



# ***City of Albuquerque***

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 1, 1995

John Alexander  
Bohannon Huston, Inc.  
7500 Jefferson NE  
Albuquerque, NM 87109

RE: GRADING PLAN FOR STOWE @ 7 BAR "TRACT B-7" (A-13/D7B) \*  
RECEIVED JULY 11, 1995 FOR PRELIMINARY PLAT & GRADING PERMIT  
ENGINEER'S STAMP DATED 7/7/95

Dear Mr. Alexander:

Based on the information included in the submittal referenced above, City Hydrology accepts the Grading Plan for Final Plat & Rough Grading Permit. Submit the Grading Plan, dated 7/7/95 to the DRB for approval. Make sure that the Plat indicates the Drainage Easement on Lots 38 & 57 as PRIVATE instead of Public.

Based on the supplemental information received July 11, 1995 City Hydrology accepts the Drainage Report for Tracts B-7, B-8, & B-9; dated 6/6/95; for Preliminary Plat & Work Order.

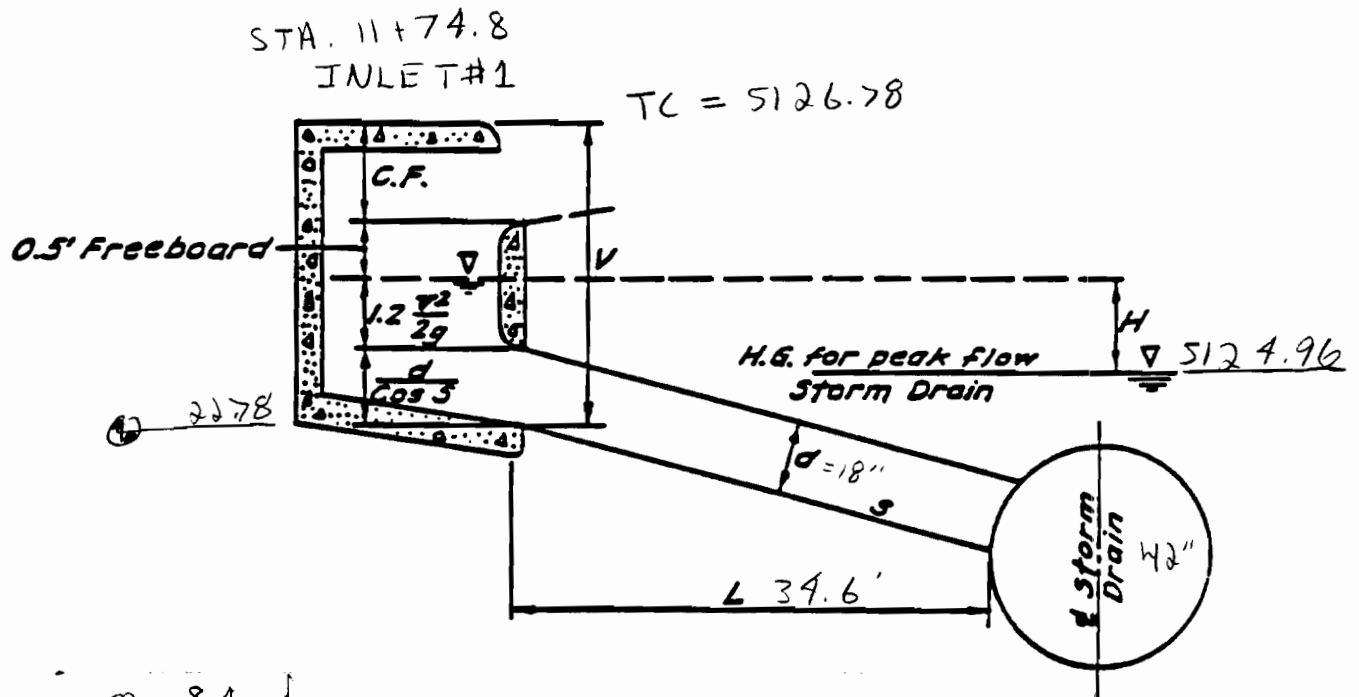
If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

  
John P. Curtin, P.E.  
Civil Engineer/Hydrology

c: Andrew Garcia  
Fred Aguirre, DRB 94-458  
Larry Caudill, Environmental Health  
Kurt Browning, AMAFCA  
Tim McNaney, Brown & Assoc, 3411 Candelaria NE 87107

R'SINS @ 7 BAR ROAD  
CHECK EXISTING CONDITIONS



$Q = 8.4 \text{ cfs}$   
 $A = 1.77$   
 $V = 4.75 \text{ fps}$

$1.2 \frac{V^2}{2g} = .42$

Reqd  $V = 1.33 + .42 + 1.5 = 3.2'$

Depth Provided = 4.0' OK ✓

INV. = 5122.78

$H_1 = \left( \frac{Q}{K} \right)^2 L = \left( \frac{194}{105} \right)^2 34.6 = .22'$

H.G. @ BASIN = 5124.96 + .22' = 5125.18

INV. +  $1.2 \frac{V^2}{2g} + D < TC - .50$

$5122.78 + .42 + 1.5 < 5126.78 - .5$

$5124.68 < 5126.28$  ✓ FREE BOARD.

also  $5125.18 < 5126.28$  ✓

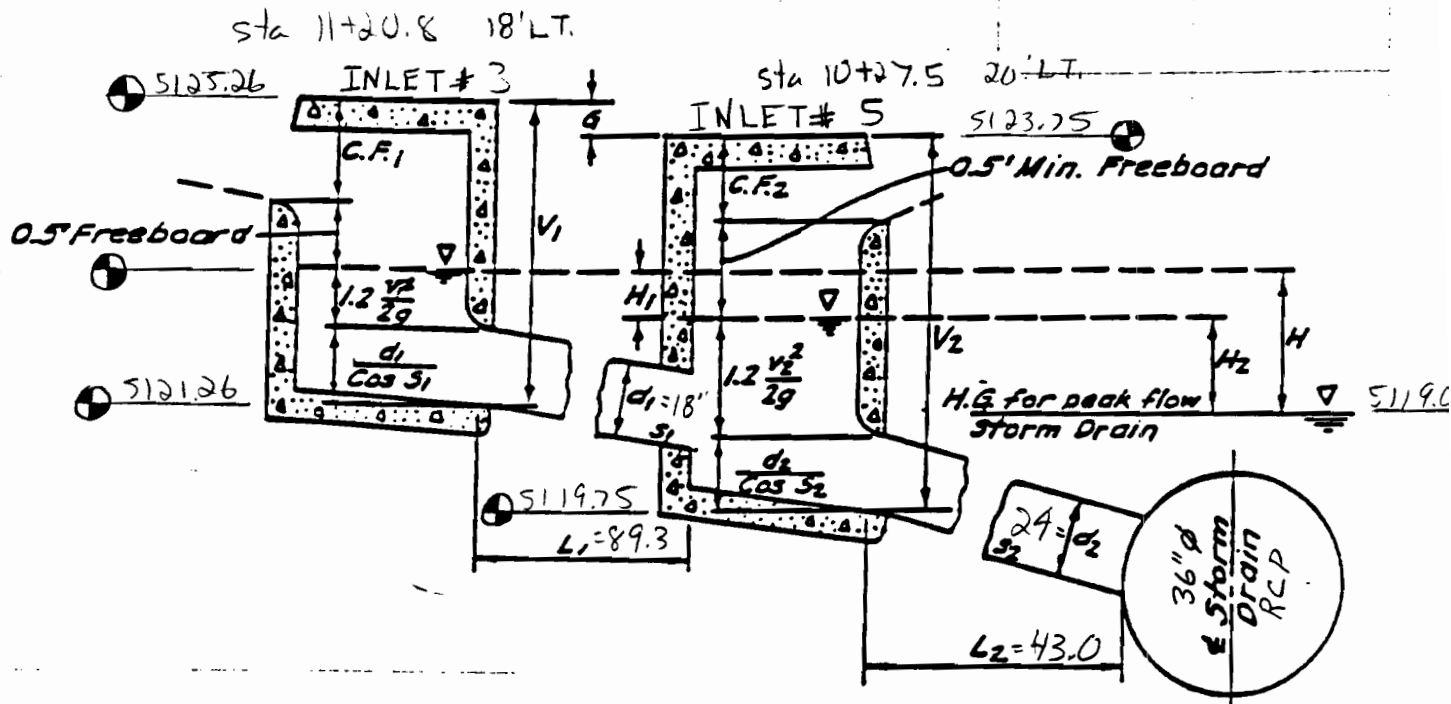


BOHANNAN-HUSTON INC.

PROJECT NAME 7-BAR NORTH SHEET        OF         
 PROJECT NO. 9425043 BY JCA DATE 5-30-95  
 SUBJECT CHECK OF EXISTING BASIN CHD        DATE



# BASINS @ 7 BAR LUG ROAD CHECK EXISTING CONDITIONS



$$Q_1 = 5.5$$

$$A_{18} = 1.77$$

$$Vel_1 = \frac{Q_1}{A} = 3.11$$

$$1.2 \frac{V_1^2}{2g} = .18'$$

$$V_{1min} = 1.33 + .18 + 1.5 = 3.2$$

$$\text{Depth Provided} = 4.0' \quad \text{OK}$$

$$\text{INV.} = 5121.26$$

$$H_1 = \left( \frac{Q_1}{K_1} \right)^2 L_1 = \left( \frac{5.5}{105} \right)^2 89.3 = .25$$

$$Q_2 = 3.8 + 5.5 = 9.3$$

$$A_{18} = 3.14$$

$$H_2 = \left( \frac{Q_2}{K_2} \right)^2 L_2 = \left( \frac{9.3}{226} \right)^2 43 = .07$$

$$Vel_2 = \left( \frac{Q_2}{A} \right) = 2.96$$

$$1.2 \frac{V_2^2}{2g} = 0.16$$

$$V_{2min} = 1.33 + H_1 + 1.2 \frac{V_2^2}{2g} + d_2 - G$$

$$V_{2min} = 1.33 + .25 + .14 + 2 - 1.51 = 2.2$$

$$V_{2provided} = 4'-0" \quad \text{INV} = 5119.75$$

$$FB_2 = V_2 - D_2 - 1.2 \frac{V_2^2}{2g} = 83.9$$

$$FB_L = 4 - 2 - .14 - .90 = 1.0' \quad \text{OK}$$

$$V_2 - .5 > V_1 - G$$

$$4 - .5 > 4 - 1.51 \quad \text{OK}$$

$$\text{HGL @ INLET 3} = 5119.09 + .25 + .01 = 5119.35$$

$$\text{HGL @ INLET 5} = 5119.09 + .01 = 5119.10$$

or normal  
water depth  
in BASIN



BOHANNAN-HUSTON INC.

PROJECT NAME \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_

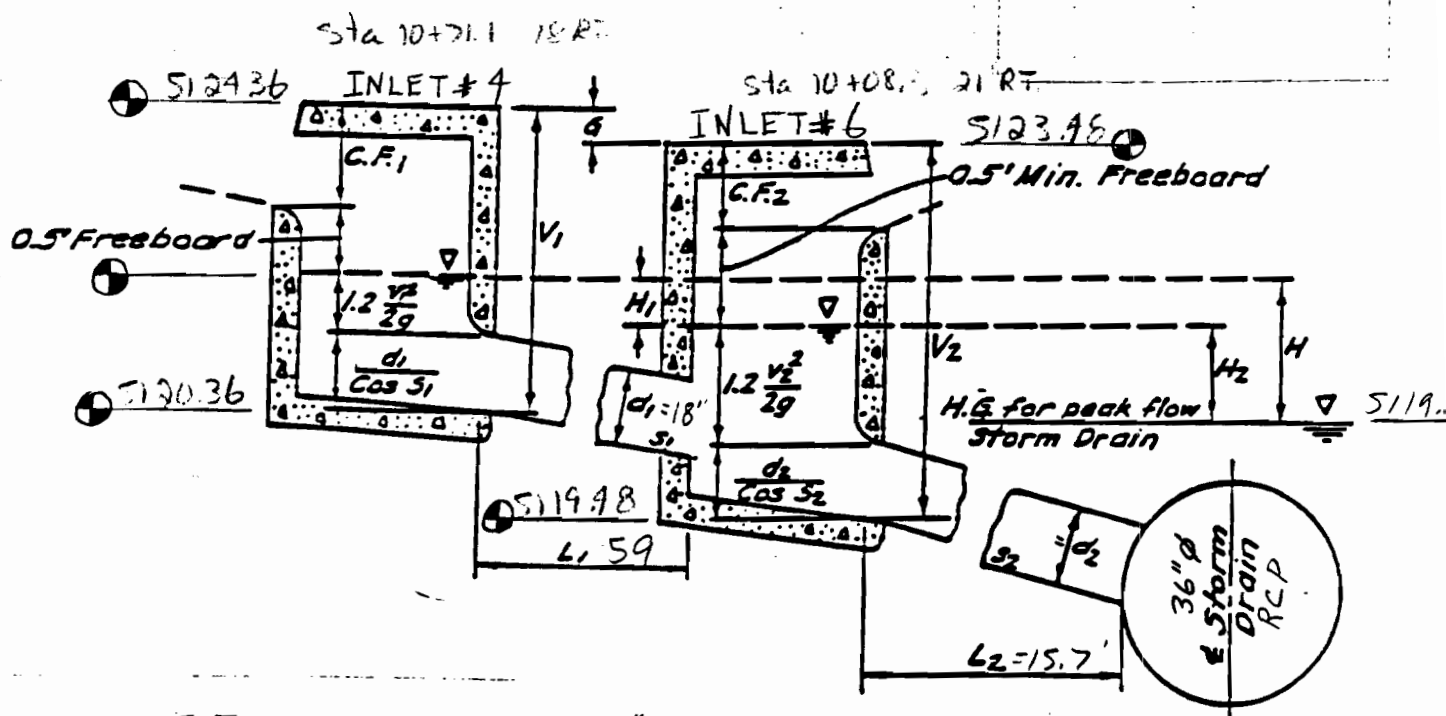
PROJECT NO. \_\_\_\_\_ BY JCA DATE 5-30-95

PLT

(H2)

C

# RASINS @ 7BAR LOP ROAD CHECK EXISTING CONDITIONS



$$Q_1 = 5.5$$

$$A_{18} = 1.77$$

$$V_{e1} = \frac{Q_1}{A} = 3.11'$$

$$1.2 \frac{V_1^2}{2g} = 0.18'$$

$$V_{1 \min} = 1.33 + .17 + 1.5 = 3.2'$$

$$\text{Depth Provided} = 4' \quad \checkmark$$

$$\text{INV.} = 5120.36$$

$$H_1 = \left( \frac{Q_1}{K_1} \right)^2 L_1 = \left( \frac{5.5}{105} \right)^2 59 = .18'$$

$$Q_2 = 38 + 5.5 = 43.5$$

$$A_{18} = 3.14$$

$$H_2 = \left( \frac{Q_2}{K_2} \right)^2 L_2 = \left( \frac{43.5}{226} \right)^2 15.7 = 0.05$$

$$V_{e2} = \left( \frac{Q_2}{A} \right) = 2.96 \text{ fps}$$

$$1.2 \frac{V_2^2}{2g} = .16'$$

$$V_{2 \min} = 1.33 + H_1 + 1.2 \frac{V_2^2}{2g} + d_2 - G$$

$$V_{2 \min} = 1.33 + .18 + .16 + 2 - .88 = 2.61'$$

$$V_{2 \text{ provided}} = 4' \quad \text{INV} = 5119.48$$

$$FB_2 = V_2 - D_2 - 1.2 \frac{V_2^2}{2g} - .88 = .9$$

$$FB_2 = 4 - 2 - .05 - .9 = 1.1' \quad \checkmark$$

$$V_2 - .5 > V_1 - G$$

$$4 - .5 > 4 - .88 \quad \checkmark \text{ OK } \checkmark$$

$$\text{H.G.L. @ INLET 4} = 5119.09 + .18 + .005 = 5119.27$$

$$\text{H.G.L. @ INLET 6} = 5119.09 + .005 = 5119.10$$

or normal  
water depth  
in EHSN.



BOHANNAN-HUSTON INC.

PROJECT NAME

SHEET

OF

PROJECT NO.

CHECK

BY

JCA

DATE

5-30-95

CATCH BASIN 1 pe 'A'

$$14.8 + 5.2 - 6 = 14 \text{ cfs} \rightarrow \text{residual down the Entrance Road.}$$

TOTAL FLOW Right side:  $Q_{\text{right}} = 62\% \text{ of } 14 = 8.7 \text{ cfs}$

$$D = .35 \\ S = 4.4\% > \text{read } Q_1 = 5.7 \text{ cfs (NOMOGRAPH \#1)}$$

CATCH BASIN 2

$\frac{1}{2}$  street flow left side = 38% of 14 = 5.3 cfs

$$D = .30 \\ S = 4.43\% > \text{read } Q = Q_2 = 4.1 \text{ cfs (NOMOGRAPH \#1)}$$

$$\text{residual} = 3.0 \text{ cfs}$$

$$\text{residual} = 1.6 \text{ cfs}$$

CATCH BASINS 3 & 4 TYPE 'A' INLETS

$\frac{1}{2}$  street flow =  $\frac{1}{2} 26.8 = 13.4 \text{ cfs}$

$$D = .50 \\ S = 0.9\% > \text{read } Q_3 = Q_4 = 6.2 \text{ cfs (NOMOGRAPH \#2)}$$

$$\text{residual} = 14.4 \text{ cfs}$$

CATCH BASIN #5 (SUMP INLET)

$$Q = 3 + 1.6 + 14.4 = 19.0 \text{ cfs}$$

$$Q_{\text{design}} = 200\% Q = 38.0 \text{ cfs}$$

'TRIPLE'  $\phi D$



$\approx 11.33'$

$$\text{CAPACITY OF ORFICE} = Q = 0.6 A_n \sqrt{2gh}$$

$$\text{Grates } A_n = 3[31 \times 18.5 / 144] = 11.95$$

$$h = .83' + .18' = 1 \text{ (e R of W.)}$$

$$Q = 0.6 (11.95 \sqrt{64.4}) = 57.5 \text{ cfs}$$

$$57.5 > 38 \text{ OK}$$



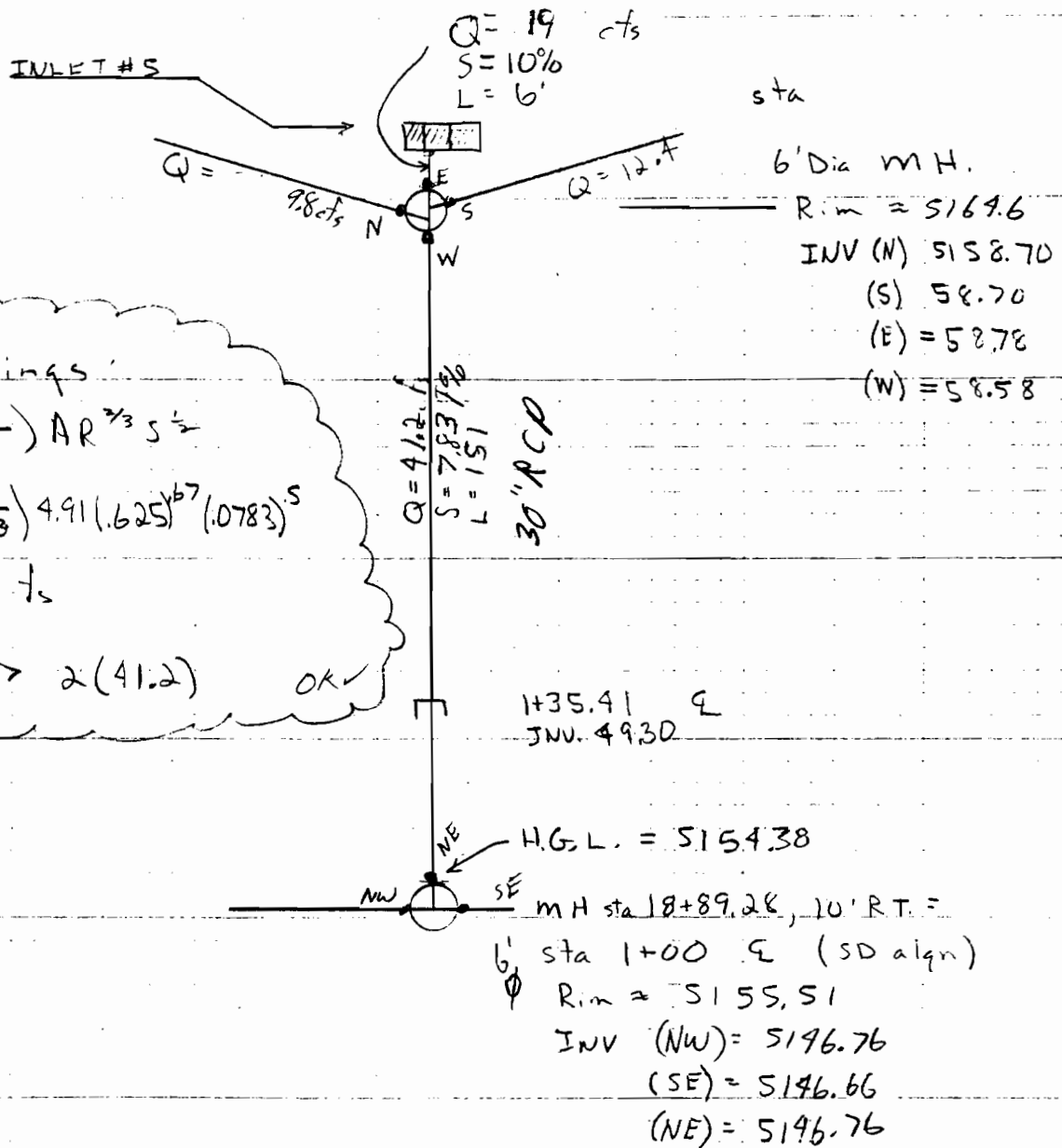
BOHANNAN-HUSTON INC.

PROJECT NAME \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_

PROJECT NO. \_\_\_\_\_ BY JCA DATE 5-26

SUBJECT \_\_\_\_\_ CH'D \_\_\_\_\_ DATE \_\_\_\_\_

## INLET #5



BOHANNAN-HUSTON INC.

PROJECT NAME \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_  
 PROJECT NO. \_\_\_\_\_ BY JCA DATE 5-30-95  
 SUBJECT \_\_\_\_\_ CH'D \_\_\_\_\_ DATE \_\_\_\_\_

## TRACT 7

## CHECK ORFICE CAPACITY

| TRACT 7 |        | DEPTH |
|---------|--------|-------|
| INLET   | ORFICE | BASIN |
| 1       | 18"    | 4'    |
| 2       | 18"    | 4.5   |
| 3       | 18"    | 4.    |
| 4       | 18"    | 4.5   |
| 5       | 30"    | 4.5'  |

18" PIPE

$$h = 4.5 + 1 - \frac{1.5}{2} = 4.75'$$

$$A = 1.77 \text{ sf}$$

$$Q = .6(1.77) \sqrt{64.4(4.75)} = 18.6 > 12.4 \text{ OK}$$

30" PIPE (AT TRIPLE D)

$$h = 5.01 - \frac{2.5}{2} = 4.75'$$

$$A = 4.91$$

$$Q = .6(4.91) \sqrt{64.4(4.75)} = 51.5 \text{ cfs}$$

$$51.5 > 38.0 \text{ cfs OK}$$

MANNINGS 30" PIPE (at Seven Bar Loop Rd. Man Hole)

$$Q = \left( \frac{1.49}{n} \right) A R^{2/3} S^{1/2}$$

$$Q = \left( \frac{1.49}{0.013} \right) 4.91 (.625)^{.67} (.0783)^{.5} = 115 \text{ cfs}$$

$$115 \text{ cfs} > 2(41.2) = 82.4 \text{ OK}$$



BOHANNAN-HUSTON INC.

PROJECT NAME \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_  
 PROJECT NO. \_\_\_\_\_ BY JCA DATE 5-26-95  
 SUBJECT \_\_\_\_\_ CH'D \_\_\_\_\_ DATE \_\_\_\_\_

## TRACT B

FLOW CHART FOR HYDRO GRAF LINE  
FOR INLET #5

STA 19+65 INLET  
INLETS #5  
TG = 5184.93  
INV = 5179.93

Q = 25.6  
S = 2.95%  
L = 2.0

Q = 144 cfs

Q = 13.6 cfs

Sta 2+75.35  
Q.S. Sta 2+73.63

6' Dia MH

Rim elev 5185.99

INV = (N) 5179.70

INV = (S) 5179.42

INV = (E) 5179.70

INV = (W) 5179.70

MANWINGS 33" RCP

$$Q = \left( \frac{1.49}{0.012} \right) 5.94 (1.88)^{2/3} (0.06)^{5/4}$$

Q = 129.8

129.8 > 2(53.6) OK

L = 132 ft  
Q = 53.6  
S = 5.99%

Sta 2+68  
8' Dia MH, 10' RT  
(7 Bar Loop)  
Rim elev 5176.78  
INV = 5169.23 (SE)  
INV = 5169.33 (W)

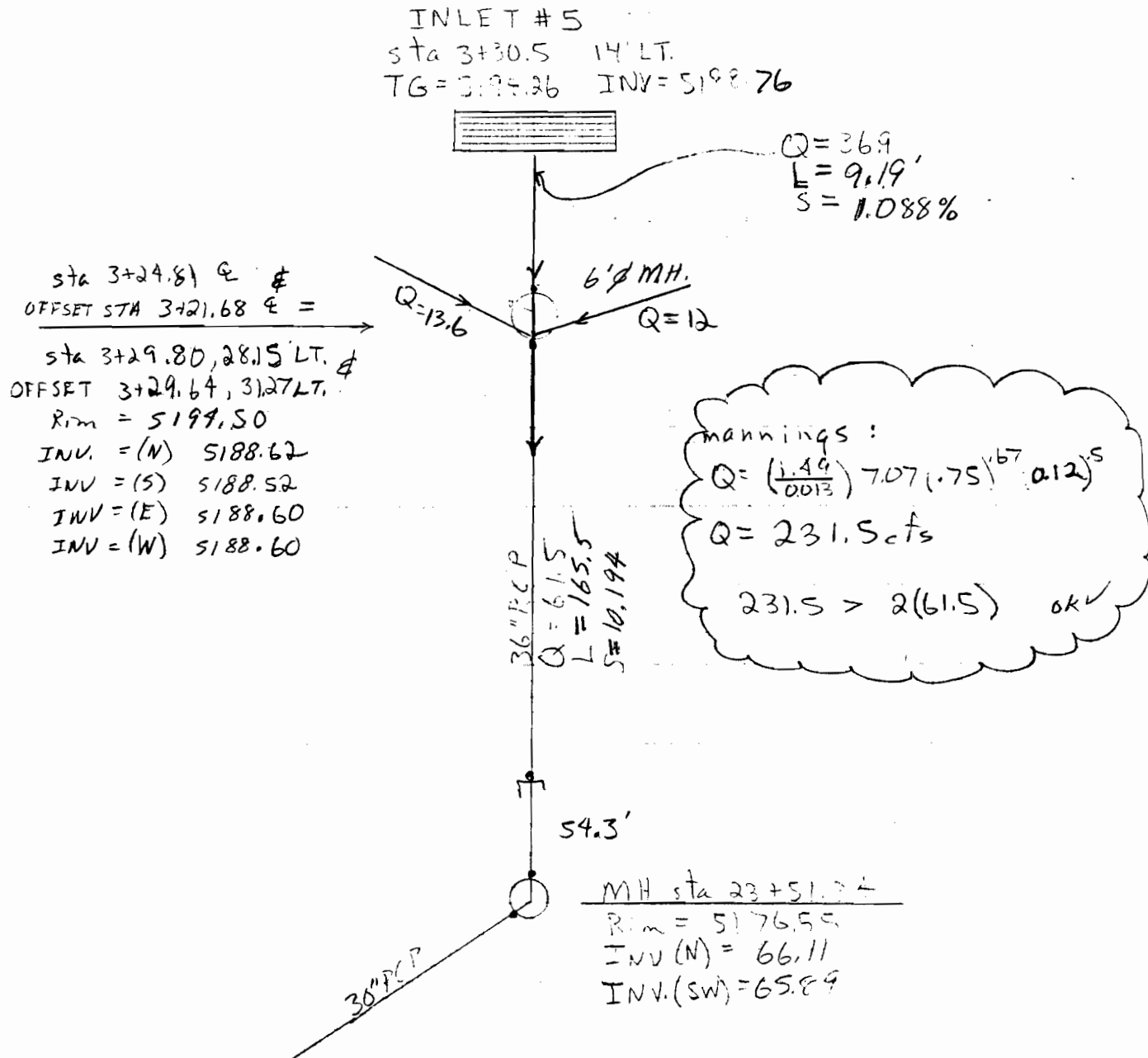
Q = 53.6 cfs



BOHANNAN-HUSTON INC.

PROJECT NAME 7-Bar North SHEET        OF         
PROJECT NO. 9435042 BY JCA DATE 12-12-74  
SUBJECT TRACT B STATION LINE CH'D        DATE

# TRACT 9



BOHANNAN-HUSTON INC.

PROJECT NAME \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_  
PROJECT NO. 94250 HL BY JCA DATE 2-10-95  
SUBJECT HGL Inlet 5 CH'D \_\_\_\_\_ DATE \_\_\_\_\_



PROJ. 001  
STA. 27+67.00, 10' RT.  
EXISTING 1' 8" DIA.  
SEE DETAIL SHEET  
18 OF 22  
TYPE 757-50-148  
PUB 8-76-69

23+62.94. 55.03' RT.  
INSTALL  
1 - 18" STANOPIPE  
18" RCP AND 18" CMP  
SEE DETAILS SHEET 4A

EXISTING STUB OUTS AT  
SEVEN BAR LOOP ROAD

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

2. ALL CURB RETURN RADII SHALL BE 25' TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.

3. ALL CURVE DATA AND DIMENSIONS  
REFER TO FACE OF CURB UNLESS  
OTHERWISE SPECIFIED.

4. GRADE ELEVATIONS, WHERE NOTED,  
ARE FOR TOP OF CURB UNLESS  
OTHERWISE SPECIFIED.

5. CONTRACTOR IS TO INSTALL A 4"x4"x5' POST AND END AT THE END OF EACH SANITARY SEWER SERVICE.

6. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.

7. ANY ADDITIONAL GRADING REQUIRED TO MATCH PROPOSED STREET GRADES SHALL BE INCIDENTAL TO PAVING ITEMS.

8. CONTRACTOR SHALL PROVIDE THE INSPECTORS, (CITY AND PRIVATE) WITH THE PROPOSED HYDROSTATIC TESTING PLAN. THE PLAN MUST BE APPROVED BEFORE TESTING OPERATIONS BEGIN.

9. CONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF RESIDENTS OR OTHER CONTRACTORS ON SITE.

10. ANY DAMAGE TO THE EXISTING FACILITIES (CURB AND GUTTER, PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

11. REMOVAL OF THE EXISTING CURB AND GUTTER SHALL BE AS PER COA STD. DWG. 2415 (SAWCUT ONLY).

12. WHEEL CHAIR RAMPS SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB AND GUTTER.

| ENGINEER'S SEAL  |  | SURVEY INFORMATION |    | BENCH MARKS                                |  | AS-BUILT INFORMATION   |  |
|------------------|--|--------------------|----|--------------------------------------------|--|------------------------|--|
|                  |  | FIELD NOTES        |    |                                            |  |                        |  |
|                  |  | NO.                | BY | DATE                                       |  |                        |  |
|                  |  |                    |    | TBM NO. 205                                |  | CONTRACTOR             |  |
|                  |  |                    |    | CHISLED "X" LOCATED APPROXIMATELY 459 FEET |  | STAKED BY              |  |
|                  |  |                    |    | SOUTH OF THE BLACK'S DIVERSION INLET       |  | INSPECTOR'S            |  |
|                  |  |                    |    | STRUCTURE ON THE EAST WALL.                |  | ACCEPTANCE BY          |  |
|                  |  |                    |    | ELEV. 5110.55                              |  | DATE                   |  |
|                  |  |                    |    |                                            |  | MICRO-FILM INFORMATION |  |
|                  |  |                    |    |                                            |  | RECORDED BY            |  |
|                  |  |                    |    |                                            |  | DATE                   |  |
|                  |  |                    |    |                                            |  | NO.                    |  |
| NO. DATE         |  | REMARKS            |    | BY                                         |  |                        |  |
|                  |  | REVISED            |    |                                            |  |                        |  |
|                  |  | DESIGN             |    |                                            |  |                        |  |
| DESIGNED BY JCA  |  | DATE 7/95          |    |                                            |  |                        |  |
| DRAWN BY OR . BS |  | DATE 7/95          |    |                                            |  |                        |  |
|                  |  | DATE 7/95          |    |                                            |  |                        |  |

CITY OF ALBUQUERQUE  
PUBLIC WORKS DEPARTMENT  
ENGINEERING

STOWE AT SEVEN BAR NORTH  
STORM DRAIN PLAN & PROFILE

| APPROVALS      | ENGINEER | DATE | APPROVALS   | ENGINEER | DATE |
|----------------|----------|------|-------------|----------|------|
| DRC CHAIRMAN   |          |      | WATER       |          |      |
| TRANSPORTATION |          |      | WASTE WATER |          |      |
| HYDROLOGY      |          |      |             |          |      |
| M.B.U.L.       |          |      |             |          |      |

SCALE: 1" = 20' (HORIZ.)  
1" = 5' (VERT.)

DRAWING  
NO.

MAP NO.  
A-13

SHEET 17 OF 18

BNI JOB NO. 94250.43

Copyright Bohannon-Huston, Inc. 1994  
DATE: JULY, 1995

TA. 2+88.80. 99.52' LT. SD =  
TA. 6+76.62. 14' RT. BROEAS DR.  
BUILD 1 - TYPE "A" INLET  
TC 66.31  
GRATE 65.41  
INV EL 62.31

STA. 2+56.14. 66.15' LT. SD =  
STA. 6+39.25. 14' LT. BROEAS DR.  
BUILD 1 - TYPE "A" INLET  
TC 65.54  
GRATE 64.64  
INV EL 61.54

6LF. 30" SD  
S = 10%  
V = 4.2 fpa  
Q = 20.4 cfs

MH#SD1  
STA. 2+56.93. CENTERLINE SD =  
STA. 5+85.84. 24.94' LT. KILLINGTON ROAD  
BUILD 1 - 6' DIA.  
TYPE "E" MH (SEE SHEET 18 OF 18)  
RIM EL 64.60

MH#J35  
STA. 2+60.87. 6.66' RT. SD =  
STA. 5+80.04. 25.14' LT. KILLINGTON ROAD  
BUILD 1 - 4' DIA.  
TYPE "E" MH  
RIM EL 64.60

30" STORM DRAIN N79°06'50"E  
118.5 LF  
8" SAS

STA. 2+66.47. 2.15' LT. SD =  
STA. 5+83.46. 15.64' LT. KILLINGTON RD.  
BUILD - TRIPLE "D" INLET  
TC 65.28  
GRATE 64.38  
INV EL 59.38  
SEE DETAIL SHEET 18 OF 18

11+33.49. 6.66' RT.  
REMOVE EXISTING 8" PLUG  
CONNECT TO EXISTING 8" SAS  
INV 46.94

STA. 3+35.70. 40.71' RT. SD =  
STA. 5+10.78. 14' LT. KILLINGTON RD.  
BUILD 1 - TYPE "A" INLET  
TC 65.59  
GRATE 64.69  
INV EL 61.09

64LF. 18" SD  
S = 4.44%  
V = 5.5 fpa  
Q = 9.8 cfs

STA. 3+74.76. 22.09' RT. SD =  
STA. 4+77.77. 14' LT. KILLINGTON RD.  
BUILD 1 - TYPE "A" INLET  
TC 65.88  
GRATE 64.98  
INV EL 61.88

87LF. 18" SD  
S = 2.75%  
V = 8.3 fpa  
Q = 12.4 cfs

41.5LF.  
S = 1.9%  
V = 4.1 fpa  
Q = 6.2 cfs

CENTERLINE CURVE  
P.I. STA 5+94  
Delta 82° 16'  
D 76' 2"  
T 65.40'  
L 107.57'  
R 75.00'



SCALE: 1" = 20'  
(HORIZ.)

# STOWE AT SEVEN BAR NORTH

NOTE: STATIONING IS ALONG CENTERLINE OF STORM DRAIN.

