

**ASSEMBLY PROCEDURE**  
 1. INSTALL STOP BLOCKS (UNIT NO TC137 15), BOLT IN PLACE (DO NOT WELD).  
 2. INSTALL ALTITUDE DRIVE GEARBOX MOUNTING BRACKET AND DROP TO LOWEST HEIGHT.  
 3. WITH BULL GEAR IN SITU, RAISE BRACKET TO OPERATING HEIGHT.  
 4. ADJUST WEDGES (UNIT NO TC137 14 & 15) CHECK THAT THE TAPERS ARE CORRECT AS TO ANGLE & OVERALL SIZE. MACHINE 2mm THICK SHIMS AS REQUIRED TO SUIT D SHIM (UNIT NO TC137 15) FOR LIFTING WEDGE, WASHER 5mm (UNIT NO TC137 15) FOR TRAVERSE WEDGE.  
 5. WITH WEDGES NIPPED DOWN WELD STOP BLOCK (UNIT NO TC137 15) TO BRACKET.  
 6. CHECK THAT WEDGES ARE CORRECT & ADJUST IF NECESSARY.  
 7. SITE CORRECTIONS WILL BE ACHIEVED BY ADJUSTING SHIMS.

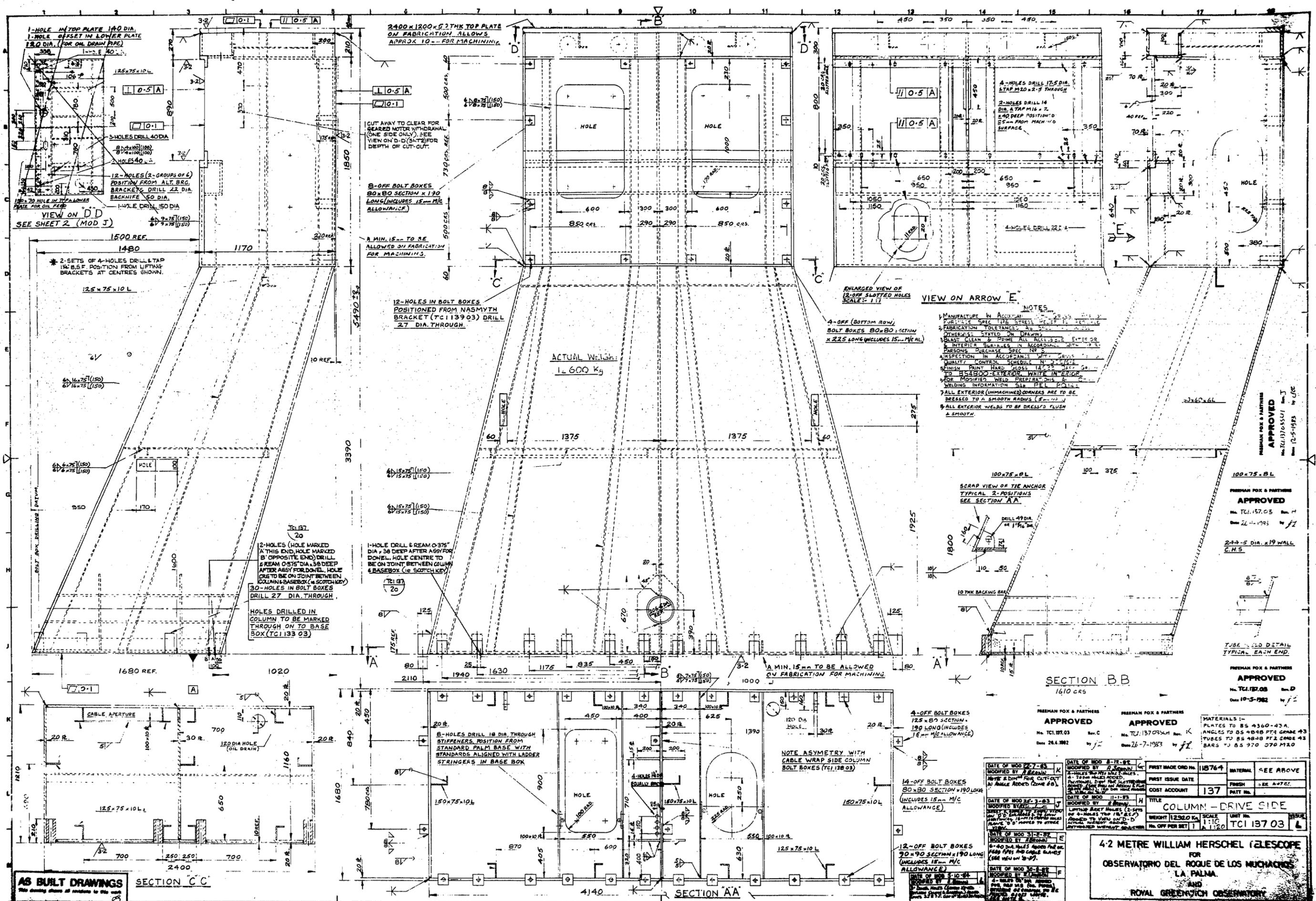
**AS BUILT DRAWINGS**  
 This drawing shows all operations to this work.

FORMER FOR A PARTURE  
**APPROVED**  
 No. TCI 137  
 Date 21-1-1982

**42 METRE WILLIAM HERSCHEL TELESCOPE**  
 OBSERVATORY DELIVERED BY THE GRUBB PARSONS  
 NEWCASTLE UPON TYNE

ORDER N° 118764

<b>GRUBB PARSONS</b> A member of Clark Chapman and Reynolds Parsons	SURFACE FINISH EQUIVALENTS UNFINISHED 1.0 MACHINED 0.4 POLISHED 0.2 BURNISHED 0.1 THIS DRAWING CONFORMS TO B.S. 308	SURFACE FINISH SYMBOLS ✓ DENOTES NOT NECESSARILY MACHINED ▽ DENOTES MACHINED	WELD SYMBOLS TO BS 499 PART 2 1989	FABRICATION TOLERANCES DIMENSIONS UP TO 250 ± 0.1 DIMENSIONS FROM 250 TO 2500 ± 0.2 DIMENSIONS FROM 2500 TO 10000 ± 0.3 DIMENSIONS WITH OVER ± 0.1 STRAIGHTNESS/FLATNESS 1: 500	THIS DRAWING IS THE PROPERTY OF NEI PARSONS LTD. AND MUST NOT BE COPIED OR DISCLOSED TO A THIRD PARTY WITHOUT GRUBB PARSONS WRITTEN CONSENT.	GENERAL MACHINING TOLERANCES UNFINISHED DIMENSIONS ± 0.2 DIMENSIONS WITH OVER ± 0.1 AND DECIMAL SIGN AND ORIGINAL SIGN	ALL DIMENSIONS ARE IN MILLIMETRES ANGLES 2 SCREW THREADS TO B.S. 3842 PART 2 MEDIUM FIT MACHINED DIA CONCENTRIC TO 0.1 TIR	PROJECTION CHECKED 3rd ANGLE APPROVED DATE 14-12-82	DRAWN A BROWN DATE 14-12-82 TITLE ASSY OF DRIVE SIDE COLUMN	SHEET 1 OF 1 DRAWING NUMBER TCI 137 AS-4V SCALE FULL SIZE
	GRUBB PARSONS NEWCASTLE UPON TYNE NE8 2YB									



**NOTES**

- MANUFACTURE IN ACCORDANCE WITH THE SPECIFICATION
- FABRICATION TOLERANCES AS STATED OTHERWISE STATED ON DRAWINGS
- BLAST CLEAN & PRIME ALL ACCESSIBLE SURFACES
- INTERIORS UNLESS OTHERWISE SPECIFIED TO BE PAINTED WITH ANTI-RUST PAINT
- FINISH PAINT LIGHT GREY EXTERIOR WHITE INTERIOR
- TO BE PAINTED EXTERIOR WHITE INTERIOR FOR MODIFIED WELD PREPARATION
- FOR WELDING INFORMATION SEE PEL 2012
- ALL EXTERIOR (UNMACHINED) CORNERS ARE TO BE DRESSED TO A SMOOTH RADIUS (R 10)
- ALL EXTERIOR WELDS TO BE DRESSED FLUSH & SMOOTH

DATE OF MOD 27-83 MODIFIED BY J. BROWN	DATE OF MOD 8-82 MODIFIED BY J. BROWN	FIRST MADE ORG NO. 113764	MATERIAL SEE ABOVE
NOTE: DIMENSIONS FOR CUT-OUT IN HOLE REFER TO THE HOLE	DATE OF MOD 11-83 MODIFIED BY J. BROWN	FIRST ISSUE DATE	FRESH USE A/T/C
DATE OF MOD 3-83 MODIFIED BY J. BROWN	DATE OF MOD 1-82 MODIFIED BY J. BROWN	COST ACCOUNT 137	PART NO.
DATE OF MOD 1-82 MODIFIED BY J. BROWN	DATE OF MOD 1-82 MODIFIED BY J. BROWN	TITLE COLUMN - DRIVE SIDE	WEIGHT 12320 Kg
DATE OF MOD 1-82 MODIFIED BY J. BROWN	DATE OF MOD 1-82 MODIFIED BY J. BROWN	SCALE 1:10	UNIT NO. TCI 137 03
DATE OF MOD 1-82 MODIFIED BY J. BROWN	DATE OF MOD 1-82 MODIFIED BY J. BROWN	NO. OFF PER SET 1	

**4.2 METRE WILLIAM HERSCHEL TELESCOPE**  
FOR  
**OBSERVATORIO DEL ROQUE DE LOS MUJACHOS**  
LA PALMA  
AND  
**ROYAL GREENWICH OBSERVATORY**

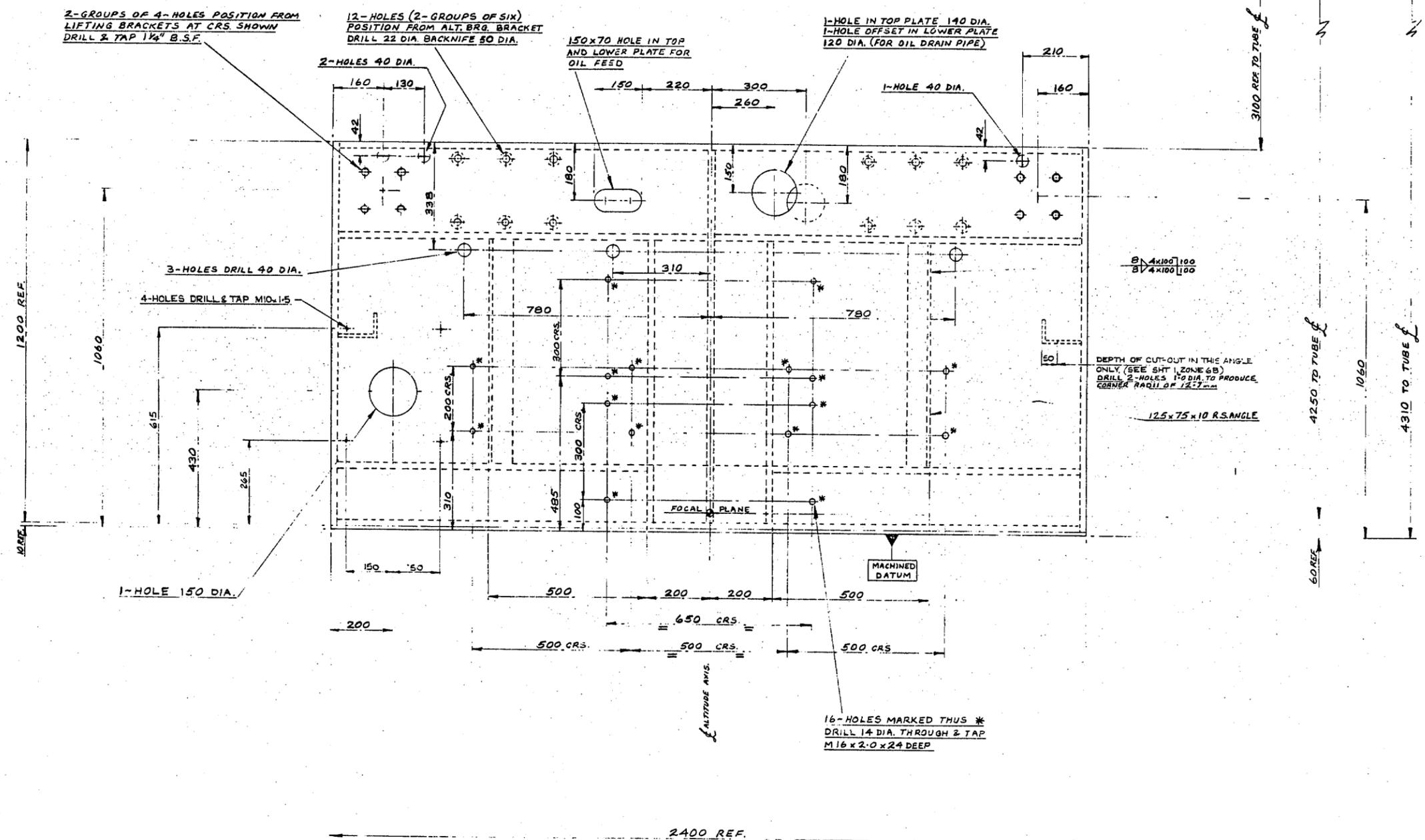
**AS BUILT DRAWINGS**  
This drawing shows all revisions to this work

<b>SURFACE FINISH EQUIVALENTS</b>	<b>SURFACE FINISH SYMBOLS</b>	<b>WELD SYMBOLS</b>	<b>FABRICATION TOLERANCES</b>																																																																																
<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>125</td><td>150</td><td>175</td><td>200</td><td>225</td><td>250</td><td>275</td><td>300</td><td>325</td><td>350</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	125	150	175	200	225	250	275	300	325	350	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>125</td><td>150</td><td>175</td><td>200</td><td>225</td><td>250</td><td>275</td><td>300</td><td>325</td><td>350</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	125	150	175	200	225	250	275	300	325	350	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>125</td><td>150</td><td>175</td><td>200</td><td>225</td><td>250</td><td>275</td><td>300</td><td>325</td><td>350</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	125	150	175	200	225	250	275	300	325	350	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>125</td><td>150</td><td>175</td><td>200</td><td>225</td><td>250</td><td>275</td><td>300</td><td>325</td><td>350</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	125	150	175	200	225	250	275	300	325	350
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THIS DRAWING IS THE PROPERTY OF NEI PARSONS LTD. AND MUST NOT BE COPIED OR DISCLOSED TO A THIRD PARTY WITHOUT GRUBB PARSONS WRITTEN CONSENT.

ALL DIMENSIONS ARE IN MILLIMETRES  
ANGLES UNLESS OTHERWISE STATED  
SCREW THREADS TO B.S. 3643 PART 2  
MEDIUM FIT  
MACHINED DIA CONCENTRIC TO 0.1 TLR

**GRUBB PARSONS** NEWCASTLE UPON TYNE NES 2YB  
DATE 3-2-82  
TITLE COLUMN - DRIVE SIDE  
SCALE 1:10



VIEW ON 'D'D' (SEE SHEET 1)

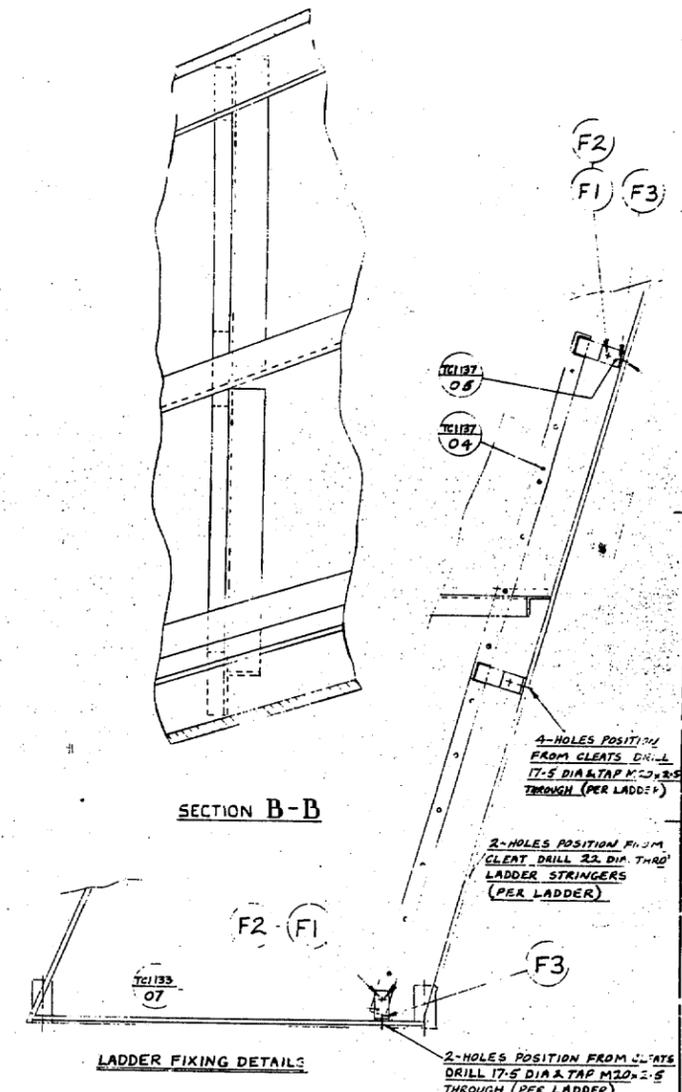
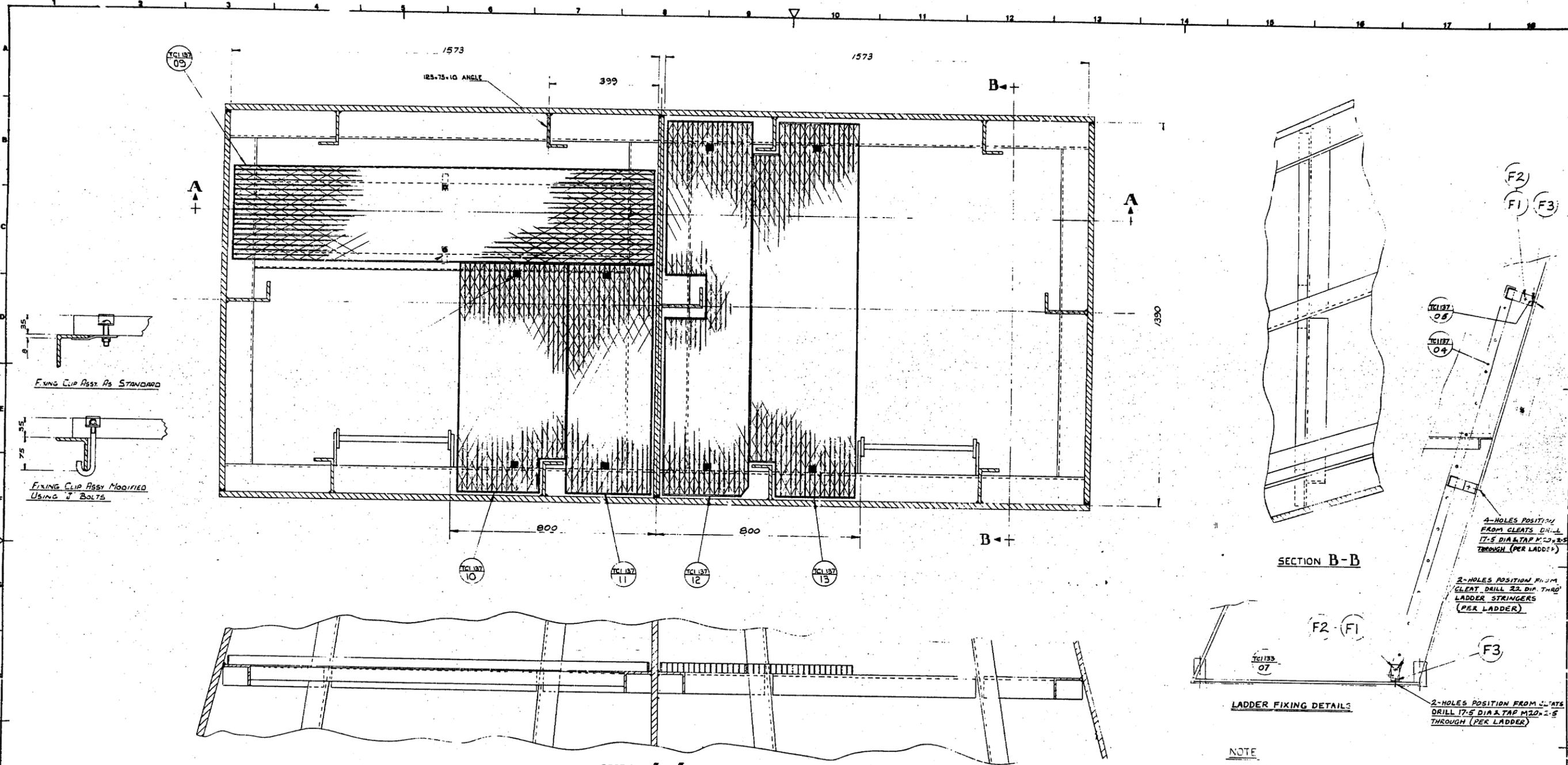
AS BUILT DRAWINGS  
The Drawing Shows as Made in the Work

FREEMAN FOX & PARTNERS <b>APPROVED</b> No. TCI 137.03542 Rev. C Date 22-11-1983	FREEMAN FOX & PARTNERS <b>APPROVED</b> No. TCI 137.03542 Rev. B Date 26-7-1983	FREEMAN FOX & PARTNERS <b>APPROVED</b> No. TCI 137.03542 Rev. A Date 12-5-1983
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DATE OF MOD MODIFIED BY	DATE OF MOD 22-11-83 MODIFIED BY A. BROWN Drawn & Note for cut-out in Angle Probed (Zone 1A)	FIRST MADE ORG No. 118764 FIRST ISSUE DATE COST ACCOUNT PATT No.	MATERIAL SEE SHT 1 FINISH SEE SHT 1
DATE OF MOD MODIFIED BY	DATE OF MOD 25-3-83 MODIFIED BY A. BROWN 4-Holes Drill & Tap M16 Probed	TITLE COLUMN - DRIVE SIDE WEIGHT SCALE UNIT No. 11:5 TCI 13703 No. OFF PER SET SHT 2 ISSUE C	

**4.2 METRE WILLIAM HERSCHEL TELESCOPE**  
DESIGNED BY NEI PARSONS LTD  
NEWCASTLE UPON TYNE

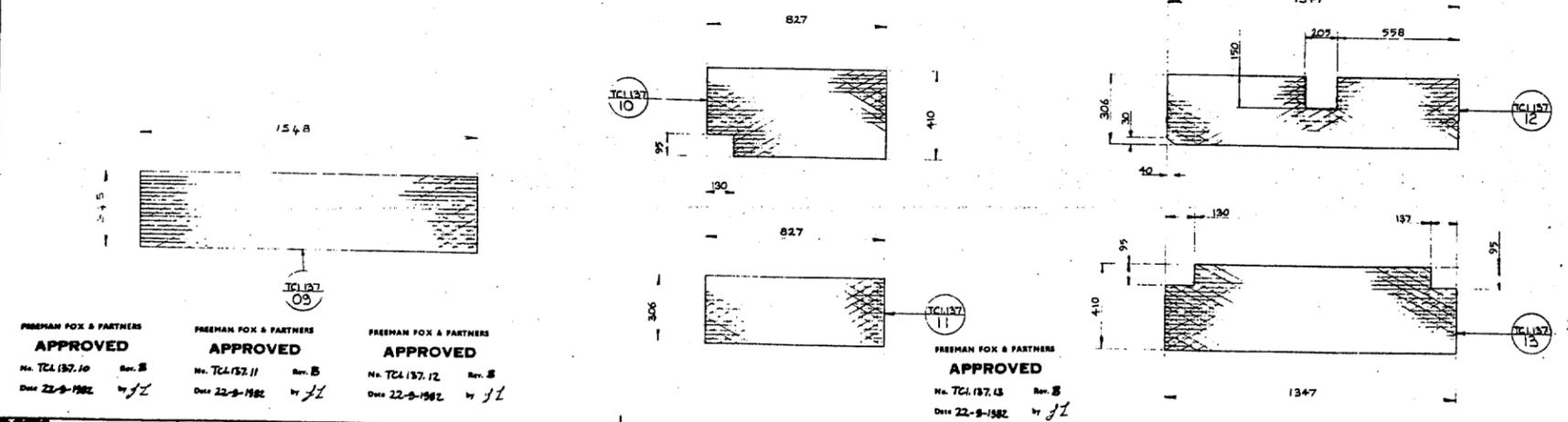




**NOTE**  
 STITCHING BOLTS TO BE PROVIDED ALONG ALL MATING FACES.  
 1-SET OFF FLOOR PLATES FOR COLUMN-DRIVE SIDE  
 1-SET OFF FLOOR PLATES FOR COLUMN-CABLE WRAP SIDE

**AS BUILT DRAWINGS**  
 This drawing shows all revisions to this work.

**ORDER MUST NOT BE PLACED UNTIL AFTER COLUMNS HAVE BEEN MANUFACTURED AND ACTUAL DIMENSIONS CHECKED**  
 CHECKED BY N.E.I.P.E. SEE MOD B.



**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.10 Rev. B  
 Date 22-9-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.11 Rev. B  
 Date 22-9-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.12 Rev. B  
 Date 22-9-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.13 Rev. B  
 Date 22-9-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.09 Rev. A  
 Date 12-3-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.10 Rev. A  
 Date 12-3-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.11 Rev. A  
 Date 12-3-1982 by JZ

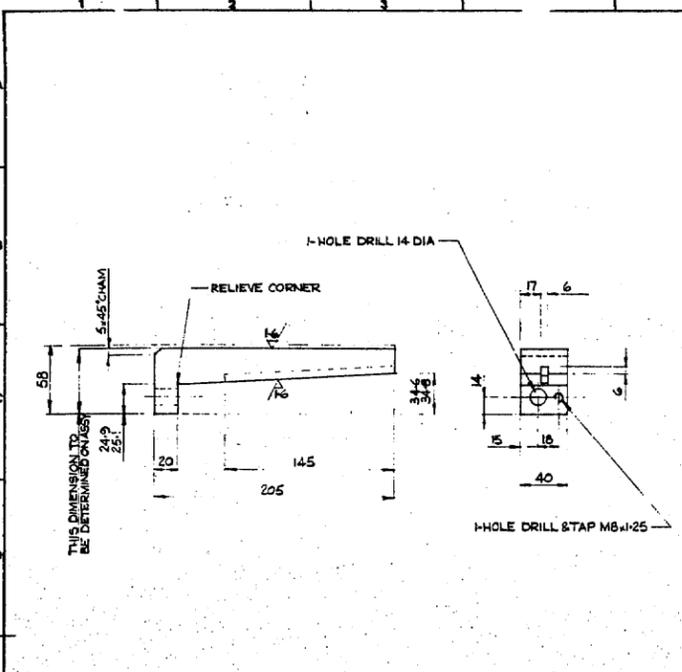
**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.12 Rev. A  
 Date 12-3-1982 by JZ

**FREEMAN FOX & PARTNERS APPROVED**  
 No. TCI 137.13 Rev. A  
 Date 12-3-1982 by JZ

DATE OF MOD 30-6-82 MODIFIED BY P. G. GIBSON	DATE OF MOD 30-6-82 MODIFIED BY P. G. GIBSON	FIRST MADE ORD No. 118764	MATERIAL SS 304	QTY 1
DATE OF MOD 12-3-82 MODIFIED BY JZ	DATE OF MOD 12-3-82 MODIFIED BY JZ	FIRST ISSUE DATE	FINISH GALVANNE	QTY 1
DATE OF MOD 12-3-82 MODIFIED BY JZ	DATE OF MOD 12-3-82 MODIFIED BY JZ	COST ACCOUNT 137	PART No.	QTY 1
TITLE COLUMN INNER FLOOR PLATES		WEIGHT	SCALE 1:10	UNIT No. TCI 137 13
DATE OF MOD 12-3-82 MODIFIED BY JZ		No. OFF PER SET	ISSUE No.	QTY 1

**42 METRE WILLIAM HERSCHEL TELESCOPE**  
 FOR  
**OBSERVATORIO DEL ROQUE DE LOS MUCHACHOS LA PALMA**  
 AND  
**ROYAL GREENWICH OBSERVATORY**

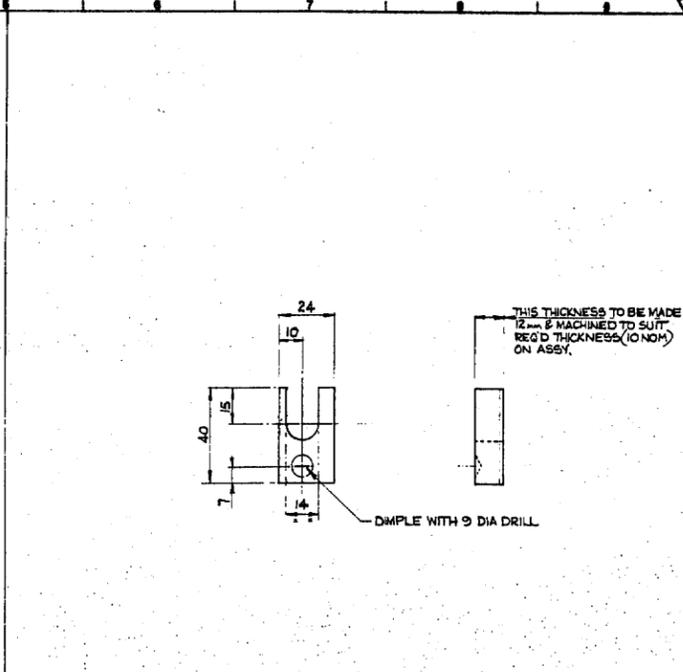
<b>SURFACE FINISH EQUIVALENTS</b> FINISH SYMBOLS THIS DRAWING CONFORMS TO B.S. 208	<b>SURFACE FINISH SYMBOLS</b> DENOTES NOT NECESSARILY MACHINED DENOTES MACHINED	<b>WELD SYMBOLS</b> TO BS 499 PART 2 1980	<b>FABRICATION TOLERANCES</b> DIMENSIONS UP TO 250 ± 0.20 DIMENSIONS FROM 250 TO 1500 ± 0.30 ANGLES ± 1:800 STRAIGHTNESS / FLATNESS 1:800	THIS DRAWING IS THE PROPERTY OF HEI PARSONS LTD. AND MUST NOT BE COPIED OR DISCLOSED TO A THIRD PARTY WITHOUT GRUBB PARSONS WRITTEN CONSENT.	<b>GENERAL MACHINING TOLERANCES</b> UNLESS OTHERWISE STATED OTHERWISE: DIMENSIONS WITH OVER ± 0.03 DIMENSIONS WITH OVER ± 0.01 AND DECIMAL SIGN	<b>ALL DIMENSIONS ARE IN MILLIMETRES</b> ANGLES SCREEN THREADS TO B.S. 3643 PART 2 MEDIUM FIT MACHINED DIA CONCENTRIC TO O1 T14.	<b>PROJECTION CHECKED</b> 3rd ANGLE APPROVED	<b>DRAWN</b> DATE 10 2 82	<b>GRUBB PARSONS</b> NEWCASTLE UPON TYNE NES 2YB	<b>SCALE</b> 1:10	<b>ISSUE</b> No. 13	<b>QTY</b> 1
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**APPROVED**  
 No. TCI 137.14 Rev. A  
 Date 21-1-1983 by JZ

**NOTES**  
 1. MACHINE  $\nabla$  ALL OVER EXCEPT WHERE SHOWN OTHERWISE.  
 2. N° OFF : 2 (1 OFF AS SHOWN, 1 OFF WITH HOLES OPPOSITE HAND)

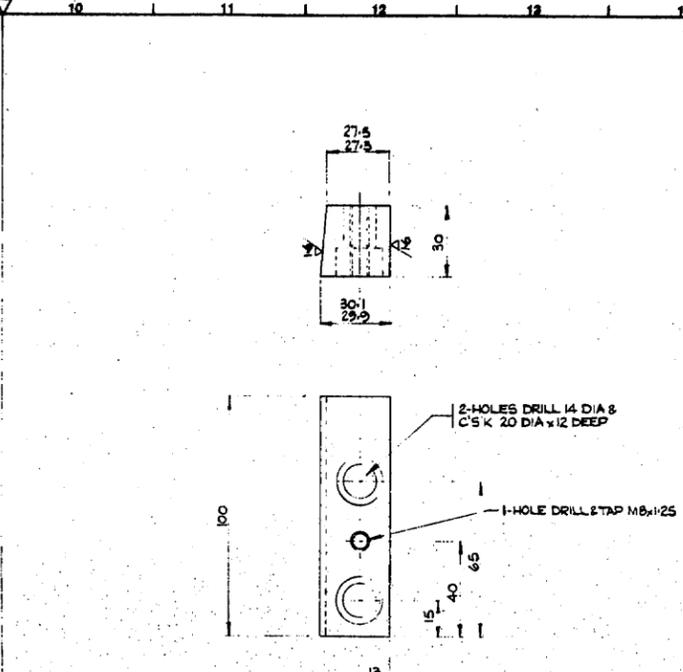
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 20' Carbon Steel
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST ISSUE DATE 31-1-83	FINISH
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	COST ACCOUNT 137	PATT No.
TITLE WEDGE			
WEIGHT 1.76kg	SCALE 1/2	UNIT No. TCI 137 14	ISSUE A
No. OFF PER SET			



**APPROVED**  
 No. TCI 137.15 Rev. A  
 Date 21-1-1983 by JZ

**NOTES**  
 MACHINE  $\nabla$  ALL OVER  
 N° OFF : 2 (1 OFF AS SHOWN, 1 OFF WITH DIMPLE DRILLED ON OPPOSITE SIDE)

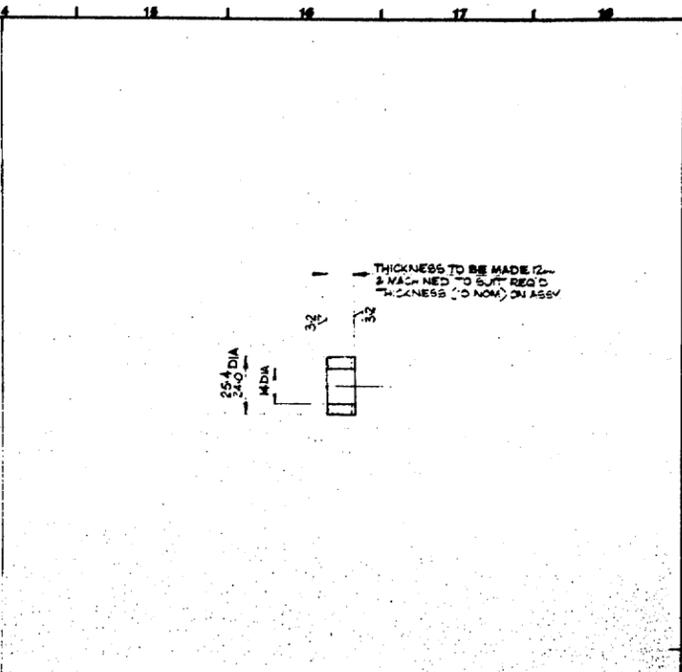
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 20' Carbon Steel
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST ISSUE DATE 31-1-83	FINISH
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	COST ACCOUNT 137	PATT No.
TITLE D' SHIM			
WEIGHT 0.06kg	SCALE 1/1	UNIT No. TCI 137 15	ISSUE A
No. OFF PER SET			



**APPROVED**  
 No. TCI 137.16 Rev. A  
 Date 21-1-1983 by JZ

**NOTES**  
 MACHINE  $\nabla$  EXCEPT WHERE SHOWN OTHERWISE  
 N° OFF : 2 (1 OFF AS SHOWN, 1 OFF OPPOSITE HAND)

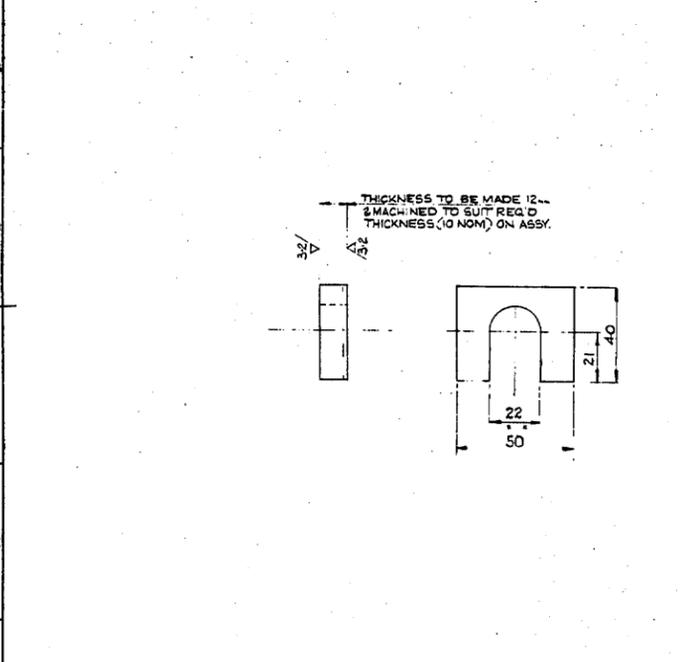
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 20' Carbon Steel
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST ISSUE DATE 31-1-83	FINISH
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	COST ACCOUNT 137	PATT No.
TITLE Tenese Cam			
WEIGHT 0.68kg	SCALE 1/1	UNIT No. TCI 137 16	ISSUE A
No. OFF PER SET			



**APPROVED**  
 No. TCI 137.17 Rev. A  
 Date 21-1-1983 by JZ

**NOTES**  
 MACHINE  $\nabla$  EXCEPT WHERE SHOWN OTHERWISE  
 N° OFF : 2 (1 OFF AS SHOWN, 1 OFF OPPOSITE HAND)

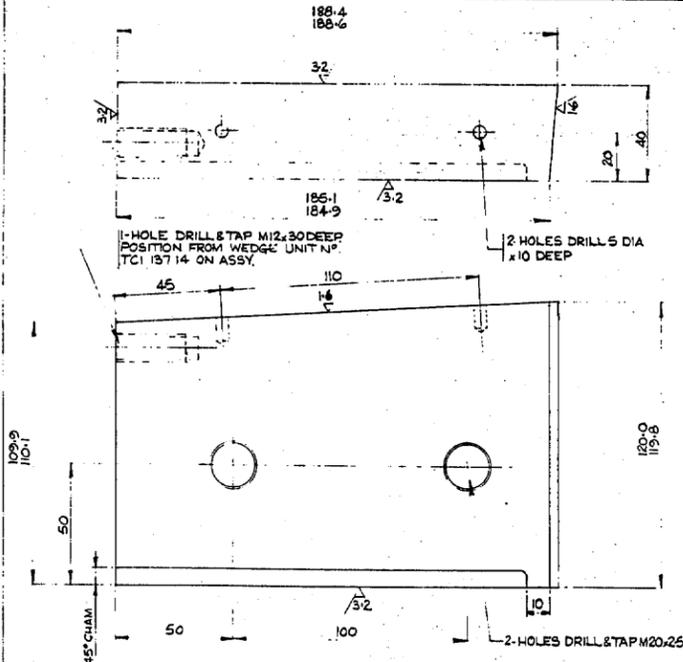
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 20' Carbon Steel
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST ISSUE DATE 31-1-83	FINISH
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	COST ACCOUNT 137	PATT No.
TITLE Step Block			
WEIGHT 0.06kg	SCALE 1/1	UNIT No. TCI 137 17	ISSUE A
No. OFF PER SET			



**APPROVED**  
 No. TCI 137.18 Rev. A  
 Date 21-1-1983 by JZ

**NOTES**  
 THICKNESS TO BE MADE 12mm & MACHINED TO SUIT REQ'D THICKNESS (ON OH) ON ASSY.

DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 20' Carbon Steel
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST ISSUE DATE 31-1-83	FINISH
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	COST ACCOUNT 137	PATT No.
TITLE D' SHIM			
WEIGHT 0.06kg	SCALE 1/1	UNIT No. TCI 137 18	ISSUE A
No. OFF PER SET			



**APPROVED**  
 No. TCI 137.19 Rev. A  
 Date 21-1-1983 by JZ

**NOTES**  
 N° OFF : 2 (1 OFF AS SHOWN, 1 OFF OPPOSITE HAND)

DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 20' Carbon Steel
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST ISSUE DATE 31-1-83	FINISH
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	COST ACCOUNT 137	PATT No.
TITLE STEP BLOCK			
WEIGHT 0.06kg	SCALE 1/1	UNIT No. TCI 137 19	ISSUE A
No. OFF PER SET			

**AS BUILT DRAWINGS**  
 This drawing shows all reasons to the work (C)

