform the Hospital of expected time of arrival).

3. Minor injuries requiring Doctors attention but can await a delay if necessary. See your own Doctor as soon as possible. The First Aid Post at Red Cross Post, Thetford Industrial Estate, Faraday Place, Thetford can administer First Aid, but normally forwards accident cases to Bury St Edmunds.

Action District Office Staff, in event of an accident

1. In the case of a serious injury. Ascertain from the Hospital if patient is to be kept in Hospital, if so, notify the Man's supervisor and arrange for pyjamas, etc to be conveyed to the Hospital. Forester i/c to ensure that arrangements are made for family to visit Hospital, dependent on Hospital advice.

2. In the case of a less serious injury where the patient is being conveyed by car, notify the Hospital immediately of expected time of arrival. Telephone Bury St Edmunds 63131 on receipt of news of accident. Subsequent action as appropriate as in Para 1.

General Notes

1. Ensure that First Aid Kits are kept up to specification and contents replaced as they are used.

2. An elementary knowledge of First Aid is important. A man's future or life may depend on the action taken by those he is working with. There are frequent classes held locally.

3. It is advisable to keep up to date with Anti Tentanus injections, consult your Doctor about this if you have not had such an injection within the last 4 years.

4. Doctors:- Drs Perry & Pugh
Oak House
Brandon
Suffolk — Thetford 810206

Group Practice
Surgery
School Lane
Thetford — Thetford 3115

NAMES OF STAFF WITH SPECIFIC RESPONSIBILITIES AND FUNCTIONS

The names of staff who have specific responsibilities and functions under Section 5 of the written statement are:-

Chief Forester	Mr B Griggs
Forester	Mr A J A Graver
Industrial Foreman	Mr A J MacKenzie
Safety Representative	Mr S L Cator

APPENDIX 5A

THE ROYAL FORESTRY SOCIETY

OF ENGLAND, WALES AND NORTHERN IRELAND

Patron: H. M. The Queen

PRESIDENT:
THE EARL OF YARBOROUGH, D.L.
VICE-PRESIDENT:
J. A. SPENCER, M.A., F.I.C.FOR.
HON. TREASURER:
E. W. REDMAN
DIRECTOR:
E. H. M. HARRIS, B.SC., DIP.FOR., F.I.C.FOR. C.BIOL., M.I.BIOL.
SECRETARY:
MRS. F. K. WRIGHT, B.A.

102 HIGH STREET, TRING,
HERTS . HP23 4AH
Telephone:
TRING 2028 (STD 044-282)

Our Ref: O/9

11th April, 1989.

Mr. B. Griggs,
26 The Lammas,
Mundford,
THETFORD,
Norfolk.
IP26 2DT

Dear Barry,

At the Institute of Foresters discussion meeting in Bath recently, you mentioned to me that you were writing a history of the Brandon Depot. I suggested that Phil. Gough might have some useful information for you. Although he was never in charge of the Depot, or directly connected with it, he was a research forester at Thetford all through the war, and developed the initial line thinning of the early plantations for war time purposes. Although I don't think the Depot existed then, he was in the area until 1954 and I have often heard him talk about the post war development. I was at his 80th birthday party recently and he is still very active. You might find it useful to contact him. His address is:

P. C. Gough,
Albany,
Walford Road,
Ross-on-Wye,
Herefordshire.
HR9 5PG

Yours sincerely,

Esmond Harris

(Esmond Harris)
Director

FORESTRY COMMISSION
Brandon Central Depot
Mundford Road
BRANDON
Suffolk IP27 OPL Tel: Thetford (0842) 810359

P C Gough Esq
'Albany'
Walford Road
ROSS-ON-WYE
Herefordshire
HR9 5PG

Please reply to
Your reference
Our reference
Date 17 April 1989

Dear Mr Gough

No doubt a letter from me will come as something of a surprise but you really have Esmond Harris to thank, if indeed thanks are in order!

You will remember that I was Manager of Brandon Central Depot the last time we met and I have little doubt that you are also aware that in October 1987 a decision was taken to close the Depot due to major changes and retractions in the coal industry resulting in very severe reductions in the requirement for round mining timber.

Due to the unique nature and scope of its operations and its existence spanning 42 years it has been decided that a history should be written and I have to write it.

At the recent I.C.F. discussion meeting in conversation with Esmond, I happened to mention this and he suggested that as you were working with Research in Thetford both during and after the war, you might well be able to help with recollections of those very early years.

I understand you were not directly involved with the Depot but that your work was very much concerned with thinning and that you were in Thetford until 1954.

The establishment of the Depot at Brandon, following the start made by T.P.D. on the same site must have been a direct consequence of the rapidly increasing volume of thinnings.

I am therefore very interested in any information regarding the circumstances, decisions and operations from the time of the earliest thinning onwards.

It would be very helpful and I would be most grateful should you feel inclined to set down any recollections you might have and send them to me at the above address.

I am currently engaged in the final clearance and sale of the Depot site, port inspections, and a number of projects including the history and bulk storage of sawlogs from the Thetford - Suffolk windblow October 1987.

We have established a store with water sprinklers fed from the Lynford gravel pit with a current stock of 70,000 tonnes.

Mill tests confirm the Danish and German experience that pine stores well in such a store and look forward to selling the logs in one to two years time with interest.

The Suffolk volume blown 450,000m^3 is being cleared by the combined efforts of Thetford and Suffolk staff as well as contractors and should be clear by October this year.

George Marshall, the current FO I responsible for H&M at Thetford, who also acts as assistant to the Forest District Manager, retires in November and I am to replace him having been recently promoted to FO I.

I am already starting to get to grips with planning aspects of the job which together with my other tasks keeps me fairly well occupied.

I believe you have recently celebrated your eightieth birthday, so may I offer my belated congratulations.

I understand from Esmond that you are keeping well and I trust you will remain so for many more years.

Yours sincerely

Barry Griggs

Phone
0989 62016

"Albany"
Walford Road
Ross-on-Wye
Hereford
HR9 5PQ

Oct. 23rd '89

Dear Mr Griggs

Enclosed are the notes as promised.

I do hope they are of use to you and that you get your book published.

Perhaps you could let me know, especially if you use any late husbands information.

Yours sincerely,
Joan M. Gough

THETFORD

1. Historical -

Planting -

Earliest plantings at Broomhouse, Redneck and Swaffham (Scots pine) Corsican pine introduced about 2 years later. Poor seed strains if Corsican pine - ie High Lodge and Santon Downham (Ursuline pine?).

Plantation Lay-out

Many areas divided into compartments of 25 acres (25cha x 10cha). This shows up on the early maps. Planting with ordinary spade into shallow screefed plough furrows - 4½ feet apart.

Many areas of Scots pine heavily attacked by pine tortrix causing posthorn damage and subsequent development of "wolf" trees. First treatment. De-wolfing trees left at stump because of extraction difficulties - this led to attacks from pine beetle which developed in un-barked stems. At a later stage "fomes annosus" developed round thinning stumps. Inspection racks were brashed at intervals and complete brashing followed - brashing by bill-hook.

2. Outbreak of War

Thinning commenced early to produce a wide range of pitprops. Felling by bow-saw, axe and bill-hook. Extract by carrying and conversion at ride side. Compartments sub-divided to give easy access to lorries and speed up extraction. Pitprops loaded from lorries direct to railway wagons. Unpeeled props in forest caused havoc from pine beetle damage. Introduction of 14 day rule which meant that unpeeled poles (props) must be removed from forest within 14 days.

About 1942 there was a demand for larger supplies of the bigger pitprops and to obtain these it was suggested (threatened) to clearfell the oldest and best of the young plantations.

At this time the idea of line thinning was introduced. It came about as a result of the pine-beech mixture on High Lodge Beat (the area became known as the "Deer Pen" area and should be well-documented somewhere). It was an area planted 2 rows beech and 2 rows Corsican pine (about p27 I think), beech suffered severely from frost and hare damage and Corsican pine developed rapidly and I believe subsequently formed a complete crop. The line thinning idea was first suggested by a P Long formerly Div Officer at Cambridge and latterly a Commissioner and Director (E) - now dead!

3. C A Connell (Conservator E) and G D Rouse also claim some glory! for the idea and P C Gough carried out some assessments on the crops and produced data on which decisions were made. As a result of a meeting on the ground the Chairman (Lord Robinson) gave the go ahead for line thinning to be carried out on 200 acres of Corsican pine on the basis of 2 rows in and 2 rows out. Modifications were made in the poorer plantations by extending the number of rows left between the lines removed. This action speeded up the operations and produced a larger proportion of the bigger props.

The Forest District Office
FORESTRY COMMISSION
Santon Downham Brandon Suffolk IP27 0TJ

Telephone Thetford (0842) 810271

Mr J Davidson
The Lodge
Venlaw Castle
PEEBLES

Your reference

Our reference

Date 14 April 1989

Dear Mr Davidson

I am a Chief Forester working for the Forestry Commission in East England at Thetford.

From 1979 I was Manager of Brandon Central Depot until it finally closed in 1988 due to major changes and retractions in the coal industry resulting in very severe reductions in the requirement for round mining timber.

Due to the unique nature and scope of its operations and its existence spanning 42 years it has been decided that a history should be written which I have to write.

I was talking to Alistair Scott recently and he suggested that as District Officer at Thetford around 1946 you might well have recollections concerning circumstances, decisions and operations both in the forest and at the Depot at that time.

I have recorded interviews with a number of men who worked both in the forest and at the Depot in those early years and yesterday I spoke with Bob Walton, the first forester at the Depot.

It would be very helpful and I would be most grateful should you feel inclined to write down any recollections you might have and send them to me at the above address.

Yours sincerely

Barry Griggs

B Griggs

Venlaw South Lodge
Peebles

1 May 1989

Dear Mr Griggs

Thank you for your letter of 17th April. I am delighted to know that there is still some interest being taken in Brandon Central Depot, and although I had not heard it does not surprise me that it is now closed down. In its day it was, of course, a major event in the life of the Commission earning something like a quarter of its income from produce sales.

My own interest in it started in August 1949. It was my first appointment on joining the Commission. I was posted to Thetford as assistant to Mr Anderson who was then Sales Officer to East Conservancy. He was a rather cantankerous man due to retire shortly after and resentful of a younger man appearing in his scene who was supposed to be trained to take his place. The result was that he sent me daily to the depot where I became thoroughly immersed in its workings. Eventually Anderson went to Cambridge office and I was given a District including half of Thetford Chase (High Lodge, Elveden, Methwold and Cranwich) plus BCD. Bob Walton was at the Depot to begin with, but there was some idea of turning the place into a separate commercial organisation with a manager who would be paid on a small salary plus a share of earnings. I think the appointment to this position went to a man called, so far as I can remember, Wrapson. Walton was posted out to Cranwich beat, and later to a forest in Northamptonshire. The idea of the separate commercial company was dropped before it got very far and so was Wrapson. An important figure who had an important part in the development was a forester called (?) Button who had assisted Anderson but remained at Thetford when he was sent to Cambridge.

When I came into BCD it was already a large undertaking. I was told that it had started as a collecting point for props cut in the forest during the war years and brought together at Brandon for loading at the rail siding there. Gradually it had become more than just a dump or depot and eventually all conversion work was centralised there. This gave much closer control over stocks, quality, and speedy production to match orders. In the end I think it was this last point which earned the place a high reputation with the NCB, ability to cut and despatch any specification with speed.

No full stock-taking of the depot had been made at that time, and this was my first task. In those days it covered over twenty acres and the whole was in constant change, employing about 60 men. It took me three weeks of hard going to get round the multiplicity of sizes and specifications present, but it was worth doing because it showed substantial discrepancies from book records had grown up over the years.

My next duties were concerned mainly with quality control. As you will know, most pit props are specified by half inch top diameters. It is important that they are cut within the specification, but we found that quite a substantial amount of wood was being 'given away' by cutting over the maximum of the diameter range. There was also much interest being taken in the results of tests at FPRL (now part of Building Research Laboratories) on strength of home grown props and the affect of seasoning. They showed, as you will know, that well seasoned props are not only very much stronger in end stressing but comparable to imported wood. Seasoning was also of some importance because of payment of rail freight by weight, so we carried out a great deal of seasoning testing for a time. I think it was helpful in quality control and improving confidence of colliery buyers although full control was impossible in the irregularity of ordering and quick despatching situation.

I have mentioned above that timber working covered the whole 20 or more acres. When I knew it the area to the right of the main road axis across to the railway siding was used for unbarked poles; all the rest to peeled poles. In the forest thinnings were separated into small class (I ?) poles trimmed out to about 1½ inch tops, brought to the depot unpeeled, and (? Class II) poles trimmed to 2½" tops, and peeled by spade in the forest before shipment to Brandon. The main uses for the small unpeeled poles were 'Cellotex', PIM board material, and Bowater pulpwood - all for hardboard or insulating board manufacture. Cellotex (London, North Circular Road, were the biggest buyers and ran a regular daily delivery service of lorries (specially equipped high sided trippers) several a day. PIM were less regular, taking 6ft lengths, and Bowaters were almost daily with 2 large lorries of about 15 tons each in metre lengths. Cellotex took a random length specification of up to (I think) 13ft which allowed us to keep the ground clear of unpeeled wood. The other two were tighter on top diameters, Bowaters requiring a minimum of 3½" especially for some of their wood which was going into the groundwood plant rather than hardboard at Kemsley in Kent.

Other important products of the unpeeled section were fencing posts of all sizes, cut to orders, and sold either retail to farmers or wholesale to such dealers as Racey of Wisbech or another large merchant at Sudbury. The Commission's creosoting plant at Santon Downham also took a limited quantity.

The third, and most lucrative, outlet was pea harvesting poles sold mainly to Racey of Wisbech and Farman of North Walsham. These were about 6'4" long, 1¼/1½" top. Farman used to specify that the top must just fit into a metal milk bottle top but allow a ring of bark to be seen round a halfpenny (the old 1" kind).

Some of the thicker butt ends were sold as boxwood in short billets of about 2ft. This went to makers of agricultural boxes - Calders of Boston, Racey, and others.

The remaining ¾ or more of the depot was devoted to peeled poles and pitwood. While I was there we began to get some felling which were too heavy for our pitwood working, and this was overcome by telling fellers to cut off a butt log if they could get one over 6ft with 6" top. Such butt logs were at first gathered in the depot, but usually sold straight from the forest to sawmillers.

Peeled pitwood poles were brought to the depot in 3-ton lorries with a sling through the middle so that they could be unloaded in 2 bites by the mobile Coles crane. At one point, in the interests of efficiency, the Chief Engineer decided to purchase a new crane able to lift the whole load in one. This duly arrived but was useless. It was based on a small self-mobile platform with small wheels which may have been designed for a smooth factory floor but was continually stuck if it ran into a small pit prop lying on the depot floor. It should be mentioned that there were frequent meetings of the Commission's most senior engineers and other senior people who talked at length about mechanisation of pitwood production but nothing came of it till much later, as you will know. The development of components for a mechanised line was not so advanced in the 50's as ten years later, and the product mix in those days was much more variable, which would have made complicated handling designs.

Well over 150 sizes of pitwood were prepared. Windrows of peeled poles running across the ground to a height of 8 to 10ft were progressively cut by pairs of men with a small mobile sawbench, the props, in several sizes to utilize the whole pole, were stacked behind, rows criss-crossed for maximum air drying effect. Most sizes cut were of the standard length in feet equivalent to top diameter in inches, but there were many odd sizes ordered by various mines. BCD usually got these orders because it was large and flexible enough to deal with them. The great selling point of the depot was its ability to prepare what any customer wanted at short notice by a combination of adaptability, quality control, and maintenance of good stocks.

Despatch of props was almost entirely by rail in the first few years I was there. Brandon sidings ran alongside the depot. At times two train loads might be set in a day though this was exceptional. Two problems were trying to get large enough wagons (many made available were old timber trucks which would not hold a reasonable payload, and there was difficulty over weighing wagons at Ely. This often led to disagreement with British Rail over their weighing methods and accounting. Road delivery did not start in earnest until the early 1950's when we began to get orders for collieries requesting delivery by road only, especially some South Wales mines. An incidental effect of gradually increased road delivery was that we kept getting letters from mine storekeepers to say that they had not ordered home grown props. Apparently they thought that as long as they came by rail they were imported wood which they preferred. Fortunately the old controversy over home v imported props did not last long, because, one would like to think, of the high quality of the props being made at Brandon. Old prejudices against home produced props in the war years had died hard.

About 1951 I was greeted one day by a factory inspector. He had been accustomed to visiting industrial works where he could search for small departures from the regulations, but here was a place never reported, and, compared to factories he saw, full of irregularities. He made the most of it. In the end he was persuaded that the depot was just a bit of forest with no trees, although we did have to make some concessions like putting iodine in the medicine chest instead of other equally good antiseptics, and some other small changes. One thing that had always worried us (but I think he missed) was the habit of some men turning up their saw guards when propping. They did get in the way at times because they were not really designed for cross-cutting but for riving.

One major task followed a visit by Lord Robinson about 1951. He called for the produce accounts of each of the Thetford beats and that of BCD. To his horror he found that although BCD made a handsome profit all the beats ran at a loss. The transfer charge for timber delivered to the depot was clearly something to be questioned, but he did not stop there. We had to carry out a very full costing of all alternative methods of doing each stage of preparing props from felling to despatch. For example peeling could be done at stump, rack or depot, seasoning could be at stump with poles stuck up in adjoining trees, in piles at rackside, as poles in the depot or as props. Each variant affected other stages, and the object was to find the best sequence of choices over all. Forester Bruce, then in what was known as Cost Research Branch at HQ, was employed for about 18 months on this with his two assistants. The results were interesting but did not suggest any substantial change from established practice. The time was coming for more radical changes by mechanisation, but this had to wait a little longer till component elements of a mechanised production line would be more fully developed.

I hope this gives you some indication of how things were while I was there from the end of 1949 till I was posted to the Chilterns in 1955. I have been back since in my capacity as head of H&M Division, but even that was 15 years ago. I saw the mechanised propping line, but no doubt further developments took place afterwards before it closed. I feel sure I have added little to what you will already know, but if you like to ask more specific points I shall do my best to answer them.

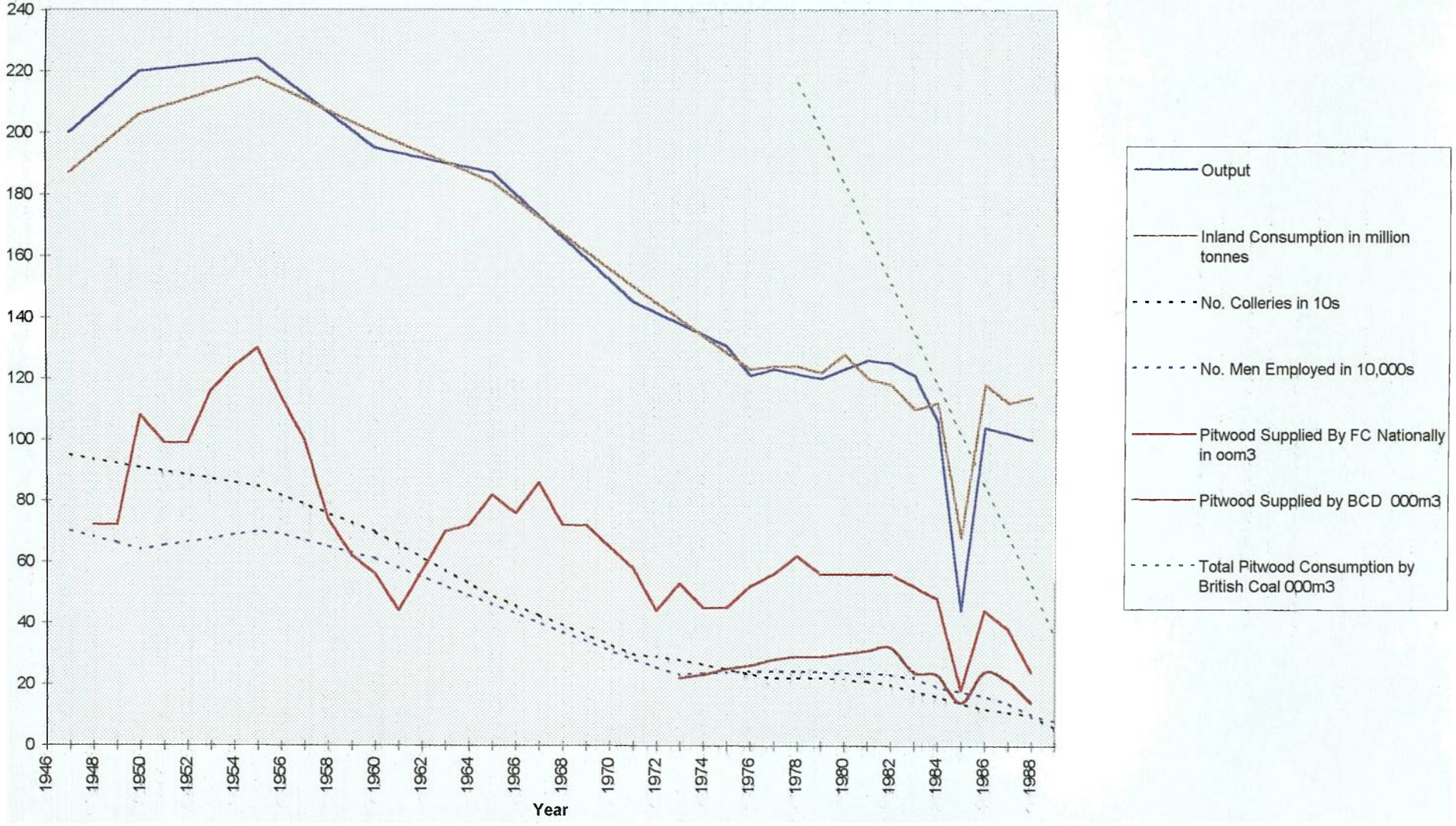
With kindest regards to all at Santon Downham where I spent so many happy days.

Yours sincerely

Jim Davidson

Appendix 7a

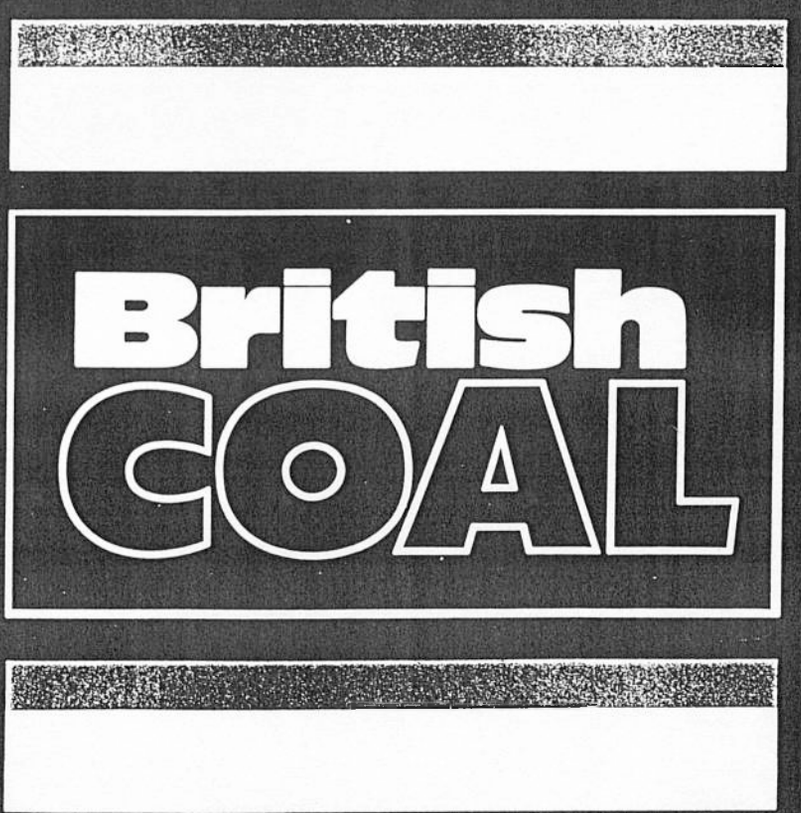
Forestry Commission Pitwood Supply Related to Decline in Coal Industry 1947-1988



APPENDIX 7b

British Coal Corporation

Report and Accounts 1987/8



Report and Accounts
March 29 1987-March 26 1988

Members of the Corporation on March 26 1988

Sir Robert Haslam, Chairman
Sir Kenneth Couzens KCB, Deputy Chairman
Dr D V Atterton CBE
Mr C Barker
Mr M H Butler
Mr M J Edwards CBE
Mr K Moses
Mr J H Northard CBE
Dr T J Parker
Sir Melvyn Rosser

Mr D K Newbigging, who had been a part-time Member of the Corporation since April 1984, retired with effect from April 8 1987.

Mr C Barker was re-appointed a part-time Member of the Corporation with effect from February 13 1988.

Report 1987/8

1 Chairman's statement
3 Summary of the year
4 Finance
5 Production
7 Markets
9 Personnel
13 Relations with public bodies
14 British Coal Enterprise Limited
14 Research and development
15 Environment
17 Statistical tables

Accounts

23 British Coal Corporation and subsidiaries

67 Index

The 42nd Report and Accounts of the British Coal Corporation (formerly the National Coal Board) have been submitted to the Secretary of State for Energy in accordance with sections 31 and 54 of the Coal Industry Nationalisation Act 1946.

Chairman's statement

In spite of the intense competitive conditions which we experienced in our markets, 1987/8 was still a year of solid achievements for our industry. Although total deep-mined output was at a marginally lower level than last year, our investment in new equipment is paying off handsomely with productivity rising by a further 10% overall. National weekly productivity records were broken on four occasions during the year, with overall output per manshift exceeding the 4 tonne barrier for the first time. This represents a 60% increase in productivity since the 1984/5 industrial dispute and compares with an improvement of 1% per annum in the decade before the strike.

We have also succeeded in retaining the confidence and understanding of our customers. Indeed, whilst total UK primary energy consumption showed little expansion on the previous year, we again successfully increased our share of the market. It is a tribute to the abilities of our marketing team that the volume of sales, particularly to our largest customer the CEGB, has been higher than we expected.

Although 1987/8 was a year of mixed fortunes financially, we are now on target to break-even in 1988/9 for the first time in more than a decade. Market conditions continue to be the fiercest I have experienced during my business career and, regrettably, collieries clearly unable to produce coal at competitive prices have had to close. The dramatic decline in the value of the US dollar against sterling during the year continued to increase the competitive pressures we are experiencing, exacerbating the cost differential between British and foreign coal by some £6 per tonne.

To survive in such a competitive market environment we have had to undertake a degree of restructuring in speed and depth which I believe has been without parallel in recent times in any other British industry. Since the strike the workforce has been reduced by 104,000 to 117,000 – without any compulsory redundancy and 78 of our higher cost pits have been closed or merged. Costs are down by 24% in real terms and prices reduced by 15% – saving our customers more than £500 million per annum. I am confident, however, that the actions we have taken have ensured that our industry is now better equipped than ever to meet the challenge presented by rival fuels, and particularly imported coal.

It is a perverse feature of our affairs that the more virtuous we are in accelerating the restructuring process the worse our performance and cash flow appear to those outside the industry. The major continuing cost of getting the industry into competitive shape had yet again to be financed in the year's results. At £368 million, the interest charges paid primarily to Government are a formidable burden for us to bear and bring our existing financial structure into question. The Corporation has no equity capital, being funded essentially by loans which have to be repaid at high interest rates notwithstanding the adverse market conditions which currently apply. This is effectively an obligatory dividend, a not inconsiderable handicap in meeting the challenge of our international competitors. Moreover, terminal depreciation charges of £241 million and net social costs of £146 million were also major factors in converting an operating profit of £216 million into an overall deficit of £540 million. Results are also adversely affected because the industry continues to carry heavy costs of an historical nature which have nothing to do with the current performance of the business, including, for example, the cost of concessionary coal for retired employees and subsidence costs arising from pre-nationalisation mining.

We have continued to do our utmost to handle the restructuring process in as humane and sensitive a manner as possible, with all redundancies being on a voluntary basis through our own redundancy scheme on very favourable terms. We also remain acutely conscious of the effects of contraction on mining communities and strenuous efforts continue to be made by British Coal Enterprise to stimulate job creation schemes. After three full years of successful work since their inception they have invested some £43 million in over 2,000 projects, helping to create some 29,000 jobs.

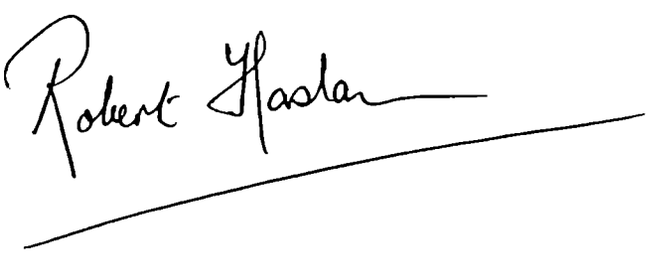
British Coal regard safety as a paramount issue. Contrary to the impression given by some critics, we are moving purposefully towards a safer industry. New technology, allied with good

management and mineworker awareness are fuelling this improvement and last year there was an 18.5% reduction in the total accident rate compared with the previous year. Also, for the first time the number of fatalities in our coal mines was in single figures – nine compared with the previous lowest figure on record of 15 last year. These achievements reflect the commendable efforts of the whole mining community.

Sadly, the successes of 1987/8 were marred by the major industrial actions taken during the course of the year by NUM and NACODS members. These disputes cost the industry more than 4.5 million tonnes of coal output, representing a loss in operating profit of £100 million with mineworkers and deputies losing £40 million in wages. More encouragingly, however, a greater willingness to reject the path of confrontation, cooperate with management, and identify with the success of the business is slowly evolving throughout the labour force. Mineworkers need to embrace more continuous operations of the highly capitalised equipment that we have installed in our collieries. Certainly, more flexible working practices are commonplace amongst our competitors, our customers and in other industries. Nothing would give us a greater shot in the arm if we could moderate the culture of confrontation and industrial action which has been such a damaging feature of our industry.

The main uncertainty which British Coal currently faces remains the impact of the privatisation of the electricity supply industry. In our view it is vital that the joint understanding with the CEGB should be superseded by long term contracts with the generators who will succeed CEGB following privatisation. This is the only way sensible investment decisions can be made and will be beneficial to generators, investors and consumers alike. There is a much wider realisation that the current prices of internationally traded coal and exchange rates are unsustainable and I am certain that a fully competitive British Coal will be the supplier of choice to the electricity supply industry.

Although last year has undoubtedly been a difficult one for our industry, I firmly believe we are through the worst, with an excellent opportunity to turn British Coal from a long-term liability into a successful business and a national asset. Provided we do not have any major industrial relations problems, we are poised on the brink of success. Indeed our results for the first quarter of the new year reflect a host of productivity records and we are marginally ahead of our planned progress to our break-even objective, which is the formidable milestone the Government have set for us.



Summary of the year

Productivity
Deep-mined productivity increased over the year, with all Areas contributing to the improvements. Overall output at 3.62 tonnes per manshift increased by over 10% compared with the previous year.

Tonnes	1987/8	1986/7
Coalface output per manshift	16·20	14·40
Overall output per manshift	3·62	3·29
Output per man-year	789	700

Output
Total deep-mined output was at a lower level than last year, reflecting the effect of industrial action. However, daily output per face rose to 1,259 tonnes, compared with 1,067 tonnes in 1986/7.

Saleable output, million tonnes		
Deep-mined (including tip and capital coal)	82·4	88·0
Opencast	15·1	13·3
Licensed mines	2·1	2·0
Total output	99·6	103·3

Markets
Inland sales remained similar to last year in spite of intense competition in the energy market. However, the low price of oil and international coal continued to have an effect on revenue.

Sales, million tonnes		
Power stations	80·2	79·5
Coke ovens	4·2	4·5
Other markets	17·0	17·4
Total inland sales	101·4	101·4
Exports	2·2	2·2
Total sales	103·6	103·6

Profit and loss
The Corporation's operating profit on all activities during the year was £216 million, representing a return on average capital employed of 3.9%. This was more than offset by interest costs (£368 million) and redundancy, terminal depreciation and other costs arising from the necessary restructuring of the industry. The overall loss of £540 million was partly met by government deficit grant.

£ million		
Operating profit	216	369
Interest charges	(368)	(386)
Net social costs	(146)	(197)
Terminal depreciation	(241)	(62)
Taxation, extraordinary items etc.	(1)	(12)
Deficit grant	200	288
Profit/(loss) after grants	(340)	—

Investment
Total mining capital expenditure during the year was £640 million which is a small reduction on the previous year, although a higher proportion of investment was made on major colliery projects.

Capital expenditure, £ million		
Major colliery projects	318	280
Total mining capital expenditure	640	643

Safety
There were nine fatalities during the year, six lower than the previous year, and the lowest figure on record.

Casualties		
Fatal accidents	9	15

Finance

Operating profit

The most appropriate indicators of the financial performance of British Coal in any given year are its operating profit and return on capital. The Corporation made an operating profit of £216 million in the year, a reduction of £153 million compared with 1986/7. The operating result, which includes some items arising from past operations, has to be seen against the background of falling prices due to intense competition (average realisations fell by 5½% in 'real' terms); but the main reason for the deterioration in operating profit was the effects of the various forms of industrial action, which reduced operating profit by £100 million. The operating results can be summarised as follows:

	1987/8 £m	1986/7 £m
Turnover	4,388	4,515
Operating profit/(loss):		
Deep mines and related activities	(100)	67
Opencast	252	244
Total mining	152	311
Non mining activities*	14	6
Profits from asset sales etc.	50	52
Total operating profit	216	369

*Includes British Coal Enterprise in 1986/7

The return on capital calculated by reference to operating profits was 3.9% in 1987/8 compared with 6.6% in 1986/7.

Result after interest

The Corporation's operating profit was converted into a loss after interest charges.

	1987/8 £m	1986/7 £m
Operating profit	216	369
Interest charges	(368)	(386)
Loss after interest	(152)	(17)

The Corporation has no equity capital and is funded mainly by loans. Unlike dividends the interest charges on these continue to be payable, mainly to the Government, whatever the market environment within which the business operates. Yet many of British Coal's competitors in the international coal business have been selling at prices that have barely covered operating costs without remuneration of capital and these prices have been the major factor in depressing British Coal's average revenue. Under these market conditions, it is clearly anomalous for the Corporation to pay what is, in effect, an obligatory dividend on their total funding at the 10½% interest rate applicable to loans in 1987/8. The Corporation recognise the need for the business to earn a satisfactory rate of return on its assets over time, but, for a business operating in the international commodity market of coal, where there are substantial variations in trading conditions, British Coal's financial structure is quite inappropriate.

Overall result

The overall result was:

	1987/8 £m	1986/7 £m
Loss after interest	(152)	(17)
Net restructuring costs	(387)	(259)
Taxation and extraordinary items	(1)	(12)
Overall deficit	(540)	(288)

The Corporation's overall result thus includes the effect of action taken to restructure the industry. However, in assessing the Corporation's performance for 1987/8 attention should be focussed on the result before net restructuring costs, as would normally be the case with a private sector company. The make up of restructuring costs has been:

	1987/8 £m	1986/7 £m
Social costs less grants:		
Relating to current year: £480m less £360m	120	n/a
Relating to previous years: £152m less £126m	26	n/a
Net social costs after grants	146	197
Terminal depreciation	241	62
Total net restructuring costs	387	259

It is a perverse feature of the overall presentation of the Corporation's results that the more necessary restructuring of operations is accelerated, the worse the immediate financial result appears to be. This form of presentation derives from the statutory requirements for determining deficit grant, which ceased at the end of 1987/8.

Capital expenditure

Capital investment by the Corporation and subsidiaries totalled £647 million in 1987/8, of which £640 million was for mining. Expenditure on mines, surface works, and plant and machinery was £567 million, which is £1 million less than the previous year, although more of the investment was directed into major colliery projects, including new mines, and in acquiring heavy duty mining machinery.

Government grants

Government grants accruing in 1987/8 (including grants for social purposes) were £677 million compared with £882 million in the previous year. The amount of deficit grant for the year was limited to £200 million compared with £288 million in

Composition of Government grants, £ million

	1987/8 £m	1986/7 £m
Social cost grants	435	531
Contribution towards improved pensions benefits	42	63
Total social grants	477	594
Deficit grant	200	288
Total Government grants	677	882

1986/7. This grant was payable under the Coal Industry Act 1987. The balance of the deficit (£340 million) was not covered by Grant. In addition the Government paid £290 million (£611 million in 1986/7) under its direct responsibility for the Redundant Mineworkers' Payments Scheme, which closed at the end of 1986/87.

External financing limit (EFL)

The external financing limit (EFL) originally agreed by the Government for 1987/8 was £727 million. However, despite substantial improvements in operating costs, the continuing weakness in the market, coupled with higher than anticipated costs associated with restructuring the industry, meant that the external financing requirement could not be contained within this limit and in the latter part of 1987 the Government agreed that the limit should be increased to £842 million. Because market conditions were more fierce than anticipated, the Corporation had to increase the number of colliery closures. The Corporation had expected to close four collieries and reduce total industrial manpower by 7,000. However, in the event 16 collieries were closed, and with four mergers the net run-down in industrial employees was 21,400. Accordingly the Government agreed to a further increase in the EFL to £920 million in February 1988, and the Corporation's external financing requirement was contained within this figure.

Total cash requirement

During the year the Corporation's net requirement for cash to finance its normal ongoing activities and capital expenditure was only £28 million: cash generated from operations and sale of coal stocks only just fell short of that needed for the investment programme and working capital.

However, the total external financing requirement (EFR) also includes meeting restructuring costs and paying interest, nearly all to the Government; the figure of interest paid in cash to the Government in 1987/8 was £350 million.

The EFR for 1987/8 can be analysed to show the significance of these items:

	£m	£m
Restructuring costs paid in cash during year		540
Cash needed for capital requirements and operations:		
To meet interest payments to Government	350	
To support operations and the investment programme	28	378
		918

Sometimes all these Government money flows are aggregated (and misunderstood as being 'subsidies' to current production) because each of them falls within the present definition of public expenditure, though the reverse flow of £350 million of interest from British Coal is commonly disregarded. In fact such aggregates give little indication of the current or prospective performance of the business.

Production

Deep-mining performance

	1987/8	1986/7
Production, million tonnes		
Total colliery output (including tip and capital coal)	82.4	88.0
Productivity, output per manshift (tonnes)		
Overall	3.62	3.29
Production (coalface)	16.20	14.40

The productivity improvement of recent years has continued, with a record level of overall output per manshift of 3.62 tonnes being achieved during 1987/8 despite the industrial action by the National Union of Mineworkers (NUM) and National Association of Colliery Overmen, Deputies and Shotfirers (NACODS). This represents an improvement of over 10% compared with 1986/7. Coalface productivity was 12.6% more than 1986/7 at 16.20 tonnes, and exceeded 17 tonnes for the month of December 1987. Similar productivity improvements were recorded elsewhere below ground and on the surface.

The national record for weekly productivity was broken four times during the year and stood at 4.11 tonnes per manshift at March 1988. New weekly productivity records were achieved in seven Areas, with North Yorkshire achieving an Area productivity of 6.15 tonnes per manshift in one week and 51 collieries (excluding the special case of Selby) setting individual records. Record national weekly coalface productivity of 18.08 tonnes was achieved in the week ending December 5 1987.

There were 94 operating collieries at the end of the year. 15 collieries ceased production during the year, representing an annual capacity of about seven million tonnes. Eight collieries were merged into four single units and three new collieries within the Selby Complex commenced production in January 1988. There was a further reduction in the number of national workshops from ten to nine. Overall workshop costs decreased by £6.5 million.

Development at the coalface

The Corporation continued investment in heavy duty face equipment, and this enabled the number of producing faces to be reduced from 311 to 276 over the year. Use of this equipment led to considerable improvements in productivity with the daily output per face rising to 1,259 tonnes compared with 1,067 tonnes achieved in 1986/7, and a face at Stillingfleet produced a record 43,266 tonnes in one week.

Shield supports are now installed at 43% of major longwall faces and for the first time over 50% of deep mined production came from these faces. Daily output from shield support faces averaged 1,496 tonnes, compared with 1,003 tonnes from conventionally supported faces.

The Corporation continues to seek better design standards and levels of reliability for coalface

equipment to ensure that these high production faces can maintain and then improve on their current levels of productivity.

Underground development and tunnelling

The trend towards concentration of output from fewer but longer faces is altering the profile of underground development work. Whilst there has been a decrease in the total distance driven to just over 400 km, nearly half of this is now required to provide retreat gate roadways and facelines. To achieve this, there has been an increase in the application of the latest continuous miners and roadheaders which are purpose-designed for the in-seam roadways associated with retreat mining. The benefit of these deployments is reflected by the record performance in March 1988 when the monthly national average drivage rate reached 1.94 metres per shift.

New developments

SELBY

Development of the Selby Complex has continued and four of the five collieries were operational by March 1988. During the first nine months of the year, drivage of the south tunnel was completed to 12.2 km from the surface and extensive repairs carried out to enable the conveyor to be extended by more than 4.1 km. Intensive development has taken place at Riccall, Stillingfleet and Whitemoor to prepare the initial faces and to complete the clearance network. In addition to the sinking of the wide boreholes for coal gravitation, over 50 conveyors were installed or extended – a total length of over 24 km and total horsepower of 15,000.

Production started from Stillingfleet, Riccall and Whitemoor on January 4, 1988 and after a rapid build up, new European output and productivity records were established: Wistow (17.67 tonnes per manshift), Stillingfleet (20.77 tonnes per manshift), Riccall (21.41 tonnes per manshift) and Whitemoor (14.59 tonnes per manshift). Coalface productivity records at all these collieries exceed 140 tonnes per manshift with Stillingfleet achieving 278 tonnes per manshift. Wistow produced more than 1.7 million tonnes in the year and continued to break records, amongst them the European colliery output record of 68,362 tonnes during week ended December 19 1987.

Stillingfleet and Riccall are planned to build up to full production of 2 mtpa each during 1988/9, followed by Whitemoor. Production at North Selby is planned to start in 1989/90 and to have built up to a level of 2 mtpa by 1990/1 to give an annual output from Selby exceeding 10 mtpa.

ASFORDBY

Construction of Asfordby new mine has progressed in line with the planned programme. Coal production is scheduled to commence towards the end of 1991, building up to an annual output of more than 3 million tonnes by 1993/4.

Shaft sinking has been completed to the inset level and pit bottom drivage work has commenced. The permanent winding towers are nearing completion and the winding engines and shaft equipment are scheduled for installation during 1988. Contracts have been let for the surface dirt handling, steel framed structures, pithead baths/boilerhouse and the first phase of permanent power distribution.

SOUTH WARWICKSHIRE

A planning application for a new mine at Hawkhurst Moor was formally submitted to the relevant Local Authorities on July 24 1987. Following a request from the Local Authorities the Secretary of State for the Environment 'called in' the application on November 6 1987 and stated that arrangements were to be made for a Public Inquiry. By the end of the financial year no date had been fixed for the Inquiry.

Exploration

The Corporation's exploration programme was predominantly directed at existing long-life collieries. Of 29 deep boreholes drilled, 19 were at existing mines in North Yorkshire, Nottinghamshire, Central and Western Areas. In addition, 161 km of high resolution surface seismic surveys were completed, of which 123 km were at existing mines.

Opencast mining

OPENCAST EXECUTIVE: ENGLAND AND WALES

Opencast output in England and Wales was 12.4 million tonnes in 1987/8 which was some 1.5 million tonnes higher than 1986/7, an increase of nearly 14%. Total sales of 13.1 million tonnes were 0.7 million tonnes higher than production and stocks were reduced accordingly to leave a total of 0.9 million tonnes at the end of the year. The operating profit was £206 million (or £16.60 per tonne, and total operating costs were £1.02 per gigajoule). Capital investment of £6 million included the completion of two new disposal points. The Executive let 12 coal production contracts, bringing into contract a further 12.4 million tonnes. However, only one new coal production contract was introduced in each of the North West and North East regions. Site contracts were awarded to eight different companies.

The Housing and Planning Act 1986 came into force during the year and removed the need to obtain an authorisation for new sites from the Secretary of State for Energy as previously required under the Opencast Coal Act 1958. All new sites are now subject to approval by the Mineral Planning Authorities under the Town and Country Planning Act 1971.

Planning applications were submitted in 1987/8 for 15 sites. Mineral Planning Authorities granted permissions for five sites containing 3.1 million tonnes and refused six sites containing 11.3 million tonnes. These six, together with one site where the Mineral Planning Authority failed to determine the application, are the subject of appeals. Following public inquiries which ended in 1987/8 the Secretary of State gave permission for five sites containing 6.9 million tonnes but refused seven sites containing 12.5 million tonnes. Public inquiries were held into refusals to grant consent for ten sites during the year.

By the end of the year the Executive had rights over 38,032 hectares of land in England and Wales, of which 86% was owned freehold. 10,638 hectares were with contractors for site operations and 4,670 hectares were undergoing rehabilitation. 16,484 hectares were for future use and relate to sites within or shortly to enter the planning process. 6,240 hectares were available for disposal of which 3,953 hectares was restored operational land.

As part of their efforts to increase public awareness of the importance of opencast mining, the Executive published a comprehensive colour booklet 'Opencast Coal Mining in Great Britain' explaining their activities, as well as holding open days at sites in each region, at which about 22,000 people attended.

SCOTTISH OPENCAST

The Corporation's opencast production in Scotland was 2.7 million tonnes with stocks falling from 0.9 to 0.2 million tonnes. Operating profit was £46 million (and profit per tonne was £17.20). Capital investment totalled £1.4 million. Planning permission was granted for four sites containing 8.85 million tonnes.

Markets

Summary

In 1987/8 UK primary energy consumption increased to just over 336 million tonnes of coal or coal equivalent. Coal was once again the most important single source of energy in the UK, and its market share increased from 33.6% in 1986/7 to 34.5%.

UK primary energy consumption

million tonnes of coal or coal equivalent (mtce)	**1987/8**	1986/7
Coal	116.0	112.4
Oil	110.6	111.7
Gas	83.1	84.1
Nuclear	19.3	21.5
Hydro	2.1	2.4
Electricity	5.1	2.6
Total	336.2	334.7

The Corporation vigorously defended its market in the face of strong competition from rival fuels and alternative sources of coal. Although the level of imported coal increased slightly, a large proportion consisted of specialised coking qualities for the steel industry which British Coal cannot fully supply.

The Corporation's total sales were at the same level as in the previous year, with only small variations between the individual market sectors. Sales would have been higher but for the loss of output caused by disputes, which could be only partly offset by increased withdrawal from colliery stocks. The Corporation's own stocks held at colliery and opencast sites fell by four million tonnes to six million tonnes at the year end, the lowest level since 1975.

The balance of demand was met by a modest net reduction in consumers' stocks. These stocks, mainly held at power stations, nevertheless remained high at the year end at about 24 million tonnes.

BCC coal sales by market

million tonnes	**1987/8**	1986/7
Power stations (CEGB and SSEB)	80.2	79.5
Coke ovens	4.2	4.5
Industry	8.8	8.7
Domestic (housecoal and naturally smokeless)	3.5	3.9
Domestic (manufactured fuel plants)	2.0	1.9
Other markets*	2.7	2.9
Exports	2.2	2.2
Total#	103.6	103.6

* Includes sales to all market categories in Northern Ireland.

Includes small tonnages purchased from external sources for resale by British Coal, and tonnages sold by small mines producing under BCC licence.

Coal supply and demand balance

million tonnes	**1987/8**	1986/7
British Coal production		
Deep mines	82	88
Opencast	15	13
Licensed mines and tip coal	2	2
Total production	99	103
Other supply		
Non-vested coal production etc	3	4
Imports	11	10
Total coal supply	113	117
Demand		
Inland	116	112
Exports	2	2
Total demand	118	114
Stocks at end of the year		
Distributed	24	25
Undistributed	6	10
Total stocks	30	35

Prices

Having kept prices unchanged since November 1985, list prices for industrial fuels were increased by an average of 2.7% from November 1 1987, an increase well below the rate of inflation. For domestic fuels there was a similar increase from January 1 1988. The Corporation again operated a summer price discount scheme for domestic fuels from May 1 1987 to July 31 1987. Despite the increase in list prices, continued competition from oil, gas and imported coal affected the Corporation's actual revenue, and average income per tonne fell by 2.8%. Relative to inflation, the Corporation's real average net income has declined by 15% over the past five years.

Power stations

There was strong growth in electricity demand during 1987/8 despite the mild winter. Much of the growth was met by increased electricity imports from France which rose to 5.1 mtce. However, coal's share rose by three percentage points to 73% within the almost unchanged level of fuel consumption in UK power stations. This was mainly a consequence of the poor performance of nuclear power stations.

Power station fuel consumption in the UK including electricity imports

(mtce)	1987/8	1986/7
Coal	85.9	81.9
Nuclear	17.2	19.5
Oil	8.1	10.2
Natural gas	—	—
Hydro	1.8	2.0
Electricity imports	5.1	2.7
Total	118.1	116.3

British Coal's (and licensees') sales to the Central Electricity Generating Board (CEGB) and the South of Scotland Electricity Board (SSEB) totalled 80.2 million tonnes, an increase of 0.7 million tonnes over 1986/7. Sales to Northern Ireland were 0.5 million tonnes, an increase of 0.2 million tonnes. The improvements were achieved despite the NACODS dispute in February which cost over one million tonnes of potential sales to power stations. A high level of supplies was maintained throughout the rest of the year, with a particularly good performance during the summer months when CEGB's requirements were significantly higher than had been anticipated.

The five year Joint Understanding with CEGB continued in operation throughout the year. As scheduled, there was a price revision from November 1 1987 which reflected developments in international energy markets and resulted in a price reduction in real terms. International coal prices strengthened during the second half of the year and oil prices remained above the low levels reached during 1986, but the effects in the UK were largely offset by the strength of sterling relative to the US dollar.

Although British Coal sales to SSEB showed an increase over the previous year, a dispute over SSEB contractual commitments at the end of the year has led to uncertainty over the future. A short-term supply agreement was made to enable negotiations on the longer term supply arrangements to be concluded.

In February the Government published its proposals for the privatisation of the Electricity Supply Industry, which will alter that industry's structure, and will require changes in commercial arrangements for fuel supply. Discussions took place during the year with a number of parties concerned or potentially concerned in power generation under the new structure.

Coke ovens

Sales to coke ovens totalled 3.9 million tonnes with a further 0.3 million tonnes supplied for blast furnace injection; a total of 4.2 million tonnes compared with 4.5 million tonnes in 1986/7.

Purchases by the British Steel Corporation (BSC) from British Coal increased slightly to 2.7 million tonnes in 1987/8 with an increased injection at the Scunthorpe works. BSC continued with the installation of a coal injection facility at its Ravenscraig works.

Purchases of coking coal by National Smokeless Fuels (NSF) fell substantially in 1987/8 following the rationalisation and closure of coking plants in 1986/7. Some 1.2 million tonnes were supplied by British Coal compared with 1.5 million tonnes in the previous year. NSF's Monkton plant began production of foundry coke in addition to domestic coke. Sales to ICI's Monkton coke ovens at 0.25 million tonnes were much the same as in 1986/7.

The NACODS dispute in February, as well as geological problems at collieries supplying low volatile coking coal, affected supply performance to the market in general.

Industrial market

The industrial market was characterised by continuing strong competition from oil, gas and imported coal. Heavy fuel oil and interruptible gas prices were on average higher than in 1986/7 although in historical terms they were still low. Imported coal continued to exert pressure, with increases in the landed dollar price being offset by the strength of sterling against the US dollar. The threat from oil, gas and imported coal met strong defence, and in these difficult trading conditions it was encouraging that the Corporation were able to maintain, and indeed marginally to increase sales to 8.8 million tonnes. Significant new business for coal came on line during the year, prominent being the ICI Wilton project with an associated coal burn of 460,000 tonnes per annum. At the smaller end of the market 'Coalflow' has shown an encouraging start by competing in the difficult commercial sector with the sale of about 50 appliances.

However, with the prices of competing fuels falling within a narrower band than in previous years, the potential for major savings by conversion to coal use was reduced, and this has been reflected in a decline in the number of recent decisions to convert. In this environment, and to offer a stimulus to sales following the ending of the Government Coal Firing Grant Scheme, British Coal have introduced their own Flexible Financing Package aimed at overcoming the hurdle of the capital cost of coal plant by means of loans at attractive interest rates coupled with competitive coal contracts.

Domestic market

Sales of solid fuel to the inland domestic market by the Corporation and NSF amounted to 4.68 million tonnes: 2.80 million tonnes of housecoal, 0.68 million tonnes of naturally smokeless fuels and 1.20 million tonnes of manufactured smokeless fuels. A further 0.93 million tonnes were sold in Northern Ireland of which 0.68 million tonnes were housecoal and 0.25 million tonnes were naturally smokeless and manufactured smokeless fuel.

The sales represent an overall reduction of just over 13% compared to 1986/7. The mild weather throughout the winter undoubtedly contributed to the decline with housecoal and manufactured fuels both 14% down and naturally smokeless some 9% down. Improved output in South Wales also resulted in a substantial stock holding of both anthracite and dry steam coals at the year end. The Corporation's coal sales to NSF and independent producers of domestic smokeless fuels and coke amounted to 3.3 million tonnes.

The Solid Fuel Advisory Service concentrated on the advertising theme 'The New Face of British Coal', promoting a new range of solid fuel domestic and commercial appliances under the title 'Coalflow', with a major launch in September 1987 at Newark. About 5,000 domestic units were sold during the year.

A new data processing and lead management computerised system called Datastream commenced during the year ensuring that all enquiries are speedily handled and followed up by professional sales teams.

Exports

The continued strength of sterling against the US dollar, the principal trading currency for coal, adversely affected export opportunities. Nevertheless, sales to traditional customers continued and total coal exports amounted to 2.2 million tonnes in 1987/8.

Personnel

Manpower

At the end of the year, the Corporation's employees totalled 117,355, a reduction of 24,174. Men on colliery books fell by 18,675 to 89,018 and non-industrial staff numbers fell by 2,794 to 16,396.

The reduction in manpower was again achieved principally by voluntary redundancies and selective recruitment. With the changing age distribution within the industry and the introduction of a supplementary lump sum redundancy benefit for men affected by colliery closures and other major manpower rationalisations, voluntary redundancy of men under the age of 50 increased from just under a half of the total in 1986/7 to more than four-fifths in 1987/8. Recruitment continued to be concentrated among younger men with 65% of recruits being below the age of 25. As a result of the falling age distribution, the average age of mineworkers is now 34.0 years compared with 43.2 years in 1975.

Attendance

Excluding the effect of the National Union of Mineworkers (NUM) overtime ban during 1987/8, some 405,300 shifts were lost as a result of industrial disputes, nearly four times more than in the previous year and an average of 3.88 shifts per man employed. However, despite the higher level of shifts lost through disputes, men employed at collieries worked 23.6 million shifts including overtime, an average of 226.2 shifts per man. This was the highest level of attendance recorded for 30 years.

Total employees of the Corporation and wholly-owned subsidiaries at the end of March

	1988	1987
Total employees	117,355	141,529
Industrial workers	100,959	122,339
Collieries	89,018	107,693
Workshops	3,534	4,131
Headquarters, regional and colliery services	6,104	7,953
Opencast (direct labour)	237	236
Coal Products Ltd	1,702	1,733
NCB (Ancillaries) Ltd	—	582
Other subsidiary companies	364	11
Non-industrial staff (all activities)	16,396	19,190

Recruitment and wastage of industrial workers at collieries

	1987/8	1986/7
Recruitment		
Newly employed:		
Under 18s	189	53
Others	817	1,033
Re-entrants	573	819
Total	1,579	1,905
Wastage		
Early retirement	21	41
Other voluntary wastage	1,161	1,208
Transfers to non-colliery activities	442	2,401
Redundancies	16,800	27,131
Involuntary wastage	1,830	1,921
Total	20,254	32,702
Net change in manpower	−18,675	−30,797

Colliery Review Procedure

One of the sixteen collieries where operations ceased during the year was referred to the Independent Review Body (IRB) by the NUM and the National Association of Colliery Overmen, Deputies and Shotfirers (NACODS).

The Corporation's proposals for the rationalisation of the Manvers Complex involved the closure of the Manvers South section of the Complex and single face working at the Manvers Central section, and were the subject of an IRB hearing in December 1987. The report of the IRB concluded that British Coal's plan for the Complex was a reasonable one. Operations at Manvers South ceased at the end of February 1988 and, with the agreement of the workforce, Manvers Central ceased operations at the end of March 1988.

Consultation and conciliation

A Divisional Court judgement held that the Corporation were obliged, by Section 46 of the Coal Industry Nationalisation Act, 1946, to consider whether the Union of Democratic Mineworkers (UDM) represented a substantial proportion of all employees. After consultation, the Corporation decided that they did represent a sufficient proportion of weekly paid industrial staff to justify participation in conciliation machinery for that class, but did not represent a sufficient proportion of clerical staff. Proposals were accordingly made to the NUM and UDM for new conciliation machinery for weekly paid industrial staff, the existing machinery having been terminated on March 2 1988. By the year end, agreement had still not been reached with the NUM on the long-standing proposals made by the Corporation for a conciliation scheme for mineworkers at units at which the NUM were in the majority.

Flexible working time

The Corporation have continued to make it clear that flexible working and other variations in working practice are an integral part of the strategy for the survival and success of the industry in the face of severe competition from imported coal. New mines and existing mines undergoing major reconstruction require very high levels of investment which are only justifiable if full use is made of the plant, machinery and general colliery infrastructure. The capital repayments on new mines are more than double those of existing mines without major capital reconstructions and amount to as much as 45% of the total cost of producing each tonne of coal. In the market environment expected in the foreseeable future, new mines and major extensions to existing mines cannot be viable if coal production is limited to five days per week. The Corporation have, therefore, reiterated that flexible working practices are an essential pre-requisite for the authorisation of new mines and for mines undergoing major capital reconstruction. The NUM, at their national conference in July 1987, adopted a resolution opposing the introduction of flexible working. The UDM, however, have assured the Corporation that they are prepared to work the Asfordby new mine on the six-day production principle and discussions on the key issues are continuing. At certain conventional mines where more intensive working practices are desirable for other reasons, local management, with the co-operation of their employees, are rearranging production patterns to meet requirements as necessary.

Pay and conditions of service

An increase of 4.28% on mineworkers' grade rates reflected the increase in the Retail Price Index in the twelve months up to September 1987 and represented the second phase of the two-year settlement which had been agreed with the UDM in 1986/7. This was effective from the beginning of November 1987 for all mineworkers at UDM majority units and for all non-NUM mineworkers elsewhere. The increase was not implemented to NUM mineworkers at NUM majority units while the NUM overtime ban continued. In March 1988, an NUM ballot of its members resulted in a 58.3% vote to end the ban. The NUM then requested that the increase be implemented, and the Corporation decided to apply the increase from the resumption of normal working.

Negotiations took place with NACODS at several meetings between October 1987 and January 1988. The Corporation's final offer was an increase of 4.28% on wage rates for Officials together with a proposal to change the method of payment for weekend attendance to hourly rates to reflect the number of hours worked. NACODS rejected the Corporation's final offer in January 1988 and the Corporation referred the issue to the National Reference Tribunal (NRT), the final binding arbitration stage of the agreed conciliation scheme for Officials. Despite the reference to arbitration NACODS staged a one day stoppage strike and instituted an overtime ban. This industrial action lasted from January 29 1988 until February 26 1988, the first day of the NRT hearing. In March, the NRT upheld the Corporation's wage increase of 4.28%, as well as the proposal for hourly rates of payment for weekend work, but at a higher hourly rate than the Corporation had proposed.

Shortly after the end of the year, the Corporation reached agreement with the British Association of Colliery Management (BACM) on salary increases for management staff with effect from November 1 1987. It was agreed that the settlement would run for 15 months, the due date of the next settlement being February 1 1989.

In relation to clerical staff, agreement was also reached with the Clerical Officers Staff Association (COSA) and the Association of Professional Executives (APEX) on salary increases, also with effect from November 1 1987. The settlement included the consolidation of bonus to which clerical staff had previously been entitled, with effect from April 1 1988.

Industrial action

1987/8 was marked by two national disputes. The first was the overtime ban imposed by the NUM between September 1987 and March 1988 as part of a campaign against the Code of Conduct and Disciplinary Procedures for Mineworkers which the Corporation had revised following the emergence of the UDM and in accordance with their obligations under the Employment Protection Consolidation Act, 1978. The second was that called by NACODS in January and February 1988 in support of its wage claim. These two disputes cost the industry over 3.4 million tonnes of coal output, representing a loss in proceeds of about £115 million. Other industrial action during the year comprised 329 disputes, involving 163,000 manshifts and the loss of 1.1 million tonnes of output.

In total, industrial action in 1987/8 resulted in a loss of wages for mineworkers and officials of £40 million and cost the Corporation 4.5 million tonnes of output, and increased the overall financial loss by £100 million. The Corporation are determined to continue their policy of bringing about a cultural change which will eradicate this damaging feature of the industry.

Pensions and benefits

The Mineworkers' Pension Scheme Order 1987 came into force in August 1987. The effect of this Order is to allow proportionate representation on the Mineworkers' Pension Scheme Committee of Management. The Committee now consists of 10 members, five from the Corporation, four from the NUM and one from the UDM. The number of members appointed to the Committee by each eligible Union is now determined by a calculation relating to the number of members in each Union.

The market value of the funds of the Mineworkers' Pension Scheme stood at approximately £4.8 billion at March 1988: benefits totalling £245 million were paid during the year. 268,615 pensions were being paid at the end of the year with a weekly payroll of approximately £3.6 million. Membership fell to 88,265 by the end of 1987/8 compared with 109,810 at the end of 1986/7. An increase in line with the rise in the cost of living was awarded to pensions from September 28 1987 without any need for special contributions to the Scheme.

At the end of March 1988 the funds of the Staff Superannuation Scheme, which represents all the management, clerical and industrial supervisory staff and officials, had a market value of approximately £4.9 billion; there were 30,000 contributors and 14,430 former contributors with preserved benefits. Benefits totalling about £252 million were paid from the fund during the year and by the end of the year 67,089 pensions were being paid, compared to 63,700 at the end of 1986/7. An increase was awarded to pensioners in line with the annual rise in the cost of living without any need for special contributions to the Scheme.

Although the Redundant Mineworkers Payments Scheme closed for new beneficiaries on March 28 1987, benefits continue to be payable to ex-employees who left the industry before that date. During the year, the Corporation paid out almost £290 million under the Scheme on behalf of the Department of Energy. Industrial employees who were redundant after March 28 1987 received lump sums under the Corporation's redundancy arrangements. For 1987/8 only, redundancies arising from a closure or major reconstruction were awarded an additional lump sum of £5,000. The total amount payable to industrial employees made redundant during the year was £269 million.

Training, education and graduate entry

The Corporation have continued to re-examine their training and education requirements to take account of modern mining methods. Revised arrangements to ensure a proper level of competency for operatives, craftsmen and front-line supervisors have included improved selection procedures, enhanced practical skills and higher academic qualifications. The Engineering Training Scheme for managers and engineers has been revised to ensure that they receive suitable training and expertise to carry out their responsibilities at each stage of their career. Good progress has continued to be made with the development and application of new training techniques including standards based training and computer aided learning.

During the year British Coal managers and delegates from outside companies or organisations attended programmes at the Corporation's Staff College at Chalfont St. Giles. These were designed to assist in adjusting to the increasingly competitive nature of the Corporation's business. The Corporation's Staff College at Graham House continues to sustain a full programme of courses for junior management and front-line supervisors. They also ran team-building exercises for individual collieries.

Nearly 1,300 graduates and undergraduates applied for places in the Corporation's research establishments and on the Corporation's graduate training schemes. Of these 764 were interviewed and 67 appointed.

Counselling and retraining

The Corporation continues to assist redundant employees to obtain new jobs. During the year, 1,707 ex-employees took advantage of the Job and Career Change Scheme under which they received allowances and/or had fees paid whilst they were retraining. Towards the end of the year, British Coal Enterprise Limited announced a new initiative under which redundant workers may receive personal counselling on local job opportunities together with practical help in finding new employment locally.

Organisation

AREAS

At the start of the year the new Central Area, formed by the merger of North Derbyshire and South Midlands Areas, commenced operations. Later in the year the management, development and administration of Asfordby new mine reverted to Nottinghamshire Area from Central Area.

In view of the major restructuring and streamlining of the industry over recent years, the process of evolutionary change in Area structure continued, with more economical management structures being implemented in the four smaller Areas, Scottish, North East, Western and South Wales. As part of the drive to reduce overheads, the Corporation continued to keep organisational questions under review during the year.

HEADQUARTERS

Further progress was made to streamline the London Headquarters. A detailed review of Headquarters staff in London was carried out. Each activity was thoroughly re-examined in order to assess which staff could operate satisfactorily outside London. As a result, a further number of Headquarters staff were transferred to locations in the coalfields. Following this reorganisation and other staff savings the Corporation were able to sub-let vacant accommodation. These steps resulted in a substantial net saving on overhead costs.

The Corporation continued to develop their use of information technology (IT), in particular to aid management at colliery level. Significant economies in mainframe computer operation were achieved by

concentrating central processing from six to two computer centres. During the year work began on the installation of a digital telecommunications network which will permit further savings and enable additional IT facilities to be introduced.

SCIENTIFIC CONTROL

A new Scientific Control laboratory at Bretby, to handle work for Areas in the southern part of the country, became fully operational by the end of March 1988. Its sister laboratory situated at Wath-on-Dearne, Yorkshire had already successfully assimilated the work from Scottish and North East Areas. The re-organisation of Scientific Control has cut operating costs substantially, by reducing staff numbers and closing a number of small laboratory facilities. The concentration of expertise at the two sites means that large and efficient laboratories have been created to provide the support required by the mining and marketing functions.

MARKETING

Marketing Regions were re-organised in line with the drive to reduce overheads. The North East sales region and the sales district of Cumbria were linked with Yorkshire to form the Yorkshire and Northern sales region. Western was linked to Midlands sales region to form the Midlands and North West sales region. Coal quality control was strengthened in all Areas by the explicit assignation of this responsibility to the re-titled 'Head of Marketing and Coal Quality Control'.

LEGAL DEPARTMENT

A reorganisation took place within Legal Department during 1987/8, with the aim of providing a service to all its clients in the Corporation on a national basis, with Senior Solicitors in the smaller Areas reporting direct to the Corporation's Legal Adviser.

NCB (ANCILLARIES) LTD.

During the year the sale of the Scottish Brick Company and SBC Properties Ltd. was finalised. The British Fuel Company was merged with the fuel business of Cawoods to form British Fuels Ltd. At the same time NCB (Ancillaries) Ltd. interest in the new company was transferred to British Coal's ownership. At the year end NCB (Ancillaries) Ltd. had no direct investments in other companies.

COAL PRODUCTS GROUP

The capital reconstruction of the Group was completed during the year. The Group has made substantial progress to eliminate loss-making activities and to make the company viable in its own right.

Employment of the disabled

The Corporation recognise their responsibility to provide employment and facilities for disabled employees, so far as the nature of the industry permits. The Corporation foster a policy which gives priority to safeguarding the employment of those who were disabled in the Corporation's service, and there are well-established arrangements for rehabilitation to suitable employment.

Safety

Both the number of accidents and the accident rate have shown substantial improvements for all classifications of accidents compared with the previous year. Fatalities reduced by 6 to 9* compared with 15 in 1986/7; a record low for the industry.

Accidents in British Coal mines

	Number of casualties		Casualties per 100 000 manshifts	
	1987/8	1986/7	**1987/8**	1986/7
Fatal	9*	15	0.03	0.05
Major injury	718	941†	2.74	3.09†
Total fatal and major injury	727	956†	2.77	3.14†
Other accidents involving over 3 days absence	7 962	11 528†	33.25	41.06†
Total	8 689	12 484†	36.02	44.20

* Figures do not include a fatality investigated under the Factories Act.
† Amended figures for 1986/7

The major injury accident rate shows a reduction of 0.35 accidents per 100,000 manshifts (11.3%) compared with the previous year, giving a rate of 2.74 accidents per 100,000 manshifts for 1987/8.

The total accident rate improved by 18.5% compared with the previous year, giving an annual rate of 36.02 accidents per 100,000 manshifts. This is the lowest on record excluding 1984/5 (the strike year) when the figures were distorted.

Health

The Corporation's Medical Service continued to monitor the health of the workforce. The prevalence of pneumoconiosis continued to decline, and is now down to 0.7% of the workforce at collieries. A number of collieries no longer have any cases of pneumoconiosis and at many collieries the numbers are in single figures. Very few new cases are occurring and these are mainly in miners with long service underground. However, radiological surveys are carried out regularly at collieries to ensure that dust control is effective, particularly with the introduction of new mining methods.

Musculo-skeletal problems continue to be an important cause of morbidity within the industry. Research continues, particularly into low back-pain and its relation to work tasks.

Good progress has been made in assessing chemical substances used within the industry. Information and advice are made available to management and employees. Preparations for the introduction of the Control of Substances Hazardous to Health Regulations are well advanced.

A special effort in health promotion was undertaken throughout the coalfields. The aim of the campaign was to encourage healthy life-styles among the workforce. Medical Service have contributed to the

Corporation's hearing conservation programme by advising miners with regard to the correct type of hearing protection and its use.

Housing

The Corporation's house disposal programme introduced in 1976 moved nearer completion during 1987/8. The total number of workmen's houses owned by the Corporation had been reduced by the end of 1987/8 by 8,000 to 8,950. Since 1976 some 74,300 sales have been completed and a further 2,100 are in the processing stage. Discussions are also in hand for the disposal of a further 5,850 houses by the end of 1988/9, leaving about 1000 houses to be retained for operational purposes. Since 1976 sales to sitting tenants have totalled nearly 47,000, and the remaining 27,300 have been sold to Local Authorities, Housing Associations, Investment Companies and with vacant possession.

Relations with public bodies

Parliamentary Select Committee

In May 1987 the Government responded to the Report of the Select Committee on Energy on the Coal Industry (published in February 1987), by addressing a number of the detailed recommendations as well as noting the 'outstanding achievement' by British Coal men and management in relation to productivity improvement which should give every confidence in the Corporation's future.

Following a hearing in February 1988 on the Corporation's Report and Accounts for 1986/7, the Select Committee on Energy published a report on the Spring Supplementary Estimate: Assistance to the Coal Industry. Drawing attention to British Coal's recent productivity improvements, the Committee emphasised the need for a long term strategy for the UK coal industry, particularly in view of the impending privatisation of the Electricity Supply Industry.

The Corporation was also invited to present written evidence to the Select Committee on Energy's investigation into the consequences of the privatisation of the Electricity Supply Industry. In their submission, the Corporation expressed the view that it was possible for the UK electricity industry to continue to base its coal requirements on British Coal, and for such coal to be supplied at prices which were competitive with the long-term sustainable price of international coal, while giving electricity consumers the guarantee of long-term price stability. However, the Corporation emphasized that long-term market-based supply contracts should be negotiated between the electricity generating industry and British Coal before privatisation. Account could then be taken of the contracts in the prospectuses for the sale of the electricity industry.

In April 1987 the Corporation submitted a memorandum to the House of Commons Environment Committee at their request, for the inquiry into the pollution of rivers and estuaries.

Later in the year, British Coal submitted a memorandum to the House of Commons Public Accounts Committee at their request, on the Corporation's programme of house disposals.

Monopolies and Mergers Commission: Reference of British Coal

On March 14 1988, the Secretary of State for Trade and Industry announced a reference of the British Coal Corporation to the Monopolies and Mergers Commission, under Section 11(i)(a) of the Competition Act, 1980.

The Commission were asked by the Secretary of State for Trade and Industry to investigate and report on whether the Corporation could improve its performance in the selection and appraisal of investment projects, with particular regard to future coal demand and prices, market risk and the achievement of the required rate of return.

The Commission were further requested to examine the Corporation's performance in the efficient use of manpower in achieving the required rate of return in investment projects, the contribution of the Corporation's investment programme to its business strategy and objectives, and the post-completion review of capital purchases and investment projects. The Commission was also asked to examine the Corporation's management systems insofar as they related to the above, including the attribution of sales proceeds to production units, and indicators of capital performance.

European Community

The Corporation submitted evidence in December to the European Parliament's Committee on Energy, Research and Technology. The submission emphasised the need to promote coal use so as to reduce dependence on third country imports of oil and gas, and advocated a combination of indigenous and international supplies as the most economic way to satisfy growth in the European coal market. The Corporation recommended a programme, endorsed by the Commission, for research and development into new coal technologies, and for measures to promote greater use of coal. It was emphasised that coal production in the Community has value in ensuring restraint in world coal prices, but that present world prices were unsustainably low. The coal policy framework of the community should provide for the maintenance of outlets for indigenous community production with costs competitive with sustainable world coal prices.

At the end of the year, the Corporation commenced a review of the potential impact on their activities of the Community propoals for the completion of an internal energy market by 1992.

British Coal Enterprise Limited

British Coal Enterprise Limited achieved their objective of a 25% increase in new job opportunities supported compared with the previous year.

The rate of project submissions and approvals accelerated in 1987/8 so that, at the end of March, the Company had committed a total of £43 million to 2,002 projects which are expected to result in 26,190 new job opportunities when fully operational. Some 11,700 of these jobs are already in place, and a further 2,700 jobs are established in 55 managed workshops which have received financial assistance from the Company. In addition, some 3,300 ex-British Coal employees have successfully completed re-training courses under the Job and Career Change Scheme which is now administered by the Company on British Coal's behalf. The importance of the Company's activities was summed up in the Government's response to the Select Committee's Report on the Coal Industry in 1987 – as follows:

'The continuing success of British Coal Enterprise is of great importance to the Government and to British Coal. The Company's achievements are outstanding and are a credit to the enthusiasm and imagination of its management, the financial expertise available to clients through secondments from the private sector to assist its Regional Managers, and the after-loan advice service which each regional team provides'.

British Coal Enterprise Limited publish a separate annual review which describes their activities in greater detail.

Research and development

Research and development expenditure in 1987/8 was:

	£ million **1987/8**	£ million 1986/7
Mining research, development and demonstration	19	16
Coal utilisation research	24	29
Medical research	2	2
Other	—	1
Total	45	48
EEC and ECSC grants	9	10
Net total	36	38

Note: includes the Institute of Occupational Medicine, not consolidated in the Corporation's Accounts.

Mining research

Mining research and development conducted by the Corporation's Headquarters Technical Department at Bretby near Burton-on-Trent remains centred on three strategic areas. These are health and safety matters, reducing the costs of production of deep mined coal, and related business issues.

Research on health and safety issues seeks to continue to improve the working environment underground and is focussed on dust and methane management as well as noise control.

In the short term there is a need to continue to improve the management of the underground environment and equipment associated with the mining activity, in particular to reduce the amount of dirt mined with coal, increasing the effective shaft capacity and the efficiency of underground transport.

Product quality is maintained at a high standard but improvements are necessary in handleability. The speed of access into new reserves needs to be improved, and costs reduced, as longwall production changes over to intensive retreat working with heavy-duty production equipment.

In the medium term research is engaged in the integration of automated control systems to further improve continuity of production, product quality and the reliability of production machinery.

Enhanced exploration techniques are being developed to reduce the geological risks fundamental to mining. Methods such as surface and in-seam seismic surveys, guided longhole drilling and borehole logging are serving to reduce the element of uncertainty associated with virgin reserves.

An intelligence unit has been formed to take a wider view of technology and, through links with mining and non-mining related bodies at home and overseas, identify new technological opportunities of possible value to the Corporation's business.

At the end of the year Technical Department were granted a Queen's Award for Technological Achievement for the work undertaken in researching and exploiting the in-seam seismic exploration technique. This is the fifth such Award to be gained by the Corporation.

Coal utilisation research

The efficient, cost effective and environmentally acceptable use of coal is the subject of much effort. The Coal Research Establishment (CRE) in Cheltenham is the Corporation's research and development centre for coal utilisation, with major development projects at Grimethorpe and Point of Ayr. Some of the development work is carried out in collaboration with equipment manufacturers in jointly-funded projects, whilst other projects are supported by European grants.

COAL-FIRED POWER GENERATION SYSTEMS

Combined cycle power generation using both steam and gas turbines has the potential to increase the efficiency of power generation beyond that obtained by conventional plant.

Both pressurised fluidised bed combustion (PFBC) and coal gasification can be used in combined cycles. A £29 million joint project between British Coal and

the Central Electricity Generating Board (CEGB) to develop PFBC technology is being carried out at Grimethorpe in Yorkshire complemented by work on a smaller scale at CRE and in CEGB laboratories. Comparative appraisals of this and systems based around coal gasification are being undertaken jointly with the Department of Energy, CEGB and British Gas Corporation. The US Department of Energy and the US Electric Power Research Institute are collaborating on aspects of coal feeding and the cleaning of hot gases for gas turbines in advanced systems.

Submissions have been made to the Advisory Committee on Research and Development (ACORD) suggesting major government support for the engineering development stage of an advanced system based on a combination of gasification and fluidised bed combustion technologies, the so-called 'topping-cycles'.

COAL-FIRED INDUSTRIAL HEATING

Improved designs of coal and ash handling equipment have been developed for the industrial market. Automatic receiving bunkers and storage silos are now in service and a new design of coal feeder has been commissioned. Improved pneumatic and mechanical conveying systems are in operation at many customer sites.

The first demonstration of a new fluidised bed boiler designed to reduce nitrogen and sulphur oxide emissions has been undertaken. The four new fluidised bed 34 MW coal boilers installed on a large industrial site are being commissioned. Work continues on the full automation of conventionally fired equipment and support is given to manufacturers in the design and commissioning of new installations.

COMMERCIAL AND DOMESTIC COMBUSTION

'Coalflow', the system based on automatic underfeed stoke appliances developed at CRE was launched in September 1987. Related developments include a Coalflow cooker and an open fire, both of which are under laboratory test.

In support of the 'Coalflow' scheme a range of low-cost automatic coal and ash handling equipment has been developed. The equipment includes modular coal silos, pneumatic coal conveyors and a vacuum conveying system for ash removal.

Control equipment has been developed which will enable more than one appliance to be linked to serve the same central heating system. This equipment, which is now commercially available, will widen the installation opportunities for solid fuel-fired systems.

CARBONISATION

Support has been given to both National Smokeless Fuels and to the British Steel Corporation with the specification and testing of coal blends. The programme aims to increase the proportion of UK coals used in the coke making process. Additionally, effort has been given in furthering the ceramic welding repair process for commercial exploitation.

ENVIRONMENTAL STUDIES

The Corporation are concerned in assessing and minimising the environmental impact of coal use. Work at CRE has included the monitoring of gaseous emissions from coal-fired plant and the development and evaluation of low-cost technology for reducing the amounts of dust and sulphur and nitrogen oxides from combustion plant. An important aspect of the programme is concerned with developing acceptable methods of disposing of the solid residues arising from coal mining use.

COAL CONVERSION

Following the successful demonstration of the Liquid Solvent Extraction (LSE) process at CRE, a 2.5 tonne/day pilot plant to manufacture transport fuels from coal is being built at Point of Ayr in North Wales. The £30 million project is being carried out in collaboration with Ruhrkohle and with funds from the Department of Energy.

The 12 tonne/day pilot plant gasifier has been used to produce a low calorific value fuel gas suitable for use in industry. The gas, after cleaning, was used successfully to fire bricks in a test furnace.

Medical research

The major objectives of prolonged research related to lung disease in miners have now been achieved. Risk estimates relating dust exposure to various concentrations over a working life-time have been produced. A number of research projects are continuing in order to answer some remaining questions related to chronic bronchitis and emphysema, progressive massive fibrosis and the part quartz plays in progression of pneumoconiosis.

Epidemiological research relating to back problems in the industry continued during the year. One large research project is now drawing to a close and has indicated a number of working practices that may carry an increased risk of back injury.

Research was carried out at one colliery to examine integrated noise exposure and hearing loss in miners.

Reports were produced on ergonomic principles to be taken into account by designers of mining equipment to improve the health and safety of the operators.

Research into skin disorders in miners showed that dermatitis of the feet and lower legs was not uncommon and was the major contributor to days lost due to sickness absence from skin disorders.

Environment

Coal production and the environment

During the year the Corporation's senior surface environment committee was reconstituted as a Coal Production Environment Committee complementing the existing Coal Use Environment Committee. Membership was extended to include representatives from all Areas, with the aim of improving the dialogue necessary for policy and research initiatives. For example, new policies are to

be introduced which, site by site, should ensure that dust and dirt emissions from vehicles leaving British Coal premises are as low as possible.

The Corporation continued to develop their policy of thorough assessment of the environmental effects of their major projects, particularly new mines. The Environmental Assessment Report prepared for the South Warwickshire Prospect has benefited from the experience the Corporation has gained in this field, ensuring that the latest developments in environmental assessment have been applied. The South Warwickshire Report was carried out with full regard to the EEC Directive on environmental assessment to be implemented in July 1988, and as one of the first of this type to be scrutinised at a public inquiry, it is expected to be of wide interest to industrialists and planners outside the mining industry.

Public attitude surveys conducted as part of the consultation process in South Warwickshire have confirmed that the Corporation face an important challenge in raising awareness of the progress which has been made in minimising the impact of new mines on the environment.

Coal use and the environment

The Corporation's activities during the European Year of the Environment included two open days in September at their Coal Research Establishment, designed to exhibit and publicise the environmental work of the Establishment, and in particular the development of clean coal technology. Among those attending were Members of the European Parliament and representatives from boiler and equipment manufacturers and environmental groups.

The Corporation continued to monitor the progress of European Community initiatives on air pollution control – in particular the proposed European Directive governing emissions from large plant – and have pursued discussions with the newly formed HM Inspectorate of Pollution about the shape of future UK legislation on emissions.

In June a mid-term conference was held in Bergen to review the progress of the Royal Society's study, supported jointly by the Corporation and CEGB, into the effects of long-range acid deposition. The study, which is intended to build upon and supplement other relevant research, has resulted in an outstanding degree of collaboration between scientists from Norway, Sweden and the United Kingdom. A final conference to review the findings of the study is expected to be held in 1990.

The Corporation, together with the CEGB and the Scottish generating boards, have also supported a five-year programme concerned with measures to counteract the effect of acid deposition at Loch Fleet using various forms of limestone; considerable progress has been made in de-acidifying the Loch. The ultimate aim of this programme, now entering in its final year, is to restore environmental conditions so as to enable the return of fish and plant life.

Land use and reclamation

The Opencast Executive are continuing with their extensive restoration programme, which allows derelict land from former industrial activity to be returned to productive use. Land is restored to agricultural, recreational or development use in discussion with land owners and the local Mineral Planning Authority. Close links are maintained with universities and commercial organisations involved with restoration work, as well as with the Ministry of Agriculture, Fisheries and Foods, Local Authorities, and conservation groups.

Subsidence

The Government in October 1987 published their response to the Waddilove Committee Report on surface damage compensation. The response recognised the many improvements already made by their Corporation to their procedures in response to recommendations of the Committee, and foreshadowed new legislation designed to simplify existing laws governing subsidence compensation, and to give statutory effect to certain discretionary categories of compensation.

16,752 subsidence damage claims were resolved by the Corporation in 1987/8, and at the end of the year the number of claims for which the Corporation might have an outstanding liability had been reduced by some 5,360. The Corporation received 16,265 claims, 325 less than in 1986/7.

Statistical tables

British Coal Corporation

Summary of statistics 1947-1987/8

	1947	1950	1955	1960	1965/6	1970/1	1975/6
Output, million tonnes							
BCC mines (including tip and capital coal)	187.5	205.6	211.3	186.8	177.0	135.5	114.5
Opencast	10.4	12.4	11.6	7.7	6.9	8.1	10.4
Licensed	2.1	1.5	2.3	2.2	1.8	1.1	0.9
Total	200.0	219.6	225.2	196.7	185.7	144.7	125.8
Consumption, million tonnes							
Power stations	27.5	33.5	43.6	52.7	69.9	74.7	75.8
Coke ovens	43.2	49.6	55.8	52.2	44.5	28.6	18.5
Domestic	37.2	38.4	37.6	36.1	28.2	18.7	11.4
Other Inland	79.6	84.3	81.7	58.8	41.4	28.7	16.5
Total Inland	187.5	205.9	218.7	199.9	184.0	150.7	122.2
Imports	0.7	—	11.8	—	—	1.2	4.8
Exports	5.3	17.2	14.1	5.6	3.7	3.0	1.4
Stocks at year end, million tonnes							
BCC stocks	1.4	1.7	2.2	29.7	18.8	6.3	11.0
Consumer stocks	16.7	12.6	12.7	10.0	10.9	11.7	18.9
Total	18.1	14.3	14.9	39.6	29.7	18.0	29.9
Number of collieries at year end	958	901	850	698	483	292	241
Output per man-year, tonnes	267	298	302	310	387	471	462
Output per manshift, tonnes							
Production*			..	..	..	..	..
All underground	..	..	1.60	1.81	2.35	2.92	2.91
Surface	4.37	5.05	5.66	6.61	8.32	9.62	10.42
Overall	1.09	1.23	1.25	1.42	1.83	2.24	2.28
Men on colliery books, '000							
Average	703.9	690.8	698.7	602.1	455.7	287.2	247.1
Recruitment	94.2	55.3	61.0	42.4	31.5	29.7	17.0
Wastage	68.0	75.8	66.6	93.5	72.5	39.0	22.1
Net change	+26.2	−20.5	−5.6	−51.0	−41.0	−9.3	−5.1
Average age, years	..	40.2	40.4	41.6	43.3	43.9	43.2
Accidents							
Number of fatalities		476	408	316	217	92	59
Rate per 100 000 manshifts							
Fatal	..	0.28	0.24	0.22	0.22	0.15	0.11
Major injury (a)	..	..	1.08	1.12	1.16	0.95	1.01
Disputes tonnage lost, million tonnes	1.7	1.0	3.3	1.6	1.2	3.1	0.5
Cash earnings per week,	6.65	8.73	12.46	14.70	19.14	27.07	74.00
Value of allowances in kind per week,	0.29	0.38	0.59	0.88	1.22	1.88	4.30

A vertical rule indicates a change in definition
.. not available
* 1979/80 onwards
(a) Definition changed from serious reportable to Major injury in January 1981 and to Major injury/Condition in April 1986
includes 3 million tonnes substitute coal

1976/7	1977/8	1978/9	1979/80	1980/1	1981/2	1982/3	1983/4	1984/5	1985/6	1986/7	**1987/8**
108.5	106.3	105.5	109.3	110.3	108.9	104.9	90.1	27.6	88.4	88.0	82.4
11.4	13.6	13.5	13.0	15.3	14.3	14.7	13.8	13.6	14.1	13.3	15.1
0.9	1.0	0.9	1.0	1.1	1.1	1.2	1.4	1.5	2.0	2.0	2.1
120.8	120.9	119.9	123.3	126.6	124.3	120.9	105.3	42.7	104.5	103.3	99.6
78.9	78.9	83.3	89.1	87.7	85.3	80.8	82.3	42.8	86.0	82.4	86.2
19.6	16.3	14.6	14.4	11.3	11.2	10.0	10.4	8.4	11.5	10.9	10.8
10.6	10.8	10.1	10.3	8.5	8.6	8.0	7.7	6.4	8.9	8.1	7.0
15.5	15.5	14.4	14.6	12.7	11.9	11.6	11.3	9.2	12.0	11.0	11.5
124.6	121.6	122.5	128.4	120.3	117.0	110.4	111.7	66.8	118.4	112.4	115.5
2.4	2.7	2.1	5.1	7.3	4.2	3.4	5.1	10.9	12.1	9.9	9.8
1.4	1.8	2.1	2.5	4.7	9.4	7.1	6.8	3.5#	3.3	2.2	2.2
9.6	10.3	14.1	12.0	20.9	24.9	24.9	21.3	19.2	8.3	9.8	5.8
18.5	19.5	14.7	15.8	17.5	18.6	28.3	24.5	13.5	22.9	24.7	24.0
28.1	29.8	28.8	27.7	38.4	43.5	53.3	45.8	32.7	31.2	34.5	29.8
238	231	223	219	211	200	191	170	169	133	110	94
448	441	448	470	479	497	504	470	157	571	700	789
..	..	..	8.88	9.09	9.56	10.10	10.32	10.54	12.03	14.40	16.20
2.83	2.79	2.86	2.95	2.94	3.02	3.06	3.03	2.61	3.40	4.09	4.46
10.21	10.13	10.28	10.56	10.92	11.54	11.94	12.23	10.26	13.54	16.90	19.16
2.21	2.19	2.24	2.31	2.32	2.40	2.44	2.43	2.08	2.72	3.29	3.62
242.0	240.5	234.9	232.5	229.8	218.5	207.6	191.5	175.4	154.6	125.4	104.4
20.2	28.7	20.5	25.8	10.0	7.4	5.7	2.6	2.3	2.9	1.9	1.6
21.7	31.4	27.4	25.1	18.3	19.4	15.9	23.9	12.0	35.8	32.7	20.3
−1.6	−2.8	−6.9	+0.8	−8.3	−12.0	−10.2	−21.3	−9.7	−32.9	−30.8	−18.7
42.8	41.1	40.6	39.6	39.4	39.1	38.7	37.9	37.9	36.8	34.7	34.0
38	48	72	31	39	34	44	22	12	27	15	9
0.07	0.09	0.13	0.06	0.07	0.07	0.09	0.05	0.09	0.07	0.05	0.03
0.98	1.00	0.93	0.87	1.16	1.69	1.69	1.82	1.43	1.94	3.09	2.74
1.1	0.8	1.5	0.9	1.5	1.1	3.6	13.1	67.2	1.0	1.0	4.5
76	84	102	119	140	156	166	160		194	219	229
5.1	6.0	6.5	7.9	9.9	10.9	11.8	11.5	..	12.6	12.6	12.8

British Coal Corporation

Output, productivity and manpower by Areas

(52 weeks)

		Scottish*	North East	North Yorkshire	South Yorkshire†
Number of operating collieries at end of March	**1987/8**	4	7	15	18
	1986/7	6	8	18	18
Saleable output, '000 tonnes	**1987/8**	2 603	10 255	14 619	11 611
	1986/7	3 442	10 229	14 797	12 549
Saleable tonnage lost as a result of disputes, '000 tonnes	**1987/8**	205	97	1 325	1 119
	1986/7	52	86	336	324
Output per manshift, tonnes					
Production	**1987/8**	10.95	17.16	22.57	15.12
	1986/7	10.76	14.35	18.41	15.58
Overall	**1987/8**	2.71	3.51	4.45	3.61
	1986/7	2.54	2.98	3.89	3.57
Major longwall faces (September normal week) Daily output per face, tonnes					
Advancing	**1987/8**	1 043	1 011	898	1 161
	1986/7	910	850	935	1 091
Retreating	**1987/8**	558	1 147	1 625	932
	1986/7	685	1 054	1 368	1 250
Total	**1987/8**	992	1 086	1 406	1 066
	1986/7	877	947	1 219	1 164
Number of face					
Advancing	**1987/8**	9	15	12	24
	1986/7	13	19	18	23
Retreating	**1987/8**	1	19	29	17
	1986/7	2	18	33	18
Total	**1987/8**	10	34	41	41
	1986/7	15	37	51	41
Wage earners on colliery books at year end, '000#					
Underground	**1987/8**	3.0	10.0	10.9	11.7
	1986/7	4.0	12.1	14.4	12.7
Surface	**1987/8**	0.5	1.8	2.3	2.3
	1986/7	0.6	2.3	3.4	2.7
Total #	**1987/8**	3.5	11.8	13.2	14.0
	1986/7	4.5	14.4	17.8	15.4
Total recruitment during year	**1987/8**	54	226	101	152
	1986/7	70	128	225	33
Total wastage during year	**1987/8**	1 095	1 452	4 552	1 991
	1986/7	3 245	3 594	2 586	2 659

*Output from Scottish, Western and South Wales Areas includes tip coal and all Areas include capital coal (coal excavated in roadway developments which form part of capital schemes).

†In 1987/8 High Moor Colliery formed part of the South Yorkshire Area whereas in 1986/7 this colliery formed part of Central Area.

#For 1986/7 includes 2 251 mineworkers leaving the industry on RMPS terms on March 28 1987.

Nottinghamshire	Central†	Western*	South* Wales	Kent	Great* Britain
17	10	11	11	1	94
22	13	11	14	2	110
17 648	10 587	9 702	5 027	348	82 399
18 114	11 724	10 122	6 479	496	87 953
686	381	508	179	5	4 505
42	63	3	133	4	1 044
14.84	15.28	21.95	11.11	10.59	16.20
12.52	13.77	19.81	11.18	11.32	14.39
3.89	3.81	3.58	2.30	1.93	3.62
3.45	3.34	3.36	2.47	1.82	3.29
1 040	1 207	1 346	743	1 708	1 048
990	1 104	1 079	682	207	995
1 546	785	1 531	974	519	1 276
1 214	750	1 755	747	703	1 247
1 084	1 106	1 453	776	114	1 127
1 002	1 049	1 390	689	526	1 044
64	25	10	24	0	184
76	36	15	32	1	233
6	8	15	4	2	100
4	6	13	5	2	101
70	33	25	28	2	284
80	42	28	37	3	334
14.1	9.1	9.2	6.0	0.5	74.6
17.4	11.7	10.2	8.0	0.7	91.1
2.5	1.9	1.5	1.5	0.2	14.4
3.2	2.2	1.9	2.3	0.2	18.9
16.6	11.0	10.7	7.5	0.7	89.0
20.6	14.0	12.1	10.2	0.9	109.9
643	301	104	85	14	1 579
556	355	304	259	0	1 905
4 473	2 485	1 371	2 655	180	20 254
6 190	4 848	3 265	3 500	578	30 451

Accounts 1987/8

British Coal Corporation and subsidiaries

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Report of the Auditors

to the Secretary of State for Energy

We have audited the accounts of British Coal Corporation set out on pages 25 to 57 in accordance with approved auditing standards. The accounts have been prepared under the historical cost convention.

As stated in note 13, the recoverability out of future earnings of the total value of net tangible fixed assets is dependent upon the future competitive situation of the industry.

Subject to the above, in our opinion:

(a) the accounts give a true and fair view of the state of affairs of the Corporation at March 26 1988 and, in respect of the Corporation and their subsidiaries regarded as a single undertaking, of the state of affairs at March 26 1988 and the results and source and application of funds for the year then ended, and comply with the direction of the Secretary of State for Energy set out on pages 65 and 66; and

(b) the supplementary current cost accounts set out on pages 58 to 64 have been properly prepared in accordance with the policies and methods described in note 2.

London
July 1 1988

Ernst & Whinney
Chartered Accountants

Accounting policies

I Authority and basis of accounting
The Corporation's financial statements are produced under the historical cost convention in accordance with Section 31 of the Coal Industry Nationalisation Act 1946 and Section 8 of the Coal Industry Act 1971 and with the direction on the form of the accounts made by the Secretary of State for Energy. Financial directions issued during or in respect of the year by the Secretary of State for Energy are summarised on page 65. The direction on the form of the accounts, issued on June 28 1988, is reproduced on pages 65 and 66. Supplementary current cost accounts are set out on pages 58 to 64.

The financial statements have been prepared on a going concern basis, having regard to assurances given by the Secretary of State that HM Government has agreed that, subject to Parliament approving any necessary provisions, adequate funds will continue to be made available to enable the Corporation to meet their financial obligations as they fall due during the financial year ending March 25 1989.

II Accounting period and comparative amounts
The financial statements for 1987/8 cover the 52-week period from Sunday March 29 1987 to Saturday March 26 1988. Comparisons are made with the 52 weeks ended March 28 1987.

III Consolidation
The consolidated profit and loss account, balance sheet and source and application of funds include the financial statements of the Corporation and all their subsidiaries with the exceptions, as agreed in advance with the Secretary of State and the Treasury, of the five companies listed in note 14 to the accounts. The accounts of subsidiaries are co-terminous with those of the Corporation, with the exception of Coal Developments (Queensland) Ltd, whose accounts are made up to December 31 in each year. Copies of the accounts of subsidiaries are deposited in the House of Commons library.

The Corporation's share of the results of the related companies and of the partnerships in which they participate has been brought into account in the consolidated profit and loss account, for the most part on the basis of unaudited draft or management accounts. In the consolidated balance sheet, the book amount of the investment in related companies and partnerships is adjusted to take account of the Corporation's share of post-acquisition retained profits, less losses, and reserves. For this purpose, a related company is one where the Corporation's interest is effectively that of a partner in a joint venture or consortium or where they hold at least 20% but not more than 50% of the equity capital and participate in commercial and financial policy.

An unconsolidated profit and loss account for the Corporation is not included in the accounts, by virtue of the dispensation available under Section 228(7) of the Companies Act 1985 in relation to group accounts.

IV Turnover
Turnover represents the amount, exclusive of VAT, arising from sales of goods and services (including rents and royalties) falling within the Corporation's ordinary activities. It is stated net of trade discounts (which are pooled centrally and allocated to individual Areas and Opencast Regions on the basis of their sales at list prices) and inclusive of free and concessionary fuel sales evaluated at discounted list prices.

Turnover shown for individual Areas or activities includes sales from one Corporation activity to another. The amount of these internal sales is shown in the Key Operating Statistics.

V Social costs, less grants
The direction on the form of the accounts defines social costs. These, and the associated grants, are excluded from the operating result and shown separately in the profit and loss account.

New legislation, which took effect from the beginning of 1987/8, redefined the costs qualifying for grant. In addition to expenditure incurred in connection with the redundancy, redeployment or early retirement of employees, social costs now include the retraining of redundant and incapacitated former employees and the promotion of alternative employment opportunities for those former employees and in mining areas generally. Expenditure on reducing or eliminating deficiencies in the Mineworkers' Pension Scheme continues to be included.

Social costs are charged in full to revenue in the year in which the liabilities arise; the associated grant receivable is credited to revenue on the same basis. No provision is normally raised for the future net cost of redundancies and concessionary fuel entitlements of eligible former employees.

Where the redundancy or redeployment of employees involve the Corporation in making payments to the pension schemes to secure increased benefits, these are made mainly on a ten-year annuity basis, as are the associated grants. The balance of the liability to the schemes under this arrangement is included in creditors and the balance of the grants receivable is included in debtors.

VI Research and development
Expenditure on research and development is charged to revenue in the year in which it is incurred. Capital expenditure on research establishment buildings, facilities and equipment is written off over their expected working lives. Expenditure on new mining equipment undergoing operational trials at collieries is written off as research and development expenditure if it is found not to be acceptable in use.

VII Exploration
The cost of boreholes and seismic surveys is capitalised as 'Mines and surface works' when they successfully prove new areas of workable coal reserves likely to result in a capital project within the next ten years (in which event, the expenditure is regarded as part of the cost of the eventual project, to be written off at the rate specified in Accounting Policies, item X). Otherwise, such expenditure is charged to revenue as it is incurred.

If, after initial capitalisation of the expenditure, it is decided in a subsequent year that no capital project will proceed, it is charged to revenue immediately.

Opencast mining exploration costs are charged to revenue as they are incurred.

VIII Pension and superannuation schemes
In accordance with the provisions of the schemes, the Corporation make contributions to the pension and superannuation schemes. Material deficiencies or surpluses arising from triennial valuations of the schemes are dealt with by changes in the level of contributions, or improvements in benefits, or both, as agreed between the Corporation and the Schemes' Committees of Management, having regard to the Actuary's recommendations.

The charge to revenue for pensions costs is in accordance with these agreements.

IX Exchange differences
The Corporation revalue, at the end of each financial year at the then current exchange rate, those currency borrowings and lendings which are not covered for exchange loss by Treasury guarantee. Any differences are taken to the profit and loss account.

Exchange differences arising from the retranslation of the Corporation's opening net investment in their overseas subsidiary at the closing rate of exchange are taken direct to reserves.

X Tangible fixed assets and depreciation
Fixed assets are stated in the balance sheets at cost, less provision for depreciation and amounts written off under the capital reconstructions of the Corporation provided for in the Coal Industry Acts 1965 and 1973. Depreciation is provided on a straight line basis, and is calculated on historical amounts after deduction of investment grants and regional development grants. Depreciation policy is as follows:

Type of asset	*Period of depreciation*
Freehold land	Not depreciated, unless used for dirt tips
Freehold buildings and leasehold properties	Estimated life of asset or activity, whichever is shorter, with a maximum of 50 years
Mines and surface works	Estimated life of activity or the coal reserves being exploited, with a maximum of 40 years
Plant, machinery and equipment	
The principal items included in this heading are:	
	Years
Surface plant	20
Plant in shaft pillar	15
Underground plant:	
Heavy duty supports *(1987: 8 years)*	10
Other items	8
Vehicles:	
Locomotives	15
Internal user railway wagons	8
Tractors, excavators, etc	8
Road vehicles	3-8
Main structure of coke ovens and manufactured fuel plants	25
Rebuildable portion of coke ovens	15

Depreciation on major projects is not charged until production commences or the assets are put to use. The charge for depreciation otherwise commences when capital expenditure is incurred.

The estimated lives of individual activities are reviewed from time to time and are amended when circumstances change.

Terminal depreciation is shown separately in the profit and loss account. It represents the additional charge to revenue required to write off the fixed assets of those collieries and other production units whose closure, other than on the grounds of exhaustion, is announced before the accounts are finalised. It also includes provision for the permanent diminution in value of shared facilities, where colliery closures or other factors have reduced potential utilisation.

XI Leasing transactions
All items acquired under finance lease arrangements (ie those which transfer substantially all the risks and rewards of ownership to the Corporation) are recorded as tangible fixed assets in the accounts. The outstanding capital obligations to the lessors are included in creditors, and the interest element in the rental obligations is charged as such in the profit and loss account.

Rentals in respect of all other leases are charged to revenue.

XII Interest charges capitalised
Interest on the capital cost of new mines, and of projects at existing mines involving new surface drifts or major underground drivages into new areas of coal not previously accessible, is deferred from charge to revenue account until revenue production commences from the new mine or new area of coal reserves. The interest to be capitalised is calculated, on a compound basis, at the average rate of interest applicable to new fixed interest long term borrowing by the Corporation in the year in which the relevant expenditure occurs. Depreciation of the capitalised interest is on a straight line basis over a period approximating to the average of the lives of the assets concerned.

XIII Stocks of raw materials and consumable stores
Stocks of raw materials are valued at the cost to the operating activity holding the stock prior to processing, after the elimination of inter-activity profits. Stocks of consumable stores are generally valued at standard prices which give a reasonable approximation to cost. Appropriate allowances are made for the condition of used or damaged stores and, in addition, a general provision is held to cover latent obsolescence and redundant stores.

XIV Stocks of finished goods and goods for resale
These are valued at the lower of (a) coalfield cost at the time of production or the cost of purchase and (b) net realisable value at the date of the balance sheet. For this purpose, coalfield cost is calculated on the weighted average cost of deep-mined and opencast production in each coalfield. To arrive at net realisable value,

undistributed stocks of coal, coke and manufactured fuels are valued at current net selling price less specific provisions for loss of weight, degradation in size and quality and the cost of lifting and marketing.

XV Bank balances

Under central clearing arrangements, bank balances are transferred daily to the Bank of England. Balances awaiting such clearance, unpresented cheques and wages drawings are included in the accounts in creditors, and lodgements in transit are included in debtors.

XVI Provisions for liabilities and charges

Surface damage

Provision is made in the accounts as coal is mined to cover the Corporation's estimated latent liability to meet the cost of surface damage expected to arise. The provision is estimated on current experience in the submission and settlement of claims and on current price levels, on the basis that all claims will be received within a period of years after mining has taken place. This period varies according to the current experience of each mining Area. Any claims received thereafter are charged direct to costs as they are admitted.

Expenditure on work carried out in advance of mining to avoid or reduce the eventual cost of meeting surface damage is normally charged to costs as it is incurred.

The estimated cost of settling admitted claims is included in creditors.

Restoration

Provision is made, over the lives of the units concerned and at current price levels, for liabilities for dilapidations under leases, for the filling and capping of shafts at closed colliery sites, for the restoration of colliery tips under planning consents or for safety purposes and for the restoration of opencast sites.

Insurance

The Corporation carry virtually all of their insurance risks themselves. Premiums are charged to the operating activities and wholly-owned subsidiaries and are credited to an Insurance Account. The cost of settling admitted claims is charged to this account.

The estimated cost of claims awaiting settlement at the year-end is included in creditors. The balance of the account, which is included in provisions, represents the amount available at the year-end for claims not yet submitted. The future level of certain types of claims not submitted at the year-end is very difficult to assess. If more claims are submitted after the year-end than anticipated and the balance of the Insurance Account proves insufficient, future premiums would be increased and any remaining balance would be covered by a transfer of an appropriate amount from the general reserve to profit and loss account.

Deferred taxation

Deferred taxation is not provided, as no liability is anticipated within the foreseeable future.

Key operating statistics

	Operating profits/(losses)[1]	
	1988 £m	1987 £m
Mining activities		
Coal mining–collieries	(112)	41
–opencast	252	244
Other activities	12	26
Total–mining activities	152	311
Non-mining activities		
Coal Products Group		
Manufacture of coke and smokeless fuel	—	—
Chemicals and secondary by-products	1	—
Related companies[5]	1	1
	2	1
Other subsidiary and related companies (excluding British Coal Enterprise Ltd)		
Distribution of solid fuel	14	12
Engineering	(3)	(2)
Computer services	1	3
Related companies and partnerships[5]	—	—
	12	13
Total–non-mining activities	14	14
Total	166	325
Add: Profits from sales of fixed assets	50	52
British Coal Enterprise Ltd[6]	—	(8)
Deduct: Sales between activities		
All activities	216	369

Notes:

1 See notes 3 and 4 to Schedule 1.

2 Capital employed in each wholly-owned activity comprises its fixed and net current assets, exclusive of inter-activity indebtedness. 'Average capital employed' is the mean of the values as at the end of the previous and current years.

3 'Return on average capital employed' and 'margin on turnover' are calculated by reference to operating profits.

4 See Accounting Policies, item IV.

5 Operating profits/(losses) from related companies and partnerships represent the Corporation's share of the profits/(losses) of those enterprises. 'Capital employed' means the Corporation's investment in the enterprises.

6 As from 1987/8, net revenue costs incurred by British Coal Enterprise Ltd are included in exceptional restructuring costs in the consolidated profit and loss account (see Accounting Policies, item V).

Average capital employed[2]		Return on average capital employed[3]		Turnover[4]		Margin on turnover[3]	
1988 £m	1987 £m	**1988** %	1987 %	**1988** £m	1987 £m	**1988** %	1987 %
5,089	5,106	—	0·8	3,404	3,524	—	1·2
187	205	135·1	118·9	702	609	36·0	40·1
63	59	19·2	44·4	227	226	5·3	11·6
5,339	5,370	2·9	5·8	4,333	4,359	3·5	7·2
101	112	—	—	180	225	—	—
9	9	4·3	0·8	18	20	2·0	0·3
8	7	15·7	14·1	—	—	—	—
118	128	1·4	0·4	198	245	0·8	0·3
17	20	81·7	64·1	188	208	7·4	6·0
—	1	—	—	9	9	—	—
1	4	68·0	76·1	7	15	10·4	22·0
32	45	0·5	—	—	—	—	—
50	70	23·0	16·9	204	232	5·7	5·0
168	198	7·9	6·2	402	477	3·3	2·6
5,507	5,568	3·0	5·8	4,735	4,836	3·5	6·7
14	5						
				(347)	(321)		
5,521	5,573	3·9	6·6	4,388	4,515	4·9	8·2

Consolidated profit and loss account for the year ended March 26 1988

	Note	1988	£ million 1987
Turnover	1	4,388	4,515
Operating costs (net)	2	(4,173)	(4,147)
Income from related companies and partnerships	5	1	1
Operating profit		**216**	**369**
Interest charges	6	(368)	(386)
(Loss) on ordinary activities after interest but before exceptional restructuring costs		**(152)**	**(17)**
Exceptional restructuring costs:	7		
Social costs, less restructuring grants		(146)	(197)
Terminal depreciation		(241)	(62)
(Loss) on ordinary activities before taxation		(539)	(276)
Taxation-ordinary activities		(1)	—
(Loss) after taxation–ordinary activities		(540)	(276)
Extraordinary items		—	(12)
(Loss) for the year	8	**(540)**	**(288)**
Government deficit grant	9	200	288
(Deficit) carried to reserves	20	**(340)**	—

Consolidated balance sheet as at March 26 1988

	Note		1988		£ million 1987
Assets employed					
Fixed assets					
Tangible assets	13		4,170		4,184
Investments	14		33		45
			4,203		4,229
Current assets					
Stocks	15	495		640	
Debtors	16	1,779		1,856	
Cash at bank and in hand		3		8	
		2,277		2,504	
Creditors–amounts falling due within one year	17	(1,165)		(1,006)	
Net current assets			1,112		1,498
Total assets less current liabilities			5,315		5,727
Financed by					
Creditors–amounts falling due after more than one year	17		1,027		1,101
Provisions for liabilities and charges	18		676		689
			1,703		1,790
Loan capital and reserves					
Loans under the Coal Industry Acts	19	3,988		3,973	
General reserve	20	98		98	
Profit and loss account	20	(474)	3,612	(134)	3,937
Total finance employed			5,315		5,727

R Haslam
Chairman

M H Butler
Finance Director

R Warner
Head of Finance

Balance sheet as at March 26 1988

	Note	1988		£ million 1987	
Assets employed					
Fixed assets					
Tangible assets	13		4,116		4,130
Investments	14				
Subsidiary companies		104		108	
Related companies and partnerships		18	122	—	108
			4,238		4,238
Current assets					
Stocks	15	430		586	
Debtors	16	1,795		1,848	
Cash at bank and in hand		3		2	
		2,228		2,436	
Creditors–amounts falling due within one year	17	(1,256)		(1,099)	
Net current assets			972		1,337
Total assets less current liabilities			5,210		5,575
Financed by					
Creditors–amounts falling due after more than one year	17		1,019		1,089
Provisions for liabilities and charges	18		670		681
			1,689		1,770
Loan capital and reserves					
Loans under the Coal Industry Acts	19	3,938		3,898	
General reserve	20	99		99	
Profit and loss account	20	(516)	3,521	(192)	3,805
Total finance employed			5,210		5,575

R Haslam
Chairman

M H Butler
Finance Director

R Warner
Head of Finance

Summary of source and application of funds for the year ended March 26 1988

		1988		£ million 1987
Source of funds				
Government grants:				
Deficit grant		200		288
Social and restructuring grants		477		594
		677		882
Decrease/(increase) in net current assets:				
Stocks	145		(21)	
Debtors	77		(122)	
Creditors falling due within one year	159		14	
Cash and bank balances	5	386	(5)	(134)
		1,063		748
Net loan borrowings/(repayments) under the Coal Industry Acts				
Funded:				
National Loans Fund	22		(131)	
Other	(114)		(13)	
	(92)		(144)	
Temporary:				
National Loans Fund	132		249	
Other	(25)	15	—	105
Net funds available		1,078		853
Application of funds				
Deficit before Government grants		1,017		882
Depreciation	(646)		(454)	
Sale of assets at book amount	(15)	(661)	(12)	(466)
		356		416
Additions to tangible fixed assets		647		650
Investment in related companies and partnerships		(12)		(10)
Creditors falling due after more than one year		74		(327)
Provisions for liabilities and charges		13		124
Net funds applied		1,078		853

Notes to the accounts

Profit and loss account

1 Turnover

	1988 £m	1987 £m
Home market	4,325	4,449
Europe–EEC	52	59
Europe–other	10	7
Other	1	—
	63	66
	4,388	4,515

An analysis of turnover by activities is included in the Key Operating Statistics on page 28.

Turnover includes:

	1988 £m	1987 £m
Rents receivable	17	24
Royalties receivable	16	21

2 Operating costs (net)

	£m	1988 £m	£m	1987 £m
Raw materials, consumable stores and goods for resale		857		913
Other external charges (note 3)		1,155		1,000
Employee costs (note 4)		1,825		2,100
Depreciation*		405		392
		4,242		4,405
Decrease/(increase) in stocks of finished goods	124		(30)	
Own work capitalised	(68)		(84)	
Other operating income	(67)		(83)	
Profits on sales of fixed assets	(50)		(52)	
ECSC and EEC research grants	(8)	(69)	(9)	(258)
		4,173		4,147

*£21m of the 1988 depreciation charge (1987 £21m) relates to assets held under finance leases

Operating costs (net) include an exceptional credit of £59m, representing an adjustment to surface damage provisions raised in prior years. Corresponding credits in 1986/7 totalled £108m, and related to surface damage (£58m), pensions (£32m) and plant and machinery overhaul (£18m).

No charge for employer's contributions to the superannuation scheme arose in the year (1987 £51m) (see note 10).

The charge shown for depreciation excludes terminal depreciation which, together with social costs, less grants, is excluded from the operating result and shown as exceptional restructuring costs in the profit and loss account (Accounting Policies, items V and X).

3 Other external charges

Other external charges include:

	1988 £m	1987 £m
Charges in respect of past employees*	42	40
ECSC levy	13	14
Surface damage (note 2)	(6)	11
Rates	45	30
Operating lease rentals		
–plant, machinery and equipment	20	35
–other items	6	5
	£'000	£'000
Audit fees and expenses	455	450
Charitable donations	48	25
Political donations	—	—

*A further £585m (1987 £761m) of past employee costs has been charged to social costs (note 7)

4 Employee costs

	1988 £m	1987 £m
Wages and salaries	1,652	1,884
Social security costs	115	129
Other pension costs (note 2)	58	87
	1,825	2,100

A further £19m (1987 £2m) of employee costs has been charged to social costs (note 7).

The average number of employees of the Corporation and their subsidiaries was :

	1988	1987
Industrial employees	118,200	142,500
Non-industrial employees	17,700	20,300
	135,900	162,800

The Corporation employed the following numbers of employees at remuneration (excluding pension scheme contributions) in excess of £30,000 per annum:

	1988	1987
£30,001 to £35,000	244	210
£35,001 to £40,000	74	50
£40,001 to £45,000	30	13
£45,001 to £50,000	14	10
£50,001 to £55,000	10	2
£55,001 to £60,000	6	4
£60,001 to £65,000	1	2
£65,001 to £70,000	2	1

5 Income from related companies and partnerships

	1988 £m	1987 £m
Dividends and interest receivable	2	—
Share of partnership and joint venture (losses)/profits	(2)*	2
Share of undistributed profits/(losses) of related companies	1	(1)
	1	1

*Loss on Australian joint venture

6 Interest charges

	£m	1988 £m	£m	1987 £m
Interest payable:				
To Secretary of State for Energy				
–on loans repayable in less than five years		120		99
–on loans repayable in five years or more		227		255
		347		354
To banks and other lenders				
–on loans repayable in less than five years	70		72	
–on loans repayable in five years or more	7		20	
Under finance leases	4		3	
On deferred payments to pension schemes (Accounting Policies, item V)	120		84	
Exchange (profit)	(1)		—	
Other	9	209	4	183
		556		537
Deduct interest (receivable):				
On deferred grant receipts (Accounting Policies, item V)	(104)		(72)	
Other	(16)	(120)	(11)	(83)
		436		454
Interest charges capitalised in year		(68)		(68)
Total interest charges (net)		368		386

Interest payable on Coal Industry Acts loans (as defined in note 19) totalled £424m (1987 £446m), before the deduction of the £68m (1987 £68m) interest charges capitalised.

7 Exceptional restructuring costs

Social costs, less grants

	£m	1988 £m	£m	1987 £m
Social costs				
Charges in respect of				
–current employees		19		2
–past employees		585		761
Other expenses		28		35
		632*		798
Less:				
Government social and restructuring grants	477		594	
ECSC readaptation grants	9	486	7	601
		146		197

*Includes British Coal Enterprise Ltd's 1987/8 deficit of £15m

Terminal depreciation

The charge for the year of £241m (1987 £62m) includes £72m provision for the permanent diminution in value of shared facilities (see Accounting Policies, item X).

8 (Loss) for the year

	1988 £m	1987 £m
British Coal Corporation	(524)	(289)
Subsidiary companies	(17)	1
Related companies and partnerships	1	—
	(540)	(288)

These amounts are stated after inter-company dividends and group relief, but before deficit grant is credited.

9 Government grants

Government grants are subject to the approval of the ECSC and take the form of social and restructuring grants and a deficit grant:

	1988 £m	1987 £m
Social and restructuring grants (note 7)		
Contribution towards increased pensions (note 10)	42	63
In respect of other social costs	435	531
	477	594
Deficit grant	200	288
	677	882

Social and restructuring grants

Under the Coal Industry Acts, the Secretary of State may, with the consent of the Treasury, make grants to the Corporation towards meeting social costs, as defined in Accounting Policies, item V.

In accordance with the Coal Industry Act 1967, the cost in the year of the Redundant Mineworkers' Payments Schemes, £290m (1987 £611m), which applies to persons who became redundant prior to 1987/8, was borne directly by Government and is not included in the Corporation's financial statements.

Deficit grant

The deficit grant is payable, at the discretion of the Secretary of State, under Section 1 of the Coal Industry Act 1987. The maximum deficit grant payable under this Act is £200m; accordingly, £340m of the Corporation's 1987/8 deficit is carried to reserves.

Reconciliation of grants credited in the profit and loss account with cash received

Amounts received in cash from the Secretary of State in 1987/8 in respect of social, restructuring and deficit grants were, respectively, £502m and £414m. These amounts are reconciled with those shown in the preceding table as follows:

	Social and restructuring grants £m	Deficit grant £m	Total £m
Cash received during the year	502	414	916
Less: Interest element included in these amounts	(71)	—	(71)
	431	414	845
Less: Amounts relating to earlier years	(120)	(214)	(334)
Add: 1987/8 amounts outstanding at year-end	166	—	166
Grant income credited to profit and loss account	477	200	677

10 Contributions to pension and superannuation schemes

Mineworkers' Pension Scheme

The Mineworkers' Pension Scheme was changed to an earnings related basis as from April 1975, with a substantial improvement in the level of members' benefits. As well as their standard contributions, payable at 5¼% of pensionable earnings, the Corporation make additional contributions in accordance with the Government Actuary's recommendations. The Secretary of State may, at his discretion and with Parliamentary approval, reimburse to the Corporation the additional contributions payable in respect of those who left the industry before April 6 1975.

	1988 £m	1987 £m
Additional contributions in respect of those leaving before April 6 1975	42	63
Less: Reimbursed by Government	42	63
	—	—
Additional contributions in respect of those leaving on or after April 6 1975	—	5
Net additional contributions by the Corporation	—	5

The eighth triennial valuation, as at September 1984, disclosed a reduced deficit which has enabled the additional contributions to be reduced from £68m to £42m, payable in each of the eight years from April 1 1987. The ninth valuation is awaiting finalisation.

Staff Superannuation Scheme

The tenth valuation, as at April 1986, disclosed a surplus. This has been applied in part to improving benefit entitlements and in part to relieving the Corporation of the standard contributions which they would have otherwise paid in the five-year period from April 1987 to March 1992. Contributions relieved in 1987/8 were approximately £45m.

11 Research and development

Total expenditure on research and development charged to revenue amounted to £45m (1987 £48m). During 1987/8, £8m (1987 £9m) was received from ECSC and EEC in grants towards the cost of research projects being carried out by the Corporation.

12 Exploration expenditure

Exploration expenditure at new mines and on proving new seams at existing mines during the year amounted to £1m (1987 £6m), all of which has been treated as additions to fixed assets (1987 £5m). The cumulative amount of such expenditure which had not been written off to revenue nor transferred to colliery projects at March 26 1988 (see Accounting Policies, item VII) was £40m (1987 £46m).

Balance sheet

13 Tangible fixed assets

Uncertainty exists concerning the recoverability out of future earnings of the book amount of collieries and other production units. The book amounts included in the balance sheets are predicated on there being no material deterioration in the competitive situation of the industry.

The Corporation's land and non-specialised buildings are regularly valued by their own professionally qualified Estates staff for the purpose of the current cost accounts. These valuations have confirmed that the market value of the assets is in excess of the book amount.

Analysis of tangible fixed assets by type of asset

	British Coal Corporation and subsidiaries				British Coal Corporation	
	Balance at March 28 1987 £m	Additions £m	Disposals and transfers £m	Balance at March 26 **1988** £m	At March 28 1987 £m	At March 26 **1988** £m
GROSS BOOK AMOUNT (see Accounting Policies, item X)						
Freehold land	107	3	(1)	109	106	108
Freehold buildings	111	2	(10)	103	105	98
Leasehold property–long leased	1	—	—	1	1	1
–short leased	7	—	—	7	6	6
Mines and surface works	1,612	168	275	2,055	1,601	2,043
Plant, machinery and equipment	3,544	267	(278)	3,533	3,437	3,431
Assets in course of construction	779	139	(540)	378	778	375
Interest charges capitalised	408	68	(1)	475	408	475
	6,569	647	(555)	6,661	6,442	6,537
PROVISION FOR DEPRECIATION						
Freehold land	3	—	—	3	3	4
Freehold buildings	42	4	(6)	40	38	37
Leasehold property–long leased	—	—	—	—	—	—
–short leased	4	1	(1)	4	3	3
Mines and surface works	407	217	(153)	471	401	465
Plant, machinery and equipment	1,905	413	(379)	1,939	1,843	1,878
Assets in course of construction	—	—	—	—	—	—
Interest charges capitalised	24	11	(1)	34	24	34
	2,385	646	(540)	2,491	2,312	2,421
NET BOOK AMOUNT						
Freehold land	104	3	(1)	106	103	104
Freehold buildings	69	(2)	(4)	63	67	61
Leasehold property–long leased	1	—	—	1	1	1
–short leased	3	(1)	1	3	3	3
Mines and surface works	1,205	(49)	428	1,584	1,200	1,578
Plant, machinery and equipment	1,639	(146)	101	1,594	1,594	1,553
Assets in course of construction	779	139	(540)	378	778	375
Interest charges capitalised	384	57	—	441	384	441
	4,184	1	(15)	4,170	4,130	4,116

*The net book amount of tangible fixed assets includes £62m (1987 £86m) relating to assets held under finance leases by the Corporation and their subsidiaries, of which £58m (1987 £83m) relates to assets held by the Corporation

Analysis of tangible fixed assets by activities

	Balance at March 28 1987 £m	Additions £m	Disposals and transfers £m	Balance at March 26 **1988** £m
GROSS BOOK AMOUNT				
(see Accounting Policies, item X)				
Collieries, etc				
Scottish	212	18	(69)	161
North East	399	22	(22)	399
North Yorkshire	2,190	239	(131)	2,298
South Yorkshire	734	74	(29)	779
Nottinghamshire	976	123	(64)	1,035
Central	644	71	(152)	563
Western	596	50	(18)	628
South Wales	346	25	(42)	329
Kent	34	1	(13)	22
Opencast mining	183	7	6	196
Miscellaneous activities and central services	128	10	(11)	127
Total–British Coal Corporation	6,442	640	(545)	6,537
Subsidiary companies	127	7	(10)	124
Total–British Coal Corporation and subsidiaries	6,569	647	(555)	6,661
PROVISION FOR DEPRECIATION				
Collieries, etc				
Scottish	104	32	(61)	75
North East	207	28	(21)	214
North Yorkshire	411	234	(132)	513
South Yorkshire	299	67	(42)	324
Nottinghamshire	460	101	(127)	434
Central	269	70	(67)	272
Western	255	44	(19)	280
South Wales	167	42	(42)	167
Kent	20	6	(12)	14
Opencast mining	64	6	(2)	68
Miscellaneous activities and central services	56	9	(5)	60
Total–British Coal Corporation	2,312	639	(530)	2,421
Subsidiary companies	73	7	(10)	70
Total–British Coal Corporation and subsidiaries	2,385	646	(540)	2,491
NET BOOK AMOUNT				
British Coal Corporation	4,130	1	(15)	4,116
Subsidiary companies	54	—	—	54
Total–British Coal Corporation and subsidiaries	4,184	1	(15)	4,170

14 Investments

Investments in subsidiary companies

	British Coal Corporation	
	1988	1987
	£m	£m
Shares, at cost*	107	131
Loans, at cost	3	3
	110	134
Amounts written off	(6)	(26)
	104	108

*The reduction in shares at cost arises mainly from the cancellation, sanctioned by the court, of Coal Products Ltd's £23m issued preference shares. This completed the financial reconstruction which had been partly implemented by March 1987.

In the Corporation's opinion, the value of the investments in subsidiaries is not less than the book amount.

Details of the consolidated subsidiaries, excluding those which are inactive, are shown below. All are unlisted, registered in England and, except where indicated, wholly-owned.

PRINCIPAL SUBSIDIARIES	*Main activity*
Coal Products Ltd	Holding company
National Smokeless Fuels Ltd†	Manufacture of smokeless fuels
Thomas Ness Ltd†	Manufacture of chemicals, by-products, etc
National Fuel Distributors Ltd	Solid fuel distribution
British Coal Enterprise Ltd	Investment financing
OTHER SUBSIDIARIES	
CIN Management Ltd and subsidiaries	Pension fund management
Coal Developments (Queensland) Ltd* (89%)	Coking coal joint venture in Australia
Compower Ltd	Computer services
EMS Thermplant Ltd	Boiler design and installation
SFAS (Services) Ltd (51%)	Trade promotion

*The accounts of this company are audited by a firm other than Ernst & Whinney. The interests marked † are held by wholly-owned subsidiaries.

Excluded from the consolidated accounts, with the advance agreement of the Secretary of State and the Treasury (Accounting Policies, item III), are the accounts of (a) British Coal Utilisation Research Association Ltd and British Coal International Ltd, both of which are prohibited by their Articles of Association from distributing any revenue surplus, (b) IEA Coal Research Ltd (formerly NCB (IEA Services) Ltd), which manages research projects on behalf of the International Energy Agency and whose costs are recoverable by contributions from the members of that agency and (c) British Coal Staff Superannuation Scheme Trustees Ltd and Mineworkers' Pension Scheme Trustees Ltd, which have been established to act as trustees for the two schemes; the Mineworkers' Scheme company is not yet operational.

Investments in related companies and partnerships

	British Coal Corporation and subsidiaries			
	Related companies		Partnerships and joint	
	Shares	Loans	venture	Total
	£m	£m	£m	£m
At cost – March 28 1987	2	5	43	50
Movements in year:				
Additions/(reductions)	15	—	(27)	(12)
Retranslation adjustment	—	—	(2)	(2)
At cost – March 26 1988	17	5	14	36
Add: Share of attributable profits less (losses) (note 20)	4	—	—	4
	21*	5	14	40
Provisions – March 28 1987	(1)	—	(7)	(8)
Released in year	1	—	—	1
Provisions – March 26 1988	—	—	(7)	(7)
Net book amount:				
At March 26 1988	21	5	7†	33
At March 28 1987	4	5	36	45

*Includes the Corporation's direct interests of £18m (1987 Nil)
†Comprises the Corporation's interest in the Australian joint venture

In the Corporation's opinion, the value of the investments in related companies is not less than the book amount.

Details of the interests in related companies and partnerships, other than those which are inactive, are shown below. All the companies are unlisted and, except where indicated, registered in England.

	Percentage interest	*Main activity*
INTERESTS HELD BY COAL PRODUCTS LTD		
Staveley Chemicals Ltd	45%	Manufacture of chemicals
Pitch Polymer Products Ltd	50%	Leasing of factory premises and plant to Thomas Ness Ltd
Hyload Inc (registered in USA)	50%	Manufacture and sale of 'Hyload'
Aveley Methane Ltd*	50%	Exploitation of gas from landfill sites
Bidston Methane Ltd*	50%	
INTEREST HELD BY COAL DEVELOPMENTS (QUEENSLAND) LTD		
Capricorn Coal Development Joint Venture	12%	See under 'subsidiaries' above
INTERESTS HELD BY BRITISH COAL CORPORATION		
British Fuels Ltd	20%	Solid fuel distribution
British Mining Consultants Ltd	50%	Mining and engineering consultancy services
Gwent Coal Distribution Centre (partnership)	20%	Solid fuel distribution

*With the exception of these two companies, the accounts of the related companies and partnerships are audited by firms other than Ernst & Whinney.

15 Stocks

	British Coal Corporation and subsidiaries		British Coal Corporation	
	1988	1987	**1988**	1987
	£m	£m	£m	£m
Raw materials and consumable stores	248	266	233	251
Work in progress	—	1	—	—
Finished goods and goods for resale	247	373	197	335
	495	640	430	586
Excess of replacement cost of stocks over their book amount at the balance sheet date	*11*	*10*	*11*	*7*

Raw materials include £10m (0.2m tonnes) of coal stocks held for further processing (1987 £9m, 0.2m tonnes).

Finished goods and goods for resale comprise:

	British Coal Corporation and subsidiaries			
	1988		1987	
	million tonnes	£m	million tonnes	£m
Coal				
Ground stocks	4.8	164	9.1	308
Wagon stocks	0.5	19	0.5	21
Distributed stocks	0.5	21	0.2	10
	5.8	204	9.8	339
Coke and processed fuel	0.6	38	0.6	30
Other stocks		5		4
		247		373

16 Debtors

	British Coal Corporation and subsidiaries		British Coal Corporation	
	1988	1987	**1988**	1987
	£m	£m	£m	£m
Amounts falling due within one year				
Trade debtors	425	406	396	376
Amounts owed by subsidiary companies	—	—	73	31
Government grants	397	501	397	501
Loans to employees, officers and Members of the Corporation	16	16	16	15
Other debtors	95	79	82	68
Prepayments and accrued income	7	9	6	9
	940	1,011	970	1,000
Amounts not falling due within one year				
Amounts owed by related companies	9	—	9	—
Amounts owed by subsidiary companies	—	—	2	15
Government grants	720	751	720	751
Loans to employees, officers and Members of the Corporation	54	52	53	51
Other debtors	56	42	41	31
	839	845	825	848
Total debtors	1,779	1,856	1,795	1,848

Government grants due more than one year after the balance sheet date relate to restructuring grants for the increased benefits to employees made redundant after March 11 1981. Such grants are receivable under annuity arrangements (see Accounting Policies, item V).

The loans to employees, officers and Members of the Corporation relate to the purchase of houses, cars to be used on Corporation business and solid fuel domestic appliances. They carry interest and are repayable over fixed periods.

Details of loans to Members and officers of the Corporation are given in note 23.

17 Creditors

	British Coal Corporation and subsidiaries		British Coal Corporation	
	1988 £m	1987 £m	**1988** £m	1987 £m
Amounts falling due within one year				
Bank loans and overdrafts	7	4	4	—
Trade creditors	468	483	449	459
Amounts owed to subsidiary companies	3	3	131	129
Taxation and social security	47	60	47	60
Obligations under finance leases	14	21	14	21
Other creditors	504	305	493	304
Accruals and deferred income	122	130	118	126
	1,165	1,006	1,256	1,099
Amounts not falling due within one year				
Bank loans	7	11	—	—
Trade creditors	21	25	21	25
Obligations under finance leases	47	57	46	57
Other creditors	952	1,008	952	1,007
	1,027	1,101	1,019	1,089
Total creditors	2,192	2,107	2,275	2,188

The bank loans relate to a partly-owned subsidiary.

Payment analysis of creditors

	British Coal Corporation and subsidiaries				
	Payable wholly before March 26 1993 £m	Payable in part after March 26 1993: Before that date £m	Payable in part after March 26 1993: After that date £m	Payable wholly after March 26 1993 £m	Total £m
Bank loans and overdrafts	14	—	—	—	14
Trade creditors	485	—	—	4	489
Amounts owed to subsidiaries	3	—	—	—	3
Taxation and social security	47	—	—	—	47
Obligations under finance leases	29	20	12	—	61
Other creditors	589	548	318	1	1,456
Accruals and deferred income	122	—	—	—	122
	1,289	568	330	5	2,192
March 28 1987	1,106	449	547	5	2,107

The amounts listed above under other creditors as payable in part before, and in part after, March 1993 consist mainly of payments due to pension schemes under annuity arrangements (see Accounting Policies, item V) and to retention monies held by the Corporation, interest free, against satisfactory completion of contracts.

18 Provisions for liabilities and charges

	Balance at March 28 1987 £m	Transfers from/(to) profit and loss account in year £m	Amounts applied in year £m	Balance at March 26 **1988** £m
British Coal Corporation				
Pensions and similar obligations	52	4	(28)	28
Surface damage (note 2)	297	(6)	(31)	260
Site restoration, etc	251	35	(24)	262
Insurance	32	85	(35)	82
Miscellaneous	49	10	(21)	38
	681	128	(139)	670
Subsidiaries				
Pensions and similar obligations	8	1	(3)	6
	689	129	(142)	676

Pensions and similar obligations
Provisions made for pensions and similar obligations include £778,000 (1987 £713,000) in respect of those past Corporation Members who were not formerly employees, and who were therefore not covered by the Staff Superannuation Scheme.

Commitments for which provision had not been made at March 26 1988 consisted of (a) the future additional contributions to pension schemes (note 10) and (b) the future cost of providing concessionary fuel to eligible former employees and their beneficiaries. This is charged to revenue as the fuel is produced and supplied; the associated grant is credited to revenue on the same basis. The future net cost to the Corporation is dependent on the level of Government grants.

Surface damage
The Corporation have substantial latent liabilities in respect of surface damage caused by mining up to the balance sheet date. Whilst the amount of such liabilities is not capable of precise assessment, the provision at the balance sheet date is based on estimates of the latent liability as calculated by the Corporation's technical staff from information then available.

Insurance
The Corporation carry virtually all of their insurance risks themselves. The balance on the Insurance Account represents the amount available for claims not yet submitted. There are difficulties in assessing the level of certain types of claims still to be submitted (see Accounting Policies, item XVI).

Taxation
There is no potential liability for deferred tax at the balance sheet date and therefore no provision is required. In view of unrelieved tax losses and capital expenditure, etc, amounting in aggregate to approximately £2,000m (1987 £1,700m), there is unlikely to be a corporation tax liability in the foreseeable future.

Contingent and other liabilities
The Corporation have provided guarantees totalling £12m (1987 £67m) in respect of their share of bank borrowings and other liabilities of a subsidiary. In addition the Corporation have agreed to reimburse British Coal Enterprise Ltd's revenue losses.

The Corporation are subject to various claims and legal actions in the ordinary course of business, for which provision is made in the accounts, where appropriate, on the basis of the information currently available. It is not expected that the outcome of these issues will materially affect the Corporation's financial position.

No provision has been made in these accounts for possible future losses on long-term contracts because, having regard to the different sources from which supply obligations may be met and their varying costs of production, it is not practicable to quantify the amounts involved. Any such losses are accordingly charged in the year in which the coal is identified to the contract.

Future capital expenditure

	British Coal Corporation and subsidiaries		British Coal Corporation	
	1988	1987	**1988**	1987
	£m	£m	£m	£m
Commitments in respect of contracts placed	146	156	143	153
Capital expenditure authorised but not committed	216	252	215	250
	362	408	358	403

Operating leases

At March 26 1988, the Corporation and their wholly-owned subsidiaries were committed under operating leases to make the following payments in 1988/9:

	Land and buildings £m	Other items £m	Total £m
Commitments expiring:			
In 1988/9	—	1	1
In 1989/90–1992/3	1	3	4
Thereafter	4	—	4
	5	4	9
March 28 1987	4	3	7

19 Loans under the Coal Industry Acts (Schedule 4)

Loans under the Coal Industry Acts comprise the external borrowings of the Corporation and their wholly-owned subsidiaries and, in accordance with the Secretary of State's direction, are excluded from creditors and shown separately in the balance sheets.

	British Coal Corporation and subsidiaries		British Coal Corporation	
	1988	1987	**1988**	1987
	£m	£m	£m	£m
Loans from the Secretary of State for Energy:				
Funded loans	2,320	2,298	2,320	2,298
Temporary advances	980	848	980	848
	3,300	3,146	3,300	3,146
Other loans–from banks	135	175	85	100
–other	553	652	553	652
	3,988	3,973	3,938	3,898
Repayment analysis				
Amounts falling due:				
Within one year	1,511	1,364	1,511	1,349
Between one and two years	369	451	319	391
Between two and five years	1,269	979	1,269	979
Subsequently	839	1,179	839	1,179
	3,988	3,973	3,938	3,898

The Coal Industry Act 1965, as amended, provides that the aggregate of the sums borrowed by the Corporation and their wholly-owned subsidiaries (otherwise than from the Corporation or another subsidiary) shall not exceed £5,500m but that the Secretary of State may, by Order made by statutory instrument and with the approval of the Treasury, increase that limit to £6,000m.

In accordance with directions issued from time to time by the Secretary of State, the sums borrowed temporarily by the Corporation under Section 1(1) and 1(2A) of the Coal Industry Act 1965 shall not exceed prescribed limits. The limit at March 26 1988 was £1,000m, and is included within the £5,500m aggregate limit referred to above.

The Corporation are empowered under the 1965 Act to borrow in foreign currencies, subject to the approval of the Treasury. The weighted average rate of interest on all foreign loans was 9.9%. These loans are guaranteed by the Treasury against any exchange loss which may be incurred.

20 Reserves

	March 28 1987 £m	Movements in 1987/8 £m	March 26 **1988** £m
British Coal Corporation and subsidiaries			
General reserve	98	—	98
Profit and loss account:			
British Coal Corporation	(192)	(324)	(516)
Subsidiary companies	55	(17)	38
Related companies	3	1	4
	(36)	(340)	(376)
British Coal Corporation			
General reserve	99	—	99
Profit and loss account	(192)	(324)	(516)
	(93)	(324)	(417)

Other disclosures

21 Performance against financial targets

External financing requirement

The summary of source and application of funds set out on page 33 shows that net borrowings and Government grant income totalled £692m. The following table gives a reconciliation between that figure and the external financing requirement:

	£m	£m
Borrowings and grants, per source and application of funds statement		692
Effect of including grants in the funds statement on an accruals basis	168	
Lease finance and other adjustments	58	226
External financing requirement		918

The £918m requirement was within the revised external financing limit of £920m agreed with Government. The limit was initially agreed at £727m, but was subsequently raised to the higher figure when it became evident that, although significant reductions in operating costs would be realised during the year, these would be substantially outweighed by the combined effects of increasing competitive pressure on prices, and a very much higher level of restructuring costs (mainly associated with colliery closures) than had originally been anticipated.

Operating costs
The Corporation's objective is to achieve by 1989/90 a 20% reduction in costs, in real terms, compared with those incurred in the base year, 1985/6. Operating costs in 1987/8, at £1.55 per gigajoule (see Schedule 2), showed a decrease in real terms of 2½% from the previous year's costs, and of 14½% compared with 1985/6.

22 Emoluments of Members of the Corporation

The total emoluments of the Members of the Corporation, including payments in kind and pensions to former Members or their dependants, were:

	1988 £	1987 £
Salaries, etc	491,745	546,099
Employer's superannuation contributions	22,753	43,560
Pensions to former Members or their dependants	60,199	57,836
	574,697	647,495

The pensions to former Members or their dependants relate to those Members who were not formerly employees, and who were therefore not covered by the Staff Superannuation Scheme.

The Chairman's emoluments remained unchanged at £145,000, excluding superannuation contributions. The emoluments, excluding superannuation contributions, of the other Corporation Members in the year were within the following ranges:

	1988	1987
Number of Members whose emoluments were:		
Nil to £5,000	1	5
£5,001 to £10,000	1	—
£10,001 to £15,000	2	2
£20,001 to £25,000	1	1
£40,001 to £45,000	1	—
£45,001 to £50,000	—	1
£60,001 to £65,000	3	—
£65,001 to £70,000	—	4
£70,001 to £75,000	1	—

23 Interests of Members and officers of the Corporation

No Member of the Corporation has any interest in the listed or other borrowings of the Corporation or in the shares of the subsidiaries.

The further information required to be disclosed under the Companies Act 1985 is given in the following paragraphs.

Particulars of loans to Members of the Corporation:

(a) Name	(b) Date of loan	(c) Balance at March 26 **1988** £	(d) Balance at March 28 1987 £
Maturity loans			
Mr K Moses	Oct 81	17,000	17,000
Mr J H Northard	Oct 74	7,759	7,759
Instalment repayment loans			
Mr M H Butler	Dec 69	2,284	2,885
Mr K Moses	Oct 81	23,297	25,059

All the loans are secured by charges on houses and were made at the same rates of interest as were available to staff who were required by the Corporation to transfer their locations. The maximum amount outstanding on each loan during the year was the amount shown in column (d). There were no arrears of interest, nor was any provision against irrecoverable amounts necessary, at the year-end.

The outstanding balances of loans to 14 of the Corporation's officers at the year-end totalled £533,000 (1987 £238,000 to 11 officers).

There were otherwise no loans, credit transactions or other arrangements with, or on behalf of, Members or officers of the Corporation of a kind requiring disclosure under the Companies Act 1985. There were no other transactions or arrangements in which a Corporation Member had a material interest.

24 Approval of the financial statements

These financial statements were approved by the Corporation on July 1 1988.

Coal mining operating statement

Collieries

	1988 m tonnes			1987 m tonnes		
Saleable output[1]	81·8			87·2		
	Amount £m	Per tonne saleable £	Percentage of total cost %	Amount £m	Per tonne saleable £	Percentage of total cost %
Turnover[2]	3,404			3,524		
(Decrease)/increase in stocks of finished goods[3]	(97)			61		
Other operating income	7			9		
Value of production	3,314	40·53		3,594	41·23	
Costs						
Wages	957	11·70	27·9	1,055	12·11	29·7
Wages charges	365	4·46	10·7	406	4·65	11·4
Materials and repairs	911	11·14	26·6	881	10·10	24·8
Mining contract work	19	0·23	0·5	11	0·13	0·3
Power, heat and light	161	1·97	4·7	173	1·99	4·9
Salaries and related expenses	85	1·04	2·5	100	1·14	2·8
Other operating expenses	337	4·12	9·8	310	3·56	8·7
Overheads and services	235	2·88	6·9	271	3·11	7·6
Depreciation (excluding terminal depreciation)	356	4·36	10·4	346	3·97	9·8
Total costs[3,4]	3,426	41·90	100·0	3,553	40·76	100·0
Operating (loss)/profit	(112)	(1·37)		41	0·47	

Notes:
1 Saleable output excludes tonnage extracted in the course of capital roadway development.

2 See Accounting Policies, item IV.

3 Total costs represent actual costs incurred during the year for collieries and opencast mining respectively. Movements in stocks of finished goods, however, are calculated on the basis of a coalfield weighted average cost of production (or net realisable value, where appropriate) to reflect the fact that coal from different sources is sold to common markets (see Accounting Policies, item XIV.)

4 Total costs for collieries are stated inclusive of the pensions benefit and the releases from provisions referred to in note 2 to the accounts.

Opencast mining

	1988 m tonnes			1987 m tonnes		
Saleable output	15·1			13·3		
	Amount £m	Per tonne saleable £	Percentage of total cost %	Amount £m	Per tonne saleable £	Percentage of total cost %
Turnover[2]	702			609		
(Decrease) in stocks of finished goods[3]	(46)			(12)		
Value of production	656	43·39		597	44·95	
Costs						
Prospecting and boring	9	0·57	2·1	9	0·67	2·5
Production	294	19·48	73·0	247	18·54	69·8
Haulage to disposal points	16	1·08	4·0	14	1·06	4·0
Preparation, handling and stocking	47	3·09	11·6	45	3·42	12·9
Site restoration	11	0·70	2·6	10	0·75	2·8
Overheads and services	27	1·76	6·7	28	2·12	8·0
Total costs[3]	404	26·68	100·0	353	26·56	100·0
Operating profit	252	16·71		244	18.39	

British Coal Corporation

Summary of operating results

	Saleable output[2] m tonnes		Colliery output per manshift[2] tonnes		Colliery average manpower thousands	
	1988	1987	**1988**	1987	**1988**	1987
Deep mining						
Scottish[1]	2·6	3·4	2·71	2·54	4·3	6·0
North East	10·2	10·2	3·51	3·00	12·9	15·9
North Yorkshire	14·3	14·2	4·45	3·89	16·5	19·0
South Yorkshire	11·6	12·5	3·61	3·56	15·5	17·0
Nottinghamshire	17·6	18·1	3·89	3·45	20·3	24·5
Central	10·6	11·7	3·81	3·41	12·7	16·3
Western	9·6	10·1	3·58	3·36	11·5	13·5
South Wales	5·0	6·5	2·30	2·47	9·9	12·1
Kent	0·3	0·5	1·93	1·82	0·8	1·2
	81·8	87·2	3·62	3·29	104·4	125·5
Opencast mining						
North East	3·5	3·2				
North West	1·0	1·3				
Central West	3·4	2·5				
Central East	3·0	2·5				
South West	1·5	1·4				
Opencast Executive	12·4	10·9				
Scottish[1]	2·7	2·4				
	15·1	13·3				
Total	96·9	100·5				

Notes:
1 In Scotland, both the deep mining and the opencast mining operations are the responsibility of the Scottish Area's management. The aggregate Scottish Area profit was therefore £5m (£11m in 1986/7).

2 Saleable output and output per manshift exclude coal extracted in the course of capital roadway development and the associated shifts.

3 The cost of production per gigajoule and operating profit/(loss)–mining are stated inclusive of pensions benefit and the releases from provisions referred to in note 2 to the accounts.

Cost of production[1] £ per gigajoule		Turnover –mining £m		Operating profit/(loss) –mining[2] £m		Operating profit – other activities and sales of fixed assets £m		Operating profit/(loss) –total £m	
1988	1987	**1988**	1987	**1988**	1987	**1988**	1987	**1988**	1987
2·53	2·26	104	136	(53)	(46)	4	7	(49)	(39)
1·48	1·58	433	427	31	12	13	12	44	24
1·60	1·57	600	557	(13)	11	6	4	(7)	15
1·62	1·44	469	497	(14)	52	3	10	(11)	62
1·49	1·48	700	734	40	65	8	8	48	73
1·60	1·62	415	444	(15)	(9)	2	3	(13)	(6)
1·64	1·59	407	416	(4)	13	7	7	3	20
2·34	1·94	255	286	(77)	(48)	5	7	(72)	(41)
2·43	2·35	21	27	(7)	(9)	—	1	(7)	(8)
1·65	1·60	3,404	3,524	(112)	41	48	59	(64)	100
1·04	1·02	164	131	53	51	6	7	59	58
1·30	1·09	51	47	9	17	1	—	10	17
0·67	0·66	124	95	74	56	1	1	75	57
1·14	1·10	122	101	34	36	2	1	36	37
1·30	1·40	104	126	36	43	—	—	36	43
1·02	1·02	565	500	206	203	10	9	216	212
1·04	1·07	137	109	46	41	8	9	54	50
1·03	1·03	702	609	252	244	18	18	270	262
1·55	1·53	4,106	4,133	140	285	66	77	206	362

Summary of results 1979 to 1988

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Saleable output: Coal mining (m tonnes)*	121·5	121·6	124·9	122·5	119·0	104·0	41·2	101·9	100·5	96·9
Output per manshift at collieries (tonnes)*	2·24	2·31	2·32	2·40	2·44	2·43	2·08	2·72	3·29	3·62
Operating profit/(loss) £ per tonne	0·59	(0·10)	0·40	(0·56)	(1·05)	(3·69)	(37·22)	5·65	2·84	1·45
*see note 2 to Schedule 2.										
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Turnover	2,989	3,740	4,186	4,727	4,948	4,660	2,018	5,340	4,515	4,388
Results										
Deep mines	(26)	(122)	(107)	(226)	(317)	(595)	(1,673)	232	41	(112)
Opencast	97	110	157	157	192	211	142	343	244	252
Other mining activities	6	6	12	21	23	27	9	27	26	12
Total–mining activities	77	(6)	62	(48)	(102)	(357)	(1,522)	602	311	152
Non-mining activities	27	24	20	3	(1)	(4)	(46)	(2)	13	13
Related companies and partnerships	1	2	(3)	2	4	3	5	4	1	1
British Coal Enterprise Ltd[1]	—	—	—	—	—	—	—	(3)	(8)	—
Profit on sales of fixed assets	32	25	19	20	20	22	18	24	52	50
Operating profit/(loss)	137	45	98	(23)	(79)	(336)	(1,545)	625	369	216
Interest	(137)	(184)	(256)	(344)	(364)	(467)	(520)	(437)	(386)	(368)
(Loss)/profit on ordinary activities after interest	—	(139)	(158)	(367)	(443)	(803)	(2,065)	188	(17)	(152)
Exceptional restructuring costs:										
Social costs, less grants	(16)	(17)	(29)	(61)	(49)	(74)	(78)	(170)	(197)	(146)
Terminal depreciation	—	—	—	—	—	—	(79)	(66)	(62)	(241)
(Loss) on ordinary activities	(16)	(156)	(187)	(428)	(492)	(877)	(2,222)	(48)	(276)	(539)
Taxation, minorities and extraordinary items	(3)	(3)	(20)	—	7	2	(3)	(2)	(12)	(1)
Deficit grant	—	159	149	428	374	875	2,225	50	288	200
(Deficit) after deficit grant	(19)	—	(58)	—	(111)	—	—	—	—	(340)
Note: Operating results include operating grants:	118	30	26	27	12	—	—	—	—	—
Assets employed										
Fixed assets	1,377	1,862	2,450	2,981	3,507	3,845	3,874	4,055	4,229	4,203
Net current assets	531	488	461	892	910	1,339	2,080	1,364	1,498	1,112
Deferred liabilities	(180)	(234)	(280)	(362)	—	—	—	—	—	—
Total	1,728	2,116	2,631	3,511	4,417	5,184	5,954	5,419	5,727	5,315
Financed by										
Creditors–amounts falling due after more than one year	—	—	—	—	230	369	538	774	1,101	1,027
Provisions for liabilities and charges	—	—	—	—	505	667	1,106	813	689	676
Loans under the Coal Industry Acts	1,585	1,972	2,544	3,428	3,710	4,179	4,343	3,868	3,973	3,988
Reserves	136	136	79	79	(29)	(31)	(33)	(36)	(36)	(376)
Minority interests	7	8	8	4	1	—	—	—	—	—
Total	1,728	2,116	2,631	3,511	4,417	5,184	5,954	5,419	5,727	5,315
Ratios										
RETURN ON AVERAGE CAPITAL EMPLOYED	%	%	%	%	%	%	%	%	%	%
Mining activities	6·1	—	2·9	—	—	—	—	11·1	5·8	2·9
Non-mining activities	11·2	10·1	7·6	1·2	—	—	—	—	8·1	9.2
Related companies and partnerships	6·0	8·9	—	5·8	7·4	4·9	7·9	6·4	1·2	3·7
Total	6·9	1·1	3·3	—	—	—	—	10.6	5·8	3·0
MARGIN ON TURNOVER										
Mining activities	2·8	—	1·5	—	—	—	—	11·7	7·2	3·5
Non-mining activities	5·1	3·9	3·1	0·4	—	—	—	—	2·6	3·3
Total	3·5	0·6	1·9	—	—	—	—	10·5	6·7	3·5

Notes:

1 The results of British Coal Enterprise Ltd are included in exceptional restructuring costs from 1987/8.

2 The vertical lines denote items subject to a definition change after 1982 (arising from the Companies Act 1981) and after 1984 (arising from SSAP 21, a revised definition of social costs and the introduction of terminal depreciation as a separate item).

3 The accounts for 1979 to 1985 were audited by a firm other than Ernst & Whinney.

Loans under the Coal Industry Acts

£ million

Interest rate %			Outstanding at March 26 **1988**	Outstanding at March 28 1987
	British Coal Corporation			
	Loans from Secretary of State			
	FUNDED LOANS			
5·519	Loans consolidated in accordance with the Coal Industry Act 1973, repayable in 40 half-yearly instalments to September 1992		103	124
12·265	Funded prior to April 1987		1,857	2,174
	Funded in 1987/8:			
9·000	£100m repayable in 10 half-yearly instalments 1987/1992	80		
8·375	£100m repayable in 10 half-yearly instalments 1988/1992	90		
10·125	£100m repayable in 10 half-yearly instalments 1988/1992	90		
9·250	£100m repayable in 10 half-yearly instalments 1988/1992	100	360	—
			2,320	2,298
	TEMPORARY ADVANCES		980	848
	Total liabilities to Secretary of State		3,300	3,146
	Loans from other sources			
10·008	Loans obtained prior to April 1987		511	752
	Loans obtained in 1987/8:			
7·875	Yen 4,140m repayable at maturity in 1992	18		
8·811	DM 125m repayable at maturity in 1992	42		
10·119	DM 200m repayable at maturity in 1992	67	127	—
10·577	**Total–British Coal Corporation**		3,938	3,898
	Loans to wholly-owned subsidiaries		50	75
	Total–loans under the Coal Industry Acts		3,988	3,973

Notes:
1 The loans to British Coal Corporation from 'other sources' are covered by Treasury guarantee both as regards capital and interest payments.
2 The weighted average rates of interest on the Corporation's loans are:

	%
Loans from Secretary of State:	
Consolidated under 1973 Act	5·519
Funded since March 31 1973	11·767
Loans from other sources 1974/1988	9·880

Consolidated current cost profit and loss account for the year ended March 26 1988

£ million

	1988	1987 (note 1)	
		Adjusted	As published
Turnover	4,388	*4,672*	4,515
Historical cost operating profit (page 30)	216	*382*	369
Current cost operating adjustments (note 3)	(306)	*(318)*	(307)
Current cost (loss)/profit on ordinary activities before interest	(90)	*64*	62
Exceptional restructuring costs (note 3)	(387)	*(268)*	(259)
Taxation, minorities and extraordinary items	(1)	*(12)*	(12)
Current cost (loss) before interest and deficit grant	(478)	*(216)*	(209)
Deficit grant receivable	200	*298*	288
Interest payable (net)	(368)	*(400)*	(386)
Balance carried to reserves	(646)	*(318)*	(307)

Note: In accordance with paragraph 51 of SSAP No 16, no gearing adjustment has been included in the current cost profit and loss account. Had such an adjustment been included, the balance of £646m reported above would have been reduced by £221m to £425m. Details, including 1986/7 comparative amounts, are shown in notes 2 and 4. In the Corporation's opinion, this is a more valid measure of the current cost result for the year.

Statement of retained profits/reserves

£ million

	1988	1987 (note 1)	
		Adjusted	As published
Retained reserves at March 28 1987	2,091	*2,536*	2,450
Balance carried forward from profit and loss account	(646)	*(318)*	(307)
	1,445	*2,218*	2,143
Movements on current cost reserve (note 6)	127	*(54)*	(52)
	1,572	*2,164*	2,091

British Coal Corporation and subsidiaries

Consolidated current cost balance sheet as at March 26 1988

£ million

		1988	1987 (note 1)	
			Adjusted	As published
Assets employed				
Tangible fixed assets (note 5)		6,107	*6,521*	6,303
Investments in related companies and partnerships		33	*47*	45
Net current assets:				
Stocks	506		*671*	648
Net monetary assets	617	1,123	*888*	858
Total assets less current liabilities		7,263	*8,127*	7,854
Financed by				
Creditors–amounts falling due after more than one year		1,027	*1,139*	1,101
Provisions for liabilities and charges		676	*713*	689
Loans under the Coal Industry Acts		3,988	*4,111*	3,973
Reserves:				
Current cost reserve (note 6)	4,231		*4,247*	4,104
Other reserves, less deficit	(2,659)	1,572	*(2,083)*	(2,013)
Total finance employed		7,263	*8,127*	7,854

Notes to the current cost accounts

1 General description of current cost accounts

The current cost accounts shown on pages 58 to 64 have been prepared in accordance with the principles of Statement of Standard Accounting Practice No 16.

The 1986/7 comparative amounts are shown on two bases, in accordance with the conclusions reached in the Accounting Standards Committee's discussion paper 'Corresponding amounts and ten year summaries in current cost accounts', issued in January 1982:

(a) as originally published in the 1986/7 accounts, and

(b) after applying the movement in the Index of Retail Prices in the twelve months to March 1988 to the original figures.

The same principle has been applied in expressing the amounts shown in the Eight Year Summary (note 7) at a common, ie March 1988, price level.

The *current cost profit on ordinary activities before interest* is calculated after allowing for the impact of price changes on the funds needed to maintain the industry's productive capacity. It is equivalent to the *operating profit* shown in the historical cost profit and loss account on page 30 less the net total of the current cost operating adjustments listed in note 3 below.

2 Bases and methods adopted

(a) Tangible fixed assets and depreciation

As explained in note 13 to the historical cost accounts, uncertainty exists concerning the recoverability out of future earnings of the book amount of collieries and other production units. The book amounts included in the balance sheets are predicated on there being no material deterioration in the competitive situation of the industry.

Land and non-specialised buildings

The current cost values of land and non-specialised buildings are determined by reference to full valuations of a representative 20% sample of the properties made in each year by the Corporation's own professionally qualified staff. These valuations are then used to arrive at current cost values for the 80% of the properties not included in that year's sample.

Mines and surface works

This heading relates mainly to underground works (shafts, roadways, etc) and certain of the surface facilities at collieries.

The historical cost records for mines and surface works at collieries constructed since nationalisation, and not written out under capital reconstructions, are complete. An internal index has been used to calculate the gross amounts for these assets.

At other collieries, many assets in this category have been written out of the historical accounts although they are still in use. The current replacement cost of such assets has been positively valued by the Corporation's own technical staff, and these valuations have been adjusted to March 1988 price levels by the application of the same internal index.

All other tangible fixed assets

Gross amounts for all other tangible fixed assets have been determined by reference to appropriate indices published by the Central Statistical Office.

Asset lives and depreciation

For current cost accounts purposes, the asset lives adopted for leasehold land and for non-specialised buildings are the residual lives advised by the Corporation's professional Estates staff when making their valuations. For mines and surface works, the residual life of any individual colliery has been taken to be the lesser of its expected remaining life or 40 years. For all other tangible fixed assets, their lives according to the historical cost accounts are considered adequate for, and have been adopted unchanged in, the current cost accounts.

The depreciation charge for the year, calculated on a current cost basis, represents the average current cost of the proportion of fixed assets consumed in the year. The charge on this basis exceeds by £301m the corresponding charge shown in the historical cost profit and loss account and this excess represents the depreciation adjustment (note 3).

Permanent diminution in asset values
Where a colliery or other production unit has consistently failed to earn a cash contribution, the assets of that unit are assumed to have suffered a permanent diminution in value, unless investment to improve its performance is being undertaken or is planned or the unit is otherwise expected to remain in operation. No adjustment has been made to the historical amount of the fixed assets (other than land), or to the associated historical depreciation charge, in the current cost accounts for those units deemed to have suffered a permanent diminution in value.

The results of collieries and other activities are reviewed each year and, where necessary, additional units are included in this category. It is not expected, however, that a colliery, once included in this category, will subsequently be revalued.

Profits from sales of tangible fixed assets
The adjustment of £23m (note 3) to the historical profit from the disposal of tangible fixed assets represents the difference between the historical and current cost net book amounts of the assets concerned at the time of disposal.

(b) Working capital
Stocks of products have been stated in the current cost balance sheet at the lower of the current cost of production and net realisable value at the balance sheet date. Stocks of stores have been valued at replacement cost, subject to a deduction for obsolescence.

Two adjustments are required in the current cost profit and loss account to allow for the impact of price changes on working capital:

Cost of sales adjustment
This has been calculated in detail for coal and coke sales, by reference to original and current cost of production and net realisable value at the time of sale.

For about two-thirds (by value) of the stocks of stores, the Corporation's computer systems hold details of the current replacement cost and this information has been used to determine that part of the cost of sales adjustment. For other stores, the adjustment has been calculated by reference to an internal index of purchase prices.

Monetary working capital adjustment
This adjustment has been calculated by reference to:

(i) internal sales and purchase price indices for trade debtors and trade creditors respectively;

(ii) a published index for all other current debtors and creditors.

(c) Related companies and partnerships
The investments in related companies and partnerships, and the income arising therefrom, are included in the current cost accounts at their historical cost amounts.

(d) Gearing adjustment
In accordance with paragraph 51 of SSAP No 16, no gearing adjustment has been included in the current cost profit and loss account. Had such an adjustment been included, the balance of £646m after interest reported in the current cost profit and loss account on page 58 would have been reduced to £425m:

	1988	1987	
	£m	*Adjusted* *£m*	As published £m
Current cost (loss) before interest and deficit grant	(478)	*(216)*	(209)
Deficit grant	200	*298*	288
Gearing adjustment	221	*214*	207
Interest	(368)	*(400)*	(386)
Balance carried to reserves	(425)	*(104)*	(100)

(e) Other accounting policies
Except as set out above, the accounting policies adopted for the current cost accounts are the same as those used in the historical cost accounts.

3 Current cost operating adjustments

	1988	1987	
		Adjusted	As published
	£m	*£m*	£m
Cost of sales	—	*14*	14
Monetary working capital	(18)	*(37)*	(36)
Working capital	(18)	*(23)*	(22)
Depreciation*	301	*304*	293
Fixed assets disposals	23	*37*	36
Total of current cost operating adjustments	306	*318*	307

*The whole of the £301m depreciation adjustment has been included in current cost operating adjustments in the current cost profit and loss account on page 58. No allocation to exceptional restructuring costs has been made.

4 Financing of the net operating assets

	1988	1987	
		Adjusted	As published
	£m	*£m*	£m
Net operating assets:			
Tangible fixed assets	6,107	*6,521*	6,303
Investments in related companies and partnerships	33	*47*	45
Working capital	295	*384*	370
	6,435	*6,952*	6,718
Financed by:			
Reserves	1,572	*2,164*	2,091
Borrowings:			
Loans under the Coal Industry Acts	3,988	*4,111*	3,973
Provisions for liabilities and charges	676	*713*	689
Other liabilities (net)	199	*(36)*	(35)
	6,435	*6,952*	6,718

Gearing ratio: 72·1% (1987 67·5%)

The amounts of working capital and other liabilities (net) shown above (and in the eight year summary at note 7) are in total equivalent to 'net current assets' and 'creditors – amounts falling due after more than one year' shown in the consolidated current cost balance sheet on page 59.

5 Tangible fixed assets

	At March 26 **1988**		
	Current replacement cost £m	Depreciation £m	Current net replacement cost £m
Land and buildings:			
Freehold	495	71	424
Leasehold	63	5	58
Mines and surface works	7,314	3,662	3,652
Plant, machinery and equipment	5,873	3,900	1,973
	13,745	7,638	6,107
At March 28 1987:			
Adjusted	*15,209*	*8,688*	*6,521*
As published	14,698	8,395	6,303

6 Current cost reserve

	1988	1987	
		Adjusted £m	As published £m
	£m		
Balance at March 28 1987	4,104	*4,301*	4,156
Movements in the year:			
Revaluation surpluses reflecting price changes:			
Land and buildings			
–freehold	1	*(44)*	(43)
–leasehold	13	*4*	4
Mines and surface works	227	*(38)*	(37)
Plant, machinery and equipment	(122)	*39*	38
Stocks	3	*(29)*	(28)
	122		
Cost of sales adjustment	—	*14*	14
Monetary working capital adjustment	(18)	*(37)*	(36)
Fixed assets disposals	23	*37*	36
	5		
	127	*(54)*	(52)
Balance at March 26 1988	4,231	*4,247*	4,104
of which: Realised	2,283	*2,046*	1,977
Unrealised	1,948	*2,201*	2,127
	4,231	*4,247*	4,104

7 Eight year summary

	1981	1982	1983	1984	1985	1986	1987	**1988**
	(at March 1988 price levels)							
	£m	£m	£m	£m	£m	£m	£m	£m
Turnover	6,050	6,193	6,195	5,546	2,263	5,747	4,672	4,388
Historical cost operating profit/(loss)	141	(31)	(99)	(399)	(1,733)	673	382	216
Current cost operating adjustments	(352)	(292)	(367)	(349)	(266)	(410)	(318)	(306)
Current cost profit/(loss) on ordinary activities before interest	(211)	(323)	(466)	(748)	(1,999)	263	64	(90)
Exceptional restructuring costs	(42)	(80)	(61)	(88)	(176)	(254)	(268)	(387)
Taxation, minorities and extraordinary items	(27)	(3)	9	2	(3)	(2)	(12)	(1)
Current cost profit/(loss) before interest and deficit grant	(280)	(406)	(518)	(834)	(2,178)	7	(216)	(478)
Deficit grant	215	561	468	1,041	2,496	54	298	200
Interest	(370)	(447)	(456)	(556)	(584)	(471)	(400)	(368)
Balance carried to reserves	(435)	(292)	(506)	(349)	(266)	(410)	(318)	(646)
Net operating assets								
Tangible fixed assets	7,294	6,791	7,253	7,480	7,132	6,942	6,521	6,107
Related companies and partnerships	54	78	79	78	76	59	47	33
Working capital	944	1,388	1,136	1,247	2,174	794	384	295
	8,292	8,257	8,468	8,805	9,382	7,795	6,952	6,435
Financed by								
Reserves	4,014	3,164	2,995	3,008	2,956	2,638	2,164	1,572
Borrowings, etc:								
Loans under the Coal Industry Acts	3,678	4,490	4,647	4,973	4,872	4,162	4,111	3,988
Provisions for liabilities and charges	405	522	633	795	1,241	875	713	676
Other liabilities (net)	183	77	191	29	313	120	(36)	199
Minority interests	12	4	2	—	—	—	—	—
	8,292	8,257	8,468	8,805	9,382	7,795	6,952	6,435

Note: The vertical lines denote items subject to a definition change after 1982 (arising from the Companies Act 1981) and after 1984 (arising from SSAP21, a revised definition of social costs and the introduction of terminal depreciation as a separate item).

Financial directions by the Secretary of State

Directions as to temporary borrowing limits issued pursuant to Section 1(4)(a) of the Coal Industry Act 1965, as amended

Date of direction	Limit on temporary borrowings specified under Section 1(1) and 1(2A)
February 27 1987	£900m from March 1 1987
March 3 1988	£1,000m from March 4 1988

Schedule of Directions as to loans funded in 1987/8 pursuant to Section 28 of the Coal Industry Nationalisation Act 1946, as amended by the Coal Industry Act 1965

Date of direction	Date of loan	Amount £m	Interest rate %	No. of equal half-yearly repayment instalments	Date of first instalment
May 14 1987	March 31 1987	100	9	10	September 20 1987
January 29 1988	May 15 1987	100	8⅜	10	March 20 1988
	September 251987	100	10⅛	10	March 20 1988
June 14 1988	November 4 1987	100	9¼	10	September 20 1988

Schedule of Directions as to temporary loans borrowed in 1987/8 pursuant to Section 28 of the Coal Industry Nationalisation Act 1946, as amended by the Coal Industry Act 1965

Date of direction	Date of loan	Amount £m	Interest rate %	Repayment date
August 18 1987	July 27 1987	250	$8\frac{15}{16}$	August 27 1987
October 27 1987	October 22 1987	250	10	October 29 1987
March 4 1988	February 15 1988	250	$8\frac{9}{16}$	March 15 1988

Direction as to the form of the Statement of Accounts

Direction dated June 28 1988

The Secretary of State, with the approval of the Treasury, in pursuance of Section 31 of the Coal Industry Nationalisation Act 1946 and Section 8 of the Coal Industry Act 1971 hereby gives the following Direction:

1 The statement of accounts, which it is the duty of the Corporation to prepare in respect of their financial year ended March 26 1988 and in respect of any subsequent financial year, shall comprise:

(a) in respect of the Corporation and their subsidiaries:
  (i) a consolidated profit and loss account;
  (ii) a consolidated balance sheet; and
  (iii) a consolidated source and application of funds statement; and

(b) in respect of the Corporation, a balance sheet;

including in each case such notes as may be necessary for the purposes referred to in paragraph 2 below.

2 The accounts referred to above shall give a true and fair view of the profit or loss, state of affairs and source and application of funds of the Corporation and their subsidiaries. Subject to the foregoing requirement, the statement of accounts shall also, without limiting the information given, meet, insofar as they are appropriate to nationalised industries:

(a) the accounts requirements of the Companies Act for the time being in force save as described in Schedule 1 of this Direction, and with the limitations imposed in that Schedule;

(b) the accounts disclosure requirements of Section 5, Chapter 2, paragraph 21 of the Stock Exchange document entitled 'Admission of Securities to Listing'; and

(c) the best commercial accounting practices, including Statements of Standard Accounting Practice issued by the member bodies of the Consultative Committee of Accountancy Bodies.

3 The statement mentioned in paragraph 1 above shall also include the supplementary information set out in Schedule 2 to this Direction.

Schedule 1

1 In preparing their consolidated profit and loss account, the Corporation shall adopt format 2 prescribed in Schedule 4 to the Companies Act 1985; and in the case of the balance sheets, format 1. In the balance sheets, totals shall be struck at total assets less current liabilities.

2 The departures from the accounts requirements of the Companies Act referred to in paragraph 2 of the above Direction shall be as follows:

(i) The Corporation will agree in advance with the Secretary of State and the Treasury the companies which they wish to exclude from consolidation. It is expected that the reasons for non-consolidation will normally be similar to those given under section 229 of the Companies Act 1985. In such cases the information required by paragraph 69 of Schedule 4 to that Act should be supplied.

(ii) In the balance sheet of the Corporation and the consolidated balance sheet of the Corporation and their subsidiaries, certain loans shall be grouped with Capital and Reserves. These loans, which shall be described in the accounts as loans under the Coal Industry Acts, shall comprise: amounts lent to the Corporation by the Secretary of State, loans which are guaranteed for repayment by the Treasury and, in the consolidated balance sheet, the borrowings of the Corporation's wholly-owned subsidiaries. These amounts will include any parts of such loans which are due to be refinanced in the next financial year.

(iii) In the consolidated profit and loss account of the Corporation and their subsidiaries, terminal depreciation and social costs, less grants, shall be shown after operating profit. The expression 'social costs' in this Direction means:

(a) all expenditure of the Corporation incurred in connection with the redundancy, redeployment or early retirement of employees, together with the retraining of redundant and incapacitated former employees and the promotion of alternative employment opportunities for those former employees and in mining areas generally, towards which grants may be made under Heads 1, 2, 5 and 6 of the Schedule to that Coal Industry (Restructuring Grants) Order governing grants under section 3 of the Coal Industry Act 1987 in respect of the relevant financial year of the Corporation;

(b) all costs of the Corporation towards which grant may be made under Head 4 of the Schedule to that Coal Industry (Restructuring Grants) Order governing grants under section 3 of the Coal Industry Act 1987 in respect of the relevant financial year of the Corporation and which would have been eligible for grant under paragraph 1(1)(viii) of Schedule 2 to the Coal Industry Act 1977 if the relevant financial year of the Corporation had been a year specified in sub-section 6(3)(a) of that Act;

(c) all continuing expenditure of the Corporation incurred in settlement of obligations which arose prior to March 29 1987 towards which grants were previously made under section 6 of the Coal Industry Act 1977, and towards which grants may be made under section 4 of the Coal Industry Act 1987;

(d) costs of the Corporation in respect of which payment may be made under section 7(2)(b) of the Coal Industry Act 1977 as amended by section 7 of the Coal Industry Act 1980;

(e) all expenditure by the Corporation on pension scheme deficiency contributions which is reimbursable under section 2 of the National Coal Board (Finance) Act 1976.

(iv) In the consolidated profit and loss account of the Corporation and their subsidiaries, Government deficit grant shall be shown after loss for the financial year.

Schedule 2

In order to supplement the accounts, the following information shall be shown:

1 Summary of operating results, capital employed and turnover analysed according to activity.

2 Coal mining operating statements for both collieries and opencast separately.

3 Summary of operating results of coal mining by Area.

4 Summary of loans under the Coal Industry Acts and a statement of the Corporation's position in relation to the statutory borrowing limits currently in force.

5 Ten year statistical summary.

6 Supplementary current cost profit and loss account, balance sheet and notes to the accounts.

7 Statement of the Corporation's performance against financial targets announced by the Secretary of State.

8 The amount of interest payable on loans under the Coal Industry Acts.

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1977 APPENDIX 7c

Mining timber 1976

NCB increase buying of home timber

by E. A. Burn, Deputy Director-General, Purchasing and Stores, NCB

USAGE of mining timber is very directly related to the deep-mined output of coal. The reduction in coal output from about 113 million tons in 1975 to 107 million tons in 1976 had an inevitable effect on the National Coal Board's consumption of timber. Nevertheless, in 1976, 643 000m³ were used, of which 399 000m³ were sawn and the remainder props and splits.

The amount of timber consumed per million tons of coal produced continued its gradually reducing trend, though the position varied for different classes of timber. For example, there was an increasing usage of chocks in relation to coal production, which represent about 45% of the sawn mining timber. On the other hand, coverboards lost ground to alternative steel forms of roadway lining materials in England and Scotland, although additional quantities of coverboards were taken into Wales.

Stocks of sawn mining timber and splits were generally in balance throughout the UK for most of the year. An exception was coverboards, which were in excess of target level—a consequence of the reduced usage. Stocks of pit props held at collieries in England were generally above target.

More home timber

Substantial progress continued with the NCB's policy of increasing the proportion of its mining timber obtained from home sources. At the time of nationalisation in 1947 some 70% of the timber used by the Board was imported, but this has been reduced steadily over the years so that by 1975 the figure was down to some 22%.

Virtually all the sawn mining timber used by the NCB is already British, and the Board's plans for increasing the usage of British timber still further, subject to satisfactory quality and price, therefore centre on props and splits. Scottish collieries already use only British props and splits and the proportion in Wales is more than 75%.

The intention is to increase the usage of British props and splits at collieries in England from the 36% level which applied in 1975 to 56% by the end of 1977. The exercise has been gaining momentum since the latter part of 1975, and is on target.

Under a further stage of the plan it is envisaged that by the end of 1979 the proportion of British props and splits used in English collieries will be lifted to 70%, when it is hoped to review the position to see what further progress can be made.

One of the most important factors in the success of the venture will be the ability of the British suppliers to match the quality levels, and conformity with delivery schedules that are required.

The effect of reduced imports was felt in some degree at all the traditional pitprop ports. Russia was the main source of supply, but several other countries have shown an interest. Trial shipments of bundled and pre-slung props were received during the year. Such trials revealed certain problems and highlighted the high cost that bundling entails, partly due to the loss of ship stowage space.

As with other imported timber, the falling value of the £ increased price levels of imported mining timber.

Dearer softwood

The early summer saw a hardening of British prices for round softwood, particularly in Scotland. The amounts of mining type hardwood available continued to be plentiful, and the upward movement in the average prices of hardwood items was less pronounced than in the case of the softwood specifications.

An overriding feature of the hardwood situation was the continued disaster of Dutch elm disease. The NCB made known as widely as possible its policy of accepting any proportion of diseased elm its contractors were prepared to offer, up to 100% of the supply. Early in 1976 a survey was carried out which revealed that 64% of the hardwood expected to be supplied by mining timber contractors, situated within the "scheduled area" would be produced from diseased elm.

The Elm Marketing Group were pleased with the high proportion of diseased elm included in the total hardwood consumption of the NCB and together with the Forestry Commission expressed their appreciation of the assistance given in dealing with this national problem.

A further feature of the hardwood situation was the windblow in East Anglia in the January gales. The NCB responded to a request from the Timber Growers' Organisation for assistance in the resultant difficult marketing situation.

During the year the NCB carried out a rationalisation of its purchasing organisation for timber, designed to bring the administration into line with the policy of increasing the use of British props.

In the past the purchasing organisation had been divided between imported and British timber. In the changed organisation the entire activity on props and splits, both British grown and imported, has been placed under one command. It is expected that this will facilitate the work needed to effect the smooth changeover to a greater use of British timber. The NCB's timber purchasing will therefore be divided in future between sawn mining timber and props and splits.

The Board's aim continues to be to foster stable and reliable supply arrangements for its continuing and long-term requirements of mining timber.

Looking to the future, the NCB's "Plan for Coal" which has been accepted by the Government, envisages the creation of new mines and the reconstruction of suitable existing mines to replace capacity which will become exhausted by the mid-1980s, and to provide an increase in the industry's deep-mined production.

These major schemes take time to bring into full operation (for example, the new mine at Selby will not reach full production until 1987), and production prospects in the shorter term rest upon the efforts now being made to increase production and productivity from the existing pits.

Biggest timber consumer

The National Coal Board, as probably the largest single UK consumer of timber, is a reliable long-term market for the timber trade, and will remain so as far ahead as it is possible to foresee. The Board's annual expenditure on timber is of the order of £24 million. Some 70% of this wood is obtained through long-term contracts of 12 months or longer. Particular attention is paid to the fostering of close working relationships with the Forestry Commission, the timber trade and private growers.

More than half the 40 million tons of new mining capacity envisaged in "Plan for Coal" has already been implemented or approved and the Coal Board and the mining unions are now looking even further into the future.

The industry's "Plan 2000" spells out the case for continuing to develop Britain's coal-mining potential into the next century. The new programme sees deep-mine output growing to the 150 million tons a year mark—to meet growing energy needs and to exploit new potential in the fields of coal conversion for the gas and chemical processing industries.

Mining timber in 1977

Continuing swing towards use of more British products

THE extremely wet conditions experienced during the winter created supply problems in the early months of 1977 when many of the National Coal Board's timber contractors found difficulty in meeting their delivery schedules. By February, pockets of severe shortage became apparent, particularly in respect of hardwood chocks. Considerable concern was felt when the abnormally wet weather persisted well into the spring and stocks continued to fall, reaching their lowest ebb at the end of April. From that point onwards there was a steady, if unspectacular, improvement until by the end of the year stocks of all categories were at least adequate, and some, eg sleepers and baulks, were slightly higher than target levels.

In 1977 deep-mined coal production at 104·7 million tons was about 3 million tons lower than the previous year, and consumption of mining timber amounted to 648,000m³, of which 415,000m³ was sawn and the rest props and splits.

The total demand for props and splits fell by 16 000m³ to 233 000m³ but as the usage of the British product increased by 2 000m³, there was a significant decline (17%) in the use of imported wood. The substitution of British props and splits for imported continued in accordance with plans, and the interim objective of increasing the proportion of British props and splits used at collieries in England from the 35% of mid-1975 to 56% by the end of 1977 was achieved. This important further swing to the use of the British product over the past 2 to 2½ years gives confidence that the second target of moving on to 70% usage of British props and splits in England by the end of 1979 will be achieved.

Quality standards

Problems arose in 1977 on the use of 2700mm British splits which were stated to be too heavy. It is not yet clear if the problems relate to lack of seasoning or the more pronounced taper of British timber, but the difficulties underline the paramount need for the quality standards of the British timber to be maintained at a consistently high level if the substitution programme is not to be jeopardised. When all categories are taken into account, ie both round and sawn, the movement away from imported props and splits resulted in the British market's share of the NCB's total mining timber requirement increasing to 84%.

As noted earlier, total consumption of sawn mining timber rose to 415 000m³ during 1977, the most notable increases being in boards for self-advancing supports which were up by 20% to 19 000m³ and chocks up 4% to 192 000m³. Consumption of mine-car sleepers and baulks also increased but there was little change in the use of other categories of sawn items with the exception of coverboards. Nationally the decline in the use of coverboards continued, showing a further fall of 5% during the year. This trend was reflected in most areas in England, and also in Scotland, where consumption fell by 10%. The exception to this continuing downward trend was the South Wales area, where consumption rose by 15%.

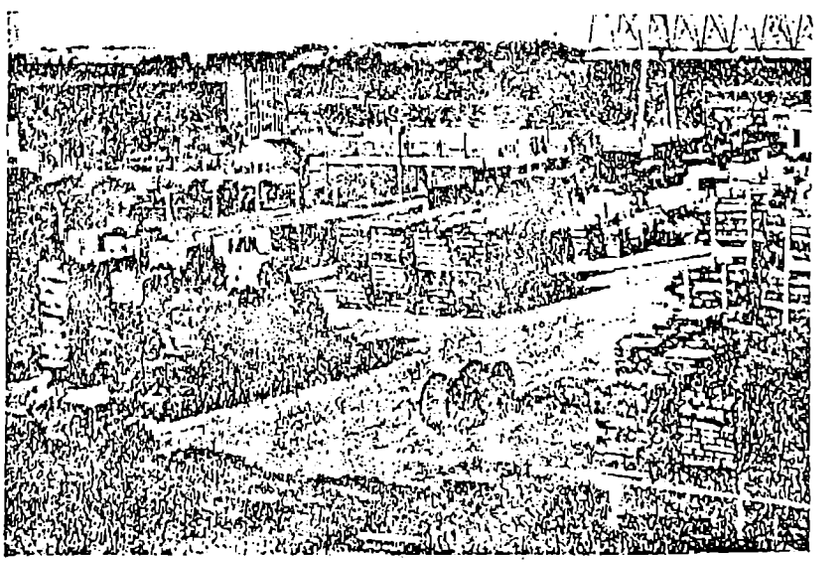
At the time this article was being written, bonus incentive schemes either had been or were being arranged in most areas. Obviously at this stage it is impossible to be precise about the effect they will have on the output of coal, but whatever the increased production that might be achieved, it would not be unreasonable to expect a somewhat similar increase in the demand for many categories of mining timber.

Two important exercises in relation to specifications were introduced during the year. One was to consider the possibility of rationalisation of the number of sizes of pit props in use and the other to establish a practical wane allowance for chocks. A good deal of liaison not only with the trade but also with the user departments will be required before a conclusion can be reached.

Perhaps the most significant event of the year was the decision to introduce sealed tender procedures to long term contracting for sawn softwoods. The NCB's general policy is to arrange for its purchases, wherever practicable, to be subject to competitive tender, and almost all its consumable stores are obtained in this manner. It was considered that timber purchases should follow this general policy. The subject had been raised at the regular formal meetings with the trade associations and the date of expiry of the various contracts adjusted to make tendering possible. Discussions took place with the individual suppliers involved and although at the outset some were a little apprehensive, in the end all seemed satisfied with the idea.

The NCB continued to absorb substantial quantities of elm during 1977, and although a survey similar to that carried out in the previous year was not repeated, visits to the collieries indicated that the intake of elm was certainly not less than of that 1976 and probably greater. In the late summer, NCB arranged a meeting with representatives of the Forestry Commission, the Elm Marketing Group and the HTMAEW to discuss problems related to the use of elm. Agreement was reached on a joint policy which would not only help to check the spread of Dutch elm disease, but at the same time ensure that large quantities of elm would continue to be used in the collieries.

It must surely be appropriate to conclude a review of the year by recording the fact that 1977 saw the first demand for timber for the new Selby project, which ultimately will produce 10 million tons of coal per annum. The requirement was for 600m³, not for use as mining timber in the traditional way, but of a specification very similar to mine-car sleepers, which will be used for construction work in the drift.



Despite the introduction of many new methods at collieries, timber is still widely used.

Review of mining timber in 1978

Marked variations in the rate of ordering

SOME 106.7 million tonnes of deep-mined coal were produced in 1978 from 231 collieries. This sowed an improvement over 1977 and a further improvement is expected in 1979 from the joint impact of investment in the collieries and incentive schemes for mineworkers. Output per manshift at the coal face in the first 9 months of the financial year April 1978 to March 1979 was 10.7% higher than in the same period in the previous year. Overall output per manshift (which includes mine workers on the surface and those who work underground away from the face, as well as face workers) has so far been higher every month in the current financial year compared with the previous year and after 9 months, showed an increase of 4% over the same period in the financial year 1977/8.

Some marked variations

During 1978 variations in the rate of ordering of mining timber were more marked than earlier forecasts had indicated. In the first quarter, stocks of all categories were increased to provide for the local productivity incentive schemes. Later, as the effect of these schemes was translated into established consumption patterns at individual stocking points, corrective action was taken to align usage to demand on suppliers. This action, coupled with the need to regulate stocks at required levels, meant a reduction in orders during the summer months. Between June and December stocks were steadily reduced by some 27,000 m³ and at the end of the calendar year were marginally in advance of the targets.

Throughout the year, consumption remained at a relatively high level, 634,000 m³ being used, 2% less than the previous year; 215,000 m³ of this total was in the form of props and splits (a fall of 8% on 1977), the remainder being covered by the general classification "sawn mining timber".

Increased chock consumption

At 419,000 m³, consumption of sawn mining timber showed an increase of 1% over 1977, 62% being hardwood and 38% softwood. Half the total consumption of the sawn items was in the form of chocks, 2.01 m³ being consumed for every 10000 tonnes of deep-mined coal production. Since 1973, not only has the total volume of chock consumption increased each year, but it is significant that the volume per 1000 tonnes of coal produced has risen steadily. Hwever it is anticipated that this trend will level out within the coming year.

In 1978, the usage of chocks was 8% higher than in 1977. As 94% of all chocks used are hardwood, the NCB has in mind the potential problem of hardwood supplies which may arise as an aftermath of Dutch elm disease. Many of the collieries are prepared to use softwood, although naturally they prefer hardwood, and it may well be that in future years there will be a move towards a greater usage of softwood for chocking purposes. In addition a good deal of research has taken place into non-timber substitutes, mainly concrete. At present these are marginally more expensive than timber, but nevertheless acceptable alternatives are available.

Significant increases

Other items of sawn mining timber which have shown significant increases in usage over the year are boards for use with self-advancing supports (+41%) and baulks (+17%), the latter being mainly used in one area. Both these items are softwood. It is known that the boards for self-advancing supports are to some extent replacing splits, but it is difficult to be precise as to the extent of the change. Conversely the usage of softwood crown-trees (mainly used in Scotland) has declined by 12%, the reduction being to a large degree accounted for by the substitution of splits.

A different pattern

Once again consumption of cover-boards increased by 6% at the collieries in Wales, but this was contrary to the pattern in the rest of the UK where the decline in usage continued; the nett UK position showing a fall of 7%.

Turning to props and splits, the decline in total usage of 8% was greater than anticipated, and slowed down the rate at which British material replaced imported at collieries in England. Nevertheless the bulk of the reduction took place in imported material which declined by 15%, and there were signs that the import substitution programme was gaining momentum again in the final quarter of the year.

Import substitution

About 65% of all the props and splits consumed in the UK during 1978 were British, as was 86% of all classes of mining timber. The rate at which the import substitution programme will progress in the future depends, among other things, upon the quality of British timber and the delivery performance of suppliers. Problems in both these respects were encountered during the year.

Attention to quality and adherence to specification has been a priority in the NCB's purchasing strategy, and as a result there has been a significant reduction in the number of complaints recorded during 1978. The board continued to maintain its relationships with the England & Wales and Scottish home timber trades associations and the Forestry Commission, all of whom were kept informed of the board's plans for the medium and long term future.

Use of diseased elm

Throughout the year considerable quantities of diseased elm were absorbed and all suppliers were reminded of their obligations under the statutory instruments relating to the movement of this species.

Tenders invited

The sealed tender procedure, first introduced in 1977 for annual contracting for sawn softwood, was extended in 1978 to the much larger and more complicated sphere of sawn hardwood. Although no new suppliers were gained in this initial exercise for long-term contracting, new tenderers were invited to compete for the short term contracts. It is from this corps of short term tenderers that additional long term contractors are expected to emerge.

Computer-produced orders

The end of the year saw the first application of the automatic provisioning system to mining timber. Computer-produced orders were issued to suppliers for first quarter 1979 requirements and this procedure will become a regular feature of NCB ordering in the future. Over the past three years the system has been successfully applied to items of stores which are centrally stocked. Current planning provides for its extension to the control of mining timber at individual collieries. Visual display facilities will be available to timber section at HQ purchasing and stores department, Doncaster on a range of management information including stock levels and suppliers' delivery performance.

APPENDIX 7d

NCB Specification 695:1985 (Revised)

British Softwood Pitprops and Split Pitprops

Issued by authority of the National Coal Board

British Softwood Pitprops and Split Pitprops

As from 1 January 1985 all requisitions for and purchases of equipment and materials within the range of this specification shall be to this specification except by special permission of the Board, application for which shall be made to the Head of Standardisation, Quality Control Branch, HQ. Mining Department, Doncaster.

Nothing contained in this specification shall be construed as reducing or limiting any of the rights of the Board or any of the obligations of the seller under the conditions of contract governing the Board purchase order.

Foreword

This specification lays down requirements for pitprops and split pitprops made from softwood of British origin.

1. Scope

This specification establishes the requirements of wooden pitprops and split pitprops used by the National Coal Board.

2. Materials

Pitprops shall be produced from any coniferous species of timber grown in Britain. Pitprop ends shall be crosscut at right angles to the length. Pitprop ends as shown in Fig. 1 shall not be acceptable. All projecting knots (Fig. 2) and other protuberances, (other than knot whorls), shall be trimmed flush to the stem.
Timber containing sawcut snicks, worm holes, incipient decay, fungal growth and other visible defects likely to affect strength shall not be acceptable.

3. Dimensions

Pitprops shall be measured using the Pitprop Gauge (Fig. 3) across the top diameter (small way) rounded down to the nearest 10 mm, for example, a 130 mm top diameter shall measure within the 130 mm to 139 mm range.
Tolerances on all lengths shall be $\begin{matrix} - & 0 \text{ mm} \\ + & 20 \text{ mm} \end{matrix}$
When unpeeled the measured diameter shall not include the bark.

4. Straightness

Pitprops shall be reasonably straight and within the following limits. Bow shall not exceed 5 mm per 300 mm from a straight line from the centre of the top diameter to the centre of the butt (Fig. 4). The method of assessment shall be as follows:
The prop shall be laid so that the plane in which the bow occurs is parallel to the ground and the following measurements made:

AB = The straight line (stretched tape) along the length of the prop between the points above the centre of each end;

C = The point on the length of the prop above its centre where the deviation from AB is the greatest;

D = The point on the length of the prop above its centre where the deviation from AB is smallest;

Bow = C minus D.

Misshaped pitprops, or pitprops bowed in more than one plane, shall be unacceptable.

5. Knots

Knots shall be sound. On any pitprops 90% of knots shall not exceed 50 mm in diameter. Knot whorls at the point of top diameter measurements shall not be acceptable (Fig. 5).

6. Peeling

When peeled the surface area shall retain no more than 5% by area in total of outerbark.

7. Butts

Excessive flare (Fig. 6) at the butt shall not be permitted.
On pitprops 1500 mm and under in length, butt diameter shall not exceed top diameter (small way) by more than 30 mm.
On pitprops over 1500 mm in length, butt diameter shall not exceed top diameter (small way) by more than 50 mm.

8. Drying

Peeled pitprops shall be stored to dry and the weight/volume ratio of a full load delivered to the NCB shall not be less than:

- 1.5 m^3/tonne for top diameters up to 130 mm;
- 1.35 m^3/tonne for top diameters 130 mm and above.

9. Split Pitprops

Split pitprops shall be of the same standard as pitprops. They shall be sawn over the whole length through the centre of the pitprop and at any point the width and thickness shall not be less than the small end.

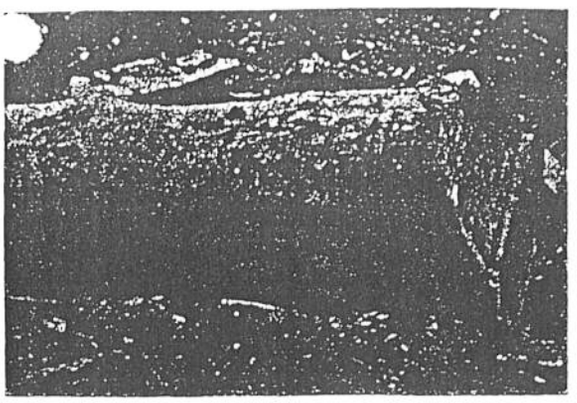
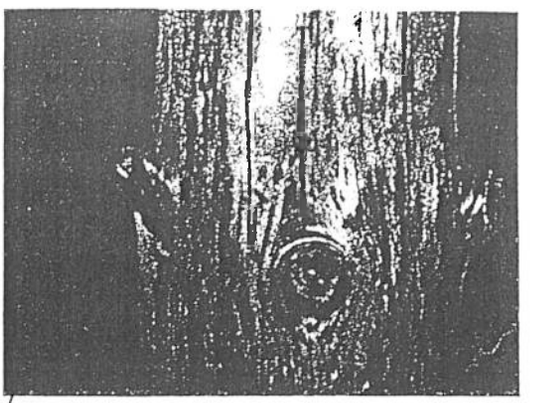


Fig. 1 Not crosscut square



Inset to Fig. 2

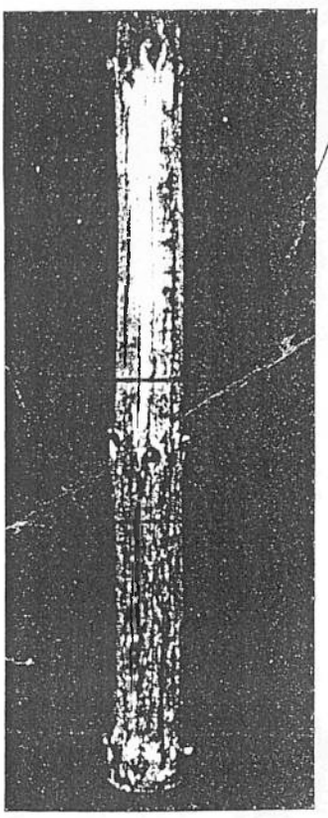


Fig. 2 Projecting knots not acceptable

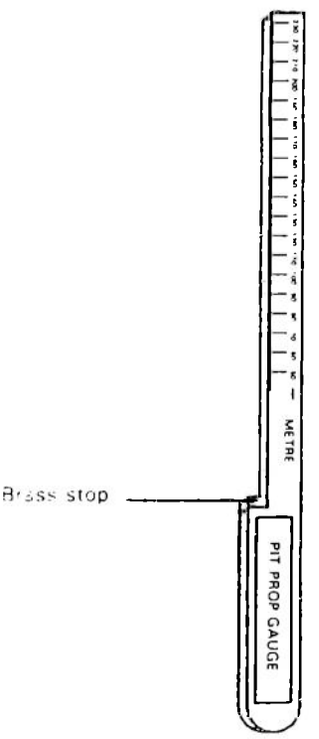


Fig. 3 Pitprop gauge

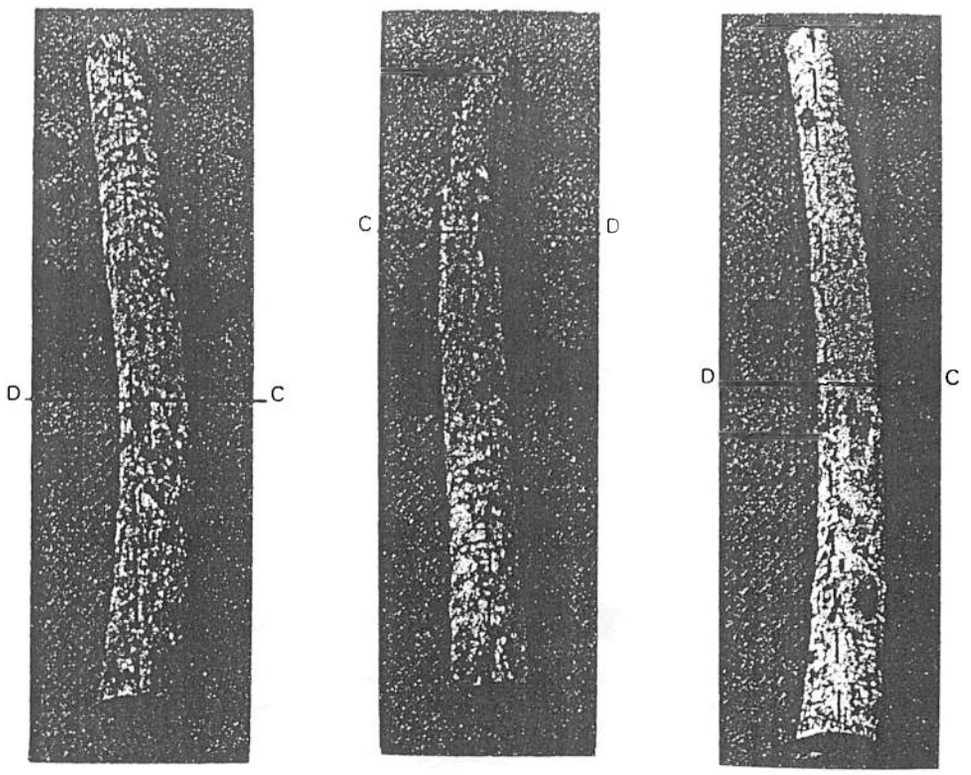


Fig 4 Examples of bow

Fig. 5 Knot whorl inflating top

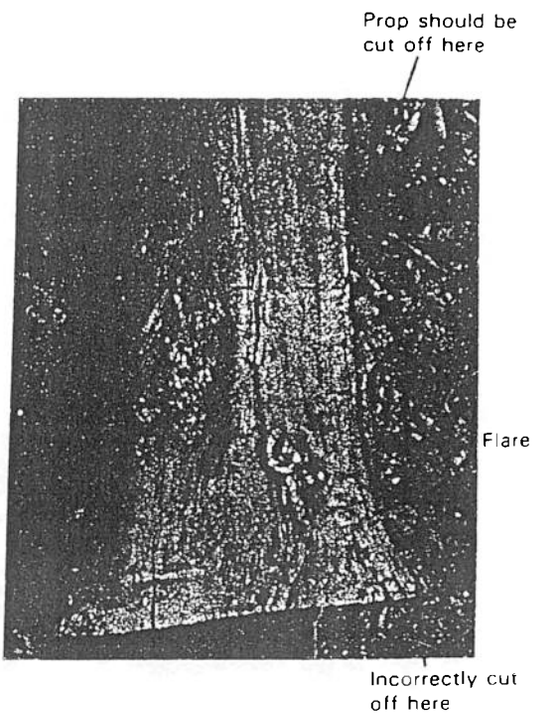


Fig. 6 Flare

Acknowledgement is made to the British Standards Institution in respect of extracts from their standards and to the Forestry Commission in respect of extracts from their Softwood Sawlogs Planning and Procedure Paper No. 5 – Straightness which are reproduced in this specification.

Copies of NCB Specifications and an indexed list may be obtained from Secretariat, National Coal Board, 27/28 South Parade, Doncaster DN1 2DX.

APPENDIX 7e

UNDER THREE CROWNS

A.J. FORREST

28

BRECKLAND, 1951

NO man can view Breckland unconcerned. Either this unique East Anglian tract, about 400 square miles in range, of tree, warren, flint, chalk, and sand-land, excites him to discover in it some strange kinship or he is repelled utterly by its harsh, challenging, and boundless atmosphere. The initial impression of hostility is easily aroused.

Nowhere else in Britain that I know of will you follow roads where the sentinel trees of Scots pine and silver birch appear to frown on you, their trunks twisted grotesquely as if some giant had wrenched them corkscrew-wise in a mad fit reducing their symmetry to outrageous ugliness.

In reality, no giant has done this, only man. These gnarled and buttocky trees were planted years ago as wind breaks and then, at an early age, buckheaded or pollarded. Untrimmed thereafter, they grew relatively straight from their crooked stumps deviating only slightly from the vertical to acknowledge Breckland's master, the wind.

Until 1921, when the Forestry Commission moved in, setting up its headquarters at Santon Downham, a tiny village on the Little Ouse, two miles from Brandon and four miles from Thetford, the wind raged as the lord above, lifting bodily in its petulance entire seed crops out of their beds, hence the region's intermittent or breck farming, which saw cultivation in times of agricultural booms and abandonment in periods of depression. But, in both phases, wild rabbits rampaged, almost causing some of the warrenlands to heave visibly, their scuts littering the landscape like paper pieces in a London park after a Bank Holiday. Local warreners and furrier factories made heyday. Even the great landlords, being sporting gentry, who raised pheasants as their main crop, instructed their keepers to

keep their cauldrons boiling with rabbit meat and so build up good breasts for their birds. But the wind! What a power it was and still is in this domain, roaring even at this moment over the pine crests as I write of Breckland in the heart of Breckland.

The Rev Tyrrell Green, Rector of Santon Downham, tells me of a parishioner of his, a one-time tenant of West Lodge farm, who was asked one day at Bury Market where his farm might be. "Well," said the farmer, "yew dew see it most times in Suffolk, but if th' owd wind be a-runnin' 'ard sou-west, then dang me if the duzzy owd place ain't in Norfolk!"

For many years the seat of the Mackenzie family, Santon Downham Hall, now demolished, save for its stables and billiard room, was once completely isolated by sand storms. Only its clock tower, local tradition says, stood unsmothered. A Forestry Commission worker recollects in the early twenties digging down 14-16 ft through an adjacent mound, supporting healthily sized trees, before his spade struck a hard, almost granite-like crust, the original land surface.

Dr William Gilpin, Prebendary of Salisbury Cathedral, in his travels through Norfolk and Suffolk in 1769, his purpose being to discover "picturesque beauty," was appalled by the desert-like desolation he met coming out of the fens at Ely and proceeding in his four-horse coach via Mildenhall to Swaffham, so traversing the great warrens of Lakenheath and Wangford. He likened the country to a beaten sea coast but devoid of the redeeming beauty of such vistas, being largely barren and nearly treeless with only a few sheep cropping its scanty grass skin. At certain spots along his route sand lay so thick on the surface that "four horses which we were obliged to take could scarce in the slowest pace drag us through it."

Even nowadays look-outs in the tall watch-towers, commanding vantage points in the immense forest of Thetford Chase, are sometimes deceived by dust storms, reporting them as fire outbreaks. To the west, rise black storms of fen dust, and near at hand, the angry winds of March and April drive lighter-coloured dust storms off the sand dunes and ploughlands.

Breckland is a strong reactionary, primitive of heart. During the 1939-45 war, the 6,000-acre King's Forest at Culford fell under military requisition and while troops used it, their tanks crushing hun-

dreds of acres of young trees, including a large sector of Queen Mary's commemorative avenue of beeches planted along the track of the Icknield Way, Breckland's rabbits, finding the barriers down, re-mustered in their ancient playgrounds. When the land was handed back to the Forestry Commission in 1947, rewiring and replanting were both essential, but first warreners had to take up the offensive. They began mopping up rabbits at the rate of 300 a day and, in a whole year's activity, cleared 39,000 rabbits off 2,000 acres of ground. Oddly, a colony of wild black rabbits still survives on the outskirts of this territory.

Thetford Chase, second only to Kielder Forest in Northumberland as the largest of the Commission's estates, embraces now 43,020 acres of which 31,900 acres rank as plantations, 500 acres as acquired woodlands, 3,100 acres as agricultural land and 7,520 acres as land still to be planted. The peculiar steppe-like plants, which flourish in the region, and are the joy of naturalists from the London Society and indeed to all lovers of plant life, owe their being here to the peculiar formation of the soil, largely sand on top of flint-seamed chalk, and to an imitative Continental climate, cold in winter, followed by dry springs with persistently late and, for tender tree species, very teasing frosts.

This climate and terrain, the foresters tell me, spells black disaster for Norway spruce, Sitka spruce, European and Japanese Larch. Trees need to be tough to survive. The native peoples—also! Even oak struggles ineffectively unless sheltered by pine "nurses" in its early days. But, for all to whom the methodical orderliness of acres upon acres of upstanding Scots and Corsican pines dulls the eye or wearies the imagination, relief now, happily, marches out of several roadside stretches where ornamental belts of American red oaks are growing well in the lea of their softwood guardians.

Beech, too, needs nursing, usually by the trick of underplanting, out of its frost-tender beginnings. And beech, in this district, seems best responsive to the urges of good quality production when its roots can feel the sweetening power of chalk lying about 20 ft below the land surface. "We have planted approximately one-tenth of the Chase with hardwoods," said Mr D. Mackay, the district officer, "and on some 'beats,' notably those of the more fertile soil, found

eastwards, Thetford and Hockham way, natural regeneration is taking place." All the Corsican and Scots pines were planted originally by ploughing out single furrows and setting the plants, 4 ft 6 in apart, to a density of 2,151 to the acre. When mature—70-80 years for the Corsicans 90-110 years for the Scots pines—the final density will be, it is hoped, 150 Corsicans and 200 Scots pines to the acre. "The Chase is now," added Mr Mackay, "largely in the thinning stage and already timber production is intensifying our mechanization systems."

In the Brandon timber yard, which serves as a conversion depot for all Breckland's State-cut timber, a depot still largely in the experimental stage with its 21 diesel- and petrol-driven saw benches, creosote immersion tanks, haulage cranes, and other devices for loading and stacking pit props, nearly 1,500,000 cu. ft of timber is handled annually; and the yearly output amounts to 19,000 tons of pitwood, 20,000 tons of wood-pulp and about 7,000 tons of stakes and firewood.

The imagination can easily lose itself envisaging the immense potential of the forest tract, but 19 per cent of which was ever used agriculturally, whose workers, 40 of them women, and about 80 of them Polish ex-soldiers, at present number 550. In years to come, the Chase's shape and shade will assume, peace permitting, monarchial and I think noble proportions.

Whether they are tree-felling, cutting up pit props, cone gathering, or stripping bark off newly felled stems with curved garden spades, the Polish workers appear to answer the Titan-to-be with Titan exertions. Their furore for piece-work astonishes the slower-moving and perhaps shrewder English woodsman. Sparing themselves nothing, taking risks with saw and axe, straining shoulders and back muscles heedlessly, many Poles dwelling in Brandon and Weeting are wresting £8 to £10 a week out of the woods. Some have married English girls, their wives parading now the pride of their wage packets. How they manage to maintain the pace, wet weather or fine, astonishes even experienced forest officers.

Many of these men show an intelligent interest in their newly acquired craft. They can define quite sensibly and in by no means halting English the difference between "whips" and "wolves." The

one sort growing like a spindle with bushy top-knot, lashes harmfully neighbouring stems, and the other kind, growing rampageously, suffocates or "wolfs" its neighbours by its grow-away, damn-all avariciousness.

At Santon Downham, the Forestry village with 287 inhabitants to-day, as opposed to a mere 60 in the early twenties, the Commission has a seed extraction plant, the largest of its kind in the kingdom. In Mr Mackay's company, I spent an interesting hour observing how the seeds are processed. First, the seed laden cones are laid out in bushel-sized containers banked in long rows above hot pipes. This 24-hour kilning treatment opens out the cones. They are then emptied into a home-made shaker machine, officially described as a "rotating wire mesh container," twirled round and the seed lifted from them. The seed is next de-winged, which means a rather more elaborate mechanical shake-up, and finally gets its last dressing in an old winnowing machine before, clean and dry, it is stored in carboys, sealed, and sent for germination analysis.

"In labour alone it costs us," said Mr Mackay, "£1 to extract each pound of seed." And during the last five years, 24,437 bushels of cones, some gathered locally from tree tops at 4s. 6d. a bushel, but others dispatched from forests in all parts of Britain, have yielded 15,056 lb of seed. "I am surprised," observed Mr Mackay, "how good a seed, often 80 per cent in germinating quality, results from our young pines, 16 to 18 years old."

The agricultural interest must not be lost sight of. Lord Iveagh's two estates in the south of Breckland, the Elveden Estate of 23,000 acres and the Barnham Estate of 2-3,000 acres, are pioneer and indeed model illustrations today of how successfully the sparsely vegetated heathland, interspersed with bracken and heather beds, can be reclaimed by a cropping system based on liming, oat and lucerne growing. In resisting the Forestry Commission's claims to encroach further on his acres, Lord Iveagh is but upholding his feeling for priorities. As a practical farmer and resourceful experimenter he cherishes his "poor lands" now with good reason.

Whereas his father, the late Viscount Elveden, bought the Elveden Estate from the Maharajah Duleep Singh and preferred to maintain it as one of the finest sporting estates in the country, he has courageously

turned to the plough in recent times 500-1,000 acres a year of rabbit cropped, stony Breckland. Already he runs 2,000 head of sheep, nearly 1,500 head of cattle, and with 9,000 acres regained for agriculture, harvests good yielding crops of barley, oats, and sugar beet, so contributing stoutly to the nation's needs. Growing private woodlands, too, as wind shelters for his crops and herds, Lord Iveagh resolutely raises higher and higher the flag of good husbandry on what were formerly rabbit plagued wastes. May pettifogging officialdom never cause him to lower it!

Breckland carries other appeals, rewarding the lover of wild beauty no less than the historian, the archaeologist, and geologist. She is a versatile mistress. And, although at present the Forestry Commission dominates her scene, this domination can never be—as a resident, I say this fervently—complete. For, away to the east, the Norfolk Naturalists Trust owns 350 acres of the true Breck, embracing those strange waters, Langmere and Fowlmere, which fill up in summer and empty in winter, and East Wretham Heath. Not far off is Breckles, site of a far tinier mere but reflecting still in solitary isolation the yearnings of primitive man and doubly distinguished for being painted by the greatest of modern Englishmen, Mr Winston Churchill. Then, just north of Brandon, the Trust holds at Weeting Heath a further 350 acres and 225 acres on Thetford Heath; sites, not only of wonderful flowers, but nesting haunts still of the stone curlew, Norfolk and ringed plover.

It is perhaps regrettable that no large single stretch of this country can be preserved in its virginal state. Lakenheath airfield, with its Super-Forts, R.A.F. and American hutments, and varied defensive posts, sprawls now over nearly 2,000 acres. Before the bull-dozers flattened it, this would have been a wonderful preserve with its sand-dunes, scattered tree knolls, heather and bracken folds opening ever fresh windows on forgotten centuries.

Then, northwards, between Mundford and Watton; the War Office keeps a tight, prohibited control over the Standford battle area, about 20,000 acres in all, in which old flint-stone villages lie now deserted and crumpled, their walls shot and shell-riddled, floors rabbit and rat infested, and roadways and gardens, rank and misshapen, in fact hardly identifiable after repeated hammerings by tank and track

vehicles and long periods of utter idleness. The gloom of dereliction extends also to a church or two, and so lovely a site as Thompson Water, tank mauled, is put out of bounds.

But let me not harp on losses or become melancholy. Almost in the middle of Breckland, the Office of Works acts as custodian to Grime's Graves, a still largely unexplored series of flint mines, where Neolithic man quarried flints using antler and bone picks to arm himself with axe, spear, and arrow heads, and furnish domestic implements for his tribal dwellings. The grove, where these pits lie, is an enchanted spot.

The official warden, whose statements about the early pitmen, their size and technique, are a little confusing in detail, has gone home. Now, there is no one else but you left beside the silver birches, shedding their dappled light over the cup-shaped depressions; you—and those Neolithic ghosts, the early toilers under the Breckland sun. It is a queer feeling. What is mysterious in the universe seems to gather force, promising afresh some destiny to man for all his gropings and errors, a destiny, which the Stone Age men, pursuing their inarticulate gleam for good craftsmanship, perceived but dimly, yet perceive it they did, and it was of sufficient light and creative power to lead their race out of aeons of animal accepted darkness. Of all spots in Britain, this is my *genius loci*. I could be a druid here, and make sacrifices to pagan gods. For preternatural powers lurk on this knoll, the indefinable presences, perhaps, of the earliest of all gods to uplift and spur on our prehistoric ancestors.

Yes, along the chalk back of Breckland, over which runs the Icknield Way, the Peddar's Way and many a pilgrim's path, came waves after waves of early settlers to Britain. The very arteries of our race cross and intersect it. But now all is peace, and man a seeming backnumber.

Roe deer trip shyly across her forest "rides"; in High Lodge, the largest "beat" in Thetford Chase, about 60 have their freedom, one deer to each 100 acres, and sometimes venison sizzles in the ovens of Santon Downham, a haunch or two farther afield! A badger or so lurks in secret amid thicket-screened "setts"; foxes are active; and hedgehogs die in the roadways more frequently than rabbits, their curl-up-and-wait technique being fatal, on such surfaces, to their

safety first desires.

However, man cannot be wholly obscured. And in Brandon, flint knappers, watched sometimes by pilots of U.S. Super-Forts, still follow the oldest of Breckland's crafts, hammering and chipping out gun flints to service the muskets of their African customers, as if warplanes and atom bombs were but a fairy tale.

But, if there is one quality this region possesses above all others, it is the sense of isolated splendour. Wild and challenging, fierce indeed in days of storm or high wind, the region yet pervades a subtle kindness, encouraging her kinsmen to grapple with reality even as our primitive fathers were quickened and goaded. Rewarding vistas of entranced sunlight and calm break suddenly through the dreariest day.

Whatever guardian spirit presides over Breckland, phantom or god, the human story here so daringly begun can never end, one feels, with a mere whimper or in some despairing howl in the trees.

COMPARISON BETWEEN DESIGN SPECIFICATION AND ACTUAL PERFORMANCE FOR PEELER UNIT AND SAWMILL AT BRANDON DEPOT

PEELER The invitation to tender for a Bark Peeling and Milling Unit stated a requirement for a minimum throughput of 3,350,000 lineal metres per annum in an 8 hour day, 240 day year, with appropriate allowance for maintenance and other downtime.

Feed speed to be 35 lineal metres per minute. This was of necessity based on limited information available at the time, mainly a Work Study report dated 1.4.70 (See Appendix I) which formed the basis for measurement of production and payment up to the introduction of the new unit.

The two salient factors used were:-

1) Mean lineal metres per m^3 = 61
2) Running hours per 8 hour day = 4.8

Actual Data for each Peeler for the period 6 January to 16 February 1986, a period of 6 weeks, are recorded in Tables 1 and 2.

TABLE 1

	28.5 lin. m/m^3 PEELER NO. 1 (45)						53.8 lin. m/m^3 PEELER NO. 2 (35)					
	HRS	%	lin metres	lin. m. per min.	vol m^3	m^3 min	HRS	%	lin metres	lin. m. per min.	vol m^3	m^3 min
GROSS	240	100	110752	7.7	3883.3	0.27	240	100	98035	6.8	1823.7	0.13
RUN	123.6	52		14.9		0.52	123.0	51		13.3		0.25
LOAD	65.7	27		28.0		0.98	60.9	25		26.8		0.50
W/S	PER ST. MIN.			13.7						12.0		
FEED SPEED				34.5						28.5		

N.B. 1) W/S figures calculated from Output Guide - time to peel 1 lineal metre.
2) Feed speed supplied by M I Edwards. There are 3 more speeds available on each peeler, 1 at the touch of a button and 2 more by changing pulley wheels.

TABLE 2

MEAN FIGS FOR 2 PEELERS COMBINED

	HRS	%	lin. metres	lin. m. min.	vol. m^3	m^3 min.	lin. m. m^3
GROSS	480	100	208787	7.2	5707.5	0.20	36.6
RUN	246.6	51		14.1		0.39	
LOAD	126.6	26		27.5		0.75	

From Table 2 and assuming 240 x 8 hrs as specified the annual potential based on performance over the 6 weeks period is:-

240 x 8 x 60 x 7.2 x 2	=	1,658,880 lineal m.
	OR	46,000 m^3
Compared with specification		3,350,000 lineal m.
	OR	70,000 m^3

N.B. The specification assumed 61 lineal metres per m^3 whereas over the last 6 weeks period the figure is 36.6 lineal metres per m^3.

The following facts and observations emerge from these figures.

1) Actual throughput in volumetric terms, is 50% of design specification but it must be recognised that information available for preparing the specification was very limited.

2) Throughput in terms of volume is running at 66% of design specification and again the limited information available at the time plus the change in the population of poles peeled must be recognised.

3) Feed speeds recorded for each of the peelers in the bottom line are the lowest of 2 readily available as these have been found to be the most practical in terms of operation and peeling quality.

4) The crucial factors are the relationship between gross, run, and load hours in practice compared with the assumptions made when preparing the specification and design.

5) There are many factors which affect this relationship some of which are:-

a) Availability of machines to feed and take away particularly because of their additional role in loading bark and woodwool etc as well as adjusting loads for weight originally loaded in the forest.

Also at times of annual leave, sickness and breakdown our resources are very stretched but it would not be economic to extend the fleet. Investigations regarding fork lift/Gremo replacement may help in this direction.

b) Pole quality, presentation and weather conditions are the other major factors.

c) Breakdowns have been significantly reduced by fairly minor modifications over the years.

While volume peeled per running hour continues to improve it is without doubt the case that the most significant improvement will result from improving the relationship between gross, run and load hours.

However, for the reasons given it is most unlikely that 70,000 m^3 is possible in 240 x 8 hour days with the population of poles likely in the forseeable future, even if the volume was available.

SAWMILL The Outline Specification for the Sawmill at Brandon Depot sent out with the invitation to tender stated a requirement to crosscut 3,000,000 lineal meters at the rate of 2,000 metres per hour at 70% machine availability ie. 1500 hrs net. or 2143 gross.

The Band saw specification required a minimum of 1500 lineal metres per hour.

Table 1 records data relating to a 6 week period 6 January to 16 February 1986 for cross cutting in the Sawmill.

Lineal measure recorded is that which results from totalling product lengths and excludes any allowance for offcuts as does the volume recorded.

The measuring devices are normally accurate within reasonable limits but when ice and snow are present as during this 6 week period, accuracy is much reduced, hence the use of product length for this paper.

TABLE 1

CROSS-CUT SAWS

	HRS	%	lin. metres	lin. m. hr	vol. m^3	m^3 hr	
GROSS	240	100	148722	620	3483.8	14.5	Work Study output guide
RUN	154.9	65		960		22.5	Products < 1200mm. 615 lin. m/hr
							> 1200mm. 891 lin. m/hr
LOAD	-	-					

1) The indication from Table 1 is that cross-cutting running hours are 65% of total hours compared with the assumed 70% in the specification and there were no holiday breaks during the 6 weeks.

2) Lineal metres cross-cut per running hour (3 saws) at 960 is 48% of the 2,000 metres per hour specified.

3) This figure is supported by the figure calculated from W/S Output Guide shown on the right of Table 1.

4) In recognition of this our objective has always been to improve flow by reducing hold ups, mainly by minor modifications to the Split side where most hold ups occur.

The recent paper suggesting 4 more bins on the Split side is in line with this policy.

TABLE 2

BAND SAW

	HRS	%	lin. metres	lin. m. hr	vol. m^3	m^3 hr
GROSS	240	100	77321	322	1870	7.8
RUN	146.7	61		527		12.7
LOAD	139.3	58		555		13.4

Table 2 indicates that a very high proportion of running time on the band saw is spent actually sawing (95%) and the output per load hour was 555 lineal metres compared with 1,500 metres specified.

However, item c) para 3 - Operational Requirements states that 70% of the round wood throughput of the mill would go to colliery splits.

This of course is not so but rather 70% of Pitwood volume excluding Woodwool, PSR Bungwood and Wastewood. This volume over the 6 weeks period was 80% of total product volume. Splits have therefore accounted for 56% of the total product volume.

Again the specification was only as good as the limited information available at the time.

The actual requirement is significantly less than stated and as with the Peelers, improved relationship between gross and run hours is the key to improved throughput.

-

B Griggs
19.2.86

To: Mr M Dinning

Copy: Mr K Buswell

BRANDON CENTRAL DEPOT DEVELOPMENT

With reference to the minutes of the Steering Group Meeting held 10.1.80. para 3e regarding throughput for the peeler complex. The only information I have is a report by Cheesewright dated 1.4.70 on which current volume calculations are and have been based. The title of the report is "Results of recommendations in Work Study Report 15 Cambio Peeler BCD".

This states:-

Cambio Peeler feed rate		= 103 ft per minute
Metric equivalent		= 31.39 metres per minute
Cambio Poles	10 lineal ft	= 1 Hft
Metric equivalent	84.5 lineal metres	= 1 m^3
Long Butts	6 lineal ft	= 1 Hft
Metric equivalent	50.7 lineal metres	= 1 m^3

Assuming a normal mix 30% Cambio and 70% Long Butts.
Weighted mean = 61 lineal metres = 1 m^3

From "Invitation to tender" Para 4a line 6:-

Minimum throughput 70,000 m^3 per annum on a single 8 hr shift.

Therefore 70,000 x 61 = 4,270,000 lineal metres.

This indicates a required peeling capacity of 4,270,000 lineal metres rather than 3,000,000 as stated in para 4b(i).

However, at 35 lineal metres/minute this revised annual figure implies the following.

35 metres/min = 168,000 metres per 40 hr week for 2 peelers,
or 25.4 weeks to peel 4,270,000.

Current practice assumes 103 ft per minute or 31.39 lineal metres per minute.

Nett hours measured by meter average 4.8 hrs in an 8 hr day.

Therefore 4.8 x 60 x 31.39 = 9040 lineal metres/8 hr day (1 peeler)

Therefore weeks for 2 peelers to peel 4,270,000 lineal metres.

$$= \frac{4,270,000}{9040 \times 5 \times 2} = 47.2 \text{ weeks}$$

47.2 Weeks operational is an ambitious target, but with new purpose built peelers with a reject facility I would anticipate a considerable improvement on the current 4.8 hrs per 8 hr day assumed in arriving at 47.2 weeks.

Assuming an improved figure of 5.7 hrs per 8 hr day, then the number of weeks are reduced to 39.8.

The nett feed speed assumed was 31.39 m^3/min whereas the required speed is stated as 35 m/min. which again would reduce the operational weeks necessary to peel 4,270,000 lineal metres.

In conclusion I believe 4,270,000 lineal metres to be a realistic equivalent of 70,000 m^3 but that assuming a nett feed speed of 35 metres per minute on both peelers, the nett operational hours are likely to be such that the two peelers would cope with the increased number of lineal metres.

B Griggs
28.1.80

P.S. After further reflection I should point out that the figures quoted by Cheesewright relating lineal measure to volume almost certainly refer to poles after peeling. If the 70,000 m^3 referred to is the volume before peeling I wonder whether it might be advisable to state this and of course if this is the case then lineal measure would be:-

70,000 - 10% = 63,000 x 61 = 3,843,000 lineal metres
- 15% = 59,500 x 61 = 3,629,500 " "

APPENDIX 8b

To: Cons E(E)
and Mr N Dannatt, Assist Cons Ops
via FDM Thetford

From: C/F BCD
File Ref U7/5
24 January 1987

PITWOOD - BUNDLING

With reference to Mr Oakley's minute ref U6/6/1 dated 15 December 1986 received 24 Dec 1986 which included the letter from Mr Haycox dated 23 October recommending two companies for the supply of strapping.

I was able to contact one company before Christmas but the holiday period and weather have prevented much progress until this week.

I have now been in contact with 3 companies and to date the situation is as follows:-

1. Signode Ltd - Swansea

Their representative has called and after discussion agreed to send what he considered would be the most suitable tools together with sample strapping. General reluctance to demonstrate and assist with development of a system.

A quote for tool hire and purchase of strapping and dispensers is in the post but the price for their "Apex Blue" Steel Strapping ¾" wide x 0.023" is £52.19 per 1000 in ex works.

2. Acme Gerrard - Rotherham, South Yorks

Following discussion by telephone a day visit was arranged which took place last Thursday. The Southern Sales Manager came with their Regional and Area representatives bringing a good selection of tools, equipment and materials. Having toured the yard and mill we discussed our requirements in the morning and they demonstrated and carried out trials over the range of sizes in props and splits in the afternoon.

The Area rep is prepared to continue trials on a "User" basis, giving training over a period of 1 month, training and use of equipment free, strapping and seals to be purchased. This period would be used to consider and develop a system. Their current price for Blueten Steel Strapping 19 mm wide x 0.58 gauge is £49.26 per 1000 m.

3. Payne Packaging Ltd - Nottingham

This Company was interested but only supply polyester and polypropylene strapping. They were adamant it would do the job and in the quantities we require the price for 18 mm polypropylene would be very competitive.

As British Coal specify steel I have left it that we might be interested to investigate polypropylene at some time in the future but not now. As a result, our considerations over the past months and the conclusions reached have been supported and confirmed by recent discussions and demonstrations. They are:-

(1) It is impractical to bundle to British Coal spec as shown in Appendix I at the sorting stations in the sawmill.

(2) Handling of material from mill to stockyard will continue as at present.

(3) Bundling will be carried out by a Mobile Strapping Unit working in the stockyard. This unit to consist of:-

3.1 Tractor with cab mounted hydraulic crane with grapple.

3.2 Purpose designed low slung trailer with:-

(1) Solid tyres.

(2) Very strong solid construction with good stability.

(3) Cradle unit in which to form bundles, probably paraboloid in shape, possibly with a facility to insert a third bearer for shorter lengths.

(4) Strapping dispensers, probably horizontal, number to be decided.

(5) Strong secure tool box.

(6) Possibly a mobile compressor unit for pneumatic tensioning and sealing tools.

The trailer unit to be towed by the tractor.

(4) One tractor driver capable of operating a knuckle boom crane efficiently and effectively. Two men for filling and strapping who must be fit, strong and preferably young.

Method

1. Fill cradle manually and/or with hydraulic crane from boxes (pallets), depending on product size and weight, counting pieces to number specified for top diameter class.

2. Square ends.

3. Clamp bundle with grapple.

4. Attach straps, tension and secure.

5. Remove bundle to box, stack or load.

NB A grapple is essential as the largest props and splits are too heavy to lift. (Please see App I for data relating to bundles.) Clamping the bundle before strapping ensures a better cross section and reduces the likelihood of slackening during subsequent handling. Acme Gerrard supply Jeffrey Walker of Worksop who rather than use a range of different straps to cover the range of weights, have decided as follows:-

Up to 0.5	2 straps
0.5 to 0.75 tonne	3 straps
0.75 to 1.0 tonne	4 straps

All strapping Blueten Steel 19 mm wide x 0.58 guage as recommended by British Coal. This seems a sensible line to follow and I suggest we do the same. We consider a centre band with 3 straps may be a problem but this is to be checked with the rep who services J Walker. A double loop with one seal is acceptable and reckoned to be equivalent to a factor of 9.95 of the strength of two separate straps.

Removing bundles to a box as pallet would retain bundles in manageable units for stock monitoring and control but recovery for loading not likely to be easy with probability of damage to strapping.

Removal to a stack would render stock control more difficult as it would recovery for loading unless each bundle was stacked separately with bearers between layers and space between each bundle which is impractical in terms of space with approx 160 sizes to consider.

We are convinced that the ultimate aim should be to bundle at the time of loading for the following reasons:-

(a) Recovery problem (grapple entry) eliminated as is that of stock control.

(b) Frequent regular changes to loading plans necessitated by hastened, supplementary, suspended and cancelled orders. Hastened orders in popular sizes regularly loaded from fresh cut material.

(c) Movement straight to load from cradle eliminates double handling.

(d) Reduced handling reduces likelihood of straps slackening.

Proposals

Bearing in mind the urgency of this matter in that we know there will be a significant number of collieries who insist on bundled deliveries from March 1st, I suggest a 3 stage approach.

Stage I

Accept Acme Gerrard's offer of 1 month training and development, to start once adequate staff organised, aiming to bundle at least 1 load per day as soon as possible using Gremo Forwarder as and when it can be made available from its normal role.

Select and order 1 tractor with cab mounted hydraulic crane with suitable grapple, delivery soonest.

Agree design of trailer, and arrange construction and fitting out for supply soonest.

Stage II

Once tractor and trailer arrives, start up, develop system, method, and skills using 2 men plus tractor/crane operator.

Stage III

Integrate bundling and loading.

Currently loading involves a Coles Crane with operator and a sling man. The crane is approaching 20 years and although reliable, major spares would be a problem. During the trials on Thursday we concluded a bundle would take 5 minutes to complete = 12 per hour or 96 per day. Assuming an average bundle to be $0.5m^3$, this implies a daily output of $48m^3$ or approx 2 loads and would we think be possible with 2 men, 1 strapping, 1 on the tractor once skills well developed.

48 weeks @ 35 hrs = 1680 hrs x $6m^3$ = $10080m^3$ per yr

$\therefore$ for a programme of even $20,000m^3$ we will require 2 teams if bundling is to be combined with loading probably using 4 men where we now use 2 for loading only.

Loading would obviously take longer than at present and loading two separate trailers simultaneously raises questions regarding the one shunter we have provided by the haulier at present.

I have considered whether it might be practical for the haulage contractor to include strapping and loading as part of the contract as an extension of the proposition that they might load once all trailers are equipped with cranes.

This could be attractive but control would have to be very tight with an FC employee exercising continuous direction, supervision and control, particularly as sale is to be by the bundle assuming specified numbers per bundle.

It would without doubt result in the contract package becoming so specialised that competitive tender would be out of the question and inevitably objective costing would be virtually impossible when negotiating price increases.

The haulage contract on its own is difficult enough and in negotiations with British Coal during the period of the last contract they suggested the prices negotiated with Peckham were not competitive, a suggestion later clearly disproved by the outcome of the recent tender.

The contractor is currently having to find capital to finance purchase of hydraulic cranes to meet loading vehicles and in the present circumstances the future is at best uncertain.

Finally our time scale renders this option impossible even if the contractor was willing to consider it which in present circumstances is very unlikely.

Acme Gerrard were not aware of anyone working as a packaging contractor and could suggest no-one with any expertise with our type of product.

I therefore conclude we are on our own with the help of Acme Gerrard.

Please see Appendix II for estimated costs.

In the light of all the foregoing considerations I suggest the following action be taken with all urgency.

(1) Recruit 2 strong and fit, preferably young, men capable and willing to work in all weathers.

We have 3 men retiring one each in April, May and July and 1 man on extended sick leave.

The age structure of the workforce is a long way from ideal in that almost 50% are over 55 years of age and we already have insufficient younger men capable of providing back up to the main key jobs, all of which are either physically or mentally demanding.

I have discussed this requirement with FOI and FDM and am told that there are no suitable men available from among forest staff.

I therefore propose that 1 man should be recruited against the Medical Job Release of Mr S Cator, thus resolving the many problems discussed at length with FDM and yourself on a number of occasions. The second man to be recruited in the normal way.

(2) Discuss and agree specification for a tractor complete with cab mounted hydraulic crane and grapple. Place order - for urgent delivery.

(3) Confirm terms with Acme Gerrard and proceed with 1 month's training/development. Arrange forward order contract with Acme Gerrard for regular supply of strapping and seals. Liaise with British Coal re sizes to bundle.

(4) Consider design of trailer, including whether tensioning to be manual or pneumatic. Place order probably with Acme Gerrard. Urgent delivery. (They suggest 14 weeks as reasonable from date of order and would sub contract fabrication.)

I have attempted to indicate likely costs in Appendix II and trust my comments give an adequate statement to allow a prompt decision to proceed.

(Sgd) B Griggs
Chief Forester

BUNDLED PROPS & SPLITS

Schedule showing proposed number of props & splits per bundle with calculated indicators of weight, volume, cross sectional area and circumference.

Length mm	Top Diam mm	Pcs Props	Pcs Splits	Per Bundle Weight tonnes	Per Bundle Vol m^3	Cross Sect Area m^2	Circ m
	50	60					
	60	60					
	70	60					
	80	40					
	90	35					
1200	100	30	60	0.24[1]	0.32	0.41	2.26
	110	25	50				
	120	25	50				
	130	20	40				
	140	15	30				
	150	15	30				
	160	15	30				
	170	15	30				
	180	10	20				
	190	10 8	20 16	*			
	200	10 6	20 12				
	210	10 6	20 12	1.12[2]	1.12	0.60	2.74
	250	10 6	12	1.69[2]	1.69	0.82	3.21

NB

1. Up to 0.5 tonne — 2 straps
   0.5 to 0.75 tonne — 3 straps
   0.75 to 1.0 tonne — 4 straps
   Above 1.0 tonne — Reduce Pcs by agreement

* Revised March 1987.

2. We are occasionally required to supply 250 mm TD and even 300.

3. Weight [1]@ 1.35 mm: 1 tonne, 1 tonne [2]@ $1m^3$: 1 tonne in order to maximise upper and lower limits.

4. Assumes min and max length for some reason.

5. Calculated assuming solid area of pieces is 70% of total cross sectional area of bundle.

6. Circumference calculated from cross sectional area.
   Both probably an over-estimate.

Appendix Ia

STATEMENT SHOWING SIZE, VOLUME PER PIECE, NO. OF PIECES PER CUBIC METRE AND ESTIMATED WEIGHT PER BUNDLE BASED ON

(A) $1m^3$ = 1 TONNE (B) $1.35m^3$ = 1 TONNE OF THE MOST POPULAR SIZES OF BRITISH PROP

N.B. For Splits double number of Pieces in Column 3

Size mm mm	Volume per Piece (m^3)	No. of Pcs. per Bundle	Pcs. per m^3	Weight (Kg's) $1m^3$ = 1000 Kg		Weight (Kg's) $1.35m^3$ = 1000 K	
				Piece	Bundle	Piece	Bund
600 x 60	.001904	60	525.2	1.90	114	1.41	8
900 x 60	.003019	60	331.2	3.02	181	2.24	13
975 x 70	.004400	60	227.3	4.40	264	3.26	19
900 x 80	.005150	40	194.2	5.15	206	3.81	15
975 x 80	.005638	40	177.4	5.64	226	4.18	16
1050 x 80	.006135	40	163.0	6.13	245	4.54	18
900 x 90	.006427	35	155.6	6.43	225	4.76	16
975 x 90	.007028	35	142.3	7.03	246	5.21	18
900 x 100	.007846	30	127.5	7.84	235	5.81	17
975 x 100	.008572	30	116.7	8.57	257	6.35	19
1050 x 100	.009310	30	107.4	9.31	279	6.90	20
1200 x 100	.010819	30	92.4	10.82	325	8.01	24
900 x 110	.009406	25	106.3	9.41	235	6.97	17
975 x 110	.010269	25	97.4	10.27	257	7.61	19
1200 x 110	.012933	25	77.3	12.93	323	9.58	24
1200 x 120	.015235	25	65.6	15.23	381	11.28	28
1350 x 120	.017381	25	57.5	17.38	435	12.88	32
1350 x 130	.020203	20	49.5	20.20	404	14.96	29
1500 x 130	.022739	20	44.0	22.74	455	16.84	33
2400 x 130	.039242	20	25.5	39.25	785	29.07	581
1350 x 140	.029089	15	34.4	29.09	436	21.54	32
1800 x 140	.032112	15	31.1	32.11	482	23.79	35
2400 x 140	.044870	15	22.3	44.86	673	33.23	49
1800 x 150	.036515	15	27.4	36.51	548	27.04	40
2100 x 150	.043553	15	23.0	43.55	653	32.26	48
2400 x 150	.050875	15	19.7	50.87	763	37.68	56
2100 x 160	.049078	15	20.4	49.07	736	36.35	54
2400 x 160	.057256	15	17.5	57.24	859	42.40	63
2400 x 170	.064015	15	15.6	64.02	960	47.42	71
1800 x 180	.051420	10	19.5	51.41	514	38.08	381
2100 x 180	.061118	10	16.4	61.12	611	45.27	45
2700 x 180	.081523	10	12.3	81.50	815	60.37	60
2400 x 190	.078664	10	12.7	78.68	787	58.28	58
2700 x 190	.090051	10	11.1	90.09	901	66.73	667
3000 x 200	.111829	10	9.0	111.73	1117	82.76	828

ESTIMATED COSTS OF BUNDLING ROUND & SPLIT MINING TIMBER

Resource	Programme 10,000m³ 20,000 Bundles Detail	£	£
Wages	2 men @ 1700 hrs @ £4 per hour	13600	
Oncost	@ 40%) 87.88 rates approx	5440	
Admin	@ 28.5%)	3870	
			22910
Cash	Rental A12c6 combination tool x 2 (1 spare)	280	
	Purchase strapping 20,000 bundles x 3 straps @ 2m = 120000 m @ £49.26 per 1000 m	5911	
	Seals 20,000 x 3 = 60,000 @ £10.90 per 1000	654	
			6845
VME	Estimated @ 87.88 rates including overheads @ 24% tractor & trailer		
	1700 hrs @ £6.50	11050	
			11050
	Total assumed to include loading		40805
	Unit cost per bundle per m³		2.04 4.08
	87-88 budgeted all in cost per m³ for loading		1.20
	∴ Marginal cost for building per m³ per bundle		2.88 1.44

NB Rental 2 Pneumatic Tensioners & Sealers per annum £345

I have assumed:- 1 bundle = 0.5m³
3 straps per bundle
2 metres per strap
12 bundles per hour

At this early stage outputs are obviously difficult to predict but with pneumatic tools and two teams each with a tractor, programmes of 20,000 to 25,000m³ would appear to be possible, the only cost variable being materials and maybe only 1 spare tool between 2 teams.

(Sgd) B Griggs

APPENDIX 8c

HAULAGE CONTRACT

1. The Forestry Commissioners acting by Conservator of Forests for East England agree to make available for collection and K Peckham Esq Haulage Contractor, of 40 Paynes Lane, Feltwell, Thetford, Norfolk hereinafter called the Contractor agrees to deliver material from Brandon Central Depot, Thetford Forest in the County of Norfolk to the areas of British Coal as shown in Schedule A "Description of Deliveries (from-to) and Rate per Tonne" on the following terms and conditions.

2. Period of Contract

The agreement will operate from 1.10.86 to 30.9.89.

3. Price

a. For the period 1.10.86 to 30.9.89 the Contractor will be paid for each consignment delivered at the rate shown in Schedule A.

b. The basis for negotiating the prices for the years 1.10.87 to 30.9.88 and 1.10.88 to 30.9.89 will be the figures published by the Commercial Motor for 1986. Total Operating Cost per mile for a mileage of 1,000 miles per week and the similar published figures for 1987 and 1988.

The Forestry Commission officers and the Contractor will meet in September 1987 and September 1988 for the purpose of negotiating prices using the figures published by the Commercial Motor as the basis for negotiation.

Price revision between annual reviews will only be considered in the event of major changes in costs which could not have been foreseen.

4. Payment

Payment will be on the basis of weights certified on the Brandon Central Depot public weighbridge and made within 28 days of receipt of invoice provided that the work has been completed to the Commissioners' satisfaction.

5. Commissioners' Undertaking

The Commissioners undertake

a. To stack the material within the depot where a lorry may collect and to provide adequate access along the roads as indicated by the Forester in Charge.

b. To stack the material in such fashion as to facilitate loading to the Contractor's vehicle.

c. To advise the Contractor when loads are available for collection.

6. Contractor's Undertaking

The Contractor undertakes

a. To provide suitable equipment and vehicles for the delivery of the material and to be responsible in all respects for the safety of the material and to ensure that the load in no way infringes any statutory duty whether loaded or part-loaded by the Commission's servants or not.

b. To satisfy the Commission that his vehicles are licensed, insured and properly maintained in good mechanical condition in accordance with the Road Traffic Acts, and that he, his agents, servants and sub-contractors are fully covered by insurance in respect of Third Party risks in relation to any motor vehicle belonging to him or them or under his or their control, at all times when being used in connection with the Contract, whether such use be on roads or land owned or occupied by the Commission or any other party. Failing such satisfaction being provided in respect of any such vehicle, the Commission shall have the right to exclude it from any road or other land in their occupation. If requested in writing by the Commission, the Contractor, his agents or sub-contractor shall within 5 days from the receipt of such request produce to the Commission the Policy of Certificate of Insurance showing that the required cover is in force. The Commissioners reserve the right to refuse to load any vehicle which they consider is unsuitable in itself or unsuitably equipped for haulage of the timber, but the fact that they have loaded a vehicle shall not be deemed to indicate that they warrant the vehicle to be suitably equipped, or that the load is safely and securely stacked, or that it complies with statutory requirements.

c. To collect and to deliver the material safe, intact and undamaged to its destination within 3 days of the notification of its availability unless prevented by adverse weather conditions and to render accounts and weight tickets promptly.

d. To collect the material from the depot between the hours of 7.30 a.m. and 2.00 p.m. Monday to Friday only, unless otherwise agreed with the Forester.

e. To deliver loads of the material which may be rejected as unsuitable by British Coal to other places as directed by a servant of the Commission at extra rates to be agreed.

f. To operate the delivery service in a good and workmanlike manner and in all things to the satisfaction of the Commissioners.

7. Specification

Props and splits of various lengths and top diameter, mainly between 525 and 3600mm long and 80 to 250 mm top diameter.

8. Force Majeure

a. The operation of the contract will be suspended for an appropriate period in the event of either party being prevented from carrying out his obligations because of strikes, lock-outs, fire, flood or other extraordinary occurrence beyond his control or if the delivery of the material is stopped by reason of the operation of a similar clause in the agreement which the Commission have with British Coal. The party prevented from fulfilling his obligations will give immediate notice to the other.

Termination

b. If the Contractor commits a breach of a serious nature of any of the conditions of this contract the Commissioners shall have the right by written notice to require the Contractor to remedy the matter within 14 days and if the matter is not so remedied the Commissioners shall have the right to terminate the contract and any termination shall be without prejudice to their other rights or remedies under the contract.

9. Assignment

The Contractor is not to assign the contract or to employ a sub-contractor without the consent of the Commissioners. Such consent is not to be unreasonably withheld but will be upon such terms as the Commissioners may require.

10. Indemnity

The Contractor shall be responsible for and shall make compensation for or reinstate and make good all injuries or damage arising out of or in any way in connection with the execution of the work and occasioned to any persons or their property for which a right of action at the suit of such persons shall lie and keep the Minister of Agriculture, Fisheries and Food (hereinafter called "the Minister") and the Commissioners indemnified in respect of all actions, claims and demands made in respect of any such injuries or damage and in the case of injuries or damage so arising caused to the persons or property of the Minister the Commissioners or their officers (and in the case of damage to property whether such damage shall be occasioned by negligence or not) including damage to any roadway or the extraction routes, bridges and culverts forming part of such routes or any mains pipes or electric cables the Contractor shall make compensation for or reinstate and make good such injuries or damage.

11. Access

Access to the loading site shall be by agreement with the Forester in Charge Brandon Central Depot.

12 Fire

The Contractor shall not light fires or use any steam engine within the depot area without the permission of the Forester in Charge and shall take all reasonable and proper precautions under the direction of the Forester in Charge to prevent and to deal with the risk of fire on the said area or adjoining ground and the Contractor shall be responsible for any loss whatsoever through fire attributable to the negligence of himself or of his agents, sub-contractors or assigns or the employees of any of them.

13 Health and Safety at Work Act

The Contractor will accept full responsibility for complying with the provisions of the Health and Safety at Work Act 1974 and all relevant regulations in respect of the work comprised in this contract and taking place within or upon the land, access roads and others belonging to the Commissioners, but nothing in this clause shall be deemed to impose on the Contractor obligations or duties which are greater than those imposed by current legislation.

14. Fair Wages

The acceptance of this Contract implies the obligation to observe and fulfil the conditions imposed by the Government Contracts Fair Wages Resolution of 14 October 1946, a copy of which can be obtained from Her Majesty's Stationery Office or any bookseller.

15. This agreement does not authorise the Contractor to park lorries in the depot other than during loading operations. A separate licence with the Contractor will regulate parking, fuelling, the carrying out of vehicle maintenance and repair operations etc, and will be valid only in connection with and for the duration of this haulage agreement.

TENDER FORM

Tender for the haulage of pitwood from Forestry Commission Brandon Depot for the period 1 October 1986 to 30 September 1989.

Type of Material - Peeled Pit Props and Splits

To Collieries and Yards in:	From Brandon		
	Price per Tonne Minimum Load		
	12 Tonnes	15 Tonnes	20 Tonnes
1. BC South & North Notts & North Derbys Area — FLAT	12.01	10.30	8.85
CRANE	13.02	11.33	9.73
2. BC Doncaster & Barnsley Area — FLAT	13.15	11.28	9.68
CRANE	14.46	12.40	10.64
3. BC North & South Yorks Area — FLAT	13.15	11.28	9.68
CRANE	14.46	12.40	10.64
4. BC South Midlands Area — FLAT	12.01	10.30	8.85
CRANE	13.21	11.33	9.73
5. BC Western Area (South) — FLAT	13.15	11.28	9.68
CRANE	14.46	12.40	10.64
6. BC Northumberland Area — FLAT	19.30	16.56	15.83
CRANE	21.23	18.02	17.04
7. BC South & North Durham Area — FLAT	17.93	15.37	14.77
CRANE	19.72	16.90	16.24
8. BC Western Area (North) — FLAT	17.31	14.83	12.72
CRANE	19.00	16.31	13.99

The delivery rate is governed by the rate of calling forward of produce by British Coal.

"SCHEDULE"

PITWOOD HAULAGE CONTRACT HL/LT/3

This Schedule describes daily working practices amplifying contract paragraphs 5 and 6.

1. Equipment - The haulier will provide suitable equipment for the delivery of the material using flat bed trailers fitted with adequate sockets, stanchions, ropes and sheets. Past practice has shown that 15 trailers is the optimum number for this operation.

(i) For self offloading a hydraulic crane with suitable grapple must be provided mounted on the trailer or cab, plus equipment much as in (ii) below;

(ii) For offloading by British Coal trailers should be equipped with sockets at 300 mm intervals down each side of the bed. Irons - minimum 2 metres from upper surface of lorry bed, 40 per trailer with 100 extra available to equip 2 trailers for short props loaded parallel to axis of lorry bed when required. Products are sometimes loaded across the bed when back irons are required so this facility would be desirable on say 2 trailers. Bearers - an adequate supply of "split" bearers will be made available initially and a stock maintained to furnish reasonable replacements. In order to assist in keeping track of bearers the numbers used on each load will be recorded on the U3b Conveyance Note. Should replacement levels become unacceptable we would be obliged to make a charge for supplying them. Adequate ropes for tying in irons at half height and for tying down finally, also sheets for short prop loads.

2. Shunter - To be a man competent in all aspects of lorry work, equipped with a serviceable tractor unit and sufficient empty, fully equipped trailers each day to load that day's loads, preferably without having to wait for trailers to return.

3. Load Organisation - Number of loads can range from 4 to 7 per day depending on the level of BC orders. Every effort will be made to maintain a steady number of loads each day and in normal circumstances, any proposed change would be with at least one week's notice and that after discussion with the haulier.

Load details for the following day's loading will be given by telephone usually in the afternoons. A written copy of these details will be given to the Shunter, usually the evening before the day they are due to be loaded.

Normally we would expect loads to be delivered to the colliery the day following the day they are loaded except those loaded on Fridays when we would expect delivery on Monday. Should this not be possible on any occasion we would expect to be informed as soon as possible.

Should any driver find on arrival at the colliery that they will not accept the load for any reason and they are not prepared to arrange a diversion to another colliery, he should contact this office immediately and we will endeavour to organise an alternative drop via BC Doncaster Office. This procedure should also apply in cases of excessive demurrage beyond the accepted period of 2 hours. In all such cases it is imperative that the colliery storekeeper and no-one else should sign the docket provided by us, as this is the only signature BC Doncaster will accept to support invoices.

Agreement to the use of sub contractors is a requirement of the contract and we would prefer that your Shunter loads the trailers and the sub contractor just collects the already loaded trailer.

4. Paperwork - The following will be supplied with each load.

U3b Conveyance Note - to be signed by colliery storekeeper and retained by driver for subsequent return to this office supporting your invoice as proof of delivery.

A39 Advice Note (white copy) left with colliery.

Weight Ticket - left with colliery.

Demurrage/Diversion docket - to be signed by colliery storekeeper on arrival and departure and retained by driver as support to your claims for either demurrage or diversions whenever required. Any claims must be made as soon as possible after the event and not later than 2 weeks.

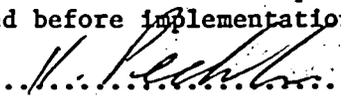
We believe the most practical approach to both demurrage and diversion charges is to agree a standard charge per hour for demurrage and a single lump sum standard charge for diversions. The alternative is for all parties; yourselves, BC and the Forestry Commission to investigate and cost every incident separately involving a great deal of time and effort on the part of all concerned.

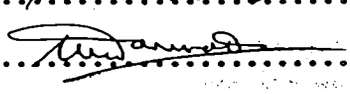
The few items of paperwork are stapled together and left in a weather-proof box in the office porch. Our experience in the past indicates that it is desirable to allocate specific loads to specific drivers. This can be done by either our weighbridge operator or your Shunter writing the names on the paperwork for each load, whichever you prefer.

Invoices - We keep a daily ledger recording load details, weight and cost. We would prefer to check details weekly for you to present your invoices to coincide with our accounting periods of 4 or 5 weeks. A schedule of dates for each forest year will be provided. We would prefer that delivery rather than loading should determine inclusion and for this reason would ask that the final entry on an invoice will be the last load loaded on the Thursday for delivery on the Friday.

The practice has been to supply a schedule listing for each load, the date, colliery, area weight, rate and cost. These schedules to be summarised onto a single line entry invoice, both the schedules and invoice being submitted to this office one to 2 weeks after the end of the relevant period. They are normally checked and sent to our Computer Centre for payment within 48 hours and payment should be within 2 to 3 weeks.

5. The above practices have developed over the years and any proposed changes will be fully discussed before implementation.

6. Agreed by .....  ..... (Contractor)

.....  ..... (Forestry Commission)

THETFORD FOREST
LICENCE TO PARK VEHICLES AT BRANDON CENTRAL DEPOT

1. The Minister of Agriculture Fisheries and Food (hereinafter referred to as "the Licensor") hereby grants permission for K Peckham Esq (hereinafter referred to as "the Licensee) to use land at Brandon Central Depot for the purposes of parking vehicles (including trailer units) and providing storage facilities for fuel, oil and lubricants, such facilities to be agreed with the Chief Forester for Brandon Central Depot as to nature, size and location.

2. The permission is granted solely in conjunction with the Contract No H/LT/3 dated 1.10.86 between the Licensor and the Licensee and will subsist for the period of that Contract unless terminated as provided for below.

3. The area to be used (hereinafter referred to as "the Designated Area") will be allocated by the Chief Forester and may be varied from time to time to fit in with his own work requirements. Any reasonable directions on this and other matters by the Chief Forester are to be complied with by the Licensee.

4. The maximum number of trailer units permitted within the Depot at any one time will not exceed 15 as required specifically to fulfil the requirements of the Contract referred to above.

5. The fuelling, lubricating and servicing of vehicles during normal Depot working hours will be permitted but no other maintenance activity will be carried out. The only activity permitted outside Depot working hours will be the collection and/or delivery of trailer units used in conjunction with the above Contract.

6. The Licensee will obtain all necessary Statutory or Local Authority consents in respect of the rights granted and will comply with any conditions thus imposed.

7. The Licensee will be responsible for payment of rates, taxes or other assessments arising out of the use of the land for the purpose granted.

8. The Licensee will take all reasonable steps to prevent the outbreak of fire and will provide fire fighting equipment which is to be regularly serviced. Access to the equipment should be freely available at all times to the Chief Forester or any of his staff.

9. The rights hereby granted shall be exercised in such manner as to do as little damage as possible to the property of the Licensor and it shall be the Licensee's responsibility to make good to the Licensor's satisfaction all such damage as may be done as soon as possible after the occurrence thereof and insofar as such damage cannot be made good the Licensee shall make compensation to the Licensor for the same.

10. (a) The Licensee shall at all times hereafter keep the Licensor indemnified against all claims demands proceedings costs and expenses that may be made or brought against or incurred by him by reason of anything done by the Licensee or persons deriving right from him in the exercise or purported exercise or in any way arising out of the exercise of the rights and duties imposed hereby on him.

(b) The Licensee shall at all times hereafter keep the Licensor and each and everyone of his servants or agents indemnified against all actions claims demands proceedings costs and expenses that may be made or brought against or incurred by him or them as the case may be in respect or arising out of any injury (fatal or otherwise) loss or damage suffered by the Licensee or those for whom he is responsible or by any person undertaking any work for or on behalf of the Licensee in connection with any of the rights hereby granted or by the servants or agents of any such person by reason of any act or default on the part of the Licensor his servants or agents (other than any malicious or wilful act or default and subject to the Unfair Contract Terms Act 1977) and so suffered during or in the course of the exercise or purported exercise of any of the rights hereby granted.

11. No fire is to be lit nor is smoking to be allowed unless expressly permitted by the Chief Forester.

12. The Designated Area is to be kept clean and tidy at all times and any damage to the surface is to be made good to the satisfaction of the Chief Forester.

13. The Licensee his servants or agents will not at any time cause nuisance to the Licensor or its tenants or Licensees lawfully using or residing adjacent to Brandon Central Depot.

14. This permission may be terminated by fourteen days notice given in writing by either party to the other and will not prejudice any claim made under paragraphs 9 and 10 above.

Signed .....
on behalf of the Minister of Agriculture
Fisheries and Food

Date ..... 20th October 1986 .....

Signed .....(Licensee)

Date ..... 16/9/86 .....

TENDER FORM

Tender for the haulage of Forest Produce from Forestry Commission Brandon Depot for the period 1 October 1973 to 31 September 1976.

Type of Material - Peeled Wood Props

TO COLLIERIES IN:-	FROM BRANDON									
	PRICE PER TONNE MINIMUM LOAD									
	8 tonnes		10 tonnes		12 tonnes		15 tonnes		20 tonnes	
(1) NCB South Notts Area	£4.00	£3.75	3.40	3.03	3.20	2.92	3.00	2.79	2.55	2.67
(2) NCB North Notts Area	4.00	3.75	3.40	3.03	3.20	2.92	3.00	2.79	2.55	2.67
(3) NCB North Derbys Area	4.00	3.75	3.40	3.03	3.20	2.92	3.00	2.79	2.55	2.67
(4) NCB Doncaster Area	4.20	4.18	3.70	3.34	3.30	2.97	3.10	2.86	2.60	2.73
(5) NCB Barnsley Area	4.20	4.18	3.70	3.34	3.30	2.97	3.10	2.86	2.60	2.73
(6) NCB North Yorks Area	4.50	4.54	4.00	3.63	3.70	3.34	3.30	3.04	2.75	2.92
(7) NCB South Yorks Area	4.50	4.54	4.00	3.63	3.70	3.34	3.30	3.04	2.75	2.92
(8) NCB Staffordshire Area	4.20	3.94	3.50	3.15	3.20	2.97	3.10	2.86	2.60	2.73
(9) NCB South Midlands Area	4.20	3.94	3.50	3.15	3.20	2.97	3.10	2.86	2.60	2.73
(10) NCB Northumberland Area	5.20	6.06	4.70	4.85	4.30	4.49	4.10	4.26	3.90	4.13
(11) NCB South Durham Area	5.20	5.69	4.70	4.55	4.20	4.26	3.90	4.13	3.75	3.97
(12) NCB North Durham Area	5.20	6.06	4.70	4.85	4.30	4.49	4.10	4.26	3.90	4.13

Props	-140mm	£13.72	Splits	-140mm	£14.61
	+150mm	£17.92		+150mm	£18.81

Appendix 8e

PITWOOD HAULAGE ZONES

Scale 1:625 000 or about one inch to ten miles

Miles 10 0 10 20 30 40 50
Kilometres 10 0 10 20 30 40 50 60 70 80
1 mile = 1·61 Kilometres

LEGEND

- NCB Collieries
- Prop Treatment Depot
- Haulage Zone Boundary

Haulage at Northumberland rates

1 North Derbyshire

2 Barnsley and Doncaster Area

3 North and South Yorkshire Area

4 South Midlands

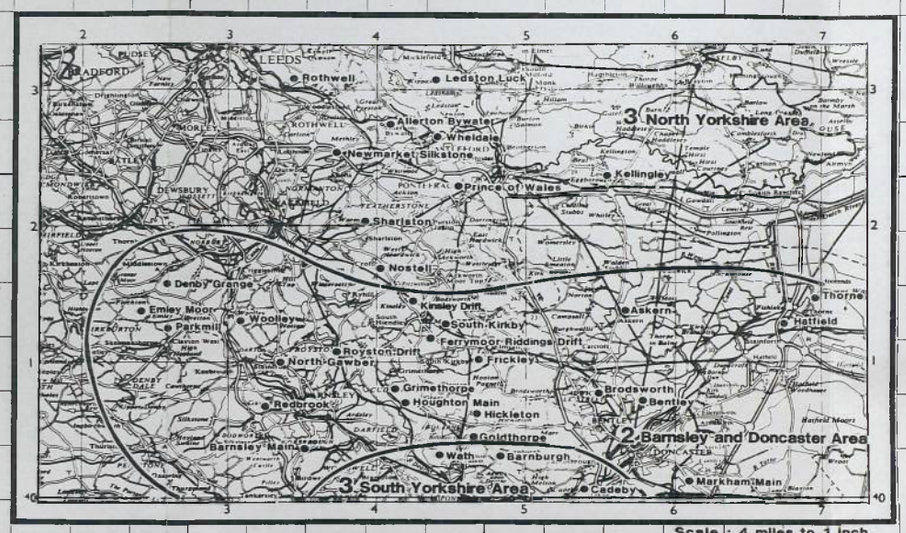
5 Western Area (South)

6 Northumberland Area

7 Durham Area

8 Western Area (North)

9 Nottinghamshire



Scale : 4 miles to 1 inch

APPENDIX 8f

Our ref: U12/2

Mr N Dannatt
Asst Cons Ops

Copy to Mr L M Simpson
FDM Thetford

B.C.D BOARD OF MANAGEMENT

Please find enclosed statement concerning the current situation with British Coal orders together with information and analysis relating to Pitwood and Bungwood haulage Oct 86 to Aug 87 inclusive for information prior to the Board Meeting on Thurs. 17 September 1987.

Also enclosed are copies of the monthly report forms for August, completed as far as I am able in the absence of FC32 print for any month beyond June.

C/F BCD

14.9.87

SUMMARY PITWOOD/BUNGWOOD HAULAGE COSTS OCT 86 TO AUG 87 INCL.

	PITWOOD				BUNGWOOD				COMBINED PITWOOD & BUNGWOOD			
	Haulage only £	Double Drop Allowance		"All in"	Haulage only £	Hiab Offload		"All in"	Haulage only £	Allowances		"All in"
		Per Load	Overall			Per Load	Overall			Per Load	Overall	
Cost per tonne	11.03	1.89	0.97	12.00	10.78	3.30	1.91	12.69	11.02	2.00	1.03	12.05
Cost per load	221.00	38.00	19.37	240.37	199.72	60.00	35.29	235.01	219.50	39.77	20.49	239.99
Cost per m^3	8.67	1.49	0.76	9.43	9.14	2.76	1.61	10.75	8.70	1.58	0.81	9.51

N.B.

(1) A double drop is when delivery to two separate collieries, normally adjacent, is combined in one load. The current allowance is £38.

Reasons for double drops include:-

(a) Orders are seldom either whole loads or multiples of loads.

(b) With reducing volumes ordered we are reluctant to "lose" small balances remaining near completion of an order and oversupply is not permitted.

(c) Irrespective of the volume ordered delivery is expected throughout the Quarter ie we cannot supply a size to one colliery in September and another in November. They both look for installment supplies.

(d) In popular sizes which are regularly subject to hasteners and supplementary orders, usually classed as urgencies, we have to share out available stocks.

The combination of all these factors render double drops inevitable and necessitate a very conscious effort to keep the preparation as low as possible.

(2) At present only deliveries to British Bung are offloaded by Hiab at a charge of £60 Moorland Wood are currently considering the possibility.

APPENDIX 8f (contd)

SUMMARY OF WEIGHTS OF LOADS DESPATCHED FROM BCD IN PERIOD OCT 86 - AUG 87

MONTH PERIOD ENDING	Nº OF DELIVERIES IN HAULAGE PAYMENT BANDS				DETAILS OF MONTHLY DESPATCH BY VOL/WEIGHT				m^3 V/R.
	+12 TONNE	+15 TONNE	+20 TONNE	TOTAL Nº	TONNES	PER LOAD	VOLUME	PER LOAD	
OCTOBER 1986	1	54	18	73	1362·97	18·67 kgs	1911·48	26·18 m^3	1·40
NOVEMBER 1986	1	37	22	60	1208·90	20·15 kgs	1617·96	26·97 m^3	1·34
DECEMBER 1986	~	33	24	57	1100·12	19·30 kgs	1394·36	24·46 m^3	1·27
JANUARY 1987	~	38	29	67	1336·44	19·95 kgs	1672·09	24·96 m^3	1·25
FEBRUARY 1987	~	30	51	81	1699·63	20·98 kgs	1900·27	23·46 m^3	1·18
MARCH 1987	~	23	48	71	1472·22	20·74 kgs	1663·51	23·43 m^3	1·13
APRIL 1987	~	21	43	64	1350·48	21·10 kgs	1613·95	25·22 m^3	1·20
MAY 1987	~	23	27	50	1028·80	20·58 kgs	1418·05	28·36 m^3	1·38
JUNE 1987	~	25	33	58	1179·65	20·34 kgs	1563·19	26·95 m^3	1·34
JULY 1987	2	29	20	51	964·11	18·90 kgs	1333·63	26·15 m^3	1·38
AUGUST 1987	1	27	13	41	773·80	18·87 kgs	1071·13	26·13 m^3	1·38
SUMMARY	5	340	328	673	13 477·12	20·03 kgs	17159·62	25·50 m^3	1·27

APPENDIX 8f (contd)

SUMMARY OF MONTHLY COSTS & DELIVERIES TO BUNGWOOD CUSTOMERS OCT 86 - AUG 87

MONTH	MOORLAND WOOD			BRITISH BUNG			MONTHLY COMBINED TOTALS		
	N° OF LOADS	VOLUME M³	HAULAGE COSTS EX V.A.T.	N° OF LOADS	VOLUME M³	HAULAGE COSTS EX. V.A.T.	N° OF LOADS	VOLUME M³	HAULAGE COSTS EX. V.A.T.
OCT '86	4	85·00	817·64	2	49·15	500·50	6	134·15	1318·14
NOV '86	2	41·32	405·62	3	63·84	772·79	5	105·16	1178·41
DEC '86	2	39·74	416·34	3	58·52	823·25	5	98·26	1239·59
JAN '87	1	21·12	208·00	3	68·55	805·33	4	89·67	1013·33
FEB '87	1	22·49	213·87	3	66·41	809·01	4	88·90	1022·88
MAR '87	1	23·00	207·78	1	20·38	273·15	2	43·38	480·93
APR '87	2	44·96	436·99	2	44 34	541·25	4	89·30	978·24
MAY '87	2	44·71	418·49	3	68·03	755·51	5	112·74	1174·00
JUNE '87	1	21·31	198·53	2	44·83	507·93	3	66·14	706·46
JULY '87	2	50·25	372·01	7	143·79	1685·54	9	194·04	2057·55
AUG '87	3	68·82	563·98	1	23·89	252·20	4	92·71	816·18
SUMMARY	21	462·72	4.259·25	30	651·73	7726·46	51	1114·45	11985·71

APPENDIX 8f (c)

SUMMARY OF LOAD TYPES (SINGLE OR DOUBLES) BY AREA. OCTOBER 86 - AUGUST 87 INC.

	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	TOTAL	
TOTAL LOADS DISPATCHED	69	63	56	67	82	71	64	50	58	51	42	673	
N.E.(W) SINGLE	1	0	0	0	0	0	0	0	0	0	0		
DOUBLE	4	1	0	0	0	0	0	0	0	1	1		
TOTAL	5	1	0	0	0	0	0	0	0	1	1	8 / 1.2%	4.6%
N.E. SINGLE	0	1	0	0	1	1	2	0	2	2	1		
DOUBLE	2	0	2	1	2	1	2	0	1	1	1		
TOTAL	2	1	2	1	3	2	4	0	3	3	2	23 / 3.4%	
N.W. SINGLE	2	4	2	2	4	3	6	5	5	2	0		
DOUBLE	3	3	6	4	3	6	4	5	4	5	3		
TOTAL	5	7	8	6	7	9	10	10	9	7	3	81 / 12.0%	
BAR. SINGLE	10	12	6	5	7	7	4	5	2	0	2		
DOUBLE	5	5	5	1	6	7	4	6	5	5	0		
TOTAL	15	17	11	6	13	14	8	11	7	5	2	109 / 16.2%	51.4%
DON SINGLE	1	3	4	5	1	0	1	4	2	7	3		
DOUBLE	2	2	4	2	6	8	2	5	3	2	4		
TOTAL	3	5	8	7	7	8	3	9	5	9	7	71 / 10.6%	
S.W. SINGLE	5	3	4	9	6	7	7	0	5	1	2		
DOUBLE	7	2	2	2	4	3	3	0	5	5	3		
TOTAL	12	5	6	11	10	10	10	0	10	6	5	85 / 12.6%	
N. DEAN SINGLE	3	0	1	3	8	2	2	0	1	0	1		
DOUBLE	3	0	1	2	2	1	4	2	4	0	1		
TOTAL	6	0	2	5	10	3	6	2	5	0	2	41 / 6.1%	
NORTH SINGLE	6	3	9	13	10	7	3	5	4	2	6		
DOUBLE	4	13	4	9	12	10	12	7	7	12	10		
TOTAL	10	16	13	22	22	17	15	12	11	14	16	168 / 25.0%	37.2%
S. MID SINGLE	0	1	0	3	1	3	4	2	5	2	0		
DOUBLE	5	2	2	2	4	2	1	2	0	0	0		
TOTAL	5	3	2	5	5	5	5	4	5	2	0	41 / 6.1%	
WESTERN SINGLE	5	5	3	4	5	3	3	1	3	1	1		
DOUBLE	1	3	1	0	0	0	0	1	0	3	3		
TOTAL	6	8	4	4	5	3	3	2	3	4	4	46 / 6.8%	6.8%
TOTAL SINGLE	33 / 47.8%	32 / 50.8%	29 / 51.8%	44 / 65.7%	43 / 53.1%	33 / 46.5%	32 / 50.0%	22 / 44.0%	29 / 50.0%	17 / 33.3%	16 / 38.1%	330 / 49.0%	
TOTAL DOUBLE	36 / 52.2%	31 / 49.2%	27 / 48.2%	23 / 34.3%	39 / 47.6%	38 / 53.5%	32 / 50.0%	28 / 56.0%	29 / 50.0%	34 / 66.7%	26 / 61.9%	343 / 51.0%	

BRANDON DEPOT REPORT

No.	Date	Subject	Notes
-	3/61	Work Study Survey Report	
1	4/61	Machine Peeling of Poles - Kingslaw	Addendum
2	6/61	Machine Crosscutting of Poles (Liner Sawbench)	Addendum
3	10/61	Costing of small material handled in the Depot	
4	11/61	Conveyance of Celotex Materiel by FC Lorry	
5	1/62	Crosscutting of peeled 6½' butts into pit-props and wood-wool. Crosscutting of unpeeled 6½' butts into metre lengths of Bowaters pulpwoods. Stacking of unpeeled 6½' butts into crates for mechanical loading.	
6	5/62	Hand Loading	
7	8/62	Handling of 6½' Tops	
8	11/62	Loading and Carriage of Produce - Lorries & one ton Hiabs	
Not issued	12/62	Further mechanisation in Brandon Depot	
9	5/63	Loading and Carriage of Sawlogs	
10	11/63	Interim report on Transport	Addendum
11	2/64	Depot Layout for the Cambio	
12	10/64	Interim Report on the Installation of the Cambio Peeler	
13	5/65	Loading and Carriage of Produce - Lorries equipped with 2 ton Hiab Cranes and Grapples	
14	11/67	" " " "	
15	2/68	Second Interim Report on the Installation and Working of the Cambio Peeler	
16	2/68	Forresian Portable Sawmill	
17	1/70	Chainsaw Crosscutting	

DEPOT PROJECTS

Number	Subject & Year		File Ref
S 1B.	Early BCD development	1966-69	
S 2B.	Postmaster stake pointer	1974	
S 3B.	BCD Tractor Studies	1977	
S 4B.	BCD Lorry Studies	1977	
S 5B.	Colas Crane Studies	1977	
S 6B.	Swing Saw Studies	1977	
S 7B.	Splitting Saw Studies	1977	
S 8B.	Pendulum Saw Studies	1977	
S 9B.	Small Splitting Saw Studies	1977	
S 10B.	Fork Lift Truck Studies	1977	
S 11B.	BCD Phases I-III	1977-79	040/78/11
S 12B.	Stake Project	1978-79	070/78/2
S 13B.	True/Stack Measure	1979	
KA 14B.	Strapping	1979	
S 15B.	Swing Saw Line production	1980	
S 16B.	Dalby (Pexton) Depot	1980	050 NE(E)
S 17B.	0.5M Woodwool	1980	070/80/1
S 18B.	S(W) Pitwood	1981	050 S(W)
KA 19B	BCD Sawmill	1984	040/83/6
KA 20B	BCD Peelers	1981	060/81/7

STAFF INSPECTION SEPT. 1985
REPORT DATED DEC. 1986

APPENDIX 9a

CHAPTER 5

Brandon Central Depot

248. Brandon Depot sawmill is situated approximately 5 miles from the Forest District Office at Santon Downham. Logs are supplied from the north, central and south areas of Thetford Forest District and are classified as long butts, cambio poles and smallwood. The major output from the Depot is pit props for the National Coal Board and they are supplied in over 130 sizes of varying diameters and lengths. Other products include stakes, rustic poles, woodwool, boxwood, bungwood and sawdust. bark.

249. The Brandon Central Depot (BCD) office is presently staffed by 1 Chief Forester, 1 Forester, 1 Industrial Foreman, 2 Clerical Officers and 1 Weighbridge Operator (Forest Craftsman). There are 38 industrial workers at BCD (including the Industrial Foreman and Weighbridge Operator) and they comprise 2 Gangers, 8 Machine Operators, 24 Forest Craftsmen and 2 Unskilled Forest Workers.

Depot Manager - Chief Forester

250. The Chief Forester is responsible for planning the BCD programme and preparing the annual sales plan and budget. The aim is to achieve the sales plan with maximum cost effectiveness. He is also responsible to the Forest District Manager for the operational management and control of the Depot.

251. The main duty of the post is to prepare the basic/detailed budgets, sales plan and allocate volumes to contracts. The 5 year sales plan on which income budgets are based is prepared by the Assistant Conservator Operations. The Forest District prepare an annual sales plan indicating what they are able to supply in the way of

produce and from this and on reaching agreement with the Thetford District Forester H&M the postholder prepares a Depot sales plan allocating volumes to products.

252. The budget for BCD is allocated by the Forest District Manager and from the budget allocation the Chief Forester prepares the BCDbudget which he submits through the FDM to the Conservancy for formal approval. For income accounts he allocates work quantities (treatment and work types) and these are submitted direct to the Assistant Conservator Operations.

253. In addition to pitwood 3 other products are sold by contract, 2 of which are by tender and one by declaration of intent to purchase. These products are woodwool (tender December), bark (tender June and December) and posts stakes and rails. In considering availability the postholder has to take account of stocks, production levels and other factors including the assumption that sales plan input will be achieved.

254. He has overall responsibility for operational planning and administration and ensures the efficient implementation and control of the budget and sales plan. These aspects require a great deal of personal input and he makes extensive use of records repared and maintained by the Forester, Foreman, Weighbridge Operator and clerical staff.

255. Because of the effect of the prolonged miners strike on the production of pitwood it was necessary for the postholder to look for other markets to develop and he was successful in doing this eg wood contract for log cabins and firewood. He also had to give consideration to the effect on his budget and to allow for upsurge in demand for pitwood props when the strike ended. The emphasis switched to processing smaller diameter materials ie cambio and smallwood in order to produce products that were in demand. There was also quite considerable readjustment to budgets and forward planning, most of which fell to the Depot Manager to achieve.

256. The postholder makes recommendations on pricing of wood products for the Conservancy generally, having taken account of fluctuations in the market and comparisons with outside competitors. His recommendations and justifications for them are submitted direct to the Assistant Conservator Operations for consideration.

257. The Chief Forester is also responsible for submitting proposals on BCD industrial pay rates to the Forect District Manager. These are presently set at 'hourly rates of production time' except on the 'swingline' where a price is set per 100 pieces (ie Piecework).

258. For monitoring of work progress he examines various records prepared internally, these include peeler, NCB progress, produce movement records (copied to FDM), work quantities ledger, pole and woodwool stock returns. Graphs are prepared of production (input peeling conversion) despatch, (pitwood, woodwool, sawlogs and bark) local cash sales and budget progress. The compilating of this data assists with planning of future work programmes.

259. The postholder has significant input to the negotiation of the pitwood haulage contract which he initiates and advises on, reference is only made to Conservancy Office when problems in negotiation arise. The Assistant Conservator Operations is kept fully informed of progress and ultimately approves the contract.

260. The main customer of BCD is the NCB for the supply of pitwood (budget value £1.5 million) and the Chief Forester's role is to prepare and supply historical data together with projections and costings to assist HQ and Conservancy staff in their negotiations with the NCB. He was present at the negotiations in 1985 which took place with the Chief Purchasing Officer of the NCB at the Forest District Office and his views are openly sought by FC management.

261 In his management role he is responsible for delegating specific responsibilities to staff, assessing their work performance and completing annual reports. Membership of the Brandon Depot Board of Management is another duty that takes up a considerable proportion of the postholder's time.

262. In addition to problems associated with management of staff the postholder has to ensure that production of 130 pitwood sizes, woodwool stakes and bark together with the other products meets contractural commitments of specification and quality. Within this he has to reconcile the demands of approximately 120 different collieries, 3 woodwool and 2 bark customers plus retail customers within the constraints set by input levels, budgets and contracts. There are considerable haulage problems both in employing a suitable reliable haulier and planning the organisation, control and delivery of approximately 1,000 loads at an annual cost of £250,000.

263. On a day to day basis the Chief Forester has delegated to him, control of the running of the Depot and all decisions taken are his responsibility. He contributes to management decisions at the quarterly Board of Management meetings giving advice and making recommendations. Contributions to the decision-making process are also made via the FDM but often direct to the Assistant Conservator Operations.

264. Representation includes contacts with NCB officials, merchants, cash sale customers and visits are regularly received at the Depot from members of the private sector, educational parties and Members of Parliament. Technical enquiries from outside bodies relating to the processing of timber and bark are a regular occurrence.

265. The Brandon Depot Manager has a very busy, demanding, responsible position which is unique in the Forestry Commission. He has responsibility for an

expenditure budget of £1,877,950 (including the value of ex forest timber £1,035,000) and an estimated income budget of £2,071,200 (1985/86), and is required to organise and administer complex operations particularly with regard to the NCB contract where over 130 different sizes of pit props are prepared to serve the needs of 120 collieries. The Depot also acts as the link to E(E) Conservancy with the NCB. Administration of the Depot requires modified and often unique processes to be devised to work within the present manual and computer systems and there is a complex system of records to maintain for the provision of management information.

266 The postholder has considerable input to detailed planning of budgets, operational programmes and although he has responsibility for the day to day decisions taken, the ultimate responsibility for acceptance of plans and approval of budgets rests with the Forest District Manager and the Assistant Conservator Operations. Involvement in the negotiation of woodwool, bark and haulage PSR contracts is considerable and he provides information to assist in the negotiation of the major NCB contract.

267. BCD comes within the jurisdiction of the Thetford FDM and we do not consider that there are any substantive factors that indicate or justify that it be run as a separate unit especially, as Thetford FD is the main source of timber supply. Taking this into account and having considered the context and responsibility of the post we take the view that although it is of a very good quality the post is correctly graded as Chief Forester/FOII.

Forester (BCD)

268. The postholder is responsible to the Chief Forester for implementing the BCD production programme with regard to the sales plan and within budget limitations.

269. The main duty of the post is to control the input, storage, processing and despatch of produce by quality, quantity, time and cost against specifications, programmes, contracts and budgets.

270. The features of the duties undertaken by the postholder are as follows:-

a. Input

Raw material is received from Thetford Forest District and classified as long butts, cambio poles and smallwood. The logs are delivered by FC lorries and the Forester controls the quality by examining loads arriving. About one load per month is rejected.

b. Storage

Each lorry loaded is stored for a minimum of 13 weeks to allow seasoning and the driver is directed by the Forester to an area within the 12 ha complex to deliver his load. The 3 classifications are stored in separate areas and used in strict rotation.

c. Processing

The Forester organises the operators of the Volvo front-end loaders to pick up the logs in rotation and present them to the decks of the 2 peeler machines in a safe and proper manner. One peeler machine is used for long butts and the other for cambio poles. The Forester monitors the quality of work of the peeler machine operators eg ensuring that they do not peel bent logs. The peeled logs are placed in rotation in the yard prior to being input to the sawmill. A cutting list is provided to the sawmill machine operators daily

indicating requirements. These are over 130 different size specifications ranging from diameters of 80 mm-300 mm and lengths of 975 mm to 3 600 mm.

d. Despatch

Each day 4-6 loads of pit props are hauled by private contractors to the various NCB locations. The Forester is responsible for organising and deciding on the urgency of despatch ensuring that stocks are kept at manageable levels and used in rotation. He liaises with the NCB on despatch and is often asked by them to fulfil urgent requests for specific sizes at short notice. This can involve redirecting lorry loads from one pit to another or organising double drops.

271. The Forester has responsibility for ensuring that all records (these are considerable) of throughput are properly maintained from input to despatch including ensuring that the contractural obligations to the NCB are met.

272. The postholder's duties start at 7 am each day when, with the Foreman he visits the workforces assembly point to allocate duties and examine the previous day's 'day book' to establish what work has been completed and decide the present day's priorities.

273. The first task is to ensure that they have the 10 men needed for operation of the mill and secondly that the 2 peeler and 2 Volvo front loader operators are available for the peeler operation. Other duties including the allocation of tractor drivers (3) and swingline operators (4) are then allocated.

274. Having assigned duties the Forester then tours the yard to assess work progress, examine stocks and give advice on specific problems. He also checks the

peeler records to record hours run, number of poles peeled, volume, mean.diameter and linear metres. These facts are recorded from the peeler clocks and measuring devices.

275. The postholder is responsible for the preparation of time sheets (form A6) in respect of all 38 industrial workers. He obtains and maintains a daily record of the hours worked on specific account heads and time spent on machine maintenance. Apart from the men on the 'swingline' who are paid a piecework rate per throughput of 100 pieces most duties have an hourly rate applied to tasks undertaken. These hourly rates are set annually after each pay round and the Forester prepares ready reckoners to assist him with calculating the weekly gross pay. eg Hourly rates for the sawmill operators is £4.22 per hour (1985/86). Allowing for interruptions the postholder spends one full day on the payroll task. The postholder also completes the VME computer summaries A269 in respect of 30 items of machinery.

276. The Forester plans the programme of peeling, conversion, loading and haulage with particular reference to conversion to maximise output from each log. He also directs and controls local cash sales and output for the major stake customers. These are 4 major stake customers generating income of £86,000 and local cash sales of bark, sawdust, firewood etc provide further income of around £50,000. The Forester organises all miscellaneous orders, with the clerical staff being responsible for taking payment and issuing receipts.

277. The main problem solving demands in addition to deployment of manpower and machine resources to maximise output from the depot are related to material supply. For example, there is often an excess of 'long butt' material received while the spectrum of diameters necessary to cover contract requirements needs a steady input of smallwood. With over 130 pitwood sizes to supply together with woodwool, fencing, bark, sawdust etc, there are problems in meeting commitments on time

ensuring right specification of quality and quantity. There is also the haulage to organise for delivery to about 120 pits of a total volume in excess of 28 000 m^3 per annum.

278. The Forester has delegated responsibility for decisions taken on the day to day planning, organisation and control of Depot production and the deployment of manpower and machinery. He also takes high level decisions in the absence of the Chief Forester and contributes to the decision-making process by submitting proposals on management and production to the Chief Forester. Representation is limited to contact with customers particularly NCB and assisting with visiting parties.

279. As a diversion from his normal BCD work the postholder has been asked to assist with conservation matters concerning Thetford Forest District in conjunction with outside organisations such as NCC, RSPB and Norfolk Naturalist Trust. He will require to attend liaison meetings with these organisations and carry out special projects. Most of the work connected with this duty will be carried out, outwith normal working hours.

280. The Forester and Foreman work as a team with the Forester having responsibility for delegating and overseeing the work of the Foreman as well as being responsible for organising and controlling the supervision of the BCD workforce. There is a great deal of activity throughout the day near to the Forester's Office and he must constantly monitor and appraise the timber arriving and products leaving BCD to ensure that they are of acceptable quality and quantity. He also has to ensure that haulage vehicles are properly loaded and be capable of communicating effectively with customers and the public.

281. This post is very demanding requiring a high degree of application and dedication on the postholder's part. While undertaking his administrative tasks he

must also apply himself to the activities going on throughout the day on the weighbridge and in the yard. We confirm that for the duties undertaken by this post the appropriate grading is Forester.

Industrial Foreman

282. The Foreman has responsibility for supervising production operations and organising the movement and storage of products. He also assists the Forester and Chief Forester in planning, organisation and control of production and despatch by preparing records and providing analysis as required. The duties connected with the supervision and deployment of staff, control of input, storage, processing and despatch mirror those undertaken by the Forester.

283. The Foreman has a major input to the control of NCB contract requirements. Orders are received quarterly from the NCB offices at Doncaster and the postholder's first function is to calculate volumes for all orders listed and select the volumes that apply to the various top diameter classes separting them into volume of props and splits within that top diameter. From this analysis the Forester and Foreman are able to assess how well the cutting regimes and unconverted stocks will cope with orders.

284. The next stage is to check what orders remain to be fulfilled from previous quarters and this information is available from 3 sources;

a. wallboard based card system;

b. order and stock ledgers;

c. annotation on NCB official orders.

The checks that are carried out ascertain whether the balances outstanding on the card system agree with the recorded annotated balances on the last official order as recorded by the weighbridge operator. It is also necessary to check that the orders shown on the cards are the only sizes outstanding against the collieries within each colliery area. Having established the sizes outstanding the volume is calculated and a record prepared to show the backlog of orders by,

i. size;

ii. number of pieces;

iii. volume.

285. Having confirmed the amount and volume of outstanding orders the postholder is in a position to add in the new quarter's orders from the NCB schedule of orders. A card (for the wallboard system) is prepared to each order and details of size are entered in the record by area (NCB Directory).

286. When the cards have been prepared and sorted into length by top diameter they are entered into the order and stock ledgers maintained by clerical staff before being placed in the wallboard (by specification) and are thereafter used to control and monitor the despatch of orders.

287. The above process is further complicated by the fact that volume to supply must be attained at a specific point in time and will be further effected by supplementary orders and cancellations from the previous and even the new quarter's orders.

288. For haulage purposes the total volume to supply is divided by the average volume per load to establish the number of loads it will be necessary to supply to

complete orders within the quarterly period. A weekly analysis of the volume to supply is maintained throughout the quarter and is adjusted by factors such as supplementary orders placed, orders completed and cancelled/suspended orders. This information enables the Foreman and Forester to revise their plans on productions and haulage needs.

289. The NCB official purchase order arrives approximately 2 weeks into the new quarter and has to be checked against the original schedule to identify any changes. The official order also gives information on delivery dates and having been sent via Conservancy Office, each order now has an FC number applied which is recorded on the wallboard cards.

290. Once the FC numbers have been applied any despatches made prior to receipt of the official order are recorded on the order enabling the 'Weighbridge Operator', who is responsible for maintaining the despatch record to know that an order has been despatched against but does not show on his file of purchase orders that have been despatched against.

291. The despatch of orders in date rotation can be affected by the NCB requesting urgent orders, and the availability of material of a specific size. It may be necessary to organise 'double drops' to cope with demand and to reduce haulage costs.

292. Each day the Foreman decides which loads should be loaded for despatch the following day. The cards are removed from the wallboards and the order of loading decided, dependent on the availability of stocks. The information on the cards is transferred to a loading book with 4 carbon copies prepared, 2 copies are passed to the Weighbridge Operator (one of which is passed to the haulage contractors loading man). The Weighbridge Operator uses his copy to prepare the paperwork necessary to

accompany the load and to prepare the advice note for Conservancy Office. Other copies are given to the Ganger and gang responsible for arranging the loading of pitwood and the bookfast copy is passed together with the card to record issues in the stock ledger.

293. The Foreman checks to ensure that, that day's supply will meet the NCB requirements for a particular order or if it will be necessary to satisfy any further urgent requirements. If further parts of the order are to be supplied urgently, the card is placed in the 'Hastener' section of the wallboard otherwise the card is placed in the routine orders section. The process goes on throughout the quarter with the Foreman attempting to gauge, plan and supply requirements to satisfy this major customer.

294. The postholder also handles Demurrage or Diversion claims as submitted by the contract haulier. Demurrage is defined as the period of time a pitwood delivery vehicle has to wait at a colliery after 2 hours have elapsed and Diversion is arriving at a colliery specified by BCD and being redirected to another colliery by the NCB. The Foreman checks out these claims/invoices to ensure that they have claimed the correct number of hours and that the amount of money charged is correct.

295. In his other duties the Foreman is responsible for maintaining records of cross-cut and hand saw running hours. He also maintains records of mill production which are maintained in case the need arises to introduce piecework. In additon he gives regard to HASAWA and discipline of staff plus assisting with local cash sales.

296. As he lives adjacent to BCD the Foreman has responsibility for security of the yard outwith office hours as well as attending to the heating requirements of the office and mess room.

297. This is a very busy demanding post that requires a good deal of knowledge of the pitwood requirements of the NCB. There is a considerable amount of accurate record-keeping involved which is complicated by the number (130) of pitwood sizes of varying diameters and lengths. There is also involvement in organising the availability of other products from the yard.

298. The Foreman and Forester work very much as a team with the Foreman undertaking the work described above under the direction of the Forester.

?99. Even taking into consideration the fact that the present postholder works under the direction of the Forester we consider this to be an extremely responsible post with the duties in the main not typical of those expected of the Industrial Foreman grade. The level of responsibility is in our opinion more appropriate to that of Forester. Accordingly we recommend that this post be regraded Forester.

300. We are also concerned about the actual hours worked by the Foreman (average 70 hours per week). These hours we consider to be beyond the level at which any individual can be expected to work efficiently and competently and accordingly consider that assistance to this post is required particularly with the ministration of NCB contracts. Comment on the assistance necessary to this post is given in paragraph 325.

Weighbridge Operator

301. The weighbridge operator (WO) is sited in a room adjacent to that of the Forester and Foreman and the duties are presently undertaken by a Forest Craftsman. The postholder is responsible for operating the weighbridge and preparing documents and records covering the inward and outward movement of products from Thetford Forest District and BCD providing information on stock control, contract progress, haulage contracts and preparing conveyance and advice notes.

302. The raw material is all supplied from Thetford Forest District and is classified as long butts, cambio poles and smallwood. FC lorries deliver the logs to the depot and on arrival the loads are weighed by the operator and the driver's signature obtained. A record of material received is prepared by beat (North, Centre, South and Wensum) and a copy of the weight ticket is sent to each area of supply as a record of delivery by them. At the end of each week the WO totals the beat records by category having previously calculated the volume, to give a total volume supplied in that week. This figure is entered into the produce ledger and onto a sheet which records progress to date against input targets set annually by the Chief Forester. This record is made available to the District Forester H&M and the staff of BCD so that they can assess the annual progress of input by category within beat. The WO works out a percentage of total received against target and also an overall total of type of material received.

303. The despatch of material (eg pitwood) is controlled by the Forester/Foreman who supply a daily note of the quantity size and type of product to be loaded and the location to which it is to be delivered. The loaders count the pieces as they are loaded and a chit is passed to the WO. From his copy of the loading instruction the WO prepares A39 (advice note) and U3B (conveyance note) having weighed the loads and converted to volume which varies from 1 m^3 to 2 m^3 per ton dependent on season and weather. The top copies of the A39 and U3B go with the load and the second copy of the advice note is sent to Conservancy Office. Prior to preparing the A39 the WO checks the Foreman's list of despatches against the NCB official order to ensure that the correct product is being despatched.

304. Loads prepared one day are despatched the next day and the WO carries out the following procedure and updating of records prior to despatch:-

a. checks by sight the number of pieces in load;

b. volumes calculated for each size are recorded in a daily volume ledger;

c. the number of pieces against size are recorded for maintaining stock records;

d. the number of pieces delivered to a colliery are recorded on the official order to give an up-to-date amount left to supply for that order;

e. the volume weight, A39 number, colliery area and haulage charge are recorded in a ledger. This is totalled weekly and then checked with the haulier who receives monthly payment for work undertaken;

f. issues a demurrage and diversion note with each load.

305. Other contracts for the purchase of woodwool, posts stakes and rails, bark, boxwood and sawdust are also controlled through the records prepared by the WO.

306. The process for recording woodwool is a typical example. On arrival the WO ascertains from the customer the material to be loaded (whether 2 or one-half m) eighs the lorry and directs customer to loading point. When the produce is loaded the customer returns to the weighbridge to have the load weight and volume assessed. Volume is assessed by stack measure. The customer is given a conveyance note (U3B) prepared by the WO and the volume is recorded on monthly produce sheets and in the produce ledger to give a running total of volume and contract progress to date and balance left to supply. An A39 (advice Note) per customer, per contract is prepared each week with one copy going to the customer and another to the Conservancy Office with copy conveyance notes. In the 3 days of the inspection 7 woodwool, 3 PSR, 1 Bungwood and 1 bark despatch had been issued.

307. The data compiled by the WO is a comprehensive record of input despatch and sales and the data from the produce ledger and daily despatch sheets are used by the clerks to adjust stock levels of the 'volume by top diameter analysis ledger' and in the case of pitwood despatches to assess whether NCB orders can be met from stockholdings.

308. The information is also used to prepare monthly reports of progress of NCB contracts against target rate of despatches by product for all contracts. From these and other records the annual produce summary can be prepared.

309. Other tasks undertaken by the postholder include local cash sales, public weighbridge service and manning of the weighbridge telephone and radio to provide a liaison and co-ordination service between FC customers, drivers and the forest.

310. The postholder's normal hours of work are from 7.15 am to 5.30 pm with the latter hour and a half used for the update of ongoing records. The records maintained by the Weighbridge Operator are central to the control of the whole BCD operation and must be maintained accurately and neatly.

311. Operation of the weighbridge accounts for 10% of the postholder's time with the remaining 90% involved in the processing and recording of documentation.

312. The major part of the work of this post is clerical however, there is an element of technical expertise required to operate the weighbridge and to be aware of timber products, specifications and measurements.

313. We gave consideration to whether this job could be undertaken by a Clerical Officer and rejected it on account of the small but nevertheless important technical aspects of it. We do however consider that the grade of Forest Craftsman does not

reflect the responsibility of the post. This responsibility even although it is effectively a singleton post should be recognised by grading the post as Ganger. There should be a further review of the grading of the post when the computerisation of Brandon Central Depot records is completed.

314. Further comment on this post is given in paragraph 325.

Clerical Officers (2) Brandon Depot

315. The clerical duties are shared by the Clerical Officer posts and they alternate weekly between the main duties of industrial payroll and stock ledger records.

316. The industrial payroll involves processing pay data in respect of 38 staff and includes entering the basic payroll information on the time sheets (A6) prior to passing to the Forester who, enters the account numbers and hours worked. On return from the Forester the CO adds and cross-checks the data prior to inputting the information to the computer. She also takes account of any temporary variations to individual pay eg SSP or annual leave. The computer prepares the various wage related prints eg cash account (A100) budget progress (FC32), labour analysis (FC34) and charge instruction (A142). Superannuation details are entered manually on the A12c and the postholders are responsible for preparing and making up wage packets plus preparing bank giros for 11 staff who are paid direct to the banks.

317. The postholders also maintain the cash account and income from local cash sales which is in the region of £2,000 per week with the major amount coming from the sale of firewood and bark.

318. Stock records for approximately 160 products are maintained on a daily basis and these ledgers include the record of production and despatch.

a. Receipt

On receipt of the NCB orders the clerks prepare a separate record for each order by size. This record shows,

i. order number;

ii. colliery;

iii. number of pieces;

and is later used to record despatches against orders showing,

iv. date of despatch;

v. number issued;

vi. balance outstanding.

b. Production

The Ganger produces a daily production sheet (UO) recording the number of pieces produced as props and splits in individual sizes and by mode of production. From this information the clerks prepare the Daily Stock Ledgers.

c. Loading

The Foreman is responsible for deciding what is issued from stock on a daily basis to meet collieries demands. Having prepared the loading book (see

Foreman) and issued copies of the list to the loading team and weighbridge operator, he passes the bookfast copy of the list together with the relevant card pertaining to that order for the clerks to update the cards.

d. Despatch

The A39 (advice note) daily volume despatch list completed by the weighbridge operator is passed to the clerks daily to note the despatches against the Daily Stock Ledger (see 2 above) and then balance the ledger against the previous day's production to ascertain a daily stock by size and piece. The order sheets (see a above) are updated to maintain a running total of size and number of pieces supplied to individual colliery by order and the balance if any outstanding.

319. Similar records are held for all other products eg stocks of woodwool, boxwood, post stakes and rails and these records enable management to assess stocks, prepare management information and assess requirements.

320. Other duties of these posts include providing analysis of stock records, ensuring adequate supply of stationery, manning a busy telephone switchboard and dealing with customers, visitors and FC staff enquiries.

321. We are satisfied that the work undertaken by these posts provides a full loading and that both posts are appropriately graded as Clerical Officer.

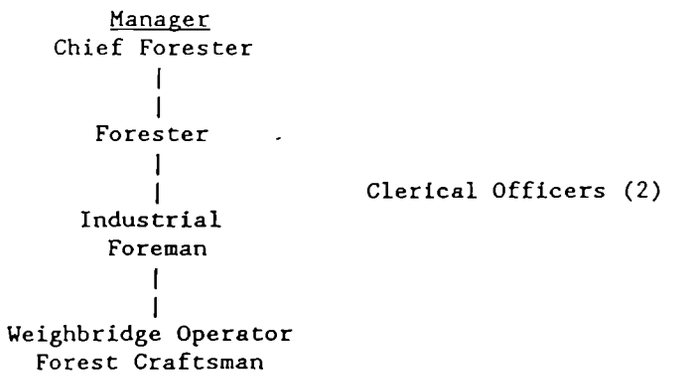
Conclusions and Recommendations - Brandon Central Depot

322. Brandon Central Depot office based staff all have demanding roles in an area of work that is unique in the Forestry Commission. It is an area that requires a good

deal of teamwork, as each post is very dependent on the others for the accurate compilation of records and management information.

323. Other reports/investigations have highlighted the need for a computerised system of record-keeping to be introduced at BCD and this would certainly appear to be justified judging by the present number of fairly complex management records being maintained. The introduction of a computerised system would almost certainly lead to staff savings however, as computerisation is unlikely to be introduced for some time, our considerations are based on the present work practices.

324. The management needs at Brandon Central Depot are presently served by the following organisation



325. An analysis of the individual posts as described in paragraphs 257 to 331 is given below:-

Chief Forester

In grading this post we gave careful consideration to the situation of Brandon Central Depot in the Commission's organisation. Mainly because the Depot relies on Thetford to provide its timber and therefore has strong links with Thetford Forest District. We concluded that the needs of the Depot are best served by it being part of the Forest District organisation. Had we concluded

otherwise it is likely we would have recommended its upgrading to FOI however, as the Forest District Manager (PFO) is ultimately responsible for BCD we consider that this post is presently correctly graded as Chief Forester/FOII but would stress that we consider it to be a very good post requiring a high degree of qualitative, quantitative and analytical input on the postholder's part.

Forester

For duties undertaken we are satisfied that this post is properly graded as Forester.

Industrial Foreman

This is a responsible post particularly in relation to the organisation of the NCB contracts. The level of tasks and responsibility is above that normally expected of the Industrial Foreman grade and although the Forester and Foreman work very much as a unit, we consider that this post should also be graded Forester. We also consider that assistance to this post is required and as a lot of the work is administrative that this should come from the appointment of a Clerical Officer.

Weighbridge Operator

We recognise that a large proportion of the duties involve meticulous record-keeping however, there are duties that require some technical knowledge eg operation of weighbridge and scrutiny of loads and for this reason we do not think this post should be assigned to a clerical member of staff. We do consider that the responsibility and importance of the duties should be

recognised by grading the post as Ganger. We also suggest that while the postholder should be responsible for preparing and issuing paperwork to go with loads that some of the ongoing record-keeping process should form part of the additional Clerical Officer's duties. (See above.)

Clerical Officers

We are satisfied with the duties as presently undertaken by the present CO complement of 2 but recognise that there is sufficient work for an additional CO. (See Industrial Foreman and Weighbridge Operator).

326. By recommending the addition of a Clerical Officer to complement we would expect to find a considerable reduction in the number of hours worked by the staff at the Depot.

327. We also note from papers provided that a lot of the written communication by the manager involving proposals and projections on the running of BCD are sent direct to the Assistant Conservator Operations at Conservancy Office, (copied to the Forest District Manager). In our view, as the Forest District Manager is overall responsible for the work of the Depot all communications should first be considered and approved by him prior to forwarding to Conservancy Office.

328. We recommend the following organisation to serve the future management needs of Brandon Central Depot within Thetford Forest District.

Manager
Chief Forester
|
|
Foresters (2) Clerical Officers (3)
|
|
Weighbridge Operator
Ganger

Summary of Recommendations

329. The following summarises the complement changes (including BCD) recommended in this report with an organisation chart of the proposed complement given at Appendix 7.

	Staff in Post	Complement	SI Recommendation	Net Changes
PFO	1	1	1	-
FOI	1	1	1	-
CF/FOII	3	3	2	-1
HF	7	8	7	-1
F	12	11	13	+2
Foreman	1	1	1	-
Head Ranger	1	1	1	-
EO	1	1	1	-
CO	9	9	11½	+2½
CA	4	4	2	-2
Typist	1	1	1	-
Telephonist	1	1	1	-

The main changes can be summarised as follows:-

a. Remove 'Deputy FDM Staff Officer' FOI post from complement.

b. Upgrade District Forester H&M post to FOI.

c. Recreation Head Forester post to be regraded to Forester.

d. Forester post to be added on PW/Plant Health.

e. Forester post at Wensum regraded to Foreman.

f. Foreman post at BCD regraded to Forester.

g. 1.5 CO posts added to Forest District Office complement.

VISIT TO BRANDON CENTRAL DEPOT REAGRDING SUGGESTED COMPUTERISATION OF STOCK CONTROL

1. The main objective of the visit was to assess the feasibility of computerising the existing method of control of stock within the Depot and, as a spin-off, assist management with the provision of control prints and information relating to the internal movement, production processing and contractural supply of wood materials and products.

2. Existing manual stock control methods involve considerable paperwork and movements of stock take time to perculate through the various control stages within the System. Advice notes relating to sales are generally prepared on a weekly basis and copies are forwarded by post to the Conservancy Office at Cambridge for invoice preparation and credit control checking. Any urgent enquiries are undertaken by 'phone.

3. The flow of stock through the Depot can be broken down into 4 main processes. These are:-

a. the receipt of raw timber by lorry from the 4 FC beats supplying the Depot. At present 4 different grades of raw material are recieved, each load being restricted to a particular grade. The load is weighed on the weighbridge and stocked in its particular grade area. A rough conversion to cubic capacity on a 1 ton-1 cubic metre basis is made at this stage;

b. as a continuous process the raw timber, within the 4 types, is debarked and stored by each type in its peeled state. The bark waste is stored and sold by the tonne for commercial processing. A proportion of the stored product is lost through weathering and it was agreed that the storage of this waste product should be excluded from any computerised system. The percentage reduction in cubic capacity during the process varies between 5-10% depending on the condition of the timber prior to processing;

c. this further process raltes to the extraction of material from the peeled stock, to process the finished article which may be pitprops, splits etc. The end products are palleted and counted, being stored by item count. The extraction of peeled stock continues until sufficient has been withdrawn to meet the restocking quota of the particular end product being manufactured. A time/work study investigation has been undertaken which established a mchine run time relationship between the number of finished items produced and the cubic capacity of peeled timber required to meet the quota obtained. It was agreed therefore that capacity details of peeled timber extracted from stock would be monitored and entered weekly by the Chief Forester on a pro rata cubic capacity estimate from the run time of the machine and the count of finished items placed in stock. This system would also apply to adjustments of unpeeled stock extraction as each weekly peeling process was completed;

d. the final stage related to the extraction of finished stock as required for delivery to the contractor. Since all stock is stored by item quantity, stock issues of sale are controlled on this basis and handled directly through a manual control system as each load is being prepared. Advice note preparation is undertaken at the end of the week to avoid duplication and weekly loadings are forwarded to Cambridge via normal postal services. It was agreed at this point that preparation of the invoice should remain outwith the system, in view of the likely need of "intelligent" equipment to fulfil this further function at Cambridge, and because of the possible wider application - Debtors' Ledger - which would probably incorporate this further computer process on a Commission wide basis.

4. A computerised system based on the above methods of control could operate as follows:-

a. as each lorry load was received, a record containing source codes and type of stock data would be prepared. The weight and converted cubic capacity would be input on the weighing room VDU. The weight would be input automatically from the weighbridge or keyed in as registered. These records would be stored on disc. At the end of the day or week the records would be sorted into stock item number within each code and each stock item master record would be updated by the input weight and/or cubic capacity received and a summation by beat by stock type would be produced. A file containing summated totals per beat per stock type would also be updated and a print of accumulated raw material stock delivered would be available showing percentage achieved against annual target projected. This would enable adjustment of stock deliveries to be monitored weekly in relation to target quantities and also in relation to timber processing requirements should certain end products suddenly be subject to more urgent demand than originally projected;

b. stock handled under this phase would be entered weekly via the Brandon Depot VDU to decrement the volume of raw material fed into the peeler and increment the volume added to the peeled stock items. It is anticipated that up to 8 different unpeeled and peeled types could be required for stock control purposes in the foreseeable future. These entries would be made under the supervision of the Chief Forester;

c. this phase will require a weekly reduction of cubic capacity extracted per peeled type of timber used in the processes operated to produce the finished articles. The stock master record for each peeled item would be adjusted via the VDU and the finished item records incremented by the numbers of each item manufactured during the weekly run. It is expected that up to 200 different processed stock items would be held. Adjustments to the peeled stock records would again be under the control of the Chief Forester;

d. the final phase would decrement the finished item stock master records by the amount of each item allocated to the load. The stock item amounts would be written to disc with an identifying load and contract number and at the same time provide a quisai advice nore format. Direct printing entry onto Form A39 would involve specially pre-printed stationery and set up procedures which might require to be considered in the context of staff training and availability. At the end of the week the records would be sorted into item type within contract number and accumulated to produce a weekly throughput total per contract. If required, an annual file of contracts could accumulate the weekly throughput to provide contract target control on a to-date basis. Under the computer system advice note information would be sent immediately downline to the Conservancy Office to facilitate invoice preparation and credit checking and would eliminate the present system delay of weekly submission;

e. each stock master record should be pre-coded in the stock reference number area with a 3 letter alphabetic identifier (DEL - delivered stock, PEL = peeled stock and SAL = sale stock) to provide rapid breakdown of combinations of stock master records and to provide easy access to composite valuation totalling.

5. It will be noted on the above outline that no variation of pricing, due to increased overheads etc, is mentioned. This stems from the fact that invoicing is undertaken at Conservancy Office using price lists or contracted rates agreed via H&M Branch. One factor regarding stock values which has to be considered however is the stock valuation at year end. This was discussed and it was agreed that provision should be made in each stock item master record for a current stock price entry. The price item would only be updated with the Chief Forester's authority via the Brandon Depot VDU. Updating would be by individual record thereby enabling selective cost increases if required. The fact that such a figure will be available will facilitate a complete stock in hand valuation print to be obtained when required, and should provide a much quicker response to stock value queries for stock pricing and total turnover decisions.

6. The hardware equipment required is likely to cost in the region of £20,000-£25,000. This will depend on the size of disc capacity required to hold the various files and the core required for adequate processing using 3 VDUs (one on line at Cambridge). rought estimates show a total stock master file of about 250 records, a weekly input file of 200 records, a 48 record file for delivery stock recording and a 500 record contract file for sales or contract recording. These are not large file sizes so it may be that the heaviest item of expenditure will be the cost of software and communications equipment.

7. It may be possible to obtain line communication via the Government tied line service which is available at Cambridge. This could provide a much cheaper line connection charge when compared with the normal PO dial up system, and would enhance the prospect of less interference on the line from outside sources. The staff at Cambridge will pursue this inquiry regarding installation possibilities. The installation of a direct electrical supply from the mains for computer connection will also be required at Brandon Depot.

8. The Depot is at present the subject of an improvement plan relating to layout, equipment and accommodation. It is expected that throughput production will increase by 40% over the next 2-3 years. There is no doubt that the existing paperwork related to control of stock and processing is causing difficulties and with increased turnover the bottle necks caused by control staging are likely to become greater obstacles to the efficient running of the system. Management feel that computerisation will provide the necessary speed and accuracy of stock control and movement recording and will also release staff from the mundane tasks of control and management information data production. Staff development will have to be looked at more closely when the final system and equipment are being defined.

9. A proposal was also made to link the control of stock at the local Conservancy Engineering Workshop with the proposed installation at Brandon. This might mean a further terminal link and would certainly require larger disc and core capacity as well as separate files and working programmes. It was agreed that this proposal should be considered separately when a specific system had been established at Brandon, thereby allowing the financial implications of the new system to be clearly defined. Any hardware expansion for such a system can be allowed for in the initial specification for Brandon Depot.

10. A computerised system is a feasible proposition and future production needs will place the existing manual control under greater strain. Management share this view and consider that the cost involved will be more than compensated by efficient control by management and staff over an increasing product throughput within the Depot with the assistance of the computerised system.

11. This proposal, if pursued, would provide the Commission with its first experience of remote VDU linking and as only one remote station would be involved it would prove invaluable as an exercise in ADP communications application. The suggested implementation, if approved, has been provisionally agreed for financial year 1982-83 in order to give local management time to adjust to the new Depot layout, and to give adequate time for technical and system investigation by O/M and local staff resources.

REPORT on the feasibility of using microprocessor-based equipment in controlling and monitoring the production processes at Brandon Central Depot for:

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This report details the findings of our study for the Forestry Commission.

1. Introduction

The main purpose of this study is to assess the potential for the use of microprocessor-based equipment in controlling and monitoring the production processes at Brandon Central Depot. The usefulness of such a system is, however, dependent on other data flows in the organisation, both at Brandon and elsewhere and the study has therefore investigated these also.

A large proportion of the Depot's output is pitprops for the National Coal Board, in a variety of sizes both round and half round. Other products are stakes and rails and "rustic" poles for fencing etc, and billets for further processing into woodwool used in packaging and for construction industry products. By-products include off-cuts of wood which are sold to a charcoal burner on an adjacent site, sawdust, and bark which is sold mainly for horticultural use.

Timber is brought into the depot by lorry in the form of poles from which all branches have been removed, but with the bark still on, and is weighed on arrival. The bark is removed by a peeling machine, and the poles are then stacked in the open for 6 to 13 weeks to dry before being sawn into lengths as required to fulfil orders. A buffer stock of unpeeled poles is also kept, so that incoming poles usually wait for about 1 week before being peeled.

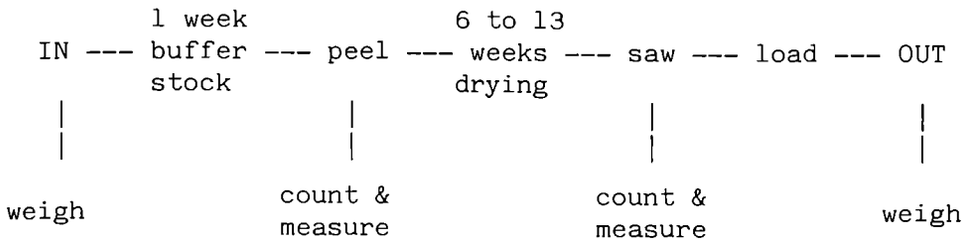
There are thus four points at which data are collected: at the weighbridge on arrival, at the peeler, at the sawmill, and at the weighbridge again on departure. In all cases there is potential for collecting the data automatically, although because many of the products are sold by number or by volume the weight on departure is not a sufficient measure of the amount of product delivered.

The main opportunity for automatic control is at the sawmill, where a decision has to be made for each pole what lengths to cut it into, bearing in mind the requirements for various length/diameter combinations. The cut lengths have to be sorted, first into those that are to be sawn lengthways into half-rounds and those that are to be sold as round, then into the various sizes.

The peeler simply peels all the poles as they come in. The operator checks each pole visually before it is peeled - a few of the poles are rejected, usually because they are not straight enough - and although a mechanical or electronic means of checking could perhaps be developed the possibility has not been considered in this report.

2. Data flows

2.1 Processes at Brandon Depot



Poles coming into the depot from forests are weighed at the weighbridge, which records the gross weight,tare weight, date, and a 6-digit code. The first digit of this code shows which forest the poles come from and the second classifies them as "long butts" (the largest size processed at Brandon) or "Cambio" or "smallwood". The next two digits are only used for outgoing produce, and the last two digits are not used at all.

Each of the two peeling machines measures the diameter of the pole being peeled every 12cm, although there has been some doubt as to the reliability of these measurements. The statistics kept at present are: number of hours each peeler is running, number of hours each is loaded, total number of poles peeled, total length of poles peeled, vol peeled, average diameter, and number of hours the bark pulveriser is running. (The bark is considerably more valuable if pulverised and then stored for 6 weeks than if sold "as peeled".) From the total length and the average diameter the total volume processed is calculated.

A computer should be able to collect more information than these statistics, for instance individual diameter readings enabling maximum and minimum diameter and volume of each pole to be calculated: this is covered more fully in section 3 below.

The operator of each saw has a list of sizes to cut. Top (i.e. minimum) diameters are divided into 10mm bands from 80mm to 230mm, and the length to cut for each band is specified - either a particular length until new instructions are issued, or one length until a certain number (of that length and diameter) have been cut and then a different length. The sawyer gauges the top diameter by eye and cuts off the appropriate length, then the process is repeated with the remaining piece.

The decision to be made is by no means as simple as this description makes it appear. When the first piece has been cut, the remainder of the pole has a different top diameter and it is often desirable to treat a pole as if it had a smaller top diameter in order to get a better second cut. For instance, suppose 1 metre lengths of the 110mm size (viz the range from 110 to 120mm), 3 metre lengths of the 120mm size, and 2.5 metre lengths of the 130mm size are being cut, and there is a high demand for the 130mm size. A pole with a top diameter in the 120mm range might be cut at 1 metre, leaving a piece with a top diameter of a little over 130mm from which a 2.5 metre length would then be cut, this being preferable to making the first cut at 3 metres: the loss in cutting a 120mm piece which will be sold as 110mm is more than compensated by the improvement in the balance between different sizes.

A number of options are always available in addition to those on the cutting list, for instance 500mm and 2 metre lengths for woodwool billets. The last piece of each pole (which is always less than ½ metre long) goes to the charcoal burner.

When the cutting list is made out it is necessary to avoid cutting similar diameters to similar lengths. This is because the men who stack the cut lengths are less experienced at judging the diameter of a piece of wood, and might for instance not be able to distinguish reliably between 2400x120mm pieces and 2500x130mm pieces.

A ganger counts the pieces produced; this information is used for stock control, for calculating wages, and for billing when pallet-loads are despatched. At the same time he checks that the length and diameter are up to specification and checks more subjective quality criteria such as straightness.

Pitprops are transported by articulated lorry by a haulage contractor employed by the Forestry Commission. Each day several trailers (about six on average) are loaded and weighed; the decision as to what to load each day is based on the progress of the various NCB orders - orders which are behind schedule or for which urgent delivery has been requested by the colliery manager are given priority - and on available stocks of the relevant sizes. (The decision as to what sizes to include in the cutting list is of course made with the requirements for future deliveries in mind.) Each day's loads are written in a "despatch book", three copies being made: one is for the crane driver who loads the trailers, one for the haulier's representative who moves the trailers to where they are required for loading and takes them to the weighbridge, and the third is used by the weighbridge operator to prepare the U3b Conveyance Note and A39 Advice Note. The despatch book records the amount remaining to be delivered under the contract, which is the maximum amount that should be loaded; the U3b and A39 record the actual amount loaded.

Most other products are transported by the buyer, and are loaded demand, so there is no despatch book for them. The U3b and A39 are made out in the same way, however.

2.2 Other information flows at Brandon Depot

Apart from pitwood contracts and occasional cash sales, all sales are against a U4 Order Form issued by the Cambridge Office. This form has space to record when loads are despatched, and the balance remaining to be collected or delivered.

The weighbridge is also used for timber that is not being processed at Brandon, and for public weighings. In the former case the weight ticket is sent to the forest to be correlated with the U3b, but in the new system it could also be notified direct to Cambridge if this would reduce the delay before an invoice is issued. Public weighings can be distinguished by the 6-digit code, and will normally be ignored by the computer; however the computer could identify weighings for regular customers (by each customer having a particular code) and bill them automatically.

A number of summaries are produced: the Produce Ledger shows the input of each forest week by week, and is sent, together with a note of the work done by the peeling machines and a record of movement of stocks of peeled and unpeeled poles and woodwool billets, to the District Office at Santon Downham. Daily production of the sawmill is also recorded.

Form UO is used in the forests to record trees felled, loaded, etc by each man, and at Brandon to record production at the sawmill by each gang. The information on this form is used to calculate wages.

The despatch ledger records all outputs by volume. In the case of woodwool billets the gross volume of the load is measured and assumed to be 70% product (the other 30% being the space between pieces). Pitwood and stakes are sold by number, and the notional volume of each piece is used; wood for the charcoal burner is sold by weight, and the weight is normally converted at 1.5 cubic metres per ton. (Freshly-cut timber is about 1 cubic metre per ton; when the timber is dried, up to half the weight can be lost.)

Loads sold by number or by volume must still be weighed for Road Traffic Act purposes. NCB require load weight to be recorded on conveyance notes and advice notes. Woodwool customers and Weight Vol ratio a condition of contract.

Coal Board orders are placed quarterly, typically 200 orders are placed at the start of a quarter and 50 to 100 "supplementary" orders are placed during the quarter. A register of outstanding orders is kept, and also a card index which gives a visual indication of the current state of progress. The colour of the cards is changed each quarter, so that it is immediately apparent which orders are outstanding from the previous quarter. Deliveries are spread evenly over the priod covered by the order, which may be the whole quarter or one or two months of it. Apart from the order numbers (Coal Board and Forestry Commission), the colliery, the size and number of pieces, the card records the date and quantity of each delivery and the balance remaining to be delivered.

A separate book is kept in which stocks of, and outstanding orders for each size are recorded. This information is used to prepare the cutting list and the daily list of loads to be despatched.

2.3 Information flows elsewhere

The Forestry Commission is organised on four levels: the head office (in Edinburgh), Conservancies, Districts, and Forests. Brandon depot has a similar status to a forest. The vehicle repair workshops for the Eastern Conservancy are on the same site as the Thetford District Office at Santon Downham.

The Conservancy office in Cambridge issues U4 Produce Order forms to Brandon depot and to the forests, and also passes on Coal Board order (which do not go on U4's) to Brandon. A copy of the U4 is sent to the District Office at Santon Downham and a further copy is filed in Cambridge. Copy NCB orders not sent to District Office.

The Cambridge office also issues invoices (form A36) when produce is despatched. In the case of sales from the forest, each lorry driver and each loader driver has a book of U3b Conveyance Notes. For each load a U3b is written in triplicate; the white copy is kept by the purchaser, the brown copy is signed by the purchaser on delivery in the case of Forestry Commission lorries, otherwise by the purchaser's driver when the produce is loaded, and the third copy is kept in the book. Each week the brown copies are collected in the Forest Office and used for wages calculations and to fill in Advice Note forms A39 of which one copy is sent to the customer and another by second class post to Cambridge.

For sales from Brandon, both the U3b and the A39 are written in the weighbridge office. The A39's are issued weekly; often an A39 relates to a single U3b, but sometimes a number of loads despatched during the week are batched together on a single A39. As with forest sales, the A39's are sent to Cambridge each week. NCB require 1 A39 and 1 U3b for each despatched to a colliery, sometimes 2 for 1 load where two drops are made which occurs quite frequently.

When the A39 arrives in Cambridge, the corresponding U4 is located: the price of the produce is copied from the U4 to the A39 and the value of each load calculated, and the quantity despatched is entered on the U4 and the balance remaining to be desptached is calculated. The calculations are then checked and the details from the A39 copied to an A36 invoice form which is then checked again before the top copy is sent to the customer.

The debtor's ledger is summarised each month. If an invoice causes a customer to exceed 90% of his credit limit, and again if 100% of the limit is exceeded, the head of the appropriate department is informed immediately and a decision is taken whether to take action such as stopping further supplies to the customer concerned.

A number of monthly summaries are sent from forests to the District Office, from the District to the Conservancy, and from the Conservancy to the Head Office in Edinburgh.

Stock recording and re-ordering for the repair workshop are done manually but the computer in Edinburgh charges the value of parts and labour to the appropriate internal accounts and makes payments to suppliers on the basis of coding sheets sent weekly. An annual return is also sent to the Head Office after a stock check and re-valuing of stock to allow for increases in prices.

3. Hardware

3.1 Communication at Brandon Depot

Three locations at the Brandon site are involved in the main production processes. The office building is at one side of the site, and includes the weighbridge controls as well as the administrative offices. The sawmill is at the centre of the site, about 250 metres from the office building, and the peeler is near the far side, about 300 metres from the sawmill and 550 from th offices.

The peeler and sawmill share an electricity supply, but the supply to the office building is separate. A computer in the peeler or sawmill shed would have to be protected against the effects of noise in the electricity supply caused by the heavy electrical machinery; such protection is standard in computers intended for industrial use but computers intended for office use ma require additional equipment to "filter" the supply or shield them from radio frequency interference.

It is not thought practicable to run overhead communication cables across the site because they would be liable to be damaged by machines carrying timbe It may be possible to run them round the site from the office to the peeler bu this would add considerably to the distance and would not allow the sawmill to be connected. The electricity supply cables are not ducted, so there is no possibility of adding communication cables to them.

The options available for connecting together equipment at the three locations would therefore seem to be to bury cables by excavating a new tranch across the site, or to use infrared laser transmission, or to use radio.

Radio poses a number of problems beyond those inherent in the technology. The Home Office would almost certainly not allocate a frequency purely for data transmission between the three buildings, as this is a task which can be done by means other than radio. If a radio system is to be installed for voice communication with portable and/or mobile sets, the following options are available, but each has drawbacks.

Radio channels for these applications convey frequencies in the range 300Hz to 3kHz. If voice is restricted to 300Hz to 2.9kHz, there is little noticeable degradation and a further band of 2.6kHz to 2.9kHz becomes available to be used for data. The data rate is limited to less than about 30 characters per second; the only circumstance in which this is likely to be a problem would be if the individual diamter readings from the peeler has to be transmitted to a computer in one of the other buildings, as further described later in this section. However, radio systems of this kind are not available off-the-shelf.

The alternative is to use the whole channel for data. The data are transmitted in the form of tones of different frequencies, and these tones are, of course, audible on the sets that are used for voice. A "selective call" feature, which allows traffic from the base station to one set to be made inaudible at other sets, costs an extra £1000 for the base station and £100 for each other set. Whether or not this feature is used, voice and data cannot be carried at the same time, so data transmission must not monopolise the system and must be able to wait for comparatively long periods while voice conversations are carried on.

Radio transmission of data is liable to errors caused by static and other interference, and the "communication protocols" which are in effect the language in which the computers talk to each other would have to take account of this. For instance, each message should be retransmitted by the recipient back to the sender so that the sender can check it has been received correctly and retransmit it if it has not.

A laser link can carry quite high data rates between two points at a cost of about £5500. This would be the cost of connecting the peeler to the office, for instance, but to connect the sawmill to the office also would require a second laser link bringing the total cost to £11,000. If two links are used it may be better to have one from the office to the sawmill and the second from the sawmill to the peeler: this could improve performance on very foggy days, but would mean that communication between the peeler and the office would be lost if the equipmen in the sawmill stopped working for any reason. The laser beam would need to be high enough to ensure that it did not often get obscured by high vehicles carrying timber etc. The laser beam is not powerful enough to do any damage, but communication would of course be interrupted.

To link the equipment controlling the peeler to a computer in the office building, G.E. Child & Son have quoted £3128.37 excluding the cost of laying a cable duct. About £2000 of this is for the cable, modems which convert the signals into a form suitable for transmission down the line, and a cabinet to house the office building end of the link. The cost to link the peeler to a computer or other equipment in the peeler shed would therefore be about £1150; this cost is incurred whatever method of transmission is used.

They estimate the cost of laying a cable duct up to 750 metres long (which allows for the likelihood that it will be more convenient not to route it in a straight line from one building to the other but to follow the edges of roads etc. at about £4000. It is possible that the cost of excavations would be less if done using your own equipment and labour.

To link the sawmill to the office block by this method would require a second pair of modems and an additional 250 metres of cable but presumably the same cabinet etc could be used at the office building end.

Our own Multilink local area network could be used to link all three buildings. One Multilink station (at £385) would be required in each building, and about £60 worth of cable. The standard stations are electrically connected to each other through this cable, which is understandable in view of the fact that the mains electricity supply to the office is separate from that to the other buildings; for an additional £100 per station, optoisolators can be added at each receiver and should give sufficient protection.

Alternatively, to be assured of complete isolation, for an additional £250 per station fible optic cable can be used instead of copper wire. This cable is rather more expensive, at £1200 for a cable suitable to be laid in a duct or £1650 for an armoured cable that can be buried without additional protection. A ducted cable would have the advantage that if any other cables were required in the future, they could be laid in the same duct.

The total costs of communication equipment, not including the interface to the peeler at about £1150, are therefore approximately:

	peeler and office	all three locations
laser link	£5,500	£11,000
modems and ducted cable	£6,000	£7,500
Multilink and ducted cable	£5,050	£5,500
Multilink and optical fibre	£6,500	£7,100

None of these methods would have any significant running costs, and all would support the fastest data rate available on the interface to the peeler.

3.2 Other computer equipment at Brandon

Most present-day microcomputers have operating software that only permits them to attend to one task at a time. This means that only one person can use the computer at a time, and while that person is using it the computer cannot react to signals coming from devices attached to it that are not directly involved in the job being done at the time.

Many of these "single-user" computers run an operating system called CP/M. (the operating system of a computer is the software that organises the storage of data in files and the running of programs.) The main advantage of CP/M (many would say its only advantage) is that a large amount of comparatively inexpensive software exists that will run on any CP/M computer.

Computers with"floppy" disc storage nowadays cost from about £1300 upwards, plus typically between £500 and £1000 for software packages. However, it should be said at once that even withthe software packages the machine would need a considerable amount od programming before it is able to carry out all the various tasks required.

Single-user "hard" disc computers start at about £3500. A hard disc holds rather more data than a floppy disc, and the data can be accessed more quickly, but floppy discs are "exchangeable". That is, once disc can be taken out of the computer and another put in, whereas the hard disc cannot be removed from the machine. For instance, suppose computer A has a 10Mbyte hard disc and computer B has two ½Mbyte floppy disc drives. Up to 10Mbytes of data can be kept on computer A; there is no limit to the amount of data that can be kept on computer B but only 1Mbyte of it can be accessible at a time. (A megabyte, or Mbyte for short is the amount of storage required for a million characters of text - about 250 A4 pages - or half a million numbers if each is a whole number known to be less than about 30,000. The information at present kept at Brandon should fit comfortably in about 5Mbytes, although some comouter sustems make very inefficient use of storage spcae and might require more.)

CP/M and MP/M are trade marks of Digital Research Corp.

Hard discs are, obviously, designed to be in use for the whole of the time that the computer is switched on. Floppy discs, however, are designed on the assumption that any particular disc will spend much of its time stored in a box and only a limited amount of time in the computer. Some of the cheaper floppy discs (under about £3 each) wear out after only 50 to 100 hours in the computer; when the disc is worn out all the data stored on it are lost, often without any warning that this is about to happen. If a disc contains data that are referred to frequently, and therefore is in the computer most of the time, the disc should be replaced by a new disc, onto which all the data are copied, at regular intervals. Some of the more expensive flippy discs last for several thousand hours. Excessive disc wear can be caused by a fault in the hardware of the disc drive.

All data stored in a computer are liable to be lost in the event of certain kinds of malfunction, and so "back-up" copies must be kept. With exchangeable discs, the back-up copy is simply kept in another disc, but with hard discs some other medium must be used, usually floppy discs or magnetic tape.

Most of the currently-available hard disc computers at the low end of the market are simply floppy disc computers with one of the floppy disc drives replaced by a hard disc. Multi-user hard disc computers start at about £6000 and many of the single-user software packages will not run on them. Packages for multi-user microcomputers have been slow to come to the market because the number of such computers is still comparatively small. The operating system MP/M is intended to be a multi-user system compatible with CP/M and allows several people to use a computer as if each one had his own CP/M machine, but there have been problems in using it to give several people access to shared data. Several new versions have been brought out in which the problems were claimed to be solved and it is possible that in the lastest release this is true, but many of the packages have an inherently single-user nature that would still prevent them being used effectively in this kind of environment.

The computers that run CP/M and MP/M are called "8-bit" computers because they process the data 8 bits (or 1 byte) at a time. There are now beginning to be available 16-bit microcomputers, which process the data bytes two at a time. Many of these computers have multi-user operating systems that are described as "Unix-like", from their resemblance to a system called Unix developed in Canada in the early 70's. Many of these systems are not sufficiently alike that programs written for one will work on another, and the range of software available for them is in any case much less than that available under CP/M. Most of the computers that run these systems cost over £10,000.

The following configurations should be considered. All have some merit, and the choice between them is not at all clear-cut. In each case it is to be understood that the system should have 5 to 10 Mbytes of disc and a printer. Because this is an application where much of the data will need to be available for most of the time, a hard disc would be more suitable than floppies.

(a) Multi-user computer, linked to the weighbridge, peeler, and sawmill, and with up to three video terminals.

This is the "centralised" approach, in which a single computer is used for all calculation tasks. An 8-bit computer should be sufficient unless a large amount of calculation is required for controlling the sawmill (see section 4 below) in which case a configuration with more than one computer would be more suitable anyway.

(b) Single-user computer for data processing, linked to a second computer which is in turn linked to the weighbridge, peeler, and sawmill.

The second computer could run an operating system designed for "real-time" applications in which it is necessary to react to information coming from a numbe of places as and when the information arrives, or it could simply run a program that processed inputs from the weighbridge, peeler, etc as and when they occurrec A number of suitable computers are available on the market, all of them under £1000 in the kind of configuration required here. The data processing computer could then be a CP/M machine, with all the advantages in terms of hardware cost and programming cost that this would give. The second computer would store data relating to the day-to-day operation of the peeler etc, and exchange this with the data processing machine as and when the latter required.

(c) Multi-user computer linked to the weighbridge, separate computers for the peeler and sawmill.

A disadvantage of linking equipment (such as the sawmill) to a remote comput is that the system then relies on three things - the equipment, the communication link, and the computer - all working at the same time. If the remote computer is controlling the sawmill (for instance if the sawmill electronics tells the computer the length and diamter of the next pole and the computer then tells the sawmill where to cut it) then if, say, there is a power computer cut at the office building, or a fault develops in the communication line, the sawmill will be stopped even if its own electronics are working correctly.

If, however, the sawmill has its own computer in which the information necessary to decide where to cut each pole has been stored, then work will not be hindered by problems with the communication link or the remote computer. Similarly the peeler should be able to store the information on number and size of poles peeled during any such break in communications.

In practice, there does not seem to be any need for information to be passed between the central computer and the peeler and sawmill more often than once a day in normal circumstances. Therefore, communication between the computers can be by magnetic tape or disc (audio cassette tapes should be sufficient) and the direct ("on-line" in the jargon) communication link described in section 3.1 above is not needed. Several suitable computers are available at well under £1000 (excluding the sensors etc on the sawmill and the interfaces to them).

(d) Single-user computer for data processing, separate computers linked to the weighbridge, peeler, and sawmill. Link between the weighbridge computer and the data processing computer; weighbridge, peeler, and sawmill computers exchange data by "off-line" means such as cassette tape.

This configuration combines the features introduced in (b) and (c). It has the advantage that the three computers that exchange data by off-line means can be of the sawm type, and can be chosen independently of the choice of data processing computer. This is because different computers tend to use off-line media in different ways, so that one make of computer cannot read information written by another; direct "asynchronus serial interface" links however are made to an international standard (called variously RS232C and V24) and will always work together although not necessarily vary conveniently. (A serial interface is one over which bits are transmitted one at a time as opposed to a parallel interface across which several bits (often 8) are transmitted at a time. A synchronus serial interface required the transmitting and receiving ends to have "clock" signals that are in step with each other, whereas an asynchronus interface simply requires the clocks to run at approximately the same speed. "Mainframe" computers from manufacturers such as ICL and IBM use synchronous interfaces with complicated protocols, but microcomputers use asynchronus interfaces which simply send bytes (or characters) as and when they are available. Microcomputer interfaces do have protcols whereby one computer can tell the other whether it is ready to receive data, and there are several such protocols which are quite different from each other: DTR/CTS uses extra wires in the interface, XON/XOFF sends special characters for "stop sending" and "start again", and ETC/ACK requires the sender to send a special character periodically and not to send any more data until it gets an acknowledgement. However, the interface can almost always be used without the protocols, and a "higher-level" protocol, part of the design of how information is exchanged between the two computers - what the data bytes mean as distinct from how they are transported - can be used to ensure that data will only be sent when the other machine is ready to receive it.)

3.3 Computing equipment at Cambridge

Although the direct control of the production equipment is done in Brandon, several functions of the Cambridge office - particularly billing - are closely connected with it.

The main clerical operations at Cambridge are concerned with the U4 Official Order and A36 Invoice forms and with sales ledger and customer credit control operations in general. As described in section 2 above, the invoice is raised in response to an A39 advice note raised by a forest or by Brandon Depot after goods are despatched; Cambridge add price data from the U4 to their copy of the A39 and also debit the "balance to be delivered" figure on the U4, before copying the data to the A36. The forest has a copy of the U4 on which a similar record of "balance to be delivered" is kept for contract control purposes.

The total amount of information to be stored is very approximately 100 customer records and less than 10,000 U3b's per year including 1500 for pitwood. A record of 100 bytes or less in the computer could cover a U3b and its associated A39 and A36 and a cross-reference to the U4. The disc store required for these records is therefore likely to be around 1 to 2 megabytes if the computer uses the disc space reasonably efficiently; allowing for other

data that will need to be stored, and allowing also for programs and for temporary storage that the programs use as working-space, a minimum of 5Mbytes is recommended for the above-mentioned data.

Two options seem to be available for the Cambridge office: a single-user computer, preferably a CP/M machine with a hard disc of £Mbytes or more, or a multi-user computer with 10Mbytes of hard disc which could also be used for tasks such as word processing. If a single-user computer is chosen, these other functions could of course be implemented on additional singel-user machines: in this case it would be preferable to have the ability to exchange data between the machines either by direct connection or on magnetic media.

Whichever option is chosen, communication with the data processing computer at Brandon will be needed. The following options are available for overnight transfer of data; there does not appear to be a need for data transfer during the day (provided copies of the necessary information are kept at both places - see the remakrs at the end of section 3.2 concerning the undesirability of relying on a transmission link to give immediate access to data) and indeed i is necessary consider whether less frequent transmission, say three times a week would be adequate.

(a) On-line connection

Both dial-up circuits and private lines are available, and speeds from 20 characters per second upwards (the higher speeds requiring synchronus format and private lines). A pair of modems, one at each computer, is required to convert the signal from the computer into a form suitable for transmission acros the 'phone system and back again at the other end. Using a lower speed makes the transmission inherently more reliable as each bit lasts for a longer time and so the clicks and other noises that occur on telephone lines are less likely to cause a whole bit to be lost. Higher-speed modems are more sophisticated in order to overcome this and therefore more expensive. Speed is measured in bits per second, usually called "baud", and for asynchronous data (the format noramaly used by microcomputers) there are 10 bits per character so for instance 60 characters per second is the same as 600 baud.

A 200 baud modem from British Telecom has a connection charge of £60 and a rental of £170 per annum; for a 600 baud modem the figures are £70 and £180 respectively. Modems are also available for purchase from independent suppliers; prices start at around £200.

Private circuits are graded according to the quality of transmission. Faster modems require higher-quality, and therefore more expensive, lines as well as being more expensive themselves. For 200 baud the connection charge is £300 and the rental £960 per annum for a line between Cambridge and Brandon; a line which allows the 600 baud modem to be used at 1200 baud costs £450 for the connection charge and £1320 per annum.

For dial-up lines, as well as the normal exchange line on which call charges are the same as on ordinary telephones there is the "midnight line" service on which calls made between midnight and 6am are free. The midnight line costs about £300 a year more than a normal line, so if it is used on 250 nights of the year for calls between Cambridge and Brandon it will be cheaper than a normal lin if used for an hour or more each night, i.e. if the total number of characters sent (adding together the number sent in each direction) is more than about 70,00 If there are pauses in the data transmission, for instance while one of the computers is looking for data on its disc, this "break-even" number will of cours be less.

Where overnight data transmission is used, audio-dialling facilities are needed at one end of the connection and auto-answering at the other. Also, of course, the computers have to be left running all night. This is usually regarded as safe, but fire detection equipment should perhaps be considered. If the computers have floppy discs, the discs must also be left in the machine all night. If the Cambridge office has the auto-dial facility and each forest office has a computer and modem with the auto-answer facility, the Cambridge computer can ring up each of the other computers in turn during the night. In this case the "midnight line" facility might well be an advantage at the Cambridge end.

Daytime transmission has the advantage that computers do not need to be left on overnight (this is an advantage only from the point of view of safety; turning the computer, and particularly a hard disc drive, off and then on again causes more "wear and tear" than leaving it switches on), and that equipment to allow the connection to be made automatically is not needed. It also means that data can be called up from the remote computer as and when needed. However, unless a private line is used the call charges are much higher than overnight and if either of the computers is a single-user machine it cannot be used for anything else while data transmission is taking place. Also, it ties up a telephone line, and so an extra exchange line (£80 connection charge and £84 per annum) may be needed.

Another form of data transmission that should be mentioned is the Packet Switches Service, which is a new service specifically for data transmission. At present, a computer in Brandon would get access to this via a private line to the Packet Switch Exchange in Cambridge, and this would of course cost as much as a direct line between the two offices. The PSS should be considered if a connection between Cambridge and Edinburgh is envisaged.

(b) Off-line transmission

Data can be sent on cassette tape or floppy disc. The cheapest method would be first class post, at 28½p for a cassette in a jiffy-bag or a floppy disc in a cardboard-backed envelope, and provided the package was posted early enough in Brandon (probably about 5pm) it would normally arrive in the Cambridge office first post the next day. First class post should be fairly reliable as the places are not very far apart and in particular the post does not go through London. Since paperwork is presumably sent by this route at present, it would be useful to collect statistics of how long letters take to arrive.

The Post Office's Special Delivery service costs £1.60 per package and requires the data to be taken to Brandon Post Office. From there is goes by normal first class post but if it does not arrive in Cambridge in time to go out with the first delivery it is delivered by a special messenger.

The other relevant Post Office service is Datapost, which costs £7.50 for collection from the Brandon depot in the evening and guaranteed delivery first thing the next morning at Cambridge.

A Brandon carrier, "Carryfast", telephone 810060, quotes £3.35 for overnight delivery door-to-door from Brandon to Cambridge.

Several other carriers offer an overnight door-to-door service, typically at about £8.

3.4 Computer equipment elsewhere

Each forest office is concerned with processing U3b's both to raise A39 Advice Notes and to calculate wages. This is a task that could be done on a single-user computer with floppy discs, running either an invoicing package or a more general-purpose package such as DataStar (a Trade Mark of MicroPro Corp). There are a number of suitable machines on the market, all of which would be under £2000 including software: the Superbrain is imported from the USA but is b now well-established in this country and is also available with a hard disc; the British Micro is cheaper but is more recently on the market and we have as yet little information on its reliability in the field. The Osborne, another import from the US, is also cheaper than the Superbrain but only recently on the market its major advantage over other machines is portability - it does not need to sta in the office and could for instance be used at the point where produce was bein loaded - but early indications are that its case is not well enough built to stand up to this kind of treatment.

Communication between a forest computer and Cambridge would be similar to communication between Brandon and Cambridge. Some of the forests are more than 56km from Cambridge, so telephone calls (except via "midnight line") are more expensive. Door-to-door courier offering similarly favourable rates to Carryfas would be available.

The paperwork in the Repair Workshops is similarly amenable to implement-ation on a small microcomputer. At present much of the work is done twice: once on local documents and again on coding sheets for Edinburgh; use of machine-to-machine communication should remove this problem. Also, the year-end revaluation of stock could be done much more easily on a computer of this sort.

4. Control of the sawmill

A principle purpose of the new system would be to improve stock control of peeler poles. At present the only information that is kept is the number and average volume of the poles peeled (separately for Cambrio's and Long Butts; smallwood does not go through the peeler referred to in this report - some is sold with the bark on, and the rest is peeled by a separate peeling machine on another part of the site).

At the opposite extreme, the computer system could record the length of every pole peeled together with its diameter at 12cm intervals along its whole length. The computer could then choose which poles are needed to cut a particular mix of end products. This would be unworkable in practice because of the difficulty of locating individual poles; at the very least it would be necessary to mark each pole with a serial number when it is peeled and to notify this number to the computer, and the computer would also need to have some knowledge of how the poles were stacked so as to be able to ask for them in a sensible order.

If the poles were grouped into batches of a dozen or so, the system could ask for particular batches to be taken to the sawmill. This would still create substantial organisational problems for very little gain.

A suitable level of information would probably be for the length and top diameter and possibly butt diameter of all the poles peeled each day (or perhaps each half day) to be stored in the computer, and for the poles to be stacked in such a way that a particular day's (or half day's) output could be easily identified. It is not, however, clear to what extent this information would be useful, for instance whether there would be significant differences between one day and another so that if, say, poles with a certain top diameter were required the system would be able to indicate which part of the stack contained a greater proportion of them.

If the poles are used strictly in rotation, storing the total output for each day would give a more accurate stock record than could be achieved by adding each day's (or week's) production from the peeler to the stock figure and deducting the amount taken to the sawmill. This is because the figures are by their nature somewhat approximate, and the latter method allows errors to build up.

Although it would be possible for a computer to plan in advance how to cut the required mix of products from the available poles, this would require more detailed information about the poles being brought to the sawmill than can be reasonably achieved, given the difficulties mentioned above.

Sensors could be added to the sawmill to enable the length and diameter of incoming poles to be determined, and a computer could make a decision as to where cut on the basis of this information in time for the cut to be made in very much the same way as the men do now. There are several forms of sensor that could be used: we gather that there are already plans to fit a wheel on an arm above the conveyor that feeds the pole into the saw; this will sense the movement of the pole so that the conveyor can be stopped automatically when the pole hits the stop that defines the length to be cut. It could also measure the length of the pole (by counting revolutions of the wheel) and the diameter (by sensing the position of the arm); the latter measurement will not, however be very accurate.

A more accurate measure of length would be got by the computer simply being able to detect which stop was down, although the more direct method (using the wheel) would provide a check that the pole had reached the stop and also provide an approximate measure of the offcut at the butt end, as well as detecting when the conveyor is reversed.

A row of LED's at one side of the poles just before the saw and row of photocells at the other side could be used to measure the diameter of the pole more accurately, provided they coud be kept clean enough. Cleaning might be initiated automatically by the computer when the amount of light detected when no pole was present became too low. Two sets at different angles would give a better measure of the diamter, although it is necessary not to place any of them in the area immediately under the pole where the butt end offcuts drop through. The length of the pole, and the length remaining to be cut at any time, could probably be measured by detecting the end of the pole using ultrasonic techniques (similar to radar), but some experimentation would be needed to establish that the echoes would not be lost among the ambient noise.

The sawmill installation does not at present have any electronic control or monitoring; the saw, conveyors, and end stops are controlled from switches in the cabin attached to each saw. A computer monitoring the operation of these switches could collect data on the number of poles sawn and the number of pieces of each length produced, and from the cutting list could deduce the diameter of each piece also; this is sufficient information for stock control purposes.

With the addition of the wheel mentioned above to detect movement of the pole, the computer could also provide semi-automatic control: as soon as the end stop was selected the computer could move the conveyor forward until the pole reached the end stop (checking that this was sufficiently long) then stop the conveyor and operate the saw.

The further addition of a means of accurately estimating the length and diameter of each pole would enable the computer to saw each pole entirely automatically from the cutting list. The software needed for fully automatic control would be non-trivial undertaking, as much of it would have to be specially written. It has been suggested that the sawyers at present "bend the rules" in ways that it may be difficult to get a computer program to emulate, in order to achieve the desired mix of sizes.

This level of automation would have the effect of de-skilling the sawyer's job without eliminating it; however if the computer can operate the feed decks also then the saws can be operated entirely automatically, and it may well be possible to do this with the addition of a simple mechanism to detect whether a pole is present at the singling rollers. If this level of automation is chosen, it would be prudent to begin with just one of the three saws until it is certain that the equipment works reliably. Also, some products may be more amenable to fully automatic sawing than others.

A computer and associated software to monitor the output of all three saws by sensing when the stops etc are operated would probably cost between £3000 and £6000. For fully automatic control it would be preferable to have one computer for each saw; the cost including software for the first saw is likely to be around £20,000 and there is a risk that it may be difficult to make the system work reliably. The cost for the second and third (for which no software or development work would be required) would probably be around £5000 to £8000 each.

5. Conclusions

5.1 Paperwork associated with the computers

Paperwork with the computer-based system does not need to differ from the present paperwork system, although the availability of more detailed records of the stocks of peeled poles permits some more detailed analyses to be done.

Some purely internal documents would not need to exist on paper at all, provided all the necessary information is available to reconstruct them in the event of a fault causing the information in the computer to be lost. (This kind of fault is fortunately quite rare, but the rarity tends to make computer users forgetful of the need to take back-up copies of data.)

Two points about the current paperwork system should be noted. Copies of the U4 are held both in Cambridge and at the relevant forest or Brandon Depot, and both are updated when a delivery is made. It is clearly necessary to contunie to keep the U4 information at both places, but the computer record that carries the information which is at present on the A39 should in addition show the "balance to be delivered" figure from the forest's (or Brandon's) copy of the U4 for checking against Cambridge's copy.

Secondly, consideration should be given to raising the ijvoice earlier in the process. One possibility is to issue the invoice at the point where in the present system the A39 is raised, the computer record of the data on the invoice taking the place of thr A39. Cambridge would then take all book-keeping and credit control actions as at present. Some exceptions would need to be catered for, such as produce despatched from a forest and subsequently weighed at Brandon, and contracts on which the prices are nit notified to the forests. Where a U3b from a forest has to be correlated with a weighing at Brandon, this could be achieved by the U3b being sent to Brandon, or the weight ticket being sent to the forest, or both being sent to Cambridge. Another possibility is for the invoices to be issued exactly as at present but to be dated with the date of despatch instead of on the date of issue. However we gather that neither of these possibilities is likely to be well received by the staff who would have to implement them.

On most days someone from each forest goes to the District Office at Santon Downham. Therefore, if there are computers at Brandon and the District Office in daily (or nightly) communication with a computer at Cambridge as described in section 3.3 above then the A39's from the forests could be taken to the District Office and typed into the computer there, and then transmitted to Cambridge. A39's from Brandon would be transmitted direct from there. Where produce is despatched from a forest and weighed at Brandon, the A39 taken to the District Office would be typed into the computer without including the weight; either the weight would be transmitted from Brandon to Santon Downham and added to the A39 by the computer before transmission on to Cambridge, or else the A39 (minus the weight) and the weighbridge data would be sent separately to Cambridge and correlated there. It should be noted that the data from the weighbridge will usually be available before the A39 (or U3b) data, and will therefore need to be stored in a "pending" file until the other arrives.

5.2 Computer equipment required

The computer system may be divided into the following three areas; it would probably be most convenient to instal them in order in which they are listed here, except that it is not necessary for all the equipment at Brandon to be installed before the computers at the other sites are installed.

(a) Brandon depot

One of the configurations (a) to (d) listed in section 3.2 above must be chosen. Although (c) and (d) would use more computers than the other two configurations, they allow more flexibility in the way the system is built up and also allow different parts of the system to be more independent of each other. Because an on-line link across the site is not needed, they will not necessarily be more expensive.

A multi-user computer has the advantage that several people can enter and extract data at the same time, but such computers are less well-established in the market-place at the moment. This situation is however changing rapidly as more multi-user computers are announced and more software becomes available for them; new computer systems will also become available that are able to run single-user software in a multi-user environment.

The main applications are concerned with stock control and with despatch. The latter, which includes forms U3b and A39 and data from the weighbridge, is needed before the system can be linked with a computer in Cambridge. The former is largely independent of this, although contract control spans both functions.

The total cost of equipment in the office building, including a link to the weighbridge, would be in the range of £3,000 to £15,000 with single-user computers coming at the low end of this range. In addition, about £5000 to £7500 should be allowed for software, either packaged programs "tailored" for the particular requirements of this system or specially-written programs or a mixture of the two.

The computer itself can almost certainly be leased instead of being purchased. For a five-year lease, the annual cost is usually about one-third of the purchase price. Rental is usually more expensive and is less widely available.

The costs of the various options for the other buildings were set out in sections 3.1 and 4 above, and are likely to be in the region of £5000 to £9500 (including software and installation) to monitor the output of both locations. Whether it is economic to connect the three locations together on-line depends largely on the cost of laying a cable linking then, estimated at £4000 but possibly much less if direct labour is used.

(b) Cambridge

The Cambridge office requires a similar sized computer to the office in Brandon (although, because there are more staff at Cambridge, a multi-access computer there would potentially have more terminals), and there are advantages in having the same make of computer in each location. The cost is therefore likely to be similar.

The method of communication between the two computers was discussed in section 3.3 above.

(c) Forests

As discussed in sections 3.4 and 5.1 above, forests could have their own computers at around £2000 each, or data entry could be done centrally at the District Office on a computer similar to those at Brandon and Cambridge (though probably at a lower software cost).

We are not able to be more definite as to whether a computer in a forest office would reduce staff requirements without a closer study of the work done by each member of staff, but it seems unlikely that significant savings could be made. However, it is likely that (once staff were familiar with the computer system) considerable production increases could be handled without increasing office staff.

Similarly the effect of centralising forest office paperwork at Santon Downham is outside the scope of this report.

5.3 Summary

The decision as to the best configuration of computer equipment is heavily dependent on internal decisions as to the autonomy of each site. The alternative options are set out in sections 3 and 5.2 above. There is no technical, or overriding cost considerstion to make one course of action significantly better than another; since the particular benefits vary with each solution all aspects of the proposed computerisation need to be considered in the light of current working practices and the possibilities of improving these to allow fuller automation which will give greater flexibility and allow the planned increases in production to be handled.

Nine Tiles Information Handling Ltd
11 August 1982

APPENDIX 10c

BRANDON CENTRAL DEPOT

PAPERWORK PROJECT

THE PRESENT SYSTEM OF RECORDING THE INPUT, CONVERSION AND DESPATCH OF TIMBER PRODUCTS

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Part One

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1. Input
2. Production - Pitwood
2. Work Quantities
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8-9. Stakes
10. Woodwool aND Boxwood
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11. Wastewood, Bungwood.
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14. Private Weighs.
15. Ancillary - electricity.
16. District Office

Part Two

Flow Diagrams.

B.T.Llewellyn
(Clerical Officer, Estates
District Office, Santon Downham)

and

B.Griggs (Chief Forester, BCD)

August 1983

PART ONE

Sales Plan - See FD2

Prepared at Conservancy, District and Beat levels - indicates the total volume of pole categories (long Butts, Cambio and Smallwood poles) to be sent to BCD from the Beats over a 5 year period.

Annual Sales Plan

This indicates the agreed weekly volume of each pole category to be delivered to BCD by each Beat during the coming Forest Year.

Budget

From the above information an annual Budget can be prepared.

Input - Weighbridge

Each load is weighed as it enters BCD and a Weight Ticket is produced -
3 copies - 1 to individual Beat
- 2 copies retained at BCD

After the load weight is established the lorry driver signs the Weight Ticket and the information is transferred to the Beat Input Document where the tonnage of the load under that pole category delivered is recorded and signed for by the driver.

The Weight Tickets are sorted weekly into the pole categories delivered by each Beat and checked against the weights recorded on the Beat Input Document.

Once checked the tonnages of each product and number of loads from each Beat is totalled on the Beat Input Document. Each Beat will telephone and check the totals of the Document with their copies of the Weight Tickets.

The tonnages from the Beat Input Document are converted to volumes and transfered to the Weekly Input Document on which is recorded the volume of each pole category and number of loads involved during the week.

The information of the volume from each Beat is then transferred from the Weekly Input Document to the Produce Ledger to maintain a running total of weekly progress of each Beat against the target figure set by the Annual Sales Plan - this is expressed as a percentage figure which is returned to the Weekly Input Document against each Beat and the Document is circulated to the Foresters and Foreman for information and then filed. A copy is sent to the District Office.

The sum total of the Beats input figures from the Weekly Input Document is transferred to another section of the Produce Ledger giving the total volumes by pole category for the District in any week which can be compared with the proposed target in order to ascertain the percentage of the target actually being achieved.

When the last Weekly Input Document is sent to District Office at the end of the year a summary of each Beat input data compared against the Sales Plan is also sent whilst a copy is retained at BCD.

Production - Pitwood - See FD3

Daily, the Forester will note his Peeler Records of the details of the hours run, the load hours and the numbers of poles peeled from the Peeler clocks together with the Volume, Mean Diameter and lineal metres from the two measuring devices. The hours of usage of the Bark mulcher is also recorded.

Ganger produces a Daily Production Sheet (Form UO) recording the number of pieces produced as Props and Splits in individual sizes and by the Mode of Production eg. Swing Saw, Pendulum Saw etc, in the previous day.

Clerks

The product information from the Form UO is transferred on to the Daily Stock Ledger.

Disposals are recorded and a daily stock of each specfication can be achieved. We shall see later the full exercise of stock control.

At the end of each month the information from the Peeler and other Records enables the Chief Forester to prepare the Brandon Depot Availability Sheet - 1 copy to District office and 1 copy retained - indicating the current levels of peeling and conversion of unpeeled, peeled long butts, cambio and small-wood poles together with the Woodwool.

Work Quantities

The information produced by the Form UO is recorded on the Daily Production Sheets and its volumes by Work Type noted on a Summary Sheet.

On a weekly basis the clerks will record in the Work Quantities ledger the volumes allocated to Work Types of those processes covered by the Form UO ie. - Conversion, Splitting, VK10 Peeling etc.

This is totalled monthly, at which time the Chief Forester will apportion Wastewood volume to the Conversion Work Type.

Computer forms are then prepared and sent to the Computer Centre. Peeling, Bark production and loading Work Quantities are obtained from the Peeler Records, the Produce Ledger and the U8 .

Planning, Organisation and Control - SEE FD4

Annually the Forester receives a copy of the Negotiated Annual Contract from the NCB Headquarters describing the overall volume requirements of the NCB for the coming year by top diameter classes and volume of Props and Splits.

Quarterly he receives the NCB Official Purchase Orders (any number between 120 - 200 individual orders), detailing the requirements by specification, number of pieces and delivery dates of each individual colliery. From this the Forester prepares Record Cards of each colliery order, entering details of their order.

A second card is prepared detailing the size requirements within each colliery area.

This will assist with the calculation for load make up.

When the orders are received the Forester must calculate a cutting pattern suitable to the overall efficient running of the Depot and the marketing of its products. Following this the Forester calculates from the information contained in the orders the optimum pattern of despatch during the coming Quarter Period.

To achieve this he ascertains the amount to be despatched from the backlog of the existing or old orders and the new orders, he must also estimate the number of probable Supplementary Orders he will receive during the course of the coming Quarter Period.

Once this is achieved the Forester will then calculate whether there is an overtime requirement within the Depot to produce a greater volume to meet the estimated load requirements. Coupled with this a decision must be made as to the ability to market the ancillary products or to stockpile the extra which will be produced.

When these tasks have been completed the individual Colliery Record Cards are passed to the Clerks who enter the details into the Daily Stock Ledger which contains a section for the entry of Orders details - later we shall see how this works.

The cards are then returned to the Forester and put on visual display.

The NCB Official Purchase Orders are passed to the Weighbridge Operator to retain and maintain.

At the end of each day the Forester will prepare details of the next days despatches and note them on the Colliery Loads Sheet (also known as the 'Green Book')

- 4 copies - 1 to Crane Driver .
  - 1 to Shunter to facilitate Trailer preparation.
  - 1 to Weighbridge Operator
  - 1 to be retained in book.

This gives the details of the Haulier, the Colliery to be delivered to, the NCB Order number, the FC Order number, the Colliery Area (this particular information determines the cost of the haulage of the load, depending on that area rate), the specification of the load and the number of pieces remaining on order, also, where applicable it is noted that that load is the Final Delivery against Order - indicating the completion of an Order.

A Double Drop is sometimes required - this is where a load comprises of two or more orders to different collieries. This arises when:

a) Total order less than a load.

b) Balance due less than a load.

c) Hastened but less than a load available.

Where a Double Drop is applicable two weighings are required, therefore, doubling all consequent paperwork.

Hasteners are often received from the NCB requiring a delivery date to be brought forward. Many Supplementary Orders are hastened at the time the order is placed by telephone. This involves more work as there is a delay before the copy of the NCB Official Purchase Orders arrives via Conservancy Office bearing the FC order number. For this reason the Weighbridge Operator maintains a 'To Follow Book' containing the details which are later transferred to the Order.

Loading and Despatch - Pitwood See FD5

On receiving the NCB Official Purchase Orders the Weighbridge Operator will prepare a Register of Orders which provides a ready check on all current NCB Orders.

From the information contained within 'The Green Book' the Crane Driver knows the numbers of pieces remaining to be supplied against the Order. He will therefore not load more than that number of pieces.

Loading Chit

The specification and number of pieces in each Box is recorded by the Ganger in his Day Book and noted on the product ends in the Box.

When the Boxes are loaded onto the lorry the Crane Driver notes the total of each Box and then calculates the total pieces in the load.

The loading Chit is handed to the Shunter who in turn passes it to the Weighbridge Operator, enabling him to complete the Forms A39 Advice Note,U3b Conveyance Note.

When a load is despatched from BCD the following processes occur;

The load is weighed as per usual and a Weight Ticket is produced - 3 copies-top copy with load and 2 copies retained. The Weighbridge Operator will then prepare the following Forms:

1. A39 Advice Note - 3 copies - Top copy with load.
   - 1 copy (blue copy) sent to Conservancy Office daily.
   - 1 copy retained.

2. U3b Conveyance Note - 3 copies - Top copy with load
   - 2 copies retained.

3. Demurrage and Diversion Note.

The top copies of the Weight Ticket, A39 Advice Note and U3b Conveyance Note and the one copy of the Demurrage and Diversion Note are sent with the load.

The Weight Ticket and A39 Advice Note are retained by NCB, the U3b Conveyance Note is signed and returned to BCD as confirmation of delivery and to support the Hauliers invoice.

If the load is delayed or diverted to another Colliery the Haulier returns the Demurrage and Diversion Note to BCD as a supporting voucher for his claim against the Forestry Commission for re-imbursement and our subsequent claim with the NCB.

The Demurrage and Diversion Note is then sent to Conservancy Office to activate this procedure.

After this the Weighbridge Operator will update his records as follows:-

1. The A39 Daily Volume Despatch Sheet is noted.

2. NCB Official Purchase Orders are updated.

3. Daily volume of Pitwood by Props/Splits is balanced on Daily Volume Ledger.

4. A record is kept of load volumes over the week giving a quick visual check of load volumes to ensure that maximum loads are being achieved.

5. Weekly this record is totalled and entered onto the Produce Ledger.

Completed orders are filed for reference and the Register of Orders is updated for completed orders.

The A39 Daily Volume Despatch sheet is passed to the Clerks daily who then note the despatches on the Daily Stock Ledger and then balance the Ledger against the previous days production to ascertain a daily stock by size/pieces. The Orders Sheets within the Daily Stock Ledger are updated to maintain a running total of size and numbers of pieces supplied to each Colliery against its Order, (See Planning, Organisation and Control). The Forester's Record Cards are amended and returned to visual display. 'The Green Book' and the Foresters Record Cards are used by the Clerks as a check to progress the Orders Sheet, for each individual Prop/Split size. Following this the Monthly Volume Ledger is amended. This record of despatches provides the information for the Form U8a.

The Produce Ledger maintained by the Weighbridge Operator is a comprehensively detailed, readily accessible record and summary of Input, Despatch and Sales by Order, the amount and the products.

The A39 Daily Volume Despatch Sheet also maintained by the Weighbridge Operator duplicates this information (except for Input) which is required by the Clerks for Stock adjustment but is presented more conveniently than the Produce Ledger for this purpose.

The details from these two ledgers provides the necessary information for the maintenance of the Volume by Top Diameter Analysis Ledger which is a daily record of the volume of Pitwood despatches by top diameter classes of Props/Splits. This information can then be used in forecasting and in assessing the practicality of NCB proposals.

From the information contained within the various ledgers the following well known documents can be completed:-

Form U8a - monthly report on the progress of NCB contracts against the target rate of despatch.

2 copies - 1 shuttle copy to Conservancy Office.
- 1 copy retained.

Form U8 - this is a monthly assessment on the progress of despatches by product in relation to all contracts. The information is provided by the Produce Ledger. 2 copies - 1 copy to District Office
- 1 copy retained.

Form U6 - prepared annually - information provided by

Produce Ledger, Form U8, Stock Ledgers and A136 Transfer Advice
Celcure Stock Ledger.

3 copies - 1 copy to Conservancy Office.
- 1 copy to District Office (non standard)
- 1 copy retained.

Haulage - See FD6

The retained copies of the Weight Ticket U3b Conveyance Notes and A39 Advice Notes are noted on the Haulage Leder together with the daily volume despatched for reference.

On a weekly basis the Haulier will check the BCD figures by sending a Daily Traffic Summary - this should correlate with the BCD figures.
The haulier obtains his figures from the returned copies of the Form U3b.
If agreement is reached over the figures the Haulier will invoice the Forestry Commission. The invoice is sent to BCD weekly, checked, then signed by the Chief Forester and passed onto Headquarters for payment monthly.

From a combination of information from Despatch and Haulage the Chief Forester may submit to District Office a Weight/Volume load Ratio Check Sheet for all products weighed, ie. Pitwood (Props/Splits)
Woodwool
Bark

Other Products - Production and Despatch - See FD7

Stakes Ganger produces Form UO daily on which is shown the previous days production of Stakes in their various stages eg peeled or unpeeled, pointed on unpointed etc., the numbers of pieces in each stage and their specification.

The stages in the production of Stakes are as follows:-

1. Unpeeled and Unpointed.
2. Unpeeled and Pointed.
3. Peeled and Unpointed.
4. Peeled and Pointed.

It is important to know the stock at each stage. Movement from any stage by sale or reprocess to next stage must be recorded. It is the normal practice of the Foreman to note the movement of Stakes by reprocess and to inform the Clerks.

The UO is totalled weekly and the information is recorded on the Stake Ledger to achieve a weekly stock.

Stakes can be sold in many ways.

Sales by Open Tender or Negotiation - this involves the normal U4 Forestry Commission order process.

Forester receives U4 detailing the requirement of the person to be supplied. This is passed to the Weighbridge Operator who retains it in the U4 orders file and who updates each Order as disposals are achieved.

When a load is to be collected the Forester is informed who then proceeds to instruct the loading of a trailer unit.

The number of pieces and volume is recorded on a Form U3b by the Forester who passes the Form to the Weighbridge Operator to complete the paperwork processes
- 1 copy with load
  2 copies retained

A copy of the U3b Conveyance Note is sent with the load. It is not essential for the load to be weighed although it does assist maximum loading within the law. A Weight Ticket is not issued.

Following the completion of the U3b the A39 Daily Volume Despatch Sheet is noted with the U3b reference number.

A Form A39 Advice Note - 3 copies - 1 copy to customer
- 1 (blue) copy to Conservancy Office
- 1 copy retained.

is prepared weekly.

The Produce Ledger is then updated.

The information from the A39 Daily Volume Despatch Sheet is then used to amend the Stake Ledger.

U4 Order Forms are updated to maintain a running total of pieces left on order.

When an Order is completed a Completion Certificate is prepared - 2 copies - 1 copy to Conservancy Office via District Office., 1 copy retained.- and the order filed.

To return to the preparation of the A39. If more than two consignments are sent in one week or the details of the load are such as to be too numerous to be

included adequately upon the U3b Conveyance Note and the A39 Advice Note the Weighbridge Operator will issue a Form F22 where he can detail the load(s). Two copies are produced - one copy being attached to the A39 to be sent to the person being supplied and the second copy is attached to the Blue copy of the A39 which is returned to Conservancy Office. No copy is retained at BCD as the information will be recorded on the Produce Ledger. This form is prepared for any product (except pitwood) which produces an A39 Advice Note.

A second form of sale is by Open Order which again is the subject of a U4 order but no specification or quantity is quoted.

Any item can be supplied against the order, the price being that shown in the Conservancy Price List.

If the total purchases are expected to amount to more than £700 over the contract period a 10% discount is awarded.

The orders in this form of sale tend to be in small quantities for any one load.

For sales in small quantities, usually to the general public, retail sale through the A35 Cash Sale is adopted. The number of pieces required is loaded by the purchaser and he/she reports to the Clerks who receive the appropriate monies for the amount and specification of the stakes. An A35 Receipt is issued and the A100 Cash Account is noted. The Local Cash Sale Ledger is noted to show the amount of money involved and the volume of the load.

The Stake Ledger is then amended.

A35 Local Cash Sales are recorded on the Monthly Volume Return to Conservancy Office and the Chief Forester Volume and Cash Sales Progress Graph is updated.

From the information contained in the local Cash Sales Ledger a part of both Forms U8 and U6 can be prepared.

Woodwool and Boxwood - See FD8

In October of every year the Assistant Conservator for Harvesting and Marketing will invite the Principal District Officer to propose details for tender to be offered the following December for material to be collected in the period of 1 April to 31 March in the following year.

This information is prepared by the Chief Forester bearing in mind the balance of current Orders and the probable rate of load despatch in the remainder of the current and the next year, the current stocks and likely production rates. Production rates are to a great extent governed by the level of NCB Orders.

However, to a certain degree forecasts have to be made as to the probable state of the market for Woodwool in order to achieve optimum stocks. If an unfavourable stockpile is reached new outlets for the surplus must be found. In this circumstance Boxwood tends to replace Woodwool in a depressed Woodwool market situation.

In the production of Woodwool and Boxwood the Ganger records the daily sum of pieces on a Form U0 which is totalled weekly and the volume calculated.

This weekly volume is recorded in the Woodwool and Boxwood Ledger on a Form U2.

When a load is collected it is weighed - 3 copies - Top copy with load
- 2 copies retained.

A39 Advice Note prepared - 3 copies - Top copy with load.
- 1 (Blue) copy sent to Conservancy Office daily.
- 1 copy retained

U3b Conveyance Note prepared - 3 copies - Top copy with load
- 2 copies retained.

A Form F22 would be prepared, as previously mentioned, if required. The Weighbridge Operator will note the A39 Daily Volume Despatch Sheet on which is recorded the A39 number, the references and the volume of the load. The Produce Ledger is then updated and the U4 Order is amended. A completion certificate again would be prepared if necessary, as previously mentioned.

The A39 Daily Volume Despatch Sheet is checked weeekly by the Clerks. From this Sheet the Woodwool and Boxwood Ledger can be updated to achieve a weekly stock.

The weekly stock is then transferred to the Weekly Stock Ledger detailing the sum totals of each weeks progress.

Sawdust - See FD11

Sawdust is sold by volume and transactions are strictly by Local Cash Sales via the A35 process previously mentioned.

Firewood - See FD 11

Firewood forms a tiny part of sales by BCD and is sold by weight, again by Local Cash Sale - the A35 procedure.

Bark - SEE FD10

Bark is sold by volume in two ways - either by the U4 Forestry Commission Order process or by A35 Local Cash Sales for small quantities, both of which have been detailed.

Rustic Poles - See FD7

Rustic Poles are sold by the piece and as with the sales of other products are sold in two ways, either by the U4 Order process or by A35 Local Cash Sales which tends to make up the preponderance of these sales.

Short Sawlogs - See FD11

This product is sold by volume through the U4 Order process only and the paper-work is processed in the same way as Woodwool and Boxwood.

Reject Cambio Poles and Long Butts - See FD10

These are sold by the weight via either the U4 Order process or by A35 Local Cash Sale.

This product can also be sold as Boxwood.

Wastewood - See FD9

Anything other than true offcuts is only sold to Valentine Wood at an enhanced price if no other market possibility exists.

If the Charcoal Burners stacks become low the Chief Forester will endeavour to find low grade small roundwood from the forests but again at the enhanced price and not the price for offcuts. Each load of wastewood is weighed which produces a Weight Ticket - 3 copies - Top copy to Valentine Wood weekly.
- 1 copy to Conservancy Office.
- 1 copy retained.

A record is maintained of the loads and a Form A39 Advice Note is prepared weekly/ monthly.

The top copies of the Weight Tickets and the A39 Advice Note are sent to Valentine Wood.

The Produce Ledger is updated and the Monthly Volume Record noted, which is sent to Conservancy Office monthly with attachments of copies of the Weight Tickets and the Blue copies of the A39 Advice Note.

Bungwood - See FD11

The top diameter specifications for Bungwood is the same as that for NCB Pitwood but its sale is progressed as a U4 Open Order where specification and quantity is not quoted. Its price is negotiated by Conservancy Office and is based upon NCB prices.

The progress of the sales of these 'Other' products, whether by U4 Order by A35 local Cash Sales are recorded monthly on the Form U8 which is sent to the District Office and summarised on a yearly basis by Form U6 returned to the Conservancy Office.

Forestry Commission Internal Use of Produce (Supplies to FC Units) - See FD12

Reasonable stocks of fencing material of standard specifications are held for supply to FC units, which are replaced as required. A number of pieces are sent to Pallet Handling (formerly Chase Sawmills) for Celcure treatment. There is no contract for this facility, Pallet Handling make themselves available probably because the quantity involved is very uncertain and not really significant ie. 50m^3 per annum.

It is also advantageous to the FC as Pallet Handling prices compare favourably when transport costs are included, with other firms who offer this facility.

Small numbers of non standard items are prepared and treated as they are ordered.

When a load leaves BCD for Celcure treatment a Form U3b - 3 copies - top copy with load - 2 copies retained - is produced.

When the treated produce is returned to BCD it is accompanied by the Pallet Handling Conveyance Note which is used as a supporting voucher for their Invoice.

The Celcured stock is recorded on the Celcure Stock Ledger and subtracted from the main Stock Ledgers.

A volume summary is maintained on a monthly basis in order to ascertain Work Quantity.

A FC unit will submit a Form B1 Order indicating the amount and specification of their requirement.

One reason for the submission of the B1 Order is that at the time of the annual Budget the FC unit does not supply a figure for his projected fencing requirements for the coming year.

At the time of collection by that FC Unit a further Form U3b is produced, together with a Form A136 - 4 copies - 2 copies to FC Unit
- 1 copy to Computer Centre
- 1 copy retained

The disposals are then subtracted from the Celcure Stock Ledger.

A summary is prepared at the end of the year for the Form U6 and Stock Valuation.

The Manual Summary of the A136 is checked against Form FC32 Income and with Conservancy Office in relation to the Suspense Account totals for the Conservancy.

Private Weighs

This facility is available to anyone who would wish to use it, to those with purchases from BCD or another FC unit (for which there is no charge), for private individuals or Firms requiring a weighing facility.

For the two latter examples an operating charge is levied for each weighing - current £2.00 + VAT (£2.30)

If a trailer is empty the tare weight is established and then weighed again when loaded to establish the total load weight.

If loaded it is just weighed for the total - they may return for tare weighing once empty.

A different form of Weight Ticket is used in the Private Weighing operation - 4 copies
- 2 copies with load,
- 1 copy with money
- 1 copy retained.

After this the Weighbridge Operator is paid, who then keeps it locked in a Cash Box until he hands the money and one copy of the Weight Ticket (which acts as a supporting voucher) to the Clerks who enter it into the A100 Cash Account. The Weighbridge Operator records the weekly payment into the A100 Weighbridge Income Book, separating the operating charge and VAT.

Three regular users of this facility are allowed to pay weekly for the number of weighs within the previous week, conditional upon there being no unreasonable number of weighs demanded within a week. If this situation arose it is understood by the parties that the weekly payment facility will be withdrawn.

In the operation of this resource the procedure is that after weighing only one copy of the Weight Ticket is taken by the Driver. The second copy is retained by the Weighbridge Operator who records the daily weights on a sheet sub-divided for each of the users/days.

Weekly the Firms representative will return to claim the second copy of the Weight Ticket(s) and to pay the outstanding charge for usage. From here the procedure becomes that detailed above.

Ancillary

Electricity - When the annual Budget is prepared electricity charges are also assessed by using historical evidence from previous years print out.

An Electricity Bill is received at BCD monthly.

The total of each Bill is allocated proportionally as a ledger type entry, to Work Types using a factor derived by mutliplying Kilowatt Rating by the Hours in Use.

A summary is maintained and the Bill is processed for payment.

The District Office

The returns and the copies of documents sent to the District Office are dealt with as follows:-

Weekly Input Document - a copy is sent on a weekly basis, the District Officer retains it for reference.

The last Weekly Input Document sent to the District Office at the end of the year also contains a summary of each Beat input data compared against the Sales Plan. The District Officer produces a performance summary relating to all products including BCD input and the information is circulated to the Beats.

Brandon Depot Availability Sheet - a copy is retained by the District Officer for reference and a running total is maintained.

On completion of an Order a Completion Certificate is prepared by the Chief Forester who passes it to the District Officer to note his file and to destroy his copy of the U4 Order. He then sends the Certificate to Conservancy Office.

Form U8 - the District Officer retains this form for reference.

Form U6 - it is not standard procedure for a copy of this form to be sent to the District Office, however, in the case of BCD a copy is sent for reference.

Weight /Volume load Ratio Check Sheet - this is sent on a quarterly basis. It is filed for future reference.

PART TWO

FLOW DIAGRAMS

INDEX

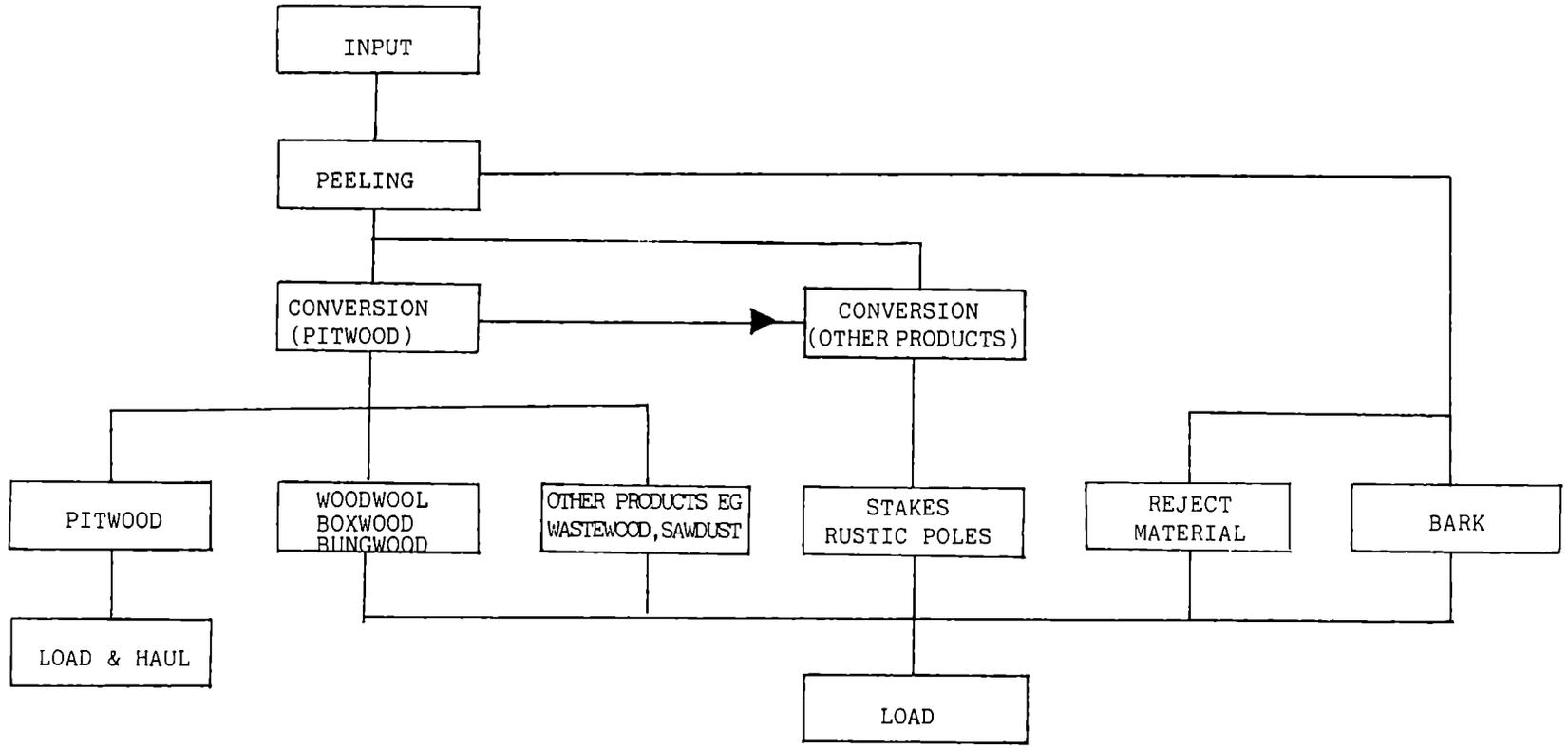
FD1	Actual (Source of Data)
FD2	Input
FD3	Peeling and Conversion - Pitwood
FD4	Planning, Organisation and Control
FD5	Loading and Despatch - Pitwood
FD6	Haulage

OTHER PRODUCTS

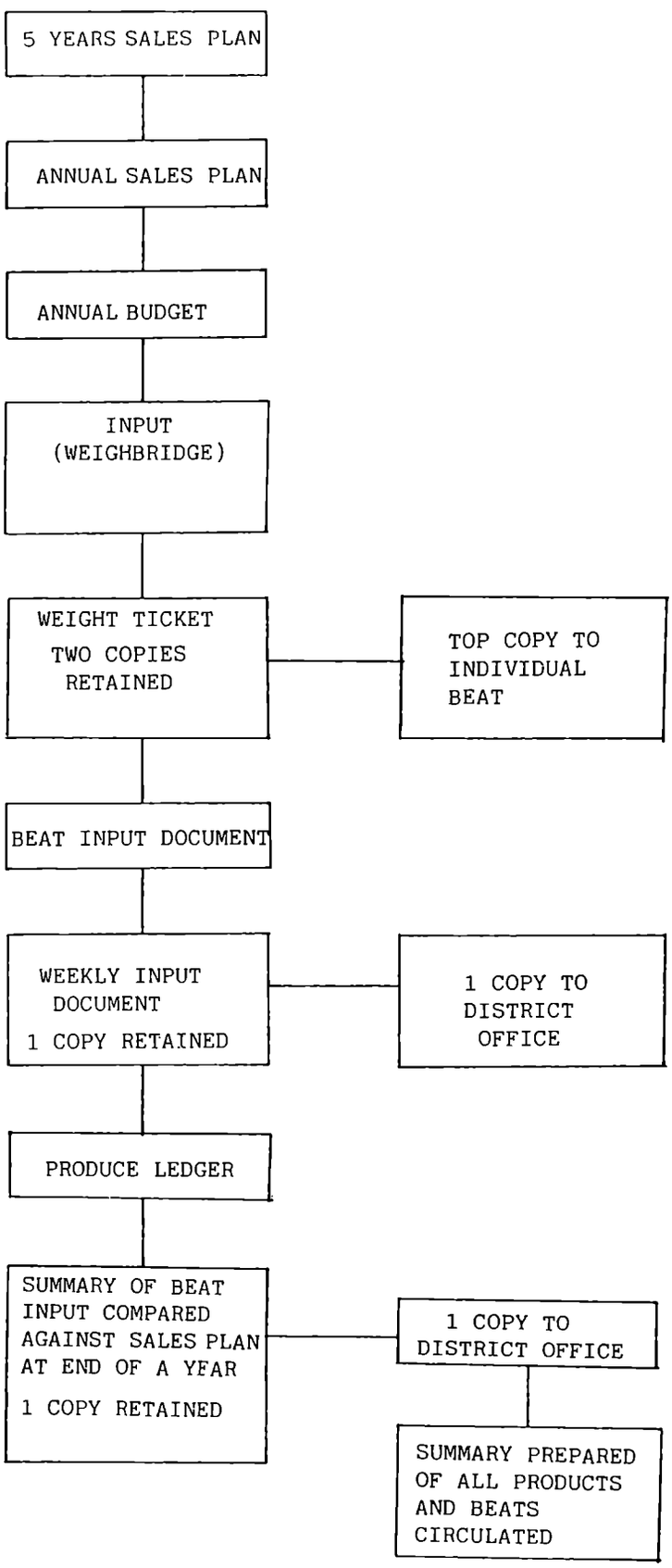
FD7	Stakes and Rustic Poles
FD8	Woodwool and Boxwood
FD9	Wastewood
FD10	Bark and Reject Cambio Poles and Long Butts
FD11	Sawdust and Firewood, Short Sawlogs and Bungwood
FD12	FC Internal Use of Produce.

ACTUAL (SOURCE OF DATA)

FD1

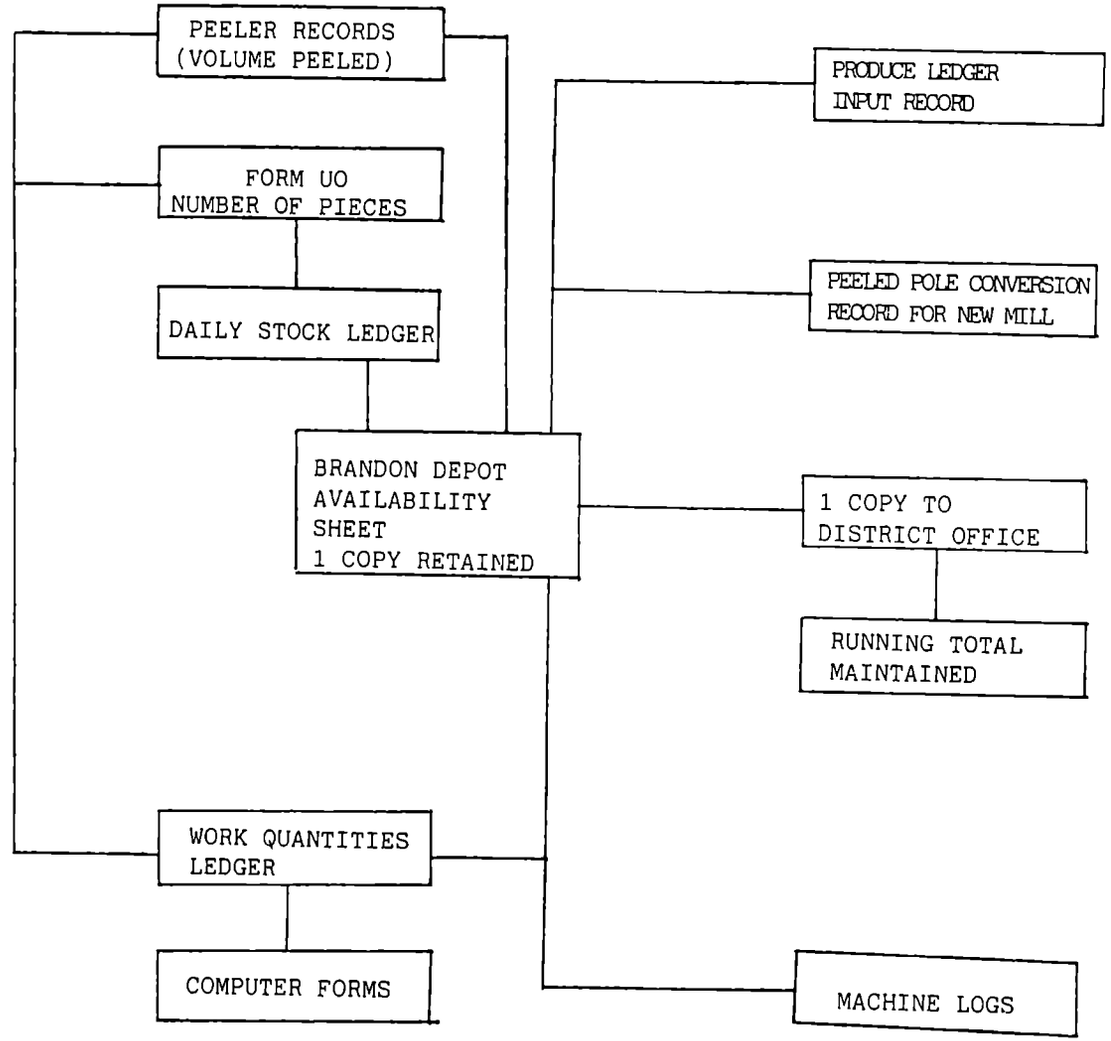


INPUT
FD2


5 YEARS SALES PLAN
ANNUAL SALES PLAN
ANNUAL BUDGET
INPUT
(WEIGHBRIDGE)
WEIGHT TICKET
TWO COPIES
RETAINED
TOP COPY TO
INDIVIDUAL
BEAT
BEAT INPUT DOCUMENT
WEEKLY INPUT
DOCUMENT
1 COPY RETAINED
1 COPY TO
DISTRICT
OFFICE
PRODUCE LEDGER
SUMMARY OF BEAT
INPUT COMPARED
AGAINST SALES PLAN
AT END OF A YEAR
1 COPY RETAINED
1 COPY TO
DISTRICT OFFICE
SUMMARY PREPARED
OF ALL PRODUCTS
AND BEATS
CIRCULATED

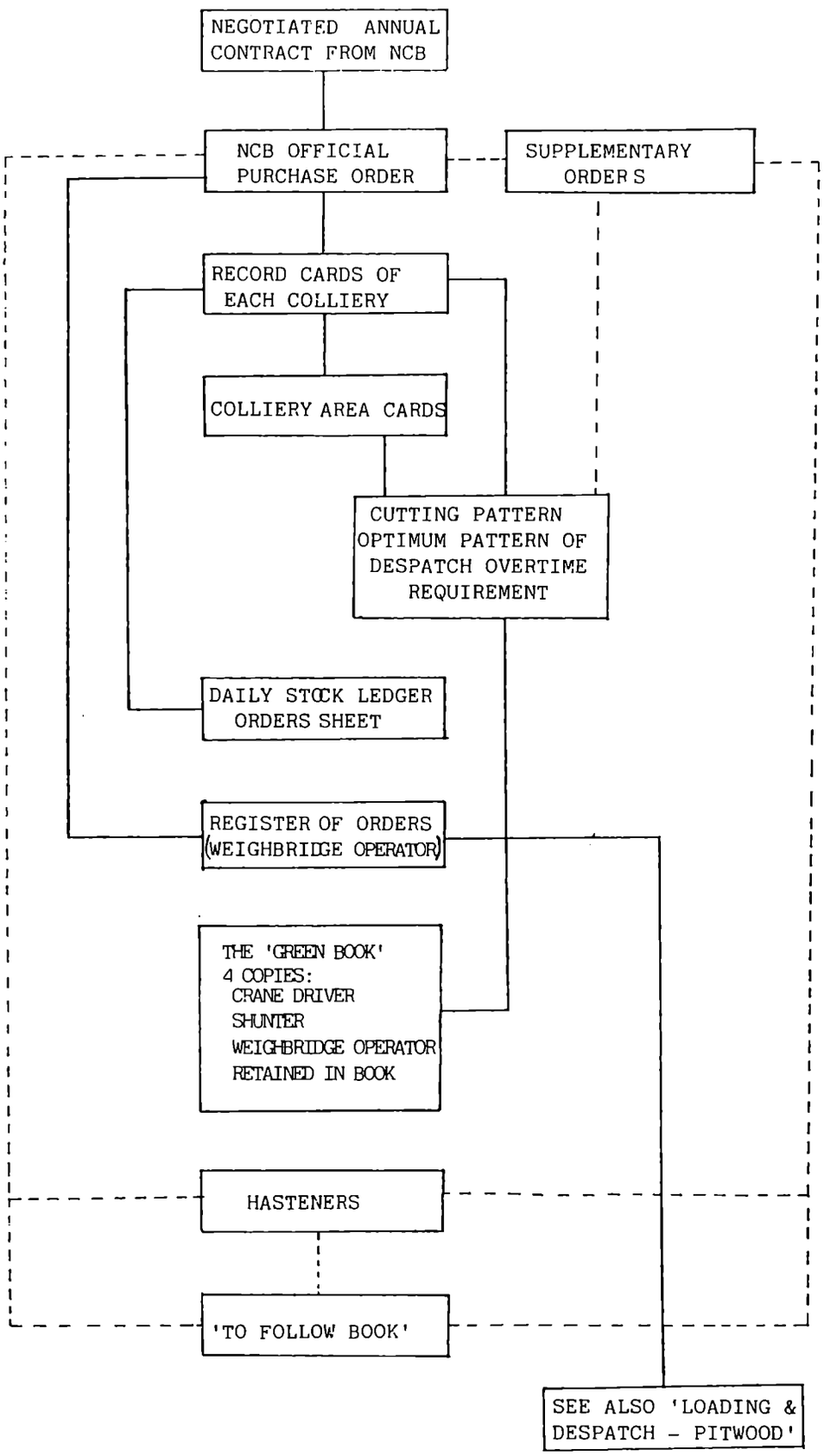
PEELING AND CONVERSION - PITWOOD

FD3



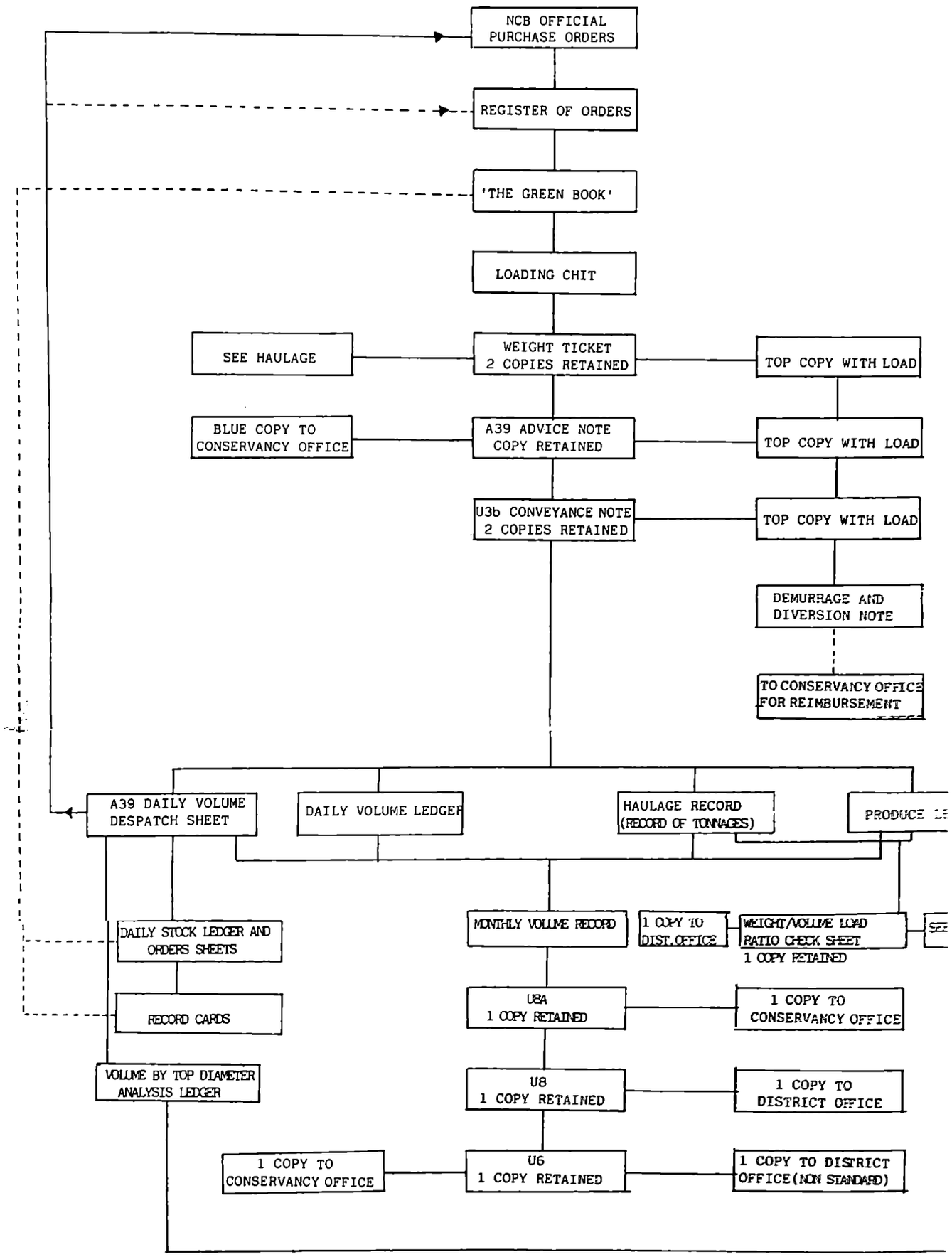
PLANNING, ORGANISATION AND CONTROL

FD4



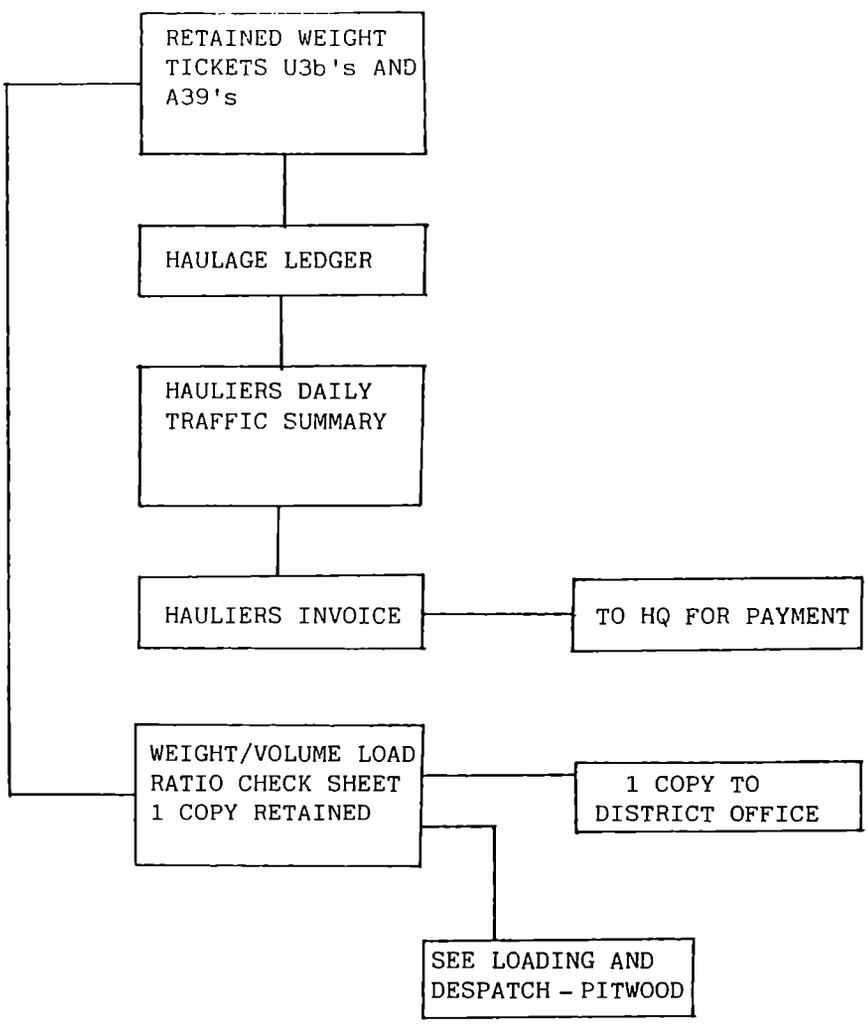
LOADING AND DESPATCH - PITWOOD

FD5



HAULAGE

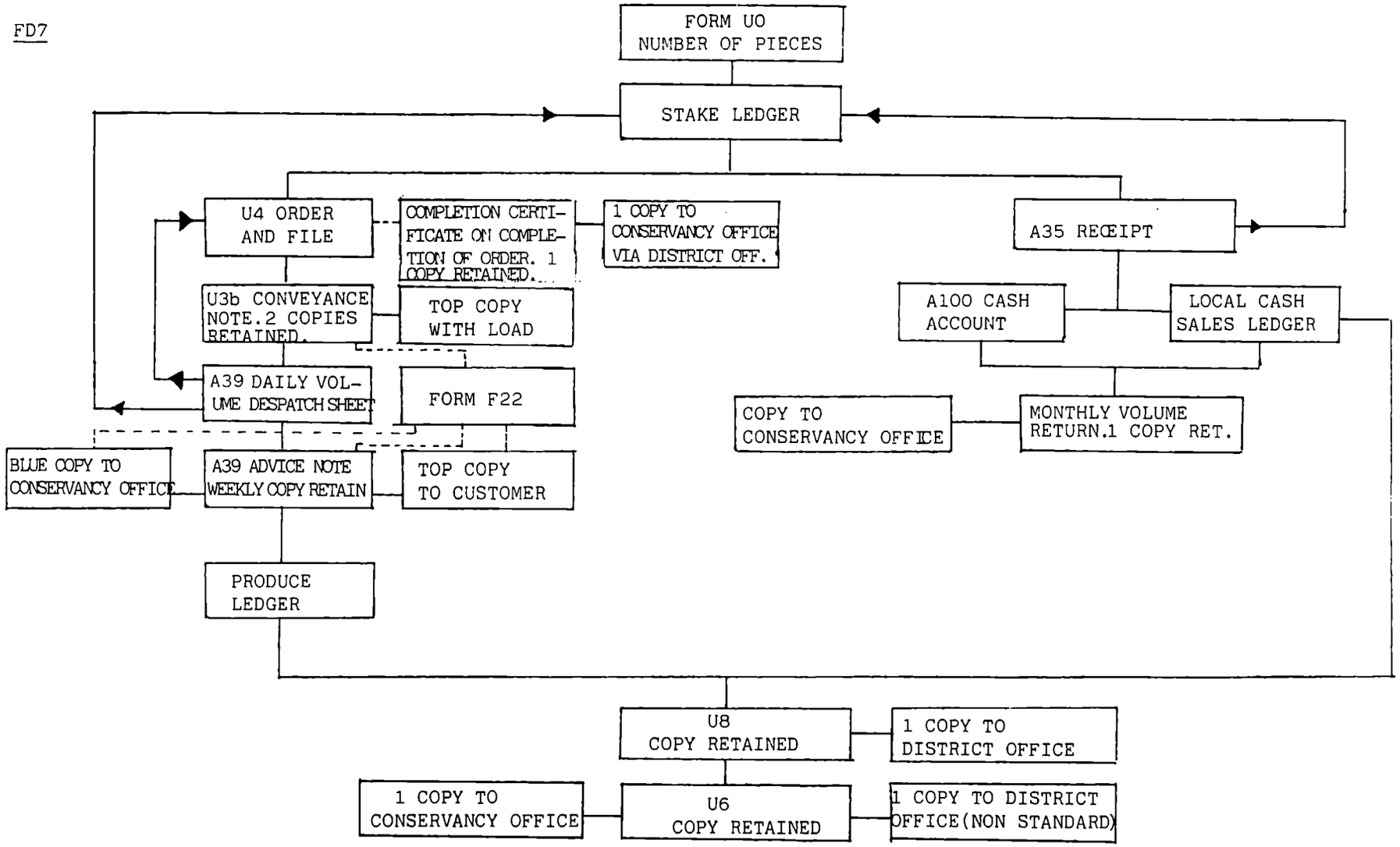
FD6


RETAINED WEIGHT TICKETS U3b's AND A39's
HAULAGE LEDGER
HAULIERS DAILY TRAFFIC SUMMARY
HAULIERS INVOICE
TO HQ FOR PAYMENT
WEIGHT/VOLUME LOAD RATIO CHECK SHEET 1 COPY RETAINED
1 COPY TO DISTRICT OFFICE
SEE LOADING AND DESPATCH - PITWOOD

OTHER PRODUCTS

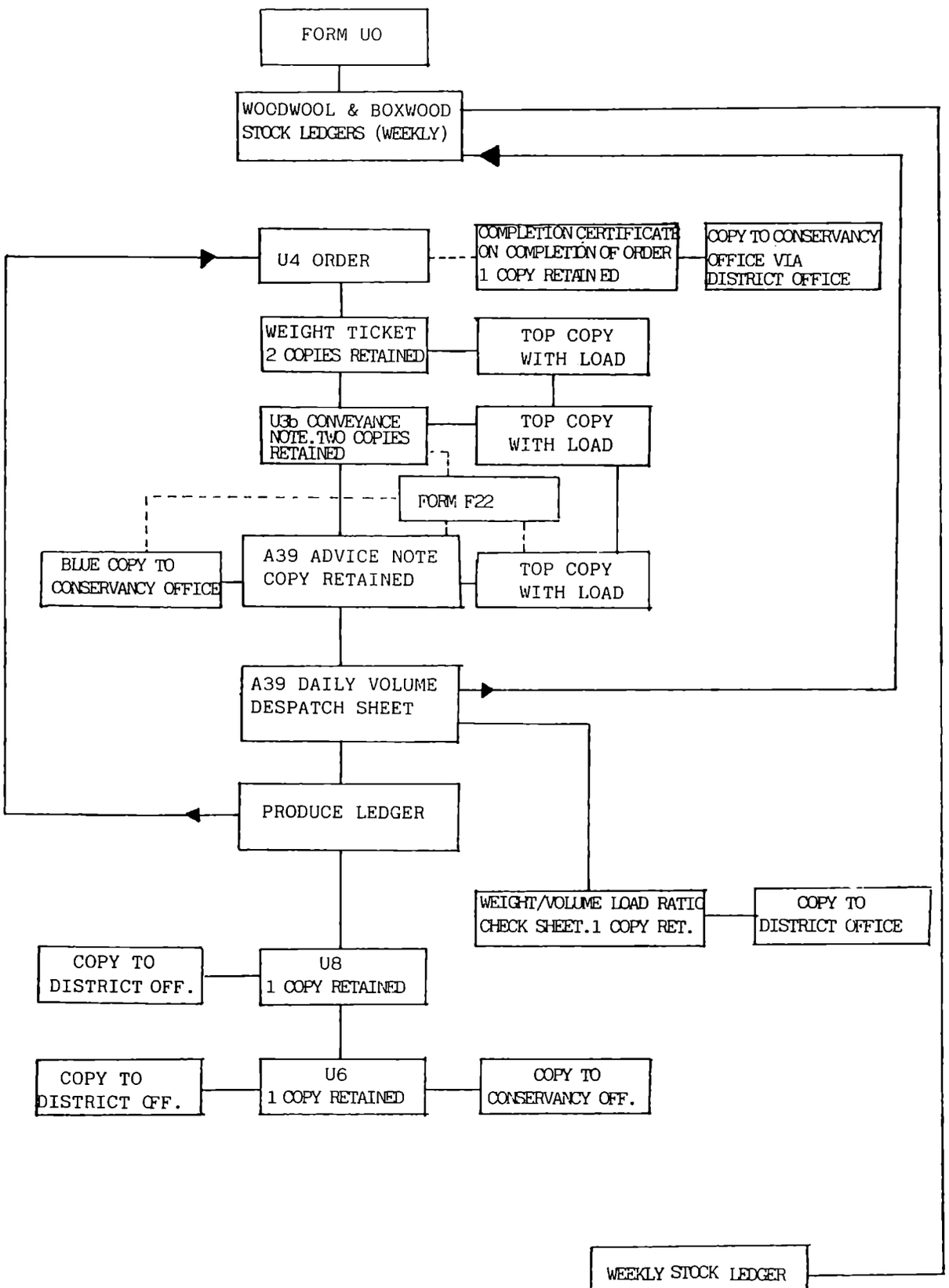
STAKES AND RUSTIC POLES

FD7



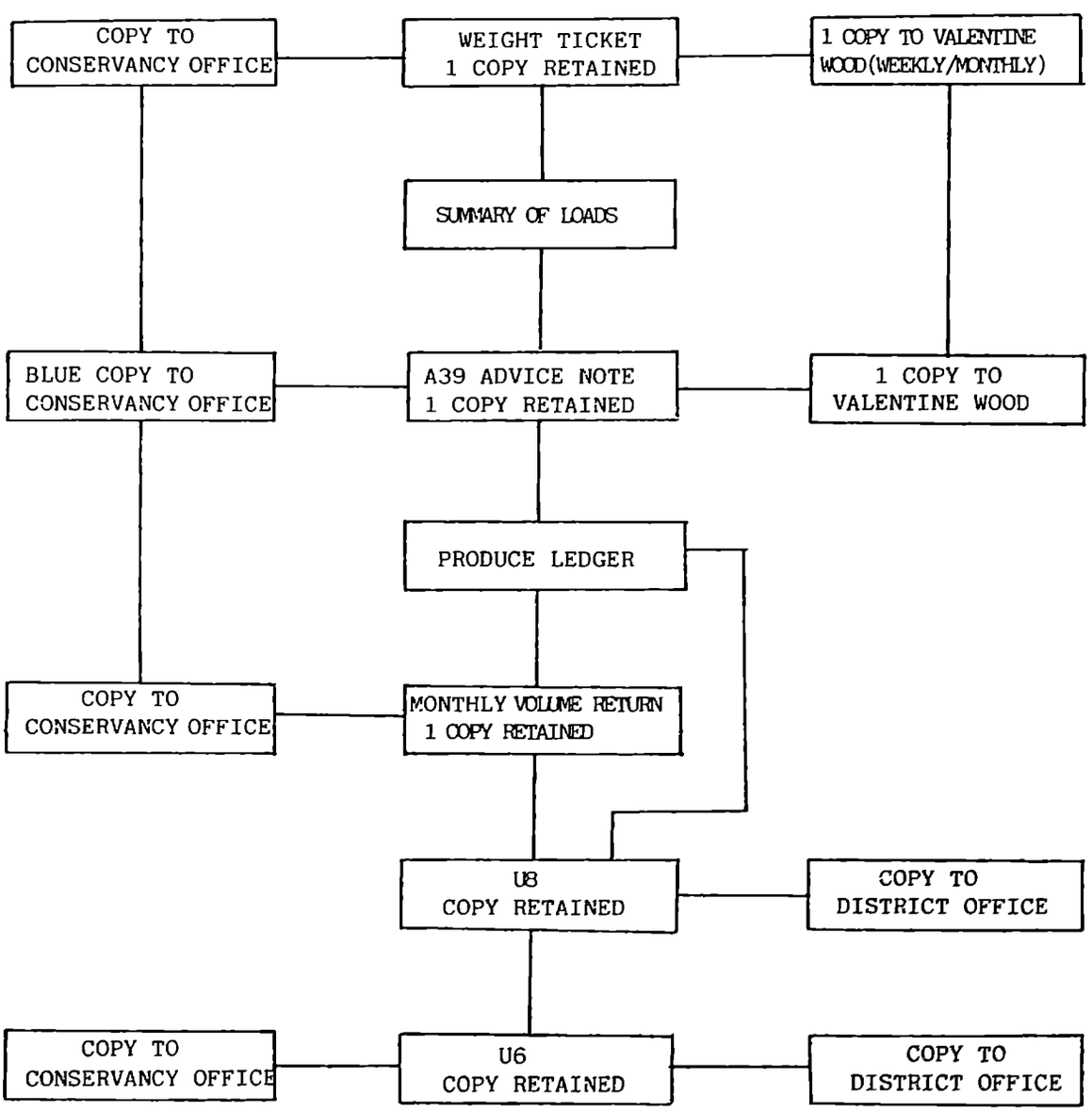
WOODWOOL AND BOXWOOD

FD8



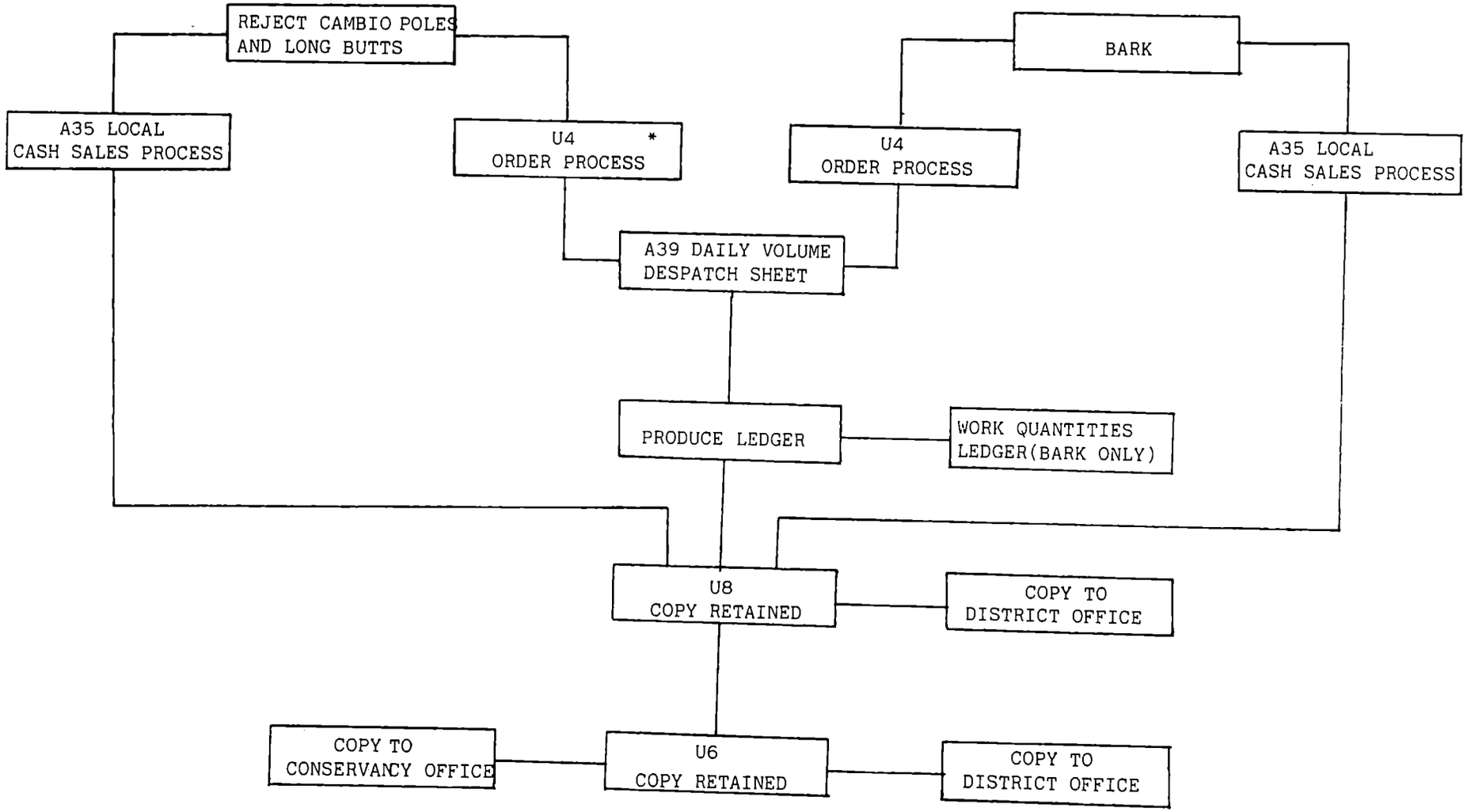
WASTEWOOD

FD9



BARK AND REJECT CAMBIO POLES AND LONG BUTTS

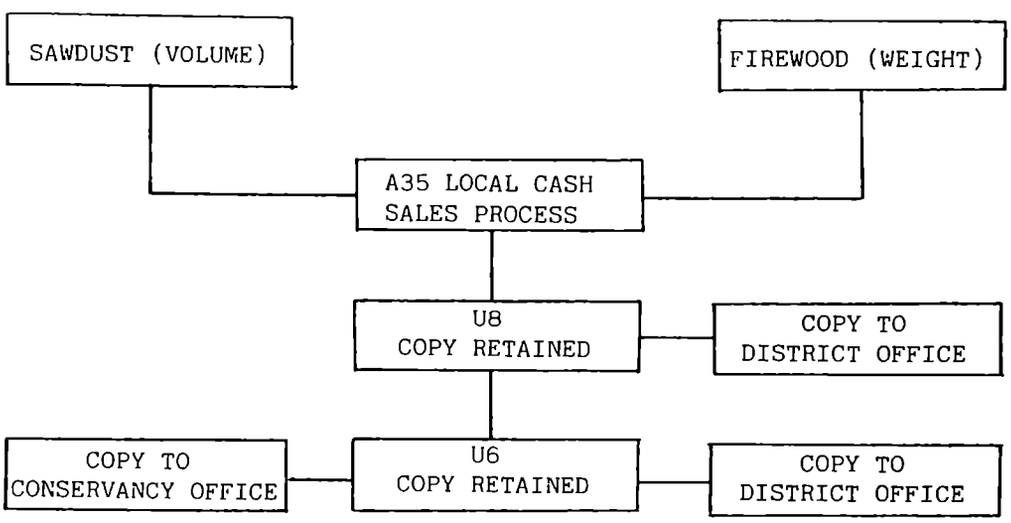
FD10



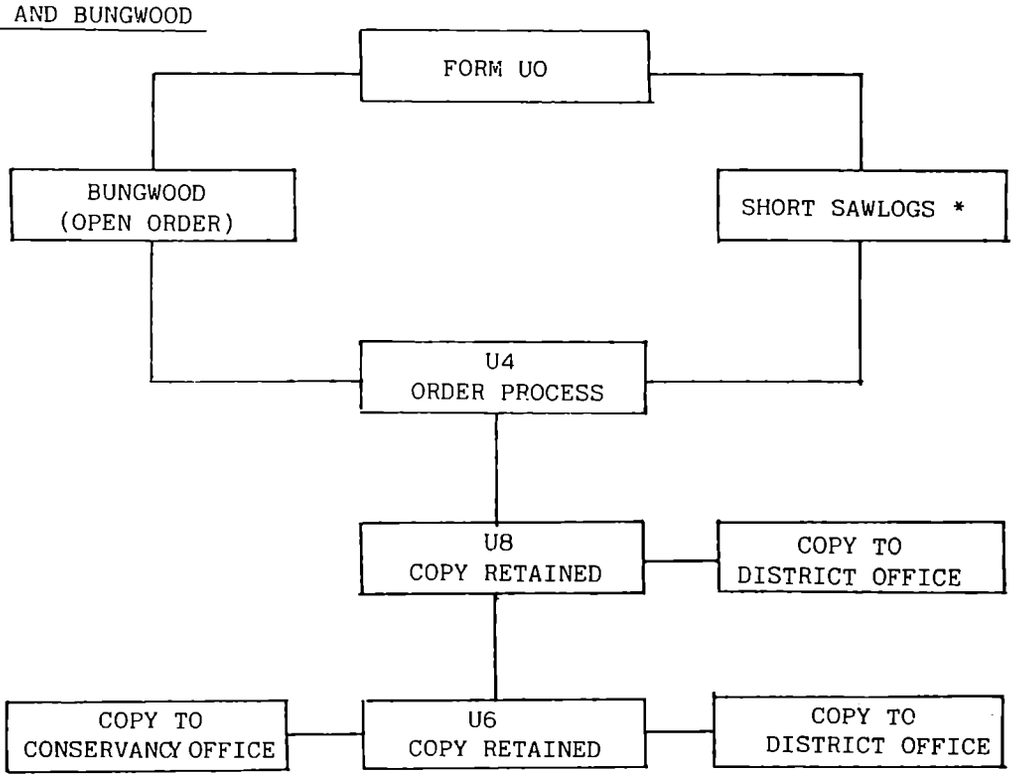
* (See Woodwool and Boxwood)

SAWDUST AND FIREWOOD

FD11



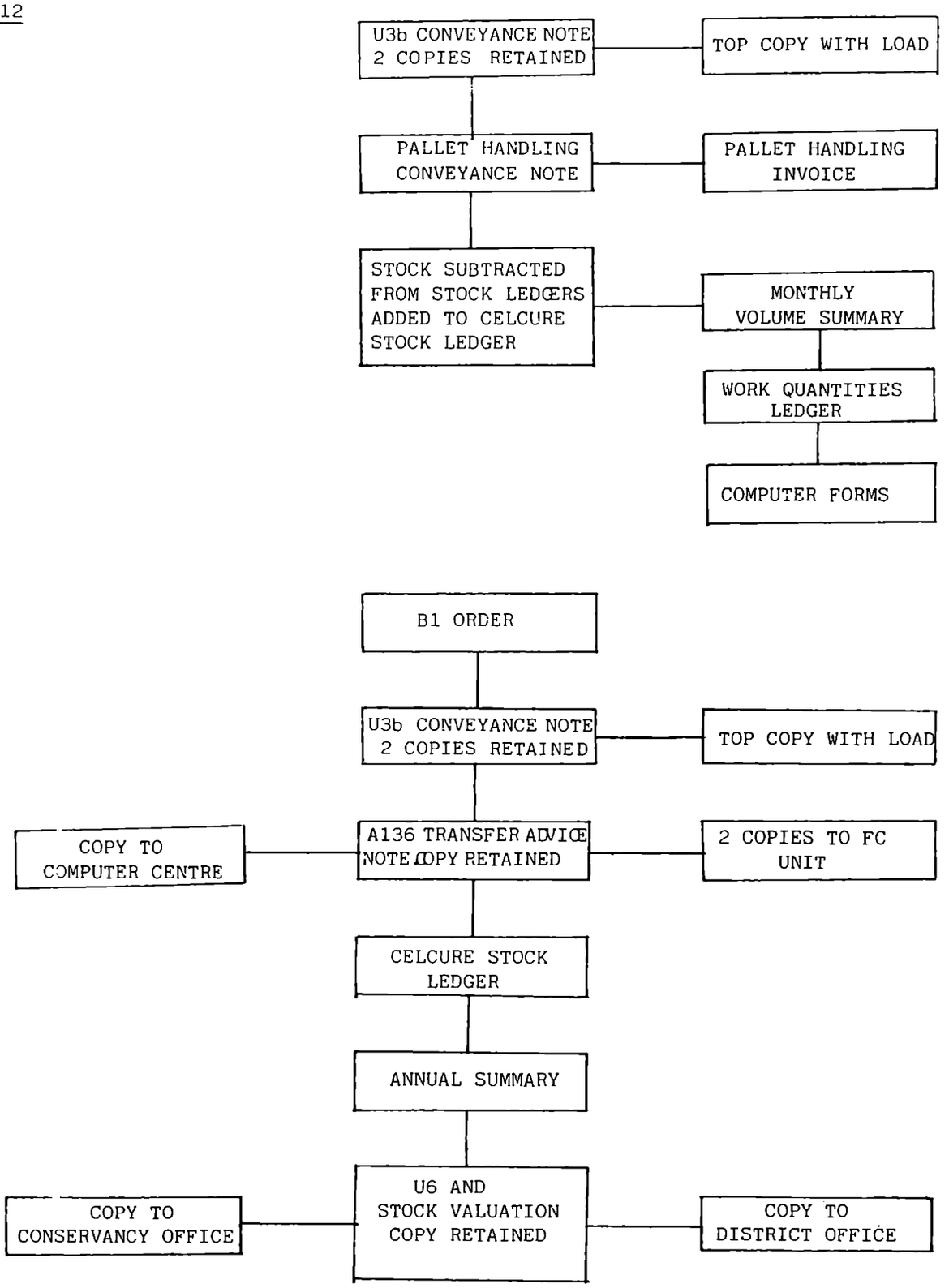
SHORT SAWLOGS AND BUNGWOOD



* (See Woodwool and Boxwood)

FC INTERNAL USE OF PRODUCE - SUPPLIES TO FC UNITS

FD12



APPENDIX 10d

A MICROCOMPUTER SYSTEM FOR BRANDON CENTRAL DEPOT E(E)

Table of Contents

	ACTION	INFO.	INIT.
C/F		✓	
FOR.		✓	
F'MAN		✓	
RT		✓	
RR		✓	
[illegible]		✓	

SUMMARY

Section 1 Introduction

Section 2 Reporting

Section 3 Files and Forms

Section 4 AutoClerk in the BCD System

Section 5 The BOS Inventory Control package

Section 6 Costs and Benefits of the Computer System

Section 7 Conclusions and Recommendations

Appendix

R M Spence

Forester

October 1984

SUMMARY

. Following a brief period of study of office procedures at Brandon Central Depot E(E) a simple computer system has been developed to process several of the main areas of data. No bespoke programming was carried out. The system was developed using the BOS AutoClerk software package. This report contains a full description of the system.

2. Five main report formats are included to provide a variety of reports based on the following areas of data:

   1) Weekly Input (pole length material received from beats).
   2) NCB Orders (National Coal Board pitwood orders).
   3) Produce Ledger - dispatches (loads dispatched from the depot).
   4) Daily Production (production of pitwood).
   5) A35 Cash Sales (cash sales of wood products).

3. There are five data files and three look-up files in the system. The look-up files contain reference data that is required repeatedly each period. Screen forms are provided to allow data entry and amendment in each of these files.

4. AutoClerk has certain limitations when used on its own without bespoke programming, although these can probably be accepted for the time being.

5. The BOS Inventory Control package might have a use within the system, for the control of stock of pitwood and other products, though not of individual NCB orders. A proper examination is needed to check that the package would work in the way described.

6. A net saving of about twenty man hours per week is possible by using the computer system. Other benefits, which are more difficult to measure, will probably be considerable.

7. A trial of the system would reveal the full benefits and also show where any bespoke programming is most needed. Other possible modifications within the scope of the AutoClerk package could be made during a trial. The Forest District microcomputer payroll system would provide the same benefits at BCD as at any other location.

SECTION 1

INTRODUCTION

1.1 During July and August 1984, a series of brief visits was made to Brandon Central Depot (BCD) E(E) to examine the potential for using a microcomputer in the office to ease the workload. In co-operation with the staff at the depot, the current manual system of record keeping and report preparation was examined. It quickly became apparent that there was considerable scope for computer processing of several of the main areas of data currently processed by hand.

1.2 As bespoke programming was to be avoided if possible, it was decided to try and develop a simple system using the readily available BOS AutoClerk software package. This package is designed for the storage and retrieval of information held on data files. AutoClerk and the BOS operating system under which it runs, are both used in the Forest District microcomputer payroll system.

1.3 After about five days work a simple system had been produced. This contained forms for the entry of data via the VDU screen and a series of reports for its presentation together with the necessary data files, look-up files and menus. Appendix 1 lists the source data and the corresponding files included in the system.

1.4 The system does not cover all the activities carried out at BCD, but includes those areas of information which appeared readily adaptable for use on a microcomputer using the facilities provided by BOS AutoClerk. Appendix 2 lists the files and reports for the processing of information in each of the five main areas of data.

1.5 Further examination of the computer system on paper has led to a few changes to file structures and report layouts. However, no further testing of the system has been carried out on a microcomputer.

1.6 This report includes a full description of the computer system, some possible improvements that could be made and a brief analysis of costs and benefits. No attempt has been made to formally describe the current manual system. This is well covered in the report Brandon Central Depot Paperwork Project by B T Llewellyn (CO, Santon Downham) and B Griggs (Chief Forester BCD) August 1983.

SECTION 2

REPORTING

2.1 Five main report formats have been designed. By using the Auto Clerk report definition facility, it is relatively easy to extend the number of ways data is presented in a particular report format, or to design new reports from scratch. For example, the records in a file can be sorted in ascending order of a particular field and sub-totals of accumulated fields obtained. At the same time, selection criteria can be set to include or exclude a range of records from a report depending on the contents of specified fields within the records. A new report could be quite easily designed to show, for example, all current pitwood specifications beside the corresponding conversion factors. Thus as well as providing the necessary basic information provided by the current manual system, the reports can provide numerous analyses.

2.2 The main report formats, together with some examples of variations are described below:-

1) Weekly Input Document

This report provides the weekly volume in each pole category delivered to the depot for each beat, with a total for all beats. (In the manual system this information is compiled on the Beat Input Document and the Weekly Input Document).

This report also calculates percentage performance against target for each product/beat code. For this calculation to be correct, all the records in the file must be selected and the appropriate report definition calculation set to hold the correct week number. (In the manual system, this calculation is carried out in the Produce Ledger). See Appendix 6A.

Variations

a) Sort the file by week number, and select on a particular beat code and sub-total the weekly volumes, to chart progress of deliveries from a particular beat for a specified length of time.

b) Sort the file by vehicle FC number to obtain sub-totals of volumes delivered by each vehicle.

2) Register of NCB Orders

This report shows the current status of NCB orders. (In the manual system, similar information is kept in the Register of Orders). The specification and quantity for each order is shown, together with important dates and delivery details. A code is shown to indicate whether an order is current, finished, suspended or cancelled. See Appendix 6B.

Variations

a) Sort the file by product specification, (this will also separate props from splits) to obtain sub-totals of number of pieces for each specification and a sub-total for props and splits for all orders for a selected quater of the year.

b) As (a) but for a selected colliery area to provide information to assist in the making up of loads for delivery.

c) Select current orders with a final delivery date within a specified range.

3) Produce Ledger- dispatches

This report can show details of every load dispatched for NCB and other contracts. Each line includes the dispatch note and order numbers, customer name, specification, quantities and ~~work type.~~ Account No See Appendix 6C.

Variations

a) Select dispatches to date against a given customer order number or customer name and sort the file by product specification to obtain sub-totals of quantities and products delivered.

b) As (a) but further select for a specified range of dispatch dates.

c) Sort the file by dispatch date and select for a specified customer order number to chart progress of deliveries.

4) Daily Production Sheets

This report shows the weekly totals of volumes produced allocated to work types. The volume for each daily entry is calculated from the number of pieces cut by using a conversion factor stored on the look-up file PLFILE. The report shows specification, date, work type and quantities. See Appendix 6D.

Variations

a) Sort the file by product specification to obtain sub-totals of quantities produced for each product and for props and splits during a particular week.

5) A35 Cash Sales

This report shows details of every cash sale of wood material. The quantity, account number and description for each sale are listed, together with the calculated VAT amount and unit income. The file is sorted into account/work type order and sub-totals of quantities printed. (In the manual system, this information is compiled on the Local Cash Sale Ledger). See Appendix 6E.

SECTION 3

FILES AND FORMS

Data Files and Look-Up Files

3.1 The information used in the system is stored in five data files and three look-up files:

FILE NAME	TYPE	CONTENTS	REMARKS
INPUT	Data file	Details of pole length material received from beats.	Used to produce the Weekly Input Document.
"CBORDER	Data file	Details of all NCB orders for current year.	Can be printed in the form of a Register of NCB Orders.
DISPATCH	Data file	Details of all dispatches.	Used to maintain the Produce Ledger - dispatches.
PSFILE	Data file	Details of daily production of pitwood products.	Used to produce the Daily Production Sheet Summary.
CSFILE	Data file	Details of local cash sales.	Used to produce the A35 Cash Sales Summary.
CODES	Look-Up	Beat/Product codes with corresponding descriptions and annual target figures.	Used in conjunction with the data file INPUT during production of Weekly Input Document.
PLFILE	Look-Up	Product sizes and corresponding conversion factors.	Used to calculate volumes from number of pieces cut during production of Daily Production Sheet Summary.
CSLU	Look-Up	List of account/work types and corresponding descriptions and VAT % applicable.	Used to print descriptions and calculate VAT during production of A35 Local Cash Sales Ledger.

3.2 Most of the files are intended to be permanent, that is, they remain in the system from one period to the next. The only exception is PSFILE, which contains such a large number of records each week that it would not be practical to maintain it as a permanent file for longer than a couple of months.

3.3 The look-up files contain useful data that is needed repeatedly each week but which would be extremely laborious and tricky to key in correctly. Conversion factors for all the product specifications are a good example of this type of data.

3.4 Appendix 5 contains record descriptions for all the files used as recorded in the system control file K.BCD.

Auto Clerk Forms

3.5 Screen forms are supplied through which data is entered into each of these files on the VDU. The forms prompt the operator for each item of data needed in each record in the file and allow certain fields (such as dates and account numbers) to be optionally automatically repeated on consecutive records. This facility can cut down the amount of keying needed and helps reduce the number of mistakes made during data entry where no validation is provided outside Auto Clerk.

3.6 Appendix 4 contains examples of the form screen displays in the system.

SECTION 4

AUTOCLERK IN THE BCD SYSTEM

The Limitations of AutoClerk

4.1 AutoClerk does not provide the type of processing on files where information can be extracted from, for example, a temporary data file and transfered to a permanent data file to update the in-period and to-date entries. In the BCD system, therefore, to make possible the production of reports containing to-date figures, every record entered during the year must be kept on the data files.

4.2 The number of records on the files will increase as the year proceeds. Although sub-totals are easily obtained on AutoClerk reports, each record contributing towards the sub-totals has to be printed or displayed. The main significance of this is that reports designed to provide to-date totals from the data files INPUT and DISPATCH will become very long. In-period sub-totals should not be a problem, as the records printed can be restricted to those containing a selected range of dates or week numbers. This characteristic of AutoClerk, where each record selected is always printed or displayed, even though the only information required happens to be sub-totals, is a drawback.

4.3 If the large size of certain reports required every week proves unacceptable, one solution would be to maintain a manual ledger containing sub-totals produced by the computer to give totals to-date. Such a ledger could then be checked occasionally against a full printed report containing to-date totals.

Pointer Fields and Look-up Files

4.4 The AutoClerk pointer field facility is used in the system. This allows data in a reference or look-up file to be accessed during the production of a report by using a field as the main data file as a key to a particular record on the look-up file. A good example of the type of data stored on a look-up file are the conversion factors for every pitwood specification. The data in a look-up file is only used during the generation of reports and can either be printed directly or used in calculations whose results are then printed. Each look-up file record can be recalled and amended in the same way as a data file record.

Validation

4.5 AutoClerk checks that data entered into a field agrees with the stated format for that field on the record description contained in the control file K.BCD.

4.6 A limited amount of additional, though crude, validation is possible by making use of look-up files during the printing of reports. For example, during printing of the Daily Production Sheet Summary, the product specification on the data file PSFILE is used as a key to refer to the corresponding conversion factor on the look-up file PLFILE.

If AutoClerk fails to find a corresponding entry on the look-up file an exception condition occurs. This causes the word OVERFLOW for a numeric field, a string of x's (xxxxx) for a text field, to be printed or displayed in the space which would otherwise contain the "pulled-in" field. If OVERFLOW appears in an accumulated field, OVERFLOW will also appear in the next sub-total and any grand total. One or all of these should come to the attention of the operator, who can then correct the file.

SECTION 5

THE BOS INVENTORY CONTROL PACKAGE

5.1 This brief analysis of the possible use of this package as part of the BCD system is based on study of the operator manual. Further investigation is necessary to confirm whether or not the package could be used in the way described.

5.2 It should be possible to use the BOS Inventory Control package in conjunction with the AutoClerk - based BCD system to provide much easier control of stock than is possible using AutoClerk alone.

5.3 The Inventory Control package allows information about each "product" to be stored on a product file. (In the BCD system, the definition of a "product" would be the individual specification, such as S/1800/130). This file includes both permanent data which is keyed in when each product record is created, and temporary data which is calculated from data entered into the daily transaction or journal file. All transactions, such as the number of items produced and dispatched are recorded on the journal file. The stock figures on the product file are then updated.

5.4 The following calculated results are available for each product:

a) The number of units currently held in stock.

b) The number of units currently allocated to orders.

c) The number of units on order.

d) The difference between the number of units manually counted and the book stock.

For current period and year to date:-

e) The manufacturing cost of the items sold.

f) The gross sales of the product.

g) The number of units of the product sold.

h) The actual cost of the goods received (produced).

i) The number of units received (produced).

The following reports are available:

Inventory status

Stock on order

Stock below minimum

Reorder report

Lead time exceeded

Product sales analysis

Cost analysis

Price list.

5.5 The files maintained by the Inventory Control package are compatible with AutoClerk, so it would be possible to use AutoClerk to extend the range of reports provided.

AutoClerk would be used to provide sub-totals of daily production by product (Daily Production Sheet Summary) and dispatch by product (Produce Ledger - dispatches). At the end of each day, these figures would be entered into the Inventory Control journal file. The product file would be updated and the Inventory Control reports available.

5.6 There is an element of double entry of data here, but this would have to be permitted in the absence of any bespoke programming to link Inventory Control to AutoClerk.

5.7 The Inventory Control package would supplement the AutoClerk - based system rather than replace it. It would not be possible to use the package to control dispatch by individual NCB orders or to compile the Daily Production Sheet Summary. However, it would provide reports for the control of pitwood and other product stocks, which would not be possible using AutoClerk alone.

5.8 Appendix 2c shows how the Inventory Control package might be integrated with the AutoClerk - based system.

SECTION 6

COSTS AND BENEFITS OF THE COMPUTER SYSTEM

6.1 Probably savings in man hours only are examined. Under the current manual system, times taken weekly to process the five areas of data are estimated as follows:

DATA	MAN HOURS
Weekly Input	2
NCB Orders register	1
Produce Ledger - dispatches	10
Daily Production	14
A35 Cash Sales	1.5

Using the computer system and allowing time for data entry, production of reports and system housekeeping, net savings might be:

DATA	NET SAVING IN MAN HOURS
Weekly Input	1
NCB Orders register	0.8
Produce Ledger - dispatches	8
Daily Production	10
A35 Cash Sales	1
Total about	20 man hours per week

6.2 Other benefits are more difficult to measure. The reduction in the sheer weight of tedious recording presently undertaken would enable the current staff at BCD to be deployed to better advantage. Freed from much of the ledger work, the staff could achieve greater job satisfaction and devote more time to management and supervision rather than to carrying out routine mechanical tasks. The overtime working currently needed as a result of peaks in the work load could probably be avoided. A large amount of information on data files would be easily accessible for the production of reports and analyses to chart progress and aid forecasting. Projections of sales are particularly important in providing a good service to customers. The full potential benefit will be measured when the system is tried out.

SECTION 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 The AutoClerk - based system that has been developed will almost certainly be beneficial to the management of BCD. Some further testing of the system is needed as changes have been made since the first period of development.

7.2 There is no bespoke programming in the system and the shortcomings of AutoClerk are shown by the following:

The degree of validation is very limited

Certain reports will become very cumbersome as the year proceeds and the number of records on file increases.

7.3 A trial of the system would reveal where any bespoke programming is needed to overcome the shortcomings of AutoClerk. It would also be easy to make any amendments to the system that proved to be needed, within the scope of the AutoClerk package.

7.4 The number of possible variations of reports is too great to allow pre-designed report definitions to be installed for every one. Therefore the usefulness of the system depends on the operators or managers being able to use some of the AutoClerk report definition update facilities, particulary sorting, selection and sub-totalling. This should not be a problem if the personnel are properly trained. It would also require the full AutoClerk development package to be installed.

7.5 The BOS Inventory Control package needs to be properly assessed, but it appears that it might have a use for providing stock control of pitwood and other products. It would not be feasible to use it for the control of individual NCB orders. This can be achieved by using the Produce Ledger reports from AutoClerk.

7.6 The Forest District microcomputer payroll system would provide the same benefits at BCD as at any other location. As both systems run under the BOS operating system, switching between them on the microcomputer would be simple.

7.7 Assuming that the hardware and software costs can be justified, a trial of the developed system appears worthwhile.

FILE. U 11/2/5

A Microcomputer System for Brandon Central Depot E(E)

APPENDICES

Appendix 1 AutoClerk files and source data in basic system.

Appendix 2 Computer processing flow diagrams.

Appendix 3 System menus.

Appendix 4 Form screen displays.

Appendix 5 File record descriptions.

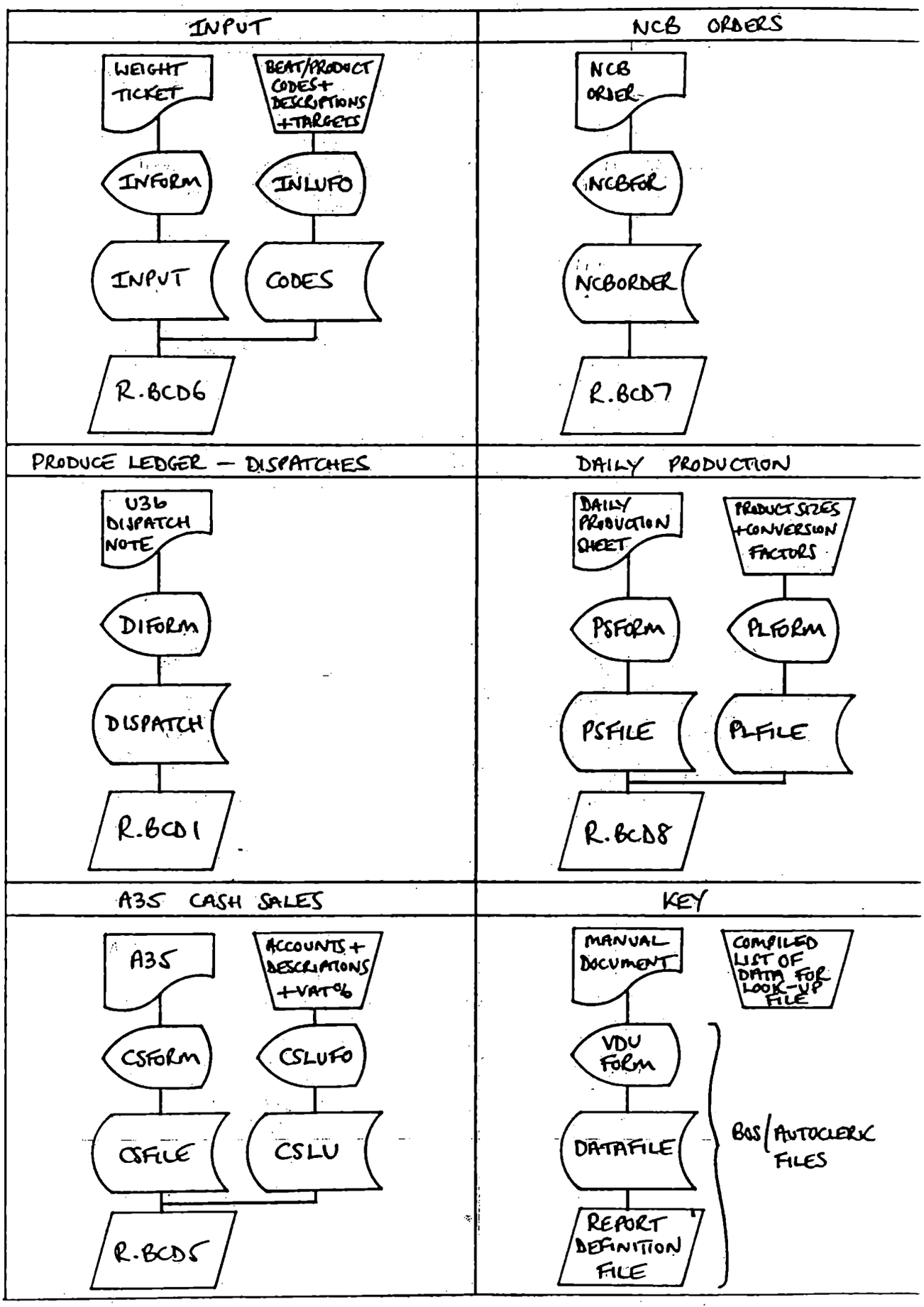
Appendix 6 Reports.

PLEASE RETURN.

	ACTION	INFO.	INIT.
C/F		✓	
FOR.		✓	
F'MAN		✓	
R.T.			
R.P.			
STEPHEN			

APPENDIX 1

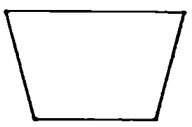
AUTOCLERK FILES AND SOURCE DATA IN BASIC SYSTEM FOR BCD



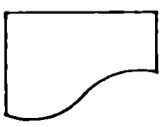
APPENDIX 2

COMPUTER PROCESSING FLOW DIAGRAMS

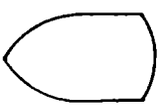
KEY



THE PROCESS OF COMPILING DATA BY HAND TO PREPARE IT FOR COMPUTER INPUT

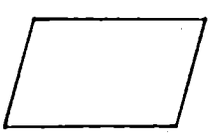


MANUAL FORM DOUBLING AS COMPUTER INPUT FORM

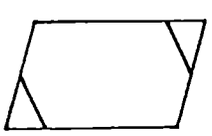


AUTOCLERK SCREEN FORM FOR DATA INPUT

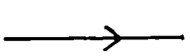
A DATAFILE OR LOOK-UP FILE



REPORT PRINTED OR DISPLAYED USING AUTOCLERK



REPORT PREPARED PART BY HAND AND PART FROM AUTOCLERK REPORTS

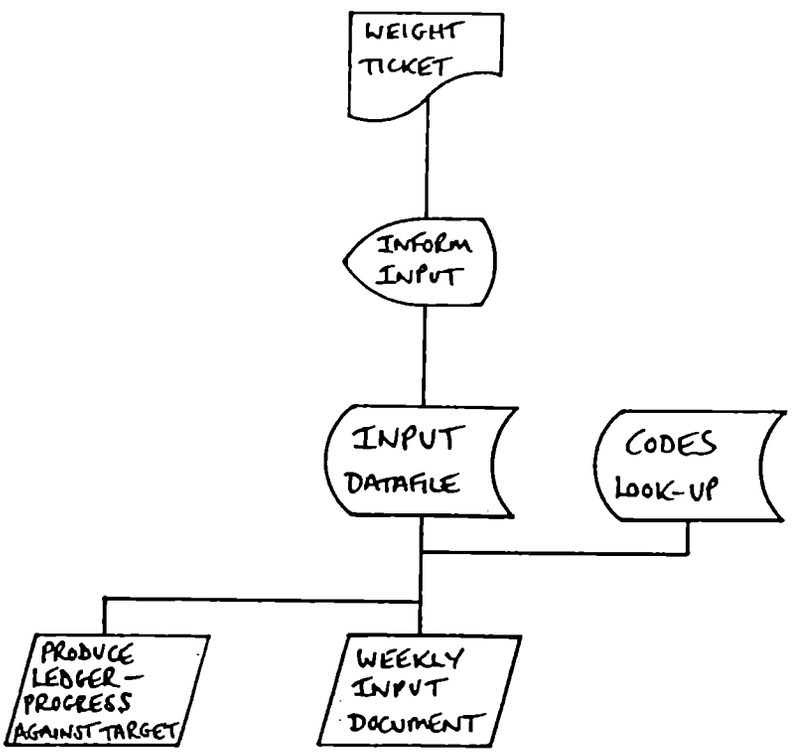


NORMAL FLOW AND DIRECTION OF DATA

ALTERNATIVE FLOW OF DATA

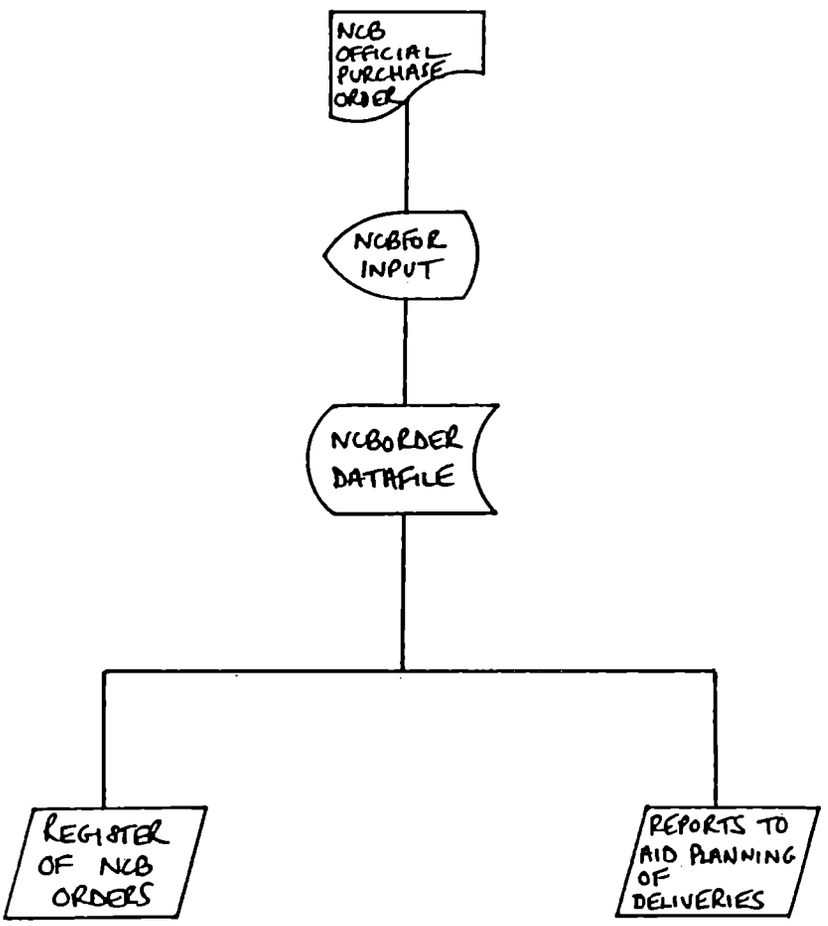
APPENDIX 2A

COMPUTER PROCESSING OF INPUT INFORMATION

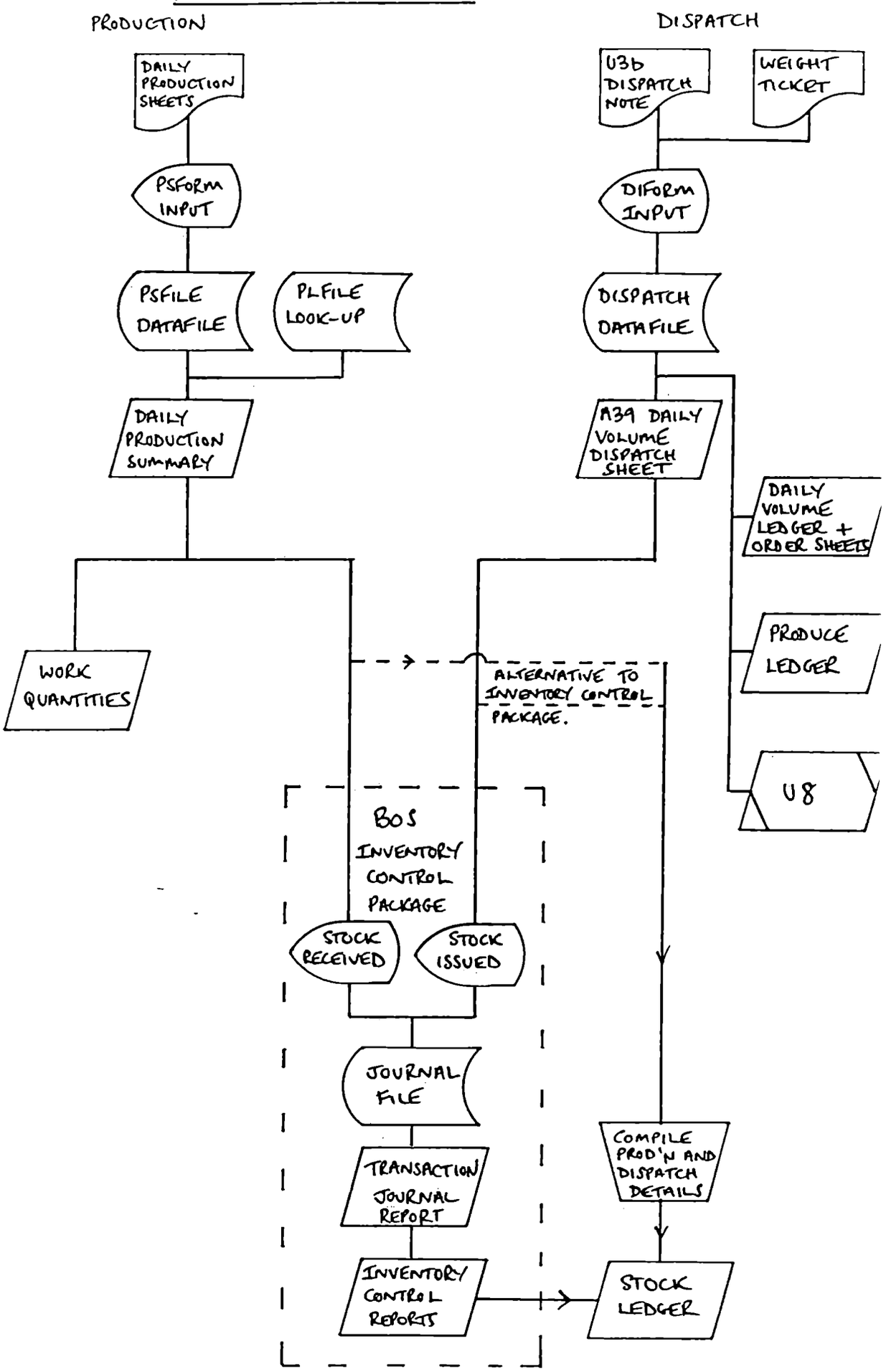


APPENDIX 2B

COMPUTER PROCESSING OF NCB ORDERS INFORMATION

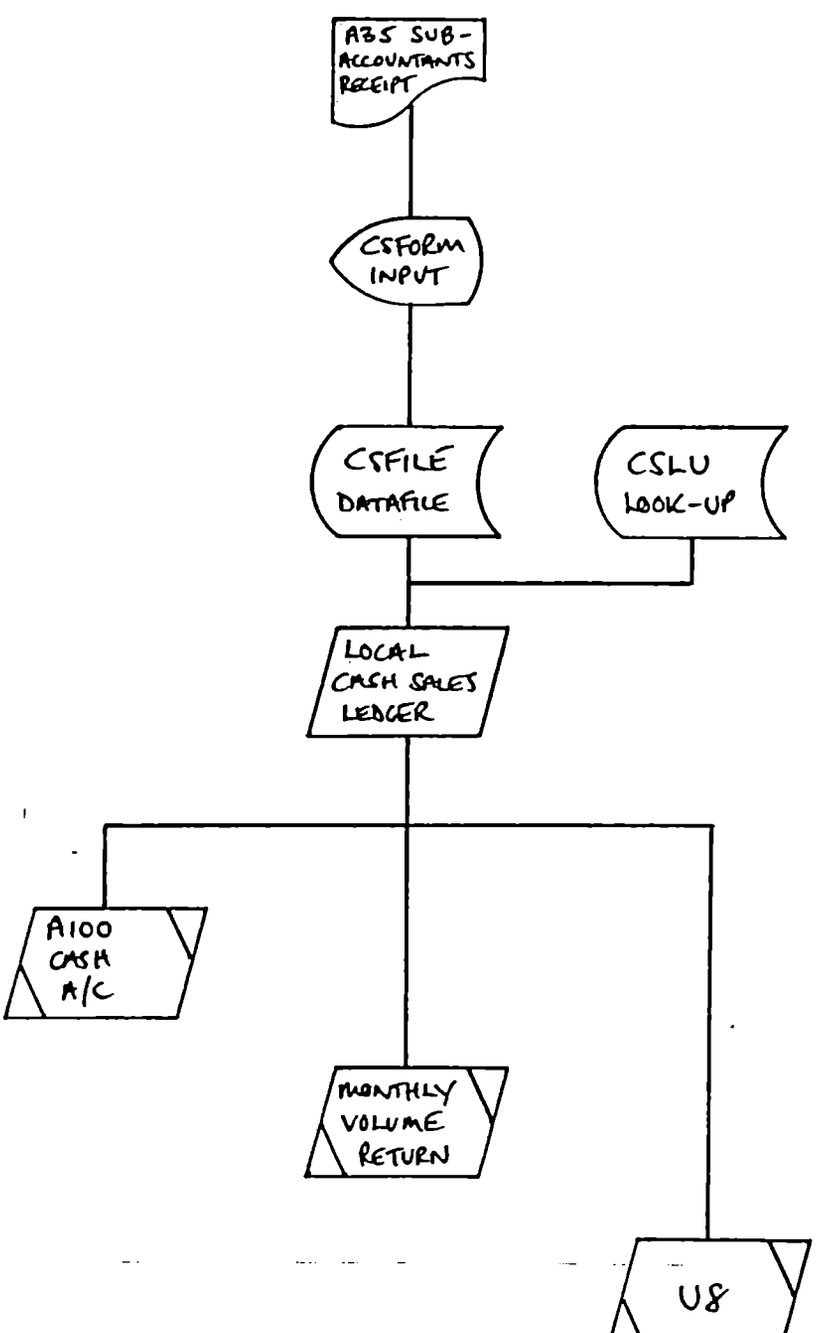


APPENDIX 2c COMPUTER PROCESSING OF PITWOOD INFORMATION — PRODUCTION AND DISPATCH

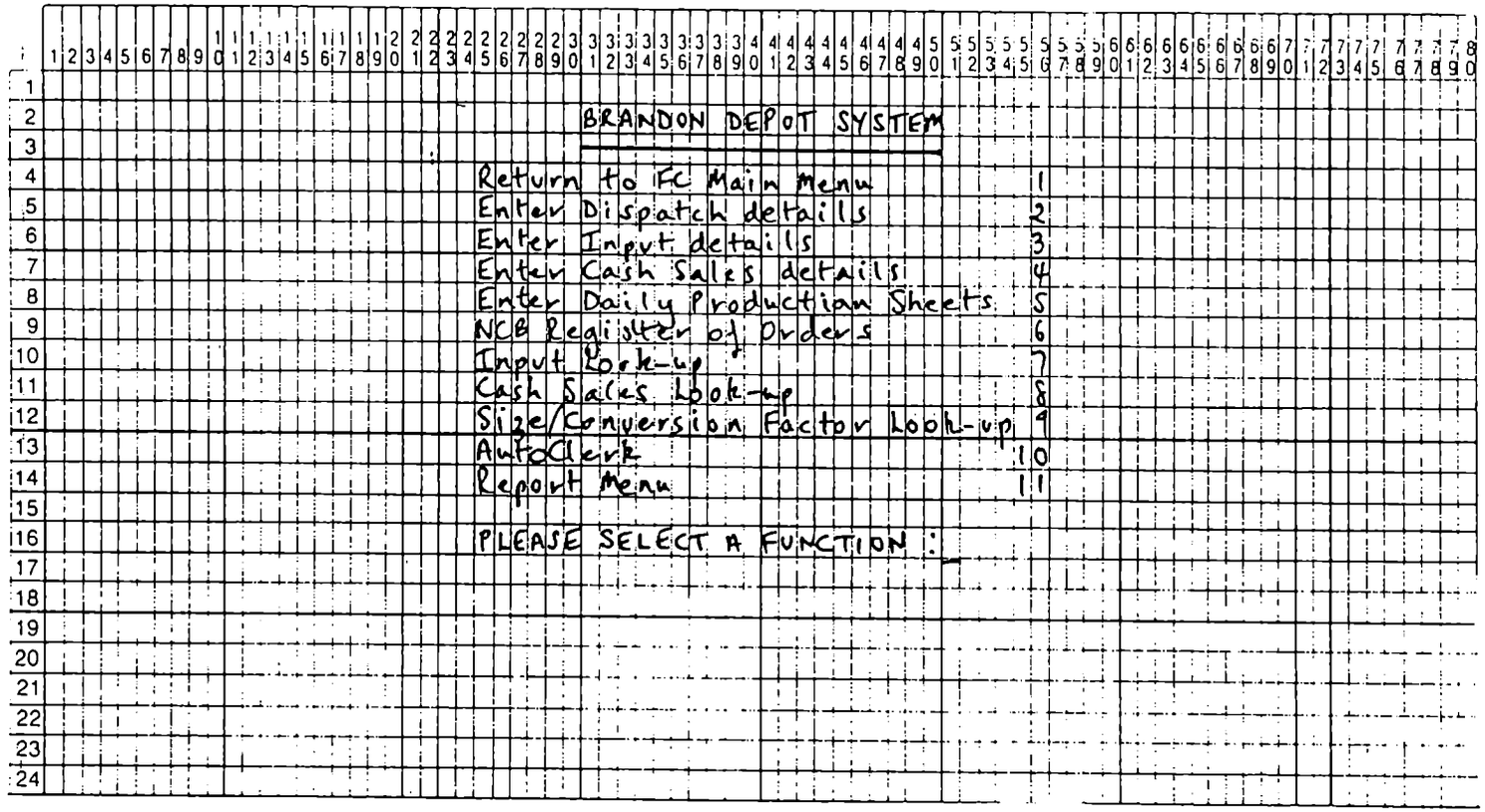


APPENDIX 2D

COMPUTER PROCESSING OF CASH SALES INFORMATION

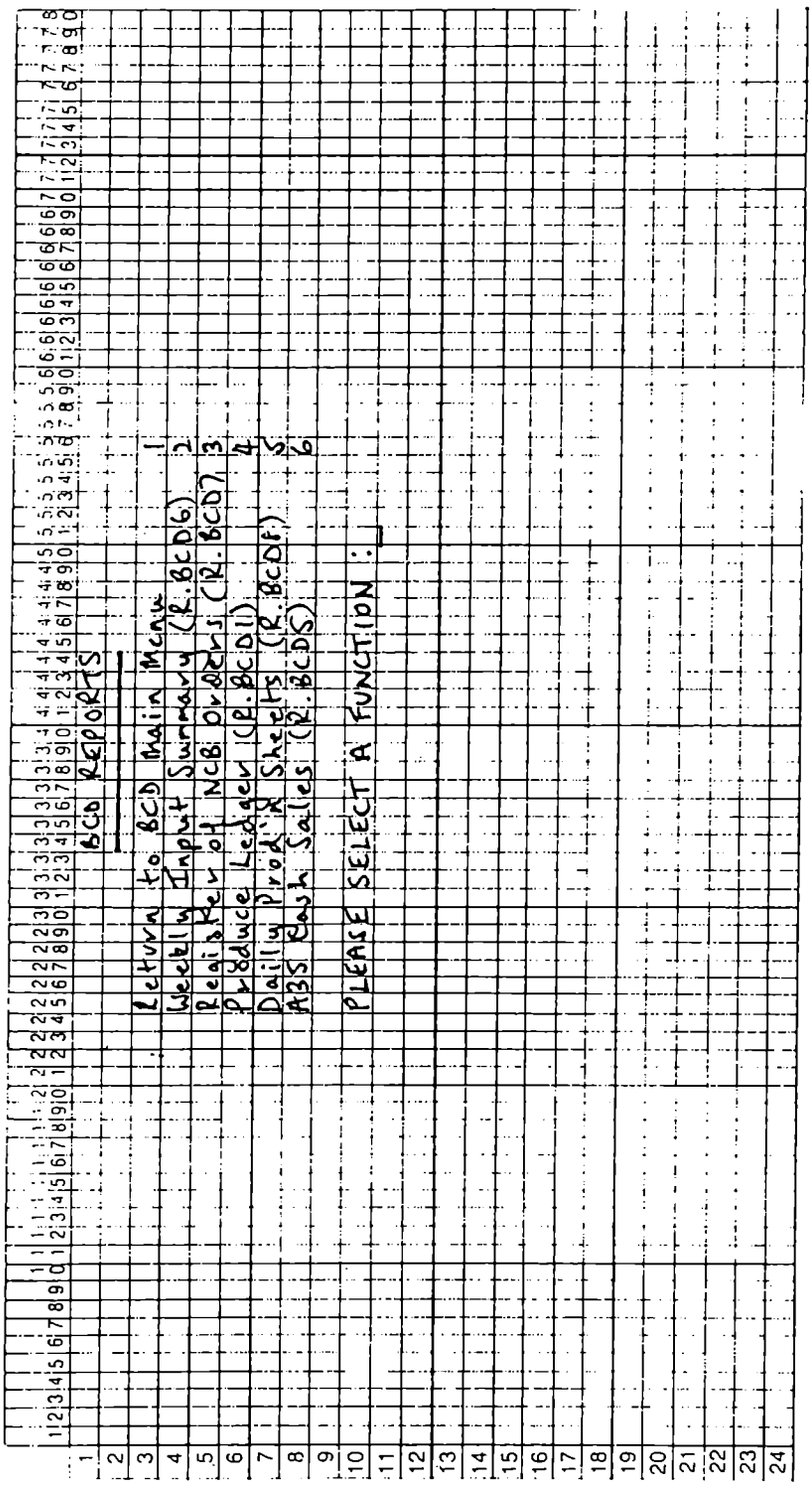


BCD COMPUTER SYSTEM MAIN MENU



APPENDIX 3B

BCD REPORTS MENU



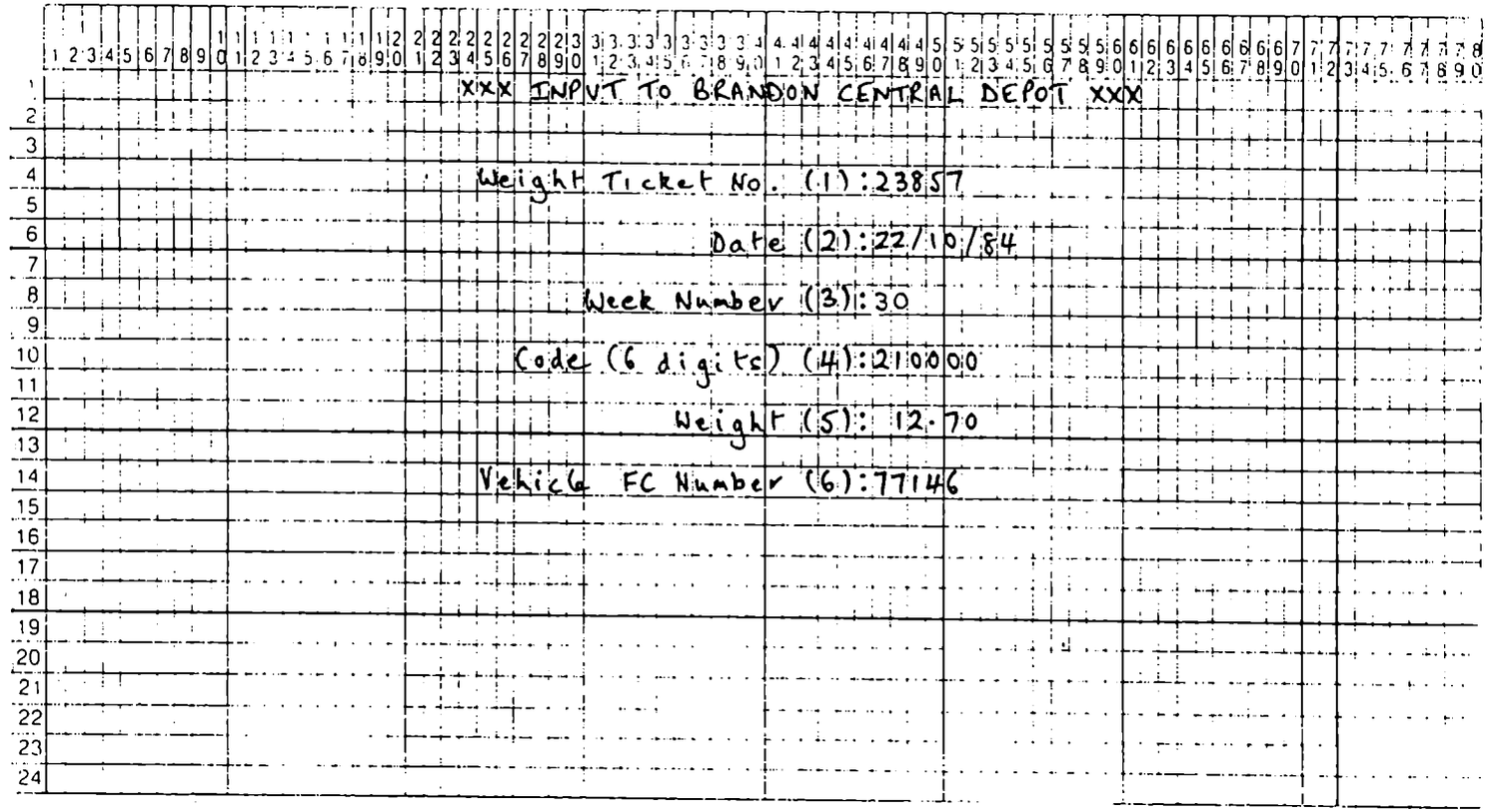
APPENDIX 4

FORM SCREEN DISPLAYS

The format of each AutoClerk form display is shown as it appears on the VDU screen, together with sample data. The key fields form the unique identifier for each record in a file. The autoduplicated fields are those whose values are optionally repeated on consecutive records during data input. The layout and wording of these forms can be easily modified, if necessary.

FORM NAME : INFORM

FOR DATA ENTRY INTO: INPUT



Key Field (1)

Autoduplicated Field (2), (3)

FORM NAME : NCBFOR

FOR DATA ENTRY INTO: NCBORDER

XXX REGISTER OF NCB ORDERS XXX

NCB Order Number (1) :84/684129/103 FC Order Number (2) :84/40

Dated Order (3) :17/02/84

Colliery (4) :DARFIELD MAIN

NCB Area (5) :

Size (Code/Length/Diameter) (6) :P/1500/140

No. of Pieces (7) : 1000 Volume (8) : 0

Delivery Details:

Week No. (9) :4 Month No. (10) : 3 Year (11) :84

Final Delivery Date (12) :31/07/84

Order Status (13) :F

(C = Current, F = Finished, S = Suspended, X = Cancelled)

Key Field (1)

Autoduplicated Field (3)

FORM NAME : DIFORM

FOR DATA ENTRY INTO: DISPATCH

XXX DISPATCHES FROM BRANDON CENTRAL DEPOT XXX

U3b Number (1) : 899004 Customer Order Number (2) : F4/684176/103

Location (3) : 451 134 FC Order Number (4) : 84/25

Date (5) : 24/05/84 A39 Number (6) : 458004

Customer Name (7) : NCB

Consignee 1 (8) : BOLSOVER

Consignee 2 (9) :

Product (10) : 0 Size (Code/Length/Diameter) (11) : P/1500/140

No. of Pieces (12) : 382.00 Volume (13) : 22.88

Weight (14) : 18.58 Account Number (15) : 03770/0611/151

Conversion Factor (16) : 0

Key Field (1), (2)

Autoduplicated Field (3), (5), (15)

FORM NAME : PSFORM

FOR DATA ENTRY INTO: PSFILE

XXX DAILY PRODUCTION SHEET XXX

Size (Code/Length/Diameter) (1) : P/1500/110

Date (2) : 22/10/84

Worktype (3 digits) (3) : 33

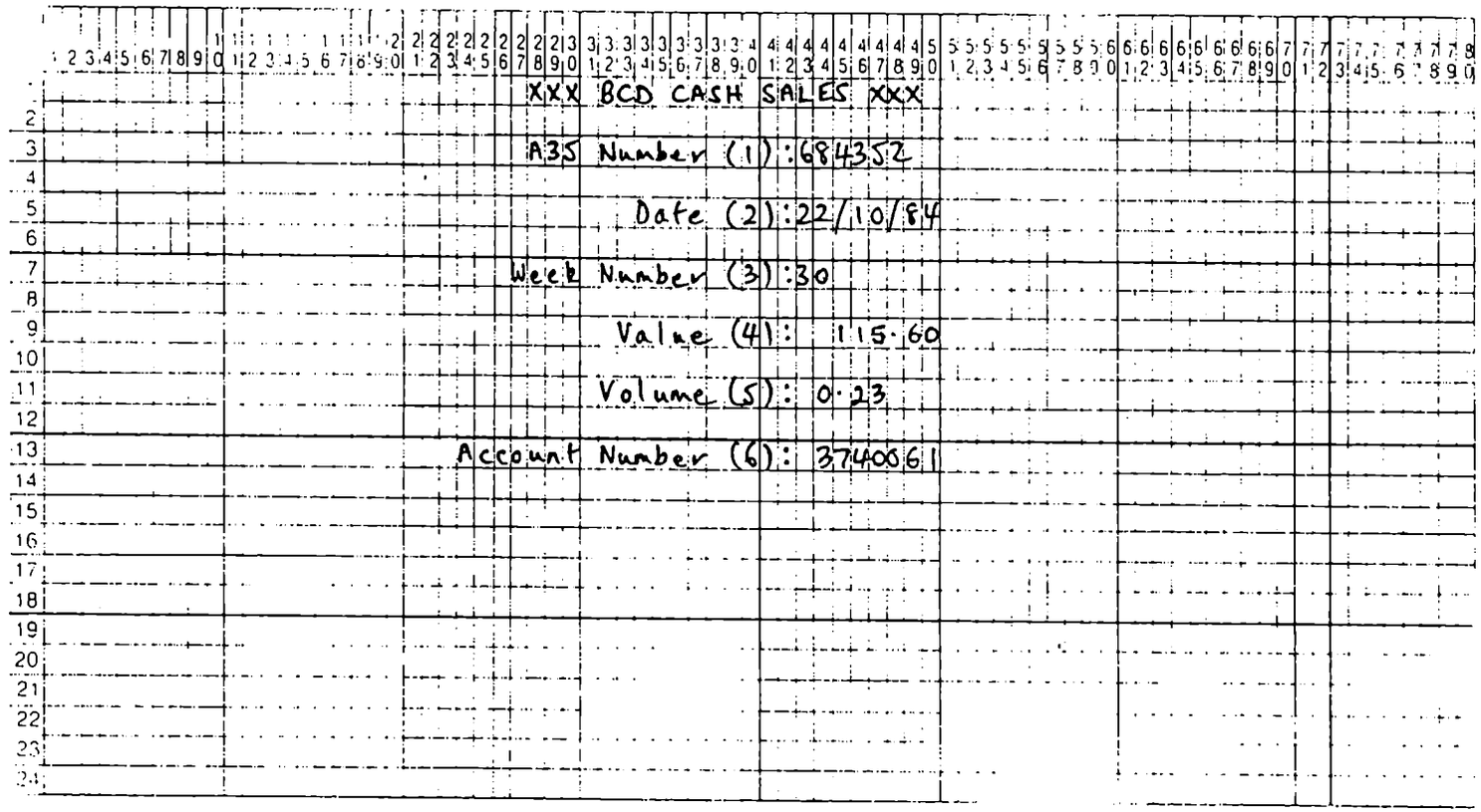
Number of Pieces (4) : 612

Key Field (1), (2)

Autoduplicated Field (2), (3)

FORM NAME : CSFORM

FOR DATA ENTRY INTO: CSFILE

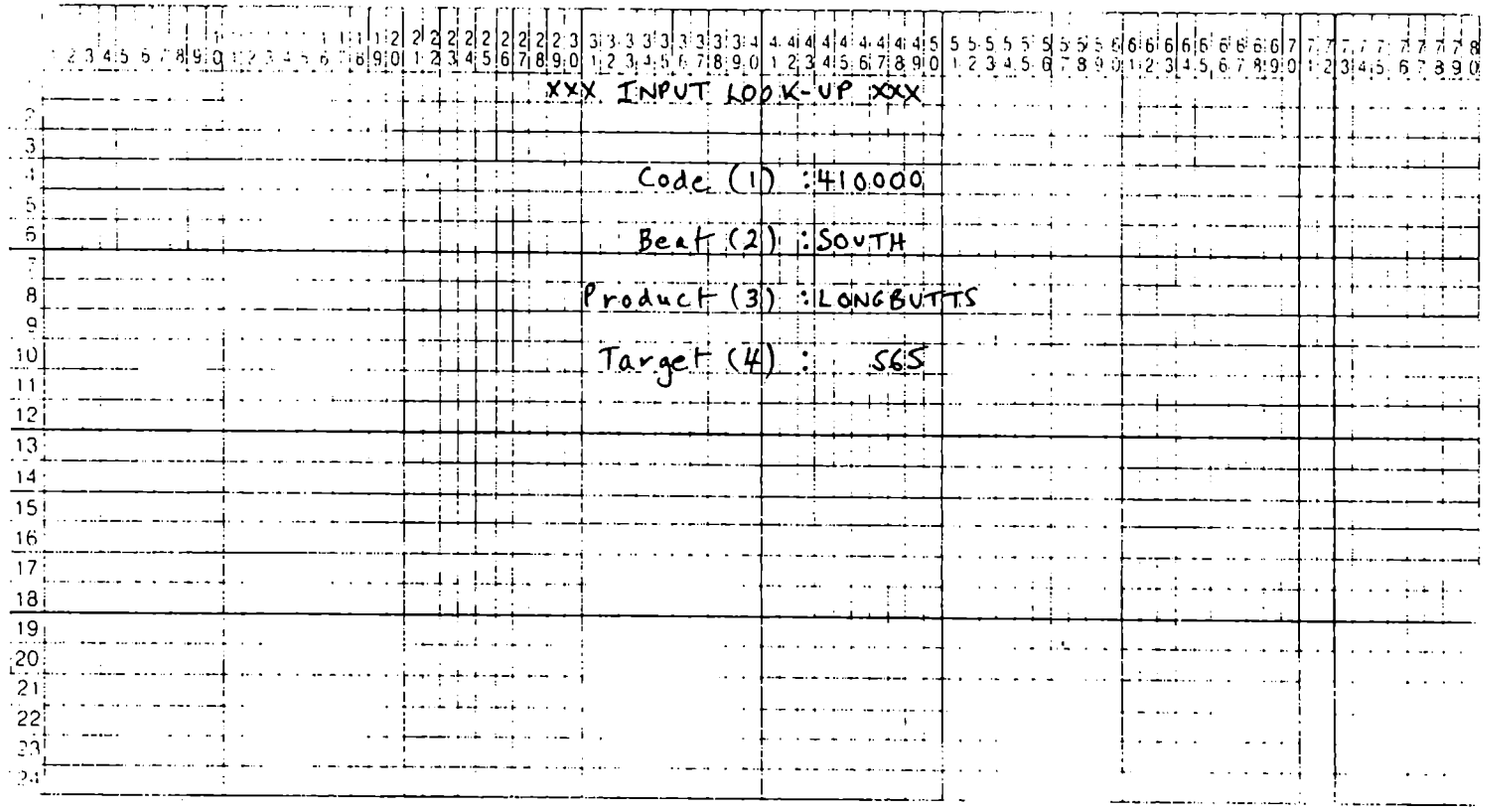


Key Field (1)

Autoduplicated Field (2), (3)

FORM NAME : INLUFO

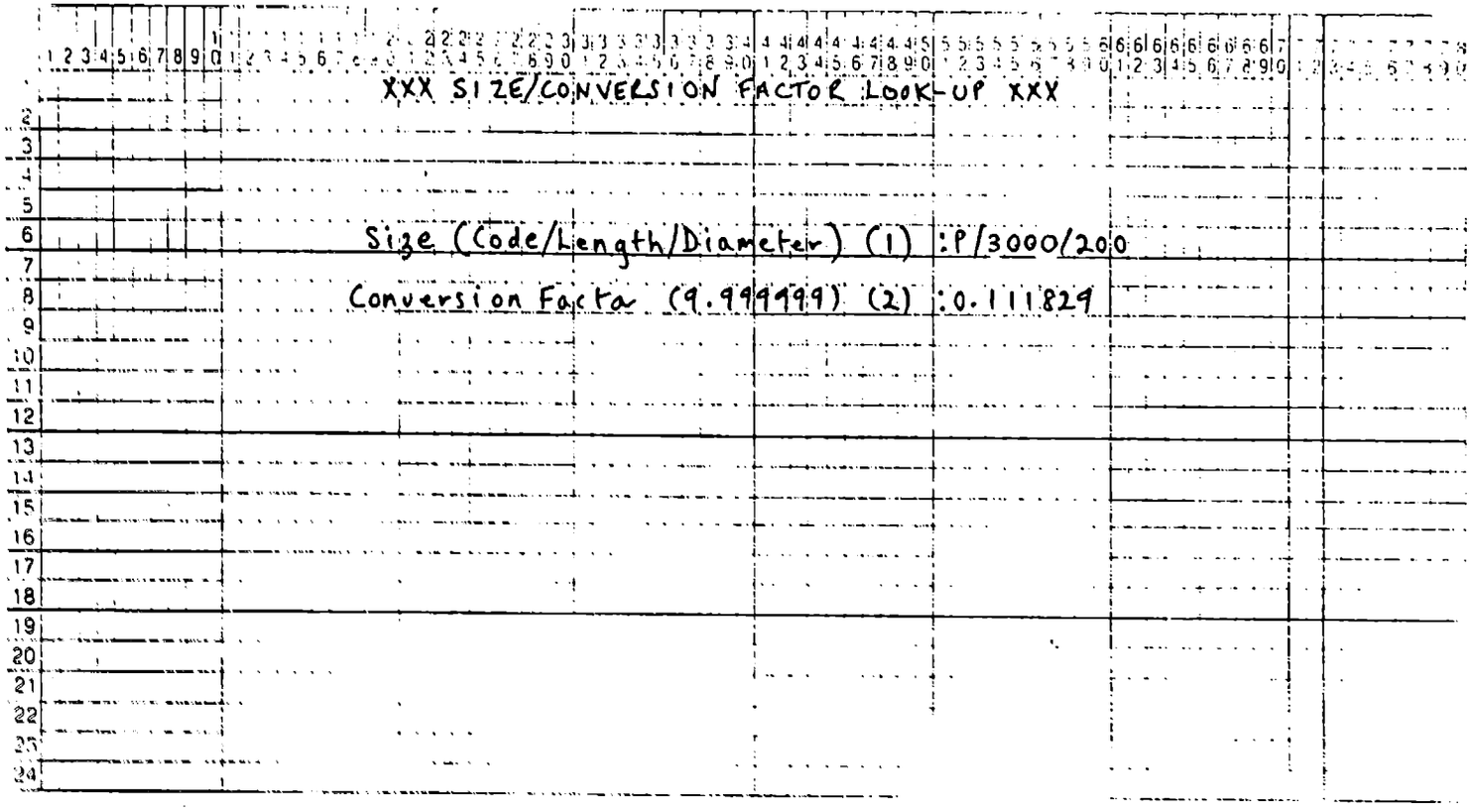
FOR DATA ENTRY INTO: CODES



Key Field (1)

FORM NAME : PLFORM

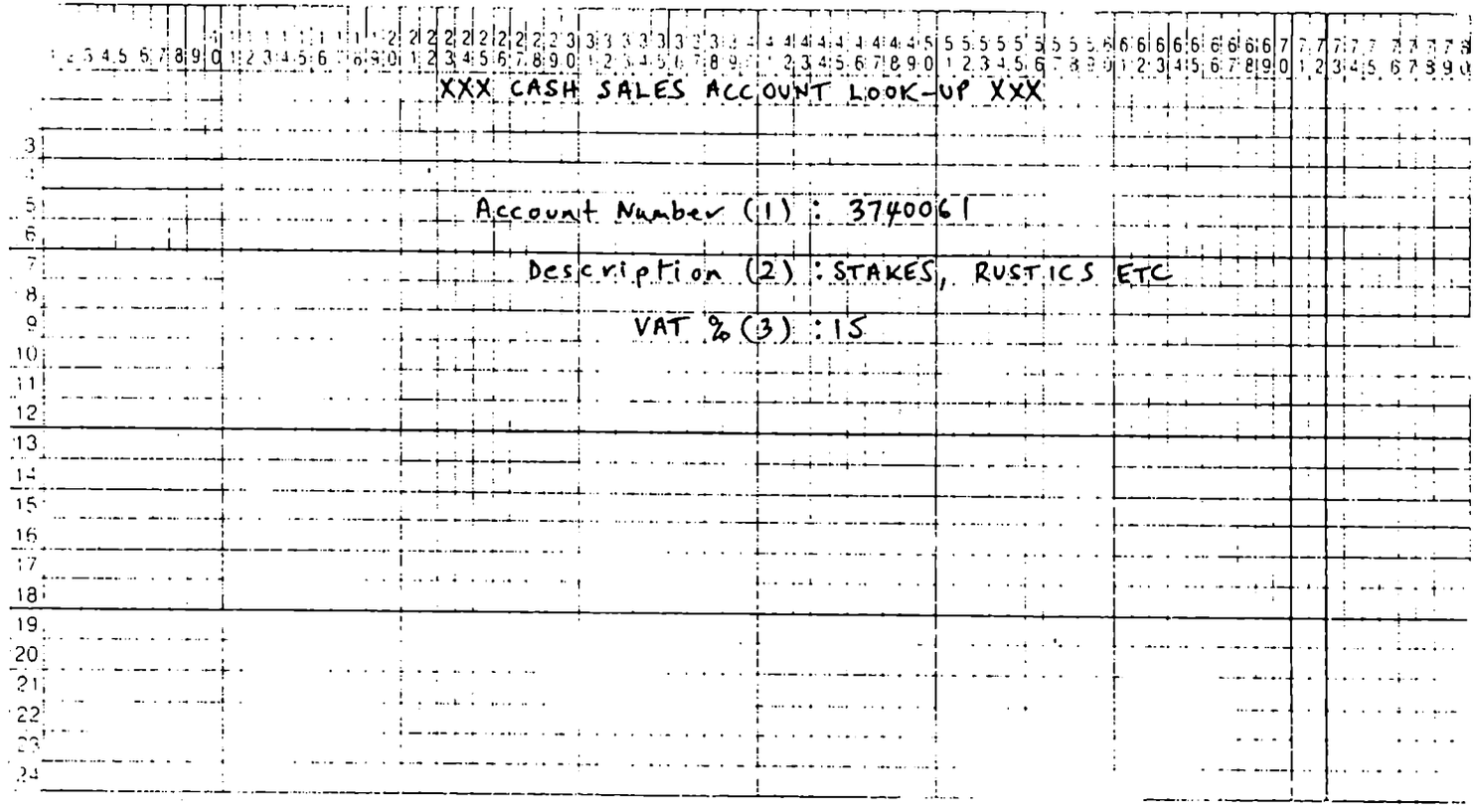
FOR DATA ENTRY INTO: PLFILE



Key Field (1)

FORM NAME : CSLUFO

FOR DATA ENTRY INTO: CSLU



Key Field (1)

APPENDIX 5

FILE RECORD DESCRIPTIONS

A record description for each of the eight files used in the system is shown. Each record description is characterised by a two character record type. For example, the record type of the record description for the file NEIGHBOUR is RO.

AUTOCLERK CONTROL FILE — K.BCD

APPENDIX 5A

RECORD TYPE : IN LENGTH : 24

1. NAME: WEEKLY INPUT — INPUT 2. VALID CODE:

	FIELD NAME	DATA TYPE	LEN GTH	FORMAT S B A	OCC URS	ACC ESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	IN-REC-TYPE	X	2							
4.	IN-ISAM	C	2	4		N				
5.	IN-TICKET-NO	N	5	5						
6.	IN-DATE	D	3	6			Y			
7.	IN-WEEK-NO	C	1	2			Y			
8.	IN-CODE	C	3	6						
9.	IN-WEIGHT	C	3	32						
10.	IN-VEHICLE	N	5	5						
11.			END	OF	RECORD					
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

AUTOCLERK CONTROL FILE — K.BCD

APPENDIX 5B

RECORD TYPE : RO LENGTH : 93

1. NAME : REGISTER - NCBORDER 2. VALID CODE :

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S B A	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	RO - REC-TYPE	X	2							
4.	RO - ISAM	C	2	4		N				
5.	RO - NCBORDER	X	15							
6.	RO - FCORDER	X	8							
7.	RO - DATE-OF-ORDER	D	3	6			Y			
8.	RO - COLLIERY	X	20							
9.	RO - NCB-AREA	X	20							
10.	RO - SIZE	X	10							
11.	RO - NO-OF-PCS	C	3	5						
12.	RO - VOLUME	C	3	5						
13.	RO - WEEK	C	1	1						
14.	RO - MONTH	C	1	2						
15.	RO - YEAR	C	1	2						
16.	RO - FINAL-DEL-DATE	D	3	6						
17.	RO - STATUS-CODE	X	1							
18.			END	OF	RECORD					
19.										
20.										

AUTOCLERK CONTROL FILE — K.BCD APPENDIX 5C

RECORD TYPE: DI LENGTH: 140

1. NAME: DISPATCHES - DISPATCH 2. VALID CODE:

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S B A	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	DI-REC-TYPE	X	2							
4.	DI-ISAM	C	2	4		N				
5.	DI-U3B	X	7							
6.	DI-CUST-ORDER	X	15							
7.	DI-LOC-NO.	C	2	3			Y			
8.	DI-FCORDER	X	8							
9.	DI-DATE	D	3	6			Y			
10.	DI-A39	C	3	6						
11.	DI-CUST-NAME	X	20							
12.	DI-CONSIGNEE	X	20		2					
13.	DI-PRODUCT	C	2	3						
14.	DI-SIZE	X	10							
15.	DI-NO-OF-PCS	C	3	42						
16.	DI-VOLUME	C	3	42						
17.	DI-WEIGHT	C	3	42						
18.	DI-ACC-NO	X	15				Y			
19.	DI-CONV-FACTOR	C	2	3						
20.			END	OF	RECORD					

AUTOCLERK CONTROL FILE — K.BCD
RECORD TYPE : PS LENGTH : 22
1. NAME: PROD'N SHEETS - PSFILE 2. VALID CODE:

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S BA	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	PS-REC-TYPE	X	2							
4.	PS-ISAM	C	2	4		N				
5.	PS-SIZE	X	10							
6.	PS-DATE	D	3	6			Y			
7.	PS-WORKTYPE	C	2	3			Y			
8.	PS-NO-OF-PCS	C	3	6						
9.			END	OF	RECORD					
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

AUTOCLERK CONTROL FILE — K.BCD
RECORD TYPE : CS LENGTH : 29
1. NAME: CASH SALES — CSFILE 2. VALID CODE:

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S BA	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	CS-REC-TYPE	X	2							
4.	CS-ISAM	C	2	4		N				
5.	CS-A35-NO	N	6	6						
6.	CS-DATE	D	3	6			Y			
7.	CS-WEEK-NO	N	2	2			Y			
8.	CS-VALUE	C	4	52						
9.	CS-VOLUME	C	2	22						
10.	CS-ACC-NO	N	8	8						
11.			END	OF	RECORD					
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

AUTOCLERK CONTROL FILE — K.BCD

APPENDIX 5F

RECORD TYPE : CO LENGTH :

1. NAME: LOOK-UP INPUT CODES 2. VALID CODE:

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S B A	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	CO-REC-TYPE	X	2							
4.	CO-ISAM	C	2	4		N				
5.	CO-CODE	C	3	6						
6.	CO-DESCRIPTION	X	12							
7.	CO-TARGET	C	3	6						
8.			END	OF	RECORD					
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

AUTOCLERK CONTROL FILE — K.BCD

APPENDIX 5G

RECORD TYPE : PL LENGTH : 18

1. NAME: LOOK-UP - PLFILE 2. VALID CODE:

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S B A	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	PL-REC-TYPE	X	2							
4.	PL-ISAM	C	2	4		N				
5.	PL-SIZE	X	10							
6.	PL-CONV-FACTOR	C	4	16						
7.			END	OF	RECORD					
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

AUTOCLERK CONTROL FILE — K.BCD

APPENDIX 5H

RECORD TYPE : CL LENGTH : 33

1. NAME: LOOK-UP — CSLU 2. VALID CODE:

	FIELD NAME	DATA TYPE	LENGTH	FORMAT S	FORMAT B	FORMAT A	OCCURS	ACCESS	AUTO DUP	ACCUM NO.	VALID CODE	
3.	CL-REC-TYPE	X	2									
4.	CL-ISAM	C	2	4				N				
5.	CL-ACC-NO	N	8	8								
6.	CL-TEXT	X	20									
7.	CL-VAT%	C	1	2								
8.			END	OF	RECORD							
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

APPENDIX 6A

PRINTOUT DESIGN FORM

REPORT DEFINITION NAME : R.BC06

DATAFILE NAME : INPUT LOOK-UP FILE : CODES

WEEKLY INPUT SUMMARY

NB. THIS SECTION OF THE REPORT IS ONLY VALID IF ALL RECORDS ARE SELECTED.

Weight Ticket	Date	WK No	Code	Beat	Product	Weight	Vehicle F.C. No	Week Number (CALC1) for calculation	Performance (CALC5) against target %
23848	09/07/84	15	210000	NORTH	LONGBUTTS	12.87	77146	15	19
23857	09/07/84	15	210000	NORTH	LONGBUTTS	12.71	77146	15	21
23843	09/07/84	15	210000	NORTH	LONGBUTTS	10.70	76940	15	25
23990	13/07/84	15	210000	NORTH	LONGBUTTS	11.72	77146	15	18
CODE SUB-TOTAL						58.00			83
23877	10/07/84	15	230000	NORTH	SMALLWOOD	8.26	77146	15	40
24014	13/07/84	15	230000	NORTH	SMALLWOOD	9.68	76940	15	35
CODE SUB-TOTAL						17.94			75
23995	13/07/84	15	310000	CENTRE	LONGBUTTS	11.31	76927	15	21
23999	13/07/84	15	310000	CENTRE	LONGBUTTS	11.07	76927	15	15
23985	13/07/84	15	310000	CENTRE	LONGBUTTS	11.07	77247	15	8
24002	13/07/84	15	310000	CENTRE	LONGBUTTS	11.95	76927	15	19
24009	13/07/84	15	310000	CENTRE	LONGBUTTS	11.59	76927	15	30
CODE SUB-TOTAL						56.99			93
GRAND TOTAL						124.93			251

MAIN REPORT DEFINITION DETAILS-THIS EXAMPLE

SORT FILE BY "CODE"

SELECT ALL RECORDS WITH "WK NO" = "15"

SUBTOTAL 1 ON CHANGE OF CODE

GRAND TOTAL

POINTER FIELD "CODE" TO LOOK-UP FILE CODES "BEAT", "PRODUCT" AND "TARGET"

N.B. ONLY IF ALL RECORDS ARE SELECTED ARE THE FOLLOWING CALCULATIONS CORRECT:

CALCULATIONS – (1) = "WK NO" x 1

(2) = (1) ÷ 52

(3) = (2) x "TARGET"

(4) = "WEIGHT" ÷ (3)

(5) = (4) x 100

APPENDIX 6B

PRINTOUT DESIGN FORM

REPORT DEFINITION NAME : R.BCD7

DATAFILE NAME : NCBORDER LOOK-UP FILE: —

REGISTER OF NCB ORDERS

NCB Order Number	FC Order Number	Date of Order	Colliery	Size	No. of Pieces	Delivery Details W M Y	Final D.D.	Code
84/684128/103	84/39	17/02/84	DARFIELD MAIN	S/1800/130	2000	4 3 84	31/07/84	F
84/684129/103	84/40	17/02/84	DARFIELD MAIN	P/1500/140	1000	4 3 84	31/07/84	F

MAIN REPORT DEFINITION DETAILS-THIS EXAMPLE

SELECT ALL RECORDS WITH "COLLIERY" = "DARFIELD MAIN"

APPENDIX CC

PRINTOUT LAYOUT FORM

REPORT DEFINITION NAME: R.BCD1

DATAFILE NAME: DISPATCH LOOK-UP FILE: ——

PRODUCE LEDGER – DISPATCHES

Customer Order Number	FC Order Number	Date	U3b Number	Customer Name	Size	No. of Pieces	Volume	Weight	Account Number
84/684691/103	TF	24/05/84	899001	NCB	P/0900/110	500·00	22·68	17·27	03770/061/051
SIZE SUB-TOTAL						500·00	22·68	17·27	
84/684690/103	TF	24/05/84	899003	NCB	P/1000/100	976·00	22·04	18·18	03770/061/051
84/684176/103	84/25	24/05/84	899004	NCB	P/1000/100	382·00	8·63	7·12	03770/061/051
SIZE SUB-TOTAL						1358·00	30·67	25·30	
84/684671/103	84/253	24/05/84	899006	NCB	P/1800/140	284·00	9·112	0·00	03770/061/051
84/984653/103	83/926	24/05/84	899004	NCB	P/1800/140	313·00	10·05	0·00	03770/061/051
84/684692/103	TF	24/05/84	899002	NCB	P/1800/140	396·00	12·54	0·00	03770/061/051
SIZE SUB-TOTAL						993·00	31·71	0·00	
TYPE SUB-TOTAL						2851·00	85·06	42·57	
84/684176/103	84/25	24/05/84	899006	NCB	S/2400/140	248·00	5·56	0·00	03770/061/051
SIZE SUB-TOTAL						248·00	5·56	0·00	
84/784028/103	TF	24/05/84	899005	NCB	S/2700/180	368·00	15·00	10·08	03770/061/051
84/784072/103	TF	25/05/84	899003	NCB	S/2700/180	408·00	16·63	11·18	03770/061/051
84/684221/103	84/11	24/05/84	899001	NCB	S/2700/180	547·00	22·30	14·98	03770/061/051
SIZE SUB-TOTAL						1323·00	53·93	36·24	
TYPE SUB-TOTAL						1571·00	59·49	36·24	
GRAND TOTAL						4422·00	144·55	78·81	

MAIN REPORT DEFINITION DETAILS-THIS EXAMPLE

SORT FILE BY "SIZE"

SELECT ALL RECORDS WITH CUSTOMER NAME = "NCB" AND DATE BETWEEN 24/05/84 AND 25/05/84

SUBTOTAL 1 ON CHANGE OF "SIZE"
" 2 ON CHANGE OF 1ST CHARACTER OF "SIZE"

APPENDIX 6D

PRINTOUT DESIGN FORM

REPORT DEFINITION NAME : R.BCD8

DATAFILE NAME : PSFILE LOOK-UP FILE : PLFILE

DAILY PRODUCTION SHEET SUMMARY

Size	Date	Work Type	No. of Pieces	Conversion Factor	Volume
P/0900/080	16/07/84	33	157	0·005150	0·81
P/0900/090	16/07/84	33	471	0·006427	3·03
P/0900/100	16/07/84	33	648	0·007846	5·08
P/1500/110	16/07/84	33	612	0·016663	10·20
P/1800/140	16/07/84	33	59	0·032112	1·89
P/1800/150	16/07/84	33	53	0·036515	1·94
WORK TYPE SUB-TOTAL			2000		22·95
T/1650/5·8	16/07/84	41	498	0·025678	12·79
T/1650/8·1	16/07/84	41	187	0·034567	6·46
WORK TYPE SUB-TOTAL			685		19·25
S/2100/120	16/07/84	71	306	0·014478	4·43
S/2100/140	16/07/84	71	72	0·019179	1·38
S/2100/150	16/07/84	71	174	0·021777	3·79
S/2400/120	16/07/84	71	266	0·016996	4·52
S/2100/180	16/07/84	71	122	0·040762	4·97
WORK TYPE SUB-TOTAL			940		19·09
GRAND TOTAL			3625		61·29

MAIN REPORT DEFINITION DETAILS-THIS EXAMPLE

SORT FILE BY "WORK TYPE"

SELECT ALL RECORDS WITH DATE = "16/07/84"

SUBTOTAL 1 ON CHANGE OF "WORK TYPE"

GRAND TOTAL

POINTER FIELD "SIZE" TO LOOK-UP FILE PLFILE "CONVERSION FACTOR"

CALCULATION:- "VOLUME" = "NO. OF PIECES" X "CONVERSION FACTOR"

APPENDIX 6E

PRINTOUT DESIGN FORM

REPORT DEFINITION NAME : R.BCDS

DATAFILE NAME : CSFILE LOOK-UP FILE : CSLU PROGRAMMER

A35 CASH SALES SUMMARY

A35 No	Date	Week Number	Value	Volume	Account Number	Description	VAT amount	Unit Income
684351	27/04/84	4	11.75	0.35	3740061	STAKES, RUSTIC ETC	1.76	33.57
684352	01/05/84	4	16.00	0.17	3740061	STAKES, RUSTIC ETC	2.40	94.12
684354	02/05/84	4	115.60	0.23	3740061	STAKES, RUSTIC ETC	17.34	502.61
684357	02/05/84	4	40.00	0.81	3740061	STAKES, RUSTIC ETC	6.00	49.38
684358	06/05/84	4	4.40	0.04	3740061	STAKES, RUSTIC ETC	0.66	110.00
684359	03/05/84	4	6.40	0.06	3740061	STAKES, RUSTIC ETC	2.40	106.67
ACCOUNT SUB-TOTAL			194.15	1.66			29.12	
684356	02/05/84	4	16.56	2.31	3610061	WASTEWOOD	0.00	7.17
ACCOUNT SUB-TOTAL			16.56	2.31			0.00	
GRAND TOTAL			210.71	3.97			29.12	

MAIN REPORT DEFINITION DETAILS-THIS EXAMPLE

SORT FILE BY "ACCOUNT NUMBER"

SELECT ALL RECORDS WITH "WEEK NUMBER" = 4

SUBTOTAL 1 ON CHANGE OF "ACCOUNT NUMBER"
GRAND TOTAL

POINTER FIELD "ACCOUNT NUMBER" TO LOOK-UP FILE CSLU "DESCRIPTION" AND "VAT%"

CALCULATION:— "VAT AMOUNT" = "VALUE" X "VAT%"