

MEMO

TO: City of Wichita
 Department of Engineering
 City Hall - 455 N. Main
 Wichita, KS 67202

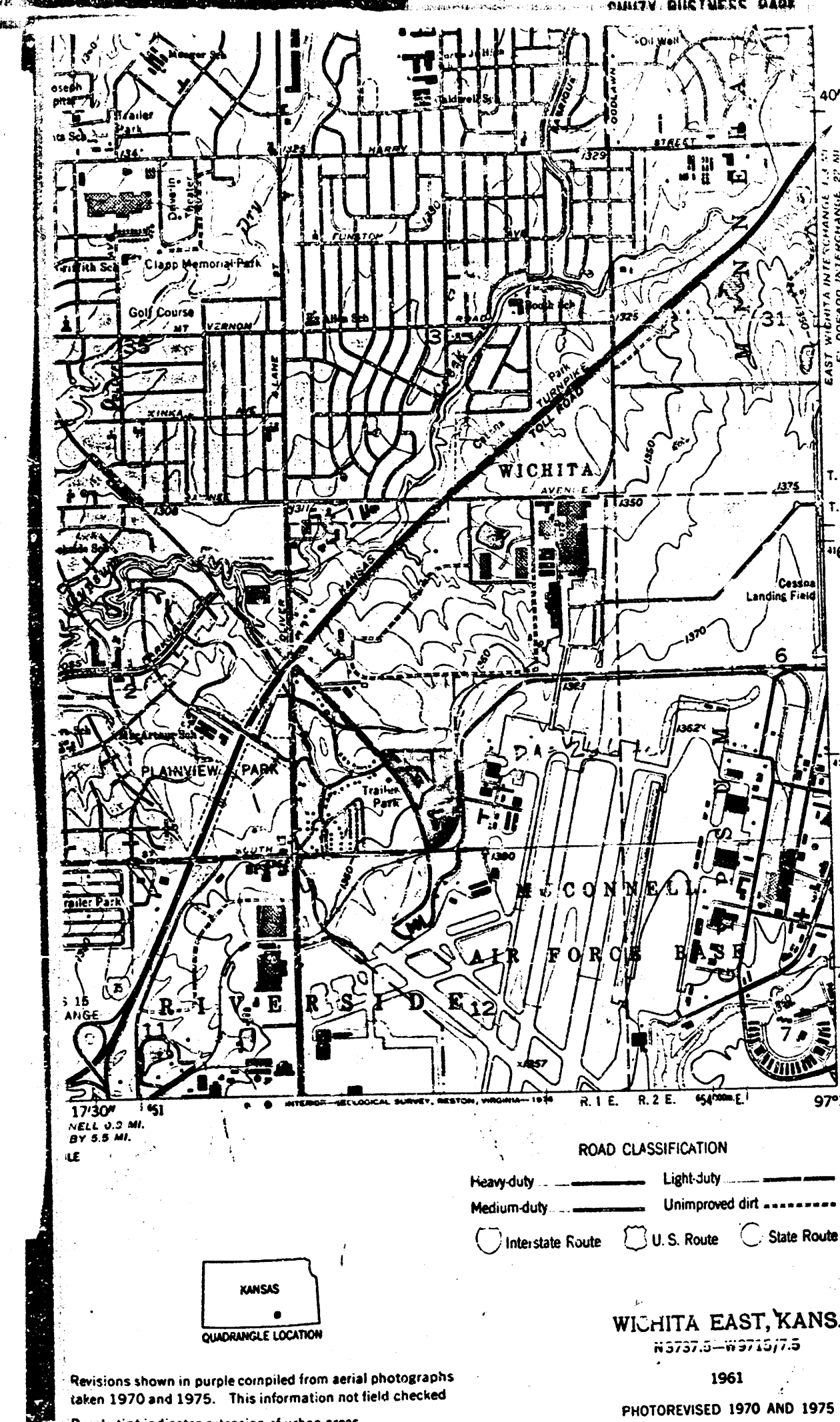
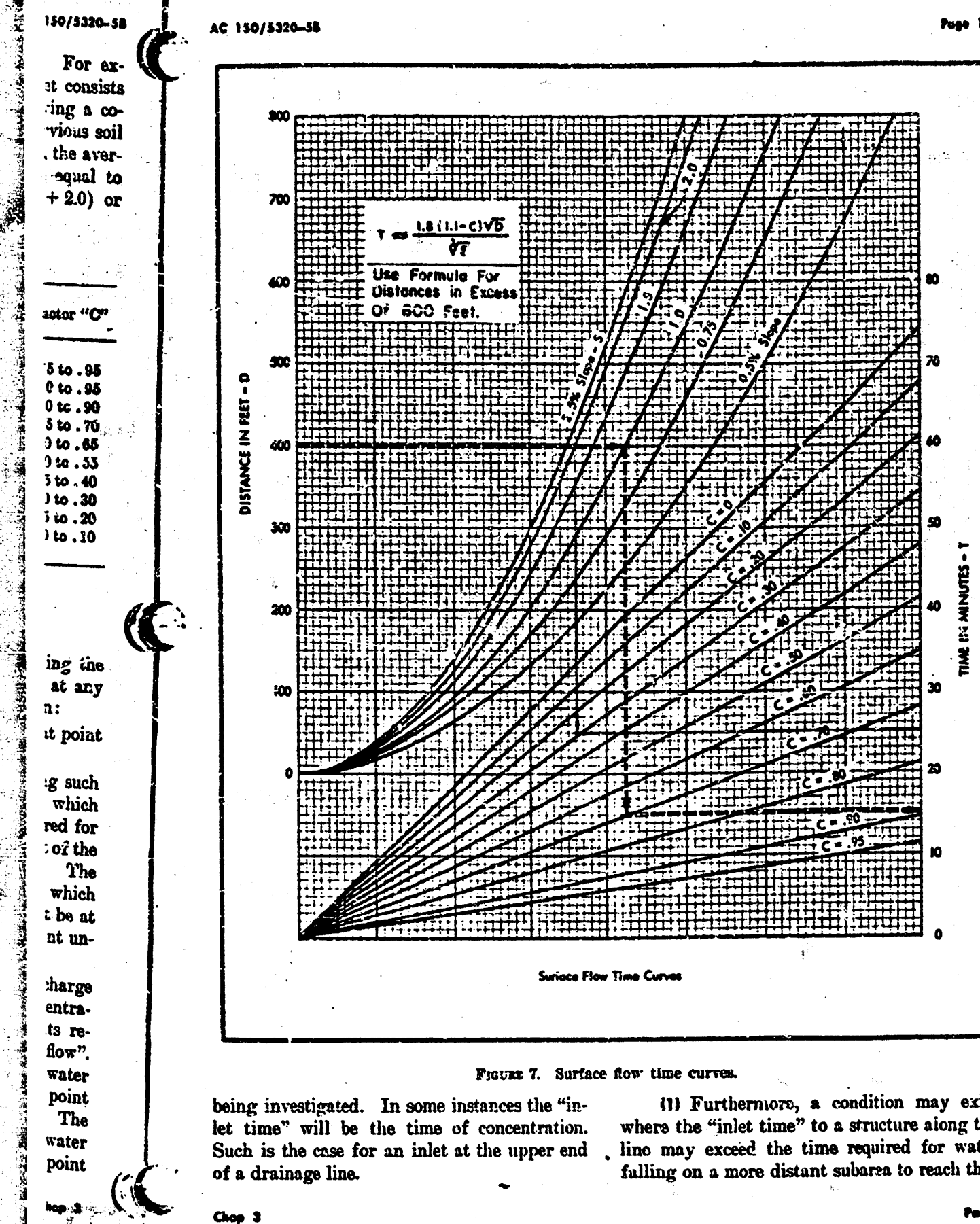
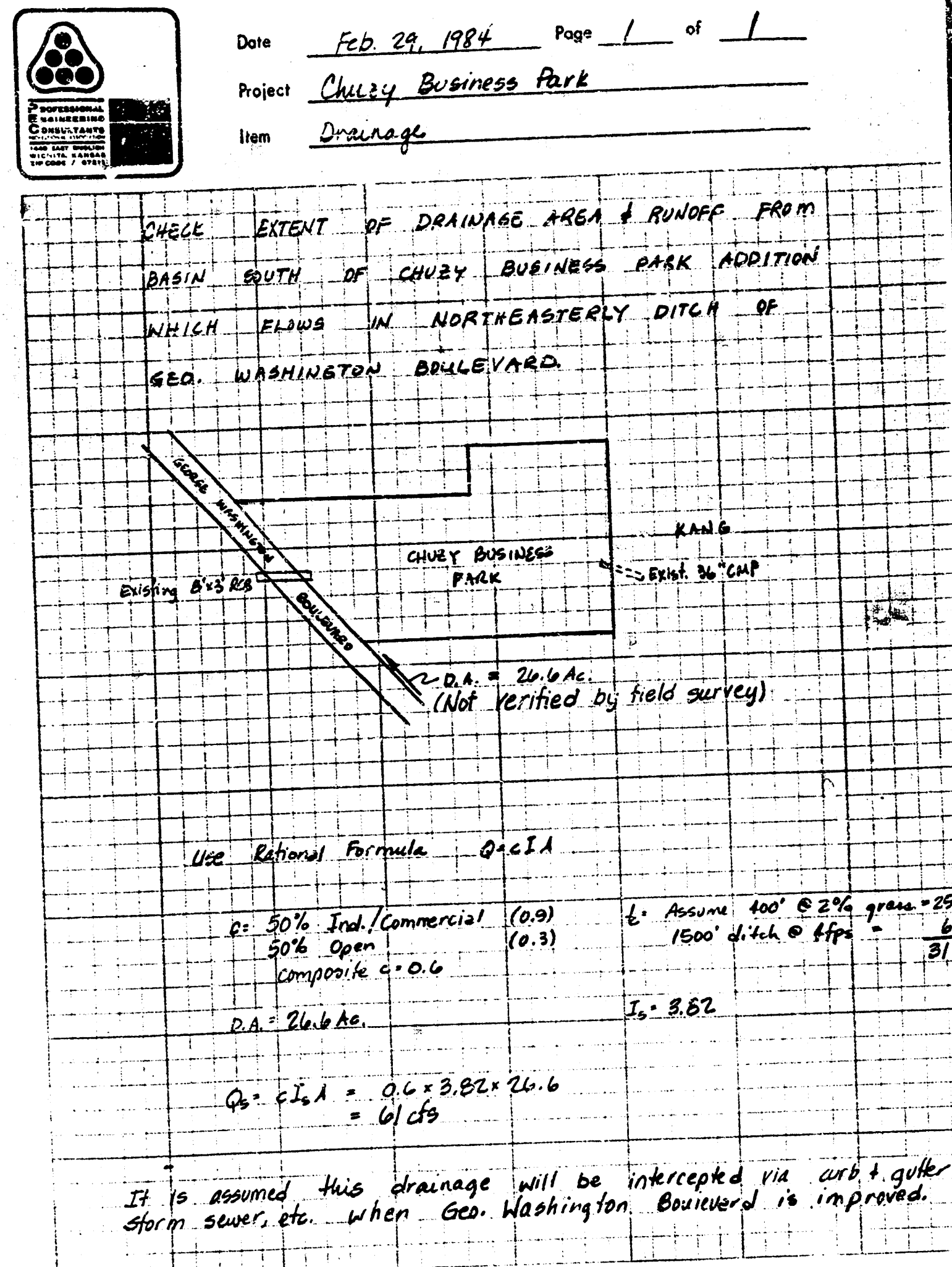
PROJECT NO. 36-84090-177
 PROJECT: Chazy Business Park
 Addition
 DATE: February 29, 1984

FROM: Charles S. Brown, P.E.
 REFERENCE: File

COPIES TO:
 Carl Chazy
 Louise Oliver, MAPD
 File

PLEASE ADVISE IMMEDIATELY OF ANY MISCONCEPTIONS OR OMISSIONS YOU BELIEVE TO BE CONTAINED HEREIN.

Transmitted herewith are two copies of the Drainage Plan and supporting calculations for the proposed Chazy Business Park Addition to Wichita. The Preliminary Plat will be submitted to MAPD on March 2, 1984, for hearing by MAPD Subdivision Committee on March 15, 1984. If you have any questions or need any additional information, please advise.



Date Feb 27, 1984 Page 1 of 2
 Project Chazy Business Park
 Item Drainage - Alternate No. 2

USE RATIONAL FORMULA FOR RUNOFF CALC.

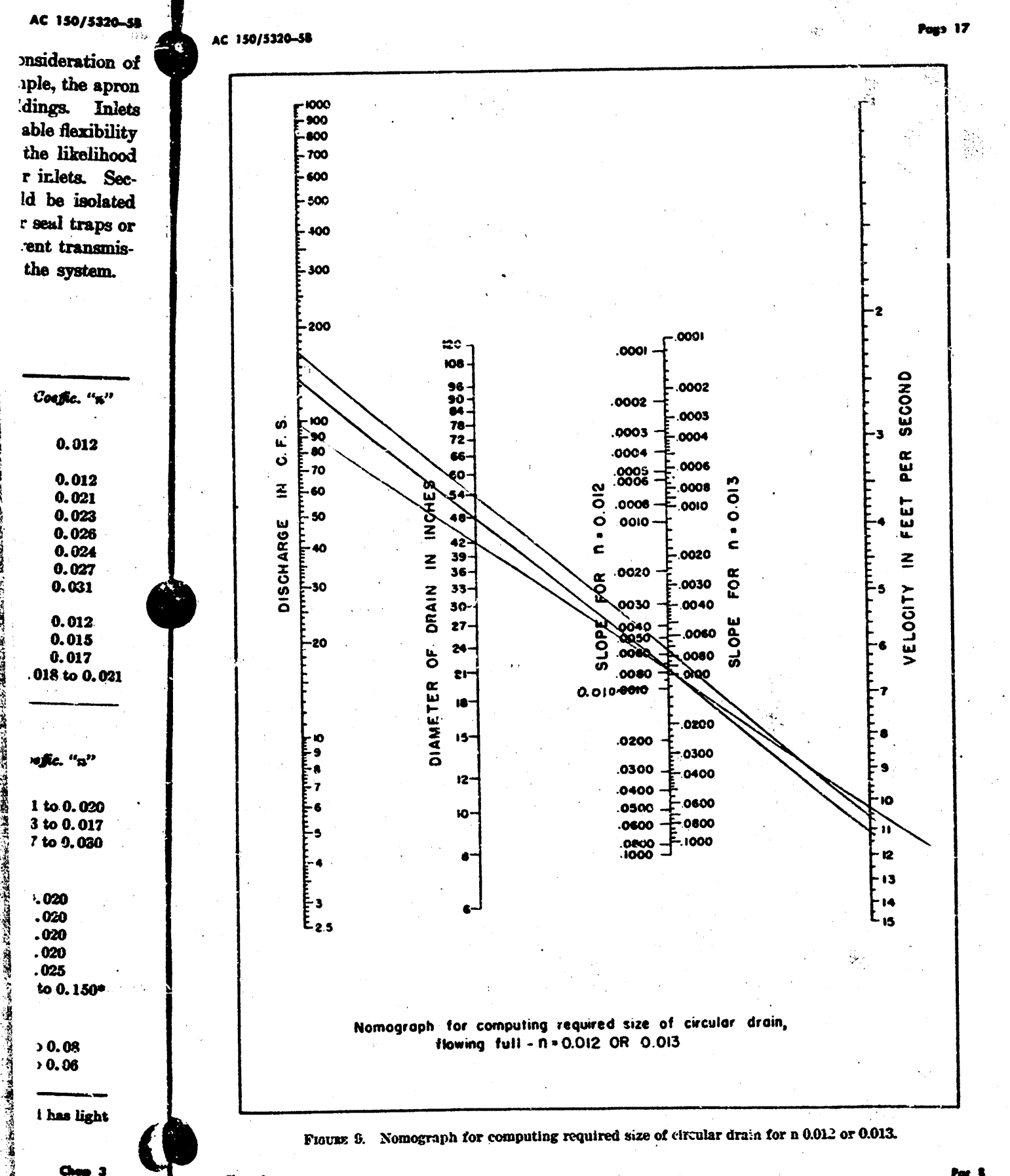
$Q = CIA$ where $C = 0.9$
 $I = 2.4\%$ $A = 1500'$ $I_{avg} = 2.4\%$ $I_{max} = 2.4\%$

Inlet No. 1 $Q = 0.9 \times 2.4 \times 1500 = 3240$
 $Q_1 = 0.9 \times 2.4 \times 1500 = 3240$
 $Q_2 = 0.9 \times 2.4 \times 1500 = 3240$
 $Q_3 = 0.9 \times 2.4 \times 1500 = 3240$
 $Q_4 = 0.9 \times 2.4 \times 1500 = 3240$

Inlet No. 2 $Q = 0.9 \times 2.4 \times 1500 = 3240$
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Date Feb 27, 1984 Page 2 of 2
 Project Chazy Business Park
 Item Drainage - Alternate No. 2

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HYDROLOGY DATA

PROJECT: Chazy Business Park
 ITEM: Storm Sewer Design
 RETURN PERIOD: 5 COM

SCHEMATIC DIAGRAM:

TRIBUTARY AREA				HYDROLOGY DATA			
SUB-BASIN	AREA (acres)	LENGTH (ft)	PERCENT IMP.	Q ₁ (cfs)	Q ₂ (cfs)	Q ₃ (cfs)	Q ₄ (cfs)
1	0.67	20.4	22.5	4.45	60.8	22.5	4.45
2	0.9	9.1	15	5.21	42.7	23.3	4.39
3	0.9	9.9	15	5.21	46.4	24.0	4.34
4	0.9	7.2	15	5.21	39.8	24.7	4.29
5	0.9	6.6	15	5.21	30.9	25.4	4.22

HYDROLOGY DATA SHEET

PROJECT: Chazy Business Park
 ITEM: Storm Sewer Design
 DATE: Feb 27, 1984

COMPUTATIONS BY: CCB REVISIONS BY:

HYDROLOGY SUMMATION				CONDUIT DATA			
Q ₁ (cfs)	Q ₂ (cfs)	Q ₃ (cfs)	Q ₄ (cfs)	PIPE (inches)	SLOPE (%)	VELOCITY (ft/sec)	LENGTH (ft)
22.5	4.45	60.8	22.5	36"	0.9	8.8	410
23.3	4.39	36.0	26.8	42"	1.0	10.5	440
24.0	4.34	38.7	25.5	48"	1.0	11.0	430
24.7	4.29	27.8	28.3	54"	0.9	10.5	430
25.4	4.22	25.0	28.5	60"	0.9	10.5	430

Date Feb 27, 1984 Page 1 of 1
 Project Chazy Business Park
 Item Drainage - Alternate No. 2

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Date 12-15-85 NIP Page 1 of 1
 Project KANG
 Item Culvert at 7100 S. Main Drive

LEAD: GRADE = 1567.35
 E. LT = 51.10
 E. RT = 51.50

Plans call for 14.0 sq ft CRP, McPherson Curve. Want to know if 60x43 (12.5 sq ft) or 68x43 (16.5 sq ft) is acceptable.

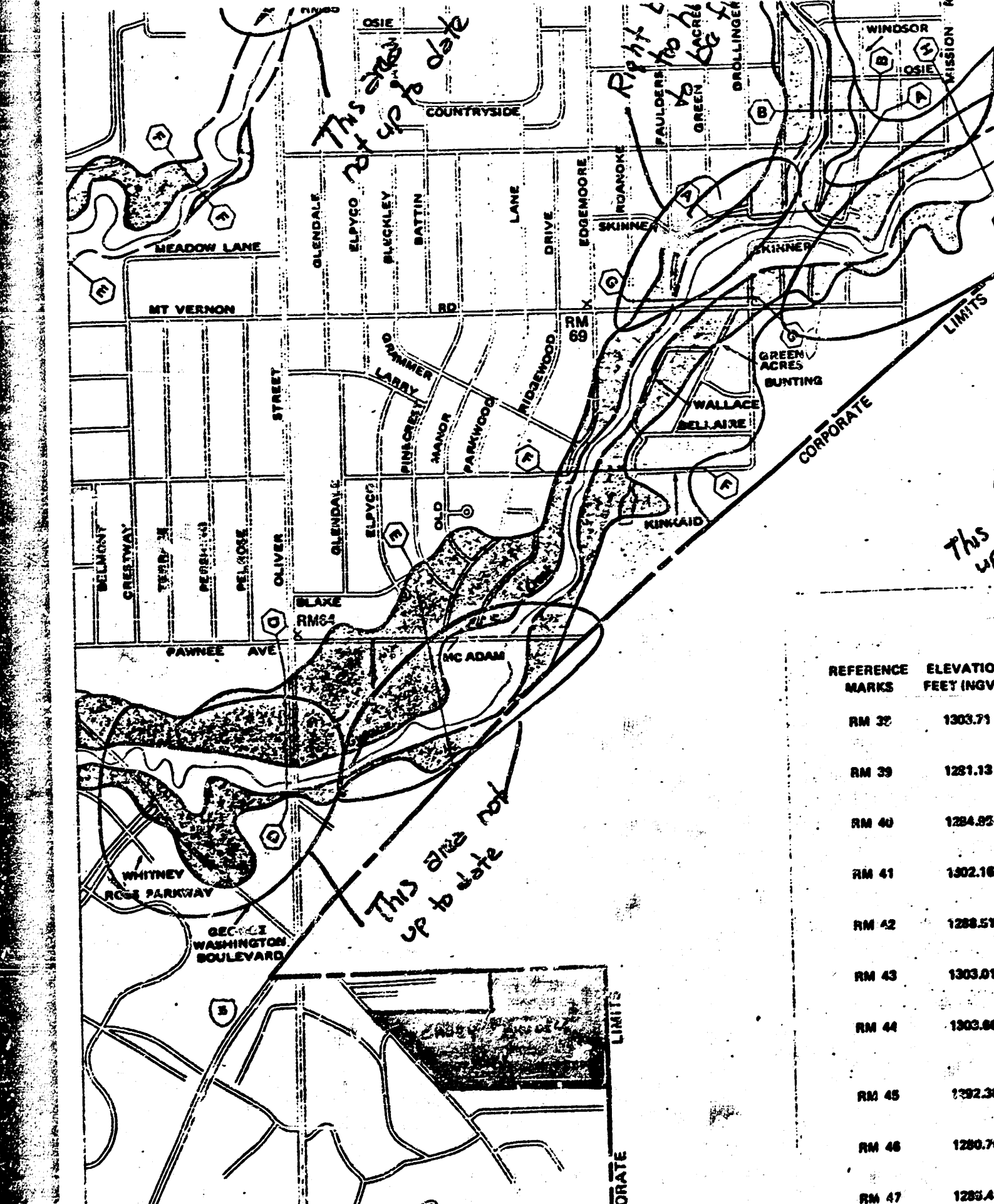
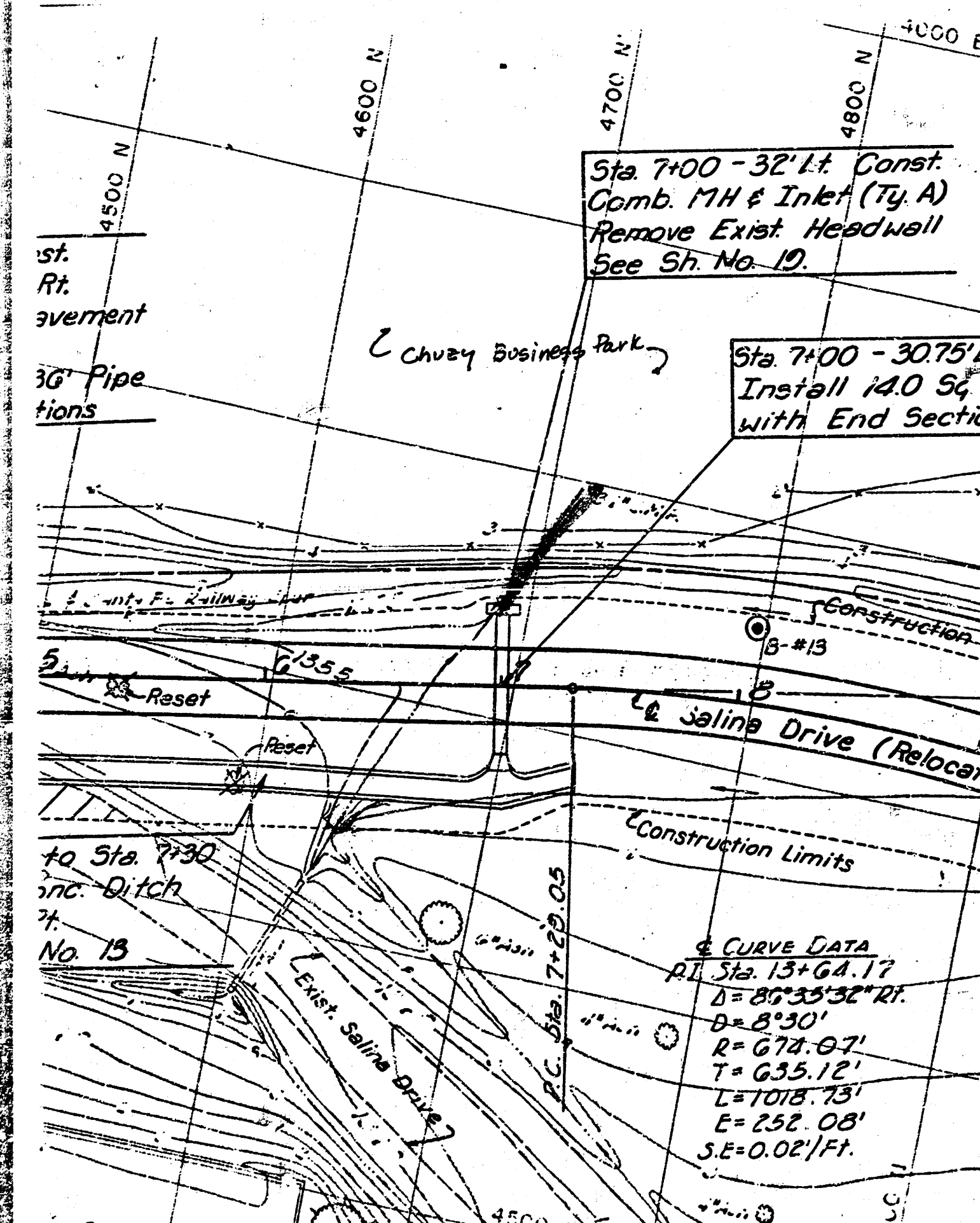
ROOT STD. ratio for 68x43 when 14.0 sq ft is called out.

Check hydraulics of system (Assuming inlet control)

$Q = 60$ cfs
 $Q_{in} = 105$ cfs

PIPE SIZE MAT'L. Q₁ elev. Q₂ elev.
 60x43 (12.5 sq ft) RCPHE 54.12 55.26
 68x43 (16.5 sq ft) RCPHE 54.12 55.26
 68x43 (16.5 sq ft) CMAC 54.12 55.26

Although M₁ area is less, the 12.5 sq ft RCPHE is approximately equivalent to 14.3 sq ft CMAC, in inlet control. The 60x43 will fit inside the ditch inlet easier, the 12.5 sq ft RCPHE should probably be allowed.



Date Feb 27, 1984 Page 1 of 1
 Project Chazy Business Park
 Item Drainage

Check Capacity of Existing 8'x3' RCB @ George Washington Blvd.

INLET CONTROL Height of Box (D) = 3'
 Allowable HW elev. = 133.8'
 R. Box = 129.34
 HW = 133.8 - 129.34 = 4.44' say 4.5'
 HW (D) = 4.5/3 = 1.5

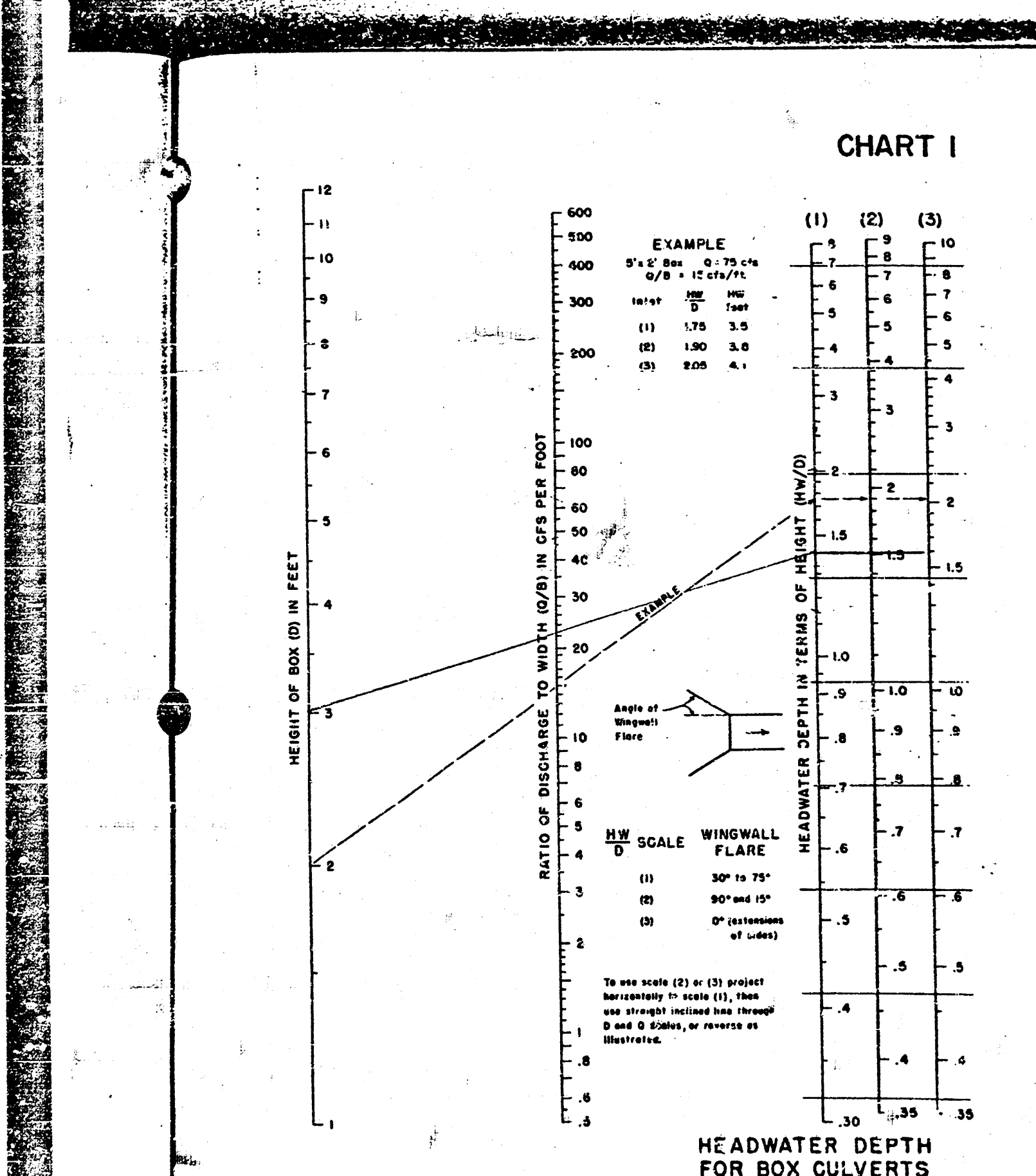
From Chart 1, attached, Q/B = 23 cfs/foot

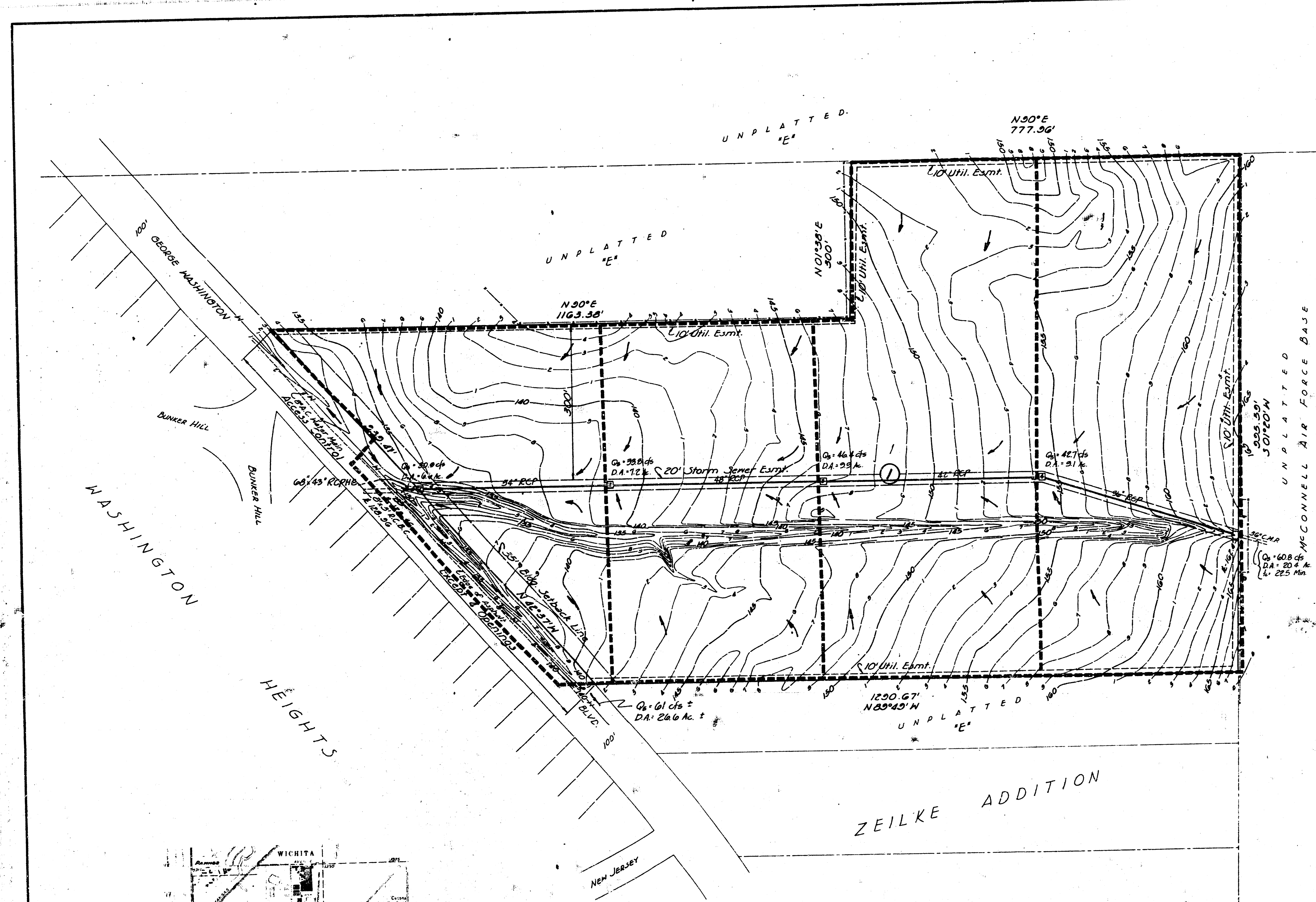
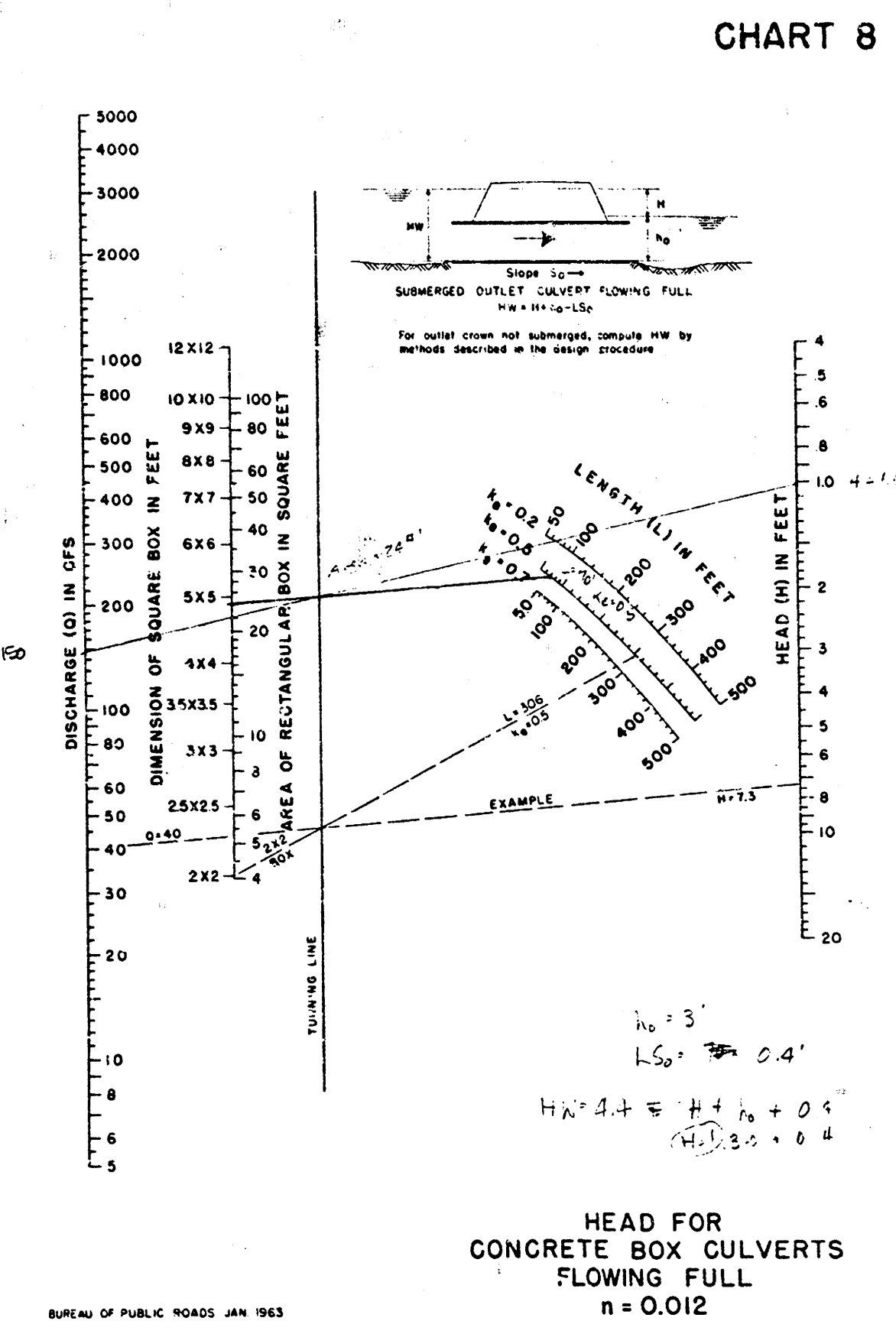
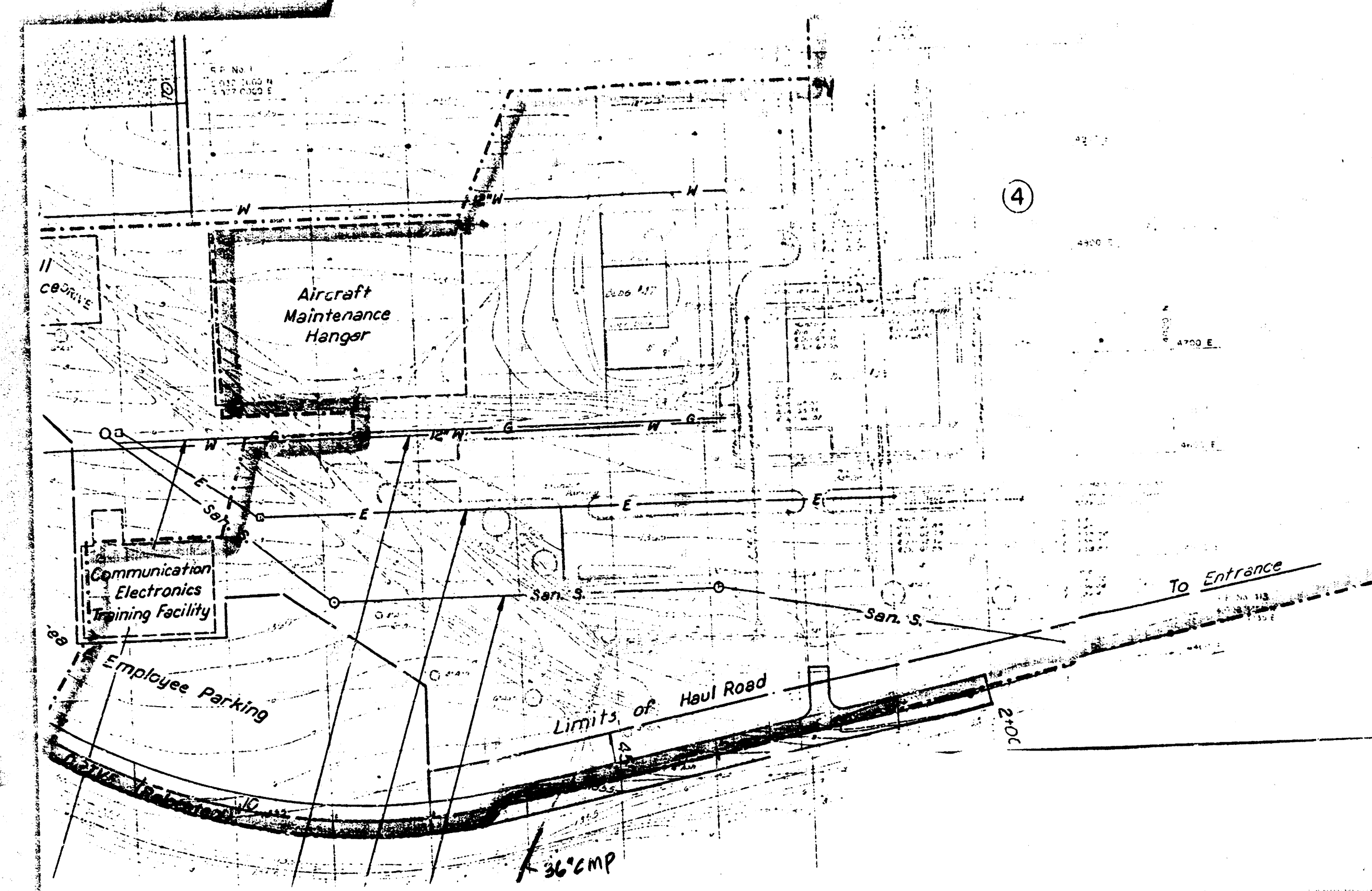
Total capacity = 23 cfs/foot x 6' = 138 cfs

Capacity of Existing Box = 5 yr. storm =

OUTLET CONTROL see attached

L = 70'
 H = 0.012 (Concrete Box)
 K = 0.65 ASSUMED
 L/S = 0.4 (129.36 - 123.74) Elev. drop across box
 HW = 4.4 sec. above
 H = 1.0 HW = H + L/S + h_o





1" = 100'
Elev. = City Datum
February 20, 1984
BENCH MARK
City Standard Disc. 44.2" N and
55.0" NE of E. of Oliver and
George Washington Blvd.
Elev. 123.625 City Datum
Topography Surveyed by:
Baughman Company, P.A.
November 1982

DRAINAGE PLAN **CHUZY BUSINESS PARK** TRACT IN THE S.W. 1/4 OF SEC. 1, T28S, R1E

Owner: Carl Chuzy
Engineer: Professional Engineering Consultants, P.A.
1443 East English
Wichita, Kansas

- LEGEND**
- Manhole
 - Inlet & No.
 - Storm Water Sewer & Size
 - Drainage Basin Boundary
 - Drainage Direction

NOTE:
Lot 1, Block 1 shall be graded to drain to the
proposed storm sewer via drives, flumes, private
storm sewers, and/or other approved drainage
facilities

