

CHAPTER VANALYSIS OF RESULTS

The relationship of the tests can be summarized as follows :-

1. Load - settlement of all piles are shown from Fig 23 to Fig 25
2. Load - top and toe settlement of instrumentation piles are shown from Fig 26 to Fig 28
3. The relationship of load to plastic and elastic settlement from Fig 29 to Fig 34
4. The relationship of load-ratio to total, plastic, elastic settlement of all piles from Fig 35 to Fig 40
5. The quick test of all piles from Fig 41 to 46
6. The soil properties at the test site of long pile, load-time relationship, load and total, plastic, elastic settlement relationship are shown from Fig 47 to Fig 53
7. Summary of all relationships are collected in table 2 to table 6

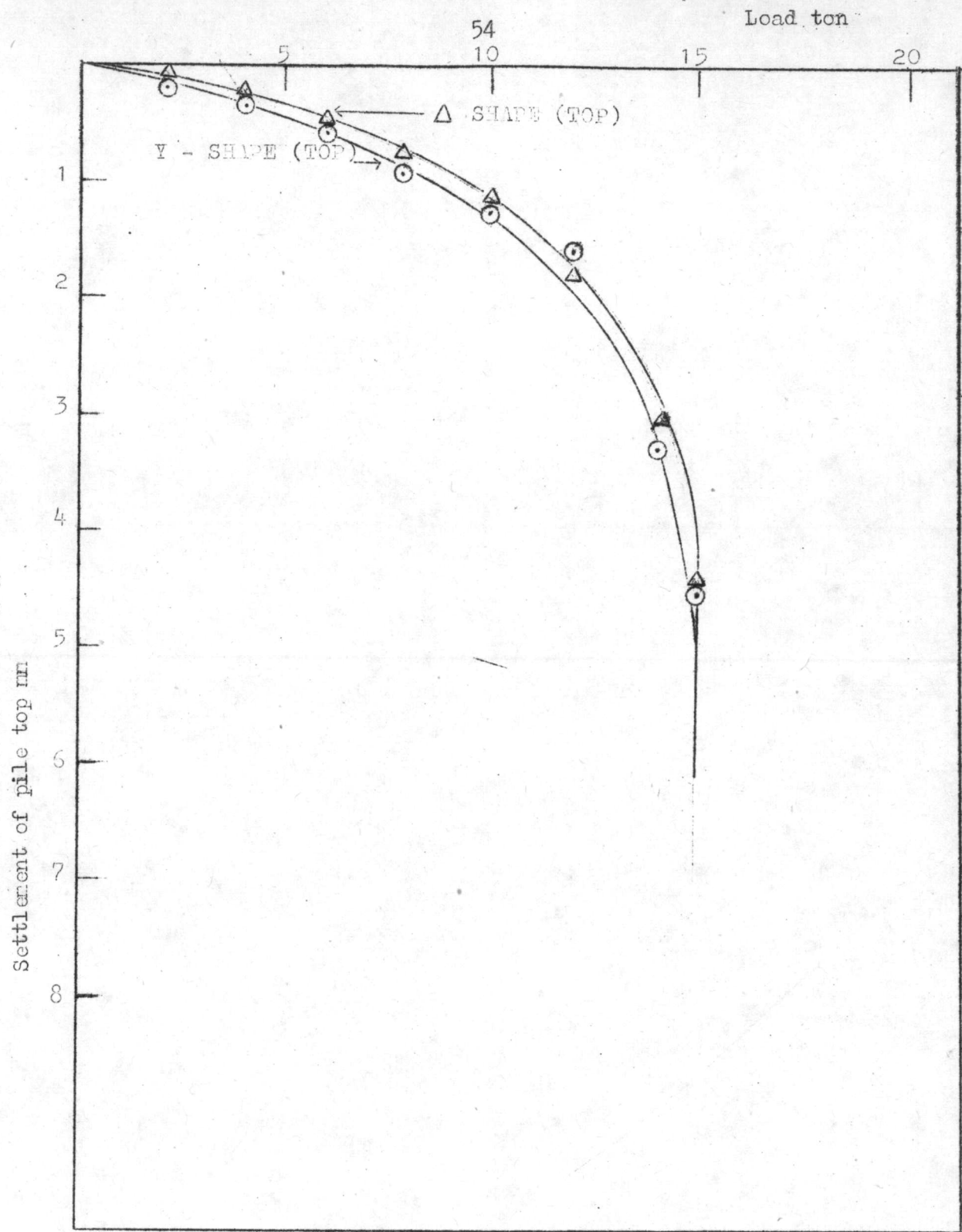


FIG 23

LOAD - SETTLEMENT CURVE OF Y SHAPE AND Δ SHAPE

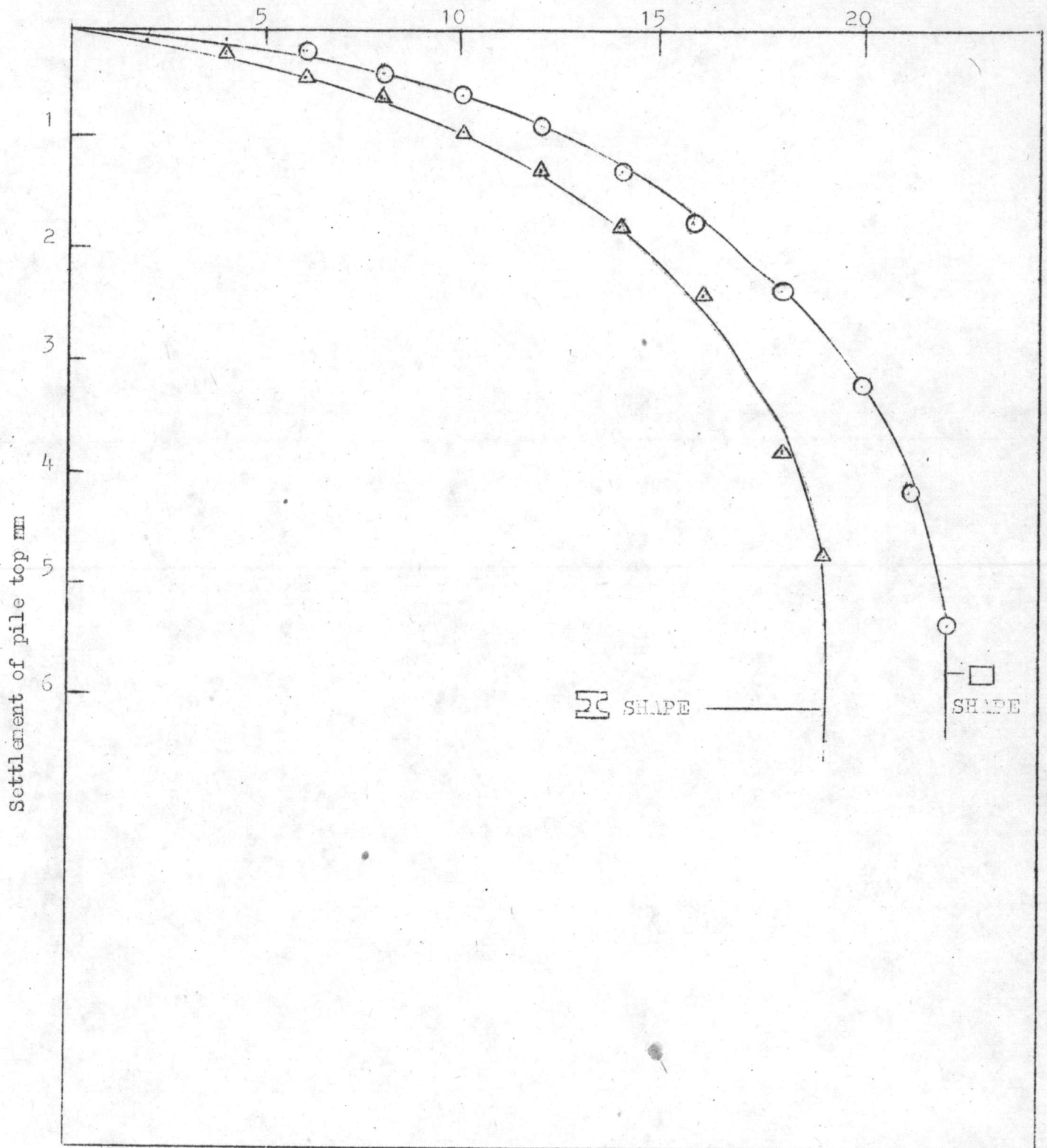


FIG. 24 LOAD - SETTLEMENT CURVE OF I BEAM SHAPE AND SQUARE SHAPE

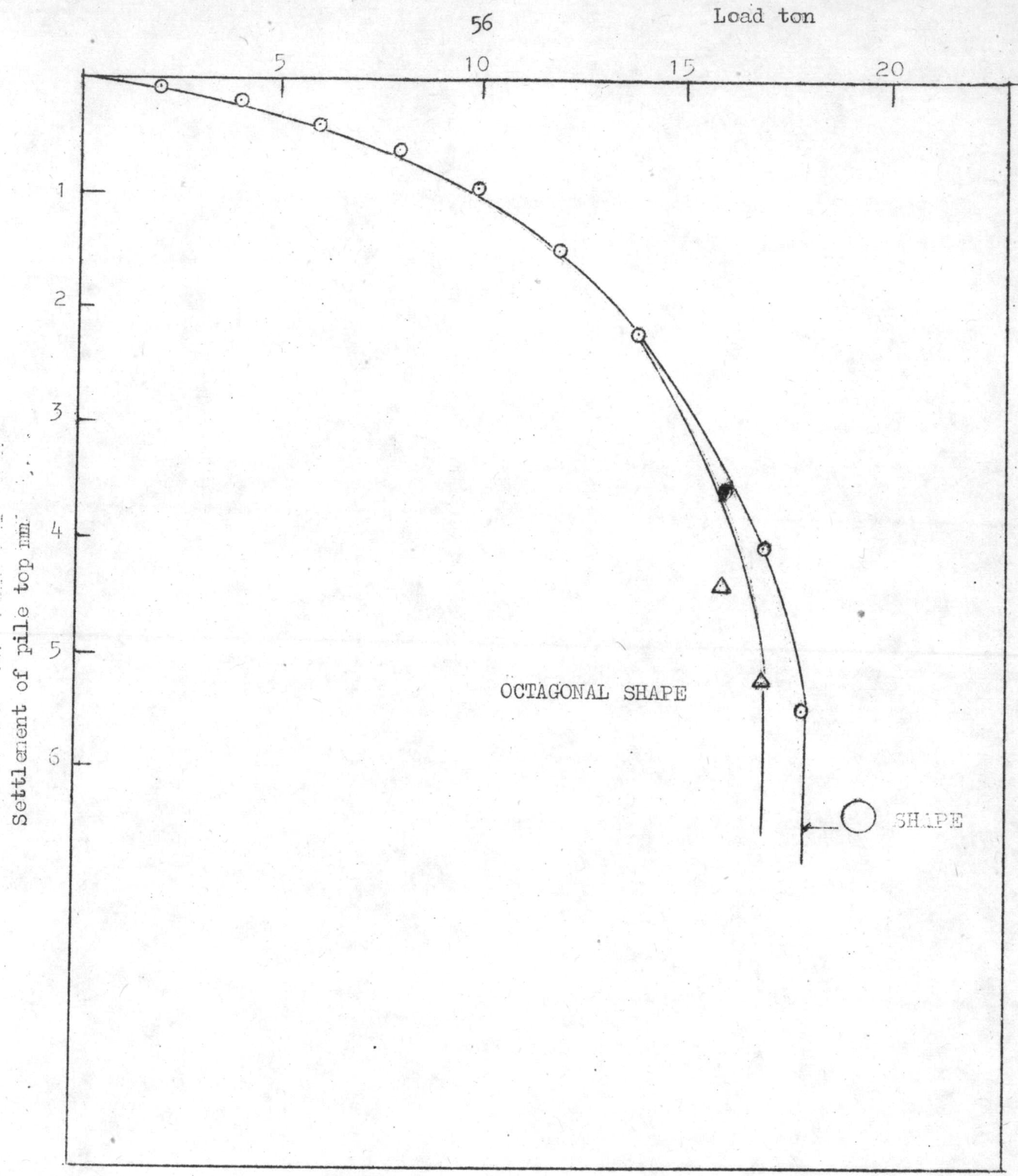


FIG 25 LOAD - SETTLEMENT CURVE OF ○ SHAPE AND OCTAGONAL SHAPE

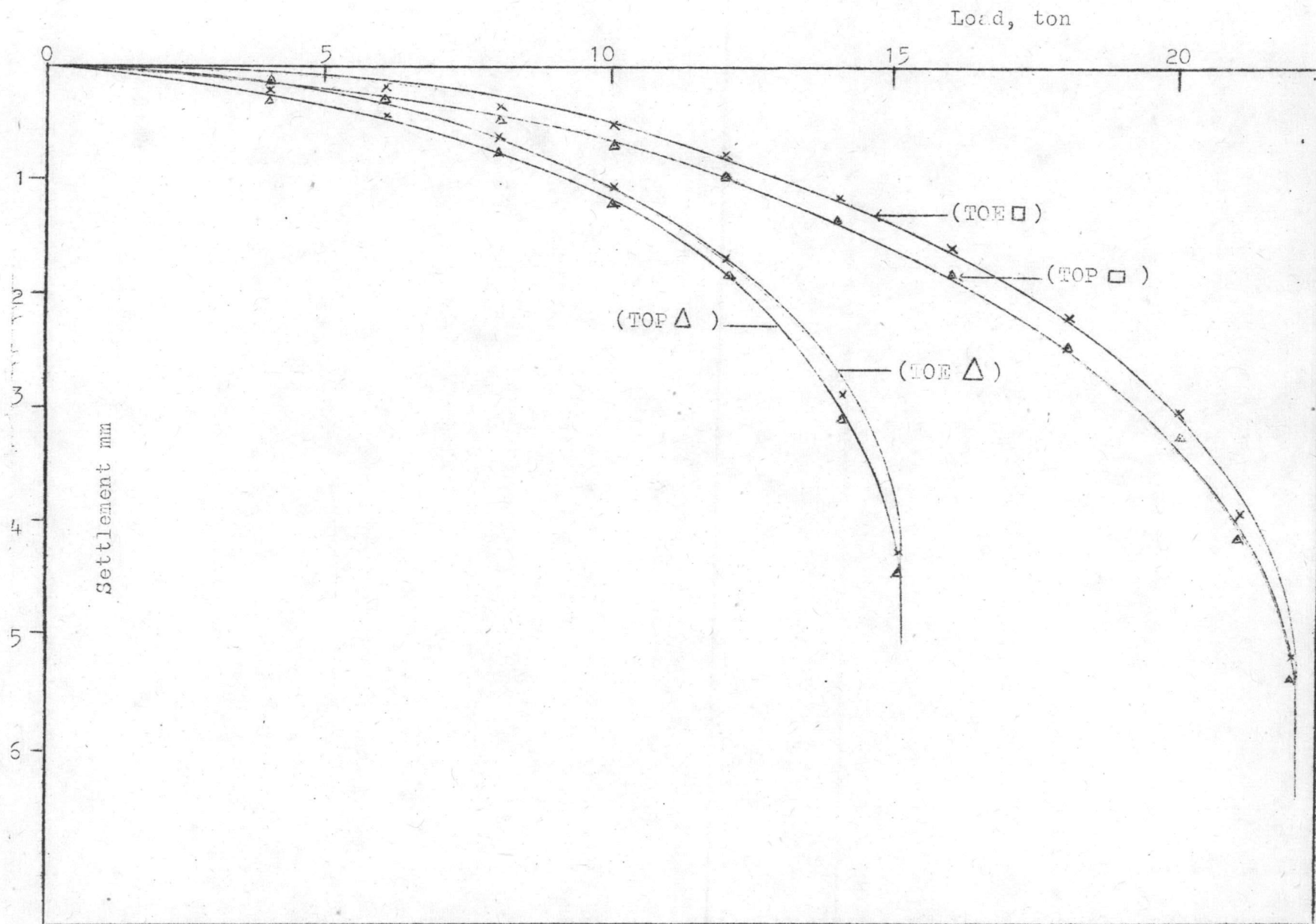


FIG 26 RELATIONSHIP OF LOAD AND TOP, TOE SETTLEMENT OF □ AND △ SHAPE

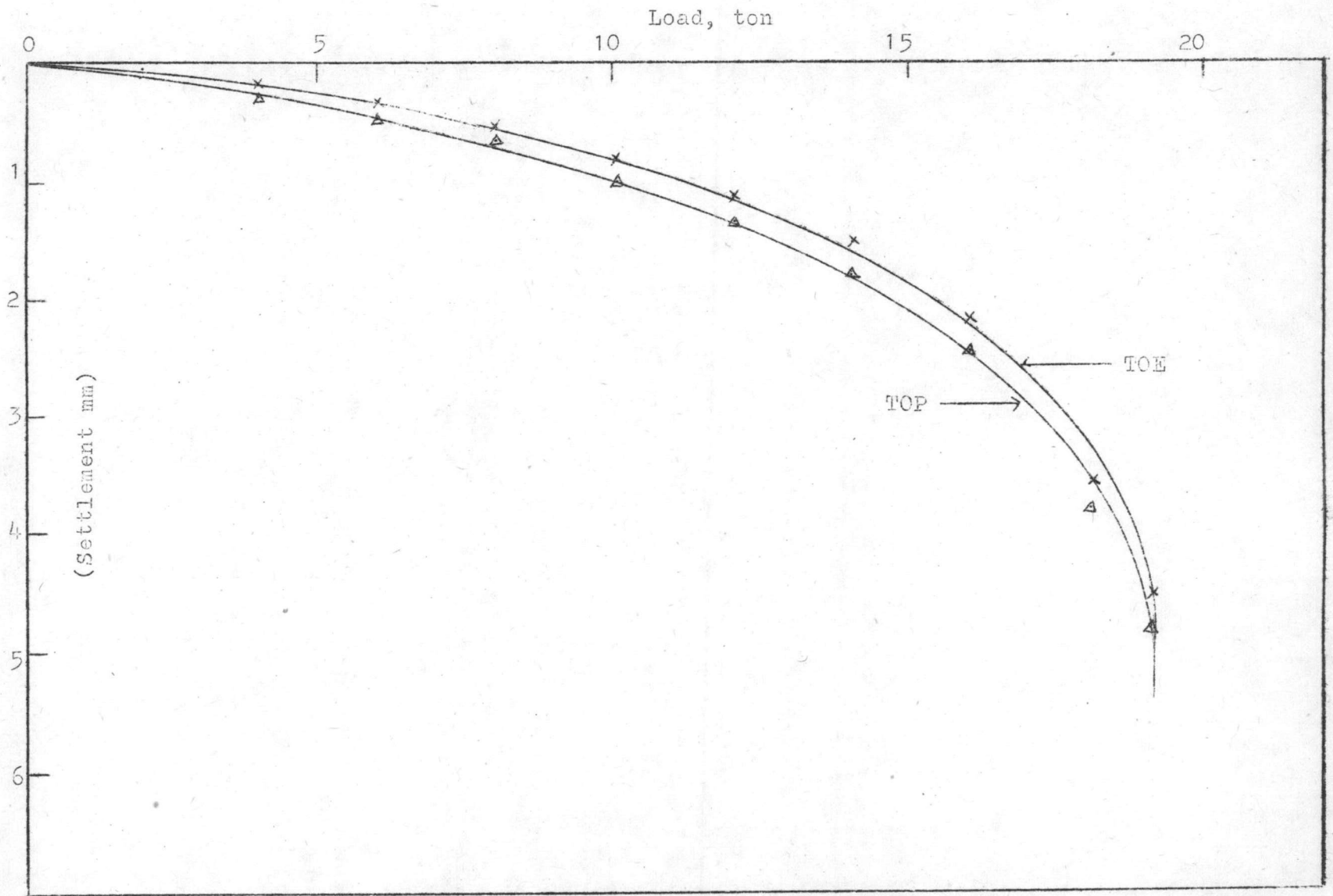


FIG 27 RELATIONSHIP OF LOAD AND TOP, TOE SETTLEMENT OF Z SHAPE

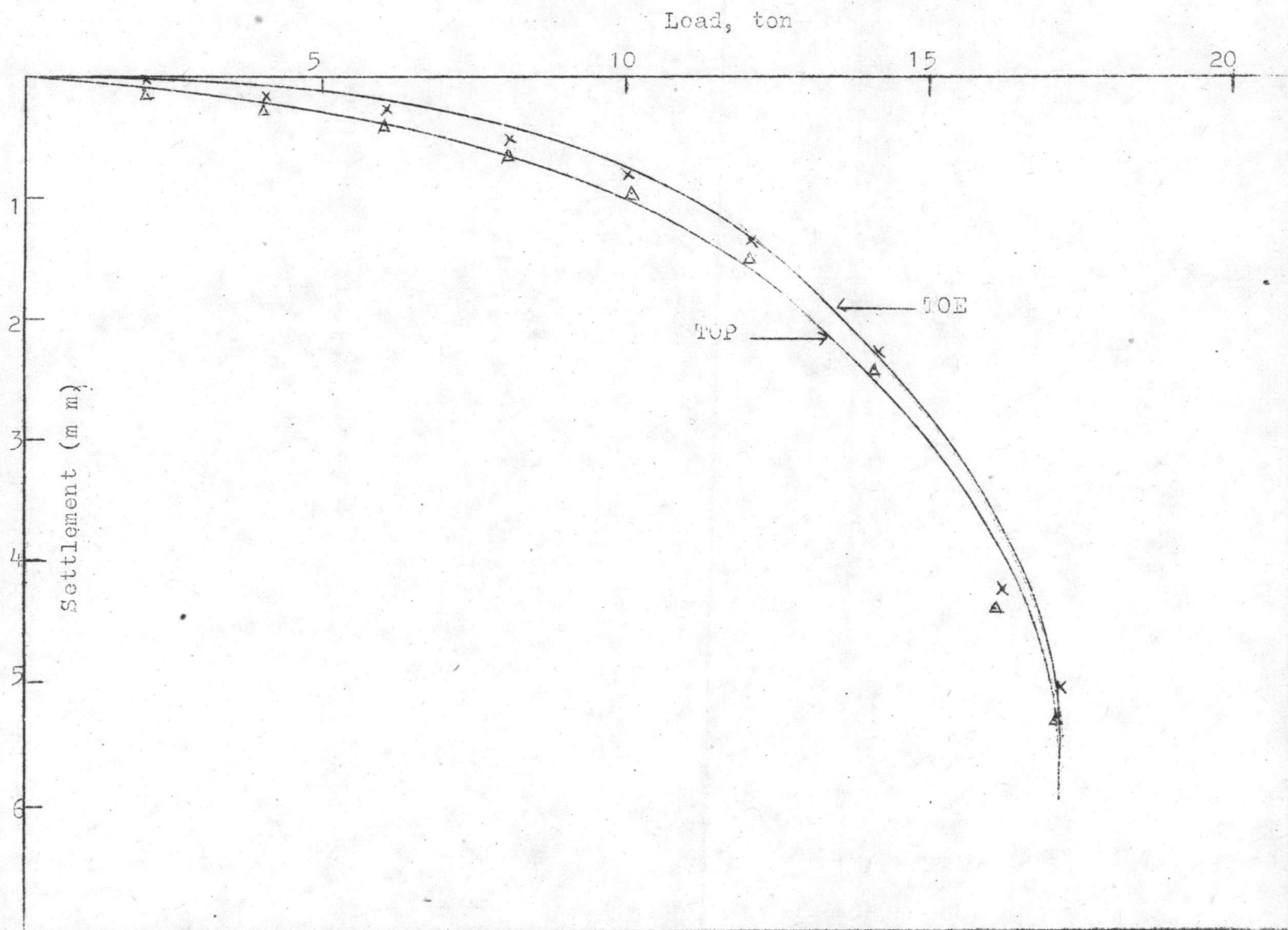


FIG 28 RELATIONSHIP OF LOAD AND TOP, TOE SETTLEMENT OF OCTAGONAL SHAPE

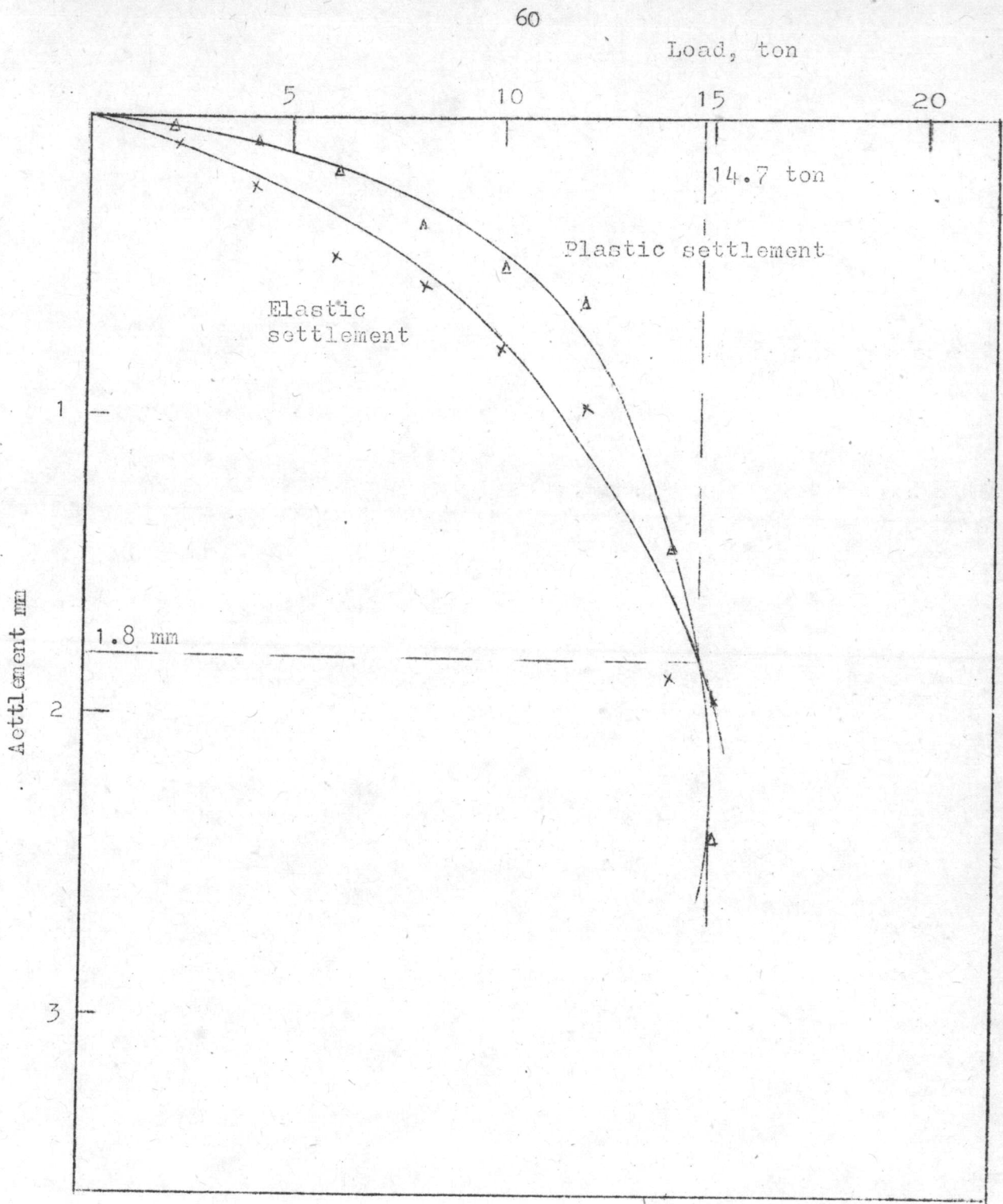


FIG 29 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF Y SHAPE

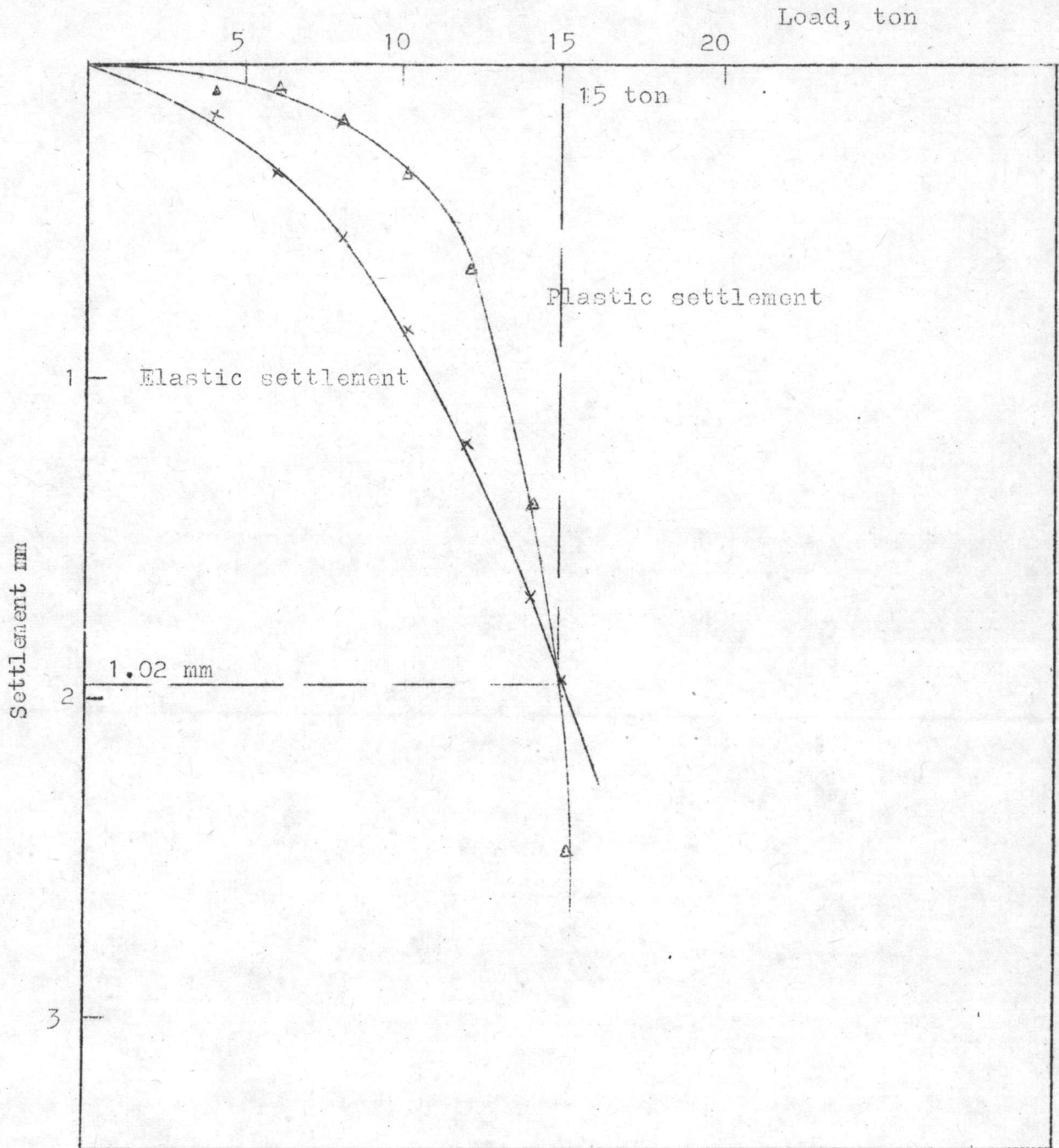


FIG 30 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF Δ SHAPE

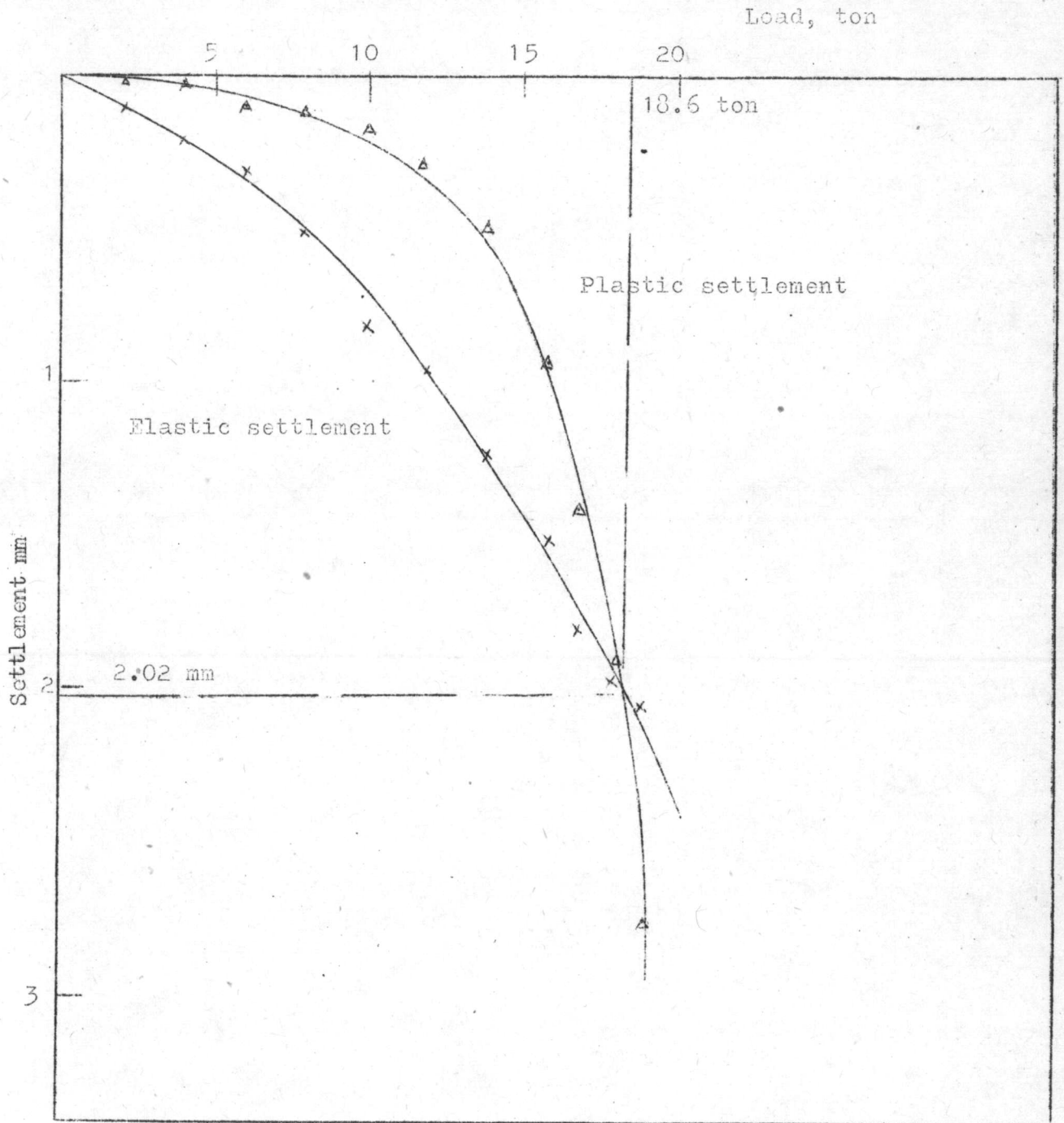


FIG 31 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF
 I SHAPE

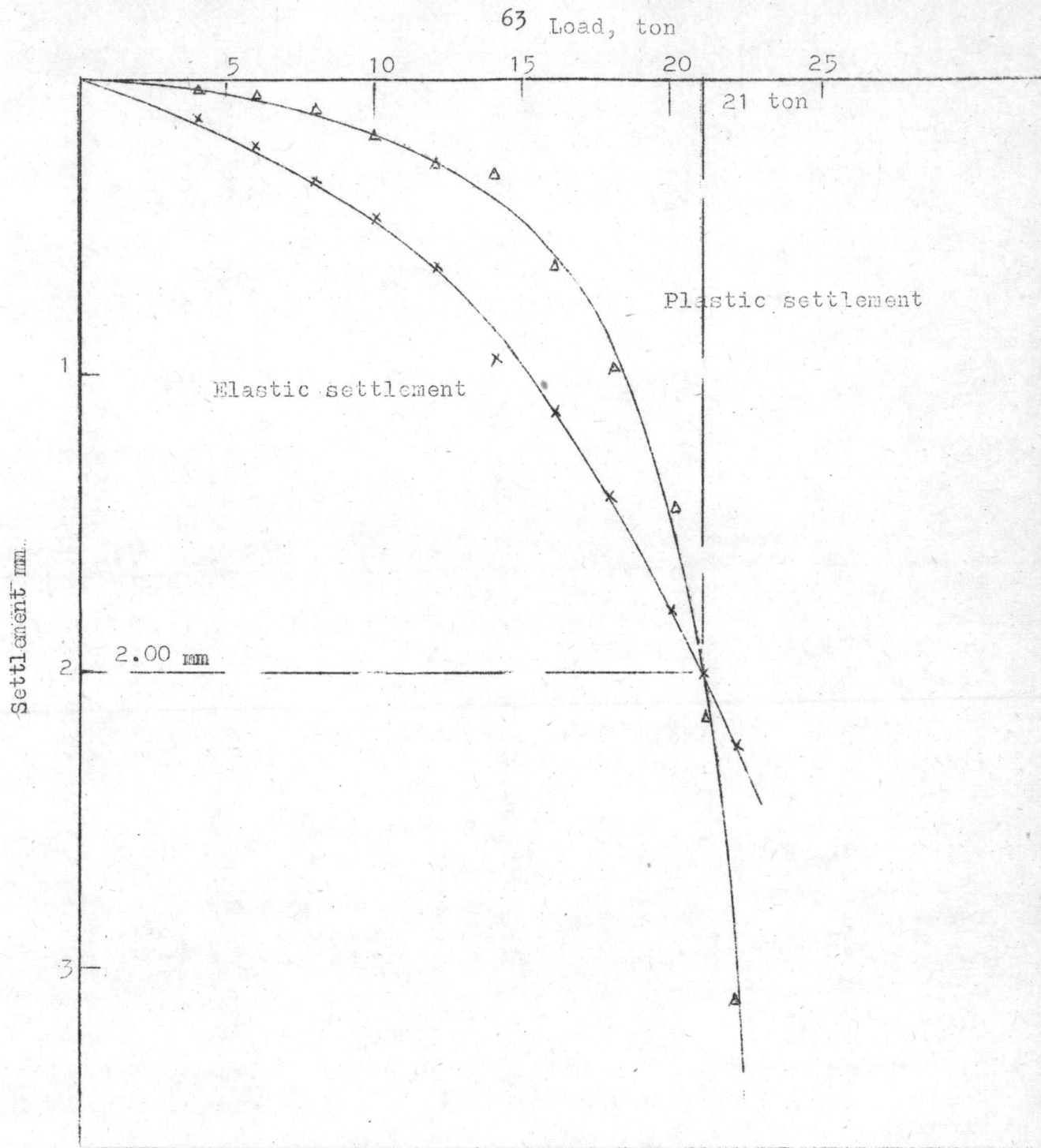


FIG 32 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF

□ SHAPE

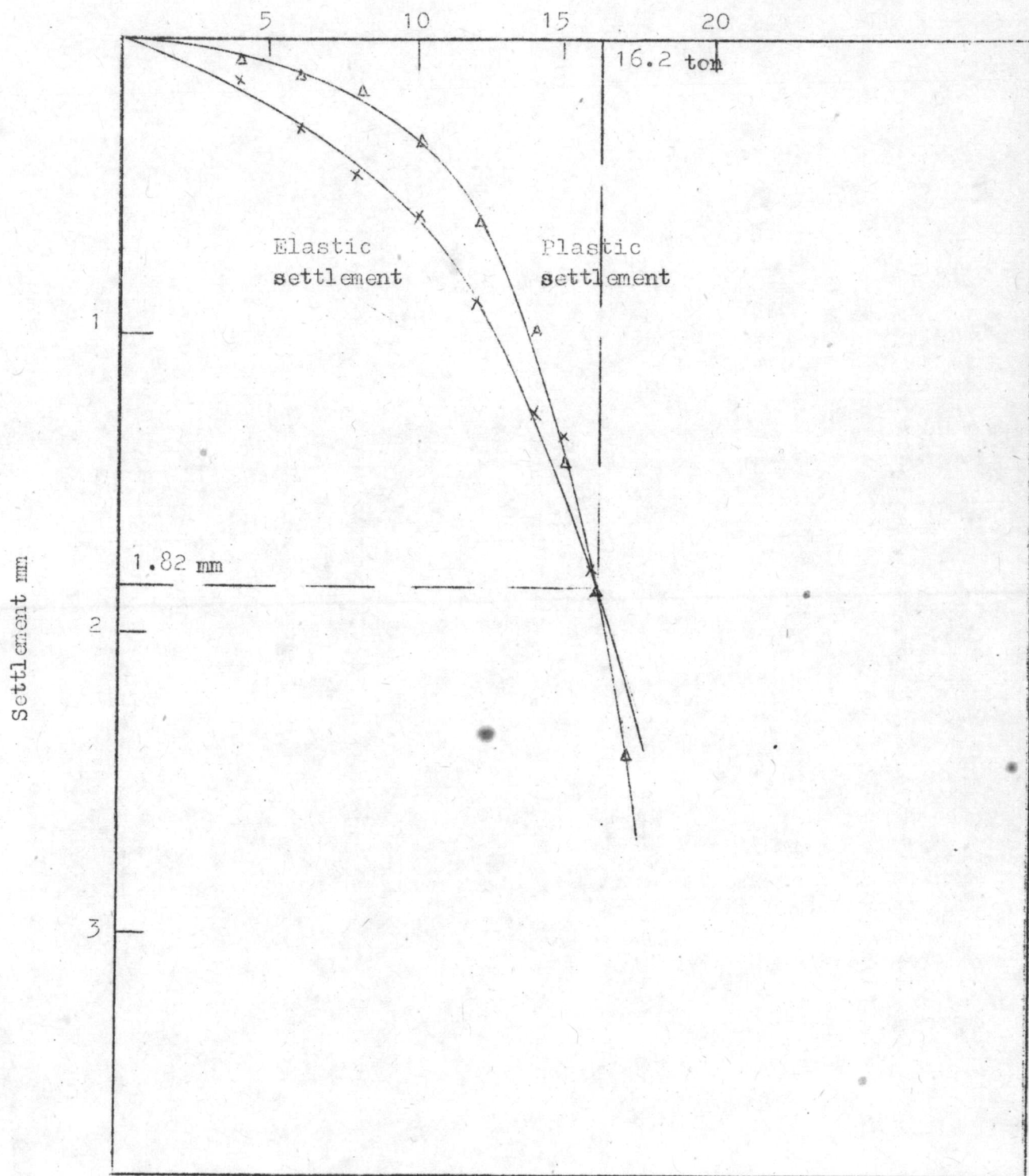


FIG 33 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF ○ SHAPE

Load, ton

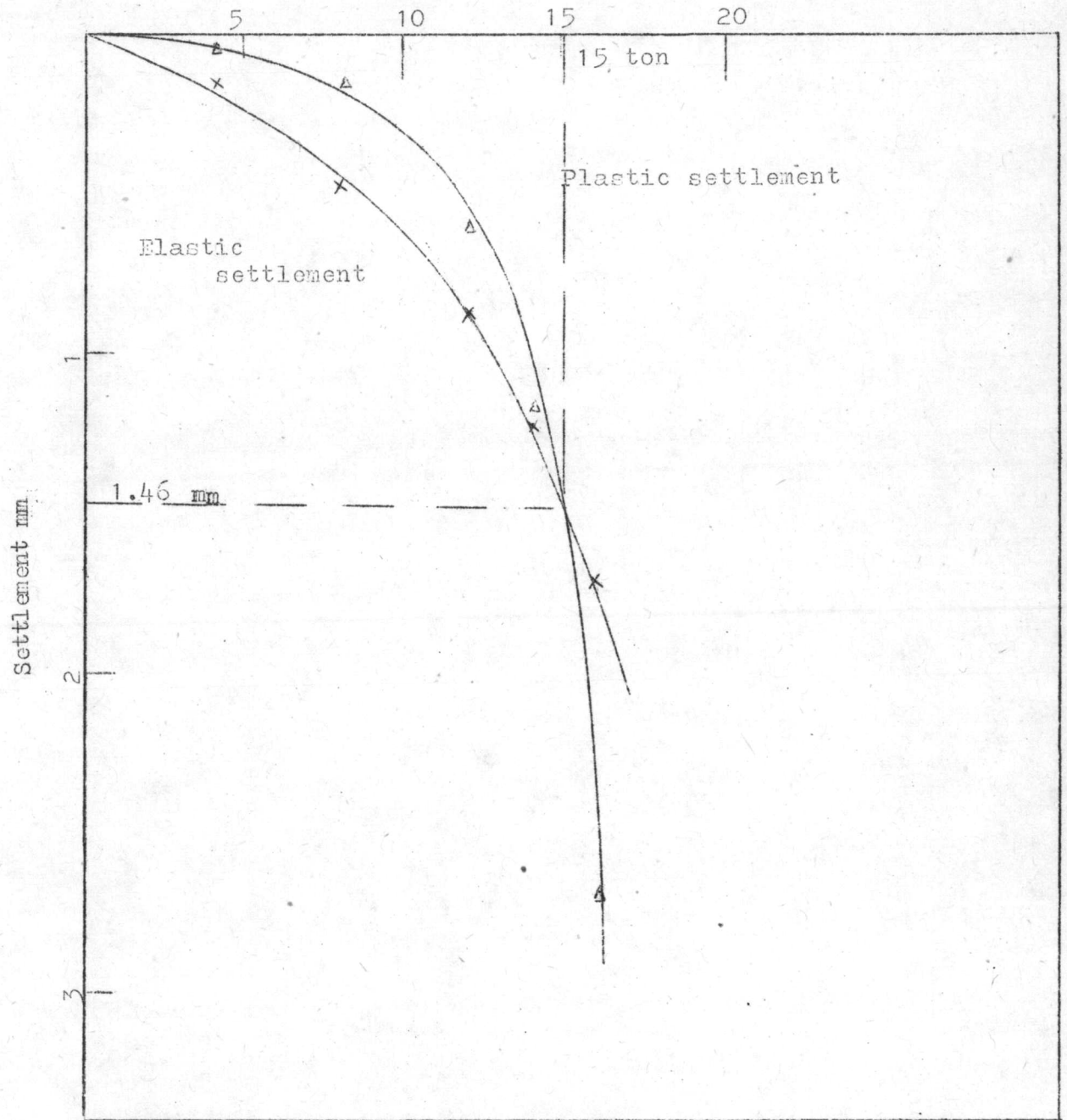


FIG 34 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF OCTAGONAL PILE

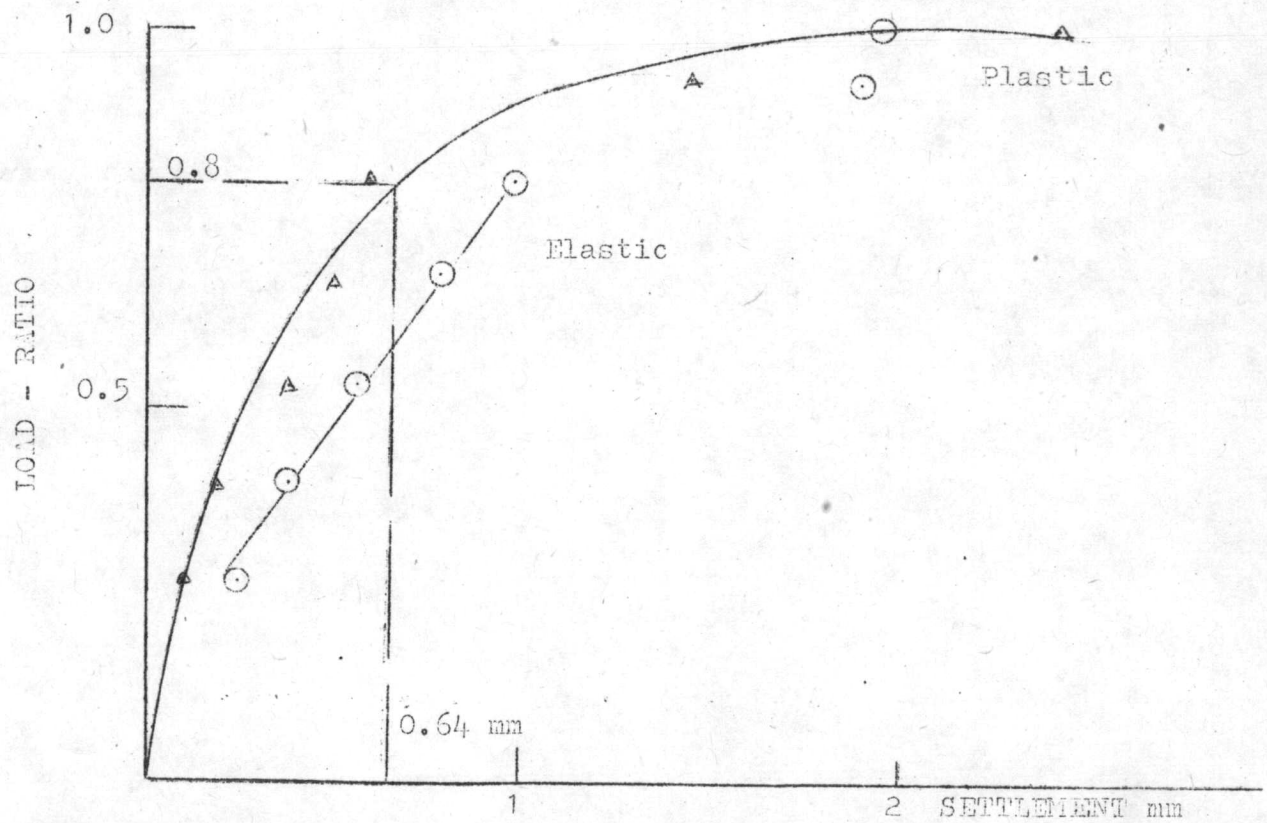
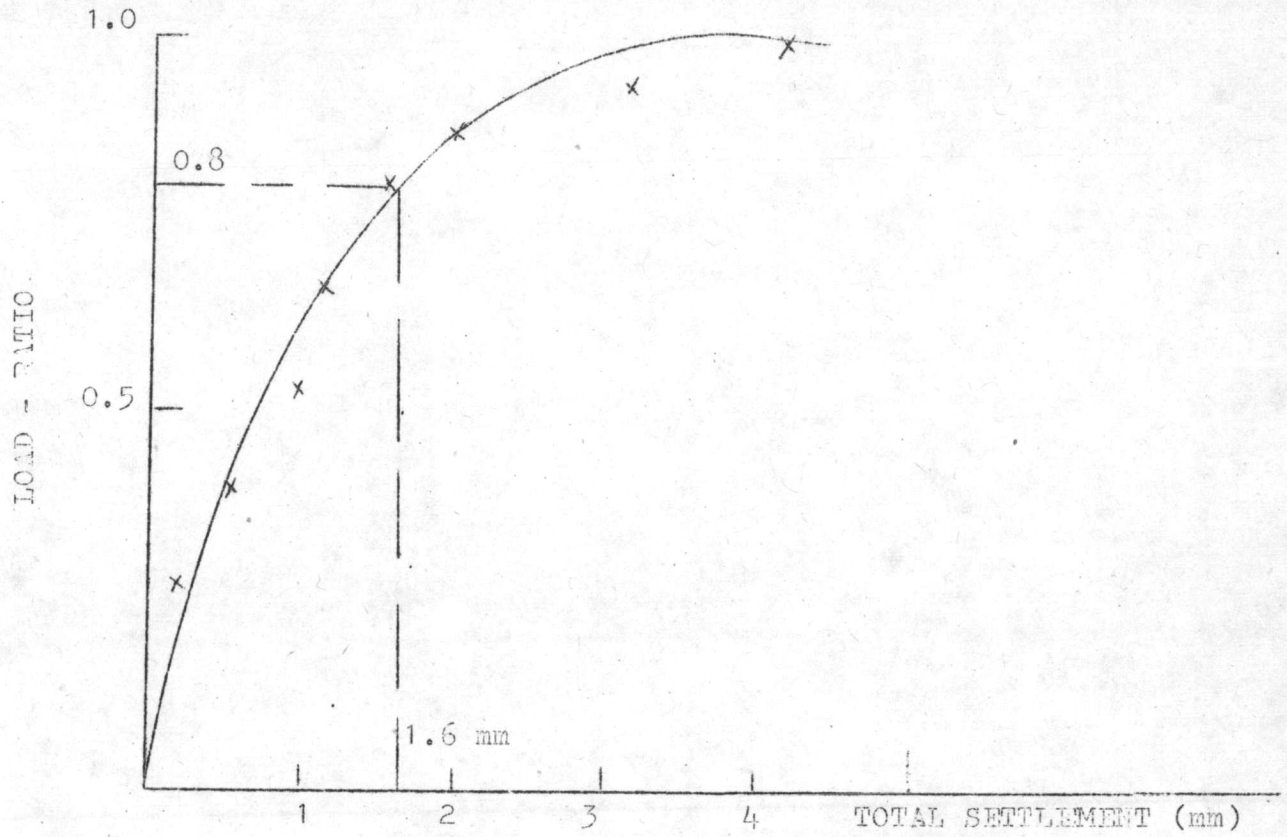


FIG 35 RELATIONSHIP OF LOAD-RATIO TO TOTAL, PLASTIC, ELASTIC SETTLEMENT OF Y SHAPE

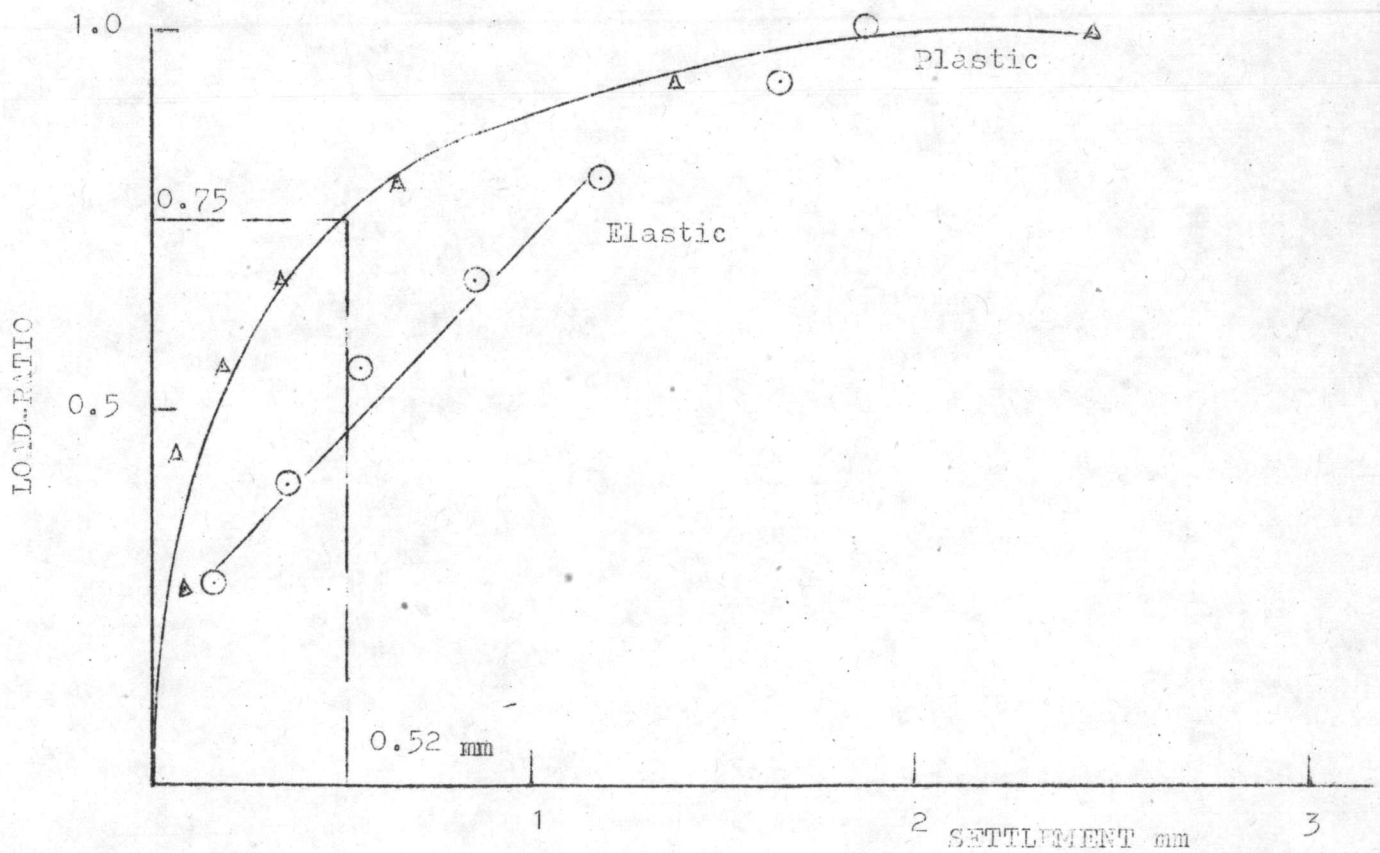
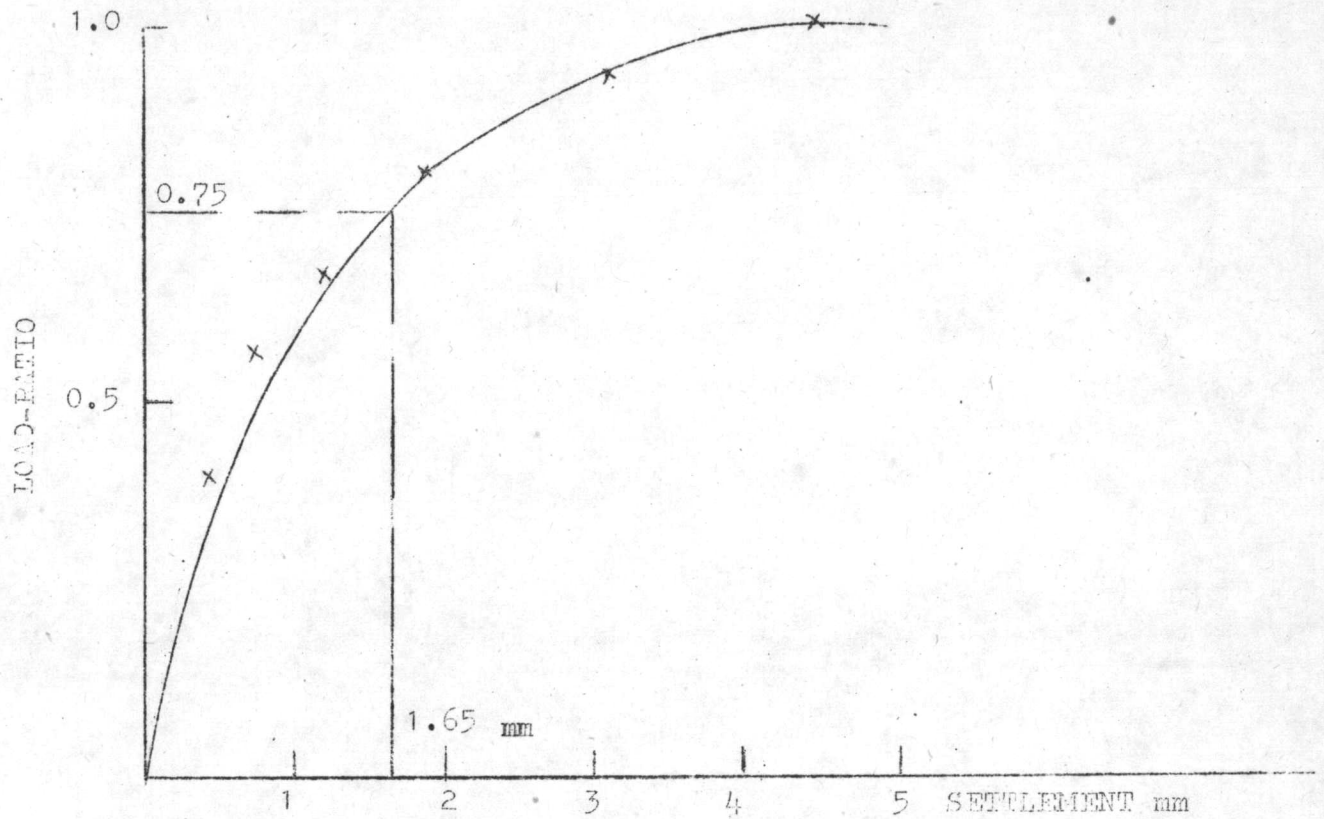


FIG 36 RELATIONSHIP OF LOAD-RATIO TO TOTAL, PLASTIC, ELASTIC SETTLEMENT OF Δ SHAPE

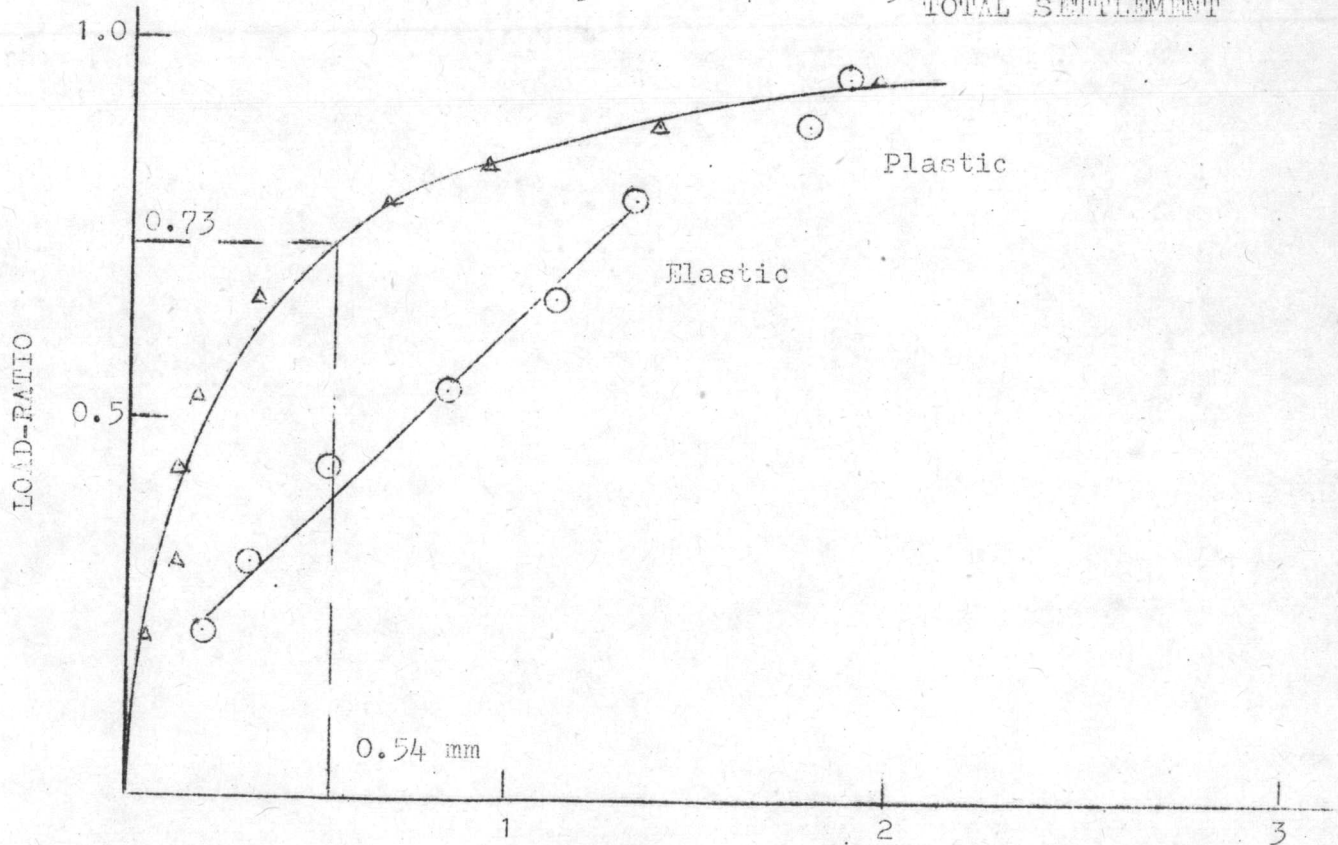
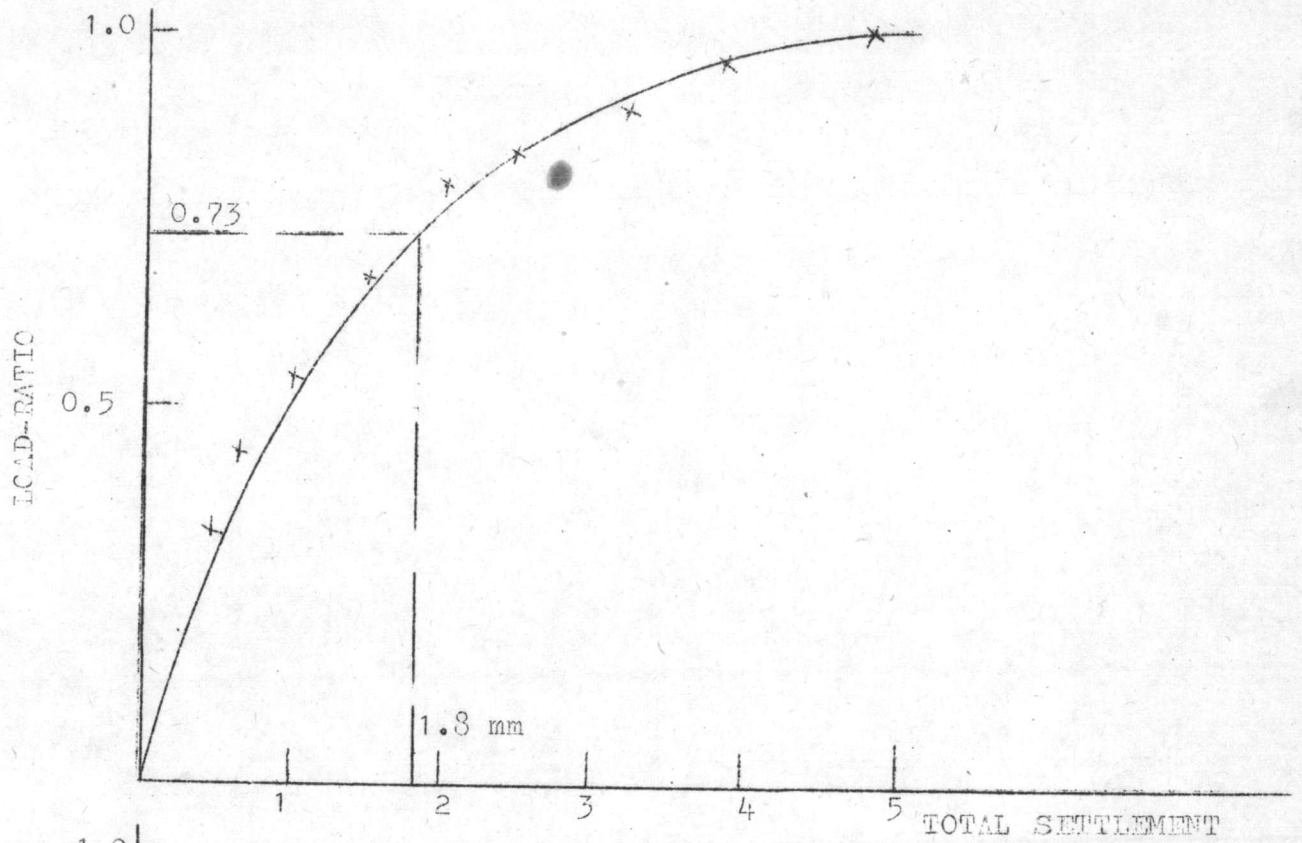


FIG 32 RELATIONSHIP OF LOAD-RATIO TO TOTAL, PLASTIC, ELASTIC SETTLEMENT OF \square SHAPE

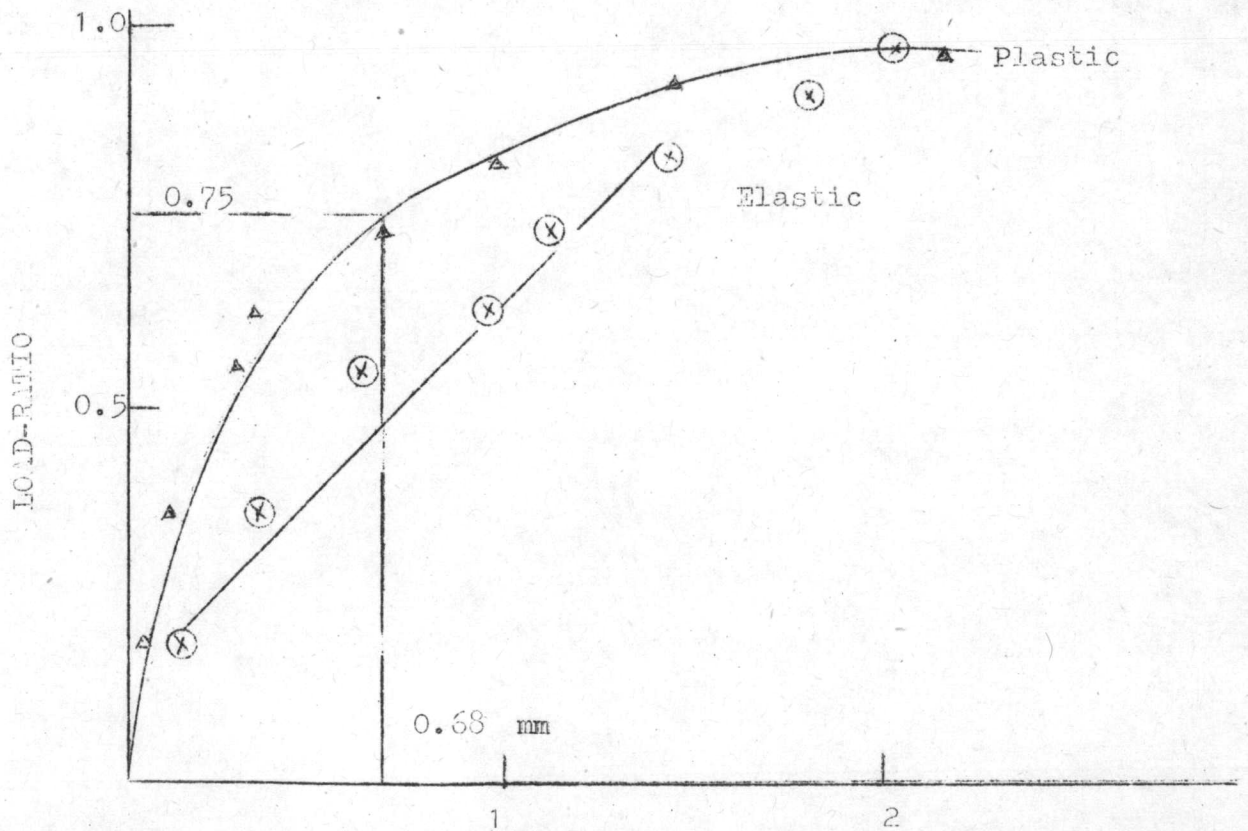
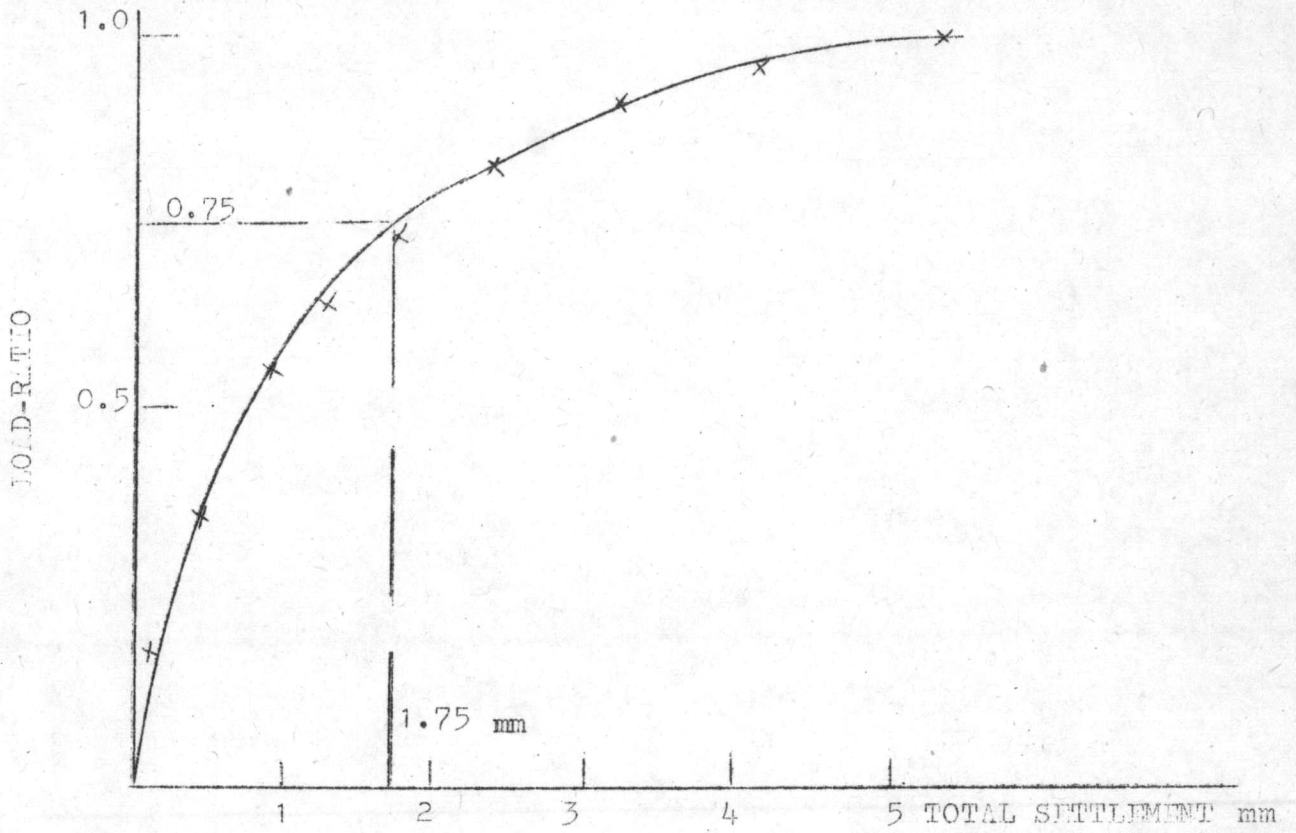


FIG 38 RELATIONSHIP OF LOAD-RATIO TO TOTAL, PLASTIC, ELASTIC SETTLEMENT OF □ SHAPE

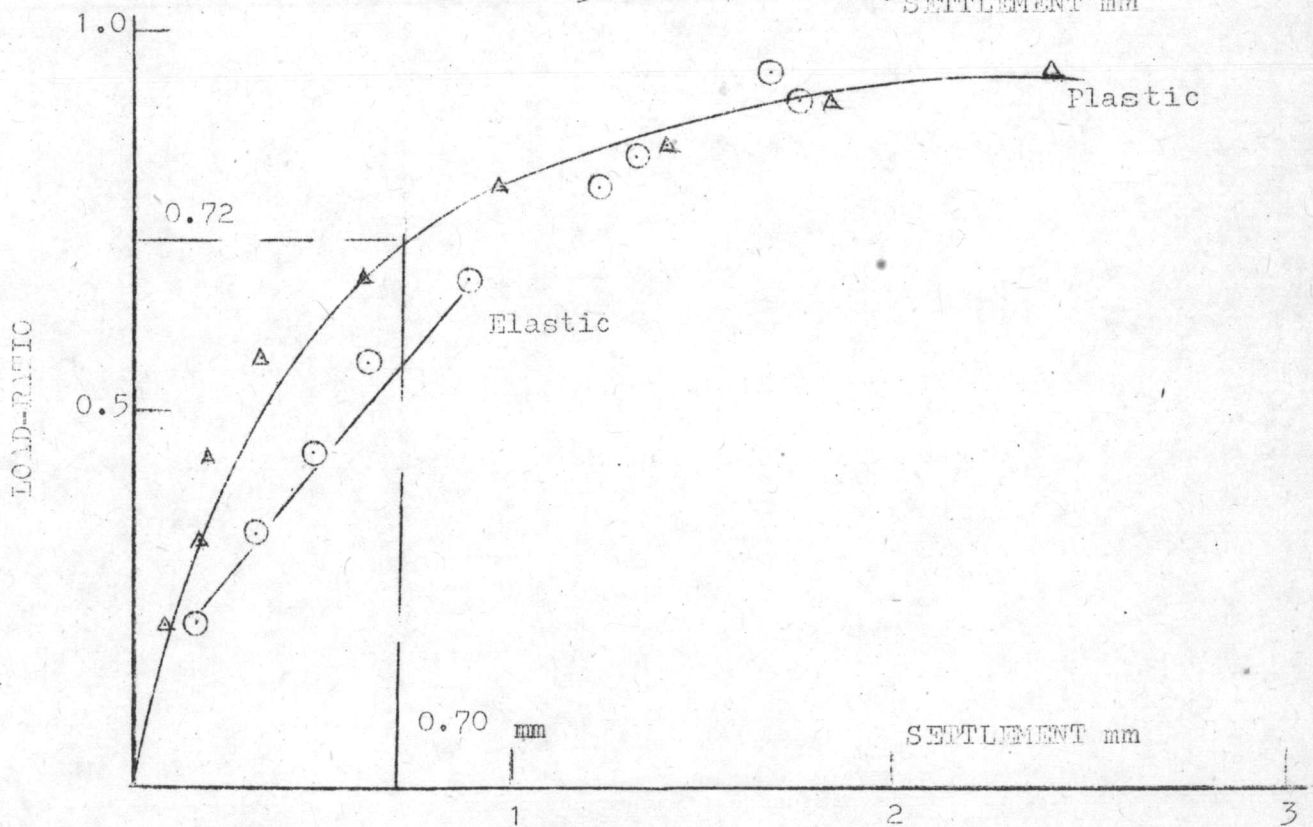
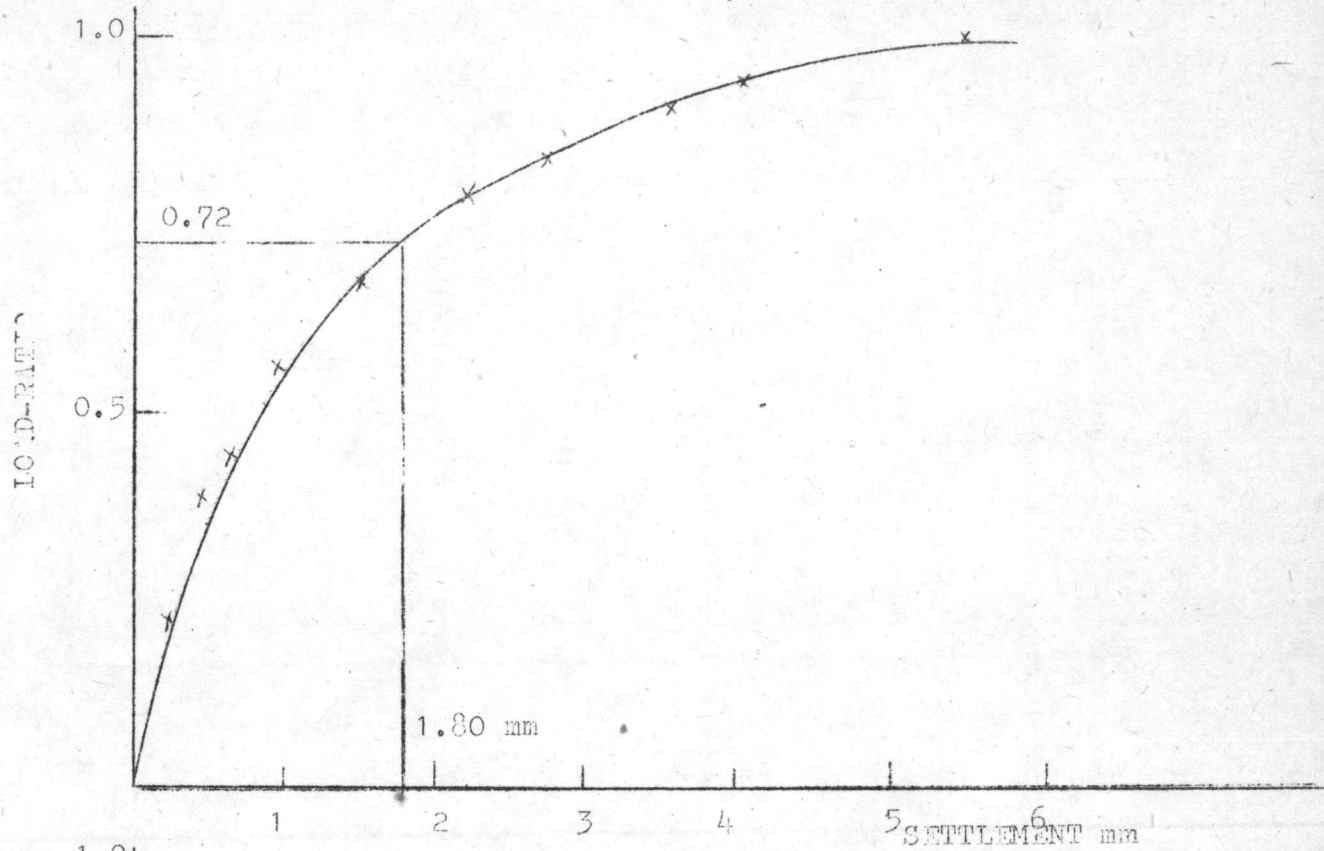


FIG 39 RELATIONSHIP OF LOAD-RATIO TO TOTAL, PLASTIC
ELASTIC SETTLEMENT OF ○ SHAPE

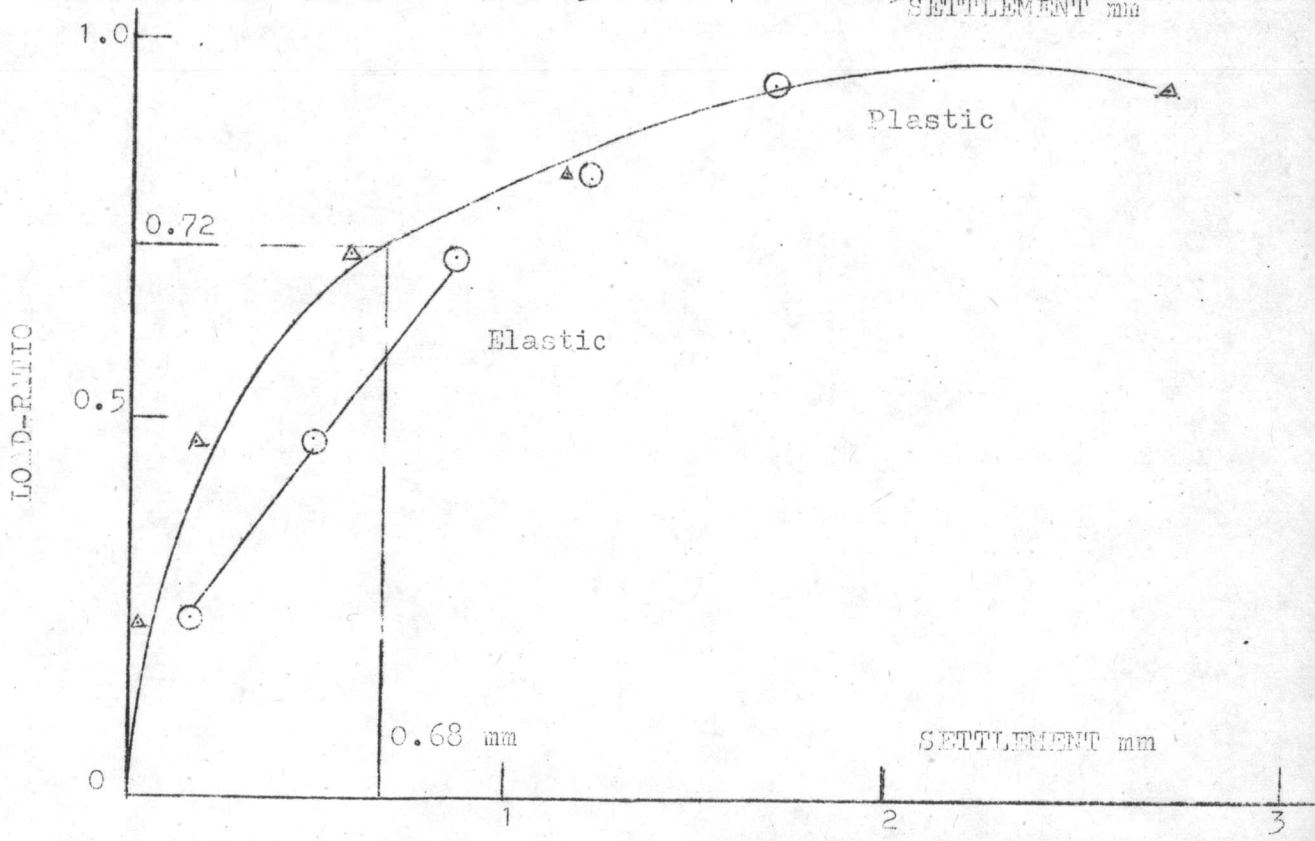
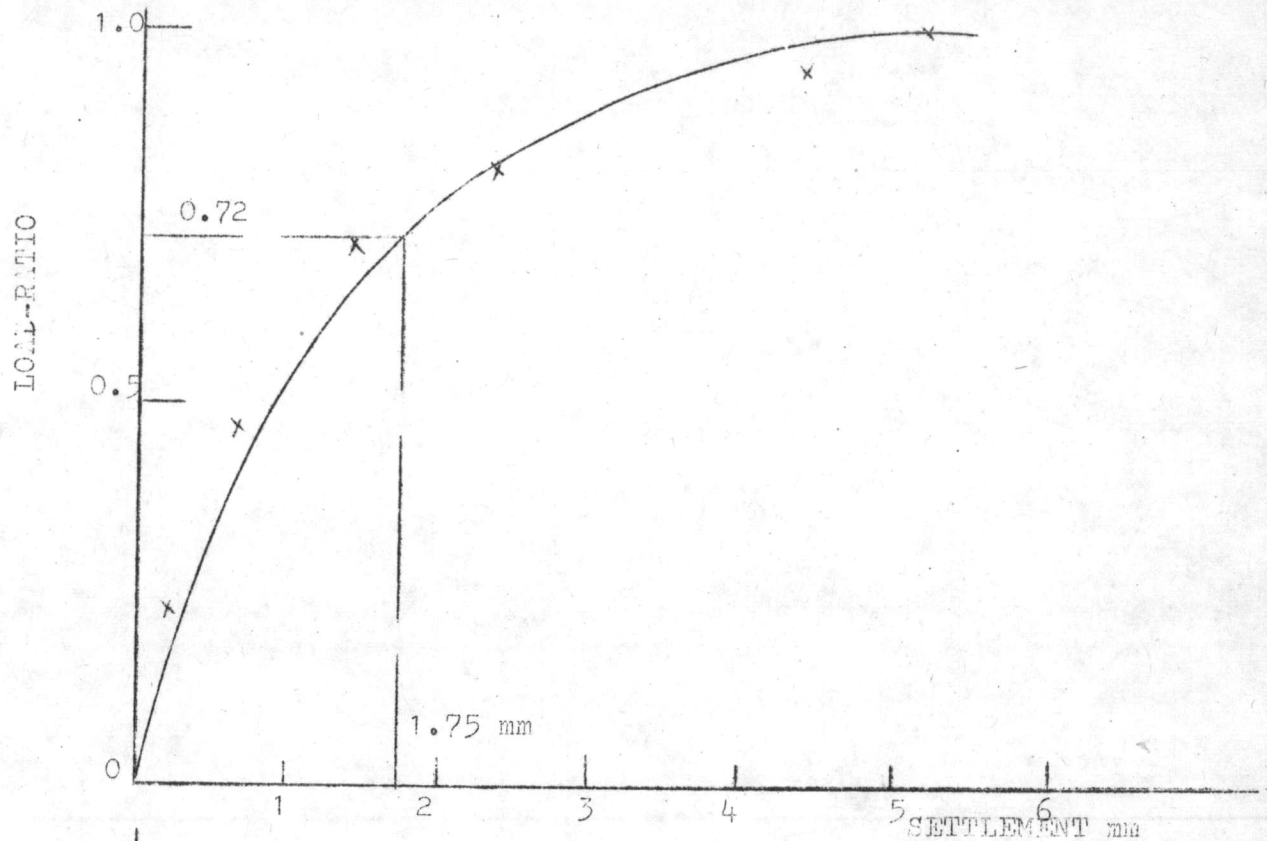


FIG 40 RELATIONSHIP OF LOAD-RATIO TO TOTAL, PLASTIC, ELASTIC SETTLEMENT OF OCTAGONAL SHAPE

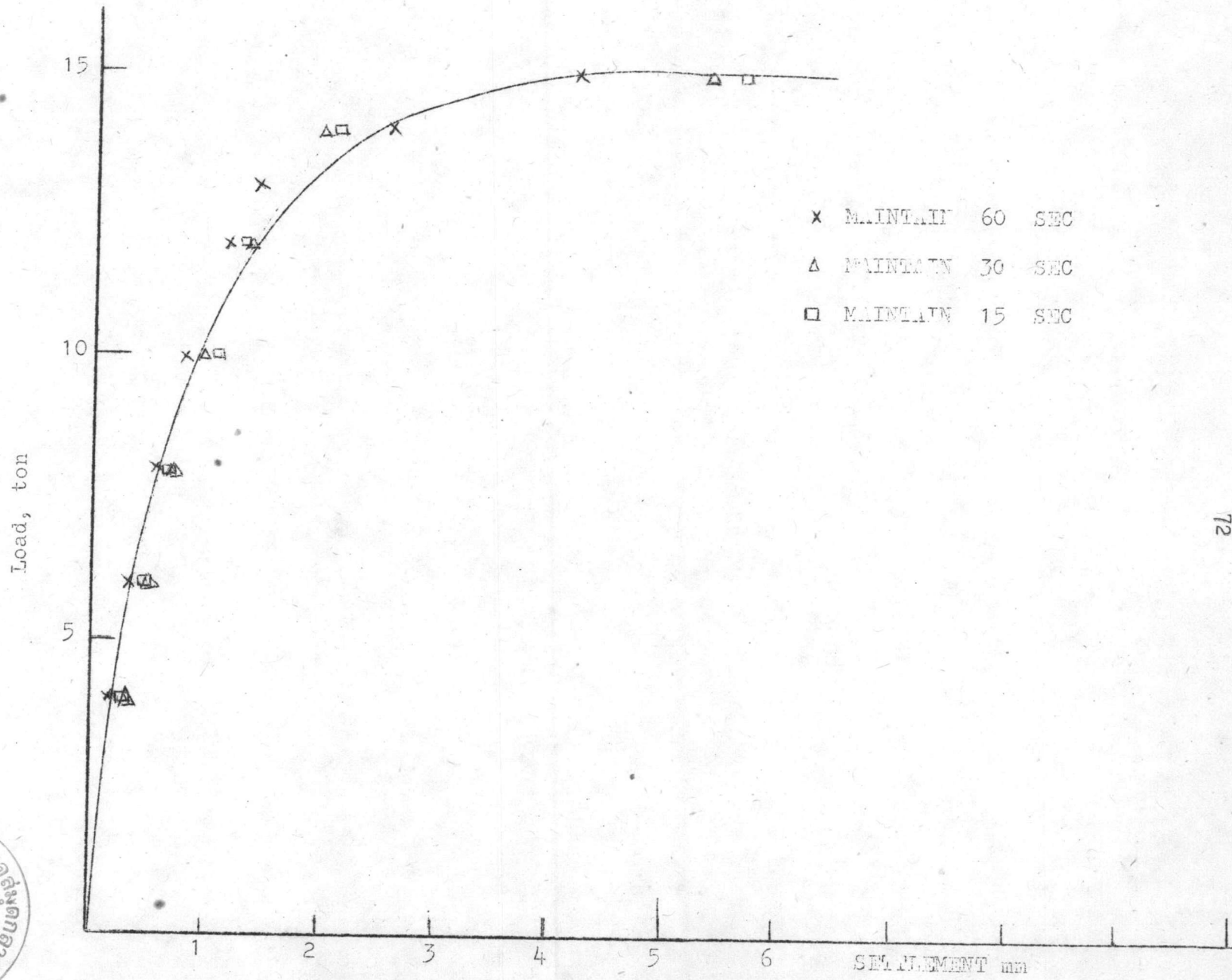


FIG 41 QUICK TEST OF Y SHAPE



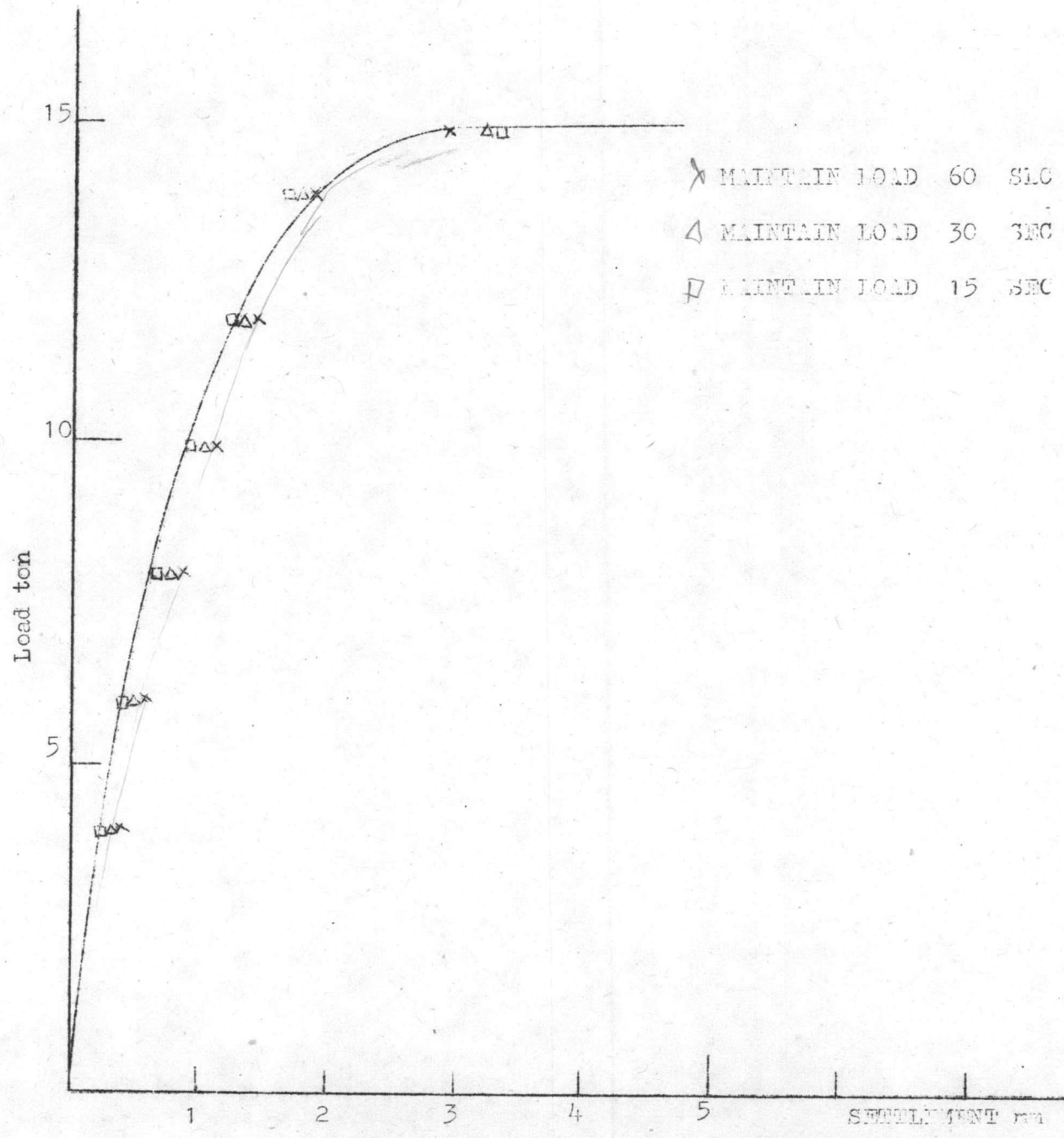


FIG 42 QUICK TEST OF Δ SHAPE

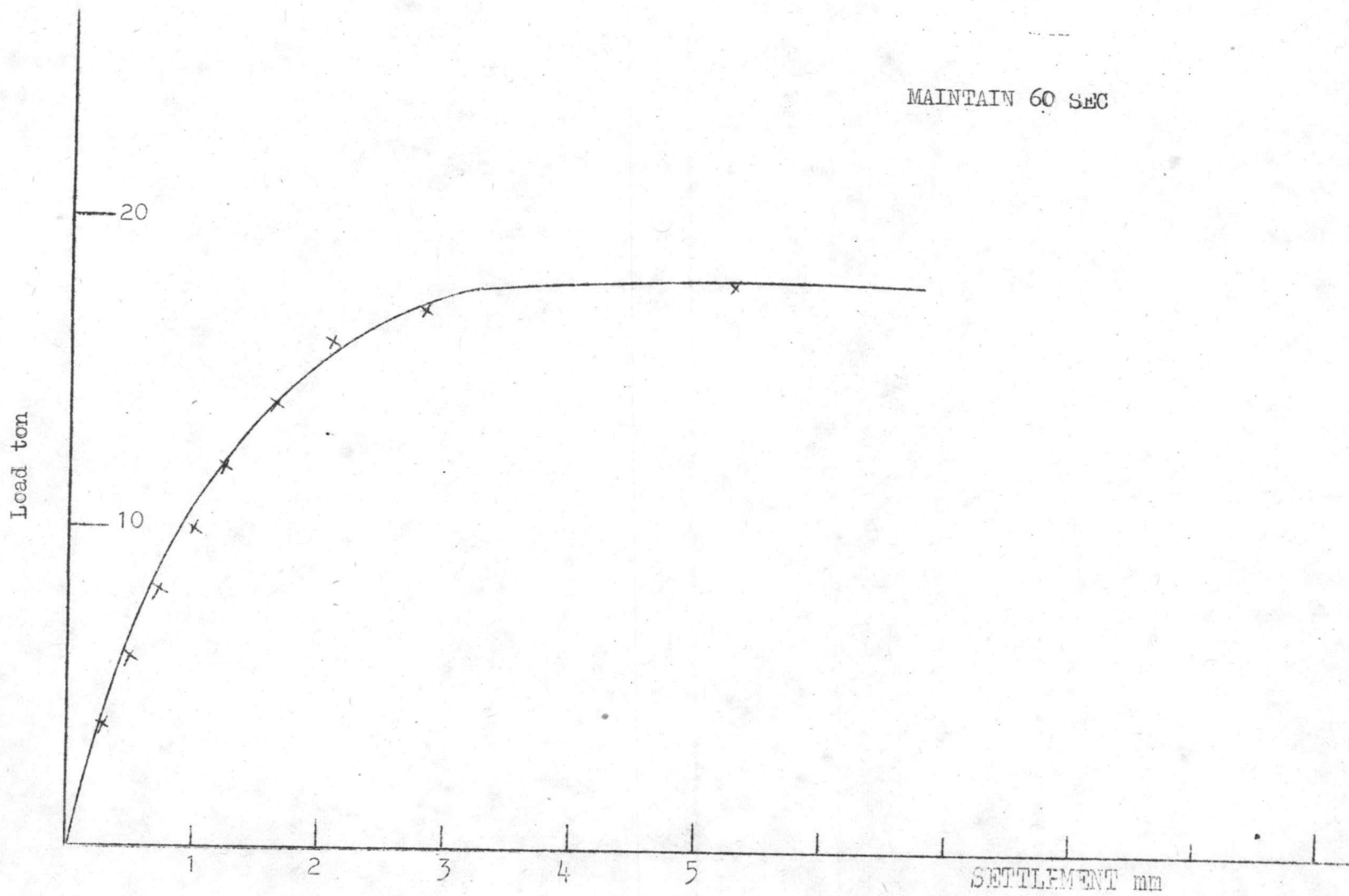


FIG 43 QUICK TEST OF Σ SHAPE

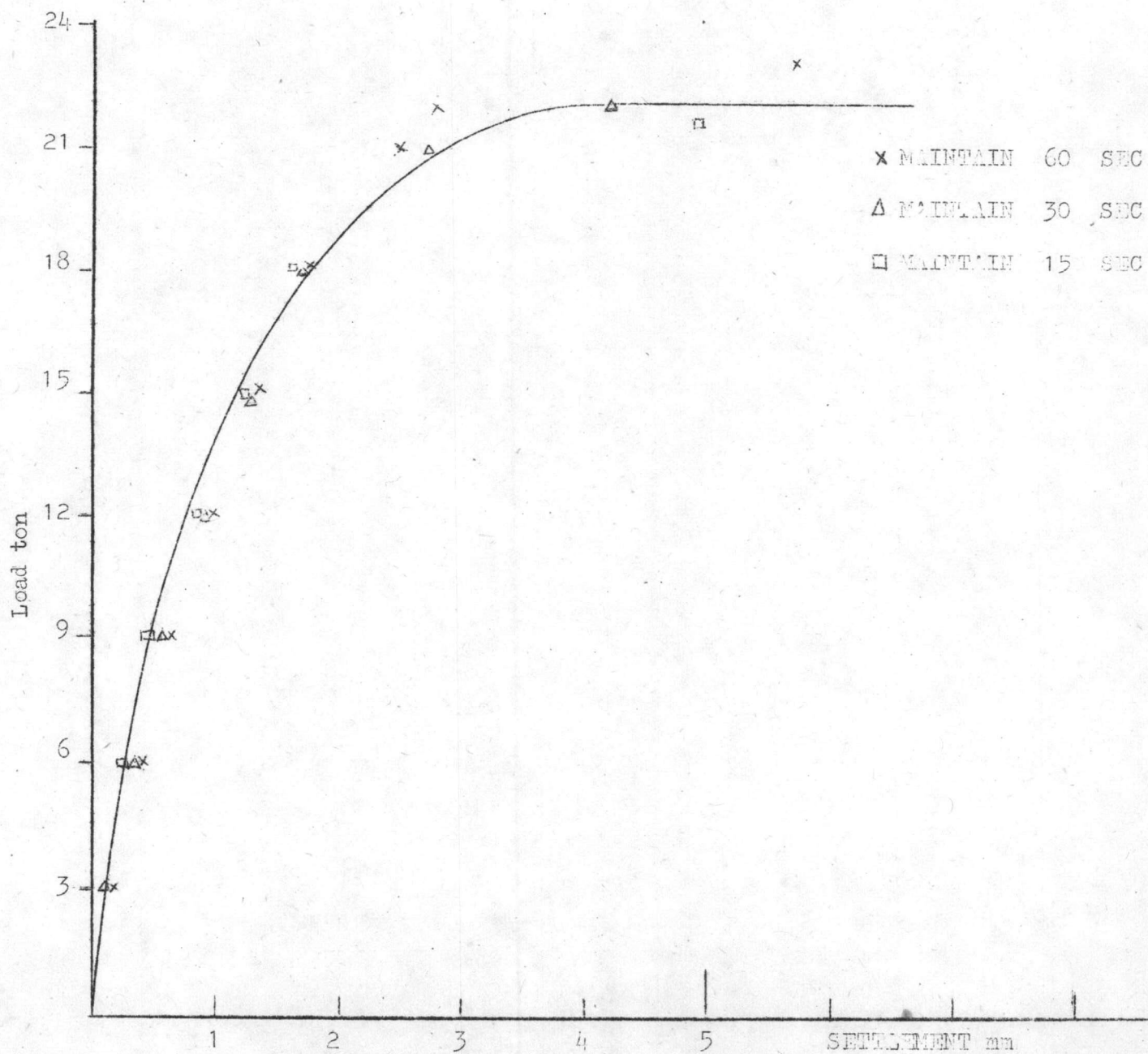


FIG 44 QUICK-TEST OF □ SHAPE

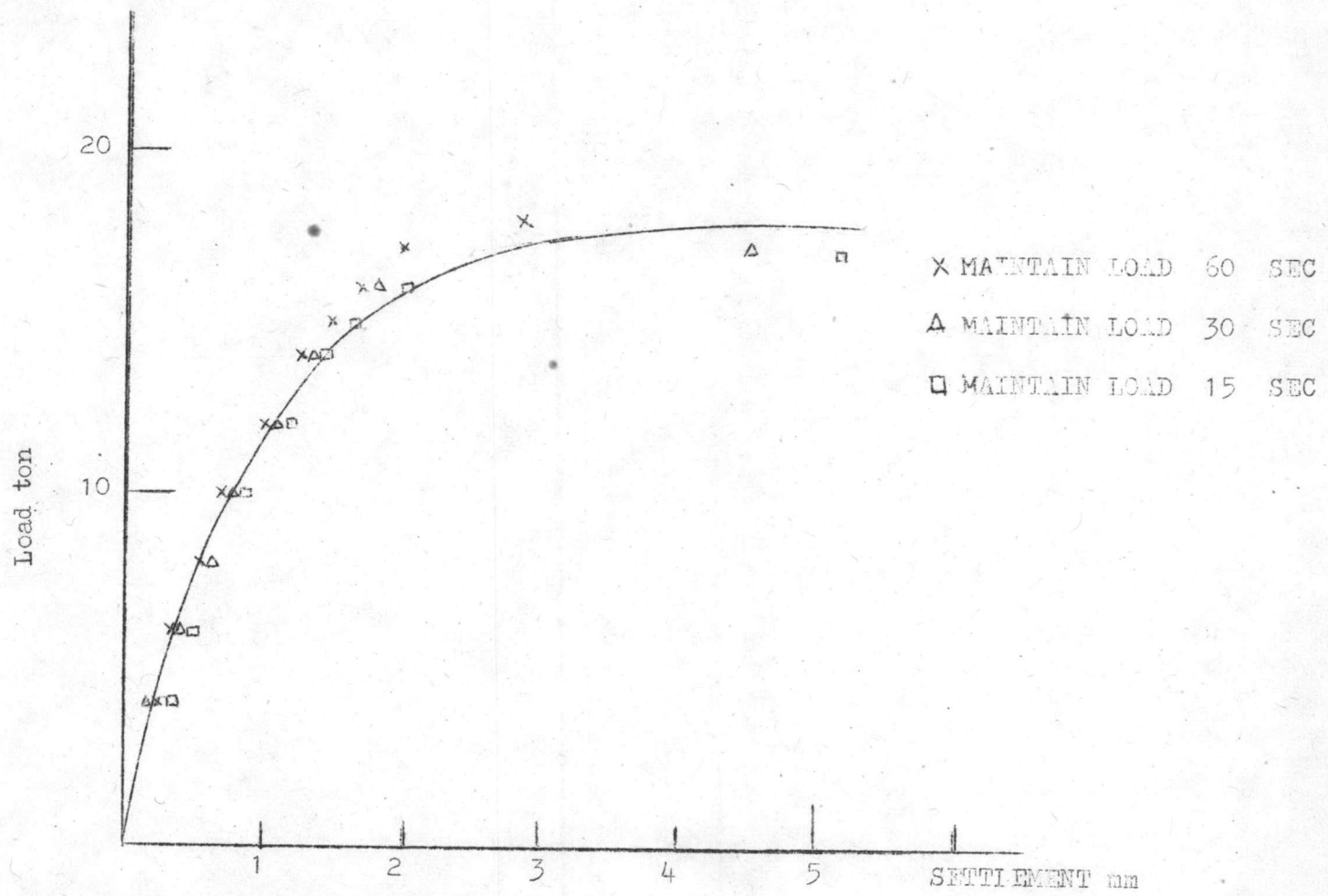


FIG. 45 QUICK TEST OF ○ SHAPE

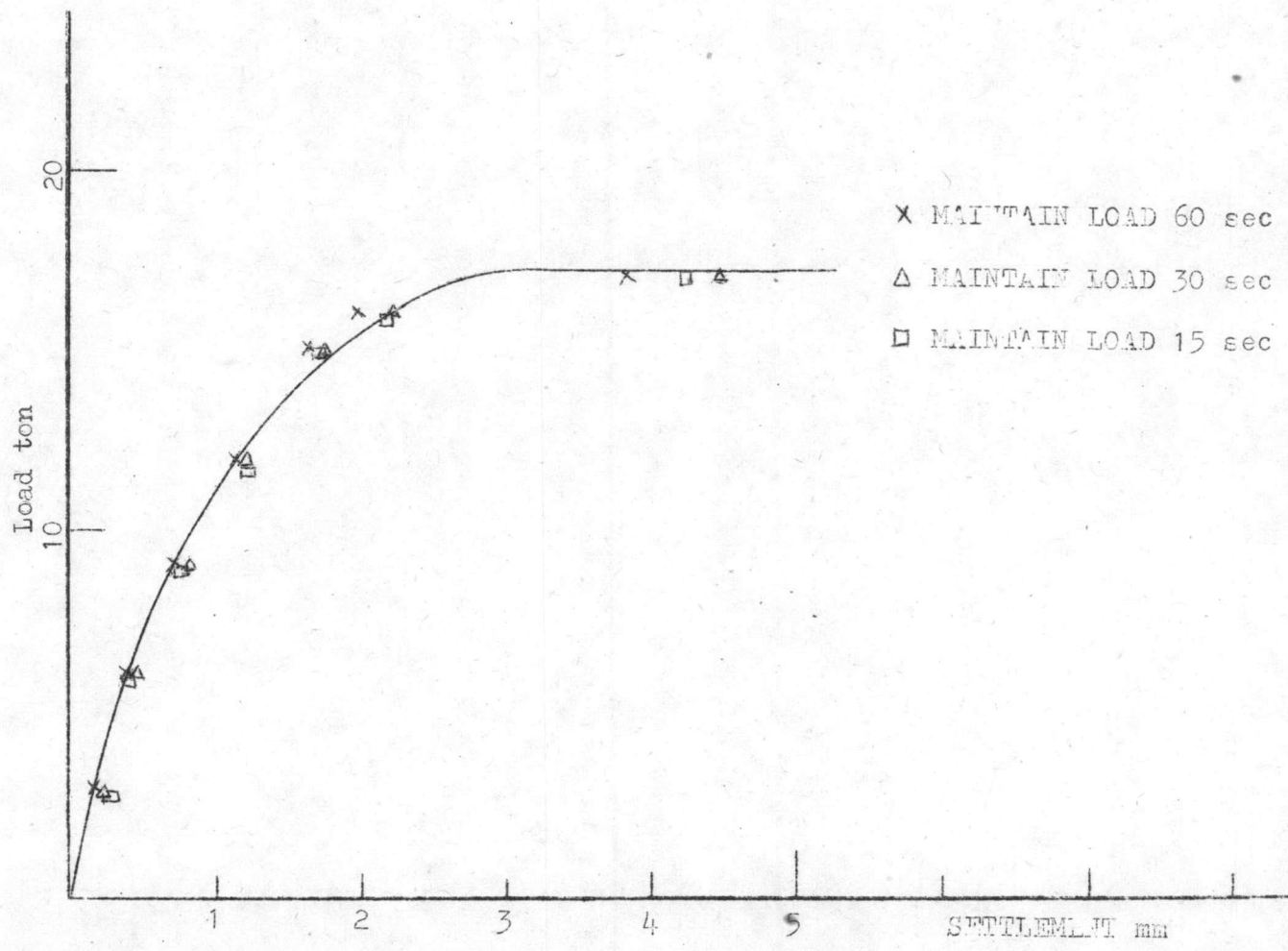


FIG 46 QUICK TEST OF OCTAGONAL SHAPE

SOIL AND MATERIAL LABORATORY

BORING LOG

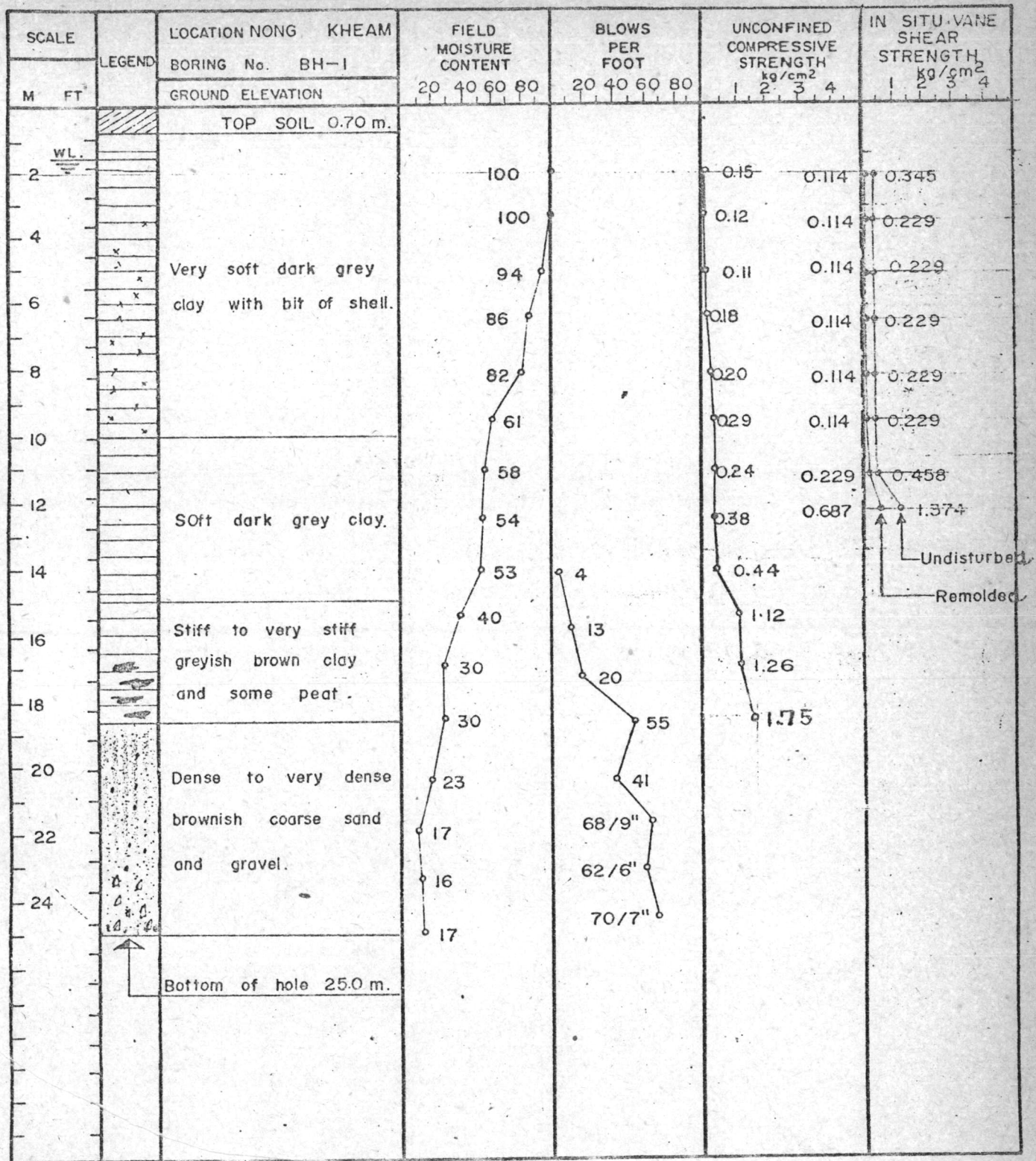


FIG 47 SOIL PROPERTIES AT NONG KHAEM

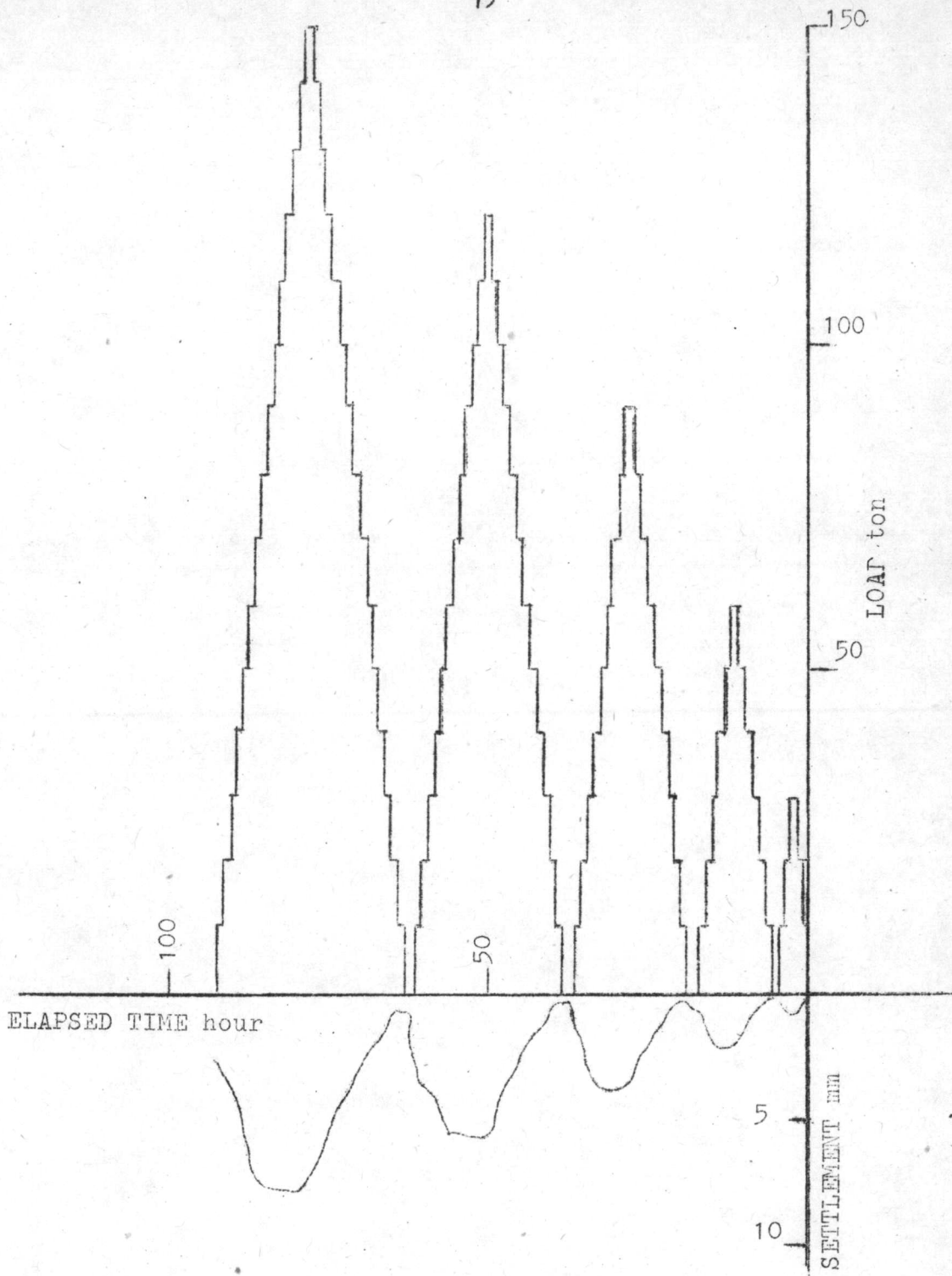


FIG 48 LOAD SETTLEMENT TIME CURVE OF □ SHAPE

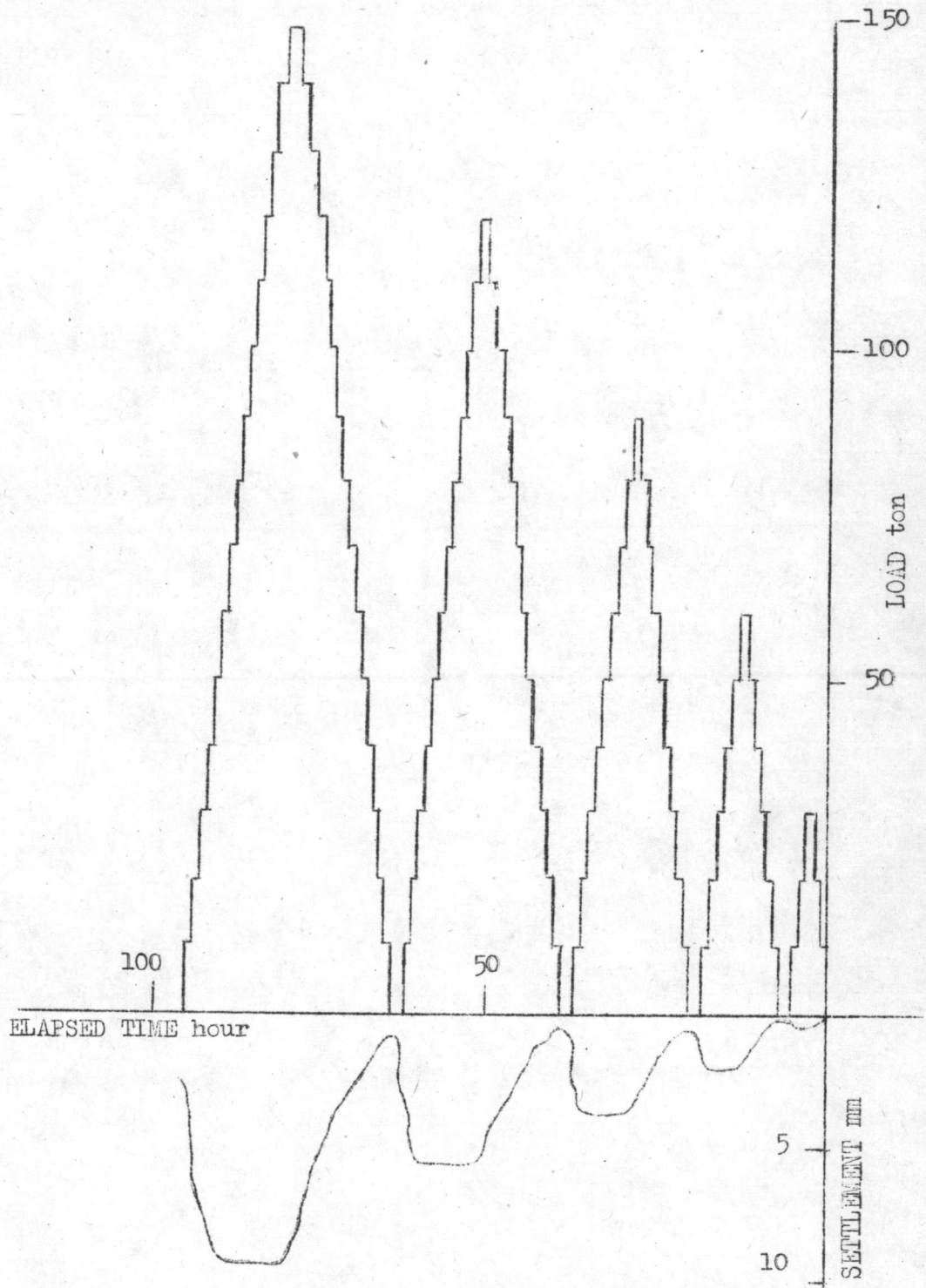


FIG 49 LOAD SETTLEMENT - TIME CURVE OF I SHAPE

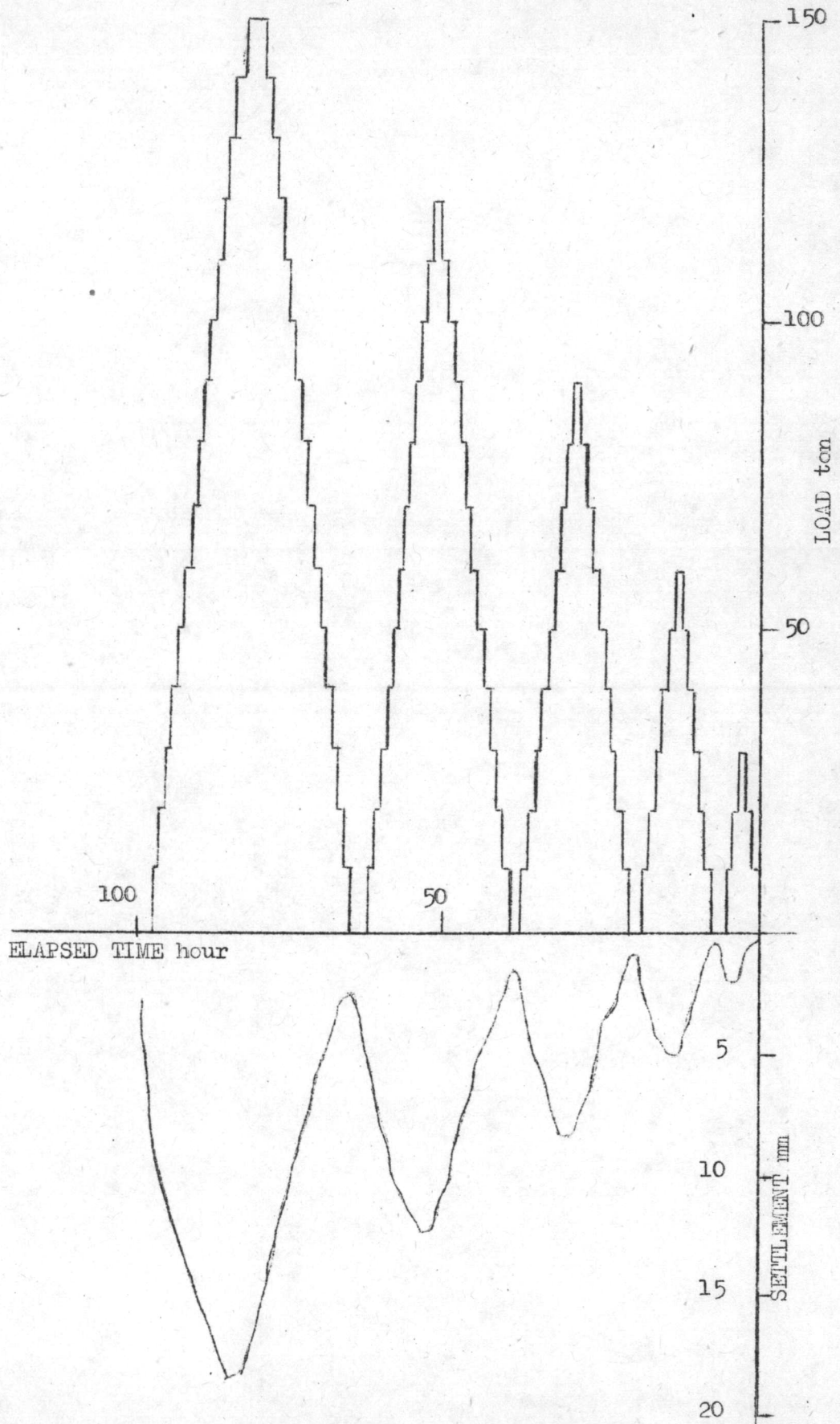


FIG 50 LOAD SETTLEMENT - TIME CURVE OF ○ SHAPE

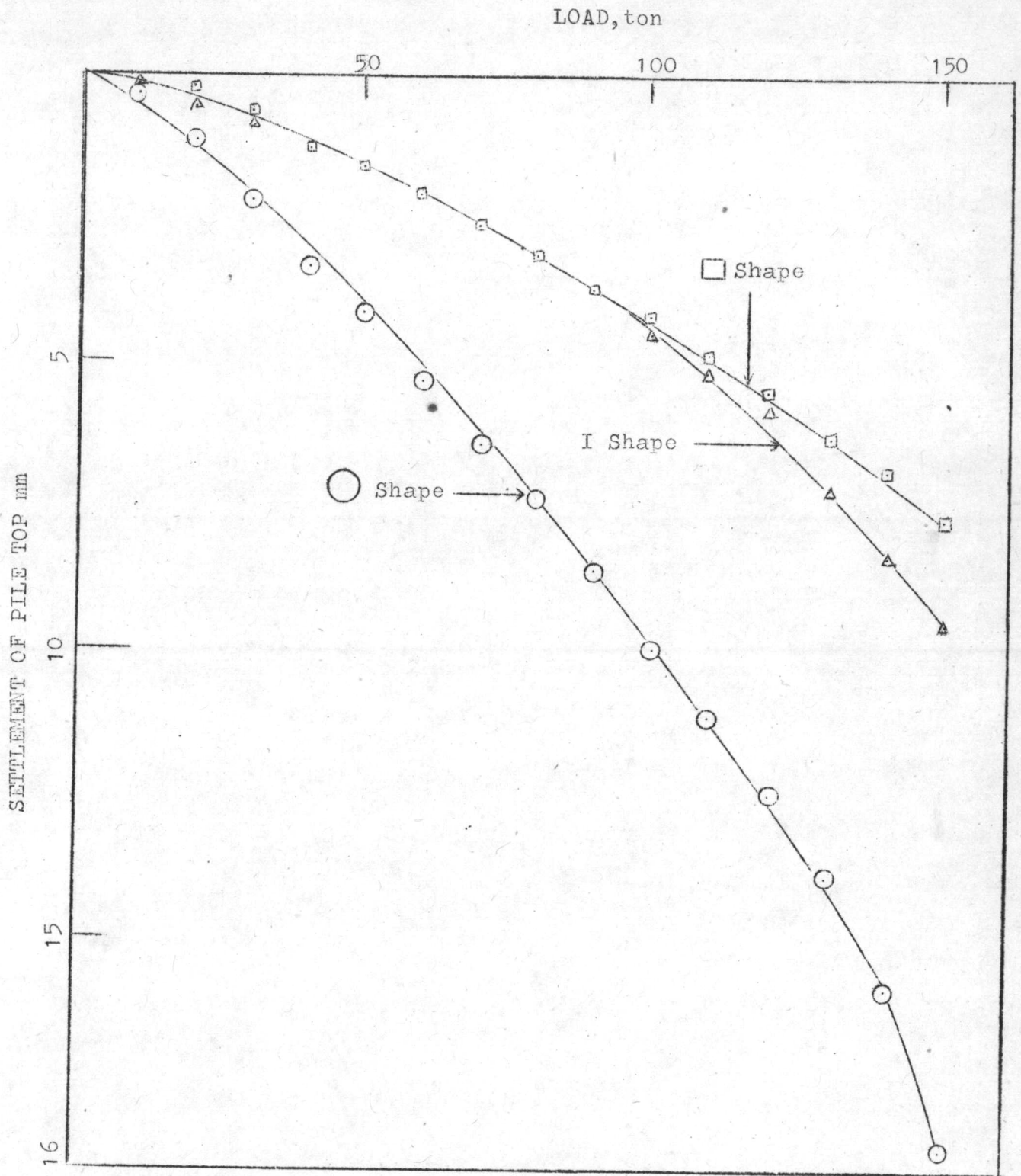


FIG 51. LOAD SETTLEMENT CURVE OF □ SHAPE I SHAPE
AND ○ SHAPE (LONG PILE)

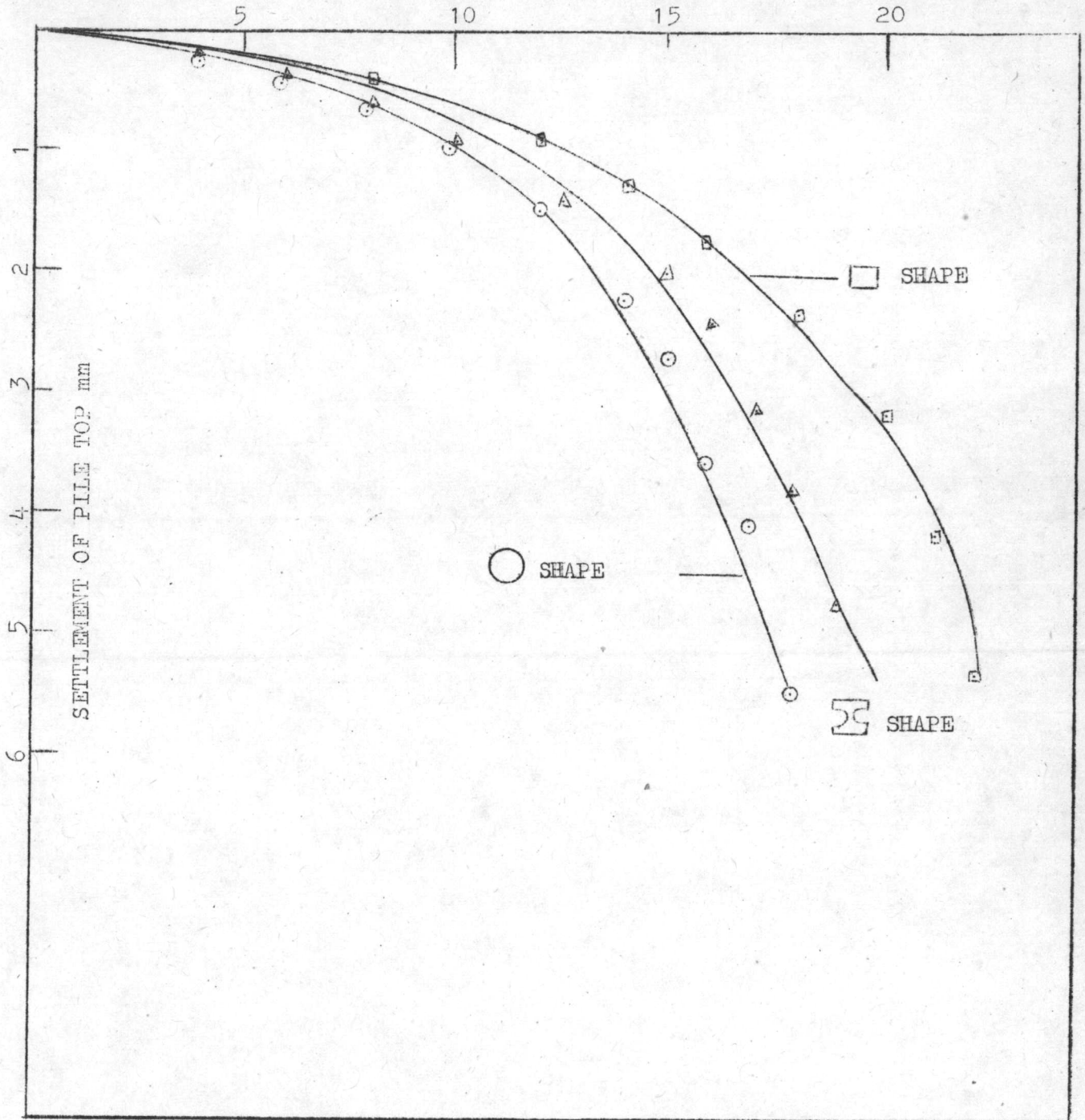


FIG 52 LOAD SETTLEMENT CURVE OF □ SHAPE H SHAPE
AND ○ SHAPE (SHORT PILE)

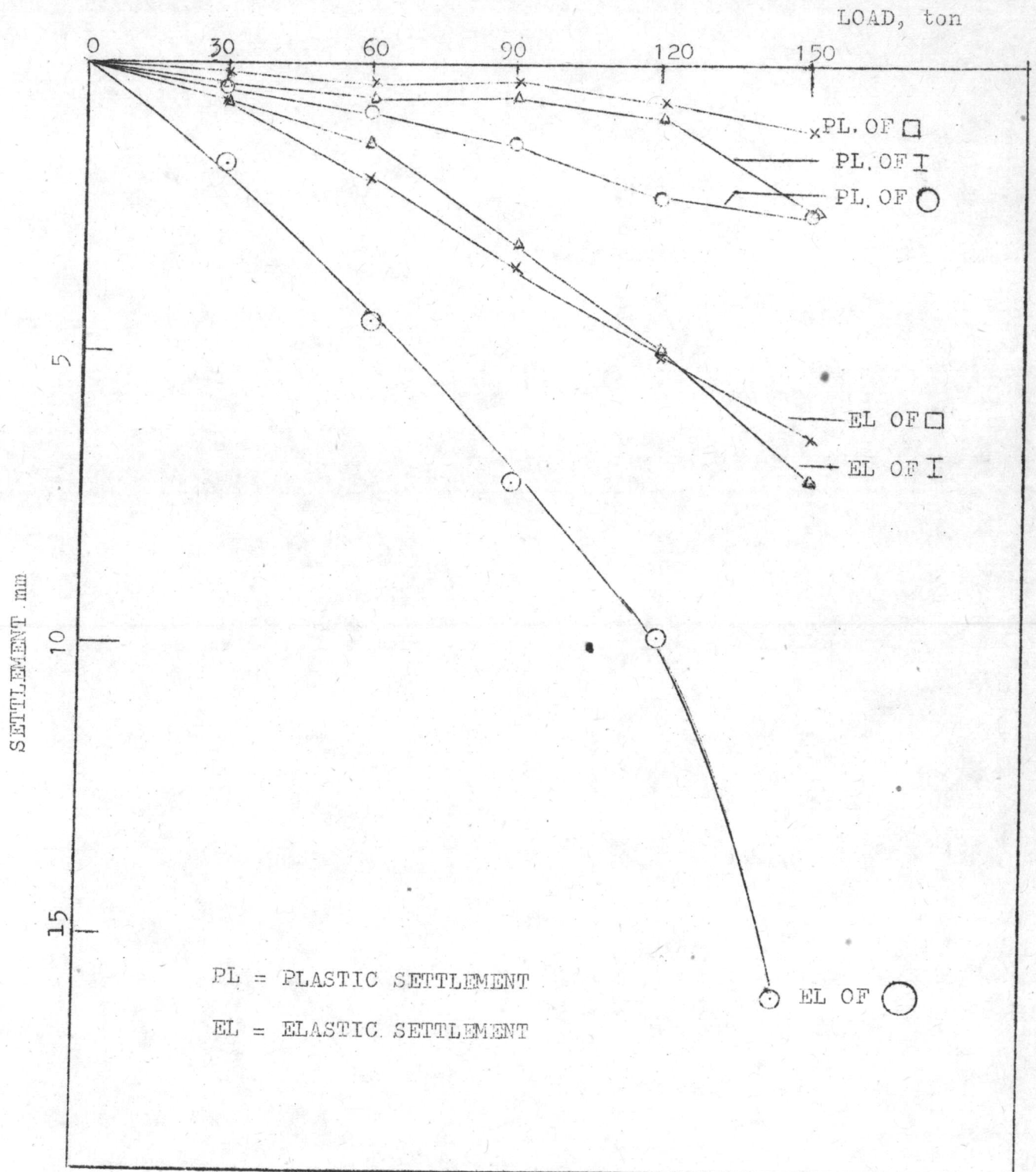








FIG 53 RELATIONSHIP OF LOAD TO ELASTIC AND PLASTIC SETTLEMENT OF □, I, ○ SHAPE (LONG PILE)

Section						
Test after driving (days)	10	13	12	18	12	19
Embedded length (m)	9.87	9.87	9.84	9.80	10.35	9.87
Perimeter around boundary (cm)	114	105	169	140	110	115
Minimum perimeter (cm)	107.5	105	144	140	110	116
Cross sectional area (cm ²)	512	530	929	1225	785	1015
Skin area/end area	219	195	179	112	118	113
Perimeter/area ratio (cm)	0.22	0.198	0.182	0.114	0.140	0.114
Failure load (ton)	15	15	19	22	18	17
Stress at failure load (kg/cm ²)	29.3	28.3	20.4	17.9	22.9	16.7
Settlement at failure load (mm)	4.50	4.40	4.80	5.30	5.50	5.20
Failure load/volume ton/m ³	29.3	28.3	20.5	18.0	21.8	16.7
Settlement at 0.5 failure load (mm)	0.75	0.75	0.80	0.80	0.85	0.75
Settlement at 0.75 failure load (mm)	1.5	1.5	1.75	1.95	2.00	1.75

Note * End area of circular pile = 962 cm²

Pile ϕ 6" - 6 m skin area / end area = 160

TABLE 2 SUMMARY OF LOAD-SETTLEMENT OF ALL PILES







Section						
Maximum plastic settlement (mm)	240	247	275	311	240	270
Maximum elastic settlement (mm)	193	197	205	225	169	171
At intercept between plastic and elastic curve settlement (mm)	1.8	1.92	2.02	2.00	1.82	1.46
load (ton)	14.7	15	18.6	21	16.2	15







TABLE 3 SUMMARY RELATIONSHIP BETWEEN LOAD AND PLASTIC, ELASTIC SETTLEMENT

Load ratio at the maximum curvature of the plastic-load ratio curve	0.8	0.75	0.73	0.75	0.72	0.72
Total settlement at the max curvature (mm)	1.6	1.65	1.80	1.75	1.80	1.75
Plastic settlement at the max curvature (mm)	0.64	0.52	0.54	0.68	0.70	0.68
Elastic settlement at the max curvature (mm)	0.96	1.13	1.26	1.07	1.10	1.07
Load at the max curvature (ton)	12	11.25	13.87	16.50	12.96	12.24

TABLE 4 SUMMARY RELATIONSHIP BETWEEN LOAD-RATIO AND TOTAL, PLASTIC ELASTIC SETTLEMENT.

Failure load from ML test	15	15	19	22	18	17
failure load from quick test	15	15	19	22	17.5	17
Difference	0	0	0	0	2.8%	0

TABLE 5 COMPARISON ML TEST AND QUICK TEST OF ALL PILES

Section						
End area cm^2	512	530	929	1225	962	1015
Skin area (based on minimum perimeter) m^2	10.61	10.36	14.16	13.72	11.38	11.44
Failure load ton	15	15	19	22	18	17
End load ($N_c=9$, vane shear) ton	1.04	1.08	1.89	2.49	1.96	2.06
End load ($N_c=9$, based on U/C) ton	0.76	0.79	1.39	1.83	1.44	1.52
Unit skin friction (Based on vane shear) ton/m^2	1.32	1.34	1.21	1.42	1.41	1.30
Unit skin friction (Based on U/C) ton/m^2	1.34	1.37	1.24	1.47	1.46	1.35
Adhesion factor (Based on vane shear)	0.53	0.54	0.48	0.57	0.56	0.52
Adhesion factor (Based on U/C)	0.81	0.83	0.75	0.89	0.88	0.82
Adhesion factor (Tomlinson)						
Upper limit base on vane shear	0.92	0.92	0.92	0.92	0.92	0.92
base on U/C	1.05	1.05	1.05	1.05	1.05	1.05
Lower limit base on vane shear	0.50	0.50	0.50	0.50	0.50	0.50
base on U/C	0.60	0.60	0.60	0.60	0.60	0.60
Adhesion factor (Holmberg) base on vane shear	0.82	0.82	0.82	0.82	0.82	0.82
base on U/C	1.00	1.00	1.00	1.00	1.00	1.00

Unconfined compression :- Average shear strength 1.66 ton/m^2
End shear strength 1.66 ton/m^2

Vane shear test :- Average shear strength 2.50 ton/m^2
End shear strength 2.26 ton/m^2

TABLE 6 SUMMARY THE RELATIONSHIP OF THE BEARING CAPACITY OF
PILES TO THE PROPERTIES OF SOIL