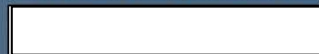


CTV BUILDING

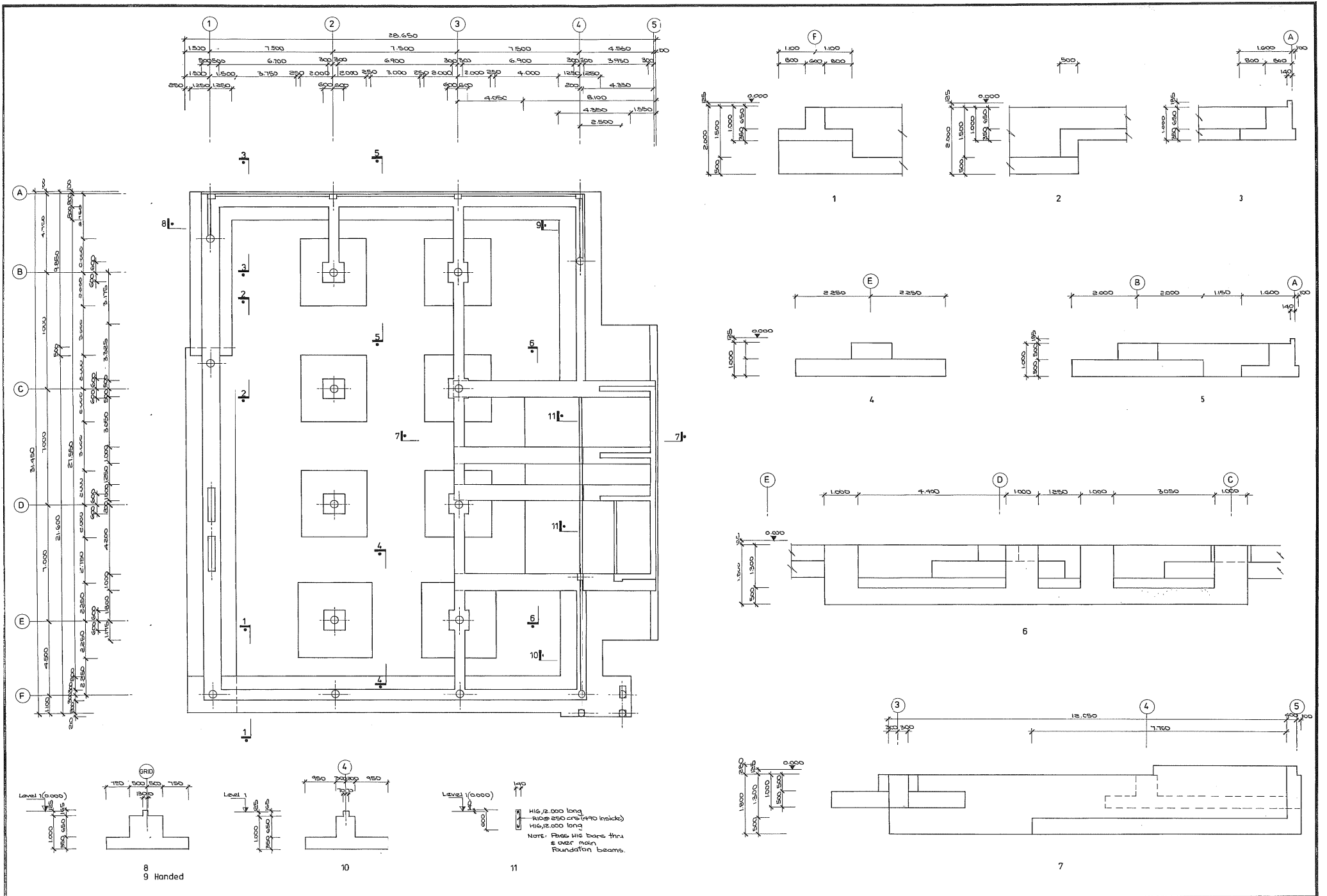
CTV BUILDING COLLAPSE INVESTIGATION
FOR DEPARTMENT OF BUILDING AND HOUSING



Appendix K

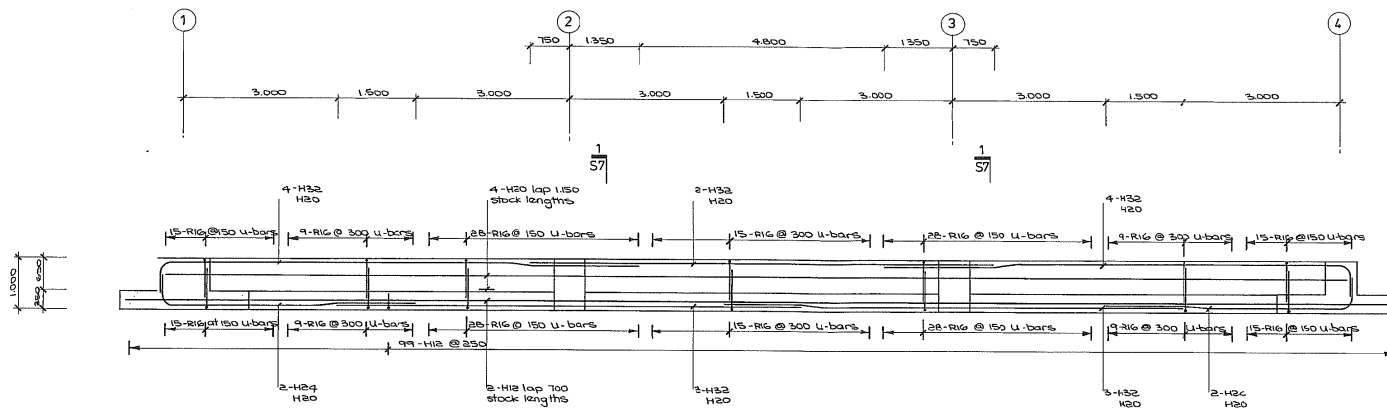
Structural Drawings

CTV Building
249 Madras Street
Christchurch

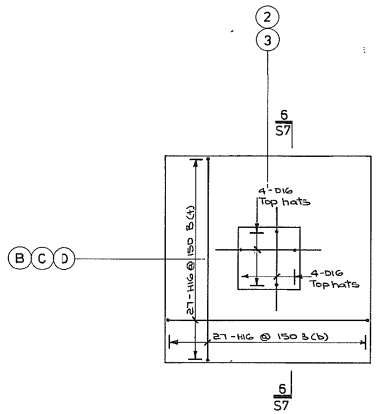


APPROVED	DATE	SCALE	FOUNDATION LAYOUT	SHEET	FILE
	AUG 1988	1:100 1:50		S2	

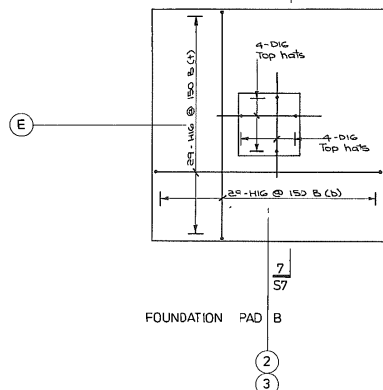
Note
 Allow to cast into foundations
 all starters for columns & walls
 shown on Drawg 510-514 and
 blockwork starters on Drawg 517.



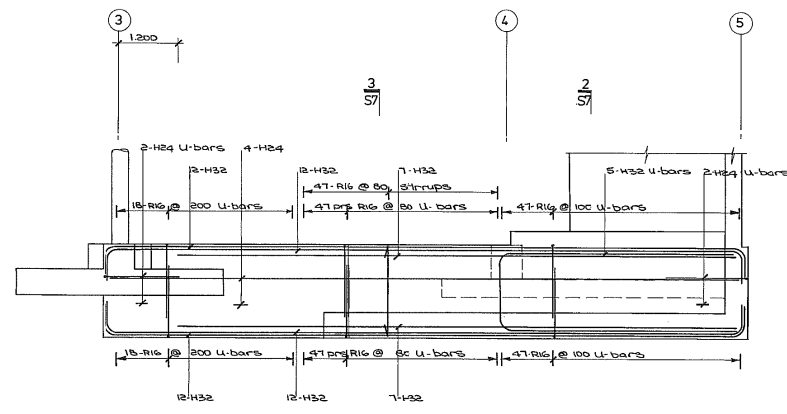
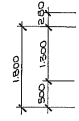
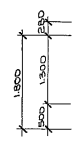
FOUNDATION BEAM LINE A



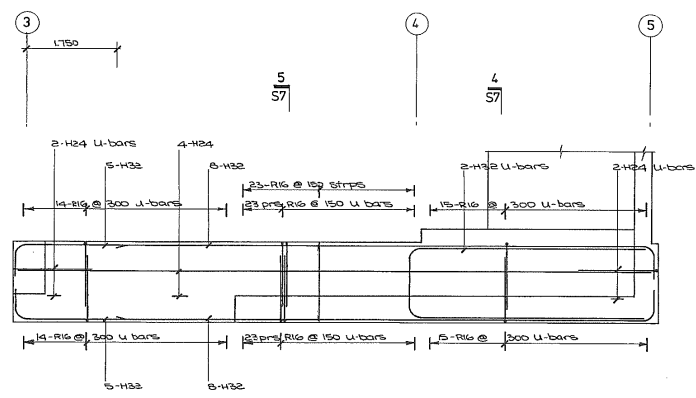
FOUNDATION PAD A



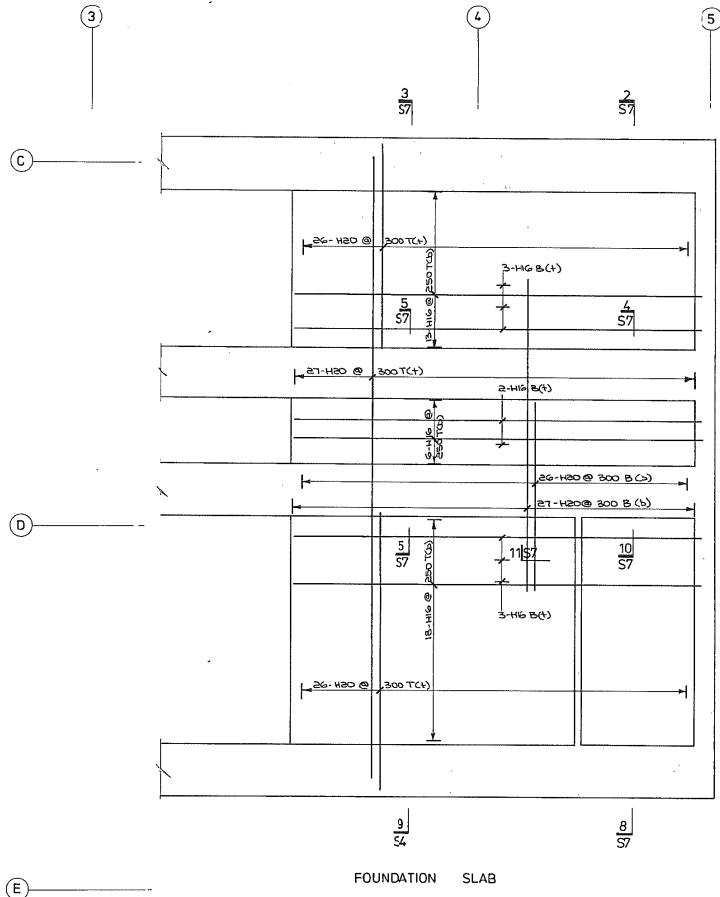
FOUNDATION PAD B



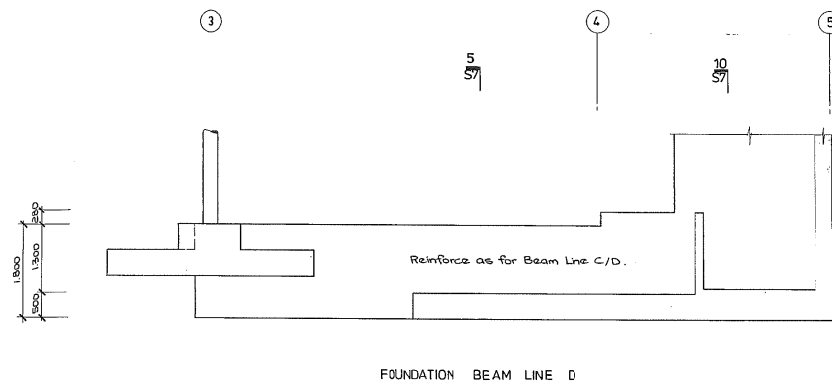
FOUNDATION BEAM LINE C



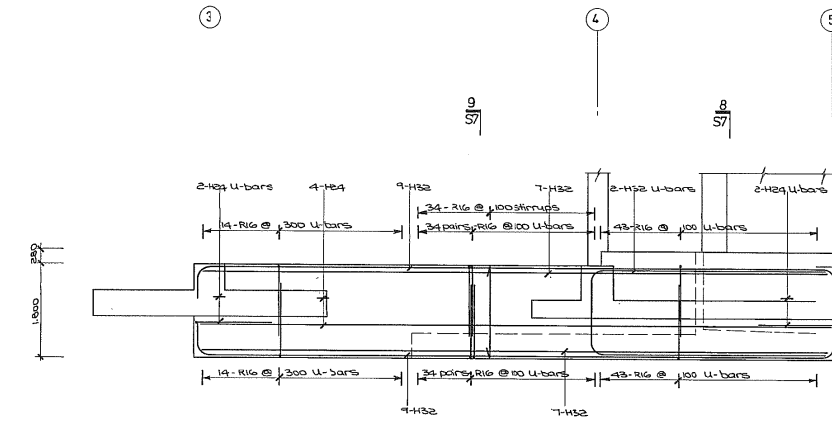
FOUNDATION BEAM LINE C/D



FOUNDATION SLAB

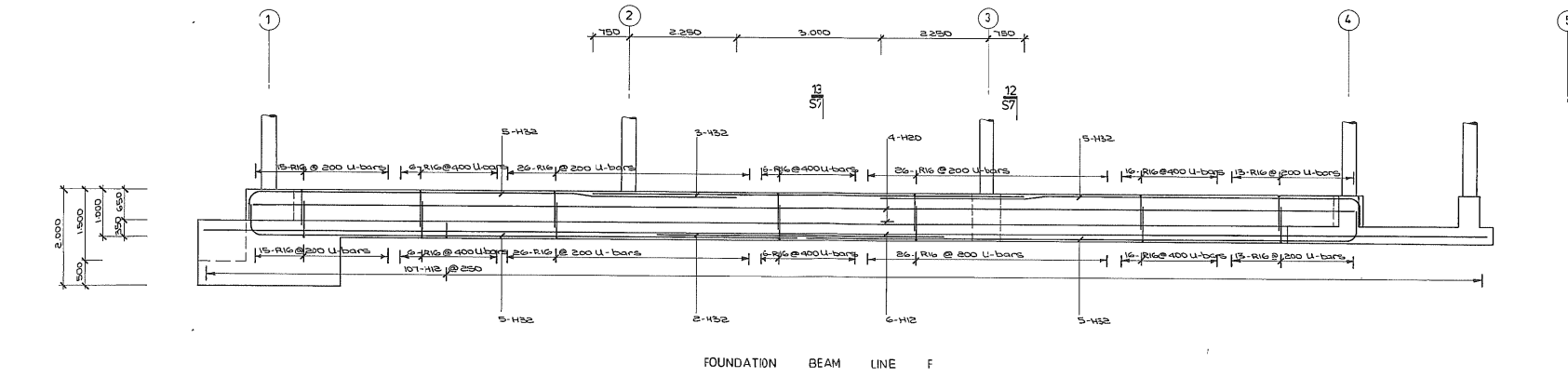


FOUNDATION BEAM LINE D

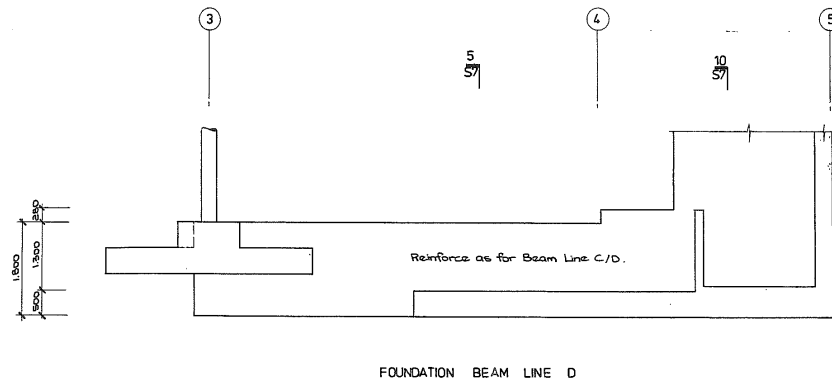
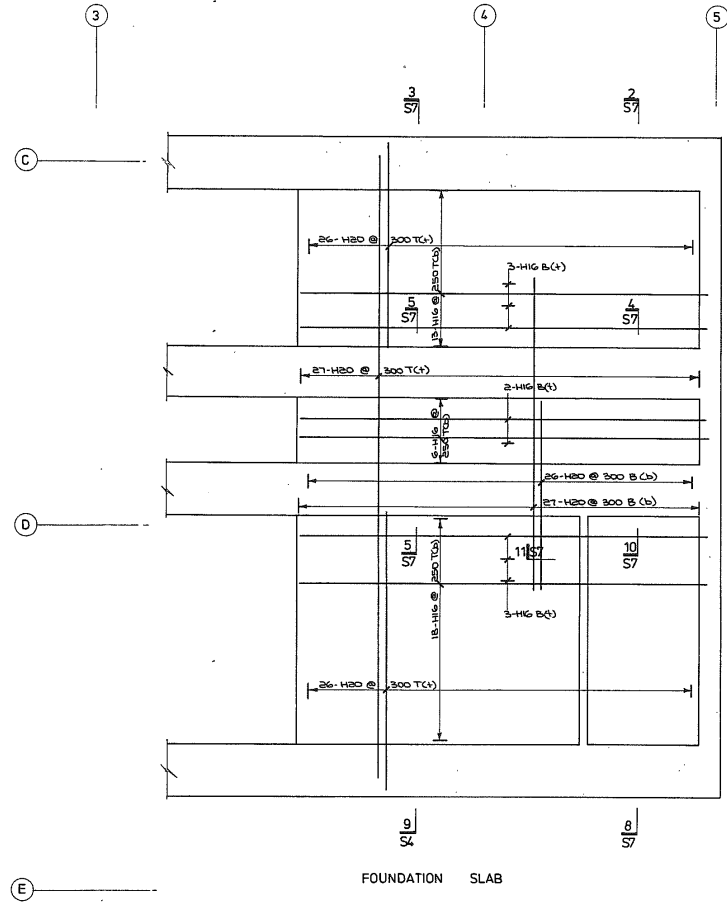


FOUNDATION BEAM LINE D/E

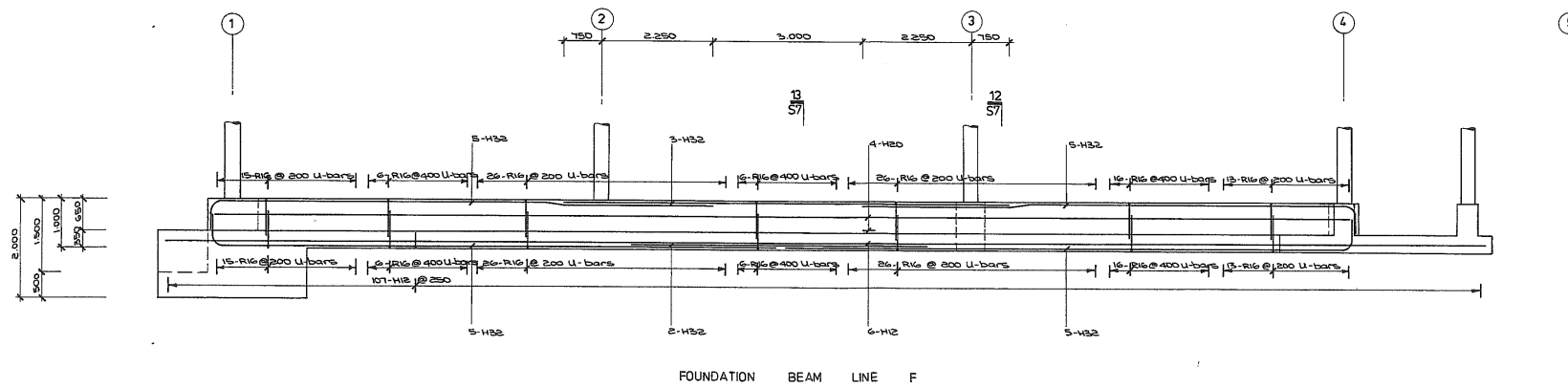
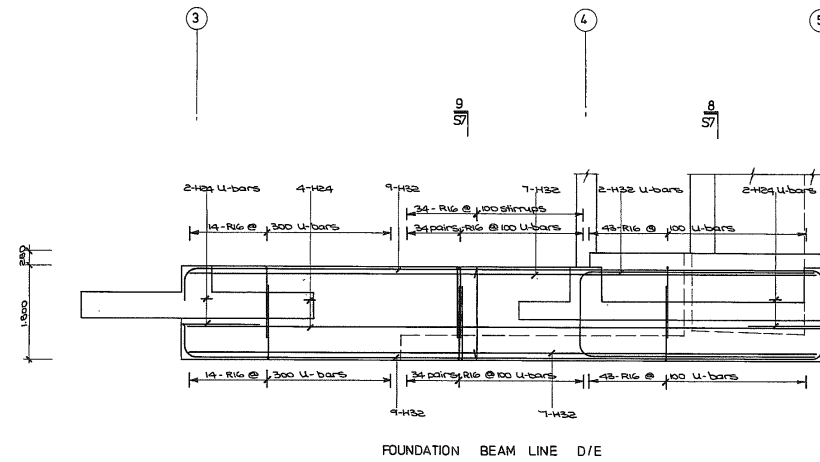
Note:
 Allow to cast into foundations.
 all starters for columns & walls
 shown on Dwg 510 - 516 and
 blockwork starters on Dwg 517.



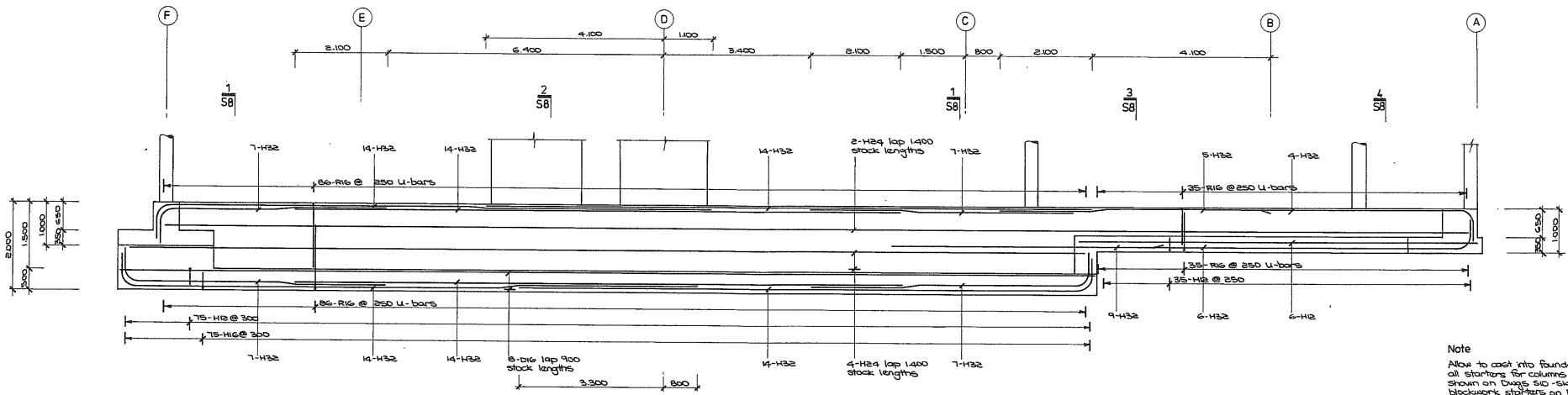
FOUNDATION BEAM LINE F



Note
 Allow to cast into foundations
 all starters for columns & walls
 shown on Dwg 510-514 and
 blockwork starters on Dwg 517.

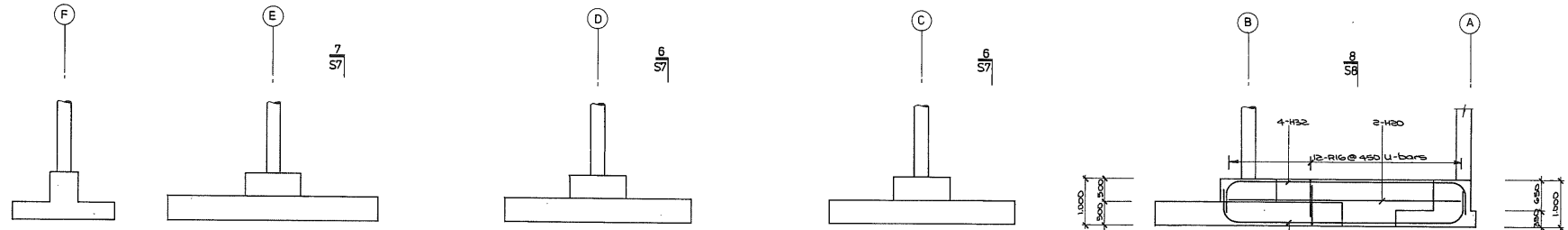


APPROVED	DATE	SCALE	SHEET	T/B
	AUG 1986	1:50	FOUNDATION REINFORCING	S4



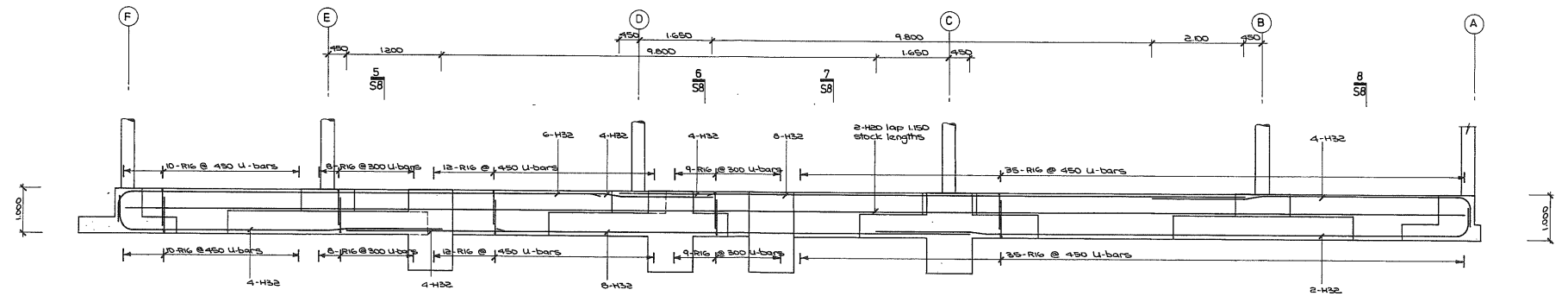
FOUNDATION BEAM LINE 1

Note
 Allow to cast into foundations
 all starters for columns & walls
 shown on Drawg S10-S14 and
 blockwork starters on Drawg S7.



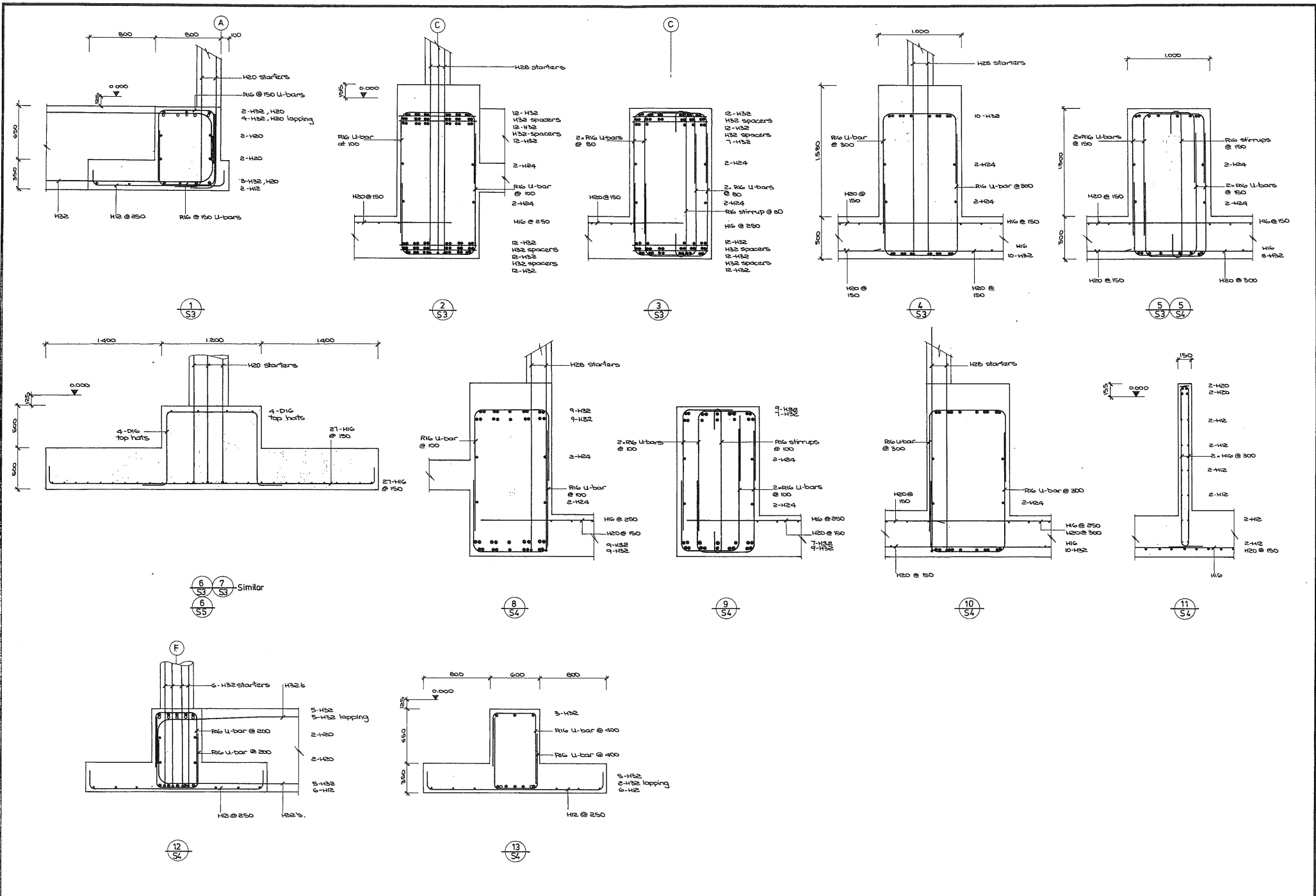
FOUNDATIONS LINE 2

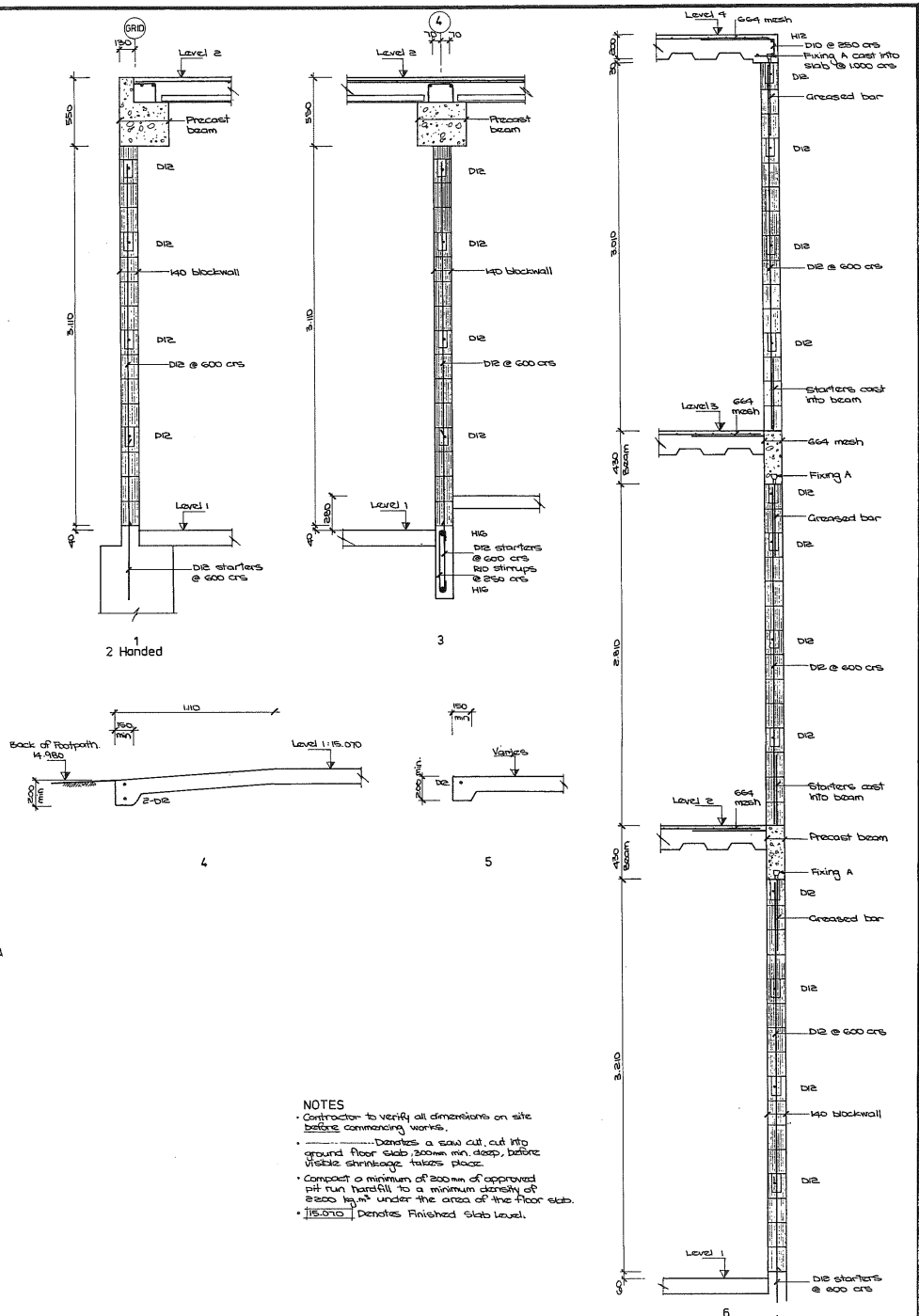
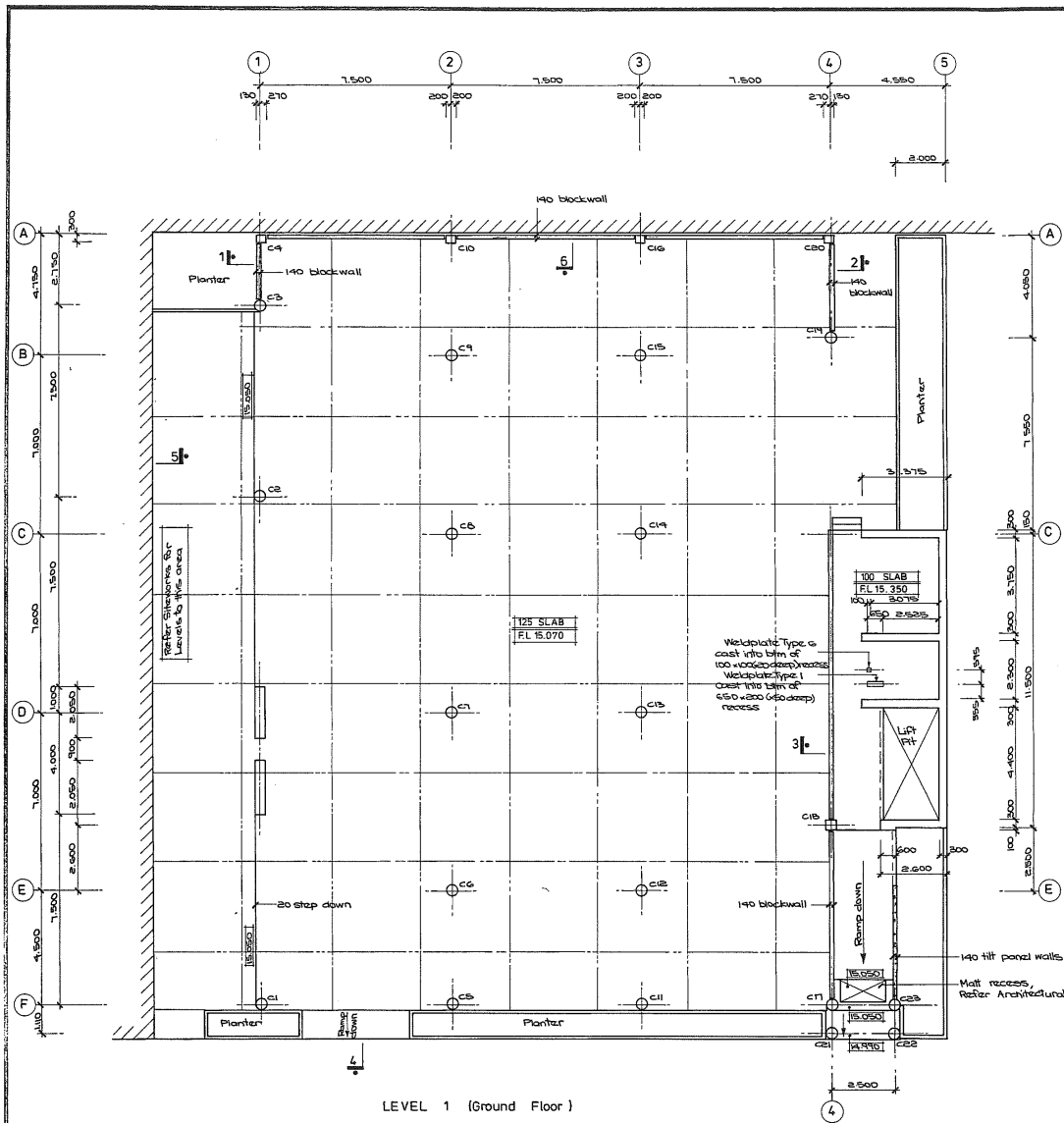
FOUNDATION BEAM LINE 2



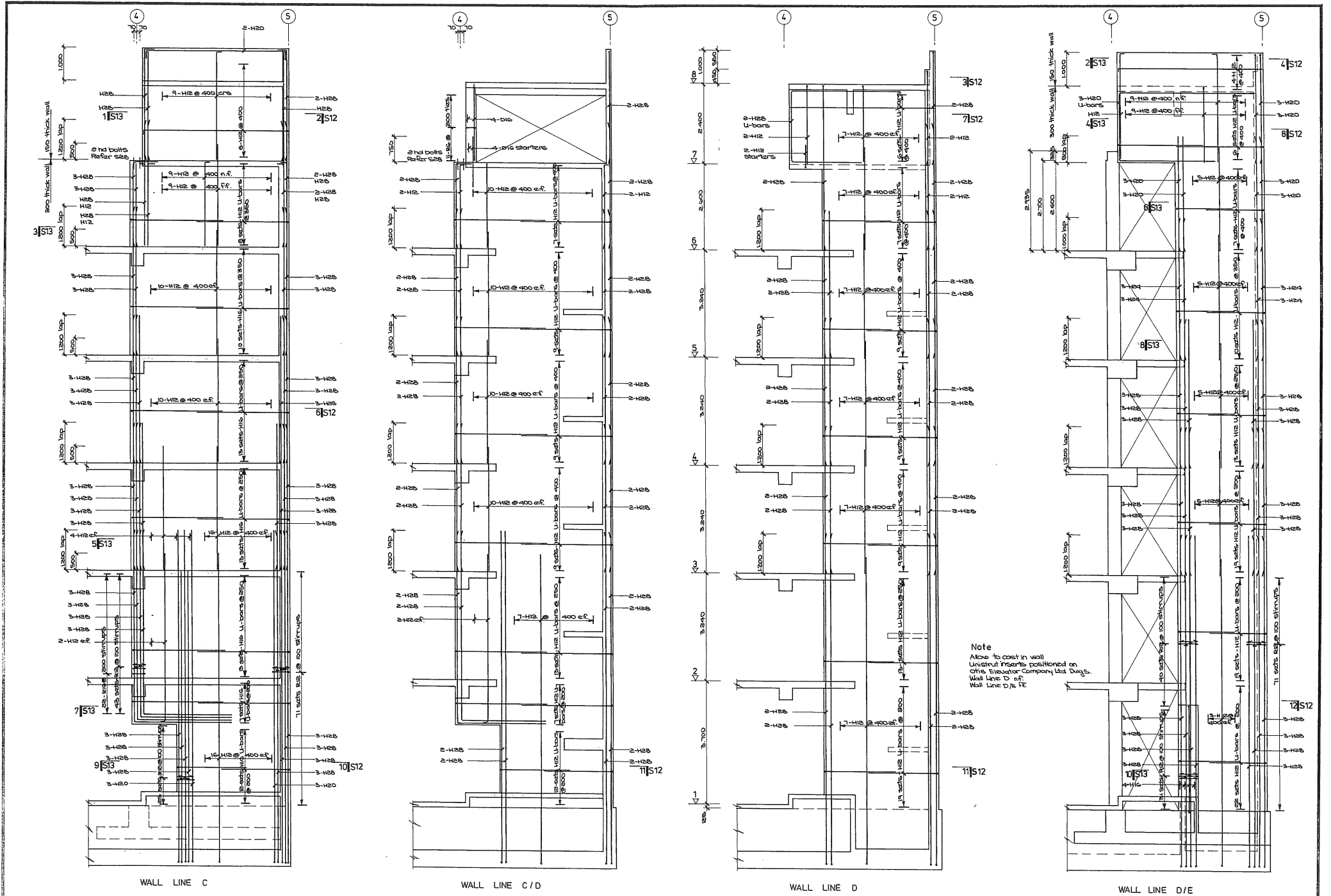
FOUNDATION BEAM LINE 3

APPROVED	DATE	SCALES	SHEET	FILE
	AUG 1986	1:50	FOUNDATION REINFORCING	S5





- NOTES
- Contractor to verify all dimensions on site before commencing works.
 - Denotes a saw cut, cut into ground floor slab, 200mm min. deep, before visible shrinkage takes place.
 - Composit a minimum of 200mm of approved pit run material to a minimum density of 2500 kg/m³ under the area of the floor slab.
 - 15.070 Denotes Finished Slab Level.

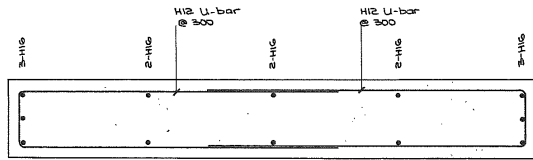


WALL LINE C

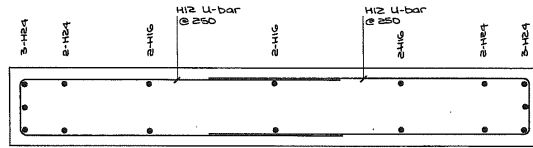
WALL LINE C/D

WALL LINE D

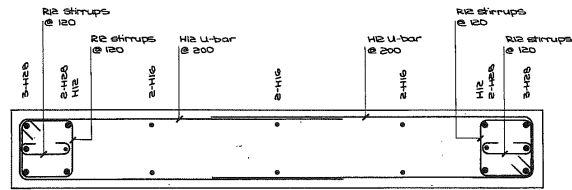
WALL LINE D/E



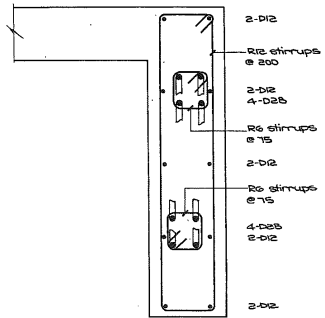
1 WALL LINE 1



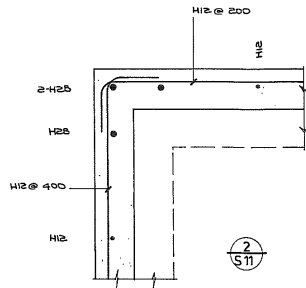
5 WALL LINE 1



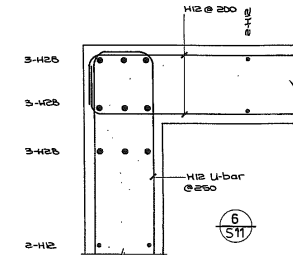
9 WALL LINE 1



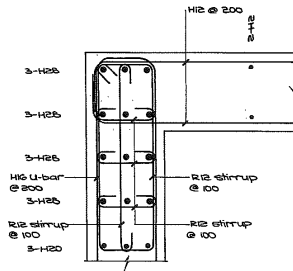
13 WALL LINE 1



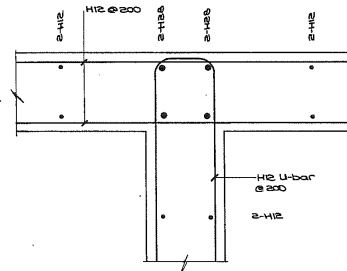
2 S11



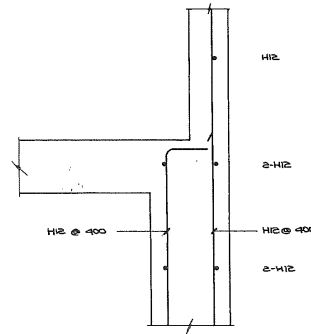
6 S11



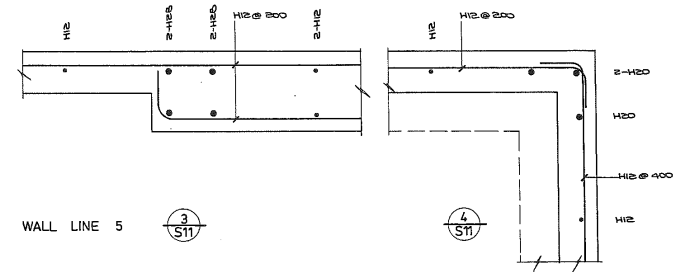
10 S11



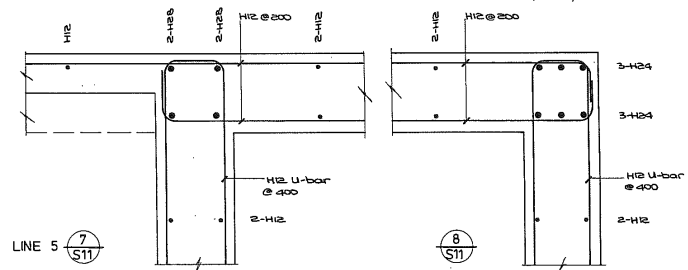
11 S11



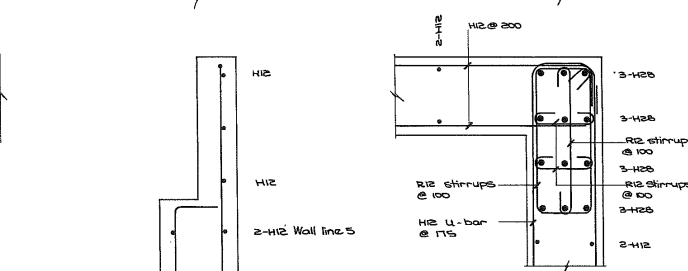
14 S10



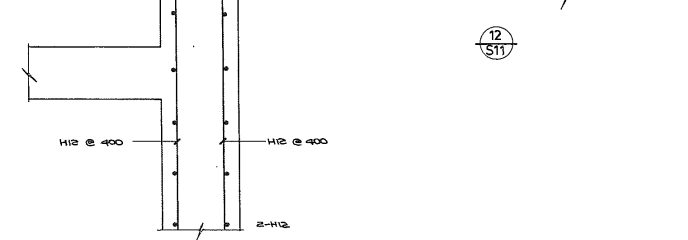
3 S11



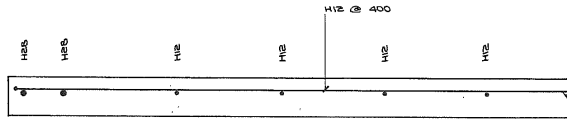
8 S11



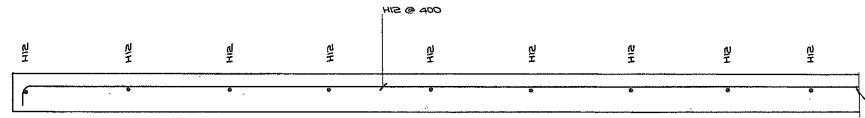
12 S11



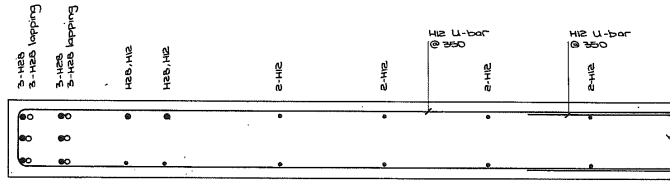
15 S10



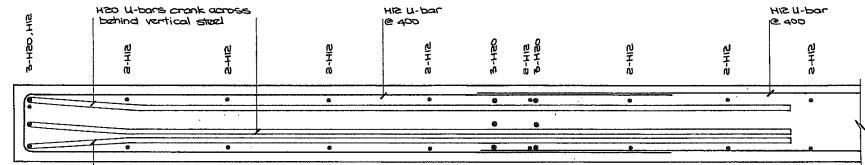
1
S11



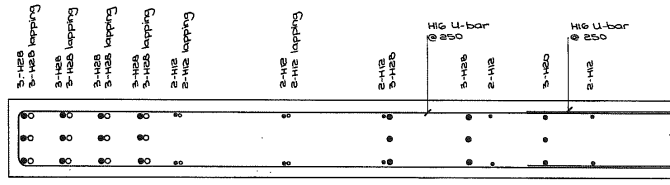
2
S11



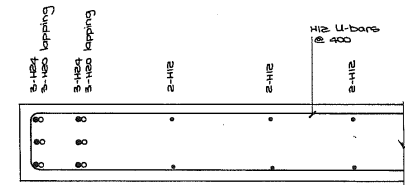
3
S11



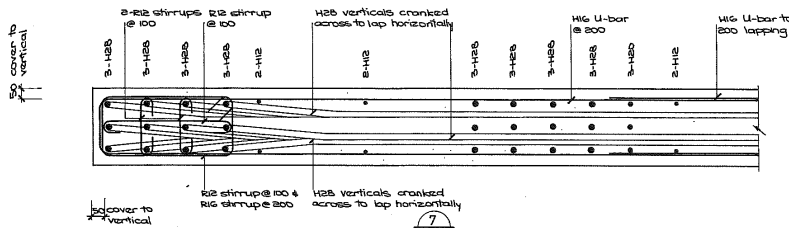
4
S11



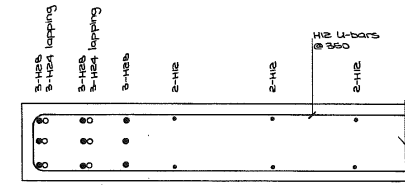
5
S11



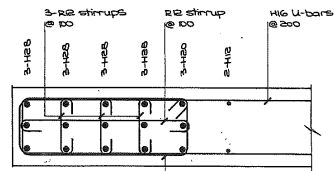
6
S11



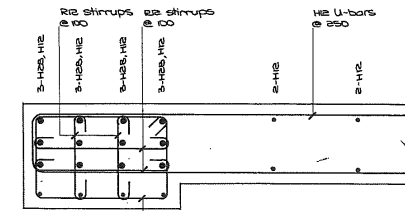
7
S11



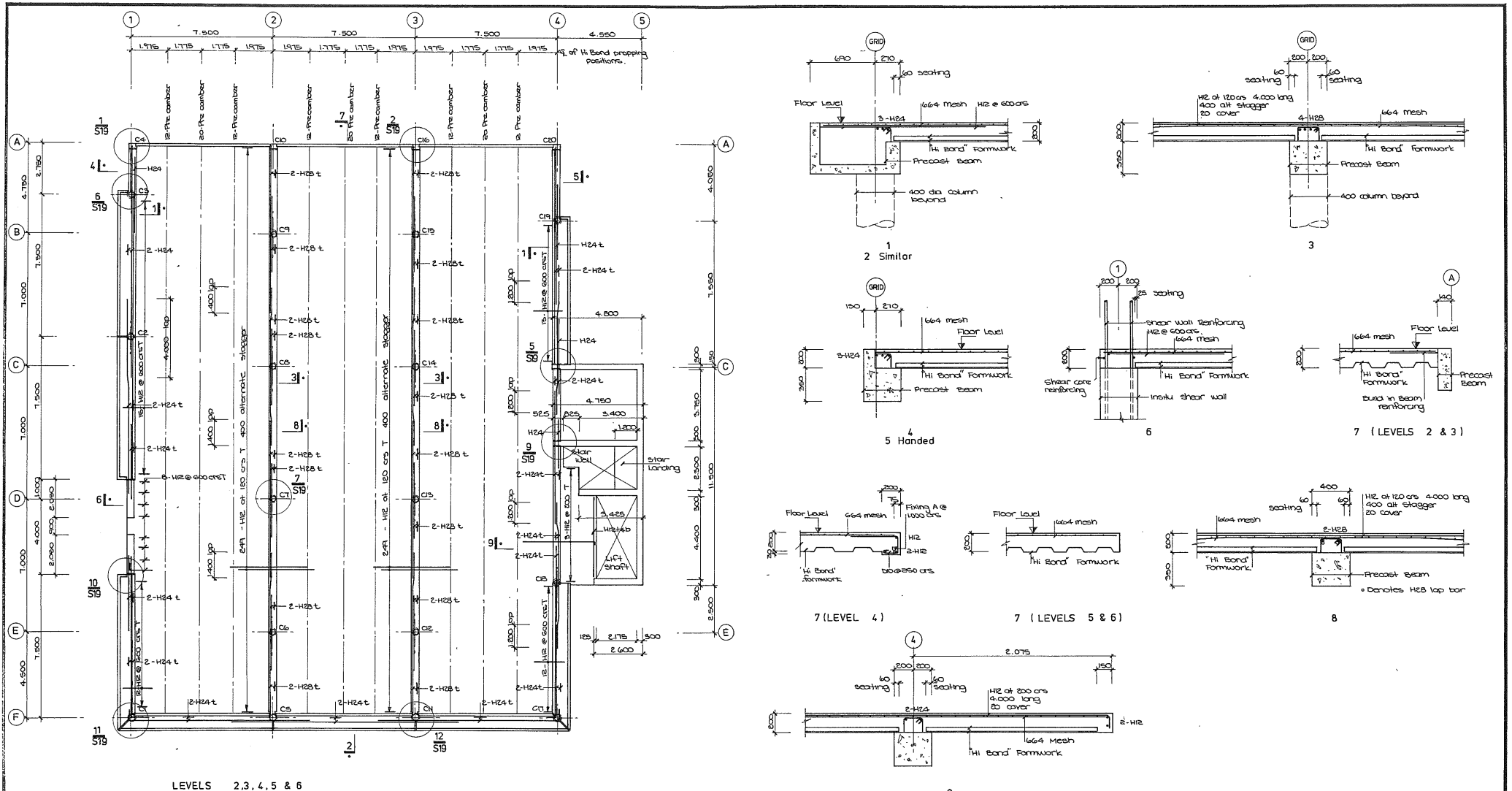
8
S11



9
S11



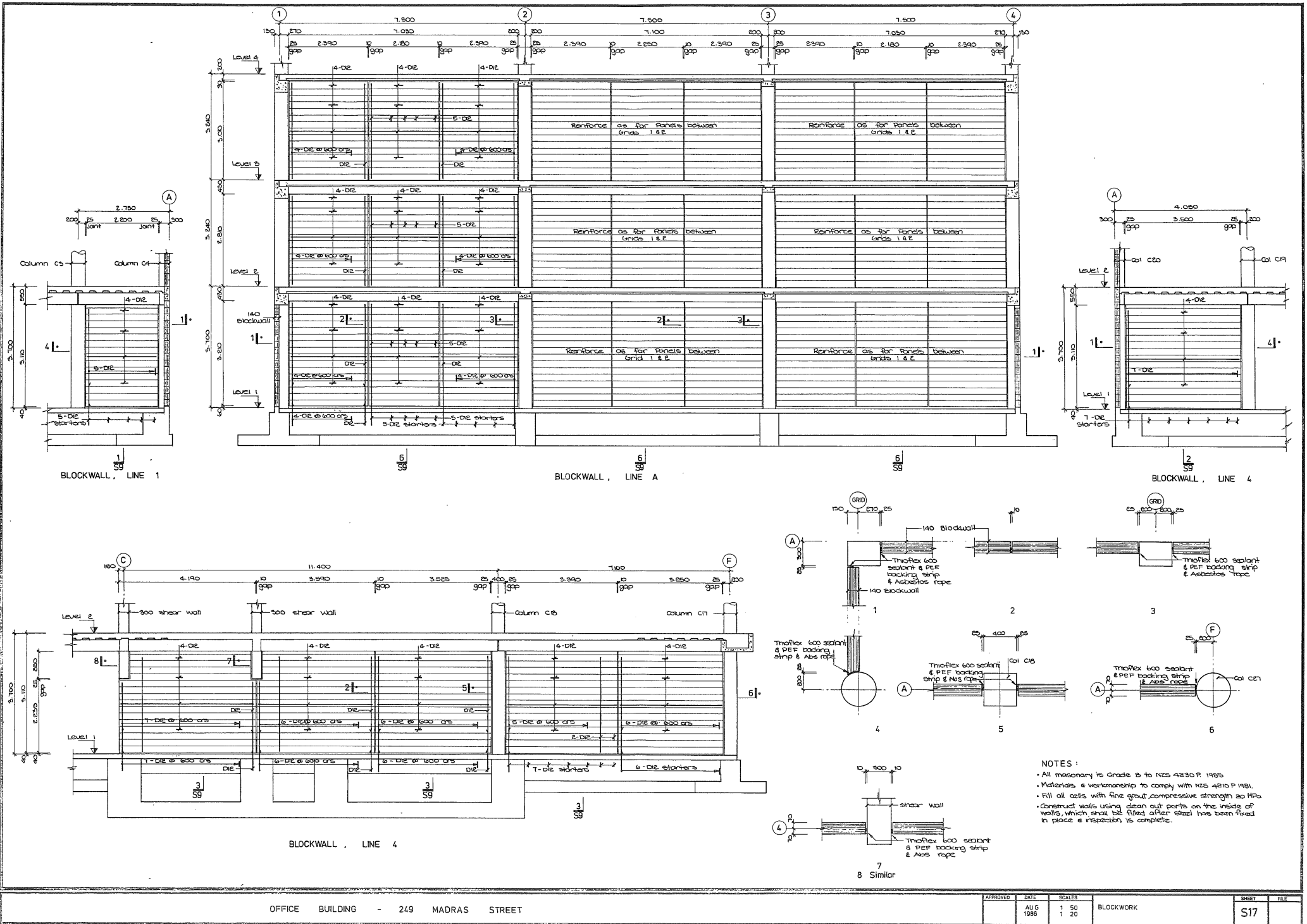
10
S11



LEVELS 2, 3, 4, 5 & 6

- NOTES:
- Contractor to verify all dimensions on site before commencing work.
 - Reinforce slab with 1 layer of 664 mesh throughout, 30 mm top cover.
 - Refer sheet S16 for shear core floor slab & stair landing.
 - T Denotes top bar with 80 mm top cover
 - + Denotes top bar with 52 mm top cover
 - B Denotes bottom bar with 30 mm bottom cover
 - ↳ Denotes bottom bar with 42 mm bottom cover.
 - Refer to spanned sheet for location of fixing B's to be cast into topping slab to accept spancrete panels.
 - 664 mesh should be dropped down to 20mm above 'Hi Bond' formwork at mid span.

APPROVED	DATE	SCALES	SHEET	FILE
	AUG 1986	1:100 1:10	LEVELS 2 - 6	S15



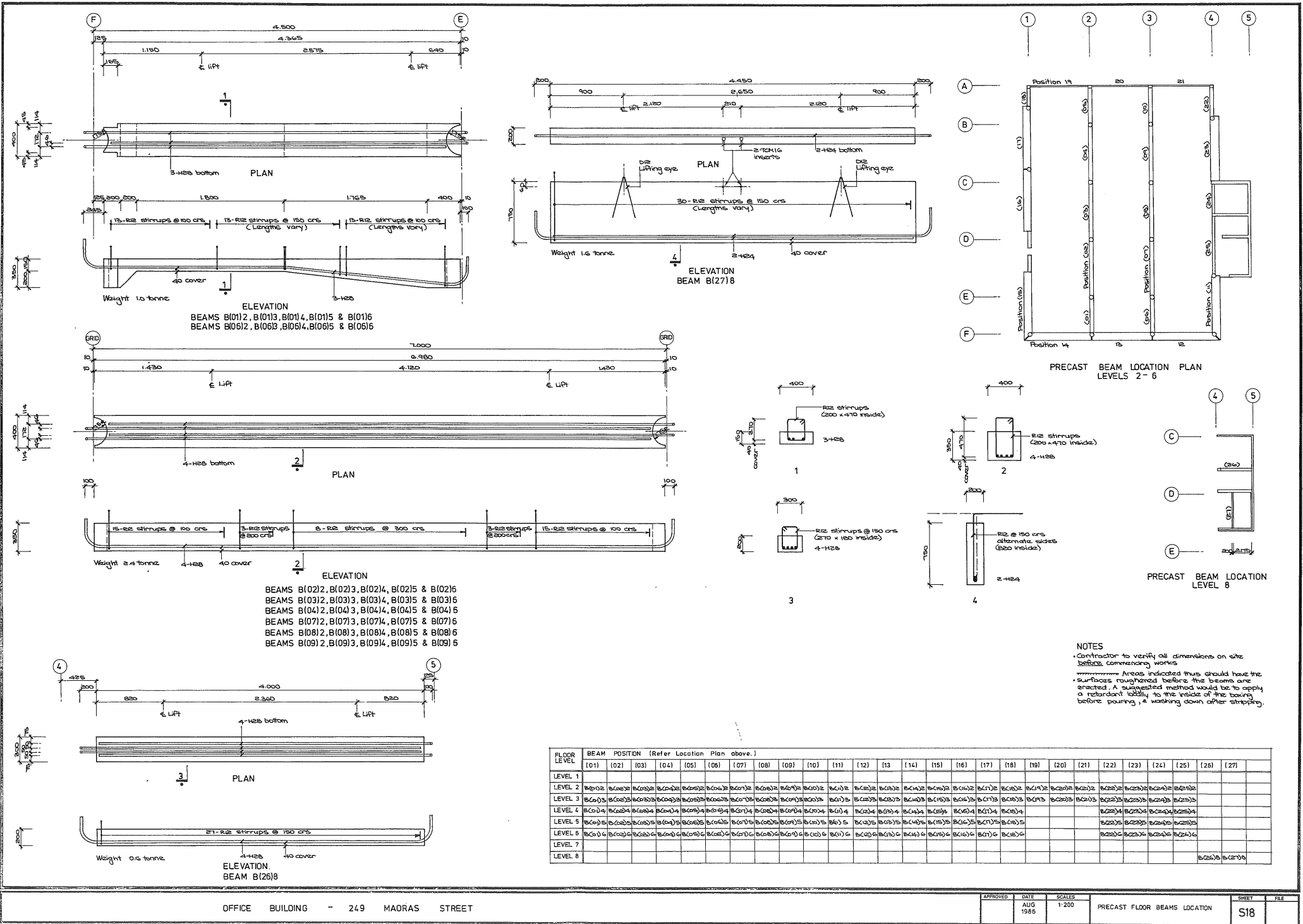
BLOCKWALL, LINE 1

BLOCKWALL, LINE A

BLOCKWALL, LINE 4

BLOCKWALL, LINE 4

- NOTES:
- All masonry is grade B to NZS 4230 P 1985
 - Materials & workmanship to comply with NZS 4210 P 1981
 - Fill all cells with fine grout, compressive strength 20 MPa
 - Construct walls using clean out ports on the inside of walls, which shall be filled after steel has been fixed in place & inspection is complete.



ELEVATION BEAMS B(01)2, B(01)3, B(01)4, B(01)5 & B(01)6
BEAMS B(0)2, B(0)3, B(0)4, B(0)5 & B(0)6

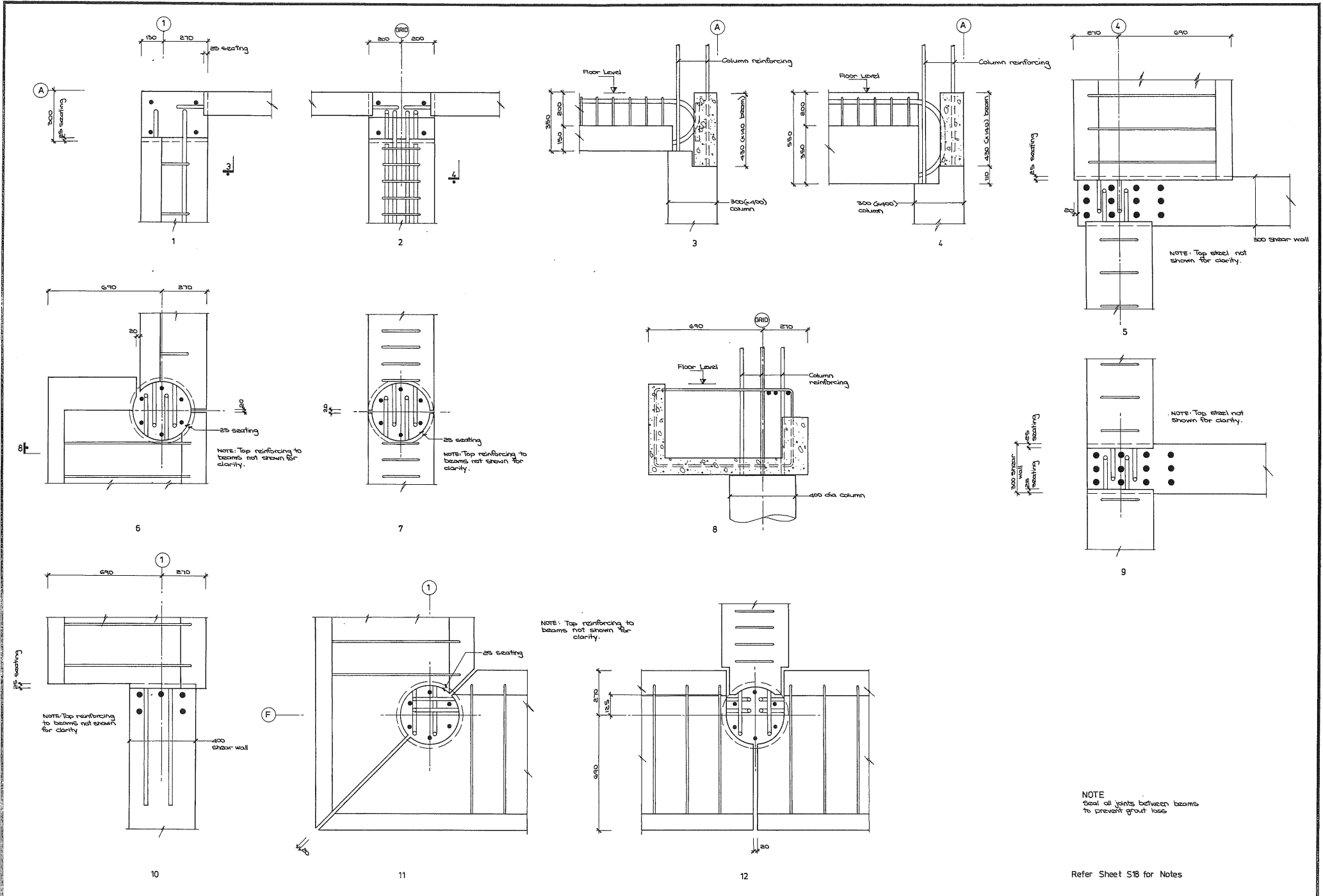
BEAMS B(0)2, B(0)3, B(0)4, B(0)5 & B(0)6
BEAMS B(03)2, B(03)3, B(03)4, B(03)5 & B(03)6
BEAMS B(04)2, B(04)3, B(04)4, B(04)5 & B(04)6
BEAMS B(07)2, B(07)3, B(07)4, B(07)5 & B(07)6
BEAMS B(08)2, B(08)3, B(08)4, B(08)5 & B(08)6
BEAMS B(09)2, B(09)3, B(09)4, B(09)5 & B(09)6

PRECAST BEAM LOCATION PLAN LEVELS 2 - 6

PRECAST BEAM LOCATION LEVEL 8

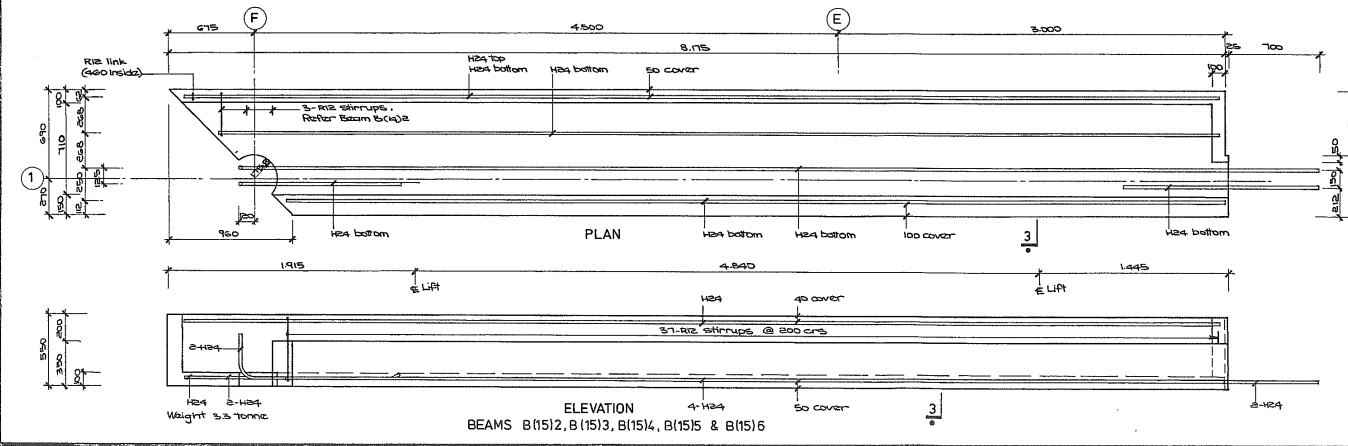
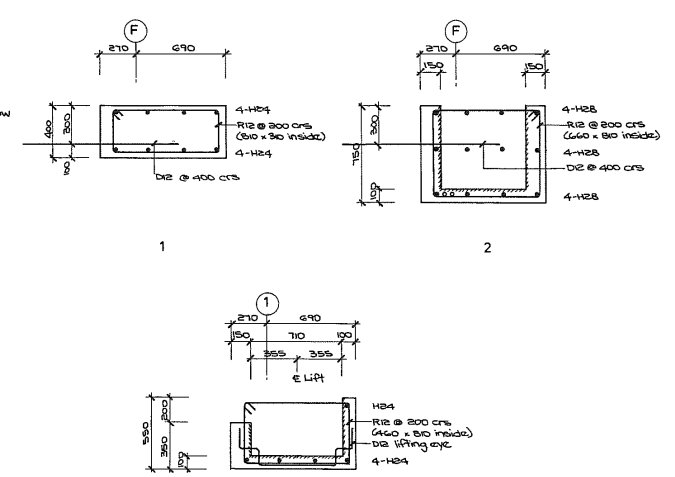
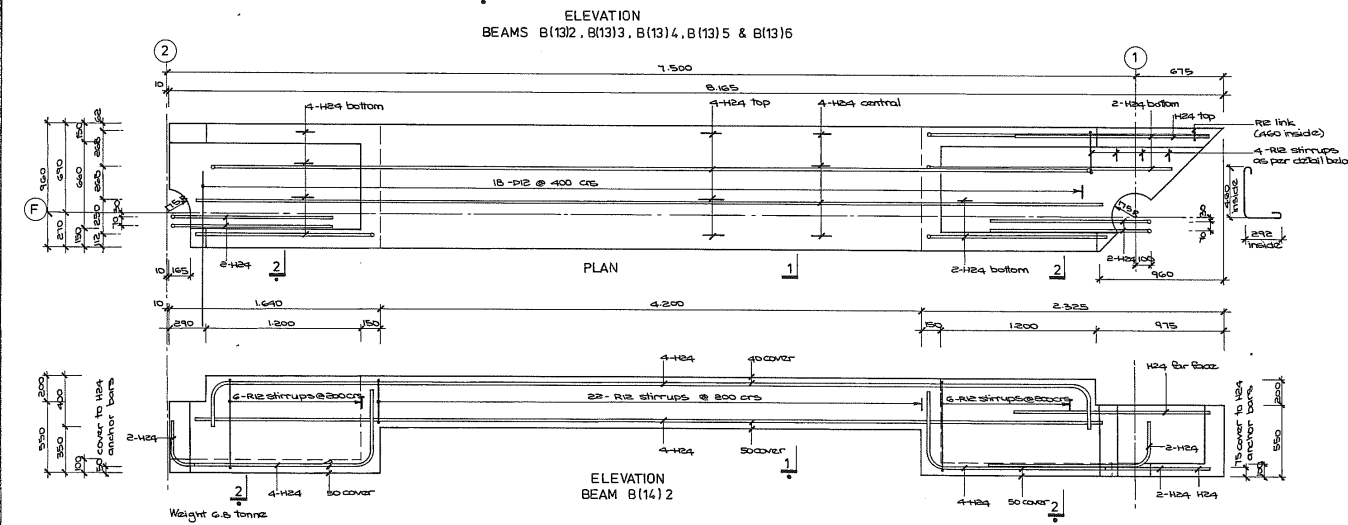
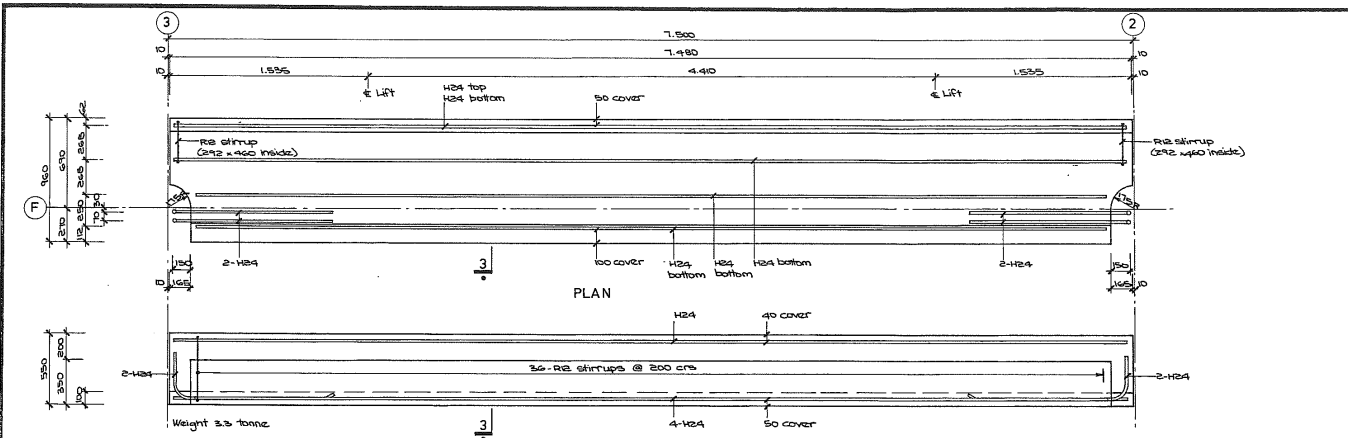
NOTES
 Contractor to verify all dimensions on site before commencing works
 Areas indicated thus should have the surfaces roughened before the beams are erected. A suggested method would be to apply a retardant locally to the inside of the boxing before pouring, & washing down after stripping.

FLOOR LEVEL	BEAM POSITION (Refer Location Plan above.)																											
	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	
LEVEL 1																												
LEVEL 2	B(0)2	B(0)3	B(0)4	B(0)5	B(0)6	B(0)7	B(0)8	B(0)9	B(0)10	B(0)11	B(0)12	B(0)13	B(0)14	B(0)15	B(0)16	B(0)17	B(0)18	B(0)19	B(0)20	B(0)21	B(0)22	B(0)23	B(0)24	B(0)25	B(0)26	B(0)27		
LEVEL 3	B(0)2	B(0)3	B(0)4	B(0)5	B(0)6	B(0)7	B(0)8	B(0)9	B(0)10	B(0)11	B(0)12	B(0)13	B(0)14	B(0)15	B(0)16	B(0)17	B(0)18	B(0)19	B(0)20	B(0)21	B(0)22	B(0)23	B(0)24	B(0)25	B(0)26	B(0)27		
LEVEL 4	B(0)2	B(0)3	B(0)4	B(0)5	B(0)6	B(0)7	B(0)8	B(0)9	B(0)10	B(0)11	B(0)12	B(0)13	B(0)14	B(0)15	B(0)16	B(0)17	B(0)18	B(0)19	B(0)20	B(0)21	B(0)22	B(0)23	B(0)24	B(0)25	B(0)26	B(0)27		
LEVEL 5	B(0)2	B(0)3	B(0)4	B(0)5	B(0)6	B(0)7	B(0)8	B(0)9	B(0)10	B(0)11	B(0)12	B(0)13	B(0)14	B(0)15	B(0)16	B(0)17	B(0)18	B(0)19	B(0)20	B(0)21	B(0)22	B(0)23	B(0)24	B(0)25	B(0)26	B(0)27		
LEVEL 6	B(0)2	B(0)3	B(0)4	B(0)5	B(0)6	B(0)7	B(0)8	B(0)9	B(0)10	B(0)11	B(0)12	B(0)13	B(0)14	B(0)15	B(0)16	B(0)17	B(0)18	B(0)19	B(0)20	B(0)21	B(0)22	B(0)23	B(0)24	B(0)25	B(0)26	B(0)27		
LEVEL 7																												
LEVEL 8																											B(0)26	B(0)27



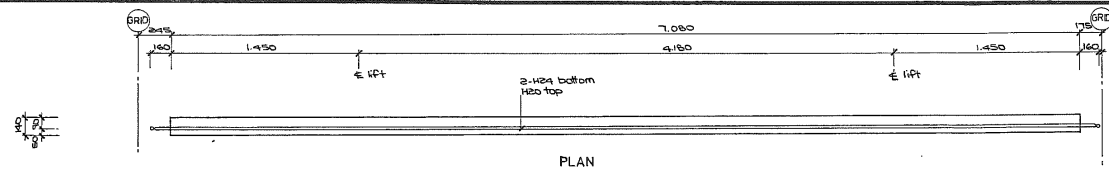
Refer Sheet S1B for Notes

APPROVED	DATE	SCALE	SHEET	FILE
	AUG 1986	1:10	BEAM / COLUMN JOINTS	S19

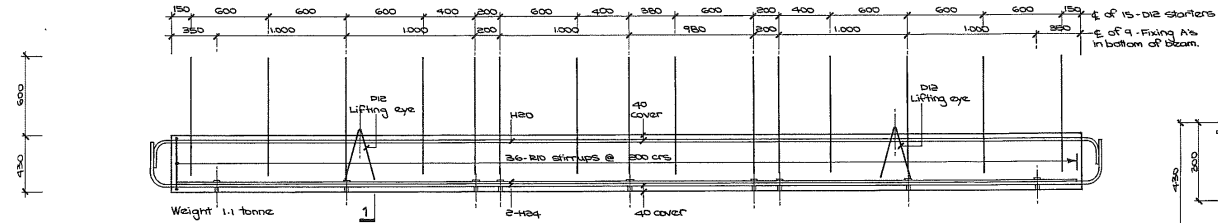


Refer Sheet S18 for Notes

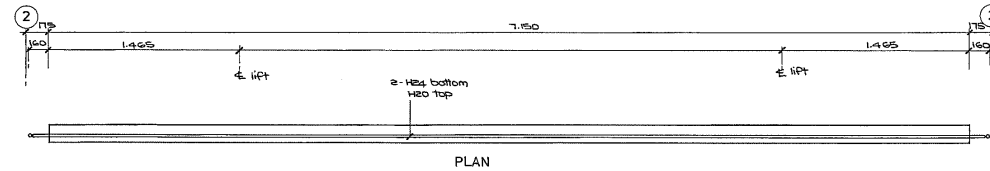
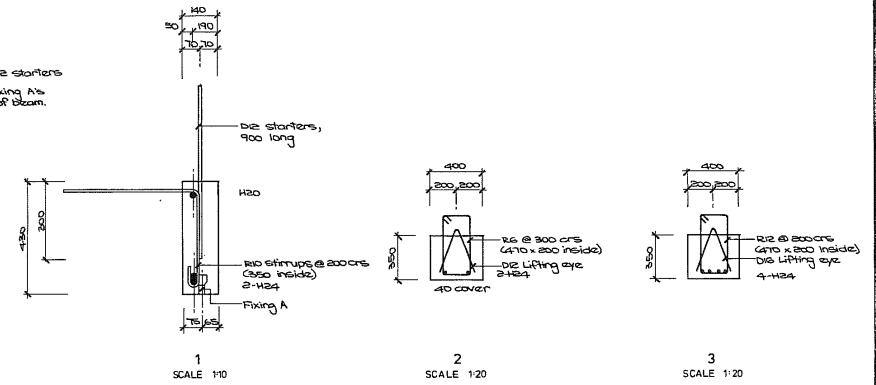
APPROVED	DATE	SCALE	TITLE	SHEET	FILE
	AUG 1986	1:20	PRECAST FLOOR BEAMS	S21	



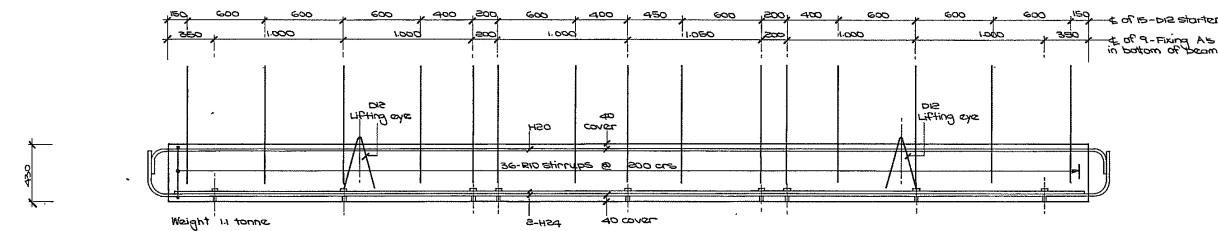
PLAN



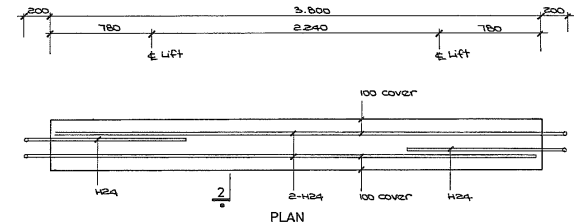
ELEVATION
BEAMS B(19)2 & B(19)3
BEAMS B(21)2 & B(21)3



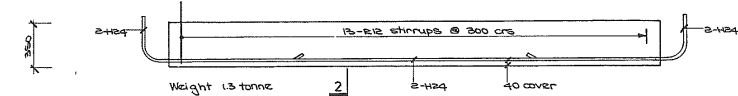
PLAN



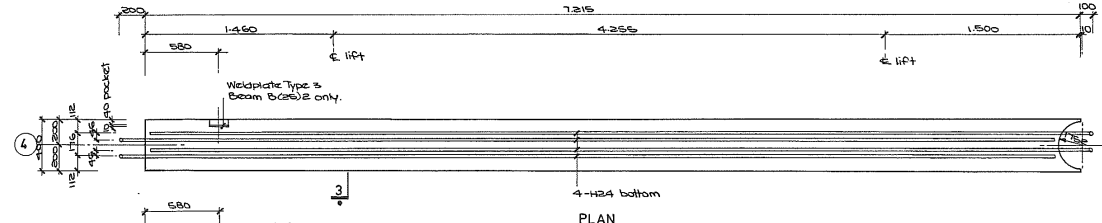
ELEVATION
BEAMS B(20)2 & B(20)3



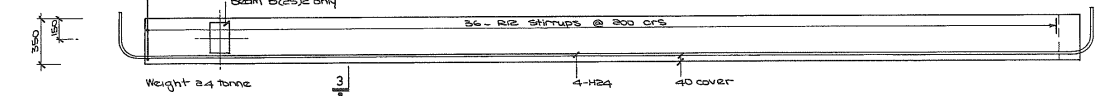
PLAN



ELEVATION
BEAMS B(24)2, B(24)3, B(24)4, B(24)5 & B(24)6



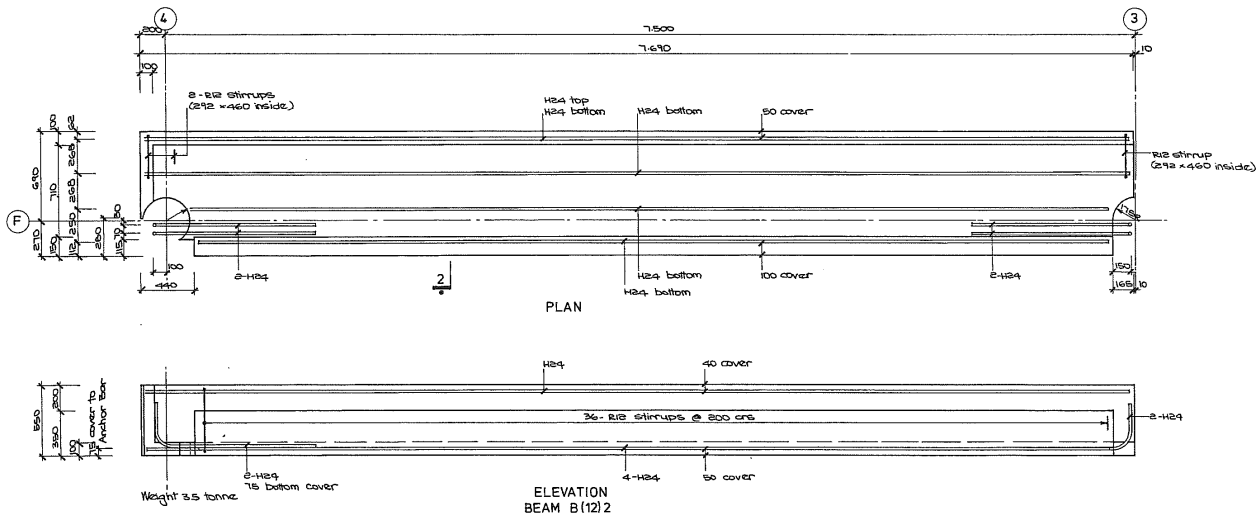
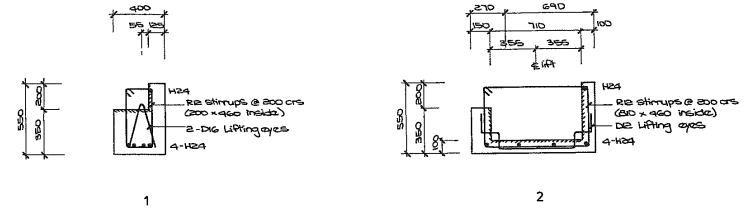
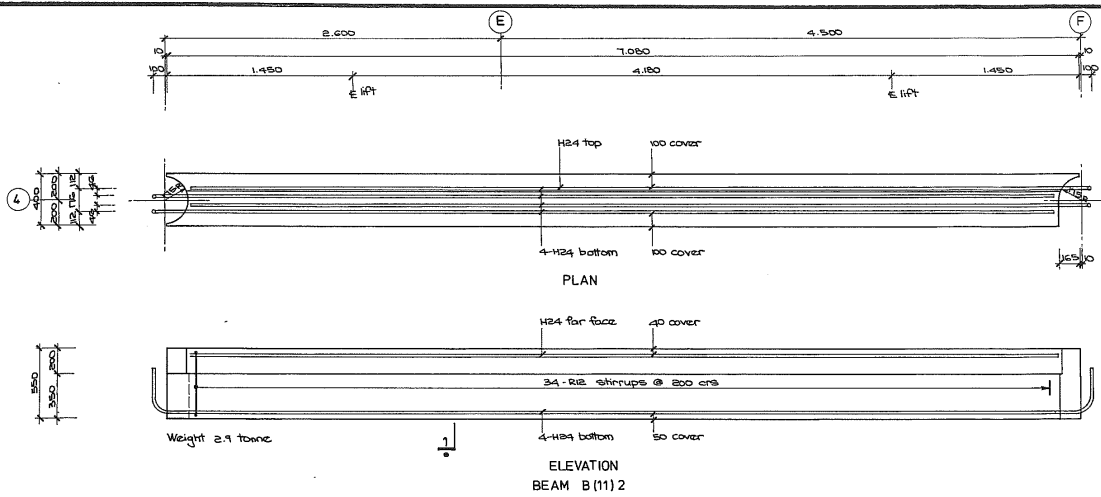
PLAN



ELEVATION
BEAMS B(25)2, B(25)3, B(25)4, B(25)5 & B(25)6

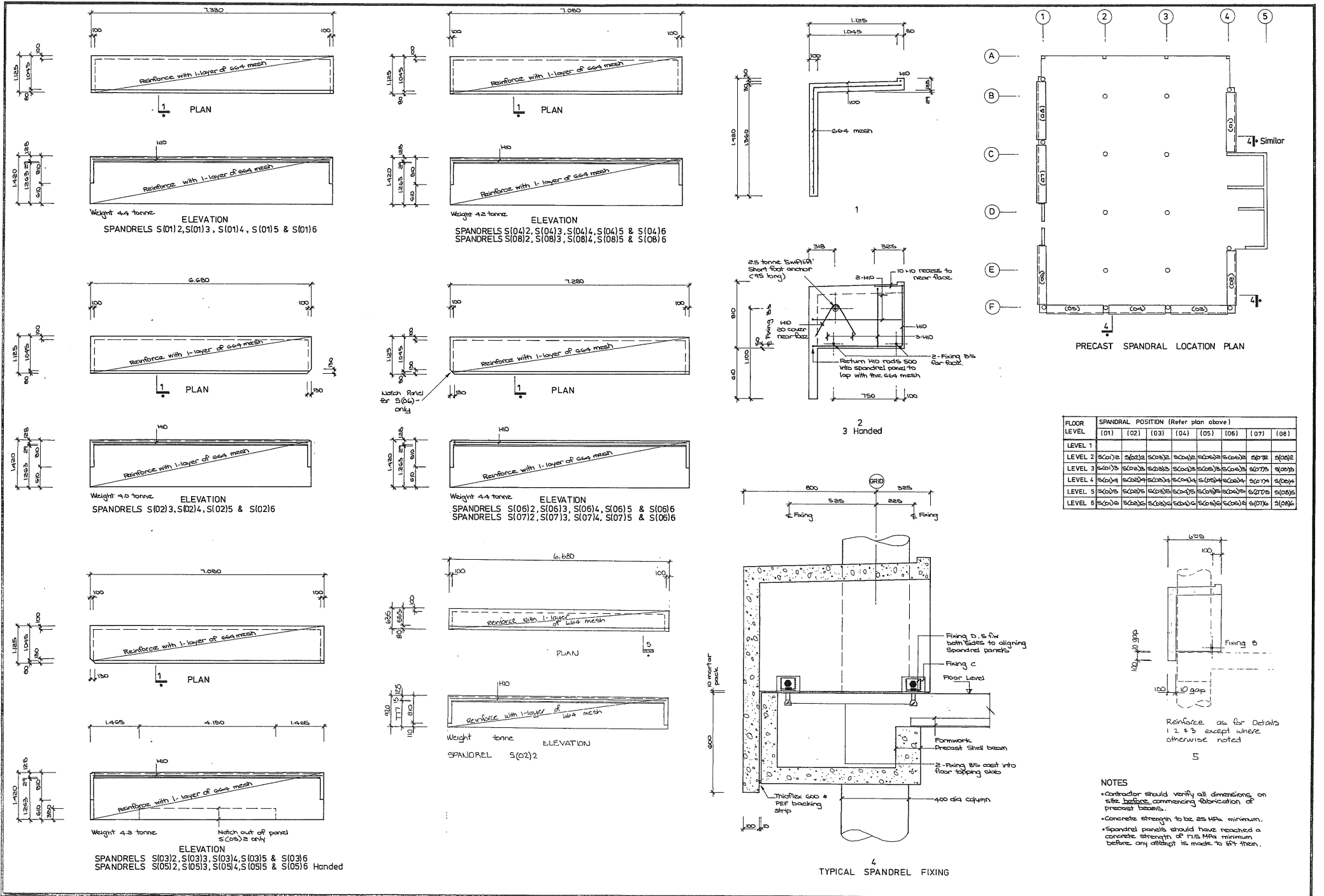
Refer Sheet S18 for Notes

APPROVED	DATE	SCALE	SHEET	FILE
	AUG 1986	1:20 1:10	PRECAST FLOOR BEAMS	S23



Refer Sheet S18 for Notes

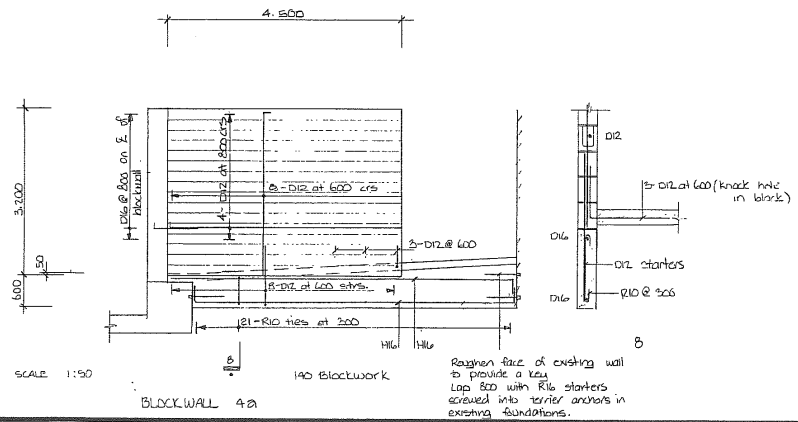
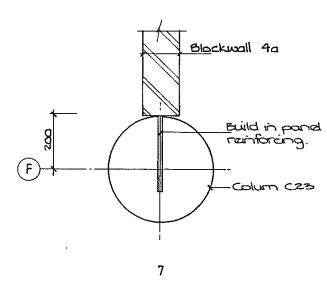
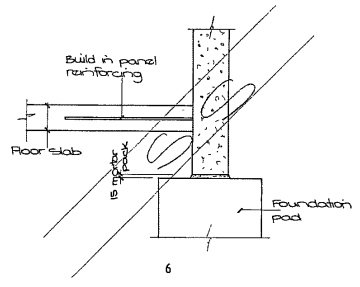
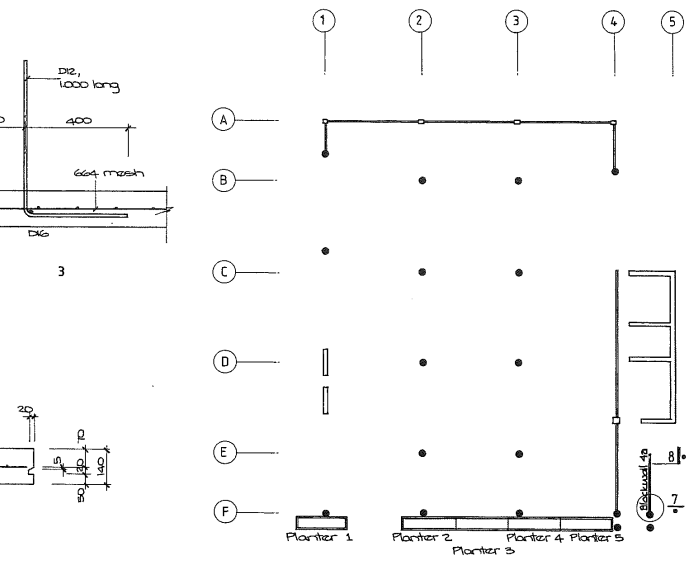
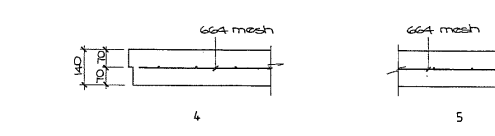
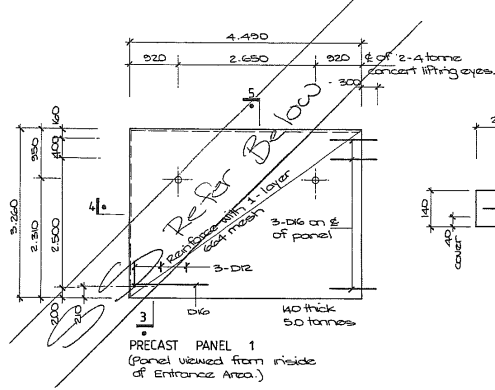
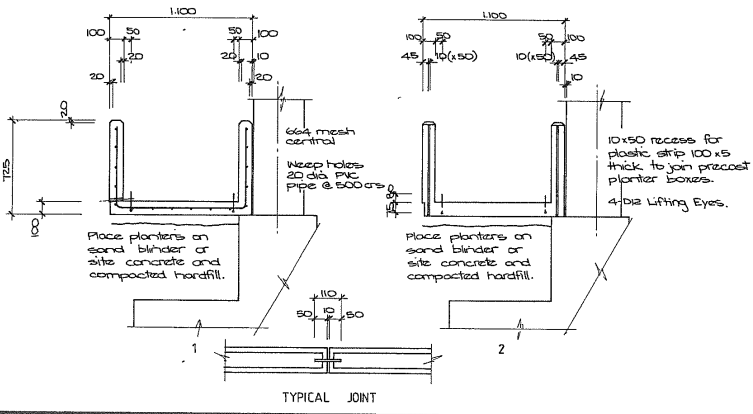
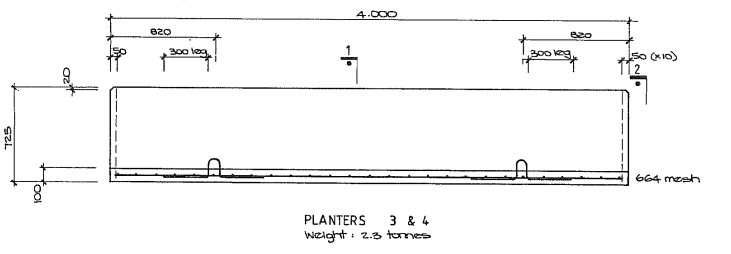
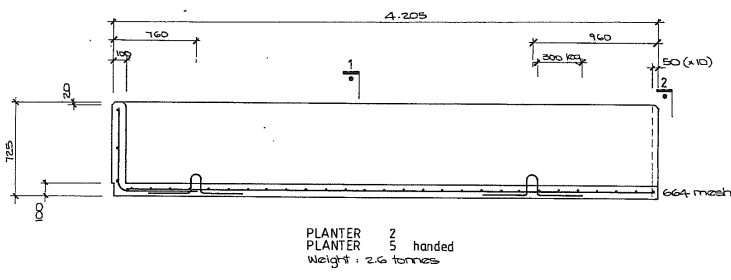
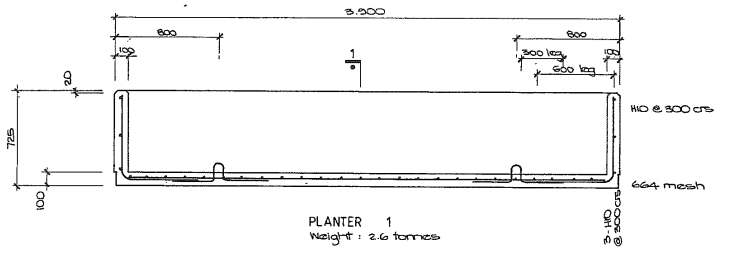
APPROVED	DATE	SCALE	SHEET	FILE
	AUG 1986	1:20	524	

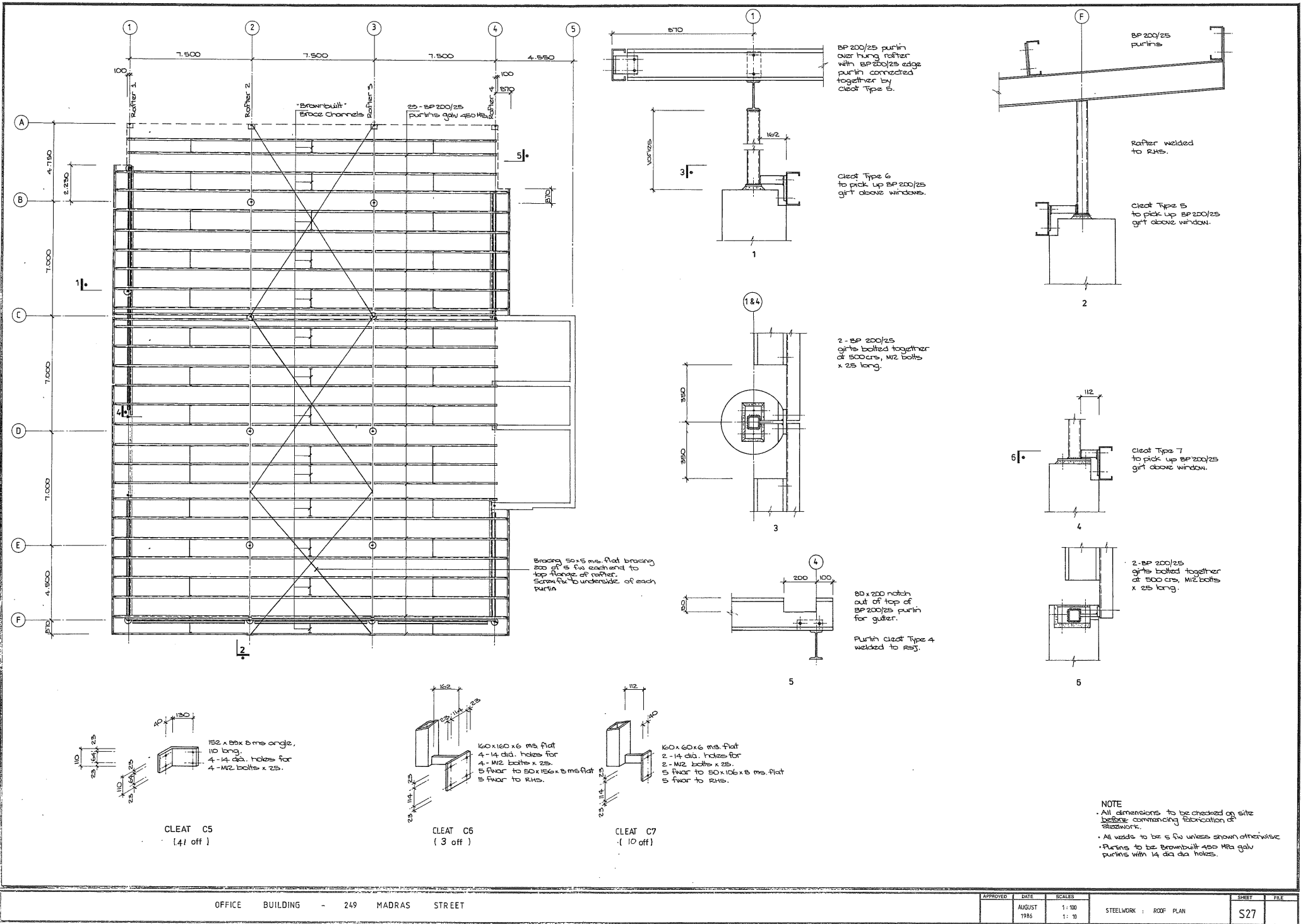


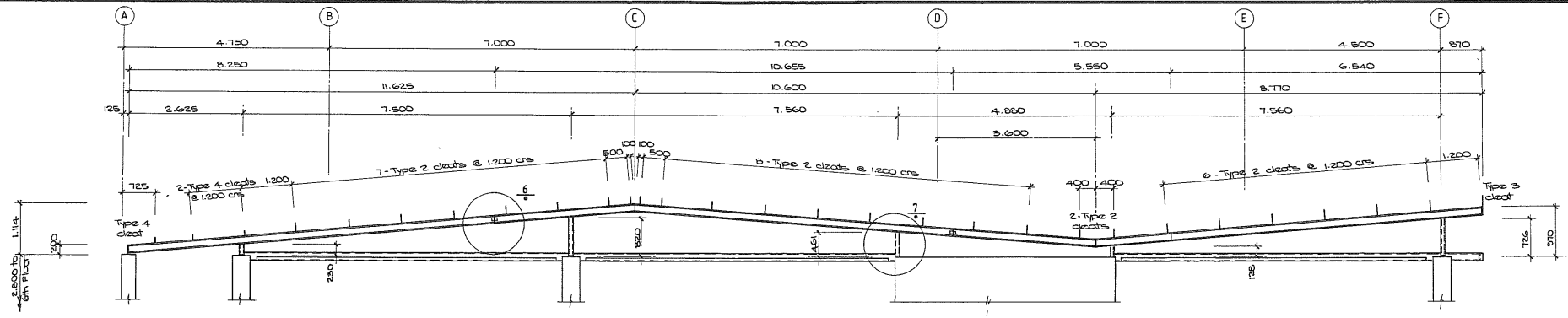
PRECAST SPANDRAL LOCATION PLAN

FLOOR LEVEL	SPANDRAL POSITION (Refer plan above)							
	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)
LEVEL 1								
LEVEL 2	S(01)2	S(02)3	S(03)2	S(04)2	S(05)2	S(06)2	S(07)2	S(08)2
LEVEL 3	S(01)3	S(02)3	S(03)3	S(04)3	S(05)3	S(06)3	S(07)3	S(08)3
LEVEL 4	S(01)4	S(02)4	S(03)4	S(04)4	S(05)4	S(06)4	S(07)4	S(08)4
LEVEL 5	S(01)5	S(02)5	S(03)5	S(04)5	S(05)5	S(06)5	S(07)5	S(08)5
LEVEL 6	S(01)6	S(02)6	S(03)6	S(04)6	S(05)6	S(06)6	S(07)6	S(08)6

- NOTES**
- Contractor should verify all dimensions on site before commencing fabrication of precast beams.
 - Concrete strength to be 25 MPa minimum.
 - Spandrel panels should have reached a concrete strength of 17.5 MPa minimum before any attempt is made to lift them.

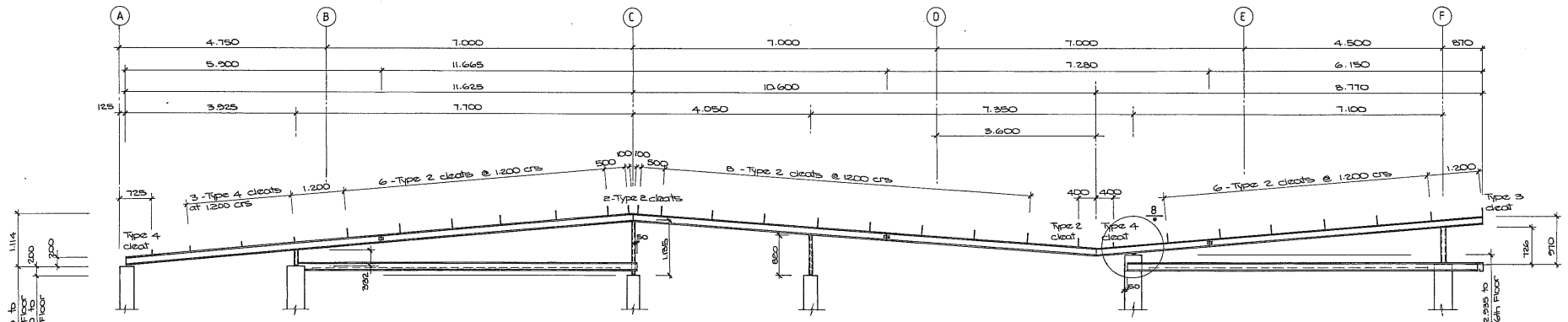




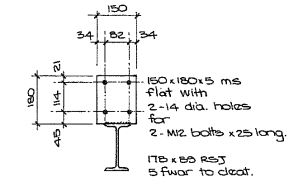
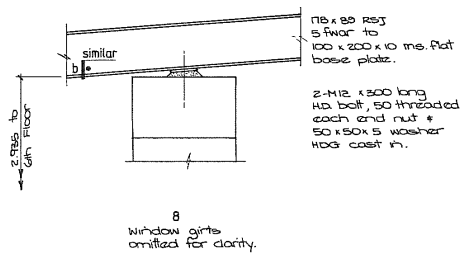
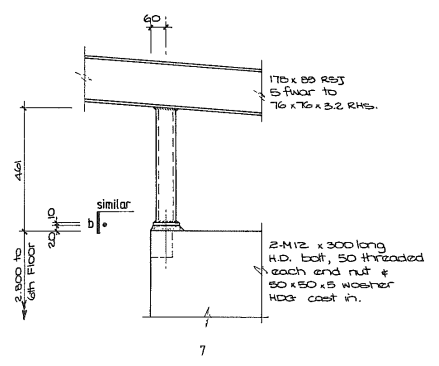
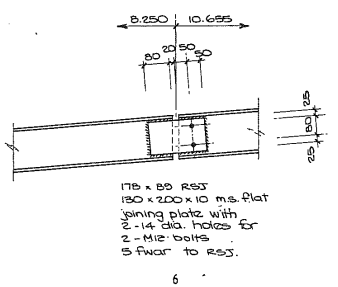


RAFTER 1

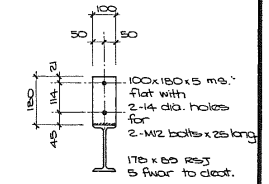
NOTE
Check all dimensions on site
before commencing fabrication
of steelwork.



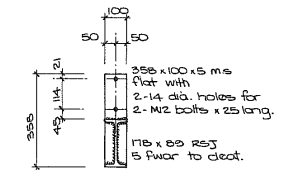
RAFTER 4



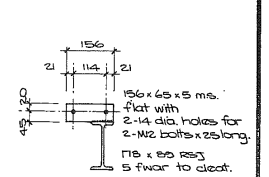
PURLIN CLEAT
TYPE 1



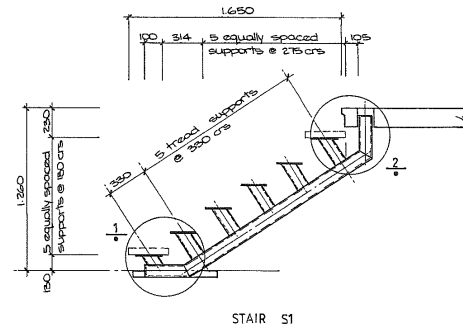
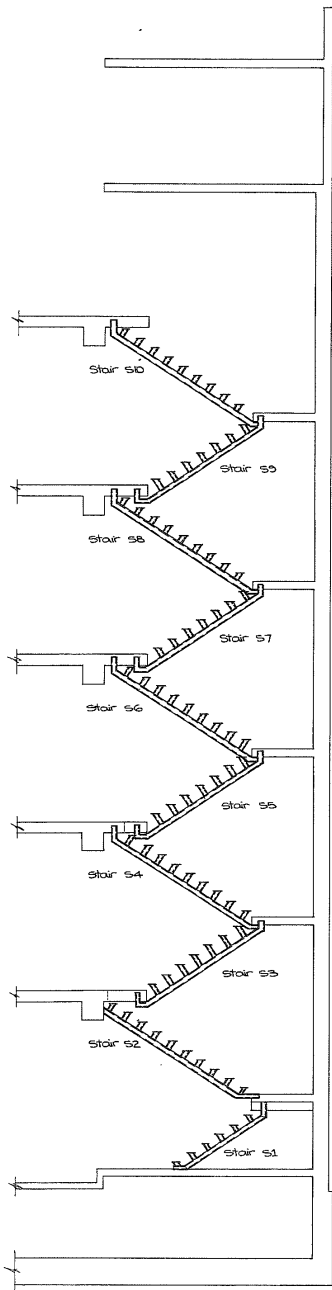
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TYPE 2



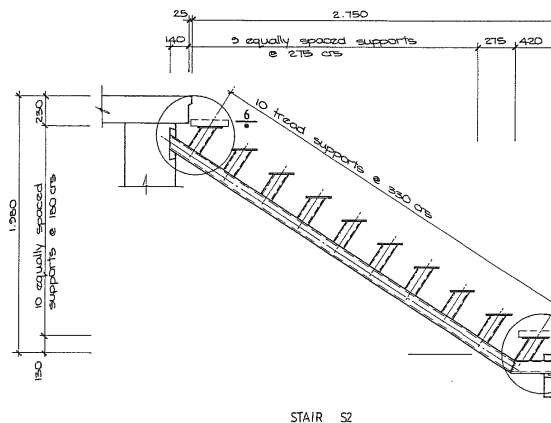
PURLIN CLEAT
TYPE 3



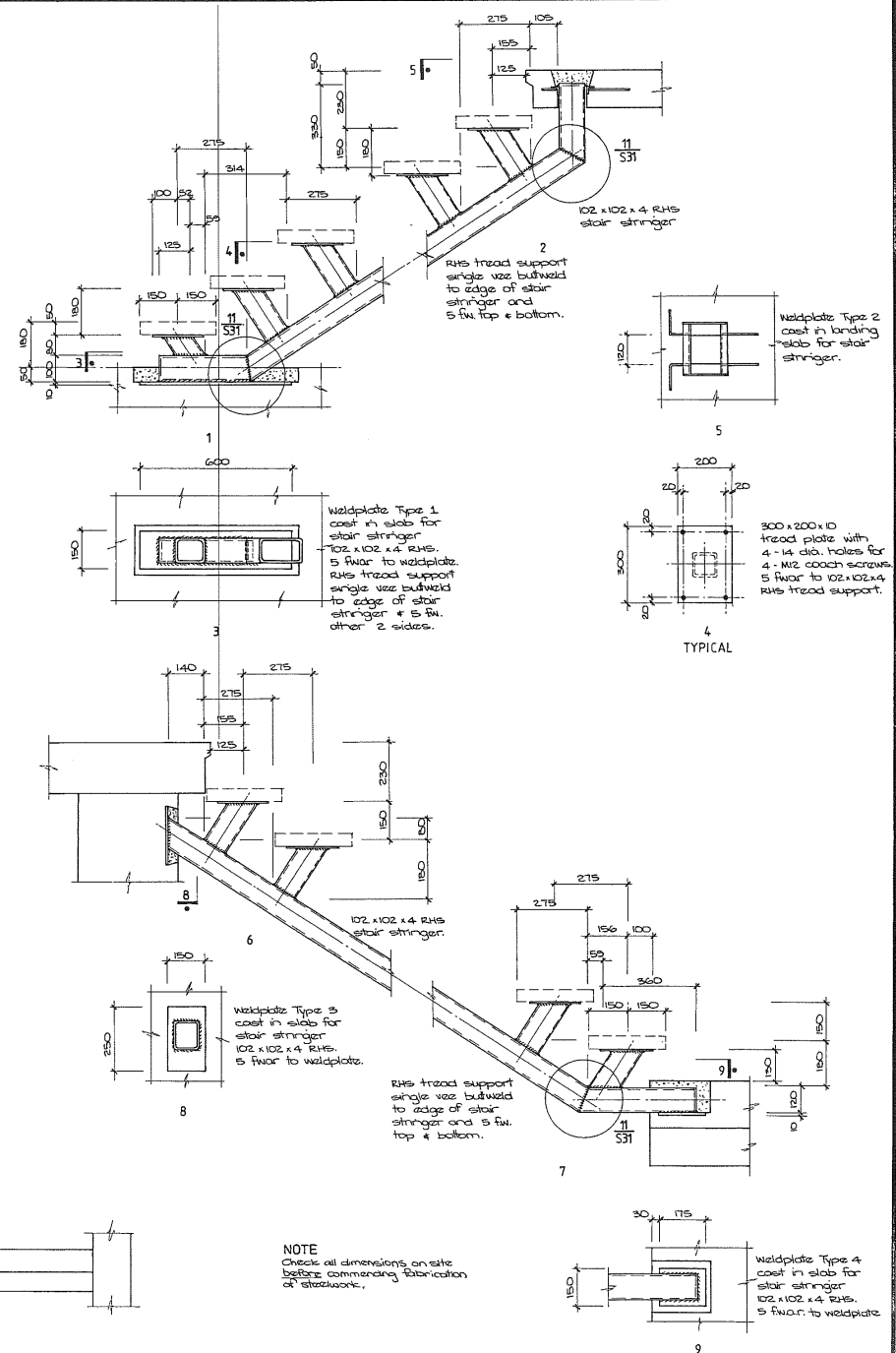
PURLIN CLEAT
TYPE 4



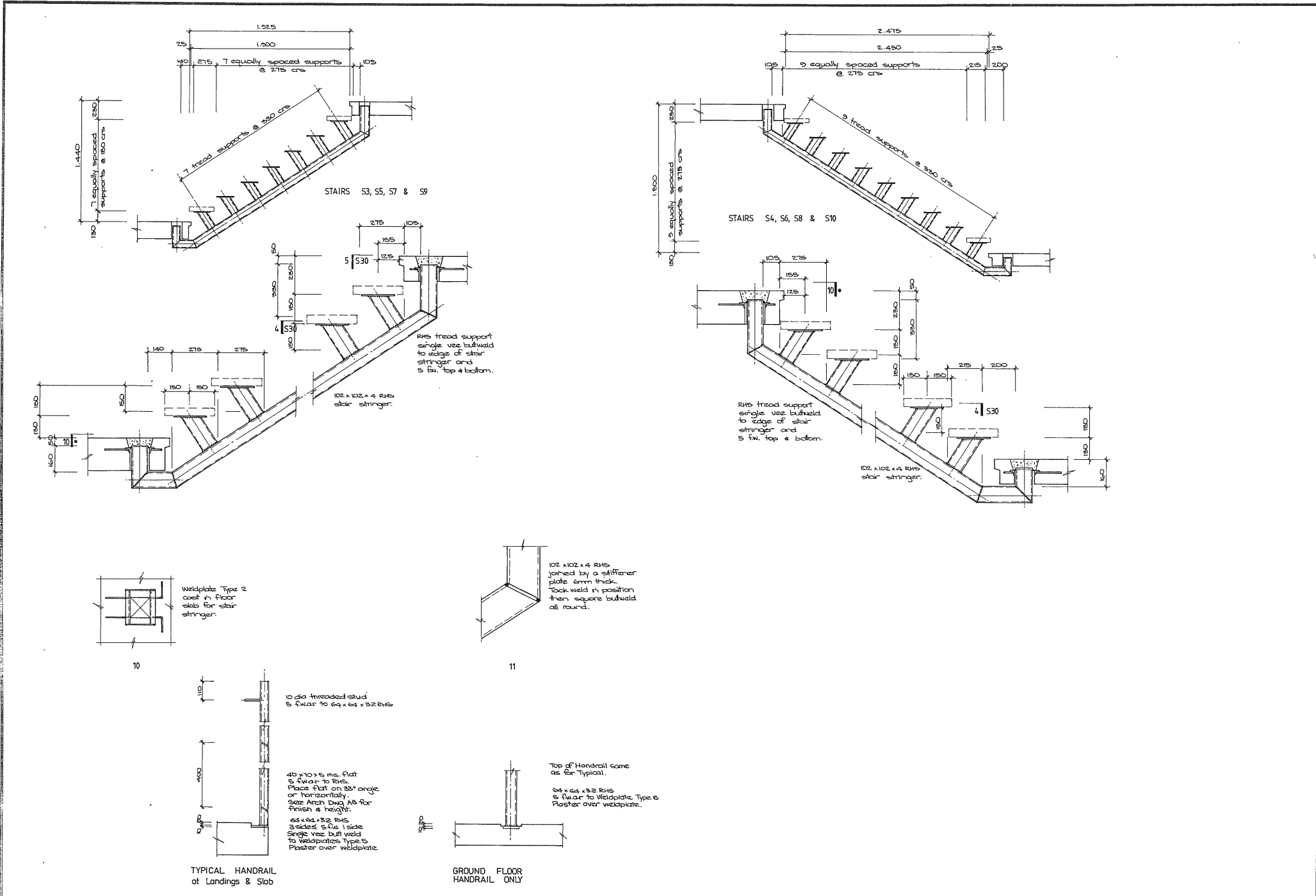
STAIR S1



STAIR S2



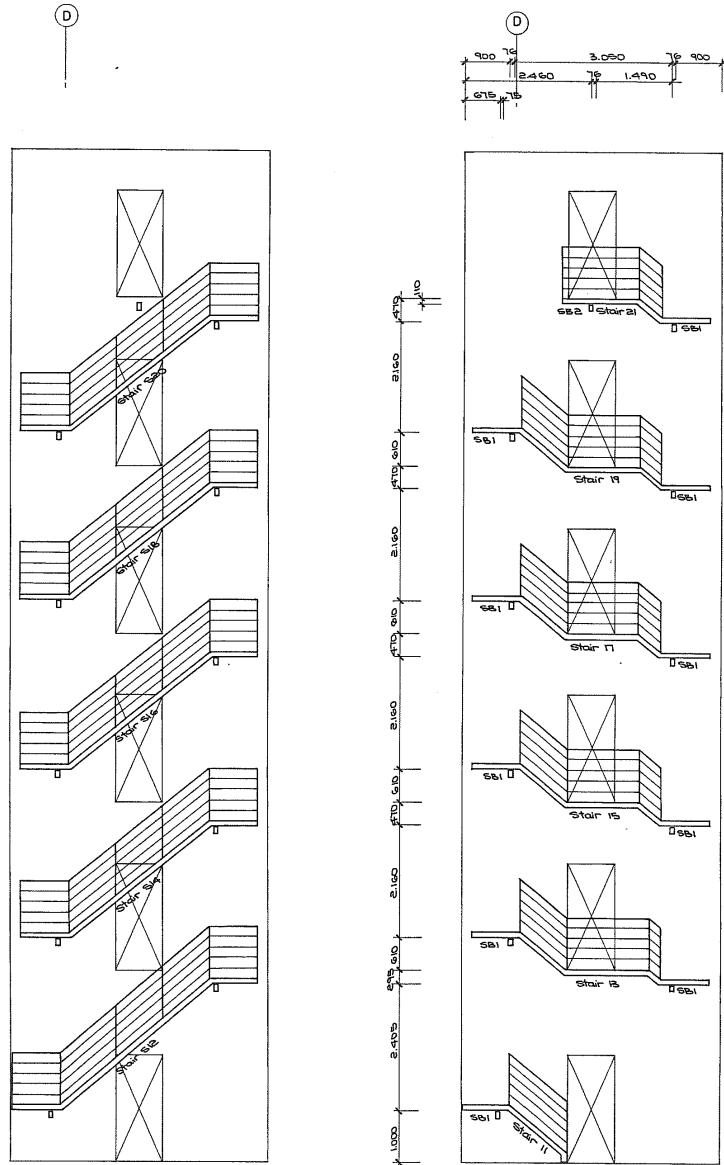
NOTE
Check all dimensions on site before commencing fabrication of steelwork.



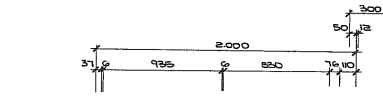
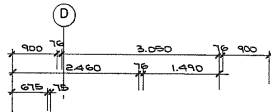
TYPICAL HANDRAIL at Landings & Slab

GROUND FLOOR HANDRAIL ONLY

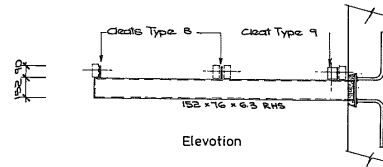
APPROVED	DATE	SCALE	INTERNAL STAIR LAYOUT	SHEET	FILE
	AUGUST 1986	1:5	STAIRS S3 To S10	S31	



ELEVATIONS of STAIRS S11 - S21 on WALL LINE 1

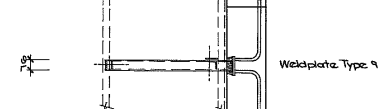
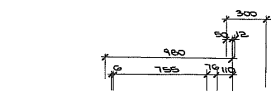


Plan

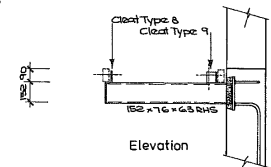


Elevation

Stair Support Bracket SB1 : 10 off



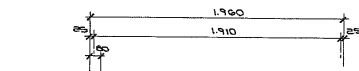
Plan



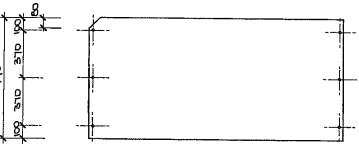
Elevation

Stair Support Bracket SB2 : 1 off

Note
 Grind back galvanising for 20 mm
 & 8mm fillet weld all round
 Stair support brackets to wallplates
 in wall.
 Plaster flush with wall before
 erecting stair stringers



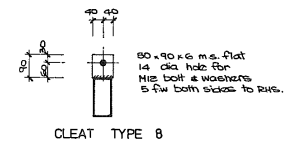
Stair Landing : 5 off
 5 off opp. hand



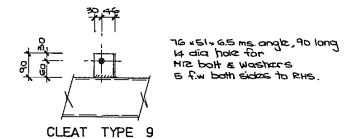
Stair Landing : 1 off

5mm chequer plate
 6-14 dia holes for
 6-12 dia carriage bolts.

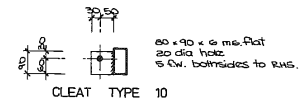
5mm chequer plate
 6-14 dia holes for
 6-12 dia carriage bolts.



CLEAT TYPE 8



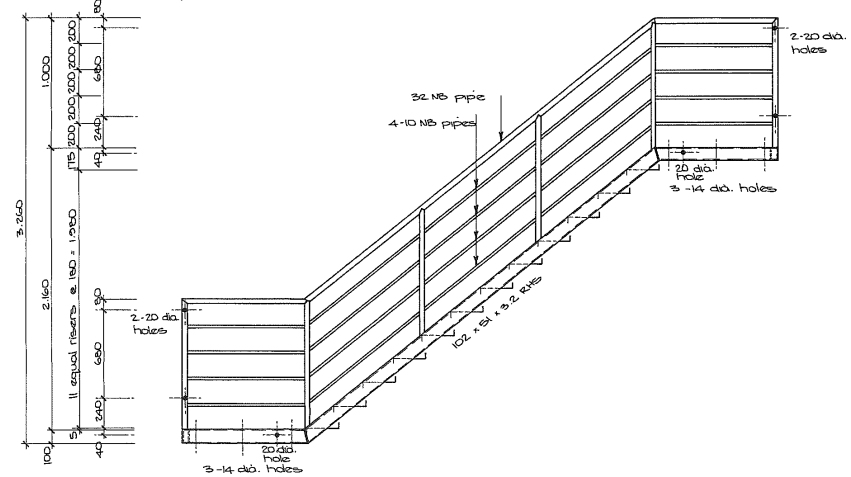
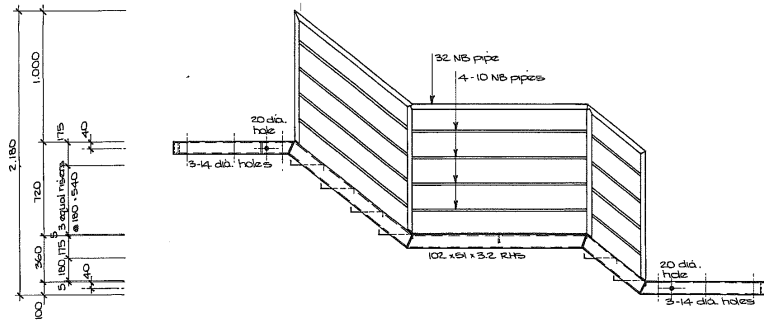
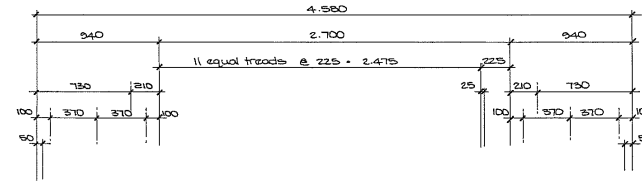
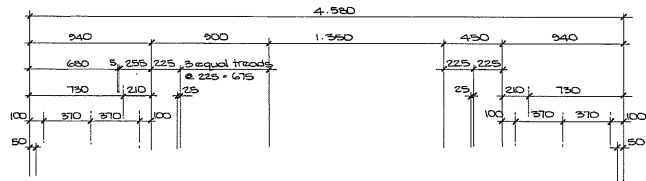
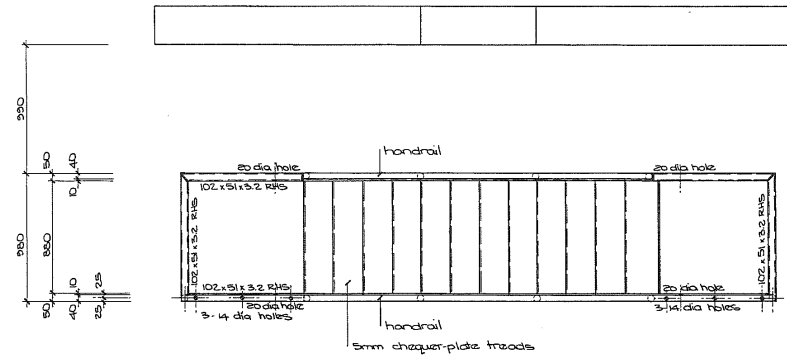
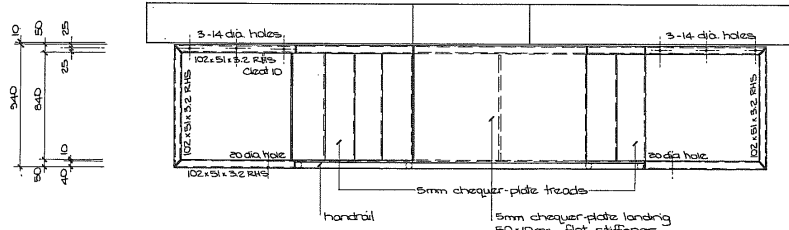
CLEAT TYPE 9



CLEAT TYPE 10

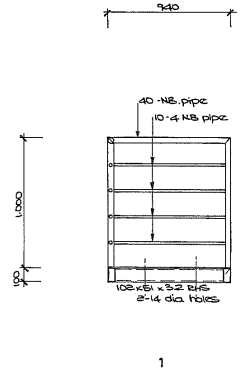
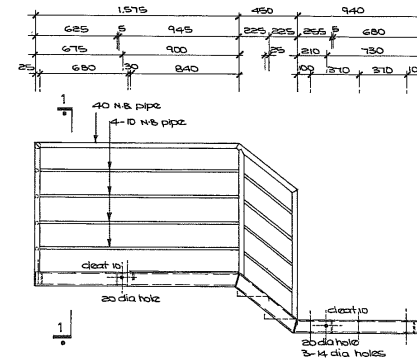
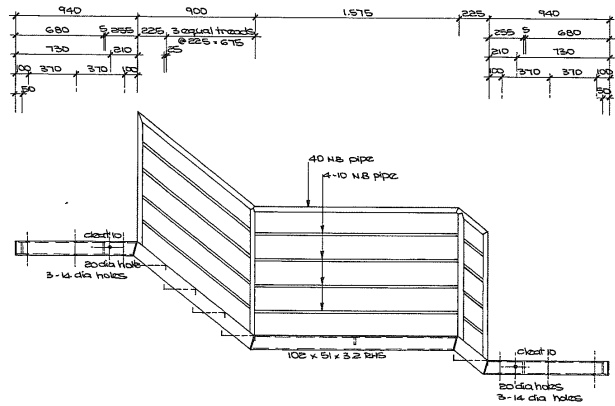
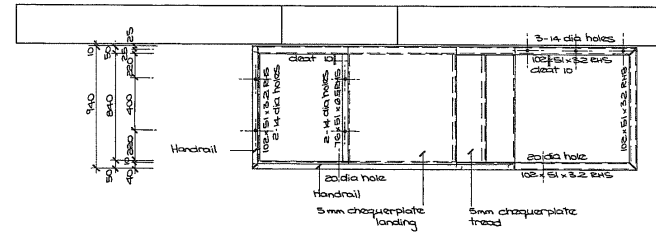
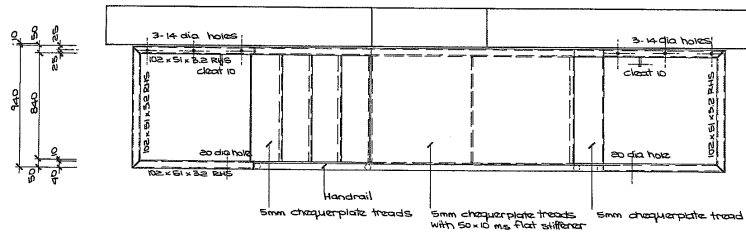
NOTE

- check all dimensions on site before commencing fabrication of steelwork.
- All steelwork for external stair shall be hot dip galvanised after fabrication.
- All bolts & washers to be hot dip galvanised.



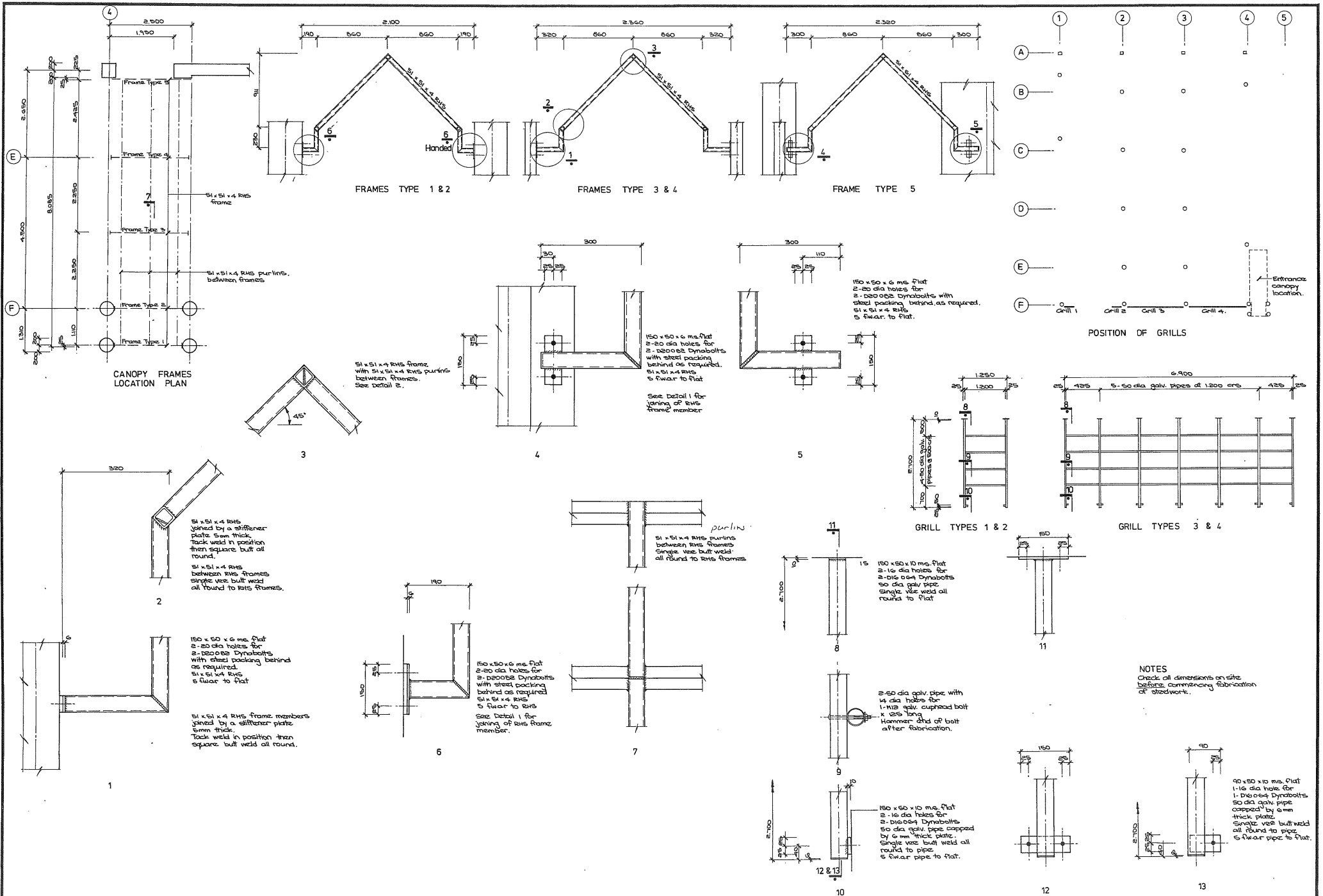
STAIR S15, S17 & S19

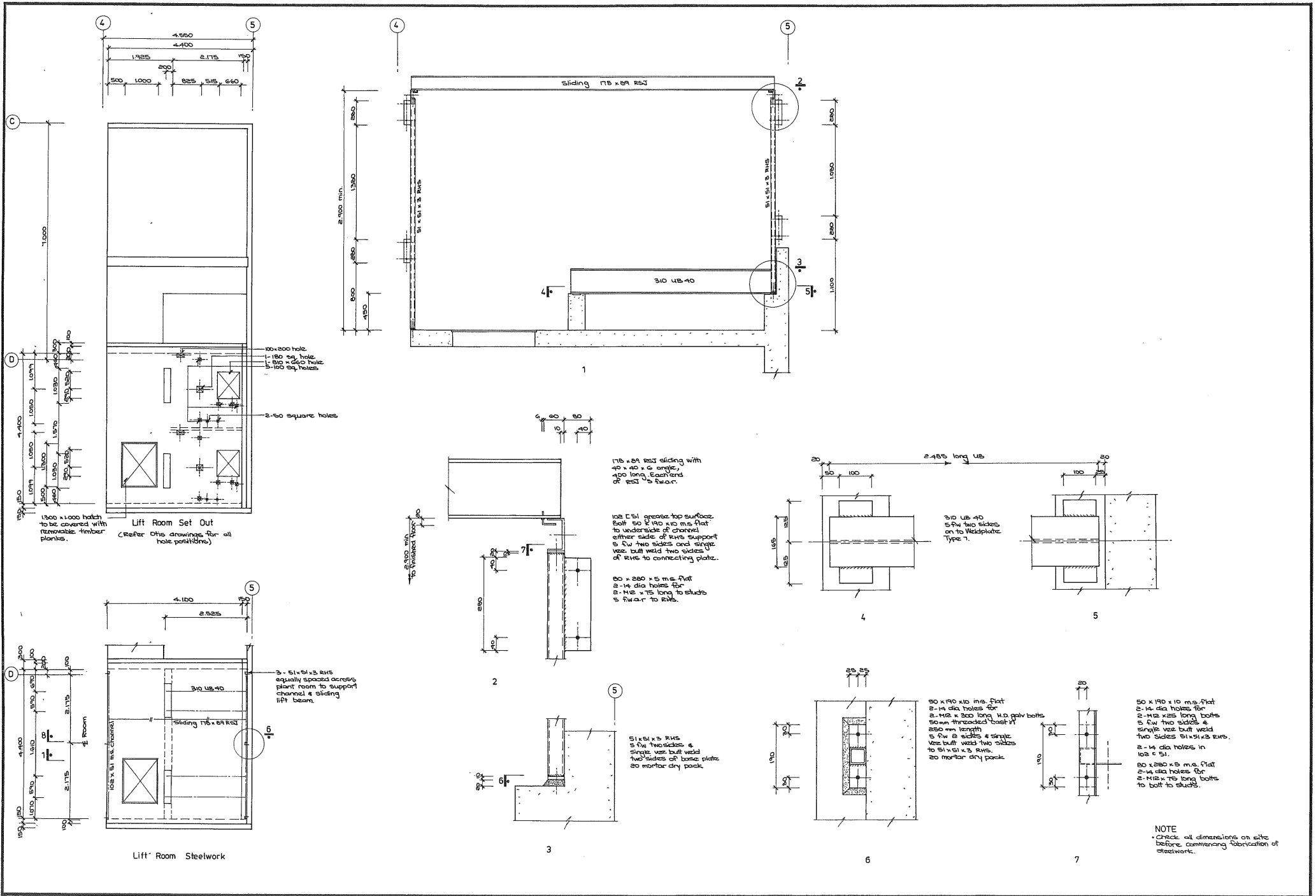
STAIR S14, S16, S18 & S20



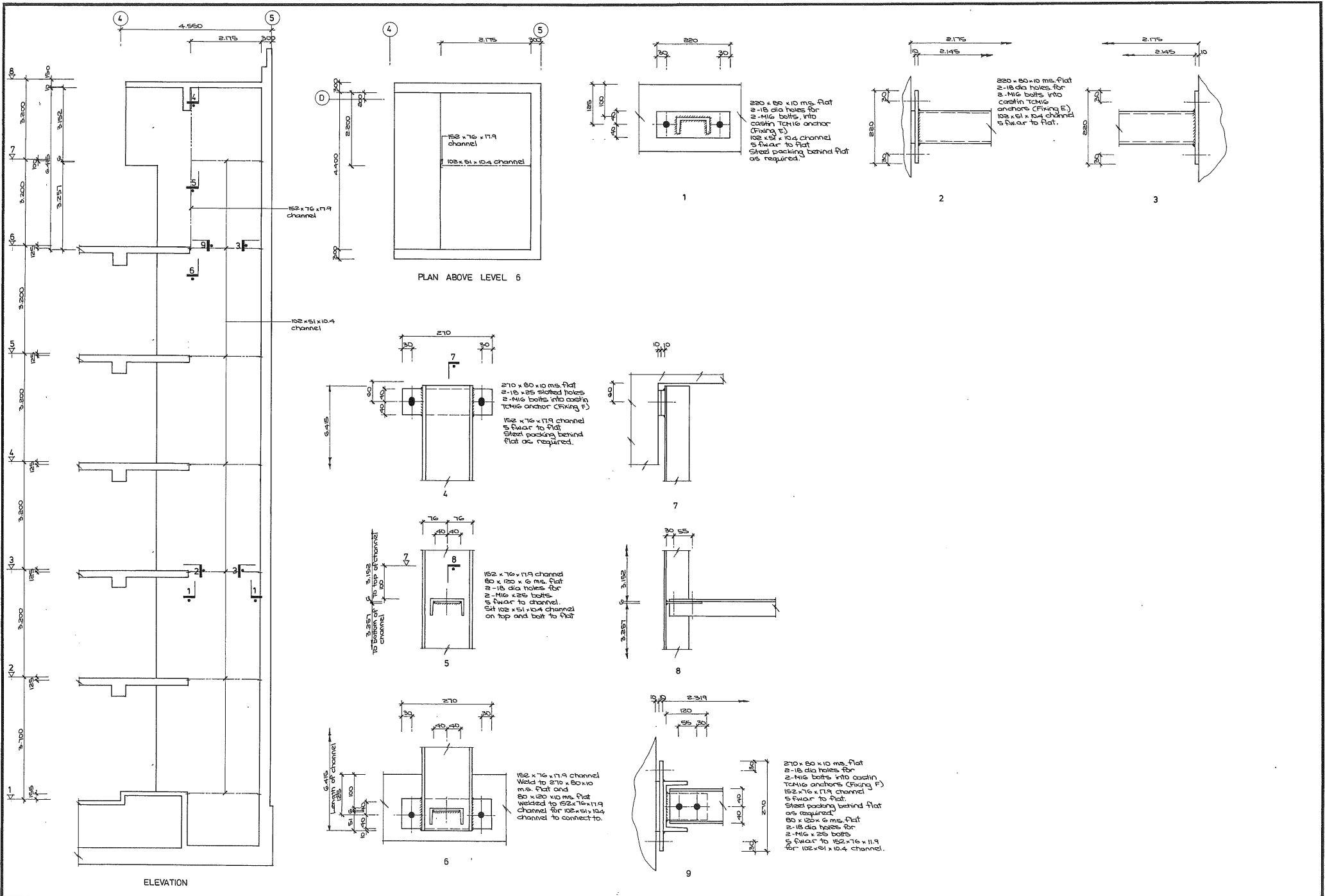
STAIR S13

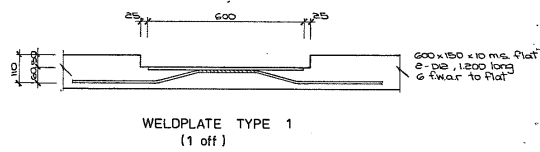
STAIR S21



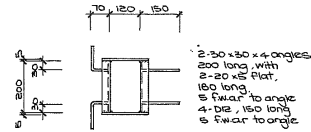


APPROVED	DATE	SCALES	SHEET	FILE
	AUG 1986	1:50 1:20 1:10 1:5	LIFT MACHINE STEELWORK	S37

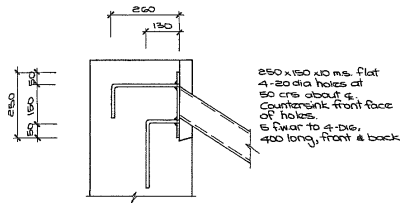




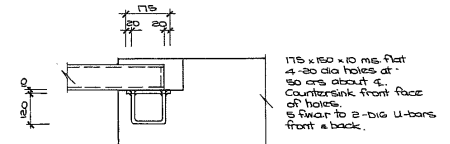
WELDPLATE TYPE 1
(1 off)



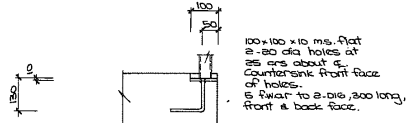
WELDPLATE TYPE 2
(17 off)



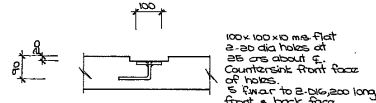
WELDPLATE TYPE 3
(1 off)



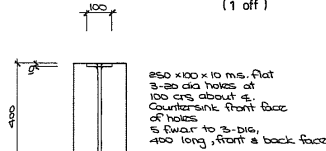
WELDPLATE TYPE 4
(1 off)



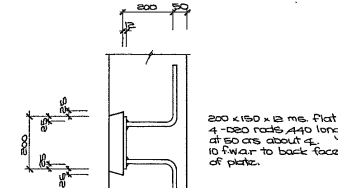
WELDPLATE TYPE 5
(20 off)



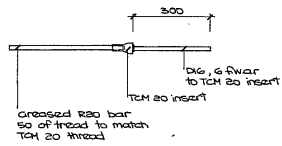
WELDPLATE TYPE 6
(1 off)



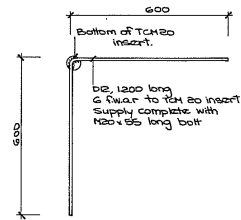
WELDPLATE TYPE 7
(8 off)



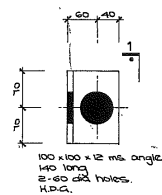
WELDPLATE TYPE 8
(10 off)



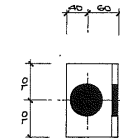
FIXING A
(54 off)



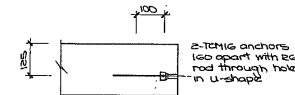
FIXING B
(232 off)



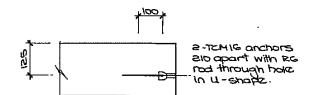
FIXING C
(116 off)



FIXING D
(232 off)



FIXING E
(12 off)



FIXING D
(2 off)

NOTES

- All reinforcing bands to be hot bent
- The welding of dissimilar metals, eg reinforcing bars to TCM 20 inserts, will require appropriate rods & method.