

Instructions for reading meteorological instruments

Instruments to be read and reset / emptied at 0900 hours each morning

1. Rain gauge:

- (i) Insert in ground so that rim is 12 inches above ground surface
- (ii) Remove upper funnel section and empty internal bottle and internal bucket of water. Replace bucket, bottle and funnel.
- (iii) To measure rainfall, pour water (or melted snow, if applicable) from bottle into measuring cylinder. Read amount of precipitation from base of meniscus.
- (iv) If the rain gauge bottle has overflowed into the bucket, add water from bucket to measuring cylinder before taking reading.

(v) Record reading in tables in this log book.

(vi) If rain has fallen, but this is insufficient to give a reading on the measuring cylinder, record "Tr" (= trace) in the log book.

(vi) If something goes wrong and you spill the rain gauge contents (or something similar), be honest; it's better to have no record for that day than a misleading one.

(vii) Repeat from step (ii).

2. Maximum and minimum thermometers:

(i) In the tables in this log book, record the temperatures from the base of the metal sliders in each thermometer.

(ii) To reset the thermometers, use the magnet to drag the sliders back into contact with the mercury (by turning the magnet the other way around if this proves to be difficult!).

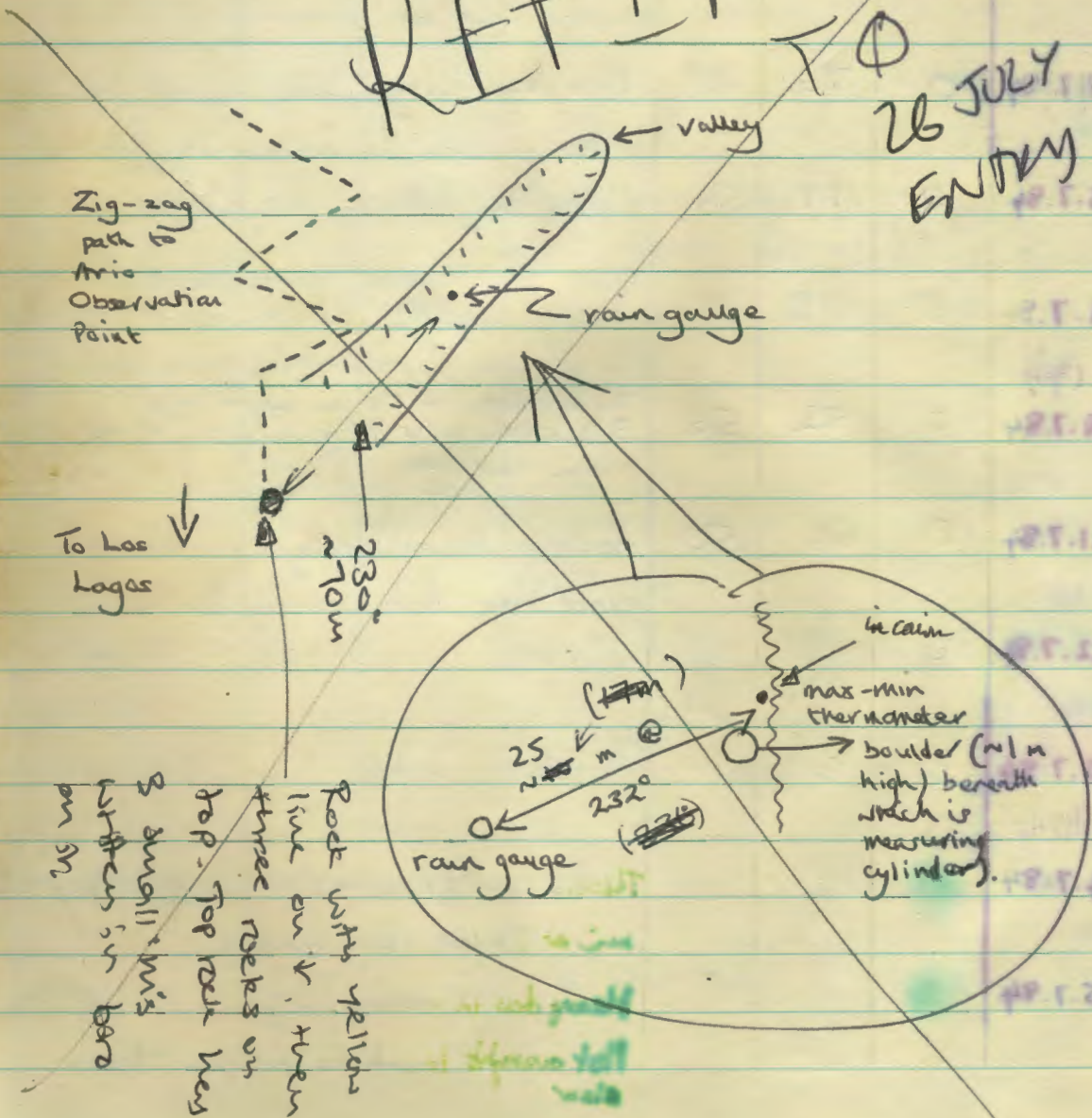
(B)

(iii) Replace the thermometers in their original position (if it was necessary to move them).

Thanks for all your help.

REFER

26 JULY ENTRY



TEMPERATURE
(°F)

DATE (0900 h)	RAIN FALL	TEMPERATURE (°F)		COMMENTS, OBSERVATIONS
		MAX	MIN	
S 14.7.84			49	Min = 49°F, no record for rf or max (stn established previous afternoon: - max recorded = 83°F). 0/8 cloud cover. Estim ht of cloud top ~ 1000 m a.s.l.
S 15.7.84	Tf	73	48	Est. cloud base In Mist ending at 6:45 at zig-zags Readings made at 1:45 PM
M 16.7.84	.025	66	44	Ground frost at Aris previous night. Top of clouds over Lagos about our height. Drifting mist over plateau.
T 17.7.84	0	76	48	clear sky measuring cylinder found broken at base of rock under which it was ^{hid}
W 18.7.84	0	97	54	Clear sky hazy at Lagos.
T 19.7.84	0	92	61	Clear sky above, some cloud lower over Lagos
F 20.7.84	0	82	56	Top of mist ~ 50 m below stn. 3/8 cloud cover ("mackerel sky" + some niabu-cumulus).
S 21.7.84	0	66	50	mist in lower valleys 3/8 cloud cover, high mainly cirrus
S 22.7.84	0	} 86	} 52	
M 23.7.84	0			
T 24.7.84				Thick mist, 14:45 → 17:00, <u>max</u> 200yd vis min at 20 feet. Clear in evening
W 25.7.84				Heavy dew in morning. Not enough towards Rio Caves gorge otherwise clear

B5

TEMPERATURE (° F) → Sorry! Please convert my ° c ones!

DATE (0900h)	RAIN FALL	MAX	MIN	COMMENTS, OBSERVATIONS (GRATUITOUS OR OTHERWISE)
T 26.7.84	0			Heavy dew falling after 2300 on 26.7.84 P.P.T.T 3/8 cloud cover in morning 27.7.84
F 27.7.84	0	15°	11°	Clear skies. 0/8 cloud cover all through morning and all day.
S 28.7.84	0	23°	14°	Far peaks hazy otherwise clear.
S 29.7.84	0	21°	16°	
M 30.7.84	TRACE (12 DROPS) 10-15 PMS	27°	15°	Squally Showers. Last Night overcast high up, skyline visible. Today similar but stages wind + rain. 8/8 COVER
T 31.7.84	0.5 in bottle 9.9 in can.	22°	12°	Thick cloud. Rain all night. Not so windy as yesterday.
W 1.8.84	10.66 in gauge	Blown over! see log.		
T 2.8.84	0	} 20.5° C } 8° C		9/8 Clear, hot.
F 3.8.84	Not read.			RAINED ALOT. HEAVY MIST.
S 4.8.84	8.1	7	23	cloud at Top a bit above Top cap. COLD BUT CLEAR - BIT OF RAIN to below top trap.
S 5.8.84	0.95	9.5	10	Clear now, with clouds high
M 6.8.84	0	4.7	15.1	1/8 cloud cover.

TEMPERATURE (°C)

DATE (0900 hours)	RAIN FALL (mm)	TEMPERATURE (°C)		COMMENTS, OBSERVATIONS
		MAX	MIN	
T 7.8.84	0	20.2	7.4	0/8 Cloud Cover Top of mist at ~1300 m
W 8.8.84 10-30	1.9	20.5	7.0	8/8 cloud cover mist/low cloud rain started after 10-30 again
Th 9.8.84		Readings at Lages		Misty + overcast. cold.
F 10.8.84 0935	0.20	10.3	6.9	Mist. Visibility ~ 40 m.
S. 11.8.84	0	11.5	7	clear sky sky 0/8 cloud cover
S. 12.8.84	0	13.5	7.5	Sunny. No cloud. Warm.
M 13.8.84 0802	Tr	18.2	10.5	1/8 Cloud. No mist in valley
T 14.8.84 1000	0.15	21.3	10.6	Mist. Visibility ~ 15 m.
W 15.8.84 1420	0.20	17.8	8.5	Mist
T 16.8.84 0925	0.15	19.1	8.6	Mist. Visibility ~ 30 m.
F 17.8.84 10.10.	Tr.	9.7	4.5	No cloud, warm, sunny. (overnight frost at Fris)

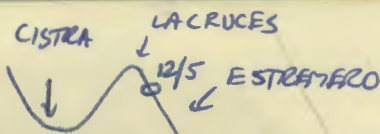
(B7)

S

π 20-8-84

high cloud, overcast intermittently,
occasional gusts of v. strong wind.

ESTREMEIRO



(88)

Surveying Trip: - 4th August. (Surveying Trip 2) - 12/5 from Survey

Station 37A to Survey Station 57 Tap Man: - Dave H. Clinometer: - Phil R.

Book Keeper: - Nicola. leg depth. total depth.

Station	Compass Reading	Climo Reading	Distance between 2. in m	leg depth	total depth
75 - 74					106.63
38 → 37A	274	-20	4/13	-1.41	105.22
75 - 70					
38 → 39	-	-90	7/5	+7.5	112.72
77 - 76					
40 → 39	328	-42	4/37	-2.92	109.80
77 - 78					
40 → 41	145	-05	3/44	+0.30	
79 - 78					
42 → 41	248	+06	3/66	+0.38	
79 - 80					
42 → 43	016/5	-44	4/14	+2.88	113.36
81 - 80					
44 → 43	247	-01	3/61	-0.06	113.30
81 - 82					
44 → 45	136	0	5/22	0	
83 - 82					
46 → 45	223	+25	5/42	+2.29	
83 - 84					
46 → 47	133	-35	7/43	+4.25	
85 - 84					
48 → 47	311	+27	4/12	+1.87	
85 - 86					
48 → 49	075	+04	3/49	+0.24	
87 - 86					
50 → 49	297	+03	6/22	+0.326	122.28
87 - 88					
50 → 51	216	+06	3/29	-0.344	
89 - 88					
52 → 51	310	-05	2/16	-0.188	
89 - 90					
52 → 53	152	+05	5/14	-0.45	121.29
90 - 91					
53 → 54	Vertical	Vertical	5/45	+5.45	
91 - 92					
54 → 55	040	+33	1/67	-0.91	
92 - 93					
55 → 56	182	+29	8/10	-3.93	
93 - 94					
56 → 57	105	-12	3/77	-0.78	121.12

Hope these are all OK.

(84)

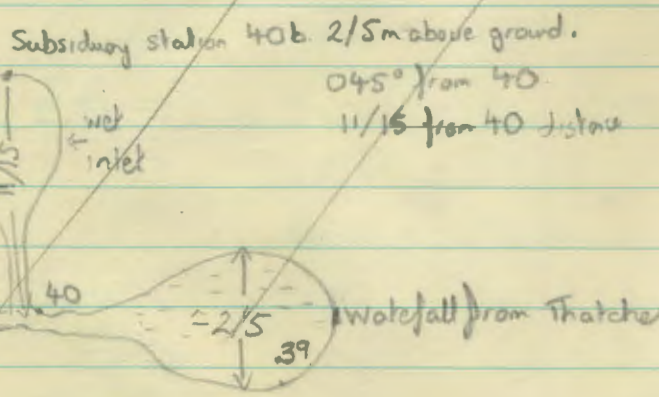
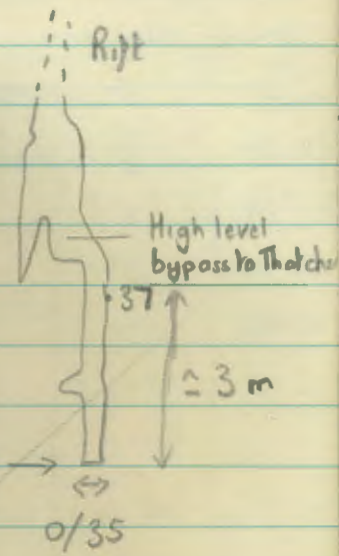
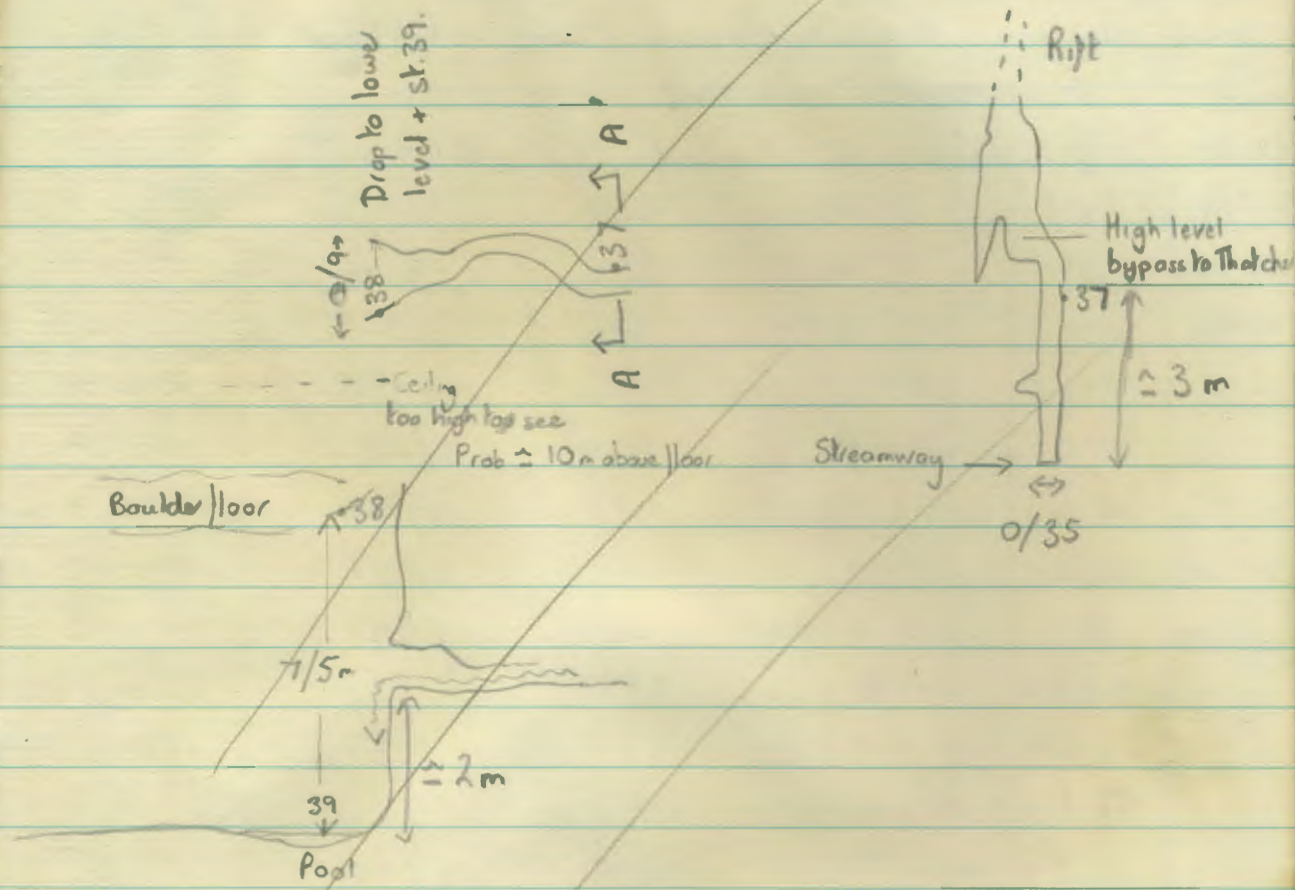
Heights of Stations above floor

Station No:	^{Measured} Height above floor 10 m	Estimated Width of that height 10 m (only done occasionally)
37	7/5	0/7
38	7/5	0/9
39	0	2/5
40	2/7	1/3
41	2/9	1/5
42	2	0/7
43	0/5	0/4
44	2/5	0/5
45 82	1/8	1/2
46 47	1/9	1/0
47 84	1/1	
48 85	2/2	
49 40	2/7	
50 81	2/5	
51 81	3/0	
52 81	2/8	
53 40	5/45	
54	2/1	1/8
55	1/2	
56	1/35	
57		

IGNORE

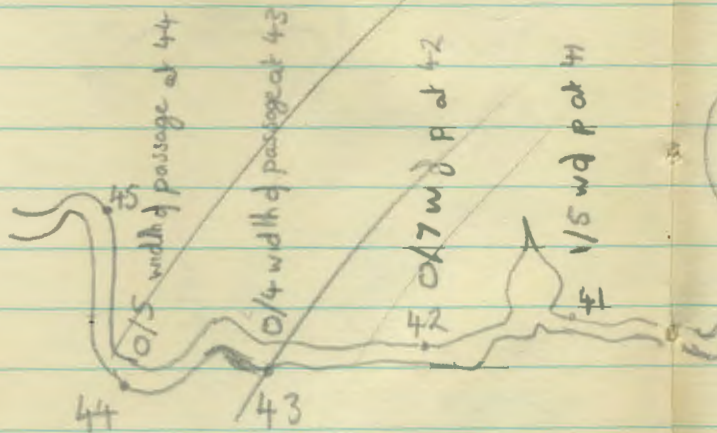
PLAN. I.

Cross Section A A'



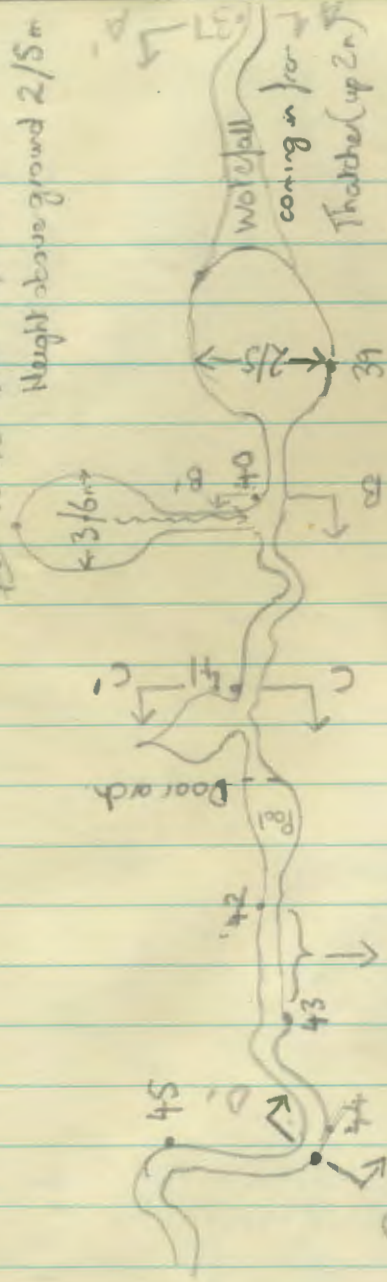
= reps H₂O pool.

(311)



PLAN 1

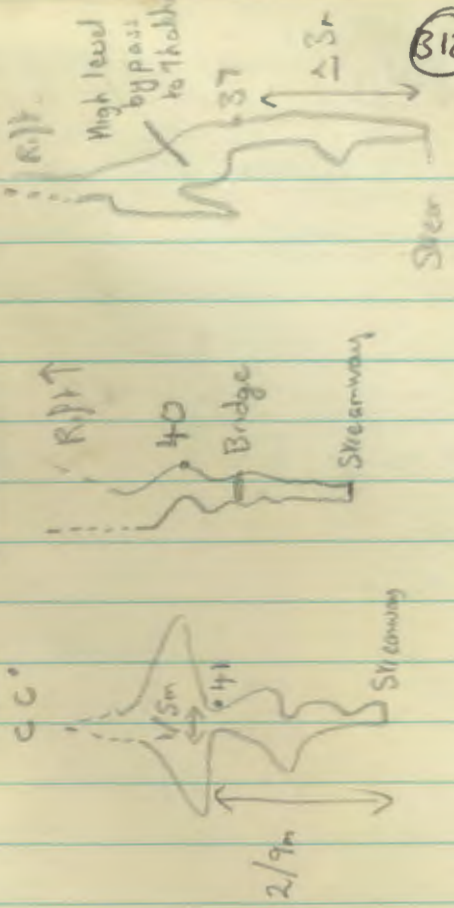
Subsidiary Station 40 b. Compass of 045
 High to 40. Dist = 11/18
 Height above ground 2/5m



Waterfalls + pools at stream level

Plan 2

Cross Section AA' Cross Section BB'

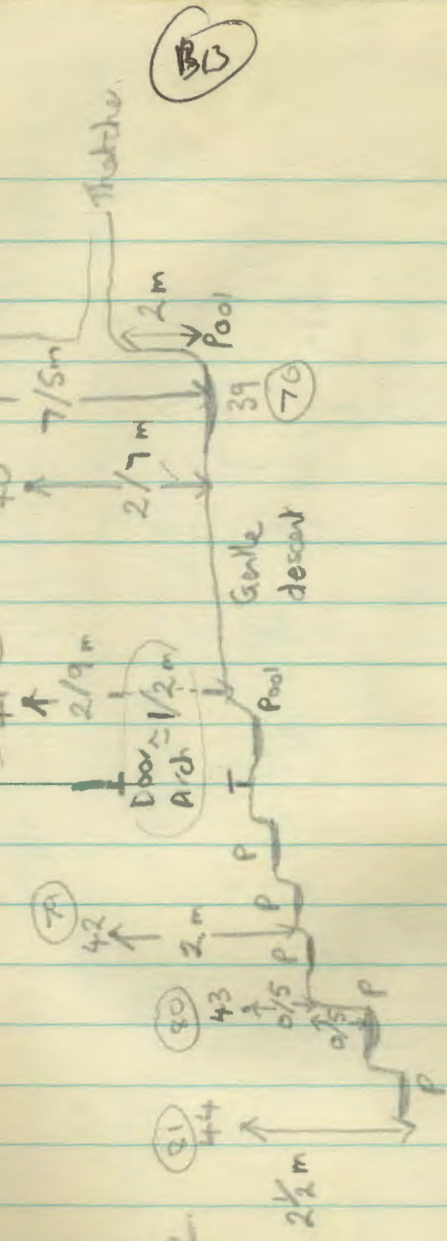


NB P = Pool here

Boulders over top but
.37
76

BLS

Elevation 1
R.P. ceiling not visible all along this section.
Est. at $\pm 20-25$ r up?



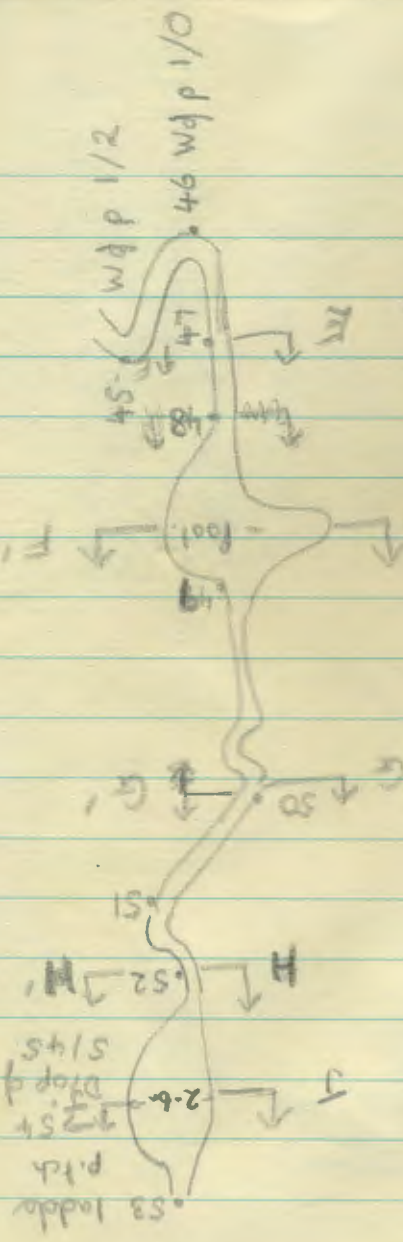
Elevation 2
←



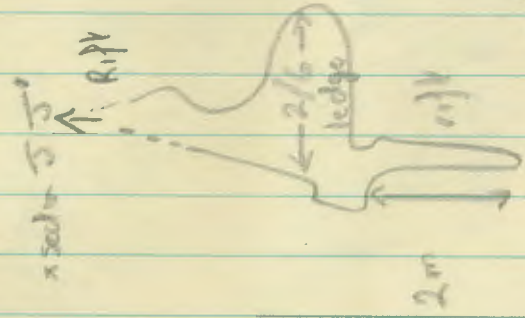
oops.

Nick P.

PLAN 2

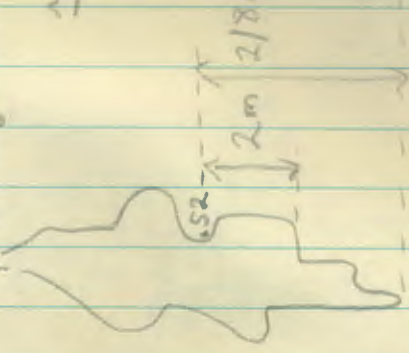


PLANS



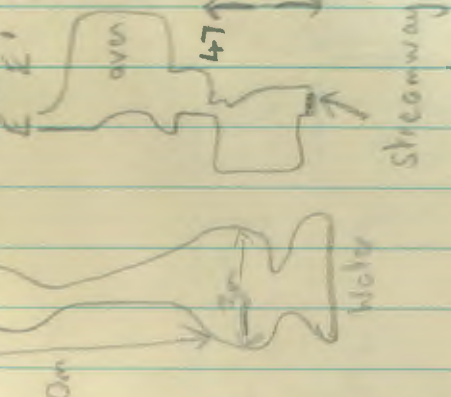
x section M.H.

est. height 25m



x section FF wardens

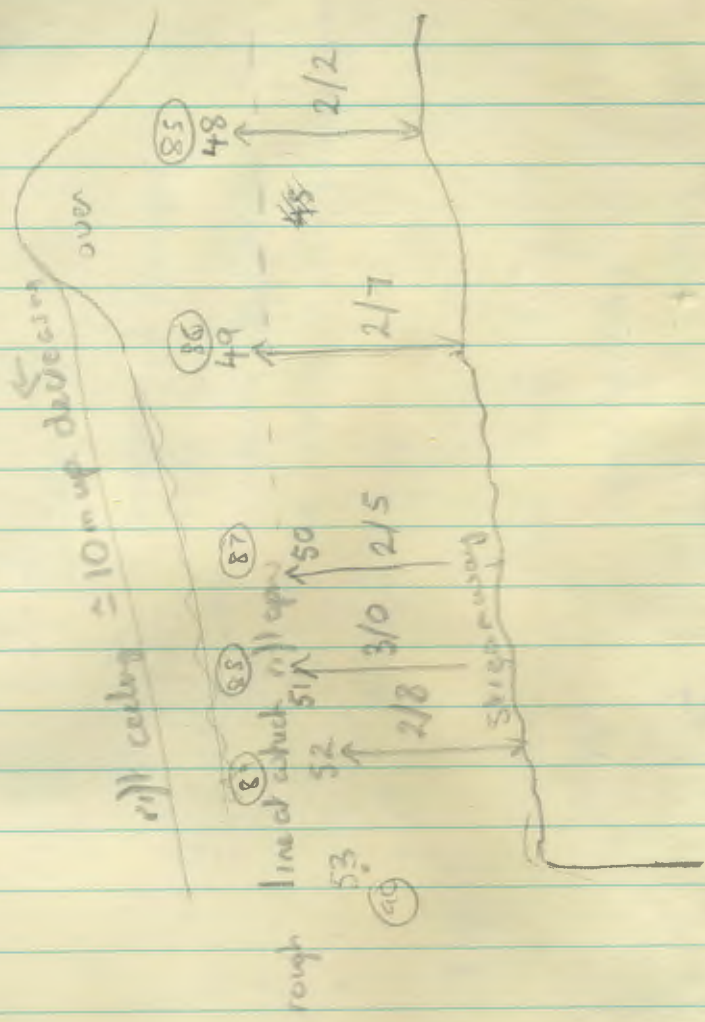
x section at 47 (NOT 48)



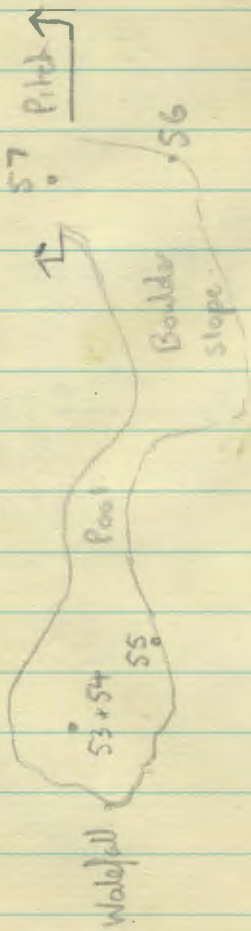
< Nudo D.

(BFS)

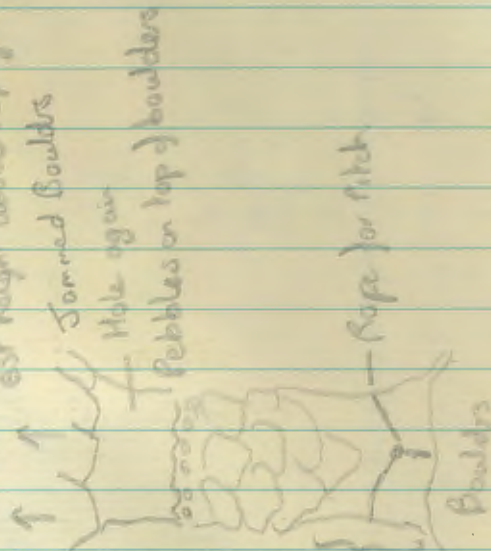
Flounder along here difficult since rift ceiling variable and inaccessible in many spots, streamway descending via numerous ledges. Shows generally tight rift opening out 2/5 → 3/0 m above streamway at stud pit station. takes rather narrowing above. General idea thought -



PLAN ③



x section of pit
 ↑ East height above top of boulder slope of ceiling = 6 m



Hole in
Boulders

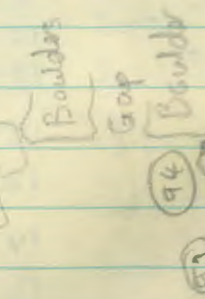
(B16)

Nick O.

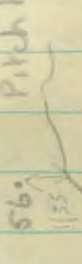
(117)

ELEVATION ③

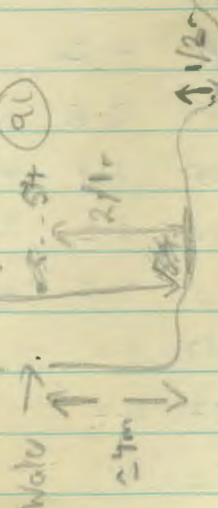
Right ceiling → Boulders



Pitch head.



Boulder slope



ACQADILLO ?

→ Into Cave

(I seem to have changed from which side

look at it here.....)

54 beneath 53

is this ve? PMS.

backsight: inc. & depth have same sign
 foresight: inc. & depth have different signs.

(518)

12/5.

+ down, into cone
 depth - up, out of cone,
 height of cone
 total depth

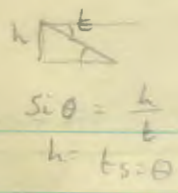
Station	Inc.	Bearing	Distance m	Height	Station	Height above floor
S-5						
37-38						
1 → 2	52	81	4.7	→ 3.7		
39-38						
3 → 2	+66	289	8.7	+ 7.95	4.25	
39-40						
3 → 4	-45	63	4.8	+ 3.39	2.72	1 - you rest wall
41-40						
P 5 → 4	+90	0	12.4	+ 12.4	20.14	2 - 2m above skirt
42-41						
6 → 5	-15	166	4.1	(+ 1.06)	20.14	3
43-41						
7 → 5	52 (130%)	158	4.0	+ 3.17	23.31	4 - 1.8 m
44-43						
8 → 7	+35	185	3.0	+ 1.72	25.03	5 - nil
44-45						
P 8 → 9	-73	0	4.2	+ 4.02	29.05	6 - nil
46-45						
P 10 → 9	+90	0	28.2	+ 28.2	57.25	7 - nil
46-47						
10 → 11	-38	35	3.5	+ 2.16	59.41	8 - nil
48-47						
12 → 11	+77	213	6.8	+ 6.62	66.03	9 - 1m above ledge
48-49						
P 12 → 13	-90	0	8.1	+ 8.1	74.13	10 - 1.8
50-49						
14 → 13	+33	210	4	+ 2.18	76.31	11 - 1m (roof)
50-51						
14 → 15	-78	25	5.6	+ 7.62	83.93	12 - 0.5 m (roof)
52-51						
16 → 15	+41	147	7.2	+ 4.71	88.64	13 - 1m
52-53						
16 → 17	-50	19	4.2	+ 3.22	91.86	14 - 1m
54-53						
P 18 → 17	+90	0	9.8	+ 9.8	101.66	15 - nil
55-54						
19 → 18	+11	205	1.9	+ 0.36	101.30	16 - nil
56-55						
20 → 19	+24	310	2.2	+ 0.89	102.19	17 - vert
56-57						
20 → 21	+16	20	2.5	+ 0.69	101.50	18 - 1.8 m
58-57						
22 → 21	+18	287	5.0	+ 1.54	103.04	19 - 1.8 m
58-59						
22 → 23	0	197	0.7	0		20 - 1m
59-60						
23 → 24	+15	94	4.1	- 1.06	101.98	21 - 2m
						22 - 1m
						23 - 1m
						24 - 4m
						25 - 1.8m
						26 - 1m
						27 - 2m
						28 - 1.8
						29 - 1m
						30 - 3m
						31 - 1m
						32 - 1m
						33 - 1.8m
						34 - 1.8m
						35 - 1m
						36 - 1m
						37 - 0.5m
						38 - 2m

819

needs checking.

WHAT THE HELL!

depth = r sin θ

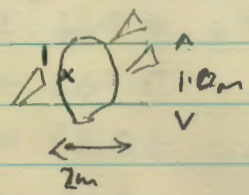
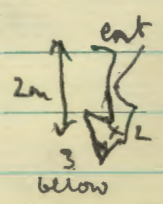


S → S Inc^o Bearing^o Distance $\frac{PMS}{3/5/8h}$

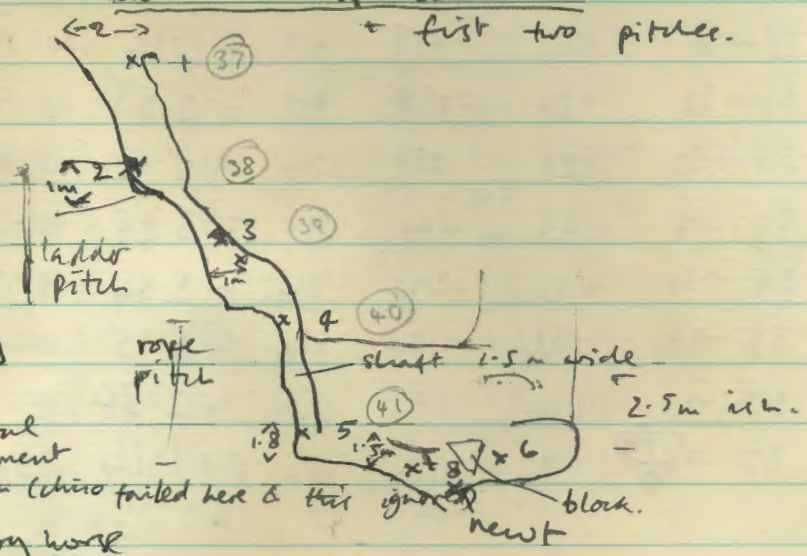
⁶¹⁻⁶⁰ 25 → 24	+49	260	3.8	+ 2.87	104.87
⁶¹⁻⁶⁰ 25 → 26	-26	36	5.6	+ 2.46	107.31
⁶³⁻⁶² 27 → 26	-18	332	3.1	- 1.08	106.23
⁶³⁻⁶⁴ 27 → 28	-12	65	4.0	+ 0.83	107.06
⁶⁴⁻⁶⁴ 29 → 28	+47 -8	243	3.9	- 3.23	103.83
⁶⁵⁻⁶⁶ 29 → 30	+32	110	3.9	- 2.06	101.77
⁶⁷⁻⁶⁶ 31 → 30	+39	238	6.6	+ 4.14	105.91
⁶⁷⁻⁶⁸ 31 → 32	+38	128	7.9	- 4.85	101.06
⁶⁹⁻⁶⁸ 33 → 32	+28	289	12.4	+ 5.80	106.86
⁶⁹⁻⁷⁰ 33 → 34	+23	140	8.9	- 3.48	103.38
⁷¹⁻⁷⁰ 35 → 34	+52	292	7.4	- 5.84	97.54
⁷¹⁻⁷² 35 → 36	-83	90	5.2	+ 5.15	102.69
⁷³⁻⁷² 37 → 36	+26	281	6.4	+ 2.80	105.49
⁷³⁻⁷⁴ 37 → 38	-8	186	8.2	+ 1.14	106.63

First station = red S.I.E. wire marked at entrance

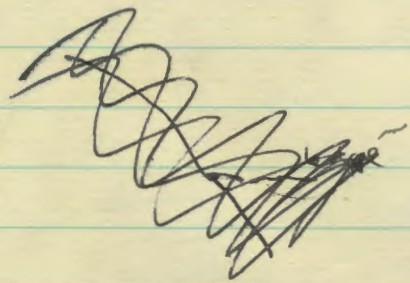
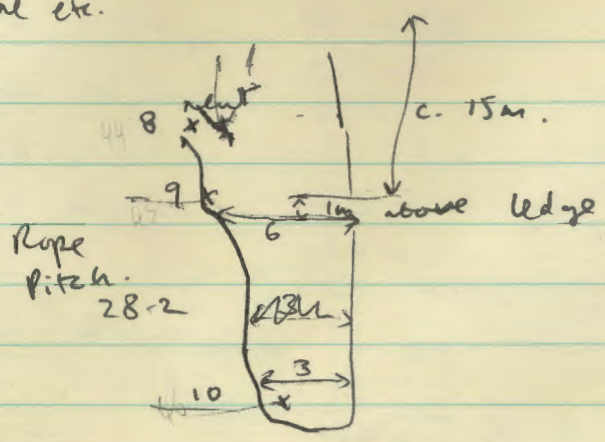
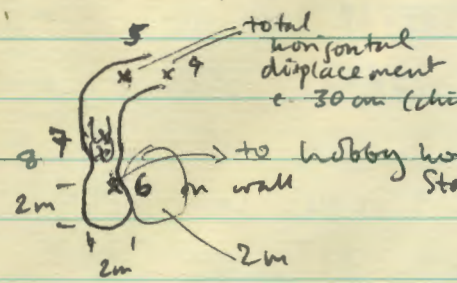
Plan of entrance:



Elevation of entrance
+ first two pitches.

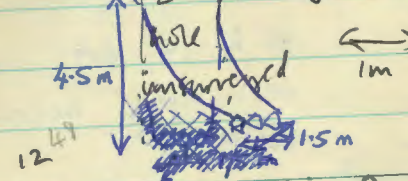
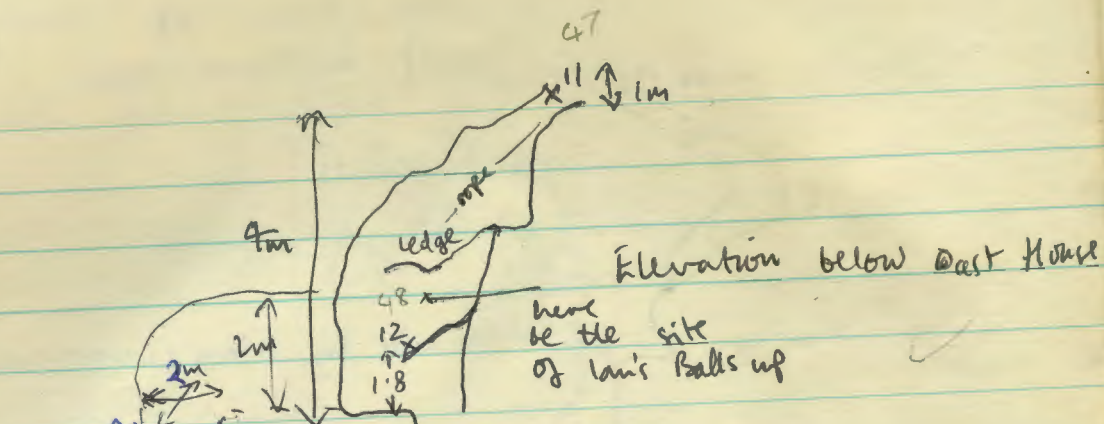


Plan above squeeze (new?)

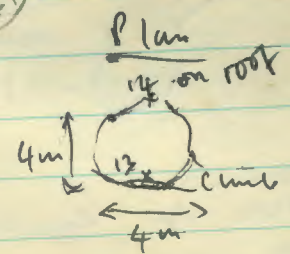
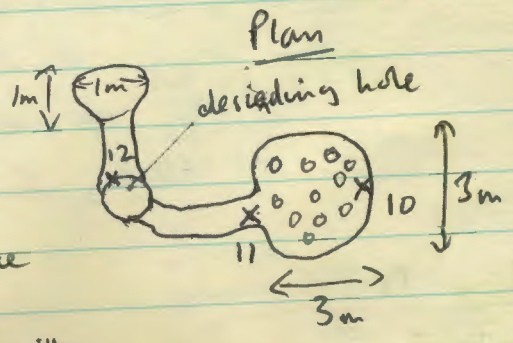
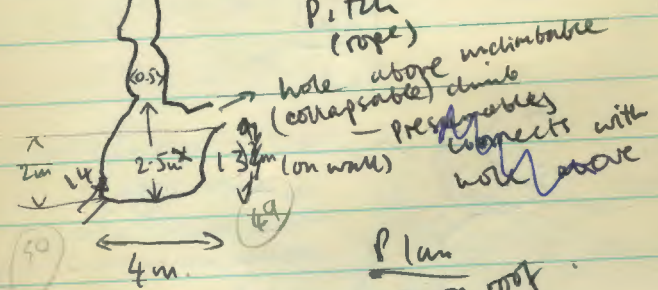


Elevation of Oast House

B21

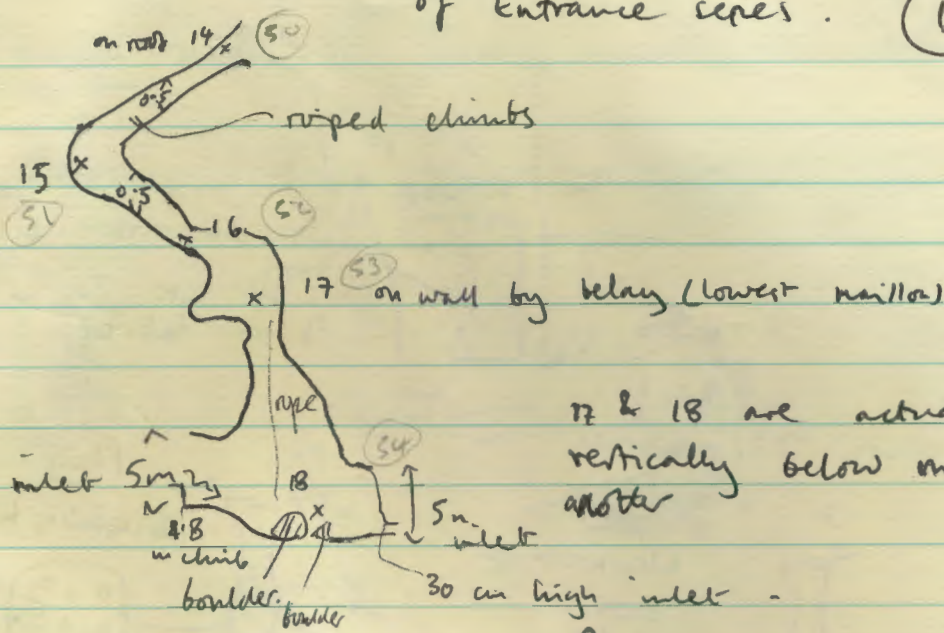


Elevation of owl Pitch (rope)



Elevation of last pitches of Entrance series.

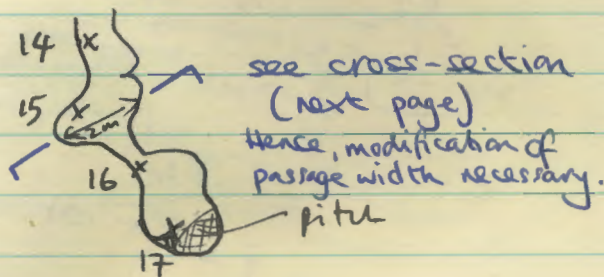
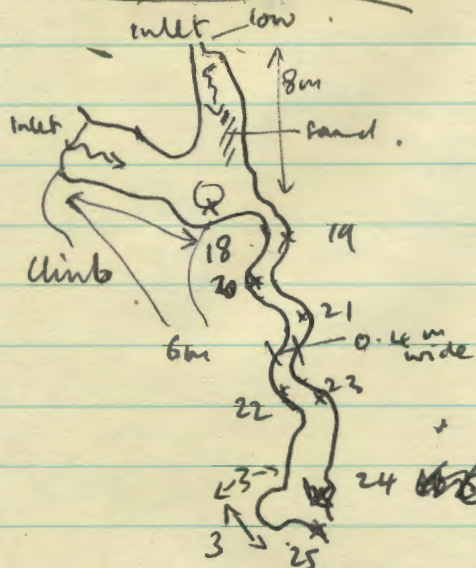
(B22)



17 & 18 are actually vertically below one another

Plan

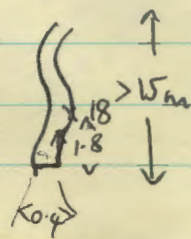
Plan of Streamway



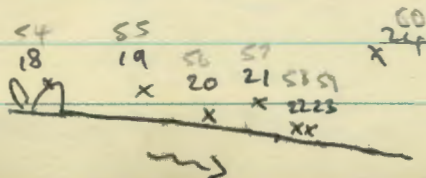
In the interests of expediency the inlets were not sussed.

and everyone else

Xsection

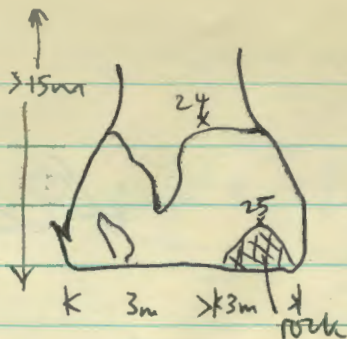


Elevation (to satisfy lan)

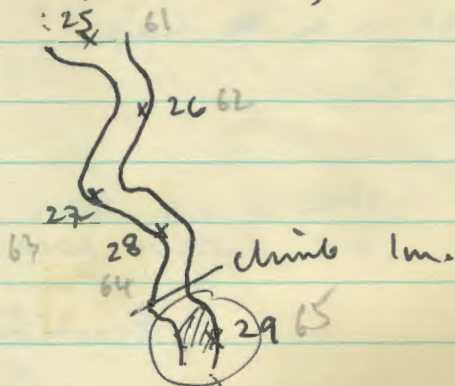


B23

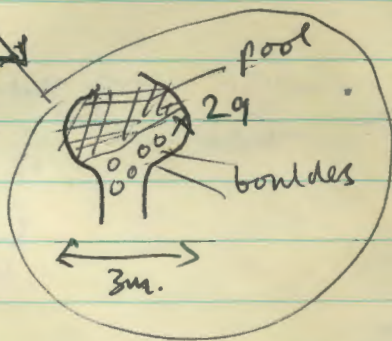
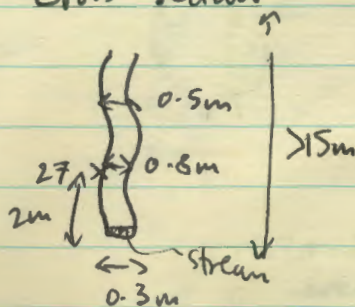
X-section at 24:



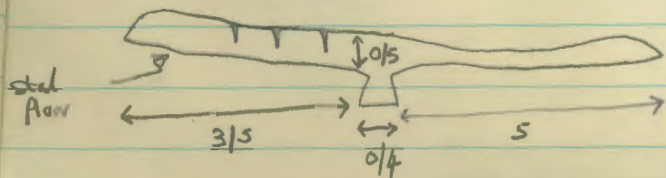
Plan of streamway



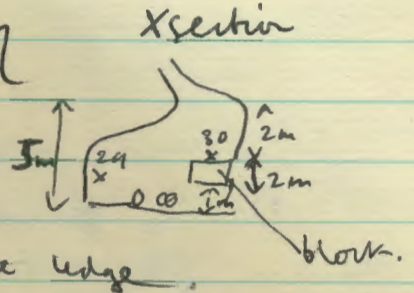
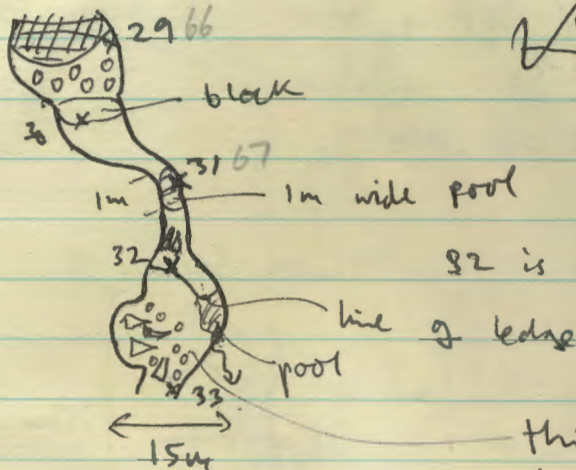
Cross Section



Cross-section (into cave) between stns 15 and 16.



Plan of streamway

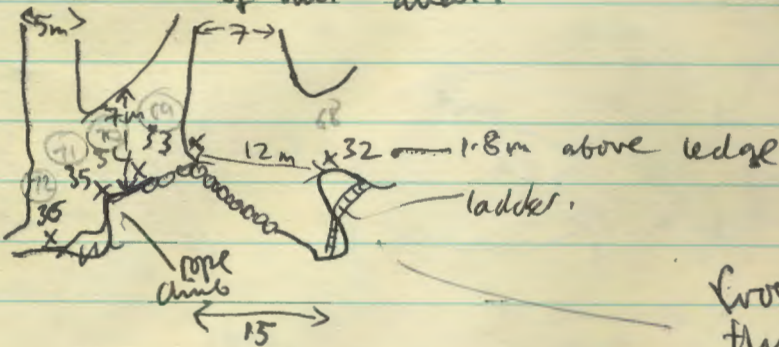


32 is on the ledge

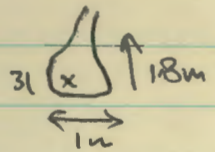
this is not BEGS area but another area.

Elevation

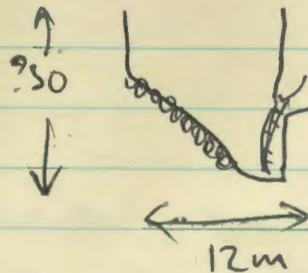
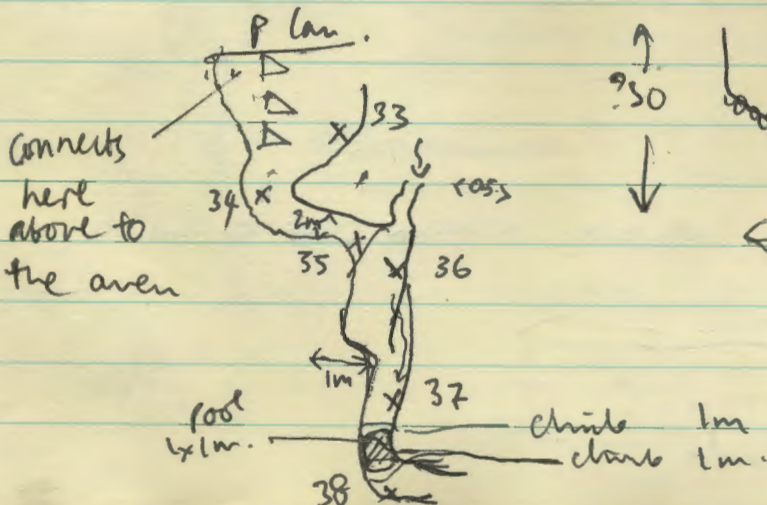
Xsection of this area.



Xsection



Cross Section of this area.

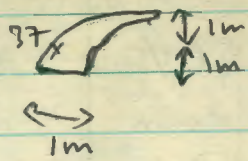


Connects here above to the area

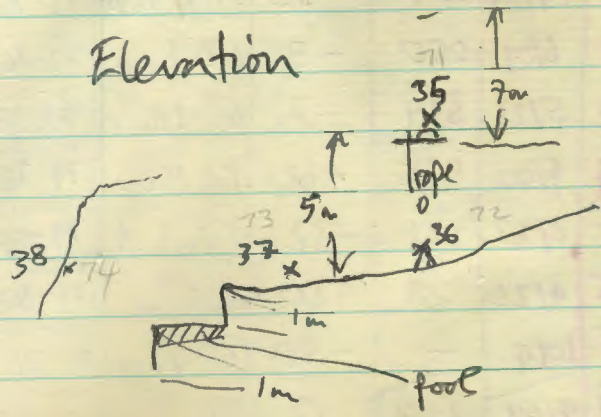
pool 1x1m. chute 1m. chute 1m.

B25

Cross Section



Elevation



57 is at 121/12 m deep.

PHIL ROSE, PHIL DUNCAN + FRED

5/8/82

(B26)

Systematic
Compass error

COMPACT. BLOODY SILLY.

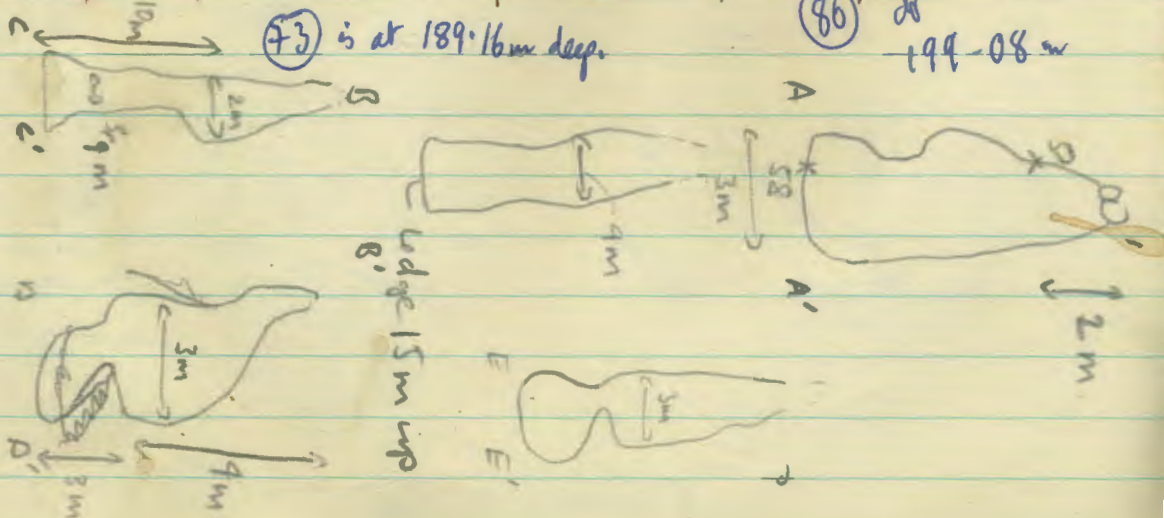
(P15)

Start	Type	Compass	Clino	Str ⁿ ledge	Height	Start	Type	Compass	Clino	Height
94-95										
57-58	10/73	—	-90	(58) on big	73-72	5103	251	-23	(73) 2/5 up	
96-95		171.5					072			
59-58	2/80	341/5	-46	(59) 1/5 m up	73-74	3108	062	-10	(74) 2/2 up	
96-97		125/5					111			
59-60	3/74	115/5	-32	Last drop down	75-74	2165	281	-11	(75) 2/7 up	
98-97		159					024			
61-60	44/74	309	+82	(61) 1/7 up	75-76	3185	014	-2	(76) 2/5 up	
98-99		060					074			
61-62	6/09	050	-8	(62) 1 up	77-76	3142	244	+30	(77) 1/0 up	
100-99		149					003			
63-62	5/23	319	-7	(63) 1/6 up	77-78	5152	353	-6	(78) 1/0 up	
100-101		123/5					311			
63-64	4/00	113/5	-60	(64) 1/5 up	79-78	4137	121	-9	(79) 1/8 up	
101-102		071					019			
64-65	2/87	061	-32	(65) on ground	79-80	315	009	-18	(80) 1/0 up	
103-102		118					328			
66-65	4/26	288	-20	(66) on rope	81-80	4132	138	-2	(81) 1/2 up	
103-104							018			
66-67	10/4	—	-90	(67) 1/7 up	81-82	7121	008	-31	(82) 1/7 up	
105-104		087					319			
68-67	4/49	257	0	(68) u	83-82	4185	129	+19	(83) 2/5 up	
105-106		073					074			
68-69	2/68	063	-21	(69) 1/7 up	83-84	6100	064	-21	(84) 2 up	
107-106		067					352			
70-69	3/63	237	-16	(70) 1/7 up	85/84	2158	162	+19	(85) 1/5 up	
107-108		108					034			
70-71	3/48	098	-6	(71) 1/2 up	85/86	5108	024	-1.5	(86) 1/5 up	
108-109		061					004			
71-72	2/8	051	-14	(72) 1/8	87/86	2442	174	-57	(87) 4/5 up	
110-109		091								
73-72	5/03	251	-23	(73) 2/5						

(73) is at 189.16 m deep.

(86)

at 199.08 m

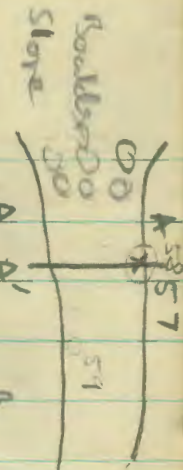


17/8/84
 RESURVEY LEG WITH
 68 → 67
 TWO COMPASSES AS
 267°

PMS
 (Solo)

B27

Plan at bottom of patch



Plan at Top of patch

Plan at big ledge with relayage level.

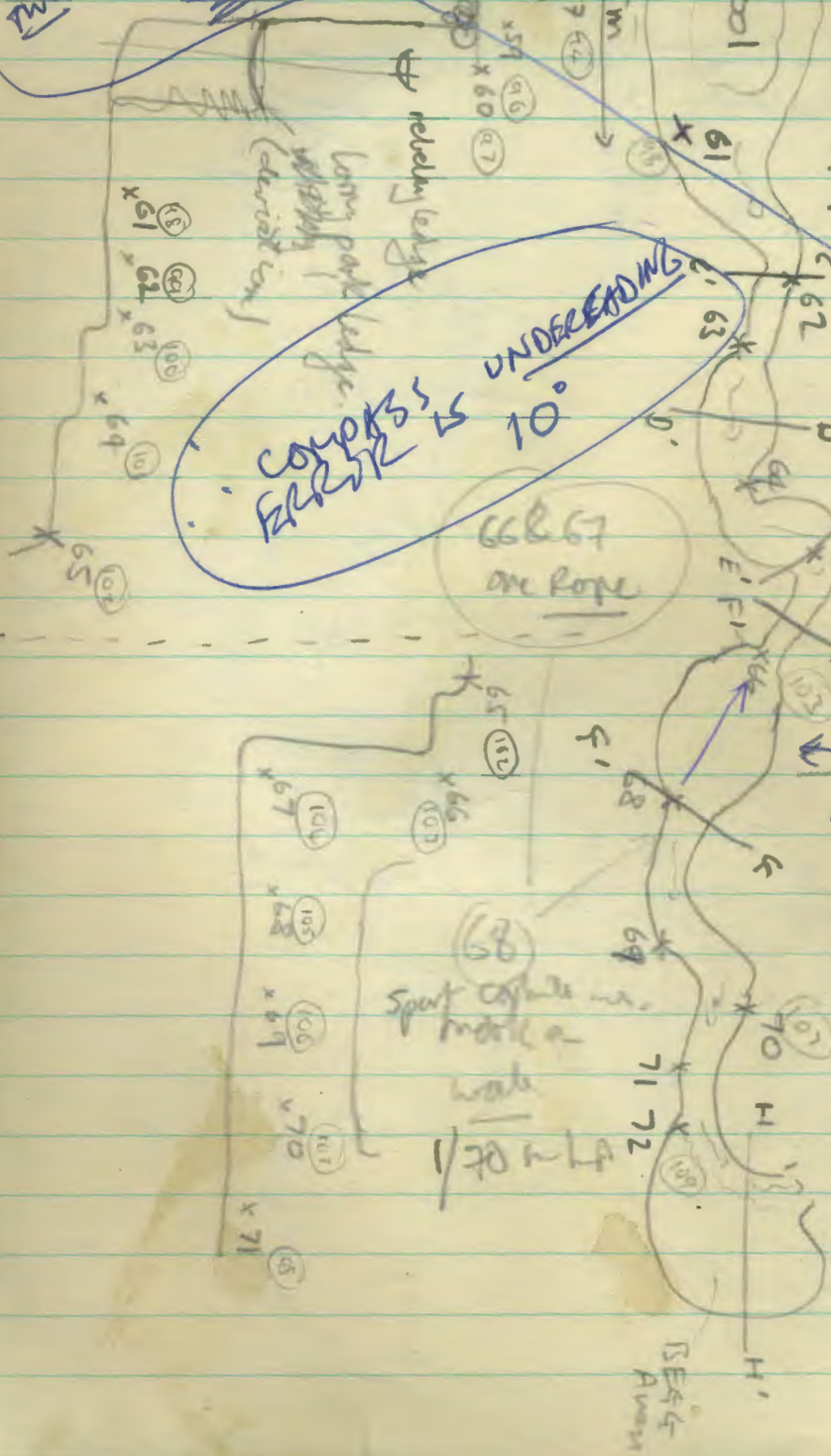
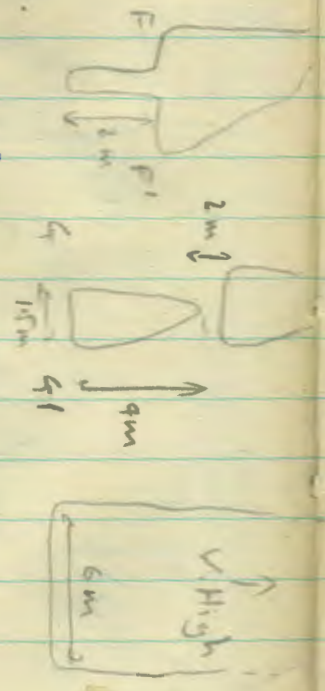
COMPASS UNDERREADING 10°

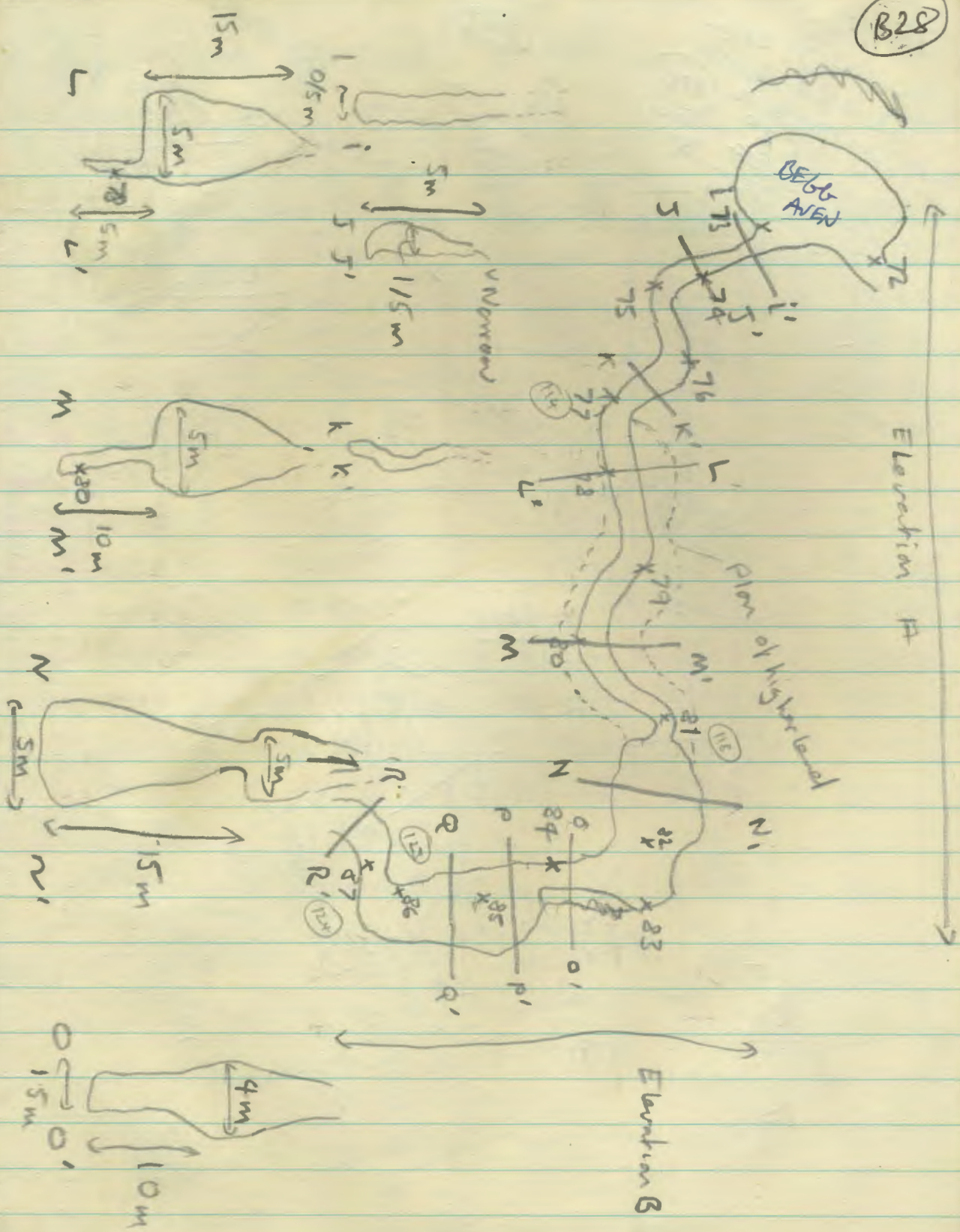
66 & 67 on rope

Shaven hedgehog 79/99

Spot capsule mark

Walt

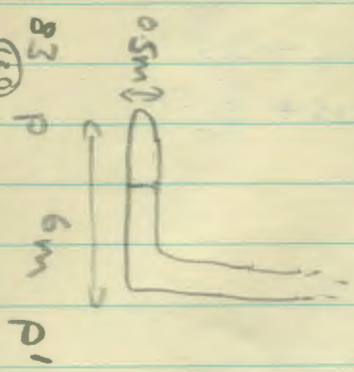
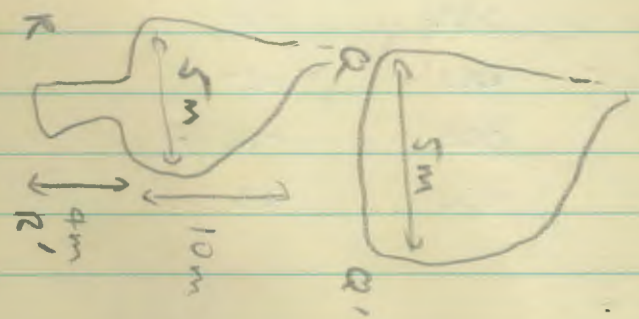
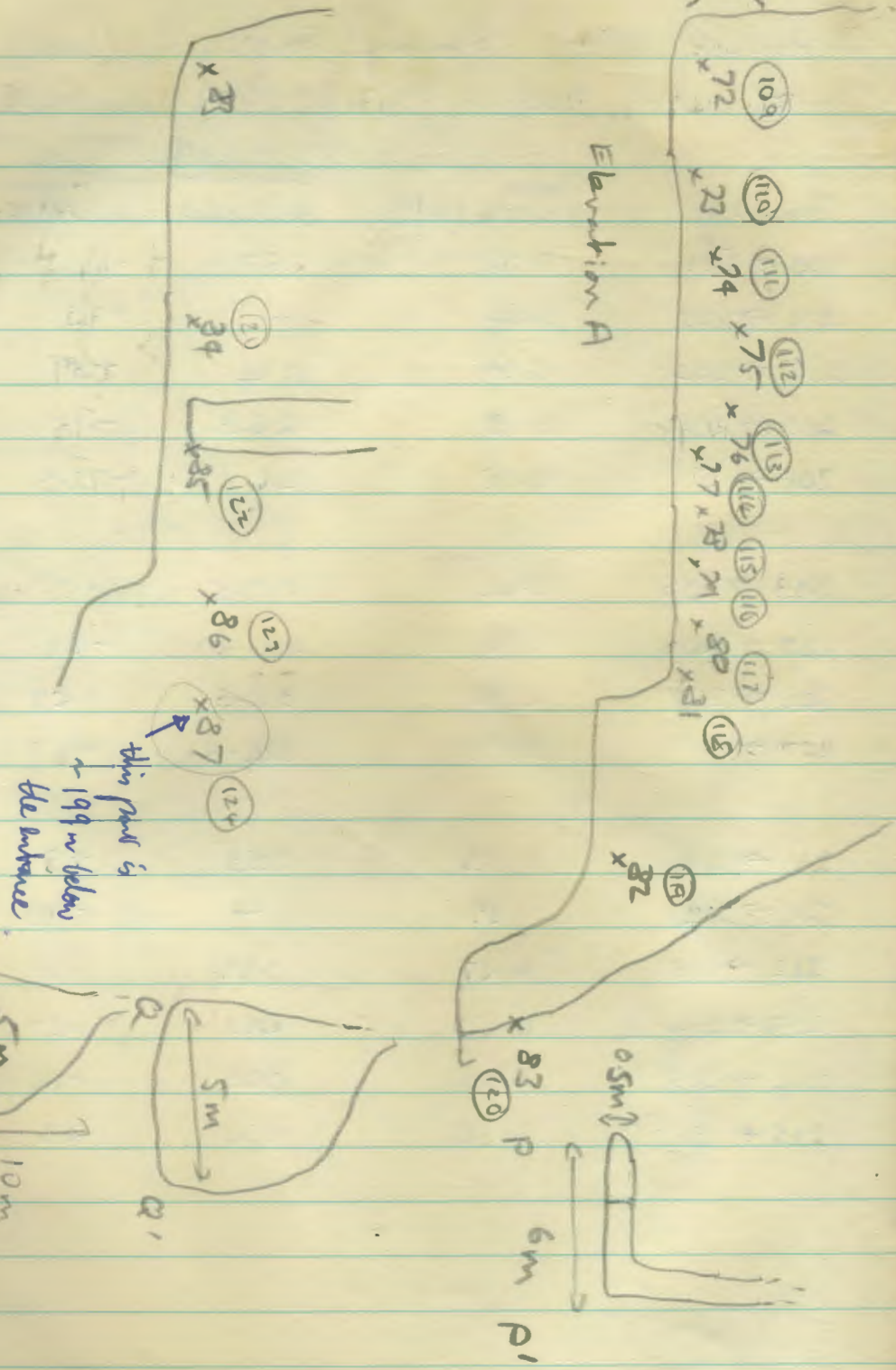




B29

Wall
of Aven

Elevation A

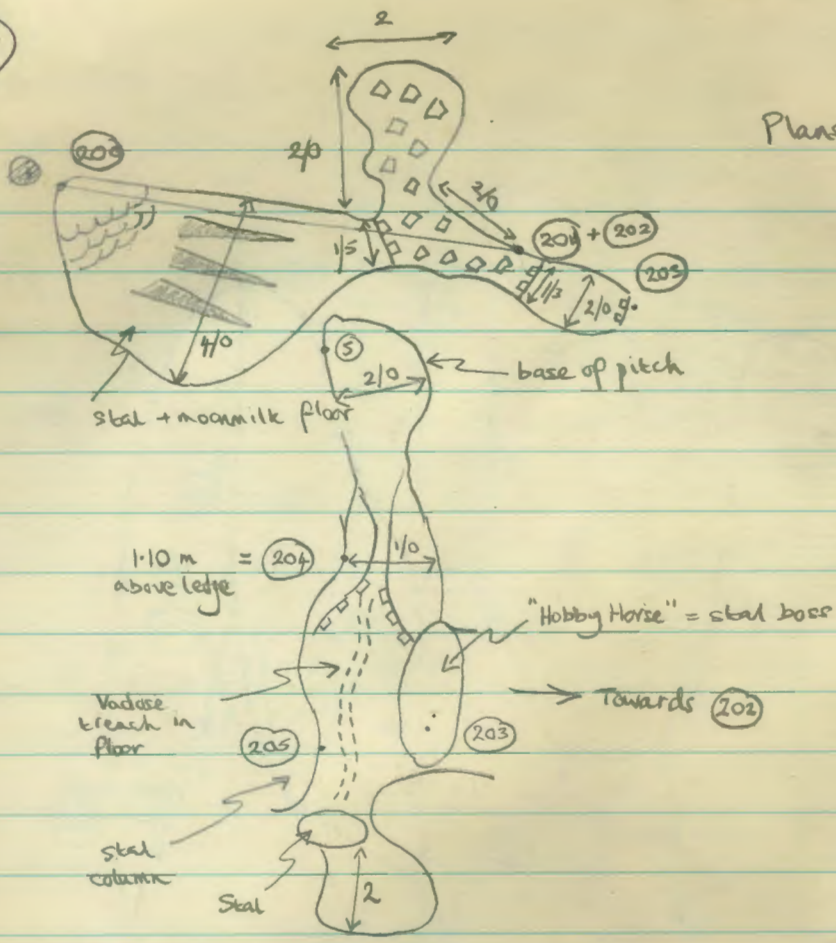


6 August 1984 Survey: Stephen G. (book), Phil S. (instruments), Dave H. (tape). SOG equipment.

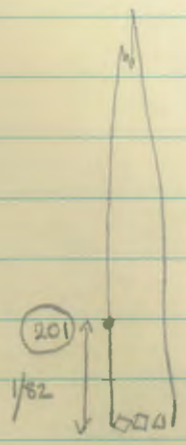
Sta leg	Sloping Distance (m)	(degrees)	
		Declination	Inclination
200 → 201	7.92	057	-44.5
201 → 202	3.84	—	+90
202 → 203	5.09	074	+59
203 → 204	3.18	125.5	-15
204 → 5 ⁴¹	4.08	146	-72.5
203 → 205	3.44	053.5	-53
205 → 206	5.98	200.5	-86
206 → 207	0.80	310.5	-57
207 → 9 ⁴⁵	3.85	024.5	-67
210 → 211	2.35	355	+8
211 → 212	1.69	—	+90
212 → 213	4.67	359	-61
213 → 214	4.50	062	-27
214 → 215	6.53	003	-16
215 → 18 ⁵⁴	4.36	030	+6

(581)

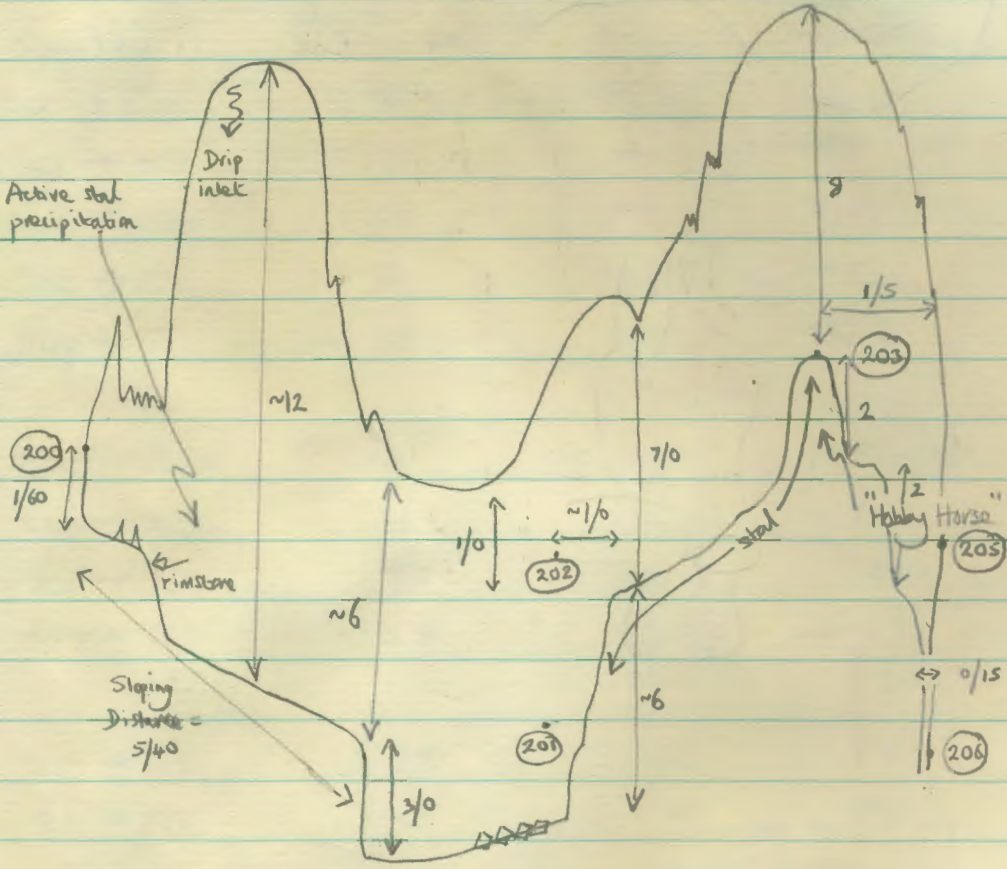
Plans



Cross section out of cave

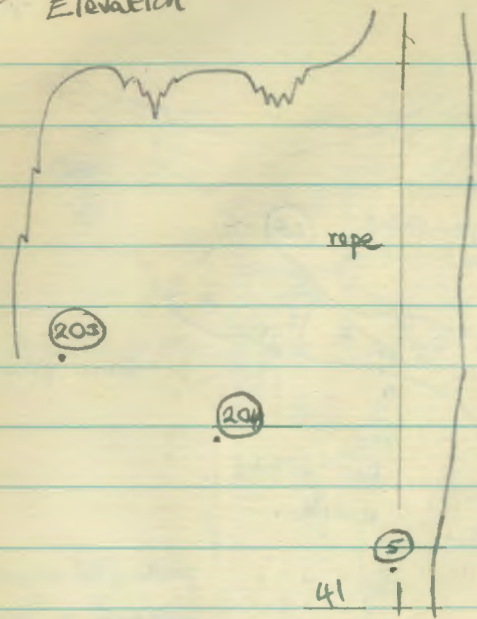


ELEVATION

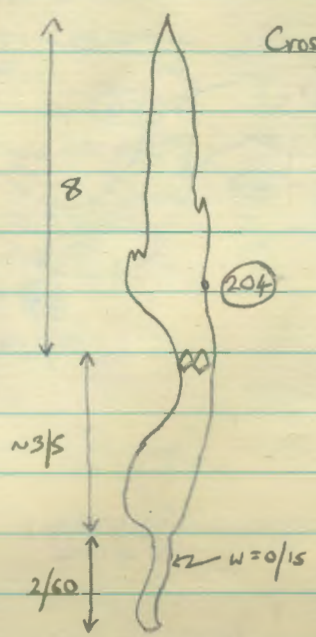


B33

Elevation

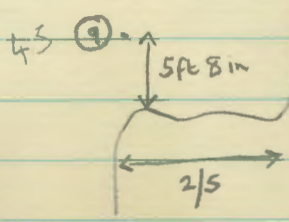


Cross-section into cave

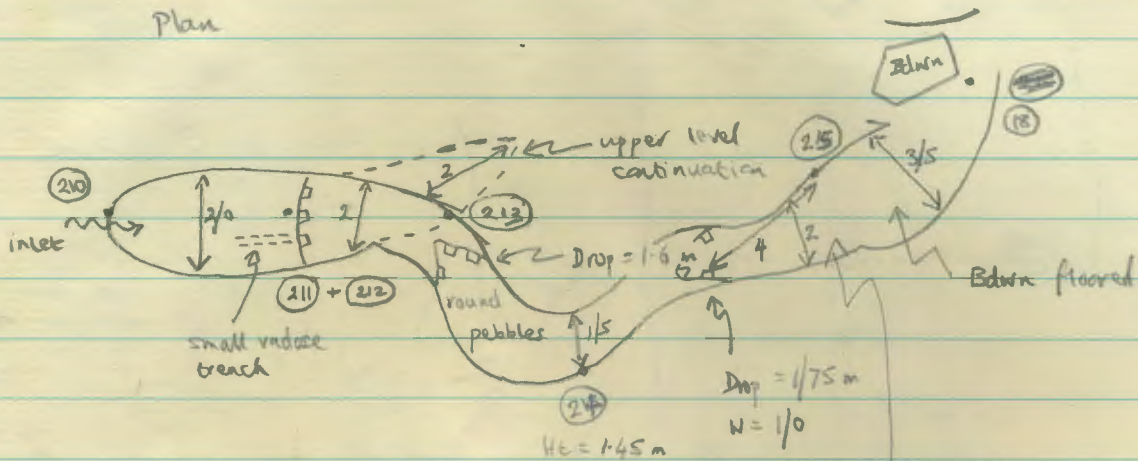


207

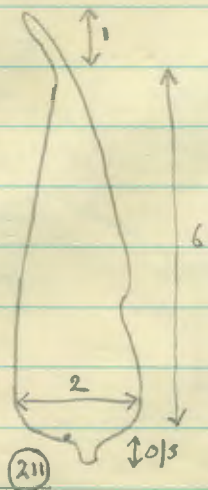
Elevation



Plan



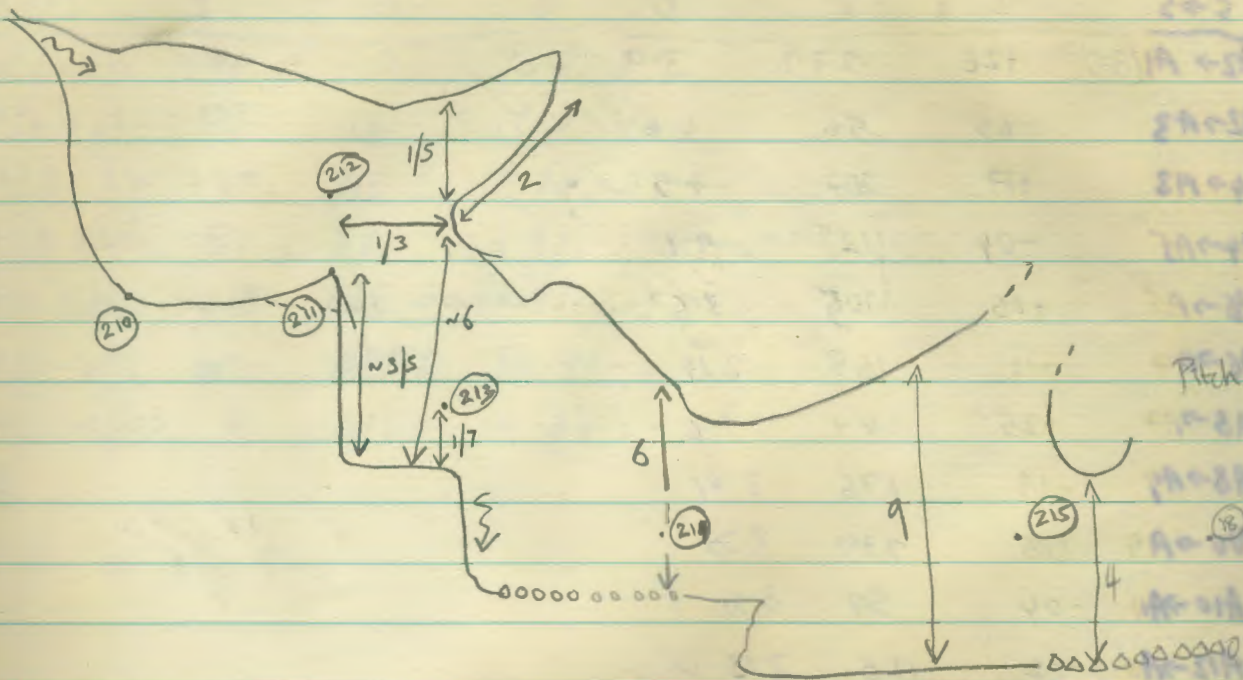
pebble-filled meandering channel on floor
~0.3 m wide



Cross-section out of cave

He of str 18 = 1.8 m

B355



Stolomway survey IV.

Book R.C.
Tape D.R.
Instruments SW.

B36

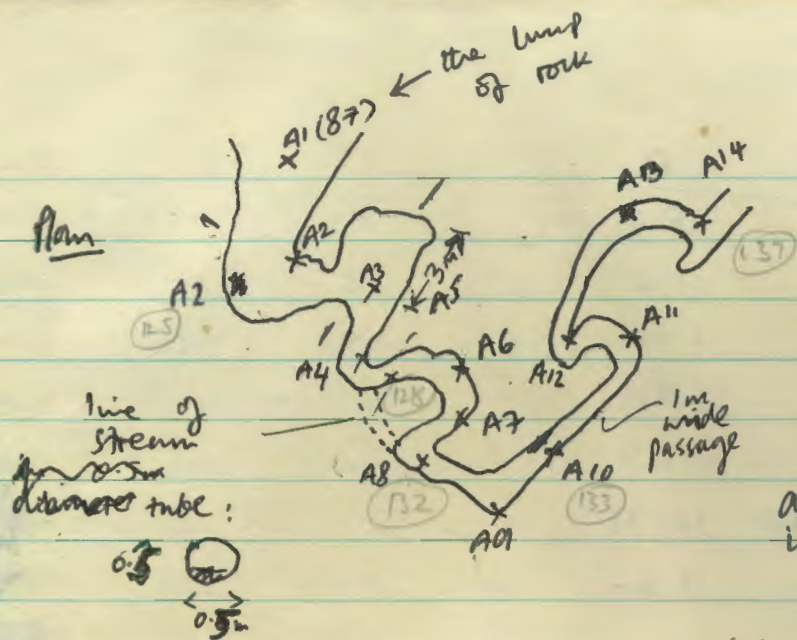
S → S.	I. a	B.	D.	
¹²⁵ A2 → ¹²⁴ A1 (87)	+26	279	3.9	✓
¹²⁵⁻¹²⁶ A2 → A3	-45	56	4.6	✓
¹²⁷⁻¹²⁶ A4 → A3	+17	267	4.5	✓
¹²⁷⁻¹²⁸ A4 → A5	-04	12	4.1	✓
¹²⁹⁻¹²⁸ A6 → A5	+06	305	3.6	3.56 on survey sheet
¹²⁹⁻¹³⁰ A6 → A7	-11	168	2.14	✓
¹³¹⁻¹³⁰ A8 → A7	+25	44	2.6	✓
¹³¹⁻¹³² A8 → A9	-18	176	3.41	✓
¹³³⁻¹³² A10 → A9	+25	279	3.35	✓
¹³³⁻¹³⁴ A10 → A11	-04	59	8.51	✓
¹³⁵⁻¹³⁴ A12 → A11	-02	125	3.13	✓
¹³⁵⁻¹³⁶ A12 → A13	+10	351	4.25	✓
¹³⁷⁻¹³⁶ A14 → A13	+21	240	4.09	✓
¹³⁷⁻¹³⁸ A14 → A15	-42	348	5.54	(closing) ✓
¹³⁹⁻¹³⁸ A16 → A15	-07	257	7.98	✓
¹³⁹⁻¹⁴⁰ A16 → A17	-28	50	7.8 ^{5x}	✓
¹⁴¹⁻¹⁴⁰ A18 → A17	+46	220	5.1	✓
¹⁴¹⁻¹⁴² A18 → A19	0	346	4.6	✓
¹⁴³⁻¹⁴² A20 → A19	+90	0	20.5	✓
¹⁴³⁻¹⁴⁴ A20 → A21	+16	37	9.7	✓
¹⁴⁵⁻¹⁴⁴ A22 → A21	+10	194	4.45	✓
¹⁴⁵⁻¹⁴⁶ A22 → A23	-54	98	3.24	3.23 on survey sheet
¹⁴⁷⁻¹⁴⁶ A24 → A23	+03	232	8.33	✓
¹⁴⁷⁻¹⁴⁸ A24 → A25	+23	36	5.71	✓

(B37)

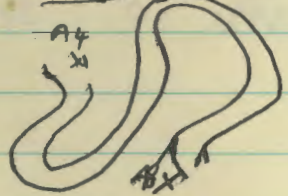
S→S	I	B	D.
¹⁴⁹⁻¹⁴⁸ A26→25	+90	0	18.91 ✓
¹⁴⁹⁻¹⁵⁰ A26→27	-03	16	13.0 ✓
¹⁵¹⁻¹⁵⁰ A28→27	+45	213	6.94 ✓
¹⁵¹⁻¹⁵² A28→29	-53	68	(3.81) 3.82 on survey sheet
¹⁵³⁻¹⁵² A30→A29	+18	185	4.49 ✓
¹⁵³⁻¹⁵⁴ A30→A31	90	210 210	34.76
¹⁵⁵⁻¹⁵⁴ A32→A31	0	216	9.87 ✓

49

Plan

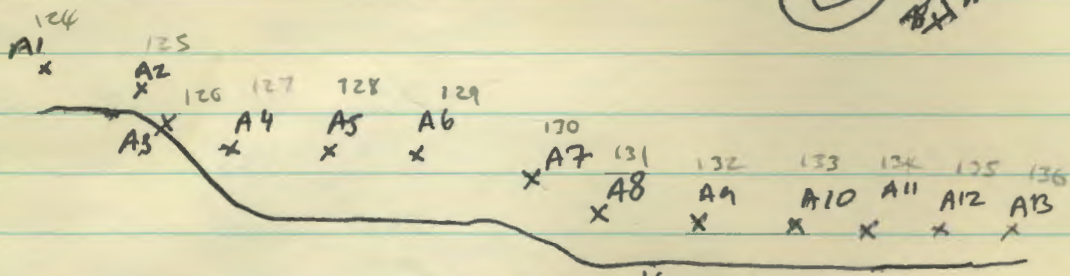


The Oxbow lies between A5 and AB and is roughly

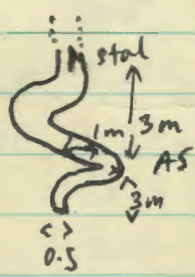
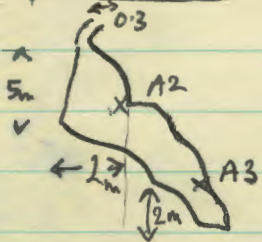


but I could be wrong.

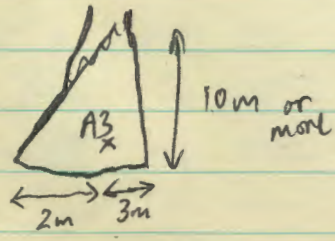
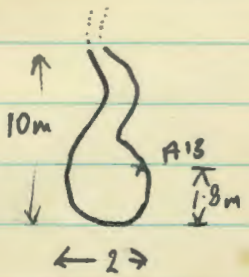
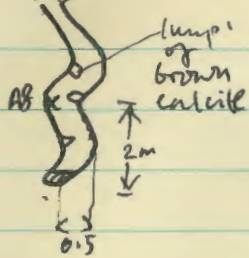
Elevation



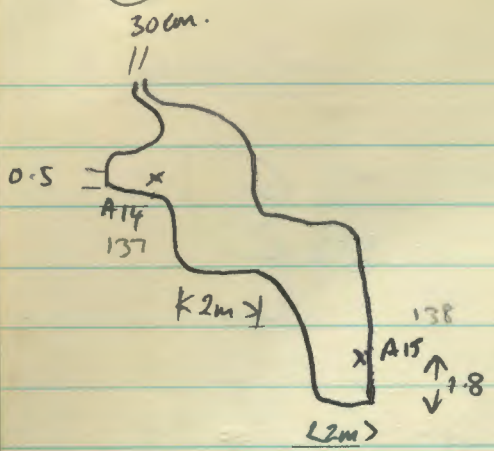
Cross section



how high are these passage? more than 10m. & too tight to climb.

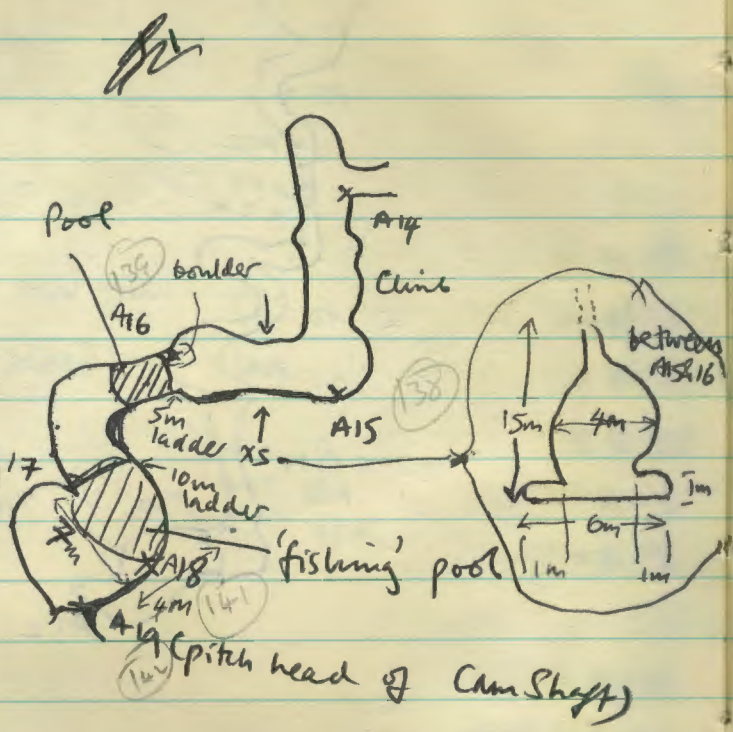


B39

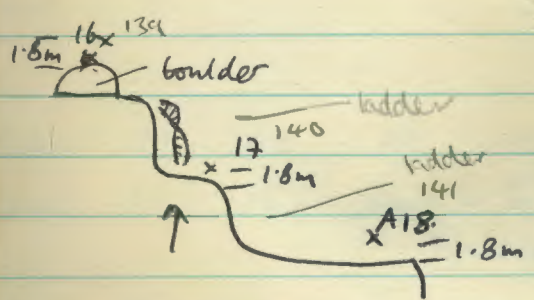


Elevation of Climb ↑

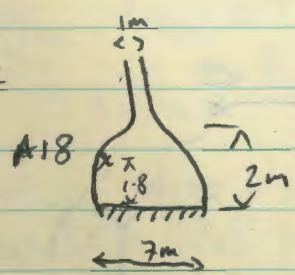
Plan



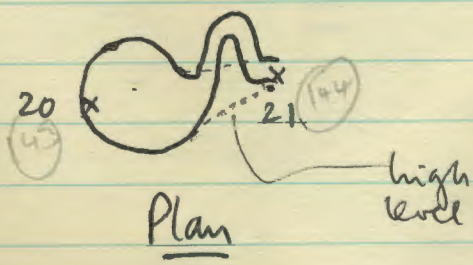
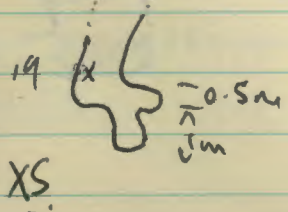
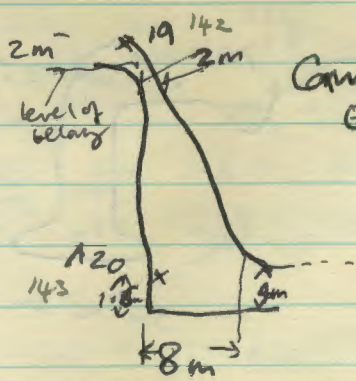
Elevation



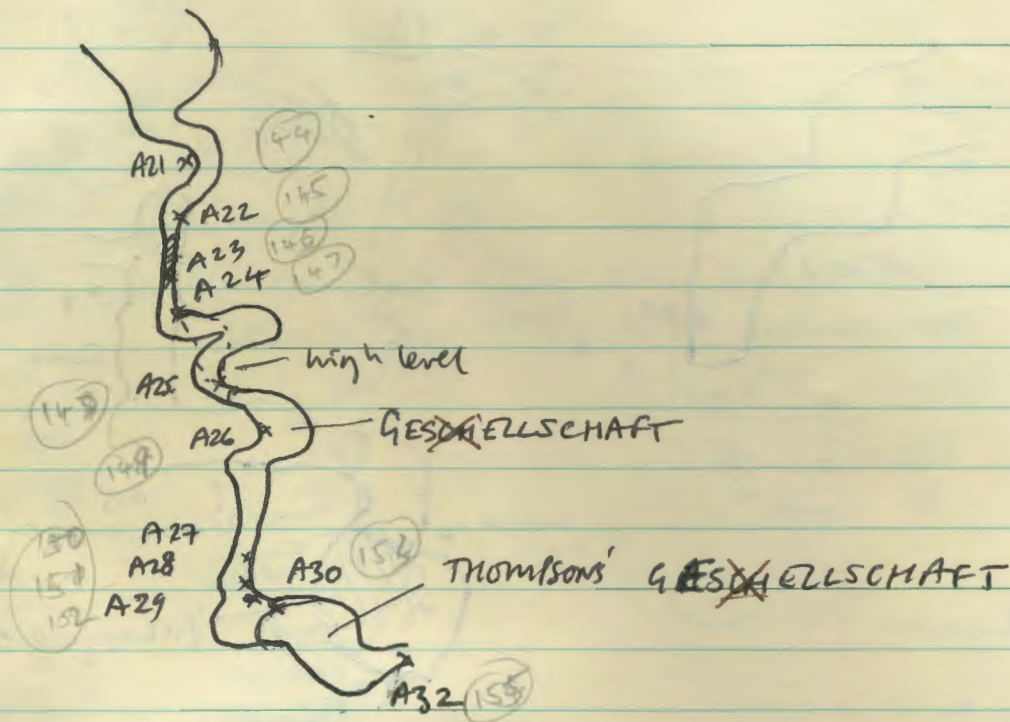
Cross-sec



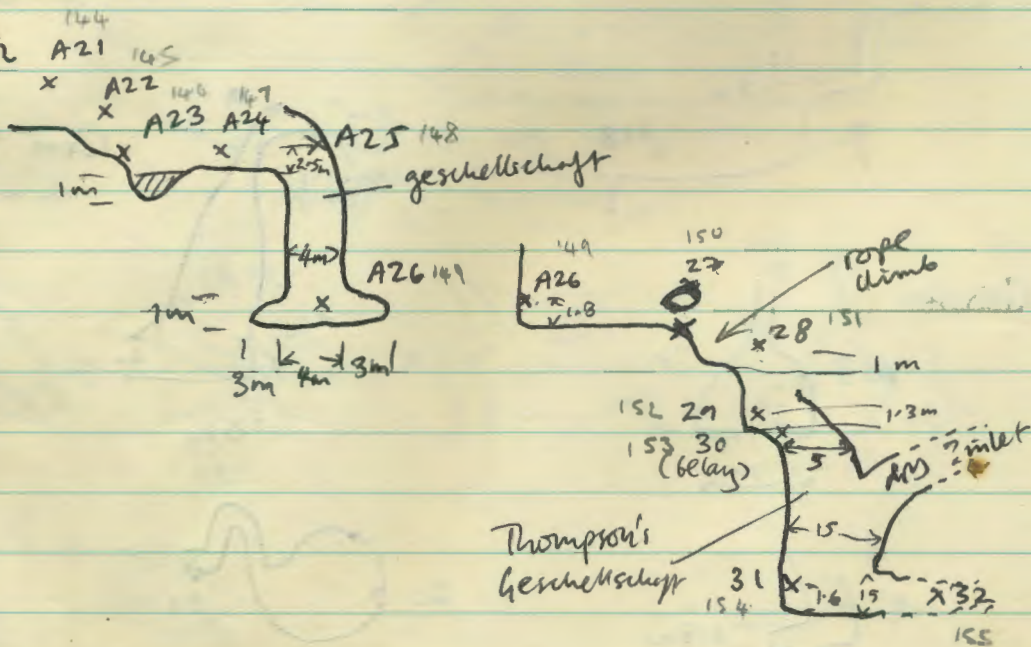
Cam Shaft Elevation



Plan

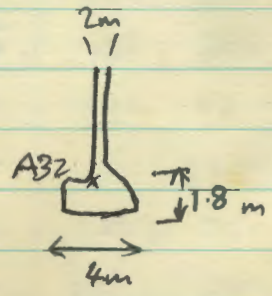
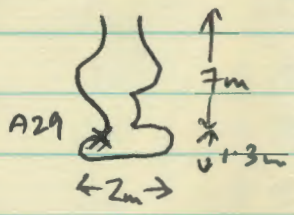
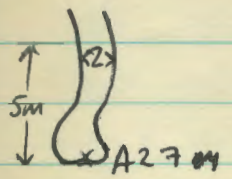
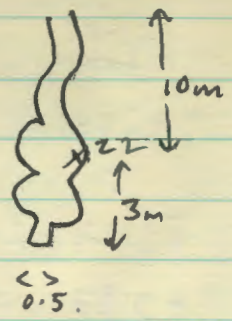
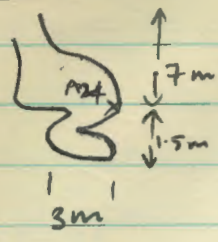


Klervator



B44

Cross sections



Station	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Height	1.5m	1.8m	2m	3m	high level c. 3	level c. 3	c. 3	2m	2m	0.5

Station	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20
Height	0.5	0.5	1.8	0.5	1.8	1.8	1.8	1.8	9m above base	1.6

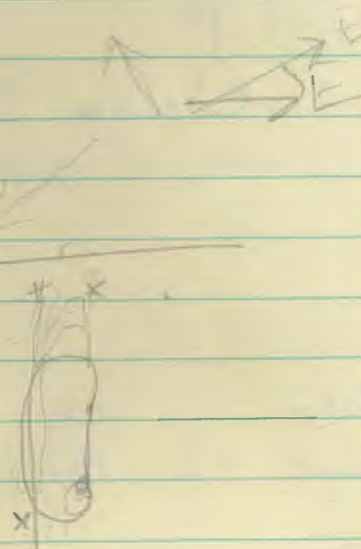
Station	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30
Height	2m	3m	1.5	1.5	2.5m above pitch lead	1.8	mid (stream) level	1m	1.3	belly

Station	A31	A32
Height	1.6	1.8

back sight - in & depth same sign (B42)
 fore sight - in & depth different signs

¹⁴⁻¹⁵ 22-23 ✓ 30/0	+10	295	-5.20	
¹⁴⁻¹⁵ 22-23 ✓ 30/0	-02	140	-1.03	2.66
¹⁴⁻¹³ 24-25 ✓ 30/0	+07	313	-3.66	
¹⁴⁻¹³ 26-25 ✓ 30/0	00	120	0	
¹²⁻¹¹ 26-27 ✓ 30/0	+08	286	-4.17	-57.31
¹⁰⁻¹¹ 28-27 ✓ 4/83	+02	082	+0.97	-57.14
¹⁰⁻⁹ 28-29 ✓ 30/0	+03	329	-1.57	
⁹⁻⁹ 30-29 ✓ 30/0	-10	166	-5.20	
⁸⁻⁷ 30-31 ✓ 30/0	+04	332	-2.09	
⁶⁻⁷ 32-31 ✓ 30/0	-02	142	-1.03	
⁶⁻⁵ 32-33 ✓ 30/0	+03	328	-1.57	-68.60
⁴⁻⁵ 34-33 ✓ 30/0	-09	162	-4.70	
⁴⁻³ 34-35 ✓ 30/0	+07	018	-3.66	-76.96
²⁻³ 36-35 ✓ 20/0	+05	155	+1.75	
²⁻¹ 36-37 ✓ 15/5	-06	238	+1.61	-73.60

(28) coin a peak
 for top camp



- (36) 1.55 m above E end of Xitu entrance.
- (37) at W end of Xitu entrance.

VERTICAL DISTANCE BETWEEN
 ENTRANCES 1/5 (XITU) & 12/5 (CISTERN)

IS 73.60 m

Steam
 method!

PMS 9/8/84 slide rule +
 hand addition!

(243)

SURFACE

SURVEY

SARA

+ PHILIP S.

CISTRAS → XITU 9th AUG - 1984

Stat of geology & structures.

S-S	t.	clima	compas.	leg dyt	tot. dyt	SI	SIE
36-37							circle at
2-1	11/85	-41	110	-07.75	-7.75	445	circle at
35-38							
2-3	22/40	+06	289	-2.36	-10.11	275	circle at
34-35							
4-3	30/0	00	132	0	-10.11	251	circle at
34-33							
4-5	30/0	+08	321	-4.17	-14.28	98	circle at
32-33							
6-5	30/0	+12	108	+6.24		248	circle at
32-31							
6-7	30/0	-13	325	+6.75		48.2	circle at
30-31							
8-7	30/0	+18	095	+9.27		12.2	circle at
30-29							
8-9	30/0	-13	307	+6.75	+14.73	1PR	circle at
28-29							
10-9	30/0	-09	108	-4.70		24.5	circle at
28-27							
10-11	30/0	+11	293	-5.73		22.8	circle at
26-27							
12-11	30/0	-08	076	-4.18		35.2	circle at
26-25							
12-13	30/0	+18	331	-9.27	-9.15	10.1	circle at
24-25							
14-13	30/0	+12	084	+6.24		23.5	circle at
24-23							
14-15	35/5	+10	281	-5.20		41.8	circle at
22-23							
15-15	30/0	+12	074	+6.24	-1.87	54.2	circle at
22-21							
16-17	30/0	+32	261	-15.90		02.4	circle at
20-21							
18-17	30/0	-13	102	-6.75		27.8	circle at
20-19							
18-19	30/0	+10	311	-5.20		18.4	circle at
18-19							
20-19	30/0	-03	136	-1.57		2.2	circle at
19-17							
20-21	30/0	+12	293	-6.24		5.11	circle at
16-17							
22-21	30/0	-11	108	-5.72	-43.25	8.11	circle at

Richard (book) knocked over instrument.
 Dave H. (tape)
 Fred (instrument).

B44

Citra Survey

B1 = A32

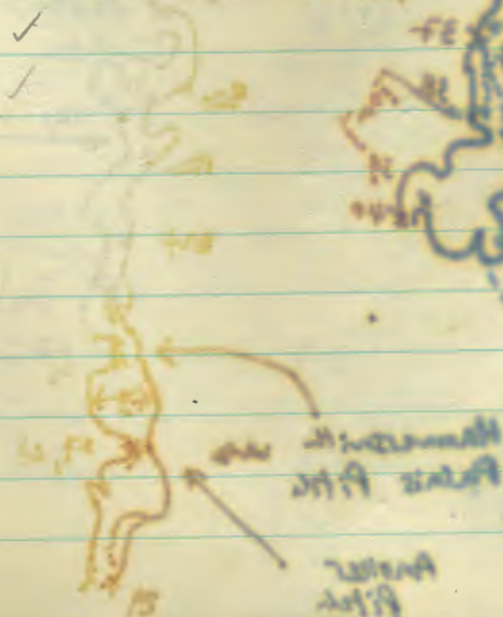
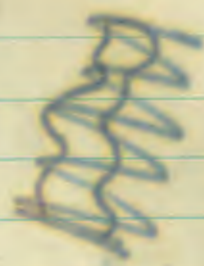
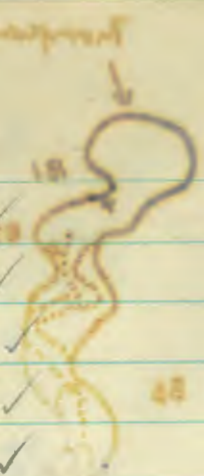
S+1	E	B	D.
155-156			
B1 → B2	+32	13	5.85 ✓
157-156			
B3 → B2	-19	247	12.89 ✓
157-158			
B3 → B4	-09	356	6.20 ✓
159-158			
B5 → B4	+70	172	6.8 ✓
159-160			
B5 → B6	-59	69	6.0 ✓
161-160			
B7 → B6	+48	246	15.02 ✓
161-162			
B7 → B8	-90	0	6.84 ✓
163-162			
B9 → B8	0	237	5.80 ✓
164-163			
B10 → B9	-11	291	3.46 ✓
164-165			
B10 → B11	+08	74	7.45 ✓
166-165			
B12 → B11	-06	222	9.55 ✓
168-167			
B12 → B13	+07	331	3.38 ✓
168-167			
B14 → B13	+36	204	10.36 ✓ <small>10.56 on survey sheet</small>
168-169			
B14 → B15	-59	69	2.62 ✓
170-169			
B16 → B15	-02	296	8.10 ✓
170-171			
B16 → B17	-14	141	6.47 ✓
172-171			
B18 → B17	0	304	4.60 ✓
172-173			
B18 → B19	+15	132	3.96 ✓
174-173			
B20 → B19	+1	009	4.89 ✓
174-175			
B20 → B21	+12	121 <small>129 on survey sheet</small>	5.5 ✓
176-175			
B22 → B21	+72	13	11.2 ✓ <small>11.1 on survey sheet</small>
176-177 <small>minw</small>			
B22 → B23	-04	118	5.08 ✓

8d

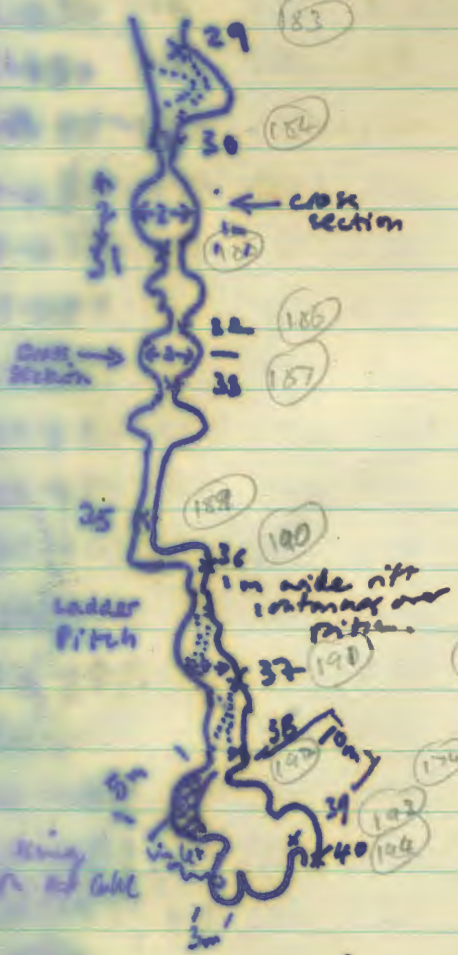
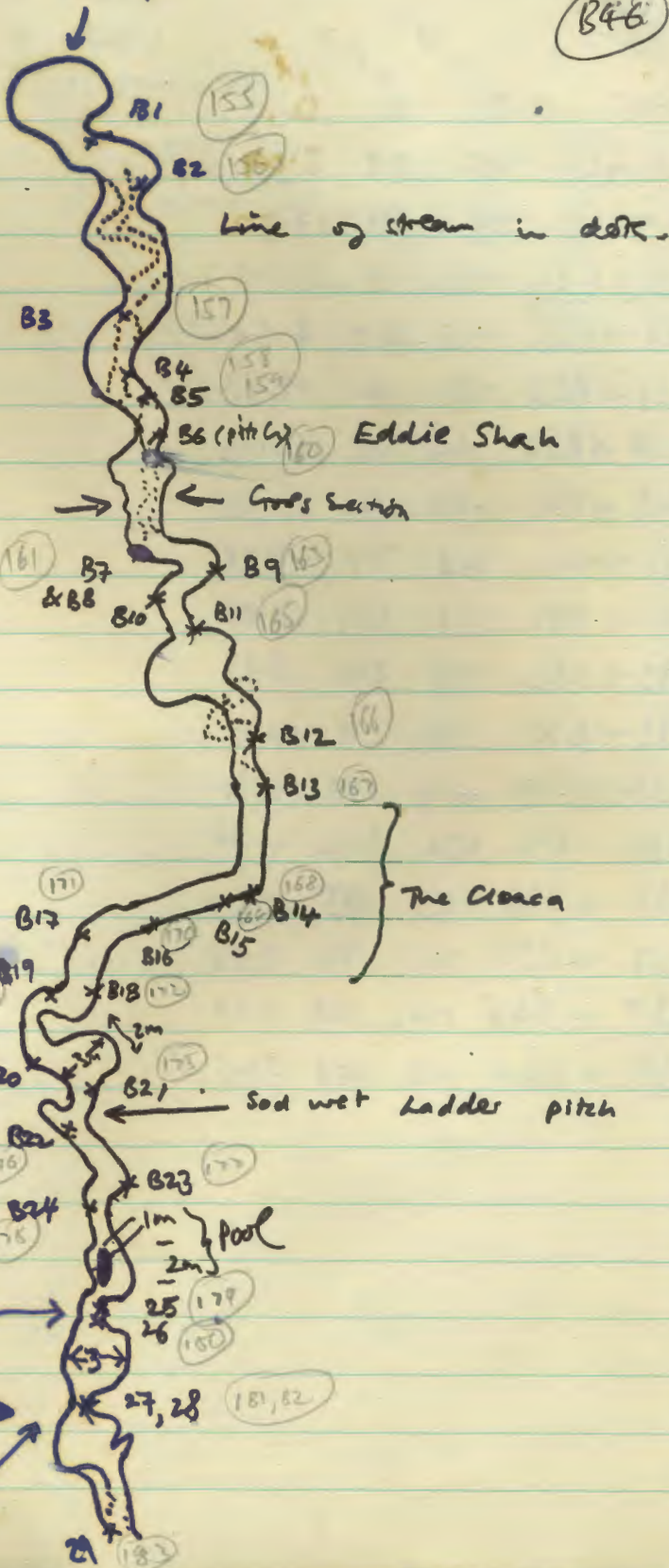
p8

B45

S → S	Inclination I	B curv	D. $\frac{c \cdot 10^4}{D}$
178-177			
B24 → 23	-05	08	3.09
178-179			
B24 → B25	-52	81	17.52
179-180			
B25 → B26	-90	0	6.18
181-180			
B27 → B26	-13	209	6.30
181-182			
B27 → B28	-90	0	12.83
183-182			
B29 → B28	-26	202	12.13
183-184			
B29 → B30	-27	21	10.20
185-184			
B31 → B30	+18	214	7.28
185-186			
B31 → B32	-17	359	3.89
187-186			
B33 → B32	-03	216	3.95
187-188			
B33 → B34	-90	0	15.71
189-188			
B35 → B34	+10	196	12.36
189-190			
B35 → B36	+36	304	4.39
191-190			
B37 → B36	+43	193	16.53
191-192			
B37 → B38	-46	94	7.87
192-193			
B39 → B38	+46	188	15.39
193-194			
B39 → B40	-23	007	5.44



Plan



Hammersmith Palais Pitch

Another Pitch

line of stream in dark.

Eddie Shah

Cross Section

Creek section

The Cloaca

Sod wet Ladder pitch

Pool

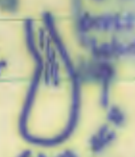
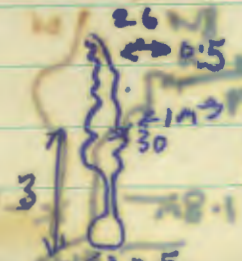
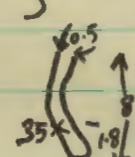
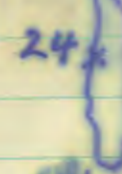
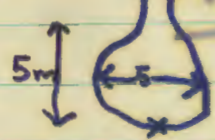
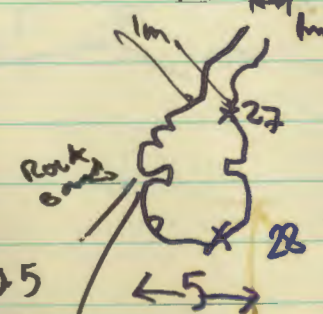
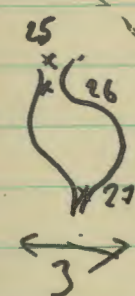
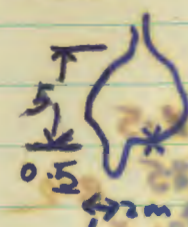
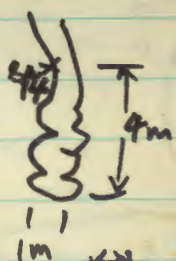
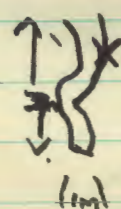
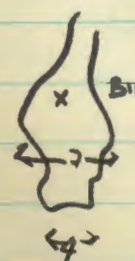
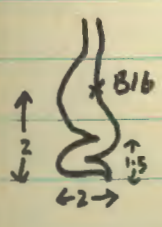
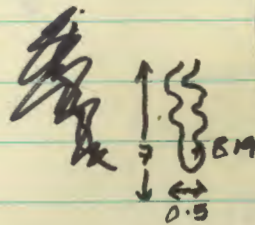
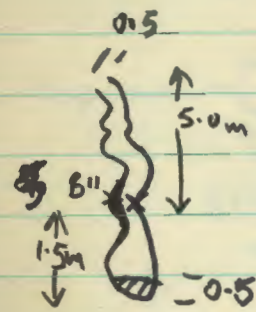
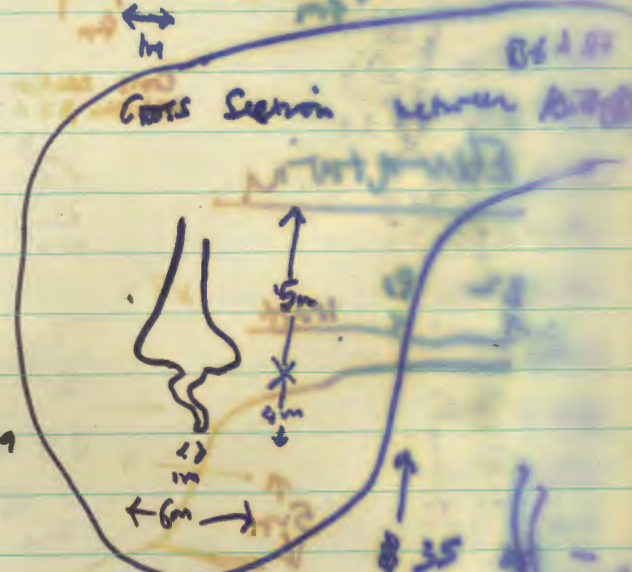
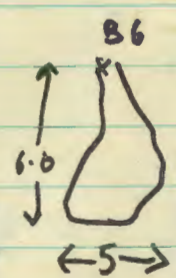
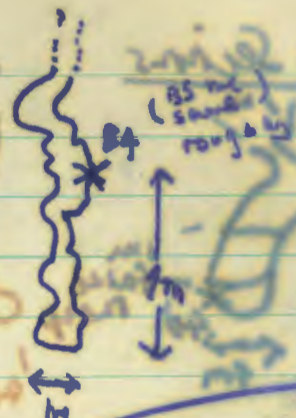
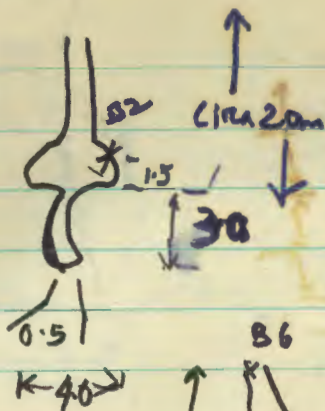
181, 82

183

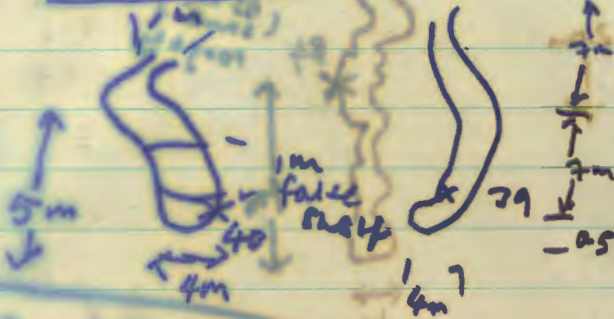
B47

B Stations

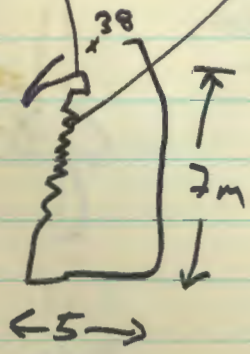
Cross Section



Cross Sections

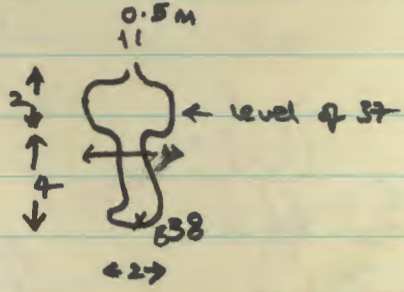
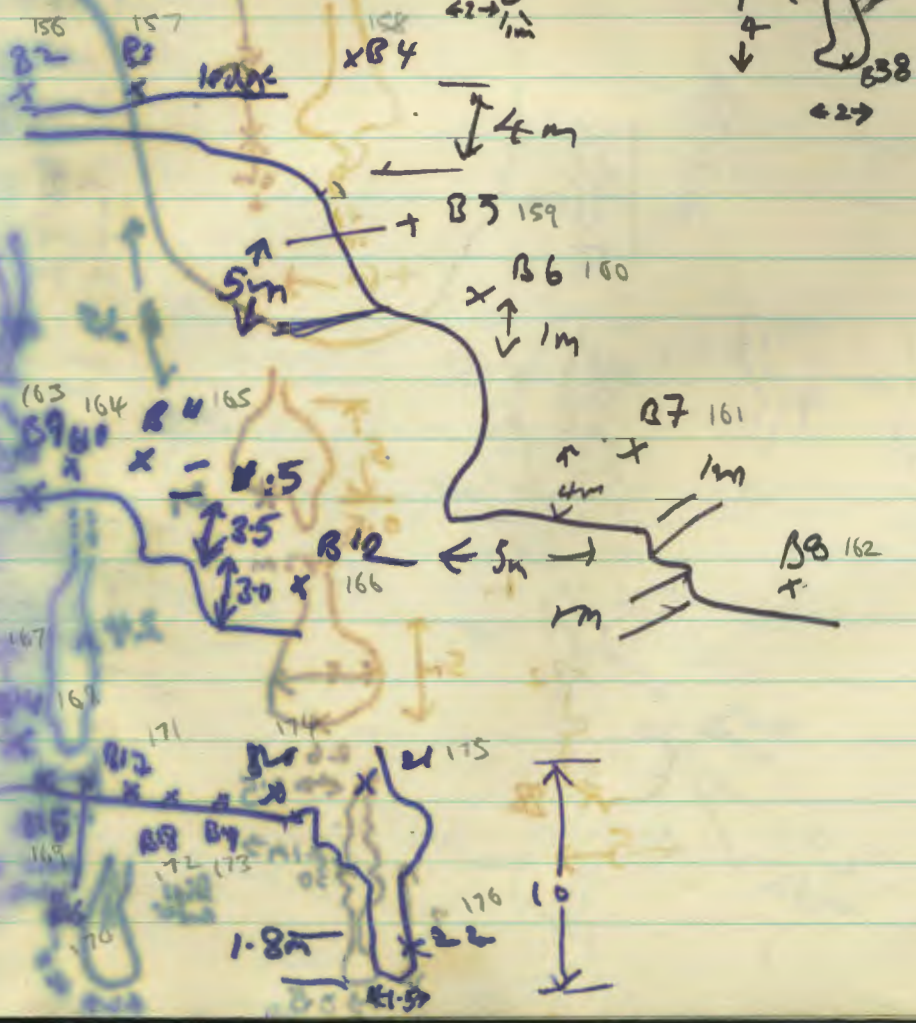


icing on the cake
Pork Bones



Cross section between 32 & 33.

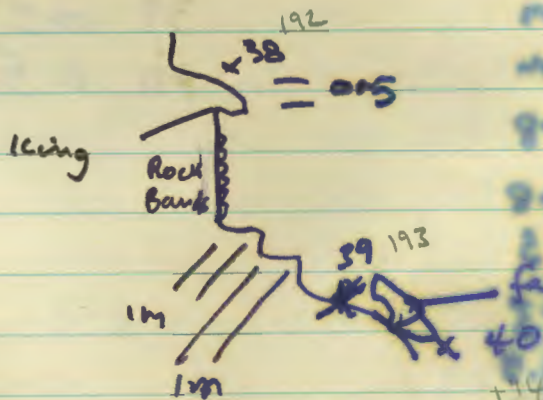
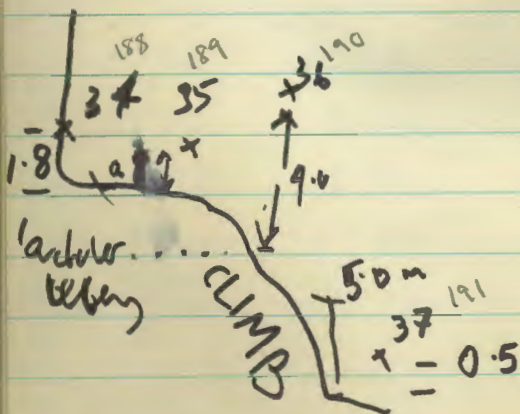
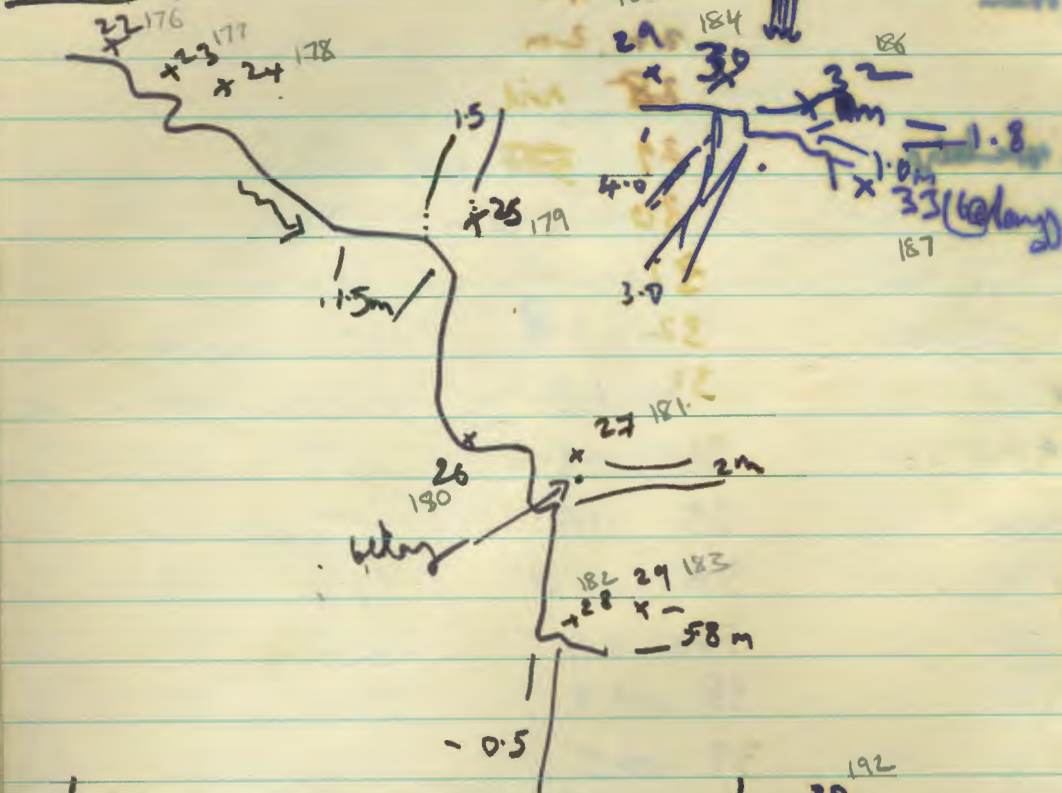
Elevation



166
167

(B49)

Elev. (cont)



from 300 m to 10

Station
1 1.5

26 nil

2 4.5

27 2m

3 1.8m

28 nil

4 4m

29 ~~nil~~ nil

5 3

30 3.0m

6 1m

31

7 4m

32 1.8

8 nil

33 1.8

9 nil

34 1.8

10 30cm

35 1.8

11 1.5m

36 4.0

12 3m

37 1.8

13 7m

38 1.0

14 4m

39 0.5

15 1.8

40 0.5

16 1.8

17 0.5

18 0.3

19 0.5

20 1m

21 1.0

175

22 1.9

176

23 2.0

24 1.0m

25 of delay roof
10m and

(BS1)

12 August 1984 Survey: Stephen G. (instruments and book), Jan (tape). SO9 equipment.

Sta leg	Sloping Distance (m)	degrees		Height of sta above feature (m)
		Declination	Inclination	
^{194 - 222} C1 → C2	3.96	106	-7.5 (C1)	1.05 above floor
^{222 - 223} C2 → C3	2.81	084	-35 (C2)	0.70 " "
²²⁴ C3 → C4	8.29	112	-30 (C3)	1.40 " "
²²⁴ C4 → C5	6.29	039	-8 (C4)	1.58 " "
²²⁵ C5 → C6	5.48	339	-5 (C5)	0.76 above opposite wall
²²⁶ C6 → C7	7.47	088	+1 (C6)	1.33 above shelf
²²⁷ C7 → C8	4.31	033	-19 (C7)	2.75 above stream
²²⁸ C8 → C9	3.32	306	-5 (C8)	1.42 " " ?
²²⁹ C9 → C10	1.82	231	+3 (C9)	1.36 " " ?
²³⁰ C10 → C11	3.42	317	+3 (C10)	0.82 " shelf
²³¹ C11 → C12	4.55	038	-29 (C11)	0.78 " "
C12 → C13	5.16	125	-28 (C12)	1.25 " stream?
C13 → C14	7.00	079	-35 (C13)	1.13 " stream shelf
C14 → C15	12.17	005	+12 (C14)	1.01 above floor of chamber
C15 → C16	2.64	046	+11 (C15)	2.23 above floor
C16 → C17	3.39	149	-10.5 (C16)	1.60 " "
C17 → C18	8.13	130	-34 (C17)	1.14 " "
C18 → C19	2.60	0712	+10 (C18)	1.60 " "

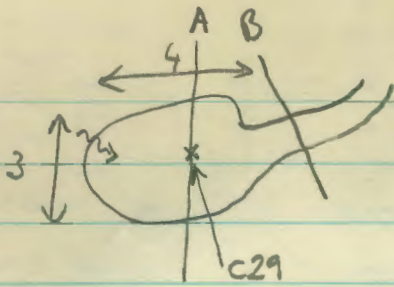
Sta leg	Sloping Distance (m)	Declination	Inclination	Height of sta above feature (m)
C19 → C20	7.72	—	-90	(C19) Roof of pitch
C20 → C21	1.70	—	+90	(C20) Floor of shelf at base of pitch
C21 → C22	5.69	005	-6	—
C22 → C23	2.16	321	+9	(C22) 3.45 above stream
C23 → C24	3.64	073	0	(C23) 0.89 above shelf
C24 → C25	6.32	349	+9	(C24) 7.2 above stream
C25 → C26	1.75	325	+4	(C25) 7.5 " "
C26 → C27	3.92	047	-21	} v. high above stream
²⁴⁷ C27 → ²⁴⁸ C28	2.58	065	-9	

nb B40 = C1

Prs 12/8/83

C28 → C29	14/39	000	-90	1/61m above floor chamber
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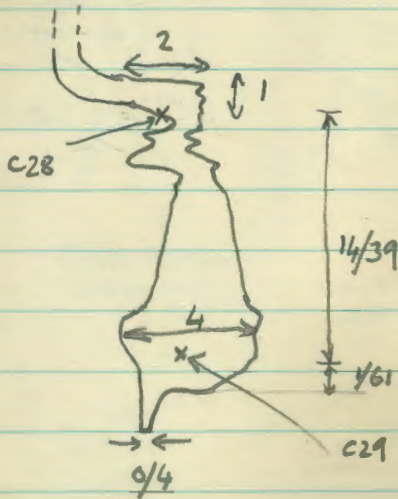
B53



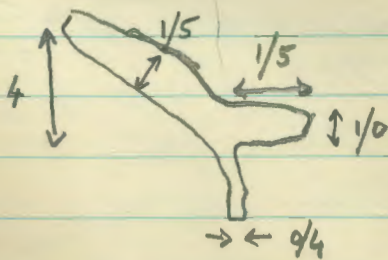
PLAN

THE HEATH PITCH & CHAMBER

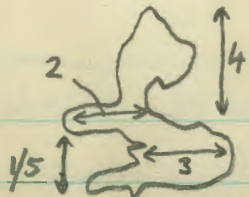
fms
12/8/24



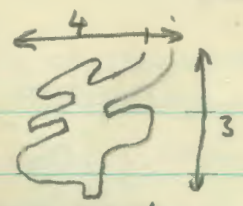
ELEV. A



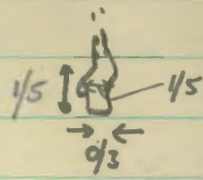
ELEV. B



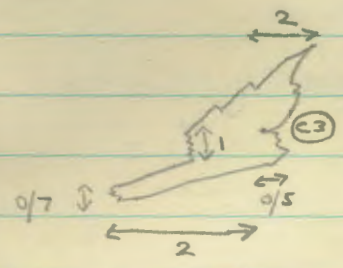
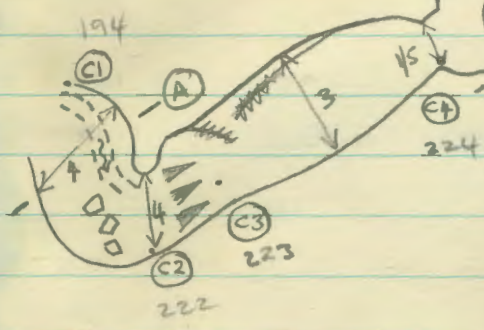
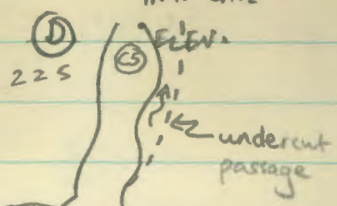
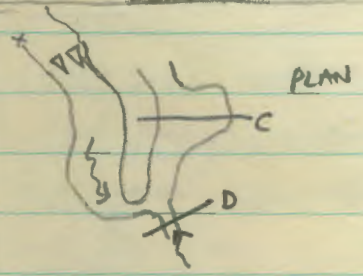
(C) INTO CAVE ELEV.



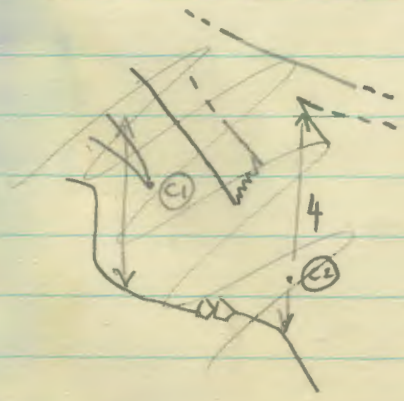
(A) INTO CAVE ELEVATION



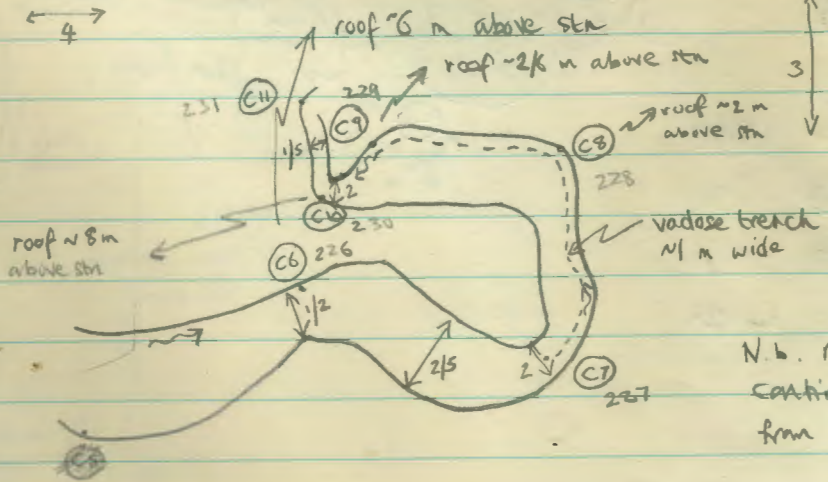
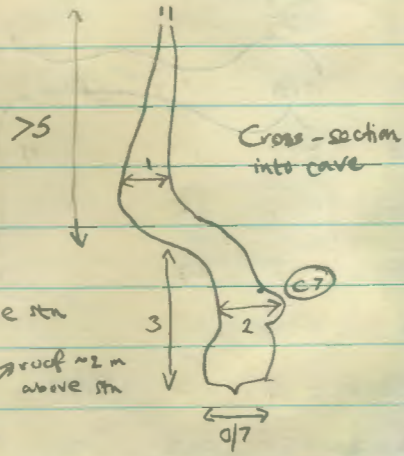
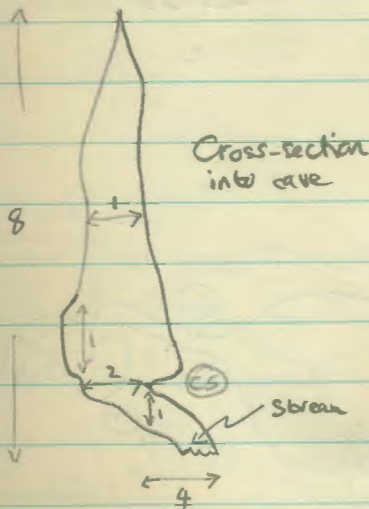
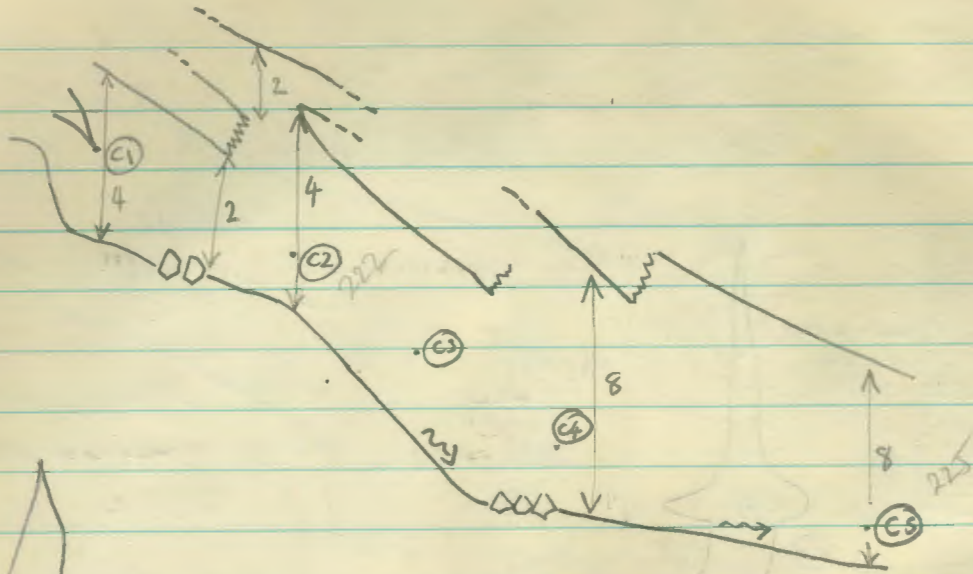
INTO CAVE



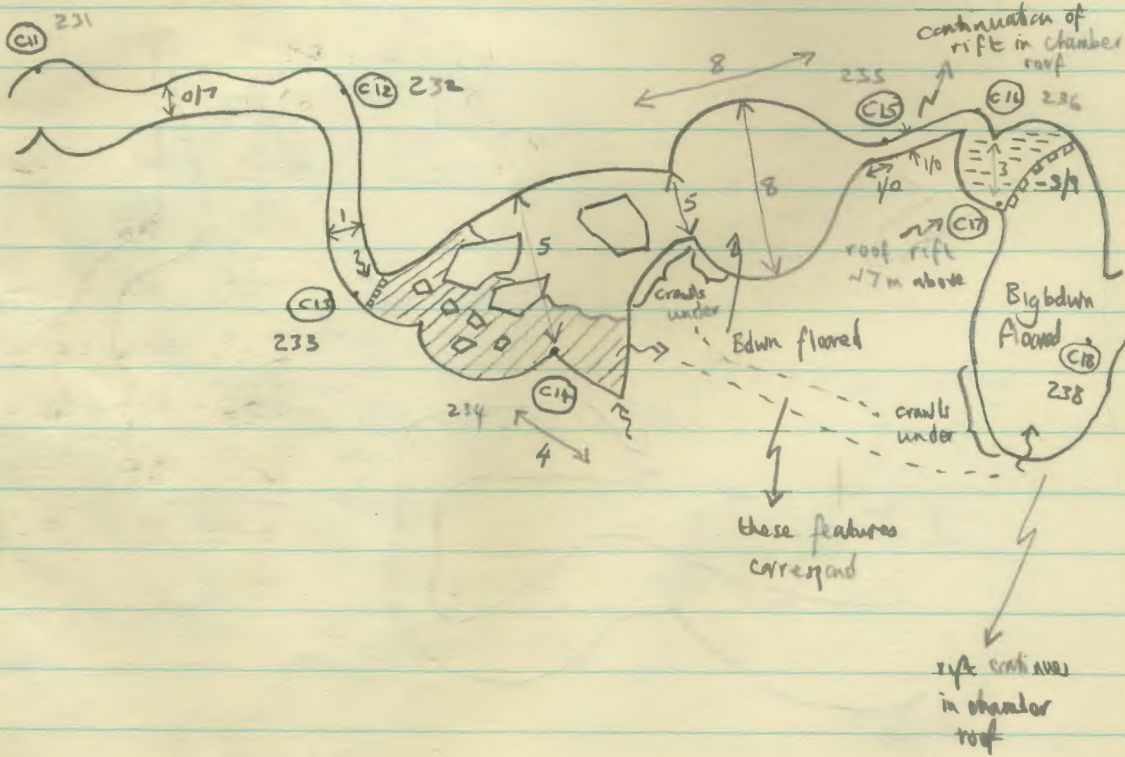
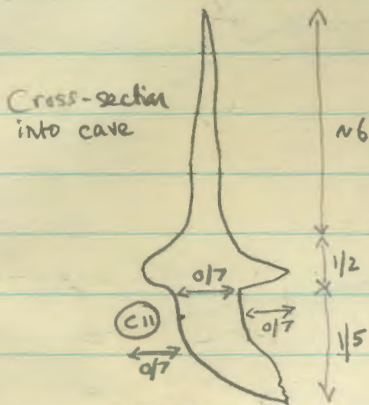
Cross-section into cave



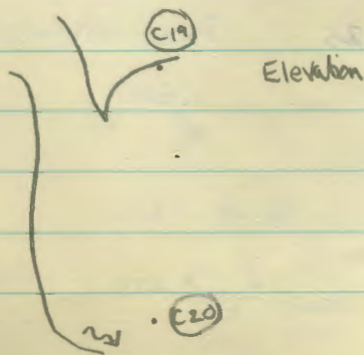
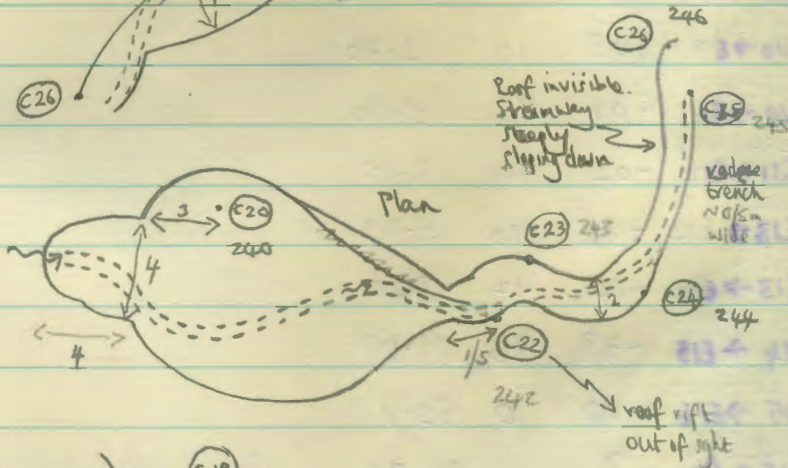
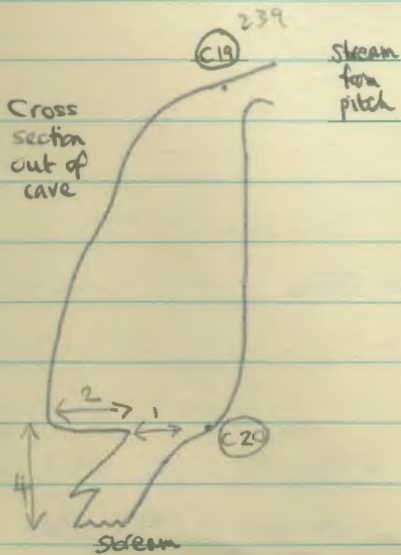
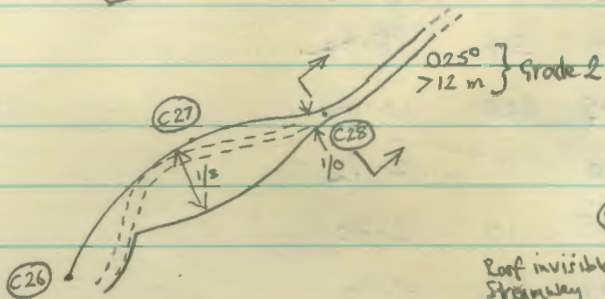
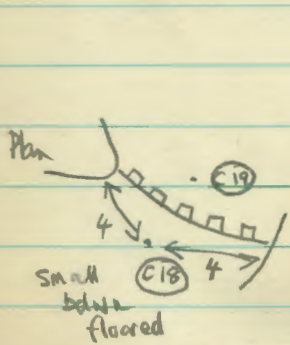
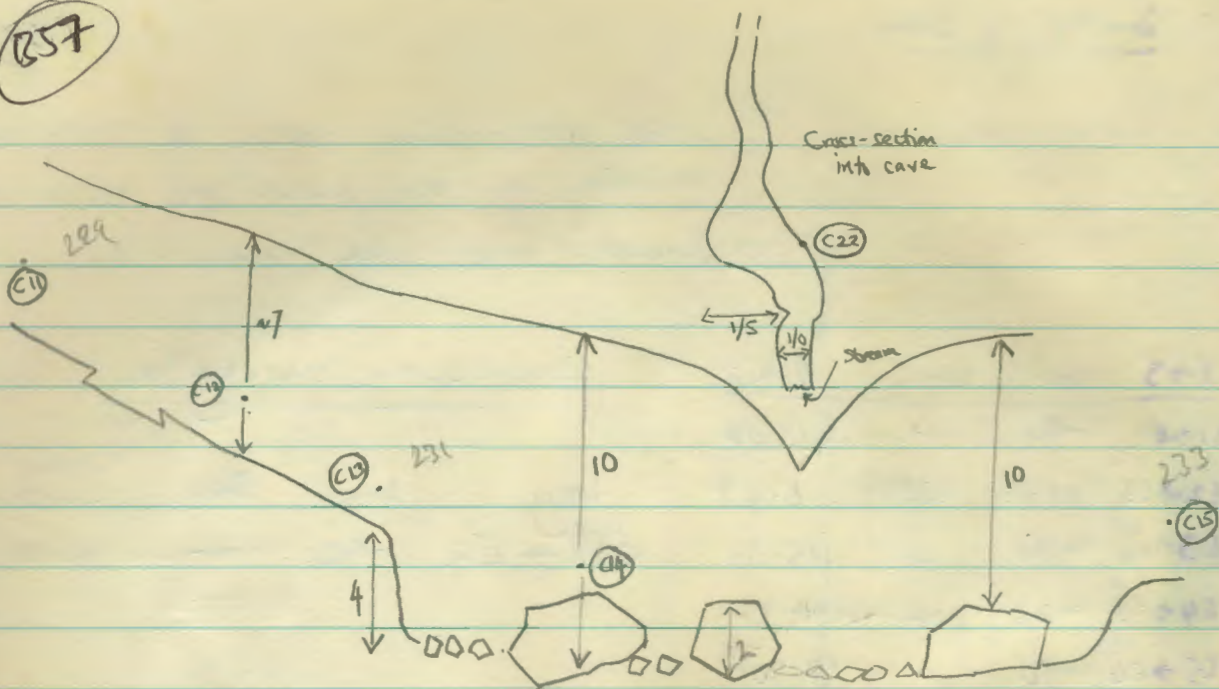
C55



N.b. roof forms continuous rift from C5 →



(B57)



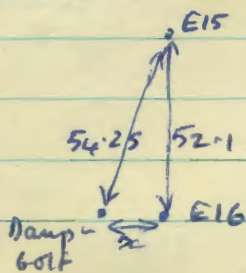
Survey of Cistern

B58

Our first survey station is the lowest
Maillon on the belly of the
Traverse line pith main hang.

S → S	Inc	Bearing	Distance	Connecting survey leg:			Sloping Length	
E1 → E2	-90	0	13.54					
²⁴⁹⁻²⁵⁰ E2 → E3	+24	63°	6.67	Leg	Inc	Dec		
²⁵⁰⁻²⁵¹ E3 → E4	-90	0	35.39	²⁴⁸ C28 →	²⁴⁹ E2	-90	—	15.00
²⁵¹⁻²⁵² E4 → E5	-26	104	7.99					
²⁵²⁻²⁵³ E5 → E6	-90	0	7.80					
²⁵⁴⁻²⁵³ E7 → E6	-01	314	8.97					
²⁵⁴⁻²⁵⁵ E7 → E8	-05	138	10.49	— must be -90				
²⁵⁵⁻²⁵⁶ E8 → E9	+10	0	2.92					
²⁵⁷⁻²⁵⁶ E10 → E9	+08	10	2.30					
²⁵⁷⁻²⁵⁸ E10 → E11	-01	85	5.10					
²⁵⁸⁻²⁵⁹ E11 → E12	-02	44	3.15					
²⁶⁰⁻²⁵⁹ E13 → E12	+32	190	5.23					
²⁶⁰⁻²⁶¹ E13 → E14	-14	97	3.79					
²⁶¹⁻²⁶² E14 → E15	-58	96	9.29					
²⁶²⁻²⁶³ E15 → E16	+90	0	52.1					
²⁶²⁻²⁶⁴ E15 → Damp bolt			54.25					

Dec estimated to 096



$$x^2 + (52.1)^2 = (54.25)^2$$

$$228.62 \quad 2714.41 = 2943.0625$$

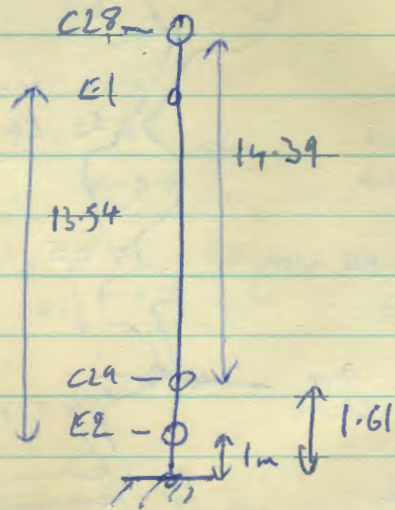
$$\therefore x = 15.11 \text{ metres}$$

(B59)

SS C29 is 1.61 m above the floor, 14.39 m below C28

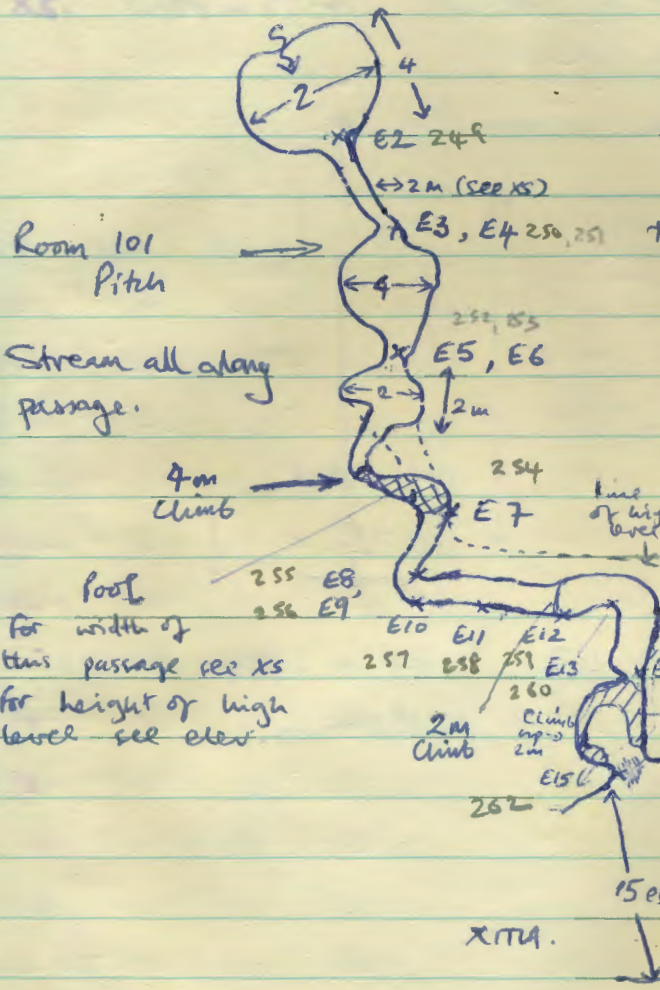
SS E2 is 1.00 m " " " "

~~E2~~



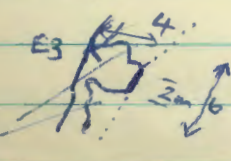
$$\begin{aligned} \therefore C28 \rightarrow E2 &= 14.39 + 1.61 - 1.00 \\ &= 15.00 \text{ m} \end{aligned}$$

Plan



SS 3 is the belay knot of Room 101 pitch

top of Room 101:



ledge at level of 3

E5 is the belay position unnamed small pitch of the ~~first~~ ~~brother~~

Room 101 Pitch

Stream all along passage.

4m climb

Foot for width of this passage see XS for height of high level see elev

line of sight level.

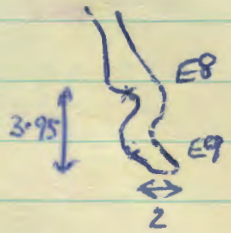
slapping ledge

BIG BROTHER

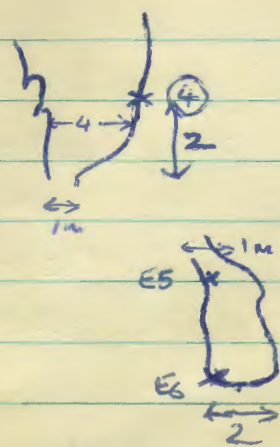
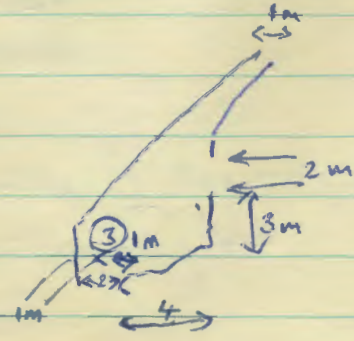
15 est.

XTRA.

Cross Section

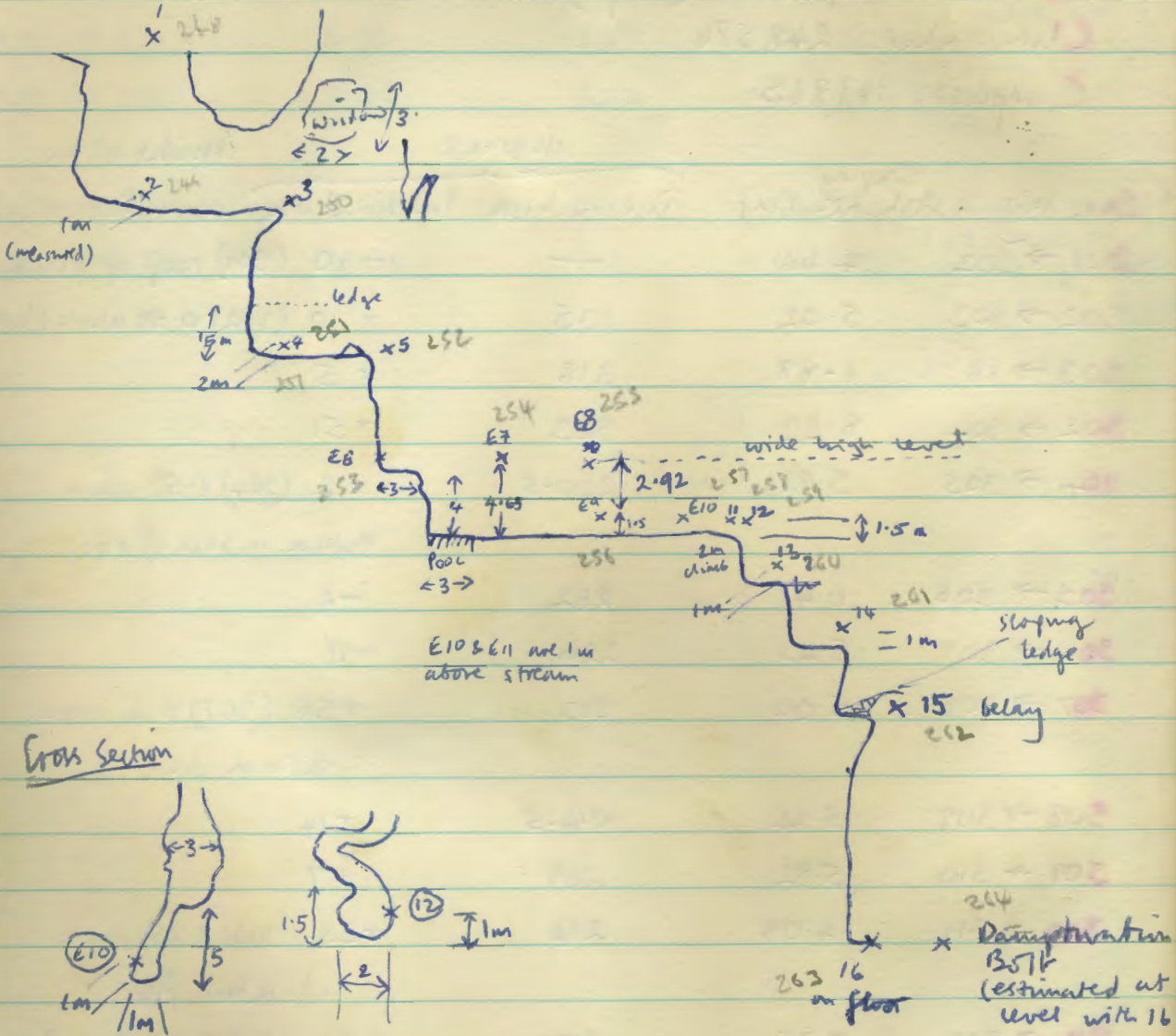


(at E7 basically) the same

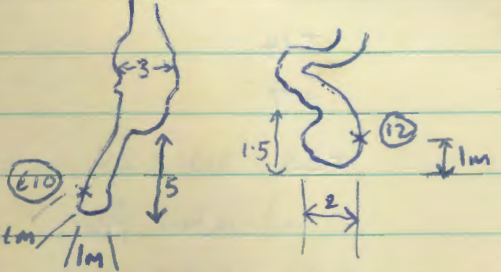


B61

Elevation



Cross Section



Checked from survey sheets

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13 August 1984 Survey: Stephen G. (instruments and book), Jan (tape).

Clinometer: 248576

Compass: 949865

Stn leg	Sloping distance (m)	degrees		Height of stn above feature (m)
		Declination	Inclination	
301 → 302	14.68	—	—	-90 (301) roof of pitch
302 → 303	5.02	105	—	+10 (302) 0.58 above floor
303 → 18 ⁵⁴	1.88	318	—	+5
302 → 304	8.22	303	—	+51
304 → 305	3.81	200.5	—	+2 (304) 6.50 above stream in base of rift
305 → 306	1.41	262	—	-4
306 → 307	5.43	226	—	-18
307 → 308	5.00	313	—	+56 (307) 5.2 above stream bed
308 → 309	5.24	014.5	—	+14
309 → 310	5.82	269	—	+7
310 → 311	4.08	264	—	+53 (310) 2.25 above chamber floor
311 → 312	7.73	250	—	+24 (311) 3.55 above floor
312 → 313	0.50	—	—	+90 (312) top of stalagmite
313 → 314	11.20	288	—	+33
314 → 315	27.29	256	—	+20 (314) } 0.87 below roof 1.22 above floor base of stalagmite

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SEE ALSO

NOTES IN
13 AUG CAMP LOG.

end (B63)

Checked from survey sheet:

Str leg	Sloping Distance (m)	Declination	Inc	Height of str above feature (m)
301 → 320	4.08	107	+36	
²⁰ 320 → ²¹ 321	3.21	159	-31 (330)	1.5 above base of small vadose trench.
331 → 332	3.26	325	-39 (331)	0.7 above base of vad trench; top of stal floor.
332 → 17 (53)	3.00	025	-49½ (332)	vad trench 0.85 above base of J
331 → 333	5.74	144	+46 (333)	1.45 above floor at base of ladder.

3