WESTSIDE BLVD./NM528 INTERSECTION IMPROVEMENTS DRAINAGE REPORT

Prepared for:

INTEL CORPORATION
BROWN/Z & ASSOCIATES
AMREP CORPORATION
DON CHALMERS FORD

TABLE OF CONTENTS

PAGE

I. INTRODUCTION 1

II. EXISTING CONDITIONS 1

III. PROPOSED CONDITIONS 3

IV. BOX CULVERTS 4
A. NM 528 West Right-of-Way Structure 4
B. NM 528 East Right-of-Way/Intel Outlet Structure 5

V. CONCLUSION 6

FIGURES

FIGURE 1 - DRAINAGE MAP 2

TABLES

TABLE 1 - SUMMARY 5

SCALE: 1"=100'

EXISTING EARTHEN CHANNEL Q_{100}=1500 CFS

A4
0.673
Q10=1.94 CFS
Q100=2.94 CFS

A5
0.744 AC
Q10=1.11 CFS
Q100=2.14 CFS

EXISTING EARTHEN CHANNEL Q_{100}=208CFS

AMREP

INTEL

TRIPLE BARREL 8' X 6' CONCRETE BOX CULVERT

S1D-A
0.257 AC
Q10=0.66 CFS
Q100=1.08 CFS

130+00
DETENTION POND

18" RCP

45+00

50+00

55+00

S1C/S1D
3.29 AC
Q10=5.81 CFS
Q100=10.72 CFS

(2) 30" RCP

EXIST (3) 42" CULV PIPE

12" RCP

A1
0.432 AC
Q10=1.25 CFS
Q100=1.89 CFS

18" RCP

24" RCP

18" RCP

SANDOVAL COUNTY

BERNALILLO COUNTY

WESTSIDE BLVD

24" RCP

12" RCP

18" RCP

30" RCP

75' TRANSITION STRUCTURE

S1C/S1D
3.29 AC
Q10=6.47 CFS
Q100=11.8 CFS

A3
0.258 AC
Q10=0.75 CFS
Q100=1.13 CFS

A2
0.349 AC
Q10=1.01 CFS
Q100=1.53 CFS

SIERRITA RD

SEVEN BAR SUBDIVISION

FORD DEALERSHIP

NM 528

EXISTING TRAPEZOIDAL CONCRETE CHANNEL (AMAFCA SKYVIEW CHANNEL) Q_{100}=1500 CFS

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

FIGURE 1
DRAINAGE MAP

- **Northwest:** existing and proposed runoff discharges south and intercepted by a detention basin located south of the property and discharge into the AMAFCA channel by 2-30" R.C.P.s.

- **Southwest:** existing and proposed runoff will continue to flow in a southerly direction as outlined in the Drainage Master Plan Seven Bar North Subdivision. This drainage plan was submitted for review by the City of Albuquerque in June 1994.

Runoff within the 200' right-of-way of NM 528 flows east and west of the roadway. The flow on the west is intercepted by the AMAFCA channel. The flow on the east is intercepted by the roadway ditch east of NM 528 and eventually discharges to the Cabezon Channel.

III. PROPOSED CONDITIONS

Offsite flows will not enter the proposed Westside Blvd. The only runoff conveyed by Westside Blvd. will be what is generated within the street. Flowrates east of the intersection were calculated using the City of Albuquerque Design Process Manual (DPM) criteria. The area generating runoff to the roadway consists of the roadway section and adjacent sidewalk areas. Flowrates west of the intersection were taken from the DRAINAGE Master Plan Seven Bar North Subdivision study. Basins S1C and S1D are the basins that flow toward the intersection. Figure 2 shows the typical street section and maximum street capacity of Q=18.2 cfs. Figures 3 and 4 show the street section with depths of flow, flowrates, water widths, and open lanes for the 10 year and 100 year storm (see back of report for figures). The street hydraulics was determined by using mannings equation. Inlets were placed at the low points of the proposed vertical alignment and before intersections. The City of Albuquerque grate capacity charts was used to determine the flow intercepted by each inlet that were on a continuous grade. Inlets that are in a sump condition were analyzed using the Drainage of Highway Pavements Manual Section 8. Weir and orifice equations were used to calculate the depth of water for both conditions. The condition requiring the higher depth of water over each inlet to pass the design flow was selected. The width of the water and the number of lanes opened were

determined (see the appendix for calculations and nomographs). All inlets were designed to intercept the 100-year storm. A minimum of one lane open, both directions, is provided for the 10-year storm. Table 1, page 5, is a summary of the inlet locations and other data. The proposed storm drain will be 18" to 30" R.C.P. pipes. The storm drain is designed for the 100-year storm and will discharge into the Skyview Channel crossing structure.

IV. BOX CULVERTS

A. NM 528 West Right-of-Way Structure - The existing AMAFCA Skyview Channel is located west and within the NM 528 right-of-way and is concrete lined south of the county line. This facility is an earthen channel north of the Sandoval county line. The channels cross section consists of a 10' foot bottom with 2:1 side slopes. Meetings with Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) to discuss the crossing structure design resulted in an agreement to construct either a trapezoidal structure with a slab on top or a concrete box culvert crossing structure. Due to physical constraints and economical reasons a box culvert was chosen to be the best alternative. During this coordination with AMAFCA, the City of Albuquerque, and New Mexico Highway and Transportation Department (NMSH&TD) were also asked to review the design with subsequent verbal approvals. AMAFCA issued a design flowrate requirement of 1500 cfs for ultimate design of the drainage structure. A 8'X6' triple concrete box culvert with 75' transition structures on both ends was selected. The end transitions tie the box culvert section to a trapezoidal section. See the appendix at the end of the report for the structure profile, flow data, and HEC-2 hydraulic run for this structure.

TABLE 1 - SUMMARY						
East Leg						
Sta	**Q100**	**Q10**	**Intercepted Q100**	**PassBy Q100**	**Inlet Size**	**Intersection Condition**
55+00 LT	1.89	1.25	1.89	0	Single A	Passby
54+65 @ CL	1.13+.54	0.75	---	---	Modified Single D	Passby
54+65 RT	1.53	1.01	1.53	0	Single A	Sump
NM528						
130+03 Rt	2.94	1.94	2.4	0.54 to 54+65 @ CL	Single A	Passby
130+88 Rt	2.14	1.11	---	---	Double D	Sump
West Leg						
51+00 Lt	1.08	0.66	---	---	Modified Double D	Sump
50+50 Rt	5.9	3.24	---	---	Single A	Sump
51+00 Rt	5.9	3.24	---	---	Single C	Sump
48+60 Lt	10.72	5.81	6.2	4.52	Single A	Passby
49+00 Lt	4.52	---	4.52	0	Double C	Passby

B. NM 528 East Right-of-Way/Intel Outlet Structure - The existing structure consists of a concrete trapezoidal channel with a 10' bottom and 2:1 side slopes. This channel is located on the northeast corner of the proposed intersection. This structure carries Intel=s runoff (Q100=208 cfs) and discharges west to Skyview Channel via 3-42" CMPs. The existing guardrail will be removed with the proposed improvements to the intersection. To safely

isolate the channel, new installation of a guardrail, or a concrete wall barrier will be needed. In considering the type of end treatment required for either the guardrail or the wall barrier, it was decided it would be more economical to enclose the existing drainage system underground and eliminate the hazard and the need for guardrail. The discharge portion of the channel will be replaced with a 7' X 5' concrete box culvert to connect the existing 42" pipes that route flows west under NM 528. The proposed storm drain system will drain the east leg of the intersection. The design will also compliment the design of wheelchair ramps and traffic signals needed at this location. An 87" Span X 63" Rise corrugated metal pipe culvert arch will connect to the 7' X 5' concrete box culvert and a proposed head wall at the end of the existing concrete lined channel and beginning of the earthen channel that conveys Intel=s site discharge to NM 528. See the appendix at the end of the report for the structure profile, flowrate, and hydraulic run for this structure.

V. CONCLUSION

Since existing runoff flow is generally in a southerly direction, the two areas that will discharge runoff into Westside Blvd. are AMREP development and the Intel site. AMREP is utilizing detention ponds and discharging into the Skyview Channel via 2-30" RCP pipes at the NW corner of the intersection and Intel is discharging into an existing channel located at the NE corner of the intersection. Drainage reports for these areas indicate that future runoff will be discharged in the same manner that it exists today. Therefore, no offsite flows will be discharged to Westside Blvd. and it will carry only the runoff generated within the roadway. Storm drain inlets and pipe will be utilized to convey onsite runoff and discharged into the Skyview Channel or the proposed 7'X5' concrete box culvert at the NE corner. The proposed improvements will provide adequate drainage for the roadway and adjacent drainage facilities.

I. INTRODUCTION

Westside Blvd. is a new at-grade signalized intersection with NM 528 at the Bernalillo/Sandoval county line. The new intersection will consist of curb & gutter, paving, traffic signals & lighting, drainage, and waterline improvements. These improvements will extend approximately 700 feet from NM 528 to the west and 500 feet to the east (see Figure 1, page 2). The proposed improvements on NM 528 consist of an additional northbound lane with curb and gutter. This lane will tie the improvements of the SAD 223 project on the south; to the right turn lane drop at the Intel entrance at the NM 528, and 21st street intersection on the north. Median improvements include curb and gutter to create the left turn bays and some new striping. A 18" waterline on Westside will connect to an existing 12" waterline east of NM 528 and terminate immediately west of Sierrita Road.

II. EXISTING CONDITIONS

Three private developments and the Intel site bound the intersection. East of the intersection it is bounded by Intel on the north and a new Ford dealership on the south, both of which lie within the City of Rio Rancho. The west leg of the intersection consists of the AMREP Corporation development on the north and the Brown-Z development, Seven Bar North Subdivision on the south. The AMREP development lies within Sandoval County and the Seven Bar North Subdivision development is within Bernalillo County and the City of Albuquerque. The following is a summary on how each quadrant of the roadway currently handles its runoff:

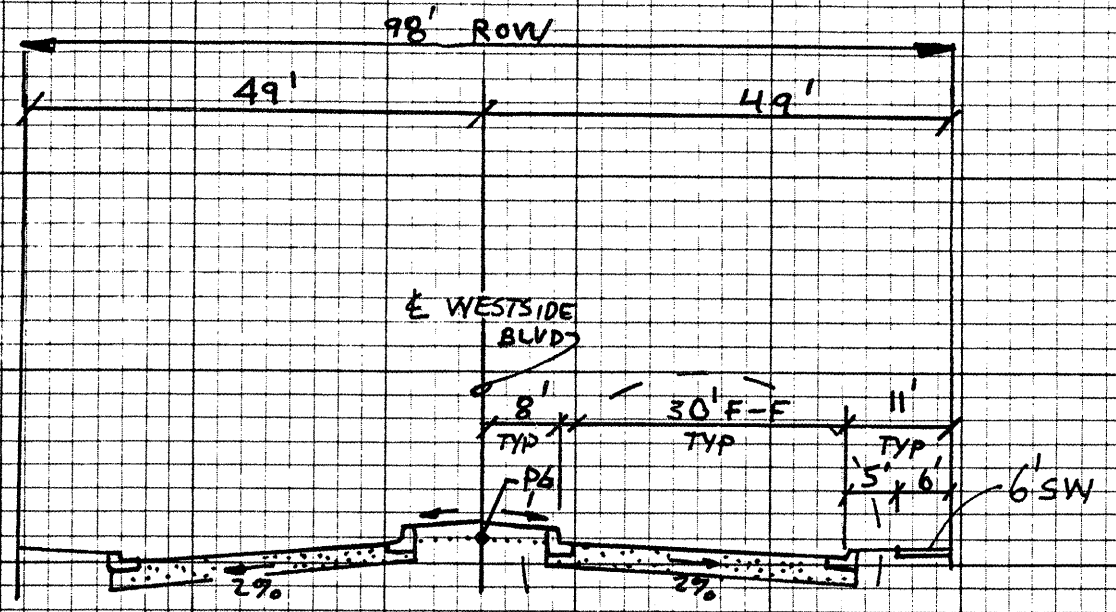
- **Northeast:** Intel detains its runoff and discharges into an existing channel at a rate of Q100=208 cfs. The channel is located NE of the intersection which discharges through (3) 42" CMPs to the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) channel west of NM 528. The flowrate is based from the Drainage Restudy for Intel Plant prepared by Bohannan-Huston, Inc. in August 1995.

- **Southeast:** existing runoff discharges south into the existing ditch located east of NM 528.

FIGURE 1 - DRAINAGE MAP

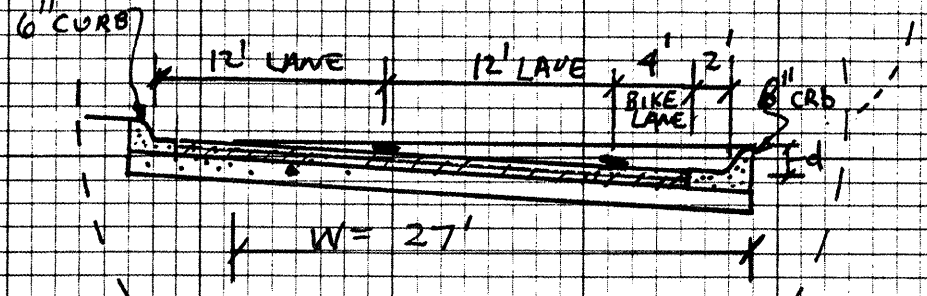
APPENDIX

FIGURE 2
STREET CAPACITY



SEE ½ SECTION Below

WESTSIDE BLVD TYPICAL SECTION



STREET GRADE = 0.5%

CROSS SLOPE = 2.0%

½ SECTION

n = 0.017

DESIGN STORM : CAPACITY

FLOW RATE Q = 18.2 CFS

VELOCITY V = 2.5 FPS

MOMENTUM FACTOR = $MF = V \times \frac{d}{12} = 1.7$

LANES OPEN = 0.25 EA

DEPTH = d = 8" inch

WATER WIDTH W = 27 FT

SF/SEC < 6.5 ok

COMMENT N/R

N/R = NOT REQ'D.

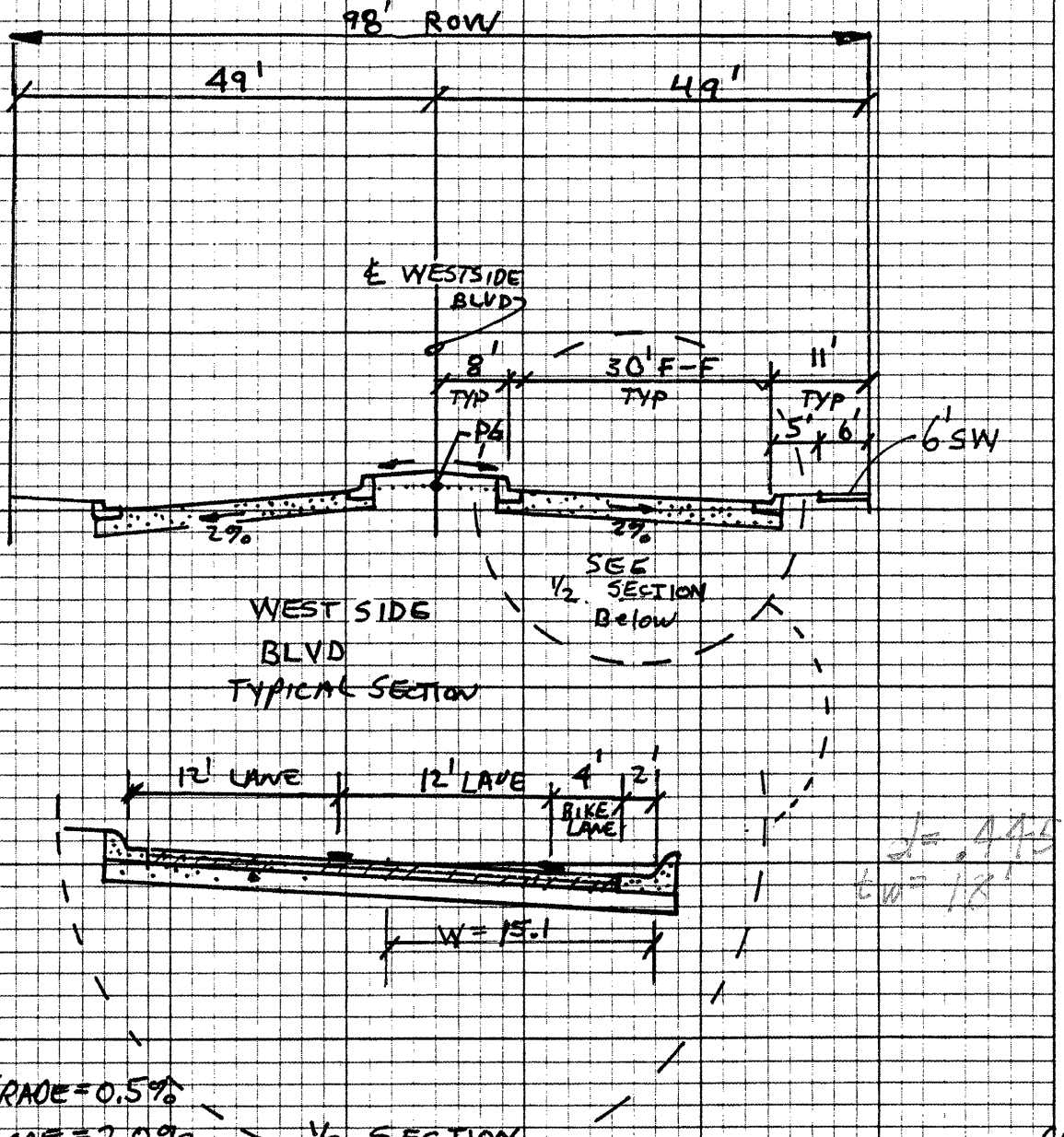
BOHANNAN-HUSTON INC.

PROJECT NAME WESTSIDE BLVD. SHEET ____ OF ____

PROJECT NO. 95343A1 2222 BY TG DATE 2/7/96

SUBJECT STREET CAPACITY CH'D ____ DATE ____

FIGURE 3
10 YEAR



STREET GRADE = 0.5%

CROSS SLOPE = 2.0% ½ SECTION

n = 0.017

DESIGN STORM : 10YR

LANES OPEN 1.24 EA

FLOW RATE Q = 3.9 CFS

DEPTH, d = 5.1 inch

VELOCITY V = 1.7 FPS

WATER WIDTH W = 15.1 FT

MOMENTUM FACTOR = $MF = V \times \frac{d}{12}$ = 0.72 SP/SEC < 6.5 OK

COMMENT

R

* INCLUDES 1½" GUTTER PAN DROP

R = REQ'D.

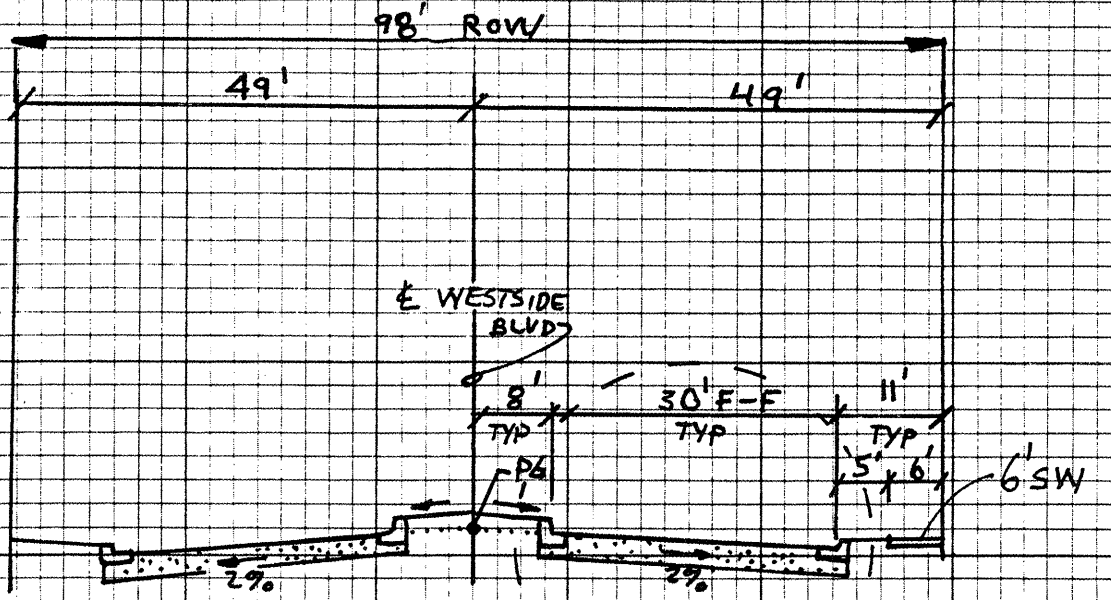
BOHANNAN-HUSTON INC.

PROJECT NAME WESTSIDE BLVD. SHEET ____ OF ____

PROJECT NO. 95343A1 2222 BY TG DATE 2/7/96

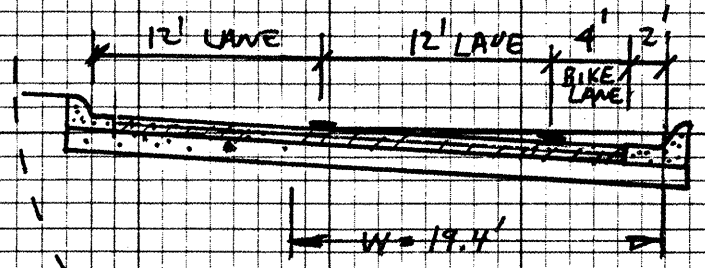
SUBJECT STREET CAPACITY CH'D ____ DATE ____

FIGURE 4
100 YEAR



WEST SIDE BLVD TYPICAL SECTION

SEE ½ SECTION Below



STREET GRADE = 0.5%

CROSS SLOPE = 2.0%

½ SECTION

n = 0.017

DESIGN STORM : 100 YR

LANES OPEN 0.88 EA

FLOW RATE Q = 7.6 CFS

DEPTH, d = 6.18 inch *

VELOCITY V = 2.0 FPS

WATER WIDTH W = 19.4 FT

MOMENTUM FACTOR = $MF = V \times \frac{d}{12}$ = 1.0 SP/SEC < 6.5 OK

COMMENT N/R

N/R = NOT REQUIRED

* INCLUDES 1½" GUTTER PAN DROP

BOHANNAN-HUSTON INC.

PROJECT NAME WESTSIDE BLVD. SHEET ____ OF ____

PROJECT NO. 95343A1 2222 BY TG DATE 2/7/96

SUBJECT STREET CAPACITY CH'D ____ DATE ____

HEC2 S/N: 1363001424 HMVersion: 6.52 Data File: west.hec

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    28FEB96    TIME    7:42:16 *
*******************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*         (916) 756-1104            *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX            XXXXXXX
```

```
:::::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::::
:::                                         :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION   :::
:::                                         :::
:::::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::::
```

```
============================
H A E S T A D   M E T H O D S
============================
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

THIS RUN EXECUTED 28FEB96 7:42:17

```
**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.2; May 1991
**************************************


T1   528 Channel and Box Under Westside Blvd.
T2   Second Label
T3          SUPERCRITICAL RUN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

            2.                      1         0                                   5211.55

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   -1.          0       -1.                                     -1.

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.       42.       4.        26.       1.        2.        8.        14.       33.

J5  LPRNT     NUMSEC                        ********REQUESTED SECTION NUMBERS********

    -10       -10

QT      1.0      1500
NC      .025      .025      .025       .1        .3
X1      0.0       4.0    500.00    536.0      0.00      0.0       0.0
GR   5212.5     500.0   5205.55    510.5   5205.55     525.5   5212.55     536.0

X1     10.0       4.0    500.00    536.4     10.00     10.0      10.0
GR   5212.5     500.0   5205.51    511.2   5205.51     525.2   5212.51     536.4

X1     20.0       4.0    500.00    536.8     10.00     10.0      10.0
GR   5212.5     500.0   5205.46    511.9   5205.46     524.9   5212.46     536.8

X1     30.0       4.0    500.00    537.2     10.00     10.0      10.0
GR   5212.4     500.0   5205.42    512.6   5205.42     524.6   5212.42     537.2

X1     40.0       4.0    500.00    537.6     10.00     10.0      10.0
GR   5212.4     500.0   5205.37    513.3   5205.37     524.3   5212.37     537.6

NC      .015      .015      .015       .1        .3
X1     50.0       4.0    500.00    538.0     10.00     10.0      10.0
GR   5212.3     500.0   5205.33    514.0   5205.33     524.0   5212.33     538.0
```

```
X1     60.0       6.0     500.00     536.4      10.00      10.0      10.0
GR   5212.1     500.0    5211.17     500.0    5205.10     512.1    5205.10     524.3    5211.17     536.4
GR   5212.1     536.4

X1     70.0       6.0     500.00     534.8      10.00      10.0      10.0
GR   5211.9     500.0    5210.01     500.0    5204.88     510.3    5204.88     524.5    5210.01     534.8
GR   5211.9     534.8

X1     80.0       6.0     500.00     533.2      10.00      10.0      10.0
GR   5211.6     500.0    5208.85     500.0    5204.65     508.4    5204.65     524.8    5208.85     533.2
GR   5211.6     533.2

X1     90.0       6.0     500.00     531.6      10.00      10.0      10.0
GR   5211.4     500.0    5207.69     500.0    5204.42     506.5    5204.42     525.1    5207.69     531.6
GR   5211.4     531.6

X1    100.0       6.0     500.00     530.0      10.00      10.0      10.0
GR   5211.2     500.0    5206.53     500.0    5204.20     504.7    5204.20     525.3    5206.53     530.0
GR   5211.2     530.0

X1    110.0       6.0     500.00     528.4      10.00      10.0      10.0
GR   5211.0     500.0    5205.37     500.0    5203.97     502.8    5203.97     525.6    5205.37     528.4
GR   5211.0     528.4

X1    120.0       6.0     500.00     526.8      10.00      10.0      10.0
GR   5210.7     500.0    5204.21     500.0    5203.74     500.9    5203.74     525.9    5204.21     526.8
GR   5210.7     526.8

X1    125.0      12.0     500.00     526.0       5.00       5.0       5.0
GR   5210.6     500.0    5203.63     500.0    5203.63     508.0    5210.63     508.0    5210.63     509.0
GR   5203.6     509.0    5203.63     517.0    5210.63     517.00   5210.63     518.0    5203.63     518.0
GR   5203.6     526.0    5210.63     526.0

X1    316.0      12.0     500.00     526.0     191.00     191.0     191.0
GR   5210.6     500.0    5202.55     500.0    5202.55     508.0    5209.55     508.0    5209.55     509.0
GR   5203.6     509.0    5202.55     517.0    5209.55     517.00   5209.55     518.0    5202.55     518.0
GR   5202.6     526.0    5209.55     526.0

X1    320.0       6.0     500.00     526.6       4.00       4.0       4.0
GR   5209.5     500.0    5202.89     500.0    5202.51     500.7    5202.51     525.9    5202.89     526.6
GR   5209.5     526.6

X1    330.0       6.0     500.00     528.2      10.00      10.0      10.0
GR   5209.4     500.0    5203.73     500.0    5202.42     502.6    5202.42     525.6    5203.73     528.2
GR   5209.4     528.2

X1    340.0       6.0     500.00     529.8      10.00      10.0      10.0
GR   5209.3     500.0    5204.57     500.0    5202.33     504.5    5202.33     525.4    5204.57     529.8
GR   5209.3     529.8
```

X1	350.0	6.0	500.00	531.4	10.00	10.0	10.0			
GR	5209.2	500.0	5205.41	500.0	5202.23	506.3	5202.23	525.1	5205.41	531.4
GR	5209.2	531.4								
X1	360.0	6.0	500.00	533.0	10.00	10.0	10.0			
GR	5209.1	500.0	5206.25	500.0	5202.14	508.2	5202.14	524.8	5206.25	533.0
GR	5209.1	533.0								
X1	370.0	6.0	500.00	534.6	10.00	10.0	10.0			
GR	5209.0	500.0	5207.09	500.0	5202.05	510.1	5202.05	524.6	5207.09	534.6
GR	5209.0	534.6								
X1	380.0	6.0	500.00	536.2	10.00	10.0	10.0			
GR	5209.0	500.0	5207.93	500.0	5201.95	511.9	5201.95	524.3	5207.93	536.2
GR	5209.0	536.2								
X1	390.0	6.0	500.00	537.8	10.00	10.0	10.0			
GR	5208.9	500.0	5208.77	500.0	5201.86	513.8	5201.86	524.0	5208.77	537.8
GR	5208.9	537.8								
X1	391.0	4.0	500.00	538.0	1.00	1.0	1.0			
GR	5208.9	500.0	5201.85	514.0	5201.85	524.0	5208.85	538.0		

THIS RUN EXECUTED 28FEB96 7:42:19

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUPERCRITICAL RUN

SUMMARY PRINTOUT

	SECNO	ELMIN	TOPWID	VCH	CWSEL	CRIWS	DEPTH	QCH	K*CHSL	
*	0.000	5205.55	31.73	11.56	5211.10	5211.10	5.56	1500.00	0.00	
*	10.000	5205.51	32.17	11.45	5211.19	5211.19	5.68	1500.00	-40.04	
*	20.000	5205.46	32.56	11.41	5211.23	5211.23	5.77	1500.00	-4.98	
*	30.000	5205.42	33.13	11.35	5211.28	5211.28	5.86	1500.00	-4.00	
*	40.000	5205.37	33.60	11.29	5211.33	5211.33	5.96	1500.00	-4.98	
*	50.000	5205.33	34.23	11.22	5211.37	5211.37	6.04	1500.00	-4.00	— Start of Culvert Transition
*	60.000	5205.10	31.08	14.64	5209.83	5210.81	4.73	1500.00	-23.00	
	70.000	5204.88	30.84	16.08	5209.02	5210.25	4.14	1500.00	-22.02	
	80.000	5204.65	31.10	17.18	5208.32	5209.68	3.67	1500.00	-23.00	
	90.000	5204.42	31.60	18.02	5207.73	5209.20	3.31	1500.00	-23.00	
	100.000	5204.20	30.00	18.63	5207.25	5208.82	3.05	1500.00	-21.97	
	110.000	5203.97	28.40	19.02	5206.88	5208.53	2.91	1500.00	-23.00	
	120.000	5203.74	26.80	19.17	5206.68	5208.34	2.94	1500.00	-23.00	
	125.000	5203.60	24.00	17.66	5207.16	5208.55	3.56	1500.00	-14.01	— Box
	316.000	5202.55	24.00	19.45	5205.95	5207.68	3.40	1500.00	-210.06	- End of Box
*	320.000	5202.51	26.60	13.45	5206.72	5207.12	4.21	1500.00	-0.21	
	330.000	5202.42	28.20	14.48	5206.21	5206.97	3.79	1500.00	-22.46	

	SECNO	ELMIN	TOPWID	VCH	CWSEL	CRIWS	DEPTH	QCH	K*CHSL
	340.000	5202.33	29.80	14.56	5206.12	5206.93	3.79	1500.00	-8.98
	350.000	5202.23	31.40	13.50	5206.40	5206.98	4.17	1500.00	-10.01
*	360.000	5202.14	33.00	12.74	5206.73	5207.14	4.59	1500.00	-8.98
*	370.000	5202.05	34.60	11.20	5207.39	5207.39	5.34	1500.00	-9.03
*	380.000	5201.95	34.97	11.17	5207.62	5207.62	5.67	1500.00	-9.96
*	390.000	5201.86	34.14	11.29	5207.85	5207.85	5.99	1500.00	-9.03
*	391.000	5201.85	34.09	11.26	5207.89	5207.89	6.04	1500.00	-0.98

– Fwd Cons. Transition

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 0.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 10.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 10.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 20.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 20.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 20.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 30.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 30.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 30.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 40.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 40.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 40.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 50.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 50.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 50.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 60.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

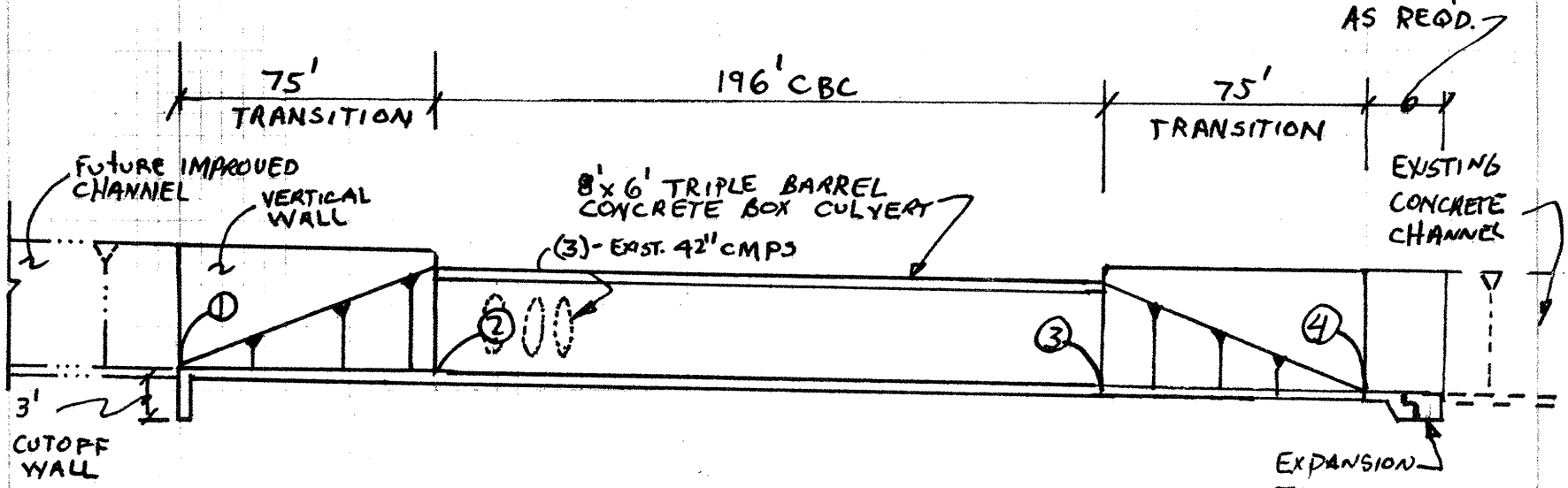
CAUTION SECNO= 360.000 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 360.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 370.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 370.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 370.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 380.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 380.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 380.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 390.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 390.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 390.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 391.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 391.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 391.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL



SECTION LOOKING EAST
N.T.S.

Q_{100} = 1500 cfs
D = 6.04
V = 11.22 fps
① 5211.37

Q_{100} = 1500 cfs
D = 3.56
V = 17.66
HGL ② = 5207.16
HGL ③ = 5205.95

Q_{100} = 1500 cfs
D = 6.04'
V = 11.26 fps
④ = 5207.89

Point	Inv.	d	WS
①	5205.33	6.04	5211.37
②	5203.63	3.56	5207.16
③	5202.55	3.4	5205.95
④	5201.82	6.04	5207.89

CONCRETE BOX CULVERT
AT STA 52+53.23 WESTSIDE BLVD.
13° SKEW LEFT FORWARD

BOHANNAN-HUSTON INC.

PROJECT NAME WESTSIDE BLVD @ NM528 SHEET ____ OF ____
PROJECT NO. 95343A1-2222 BY TG DATE ____
SUBJECT DRAINAGE STRUCTURE CH'D ____ DATE ____

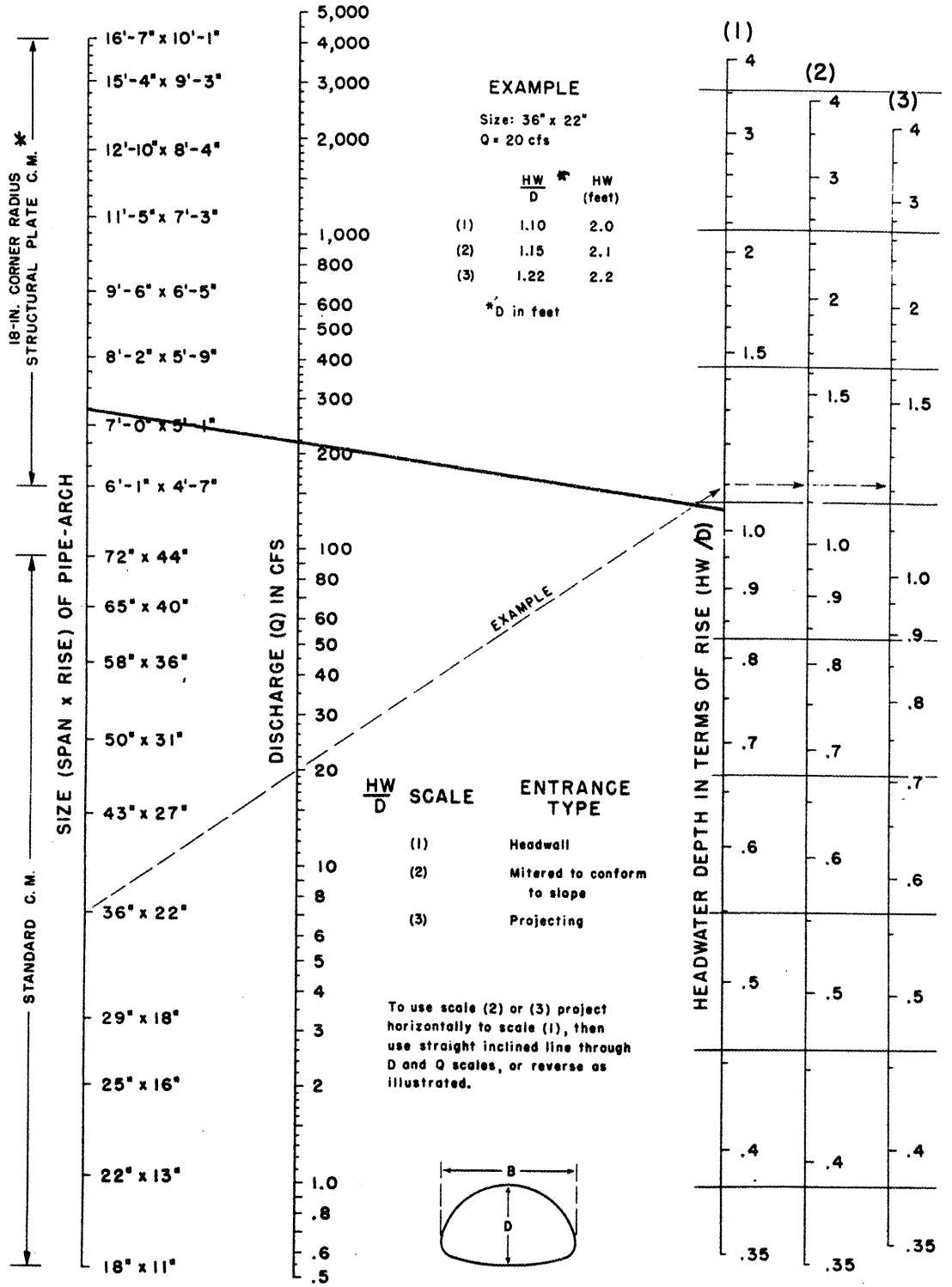
WESTSIDE/NM 528 INTERSECTION

***** HYDRAULIC GRADE LINE CALCULATIONS *****

CMP Manning's n = 0.024 Equavalents: 5'x7' CBC - 80" RCP
Concrete Manning's n = 0.013 87"x63" CM Arch Pipe - 78" CMP
for pipe

Station	Structure	Diam.	Q	Area	Vel.	K	Sf	Length	MH Dia.	JNCT Angle	Hf	Hb	Hj	Hmh	Ht	Total Losses	HGL(dn)	HGL(up)	HV	EGL(dn)	EGL(up)
0+00	OUTFALL								0.00	0.00		0.00	0.00	0.00	0.00	0.00		5208.87	0.82	5209.69	5209.69
		42	70.0	9.62	7.28	545	0.0165	114.00			1.88					1.88					
1+14	EX. INLET								0.00	75.00		0.12	0.00	0.00	0.00	0.13	5210.75	5211.15	0.55	5211.57	5211.70
		80	208.0	34.91	5.96	5609	0.0014	33.60			0.05					0.05					
1+74	TRANSITION								0.00	0.00		0.00	0.00	0.00	0.00	0.00	5211.19	5211.14	0.61	5211.75	5211.75
		78	208.0	33.18	6.27	2840	0.0054	48.00			0.26					0.26					
2+34	BEND								0.00	30.00		0.07	0.00	0.03	0.00	0.10	5211.39	5211.49	0.61	5212.00	5212.10
		78	208.0	33.18	6.27	2840	0.0054	60.00			0.32					0.32					
2+54	INLET								0.00	0.00							5211.82			5212.43	
1+14	7'x5' Box								0.00	0.00		0.00	0.00	0.00	0.00	0.00		5211.15	0.13	5211.28	5211.28
		18	5.2	1.77	2.94	57	0.0084	68.00			0.57					0.57					
1+82	MH								4.00	80.00		0.01	0.00	0.00	0.00	0.01	5211.72	5211.84	0.02	5211.85	5211.86
		18	2.1	1.77	1.19	57	0.0014	56.00			0.08					0.08					
2+38	Drop Inlet																5211.92			5211.94	5211.94
1+82	MH								0.00	0.00		0.00	0.00	0.00	0.00	0.00		5211.84	0.05	5211.89	5211.89
		18	3.1	1.77	1.75	57	0.0030	46.00			0.14					0.14					
2+28	Drop Inlet								0.00	30.00		0.01	0.00	0.00	0.00	0.01	5211.98	5211.94	0.09	5212.02	5212.03
		12	1.9	0.79	2.42	19	0.0097	36.00			0.35					0.35					
2+64	Drop Inlet																5212.29			5212.38	5212.38

CHART 34



1.05

63" x 1.05

= 66"

*ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN. 1963

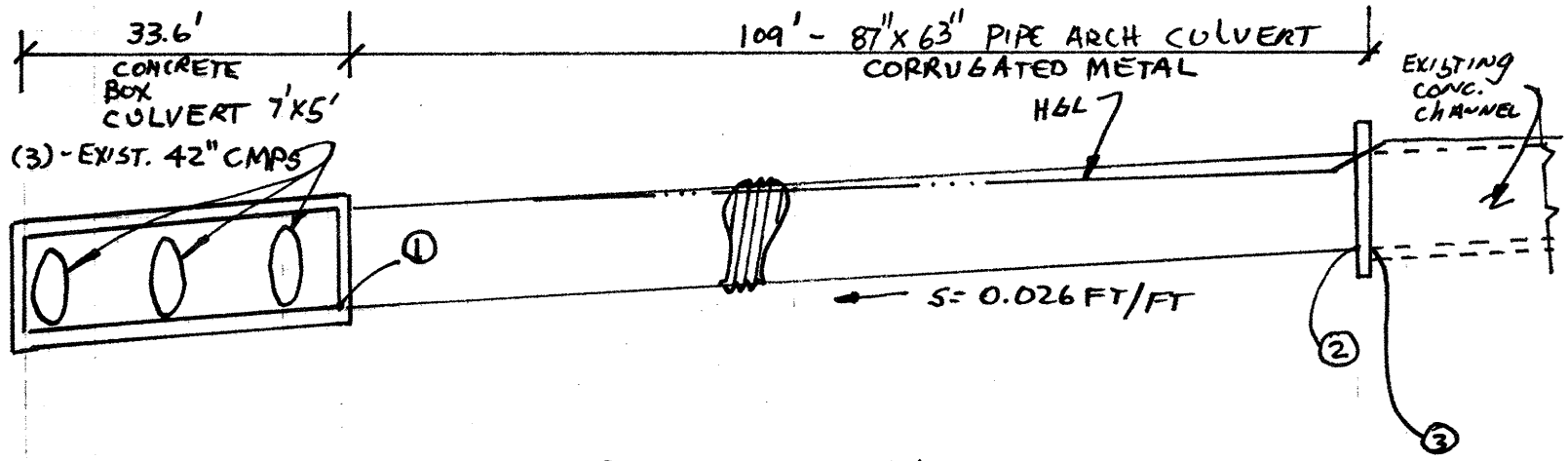
HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

PROJECT NAME WESTSIDE BLVD. @ NM528 SHEET ____ OF ____

PROJECT NO. 95343A1-2222 BY TG DATE ____

SUBJECT DRAINAGE STRUCTURE # CULVERT CH'D ____ DATE ____

BOHANNAN-HUSTON INC.



Q_{100} = 208 CFS

D = Full

V = 6.27

HGL ① = 11.19

SECTION LOOKING WEST

N.T.S.

Q_{100} = 208 $D_{①-②}$ = VARIES D_2 = 2.93'

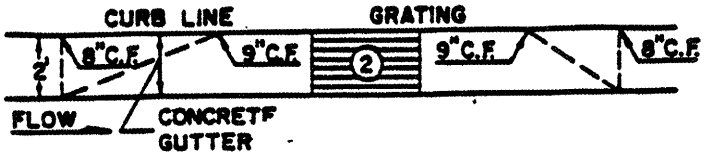
V = 6.27 FPS FULL TO 2.93'

HGL ② = 5211.82

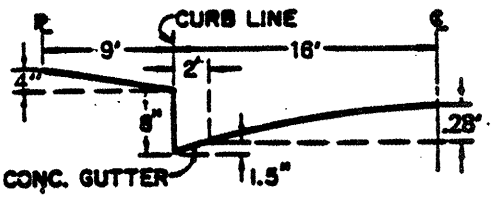
POINT	INV	d	HGL
①	5205.17	6.02	5211.19
②	5208.89	2.93	5211.82
③	5208.89	5.5	5214.39

CONCRETE BOX CULVERT & PIPE ARCH CULVERT STORM DRAIN @ STA 1294+72.15 56.76' RT to STA 1314+06.83 86.37' RT NM528

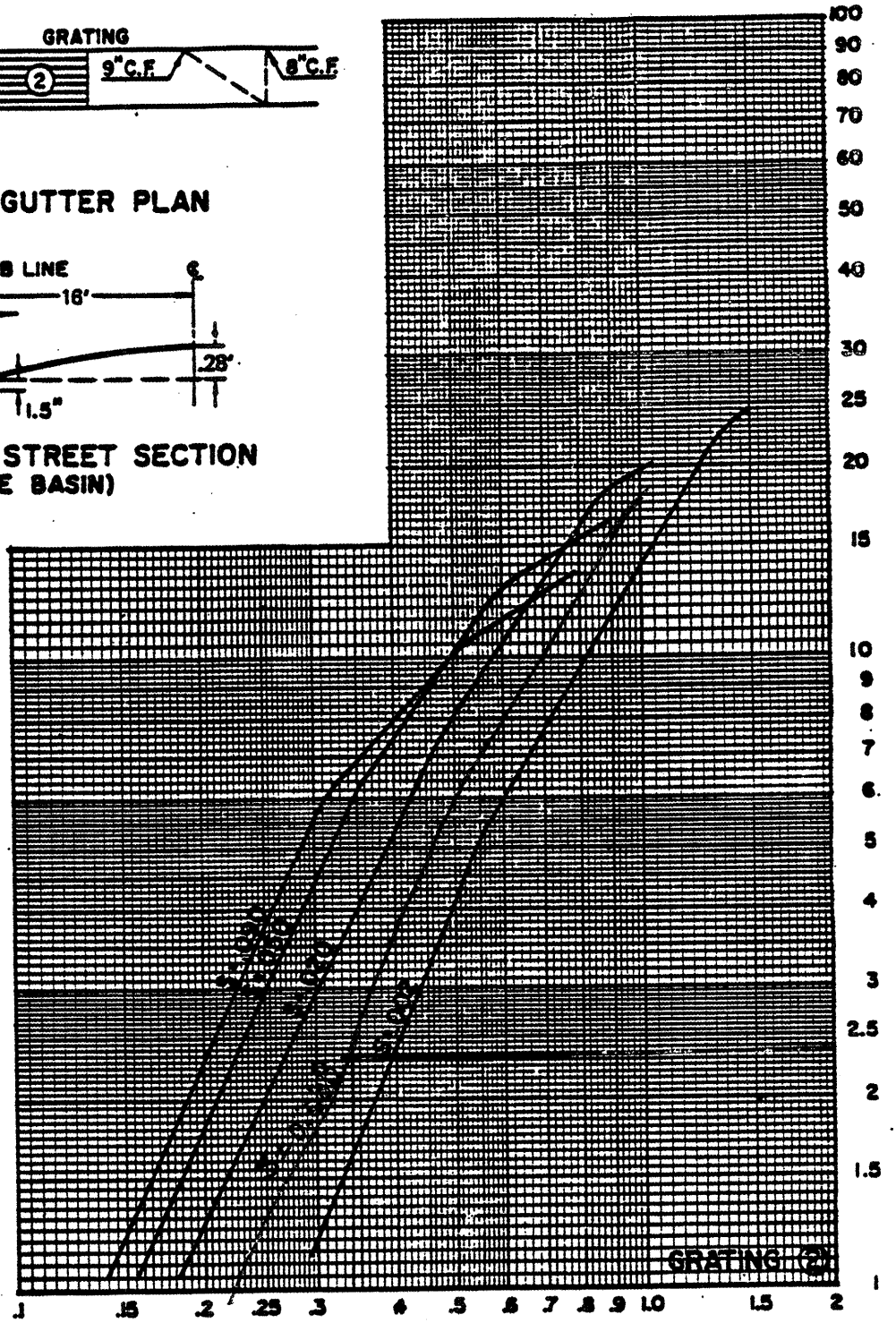
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



East Leg

Inlet @ STA

55+00 - 50' LT

$Q_{100} = 1.89$ cfs

$Q_{10} = 1.25$ cfs

X slope = 2%

Longitudinal = 0.8%

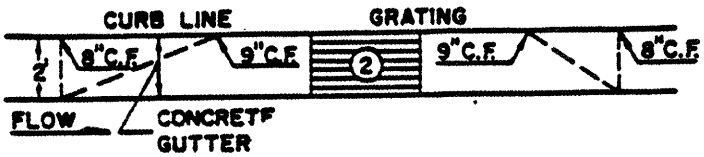
$d = .34'$

∴ Inlet intercepts the whole runoff

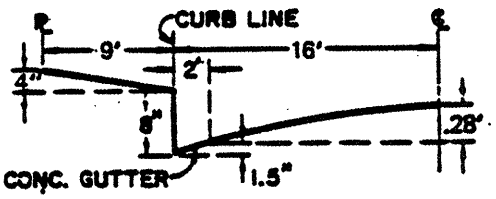
Q

24

GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

East leg

Inlet @
54+65 38.30' Rt

Q_{100} = 1.53 cfs

Q_{10} = 1.01 cfs

x slope = 1.62%

Long = 0.175 %

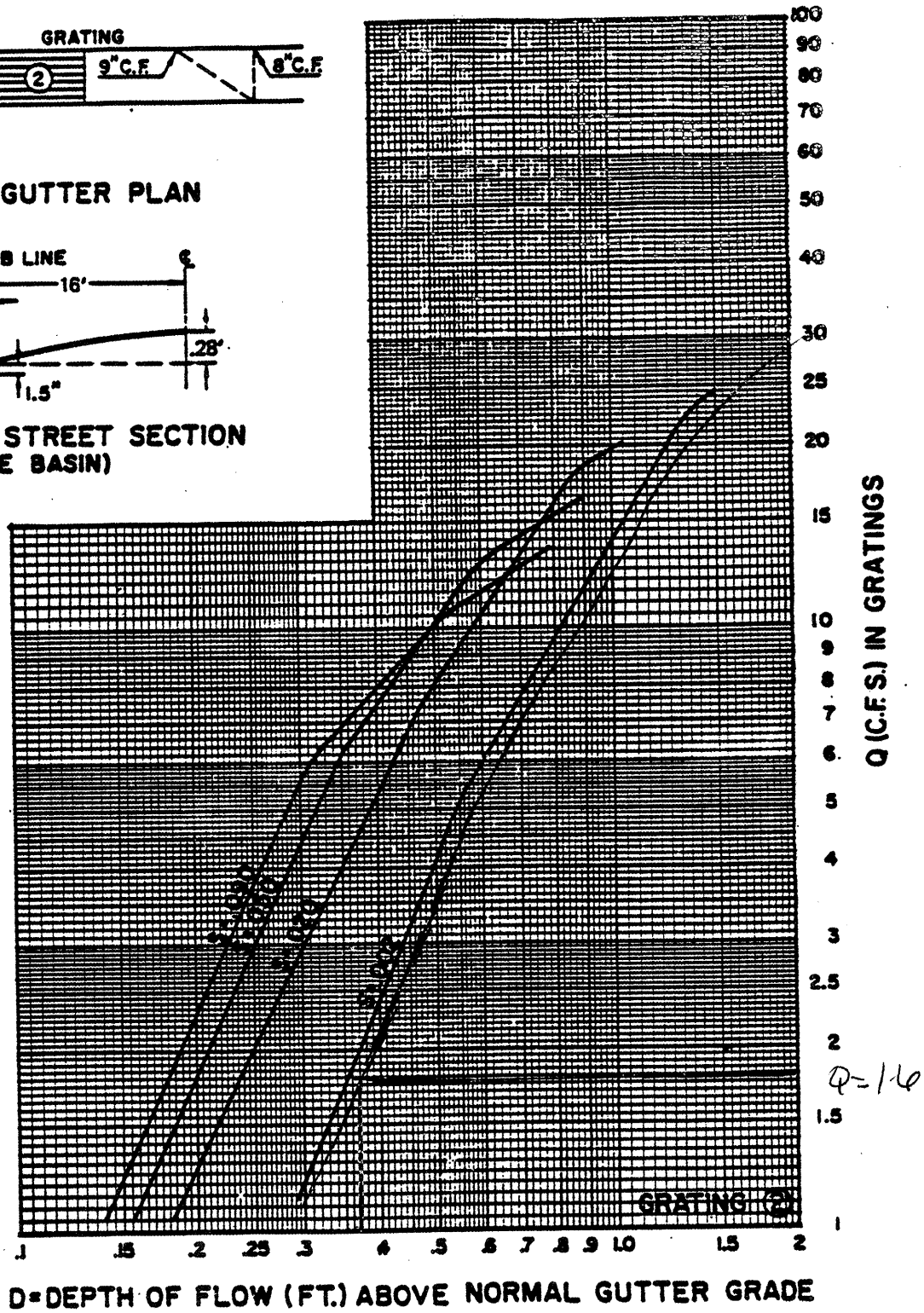
d = .37 (100 yr)

Sinke "A"

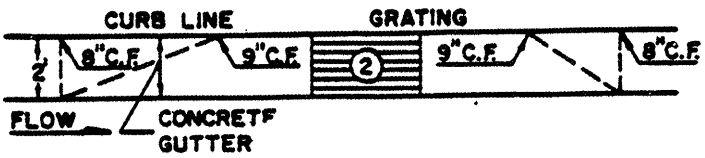
∴

Q = 1.6 > 1.53 cfs

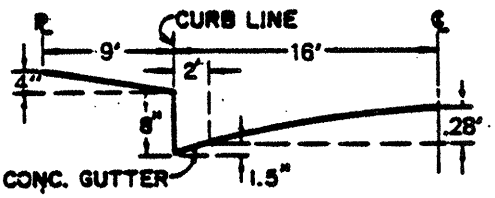
Intercept the 100 yrs



GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

NM528

Inlet @
130+03 - 46.19' Rt
@ NM528

Type A

Q_{100} = 2.94 cfs

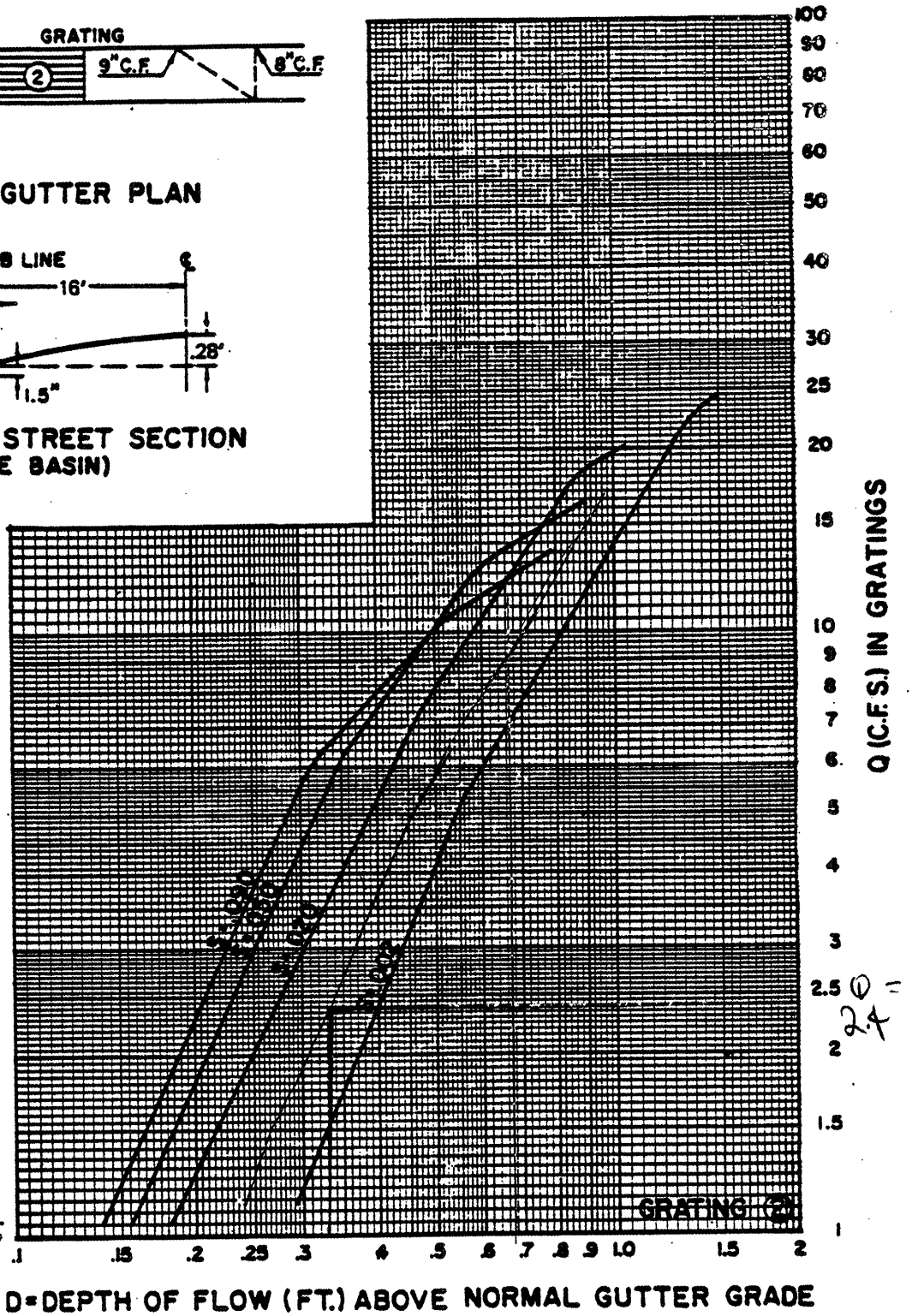
Q_{10} = 1.94 cfs

x slope = 1%

Long = 1.2%

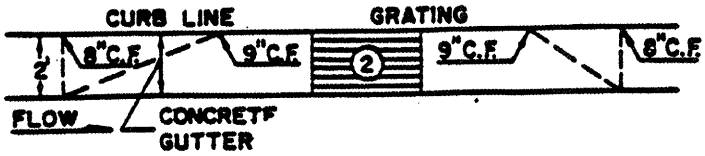
d = .33'

∴ Pick all of
10 years
+ Bypass = 0.54 cfs
of 100 yr.
Goes to Inlet
54 cfs @ E

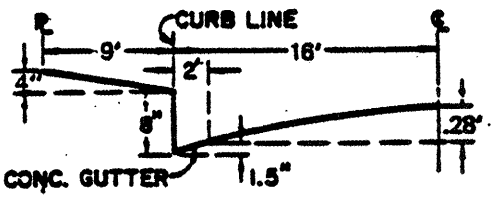


D = 2.4

GRATING CAPACITIES FOR TYPE "A" , "C" and "D"

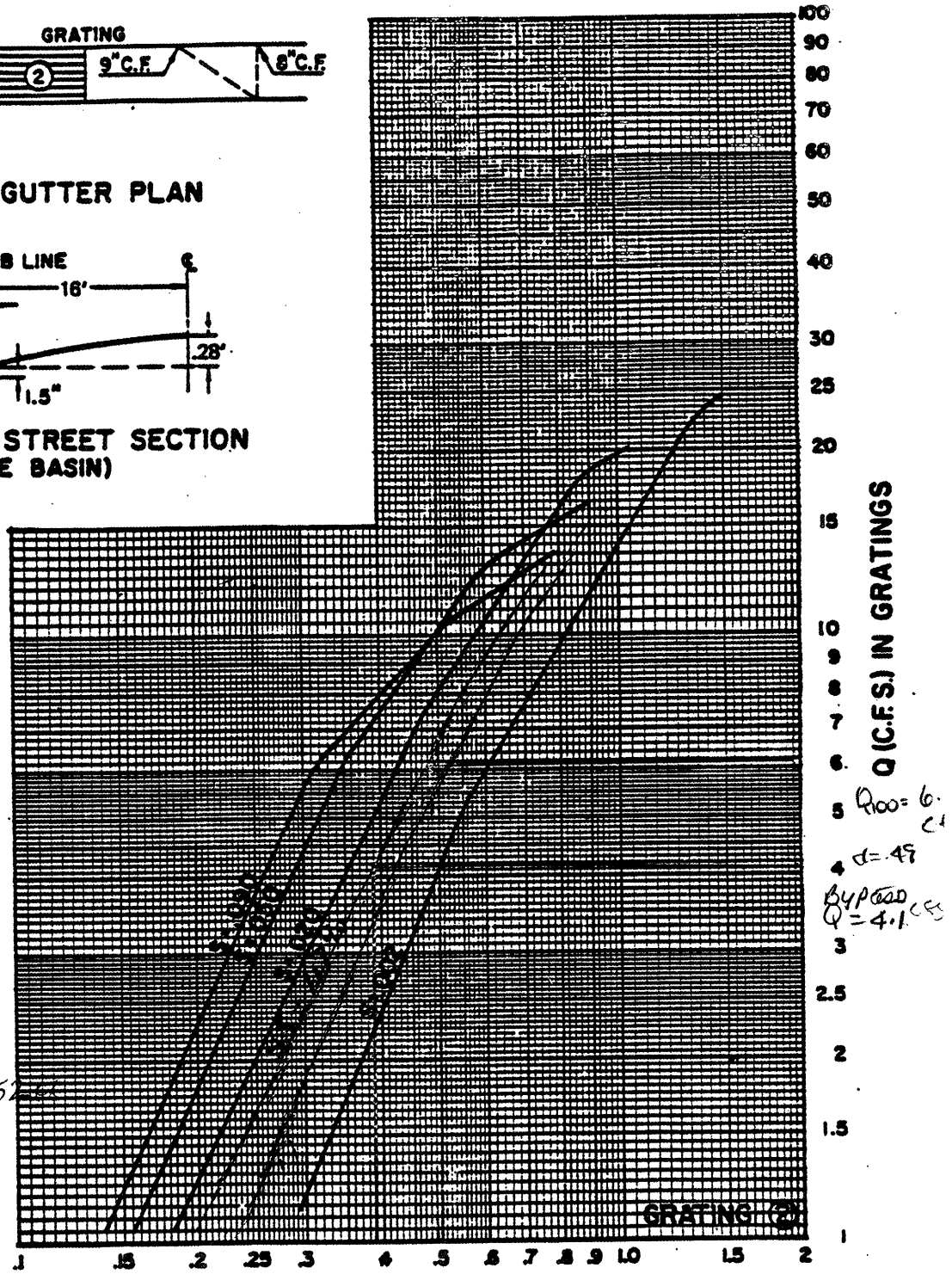


GRATING & GUTTER PLAN



Westleg

TYPICAL HALF STREET SECTION
(ABOVE BASIN)



Inlet @ 49+60 - LT
Q100 = 10.72 cfs
Q10 = 5.91 cfs
X slope = 2%
Long = 1.7%
d = .49

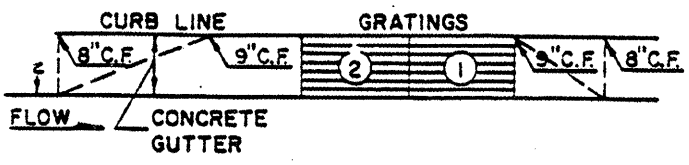
Single 'A' @ 49+60

Inlet 49+00
Q100 = 10.72 - 6.2 = 4.52 cfs
Xslope = 2%
Long = 1.7%
d = .39

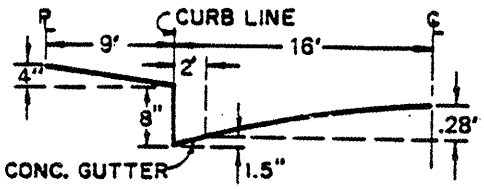
Q100 = 6.
cf
d = .49
Bypass
Q = 4.1 cfs

Bypass
∴ 4.5 - 4.1 = 0.4 cfs
∴ 100% @ a double 'C'

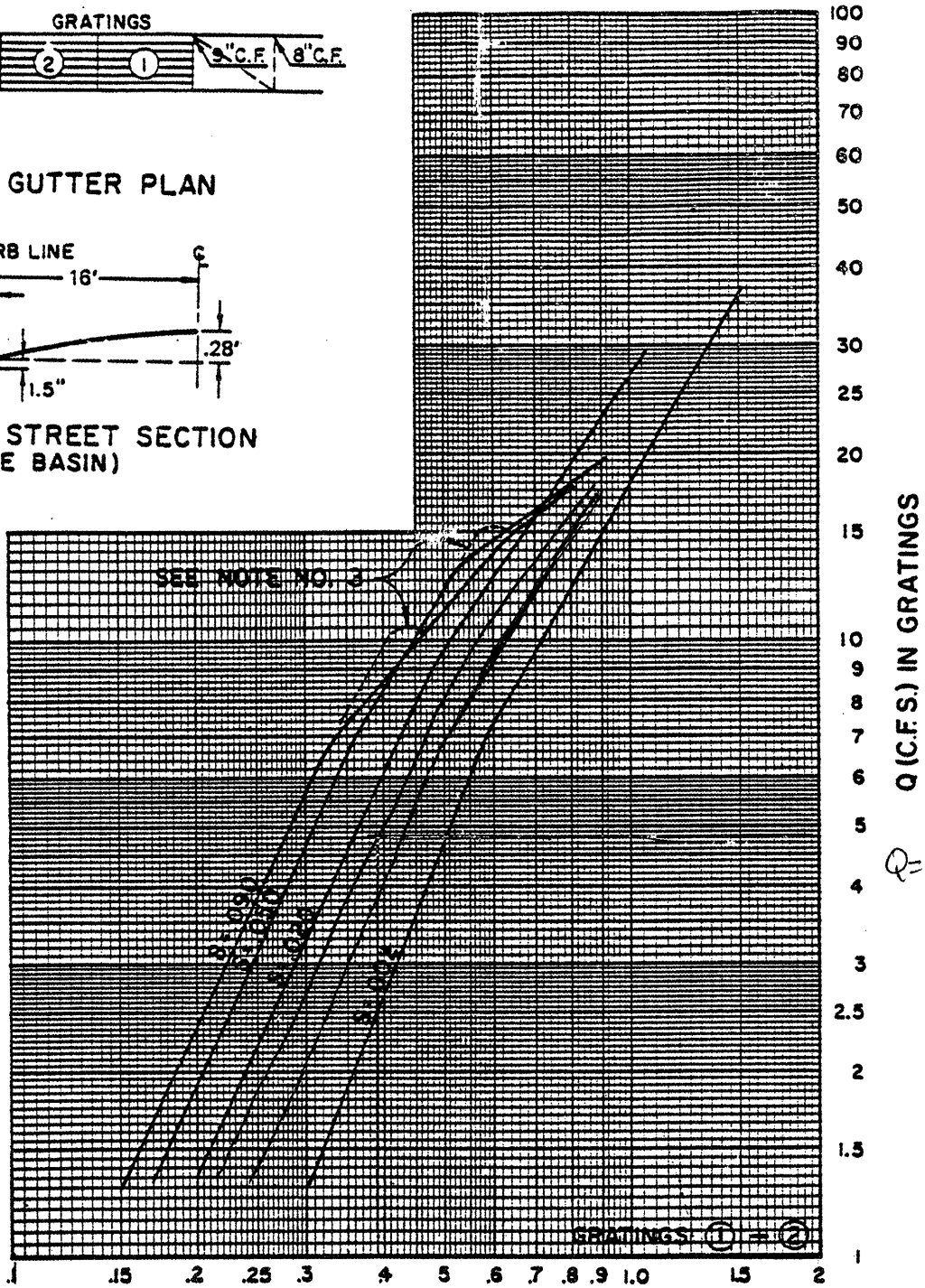
GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



Inlet @ 49+00
$Q_{100} = 4.52$
X slope = 2%
Long = 1.7%
d = .39'

∴ 4.8 - 4.52

∴ double 'C'
Intercepts
remaining
flow
Inlet 49+00

Q = 4.8

IVM520

Inlet @ STA 130+88 ~58' Rt

Area Double "D" Inlet

$Q_{100} = 2.14$ cfs

$Q_{10} = 1.11$ cfs

no curb opening

$$P = 2(W+L) = \frac{2(76+25)}{12} = 16.83'$$

$$Q = (3)(16.83)d^{3/2}$$

$$2.14 = 50.49\, d^{3/2}$$

$d = .12'$ (100)

$d = 0.08'$ (10)

Area is not in street & by dirt area.

BOHANNAN-HUSTON INC.

PROJECT NAME Westside Blvd SHEET ____ OF ____

PROJECT NO. ____ BY MT DATE 2/96

SUBJECT Drainage CH'D ____ DATE ____

East leg

Inlet 54H65 ~ @ E

$Q_{100} = 1.13$ cfs

$Q_{10} = 0.75$ cfs

+ Q = 0.54 from By Pass from Inlet 130+03

= 1.13 + .54 = 1.67 cfs

weir $Q = (3)(7.5)\, d^{3/2}$

$1.67 = (22.5)(d)^{3/2}$

$d = .18'$ (100yr)

$d = 0.10'$ (10yr)

weir controls

$Q = (0.67)(4.43)(8.02)\, d^{1/2}$

$1.13 = 23.90\, d^{1/2}$

$d = 0.002'$

$X_{slope} = 1.213\%$

12 | 12 / 2 | 12

$\frac{.18}{0.01213} = 14.8'$

$d = 14.8'$ (100yr)

$\frac{.10}{.0123} = 8.24$

$d = 8.24$ (10yr)

∴ OK will only Flood 1 lane

BOHANNAN-HUSTON INC.

PROJECT NAME Westside Blvd SHEET ____ OF ____

PROJECT NO. ____ BY MF DATE 2/96

SUBJECT Drainage CH'D ____ DATE ____

P. 69 Drainage of Highway Pavements

Weirs: $Q = 3.0 P d^{1.5}$

orifice $Q = (.67) A (.644 d)^{1/2}$

Perimeter $= 2W + L = \frac{2(25) + 40''}{12''/1'} = 7.5'$ (single grate)

$= 3.0(7.5) d^{1.5}$

Westley Inlet @ 50+50 + 51+00 sump condition
Assume 1/2 flow goes to each inlet
$Q_{100} = 11.8$ cfs $Q_{10} = 6.47$ cfs

$5.9 = 3(7.5) d^{3/2}$

$d = 0.41'$ (100)

$d = 0.27'$ (10)

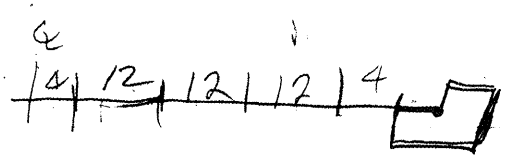
$Q = 5.9 \cdot .67(443)(8.02) d^{1/2}$

$= 23.92 d^{1/2}$

$d = 0.06'$ (100)

$d = 0.02'$ (10)

∴ Weir equation controls



$0.41 - .13 = .28$

$.28/.0168 = 16.7$

Width of Water 100 yr.

$W = 16.7'$ ∴ covers only one lane & leaves the remaining open

$= 8.33'$ 10 year cover Bike Lane $.27 + .13 = .14$ 1/2 travel Lane

$.14/.0168 = 8.33'$

Single "A" &
Single "C"

BOHANNAN-HUSTON INC.

PROJECT NAME _____ SHEET _____ OF _____

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____

Inlet 51+00 LT = 25' LT Westleg

Area = 510-A Inlet @ 51+00 25' LT

Q_{100} = 1.08 cfs Q_{10} = 0.666 cfs Single "D" Orifice

Weir

$Q = 3.0(7.5)\, d^{1\frac{1}{2}}$

$1.08 = (3.0)(7.5)\, d^{3/2}$

$d = 0.13'$ (100yr)

$d = 0.10$ (10yr)

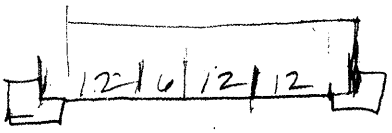
$1.08 = (0.67)(4.43)(8.02)\, d^{1/2}$

$d = 0.05'$ (100yr)

$d = 0.03'$ (10yr)

∴ weir controls

35



$\frac{.13}{.007} = 18.6'$

$w = 18.6'$ (100yr)

$.10/.007 = 14.3'$

$w = 14.3'$ (10yr)

∴ not good try a Double

$P = 2w + L = \frac{(2)(25) + 76")}{12} = 10.50'$

$1.08 = (3)(10.5)\, d^{3/2}$

$d = 0.10$ (100yr)

$d = 0.08$ (10yr)

$.10/.007 = 14.3'$

$.08/.007 = 11.43'$

$w = 14.3'$ (100yr)

$w = 11.4'$ (10yr)

∴ Modified Double "D" w/ 1 lane open @ 10yr

BOHANNAN-HUSTON INC.

PROJECT NAME Westside Blvd SHEET ____ OF ____

PROJECT NO. ____ BY MH DATE 2/96

SUBJECT Drainage CH'D ____ DATE ____

45+00

STA 45+30.82
BEGIN CONSTRUCTION

TB=5228.00

SANDOVAL
BERNALILLO

BUILD EARTH
INTERCEPTOR
BERM

S89°53'09"E

TB=5228.00

℄ CONSTRUCTION

WESTSIDE BLVD

Q_{100}=11.8 CFS

STA 45+93.65

SIERRITA ROAD

N10°06'51"E

11+00

SCALE: 1"=20'

12' TYP

Q_{100}=6.2 CFS

Q_{100}=10.7 CFS

Q_{100}=4.5 CFS
(ROAD)

0 CFS

Q_{100}=10.7 CFS

Q_{100}=10.7 CFS

N0°06'50"E

GATEWAY SOUTH

STA 49+60.00

MATCH LINE

STA 49+05.21

KEY NOTES

1. STA 48+00.00, 56.00' RT
   BUILD 1-SINGLE A CATCH BASIN
   TC=5214.39 INV=5209.39
   COA SD 2201
2. STA 48+00.00, 56.00' RT TO
   STA 48+40.00, 56.00' RT
   BUILD 33.65'-18" RCP CL III
   S = 0.0350 FT/FT
3. STA 48+40.00, 56.00' RT
   BUILD 1-DOUBLE C CATCH BASIN
   TC=5213.57 INV=5208.21
   COA SD 2205
4. STA 48+40.00, 56.00' RT TO
   STA 48+79.00, 20.00' RT
   BUILD 51.65'-24" RCP CL III
   S = 0.0256 FT/FT
5. STA 48+79.00, 20.00' RT
   BUILD 1-4' DIA MH TYPE "C"
   W/ VENTED COVER.
   PROVIDE 2' CURB OPENING IN
   CURB AT COVER. ROTATE COVER
   TOWARD CURB OPENING.
   RIM=5213.04 TC=5213.54
   SHAPE MEDIAN PAVEMENT AROUND
   VENTED COVER. COVER IS 6"
   BELOW MEDIAN PAVEMENT.
   COA SD 2102 & 2110
6. SEE SHEET 7 FOR BUILD NOTES
7. RELOCATED 4" MP GAS LINE
   (NEW LOCATION)

5'
2'
5
1
BUILD EARTH
INTERCEPTOR
BERM
SEE SHEET 3
FOR CUT OFF WALL
EXISTING GRADE
℄
S=-2.0493%
PROFILE GRADE
℄ CONSTRUCTION
S=0.0350 FT/FT
33.65'-18"RCP
CL III
Q_{100}=6.2 CFS
V_{100}=9.9 FPS
S=0.0256 FT/FT
51.65'-24"RCP
CL III
Q_{100}=10.7 CFS
V_{100}=10.1 FPS
Q_{100}=10.7 CFS
V_{100}=5.7 FPS
HGL

5225
5220
5215
5210
5205
5200
5195
5190

4500 4520 4540 4560 4580 4600 4620 4640 4660 4680 4700 4720 4740 4760 4780 4800 4820 4840 4860 4880 4900 4920 4940 4

5226.00 5221.08
5225.75 5220.67
5225.50 5220.26
5225.26 5219.85
5225.01 5219.44
5225.00 5219.03
5224.83 5218.62
5224.00 5218.21
5223.57 5217.80
5223.14 5217.39
5222.58 5216.98
5221.98 5216.57
5221.52 5216.16
5221.06 5215.75
5220.68 5215.34
5220.13 STA 48+00.56 RT
5214.93 BUILD 1-SINGLE A
CATCH BASIN
TC=5214.39
INV=5209.39
HGL=5209.97
5219.84 HGL=5209.87
5214.52
5219.00 STA 48+40.56 RT
5214.11 BUILD 1-DOUBLE
CATCH BASIN
TC=5213.57
INV=5208.21
HGL=5208.96
5218.67 HGL=5208.21
5213.70
5217.85 STA 48+79.20 RT
5213.29 BUILD 1-4' DIA MH
INV= 5206.89
24" IN (E)
INV= 5206.79
24" IN (E)
5216.94 HGL=5207.72
5212.88
5215.39
5212.49
5214.26
5212.13
5213.22
HGL=5207.50

TRANS•ET9534314.SHEETS.DRAINAGE\STORM-PNPT.GRF

PLAN
NOTE BOOK
NO.
SURVEYED
PLOTTED
PLOTTING CHECKED
R.M.'s ADDED
R.M.'s NOTED
DATE
BY

PROFILE
NOTE BOOK
NO.
SURVEYED
PLOTTED
PLOTTING CHECKED
R.M.'s NOTED
STRUCTURE NOTATIONS ON
DATE
BY

AS-BUILT INFORMATION
DATE
CONTRACTOR
WORK BY
DATE
INSPECTOR'S
ACCEPTANCE BY
DATE
FIELD VERIFICATION BY
DATE
CORRECTED BY
DATE
MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

SURVEY INFORMATION
BENCH MARKS
A.C.S. 1 3/4" ALUMINUM DISK, STAMPED "A.C.S. BM. 2-813 EPOXIED TO TOP OF CONCRETE BASE OF GALV STL POLE #IC-28 AT ANGLE PT. IN THE ELECTRIC TRANSMISSION 248' +/- NORTHERLY OF THE BERNALILLO/ SANDOVAL COUNTY LINE. 78.5' EASTERLY OF ℄ OF RIO RANCHO BLVD (SR 528) ON SW CORNER OF SAID CONC BASE. FIELD ELEV= 5215.872. SEE SHT 5 FOR LOCATION

FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
FRED F. GREEN
10146
REGISTERED PROFESSIONAL ENGINEER

NO. DATE REMARKS BY
REVISIONS
DESIGNED BY BHI/MAH DESIGN DATE 3-96
DRAWN BY BHI/CJT DATE 3-96
CHECKED BY BHI/MAH DATE 3-96

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

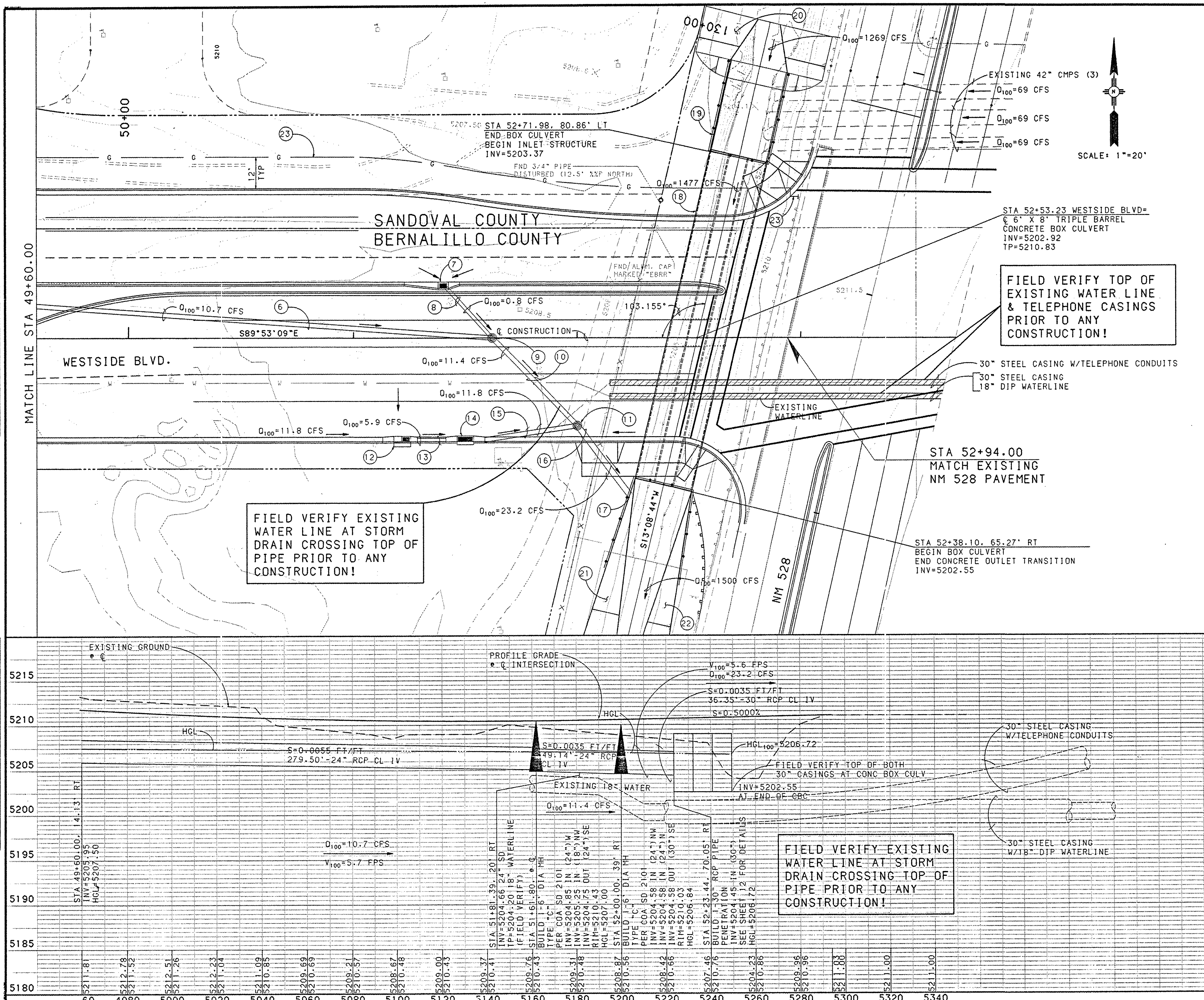
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: WESTSIDE BLVD
STA 45+30.00 TO STA 49+60.00
STORM DRAIN PLAN & PROFILE

3750 A-13-Z 6 32

PLAN
NOTE BOOK
NO.
SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED
BY / DATE

PROFILE
NOTE BOOK
NO.
SURVEYED / PLOTTED / GRADES CHECKED / B.M.s NOTED / STRUCTURE NOTAT'NS CH'KD
BY / DATE



TRANS:[T9534314.SHEETS.DRAINAGE]STORM-PNP2.GRF

KEYED NOTES

(6) STA 48+79.00, 200' LT TO
STA 51+61.80, @ CENTERLINE
BUILD 279.50'-24" RCP CL IV
S=0.0055 FT/FT

(7) STA 51+40.00, 24' LT
BUILD 1-SINGLE "D" (MOD)
CATCH BASIN PER COA SD 2206
TC=5211.08
INV=5205.47

(8) STA 51+40.00, 24' LT TO
STA 51+61.80, @ CENTERLINE
BUILD 29.23'-18" RCP CL IV
S=0.0075 FT/FT

(9) STA 51+61.80, @ CENTERLINE
BUILD 1-6' DIA MH TYPE "C"
PER COA SD 2101

(10) STA 51+61.80, @ CENTERLINE TO
STA 52+00.00, 39' RT
BUILD 49.14'-24" RCP CL IV
S=0.0035 FT/FT

(11) STA 52+00.00, 39' RT
BUILD 1-6' DIA MH TYPE "C"
PER COA SD 2101

(12) STA 51+20.00, 46.00' RT
BUILD 1-SGL "A" CATCH BASIN
PER COA SD 2201
TC=5210.09
INV=5204.92

(13) STA 51+20.00, 46' RT TO
STA 51+50.00, 46' RT
BUILD 23.64'-18" RCP CL IV
S=0.0076 FT/FT

(14) STA 51+50.00, 46' RT
BUILD 1-DBL "C" CATCH BASIN
PER COA SD 2205
TC=5210.08
INV=5204.74

(15) STA 51+50.00, 46' RT TO
STA 52+00.00, 39' RT
BUILD 44.74'-24" RCP CL IV
S=0.0036 FT/FT

(16) STA 52+00.00, 39' RT TO
STA 52+23.44, 70.05' RT
BUILD 36.35'-30" RCP CL IV
S=0.0036 FT/FT

(17) STA 52+23.44, 70.05' RT
BUILD 1-30" RCP PIPE
PENETRATION THROUGH CBC
OUTLET WALL
SEE DETAIL SHEETS 11 & 12
INV=5204.45, 70.05' RT

(18) STA 52+53.23, @ CENTERLINE
BUILD 1-TRIPLE BARREL 8'X6'
CONCRETE BOX CULVERT (CBC)X
150', SKEWED 15° LF
SEE SHEET 10 FOR STRUCTURE
DETAILS. SEE SHEETS 22 & 23
NMSHTD SERIAL CB-33.

(19) BUILD 40 LF CONCRETE INLET
SEE SHEET 11 FOR DETAILS

(20) BUILD 20 LF SHOTCRETE INLET
SEE SHEET 11 FOR DETAILS

(21) BUILD 85 LF OUTLET PLAN W/
JOINT. SEE SHEET 11 FOR
DETAILS

(22) REMOVE 51 LF EXISTING CONCRETE
CHANNEL. SEE SHEET 11 FOR
DETAILS

(23) RELOCATED 4" MP GAS LINE (NEW
LOCATION BY OTHERS)

AS-BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
A.C.S. 1 3/4" ALUMINUM DISK, STAMPED "A.C.S. BM. 2-S13 EPOXIED TO TOP OF CONCRETE BASE OF GALV STL POLE #1C-28 AT ANGLE PT. IN THE ELECTRIC TRANSMISSION 248' +/- NORTHERLY OF THE BERNALILLO/ SANDOVAL COUNTY LINE, 78.5' EASTERLY OF ℄ OF RIO RANCHO BLVD (SR 528) ON SW CORNER OF SAID CONC BASE. FIELD ELEV= 5215.872. SEE SHT 5 FOR LOCATION

SURVEY INFORMATION
FIELD NOTES
NO.	BY	DATE

ENGINEER'S SEAL
TED F. GREEN, 10146, REGISTERED PROFESSIONAL ENGINEER, 8/2/96

REVISIONS
NO.	DATE	REMARKS	BY

DESIGN
DESIGNED BY BHI/MAH — DATE 3-96
DRAWN BY BHI/CJT — DATE 3-96
CHECKED BY BHI/MAH — DATE 3-96

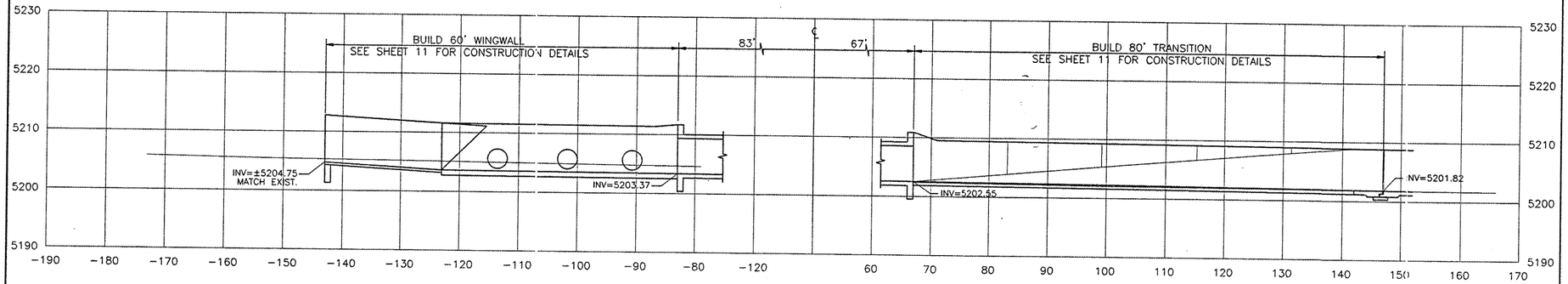
BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE — LAS CRUCES — SANTA FE

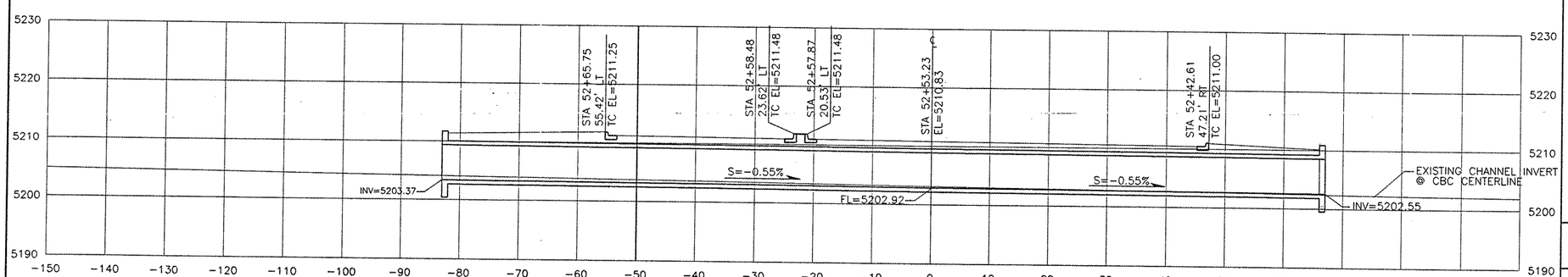
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: WESTSIDE BLVD
STA 49+60.00 TO STA 52+94.00
STORM DRAIN PLAN & PROFILE

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
3725	A-13-Z	7	32





STA 52+53.23

BUILD 3 - 8'x6'x150' CBC'S ~ 13° SK LF
W/WINGWALLS LT & RT, DESIGN I
SERIALS: CB-33

BENCH MARKS

A.C.S. 1 3/4" ALUMINUM DISK, STAMPED "A.C.S. BM. 2-S13, EPOXIED TO TOP OF CONCRETE BASE OF GALV STL POLE #IC-28 AT ANGLE PT. IN THE ELECTRIC TRANSMISSION 248' +/- NORTHERLY OF THE BERNALILLO/SANDOVAL COUNTY LINE, 78.5' EASTERLY OF ℄ OF RIO RANCHO BLVD (SR 528) ON SW CORNER OF SAID CONC BASE. FIELD ELEV= 5215.872. SEE SHT 5 FOR LOCATION

AS-BUILT INFORMATION

CONTRACTOR — DATE
STAKED BY — DATE
INSPECTOR'S NOTATIONS BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CONNECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

ALDO F. GREGERSEN
NEW MEXICO
10146
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY BHI	DATE 1-95
		DRAWN BY BHI/AAG	DATE 1-95
		CHECKED BY BHI	DATE 1-95

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

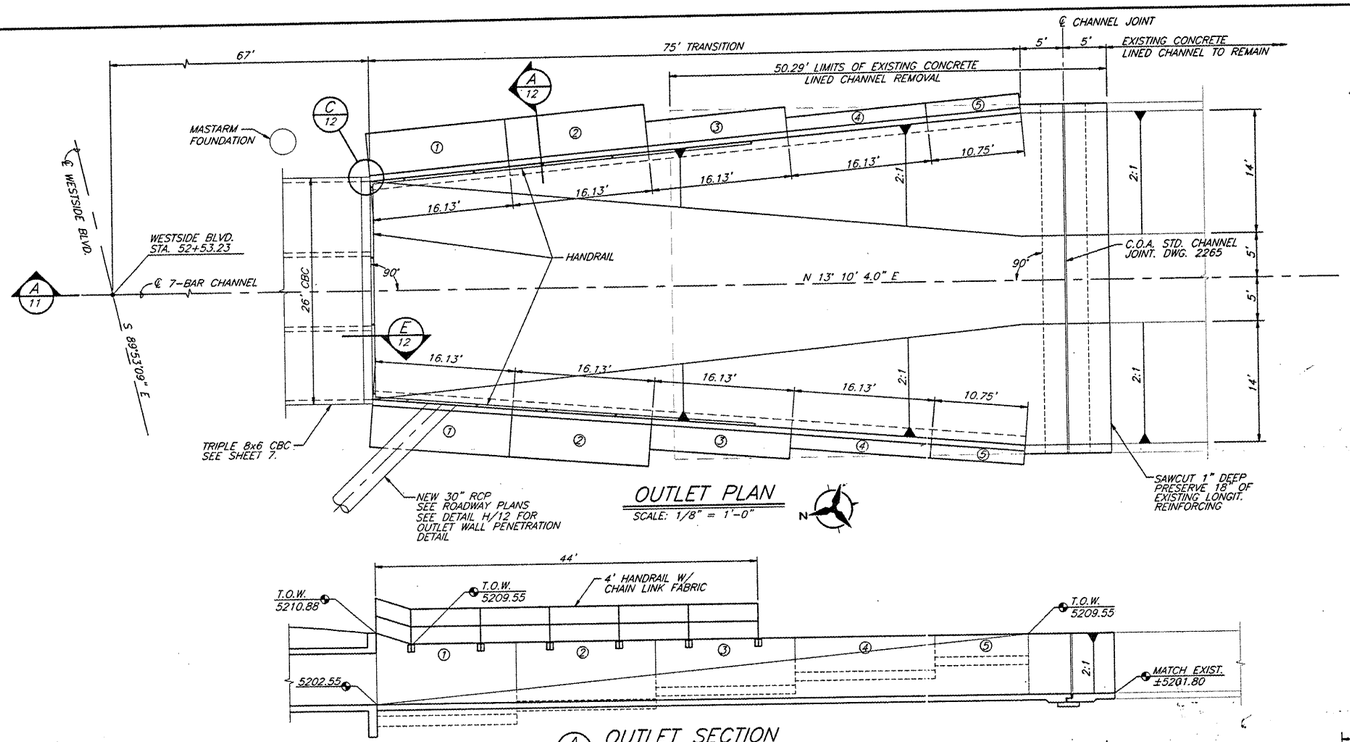
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: WESTSIDE BLVD
CBC STRUCTURE SECTION

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET
3725	A-13-Z	10 OF 32

TRANS:[T9534314.ACAD]STRSEC.DWG 8/19/96



OUTLET PLAN
SCALE: 1/8" = 1'-0"

A/11 OUTLET SECTION
SCALE: 1/8" = 1'-0"

DESIGN DATA

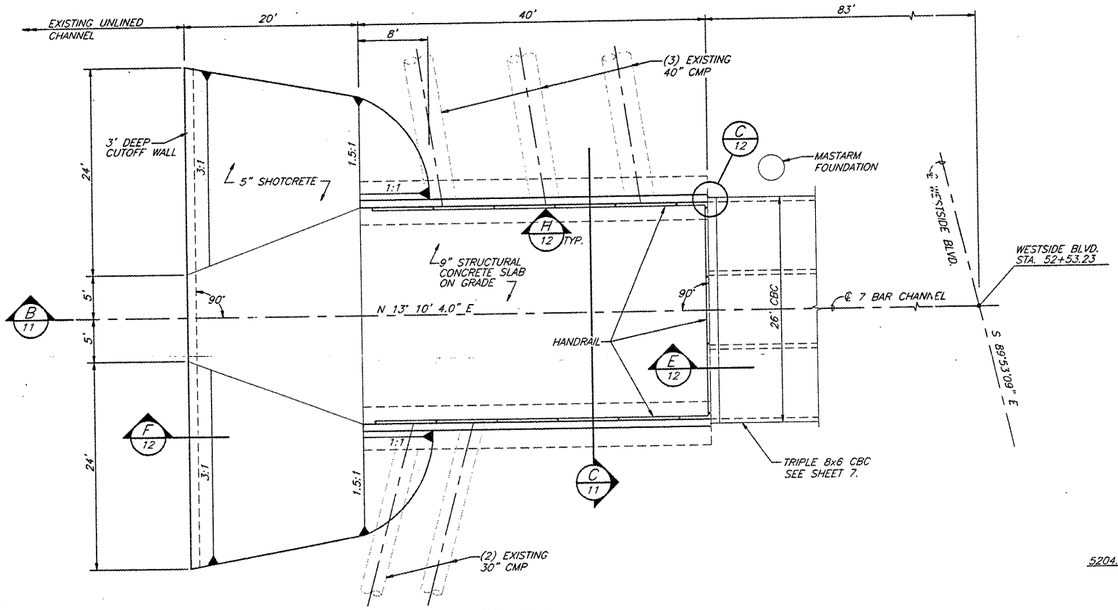
Live Load: 2' surcharge
Equivalent Fluid Earth Pressure:
Active = 35 pcf; Passive = 320 pcf.
Soil Weight: 110 pcf
Allowable soil pressure = 2000 psf
Sliding coefficient of friction = 0.40

GENERAL NOTES

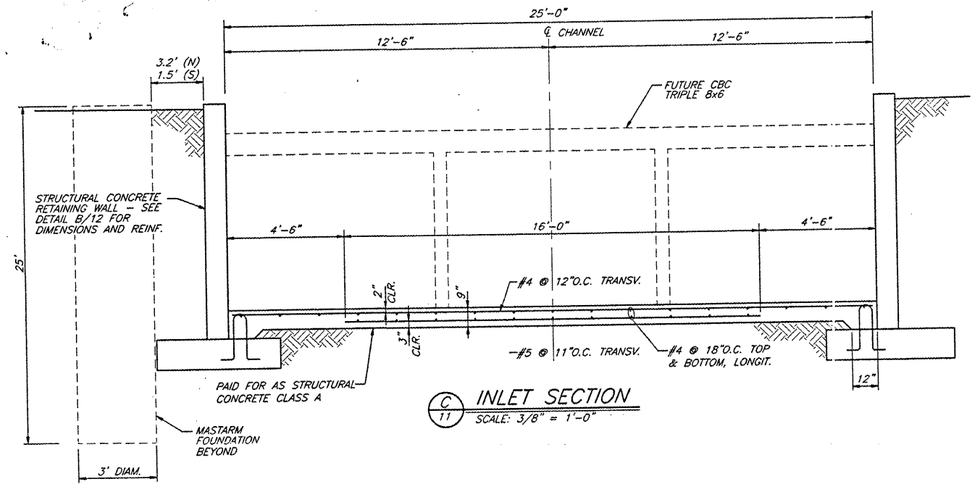
1 This work shall be in accordance with the New Mexico Standard Specifications for Highway and Bridge Construction, 1994 Edition and applicable supplemental special provisions.
2 Concrete for retaining walls shall be Structural Concrete Class A, 4000 psi. with type F fly ash. Type F fly ash will be used at a rate of 4:1 (cement:FA). All concrete shall receive a Class 1, Ordinary Surface Finish.
3 Reinforcing bars shall be grade 60 unless noted otherwise. Dimensions refer to the centerline of the bar.
4 The contractor shall be responsible to locate in the field all existing utilities prior to begining work. The contractor shall provide safe and adequate shoring of all utilities and structure during construction.
5 The quantity for reinforcing bars is estimated based on the volume of concrete. Final payment will be made on the pounds of reinforcement in place.
6 Anchor bolts, nuts and washers shall be ASTM A307, galvanized.
7 Removal of portions of the existing concrete channel lining is required. Removal and disposal of all necessary items are paid for under item 601000. Removals include approx. 40 l.f. of 5' deep concrete cutoff wall, approx. 15 l.f. of riprap, type L, 3' thick in bottom, 18" thick on slopes (± 43 cy.) and approx. 230 sy. of 8" conc. slope paving.

QUANTITIES

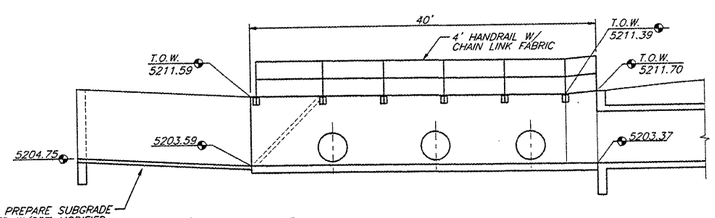
Item No.	Description	Unit	Quantity
203000	Unclassified Excavation	CY	1,425
203100	Borrow	CY	*
511000	Structural Concrete Class A	CY	128.5
540060	Reinforcing Bars Grade 60	LBS	22,975
601000	Removal of Structures and Obstr	LS	1
XXXXXX	8" Concrete Channel Lining	SY	325.0
XXXXXX	Channel Joint	LF	37.25
XXXXXX	5" Shotcrete	SY	143.6
XXXXXX	4' Chain Link Fence	LF	228.0



INLET PLAN
SCALE: 1/8" = 1'-0"



C/11 INLET SECTION
SCALE: 3/8" = 1'-0"



B/11 INLET SECTION
SCALE: 1/8" = 1'-0"

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
A.C.S. 1 3/4" ALUMINUM DISK, STAMPED "A.C.S. BM. 2-13" EPOXIED TO TOP OF CONCRETE BASE OF GALV STL POLE #10-28 AT ANGLE PT. IN THE ELECTRIC TRANSMISSION 248' +/- NORTHERLY OF THE BERNALILLO/ SANDOVAL COUNTY LINE, 78.5' EASTERLY OF ℄ OF RIO RANCHO BLVD (SR 528) ON SW CORNER OF SAID CONC BASE. FIELD ELEV= 5215.872. SEE SHT 5 FOR LOCATION

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION RECORDED BY	DATE
NO.	

ENGINEER'S SEAL
GARY A. REAMES 10016 REGISTERED PROFESSIONAL ENGINEER 8/22/96

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY DMB	DATE 5-96
		DRAWN BY AAG	DATE 5-96
		CHECKED BY GEL	DATE 5-96

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE • ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

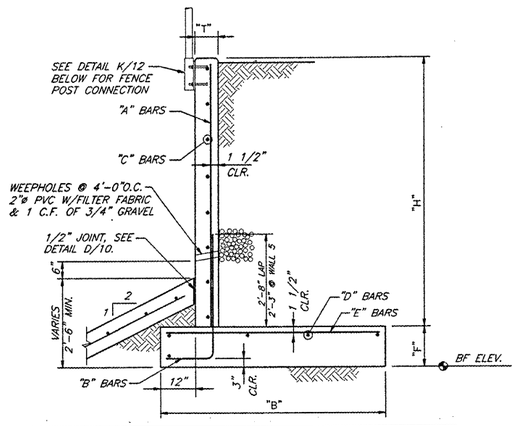
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: WESTSIDE BLVD.
CBC INLET/OUTLET TRANSITION PLANS & SECTIONS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.
			6/20/96	

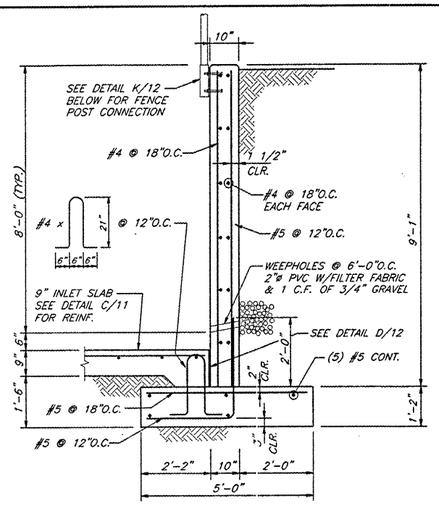
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
3725	A-13-Z	11	32

TRANS:[T95343A32222.ACAD]CBCPNP.DWG 8/19/96

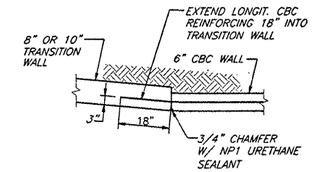


OUTLET WALL TABLE		WALL				
		1	2	3	4	5
DIMENSIONS	T	8"	8"	8"	8"	8"
	H	8'-4"	6'-10"	5'-6"	4'-0"	2'-6"
	F	14"	14"	12"	12"	12"
	B	6'-6"	6'-6"	4'-6"	3'-3"	3'-3"
BARS	A	#5 @ 18"	#5 @ 18"	#4 @ 18"	N/A	N/A
	B	#6 @ 9"	#6 @ 9"	#4 @ 9"	#4 @ 18"	#4 @ 18"
	C	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
	D	(5) #6	(5) #6	(4) #5	(5) #4	(5) #4
	E	#6 @ 18"	#6 @ 18"	#5 @ 18"	#4 @ 18"	#4 @ 18"
ELEV.	BF	5200.05	5201.55	5203.05	5204.55	5206.05

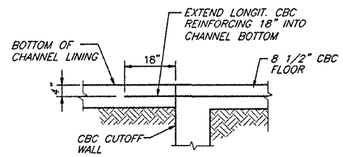
A 12 OUTLET WALL DETAIL
SCALE: 1/2" = 1'-0"



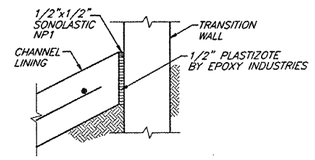
B 12 INLET WALL DETAIL
SCALE: 1/2" = 1'-0"



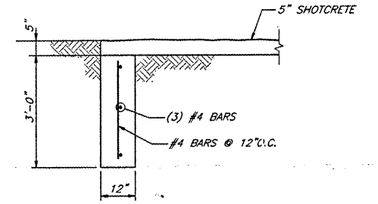
C 12 CBC TO TRANSITION WALL JOINT DETAIL
SCALE: 1/2" = 1'-0"



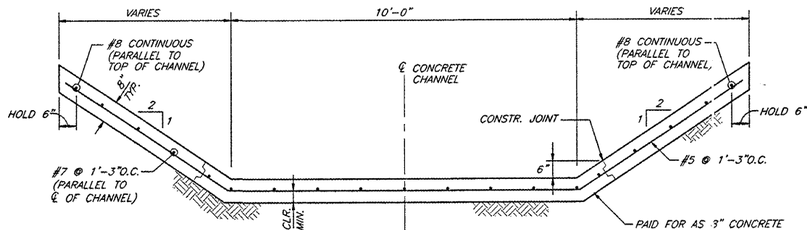
E 12 CBC TO CHANNEL LINING JOINT DETAIL
SCALE: 1/2" = 1'-0"



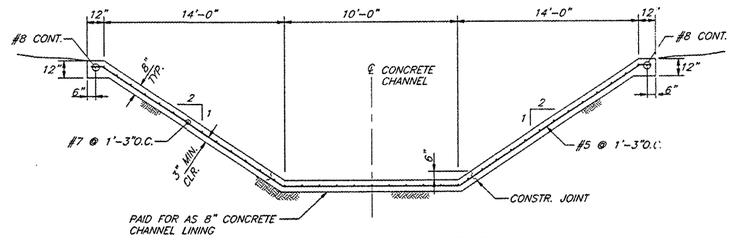
D 12 CHANNEL LINING/WALL JOINT DETAIL
SCALE: 1" = 1'-0"



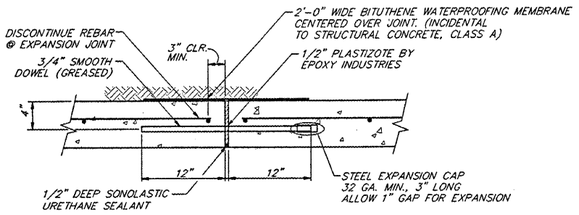
F 12 CUTOFF WALL DETAIL
SCALE: 1/2" = 1'-0"



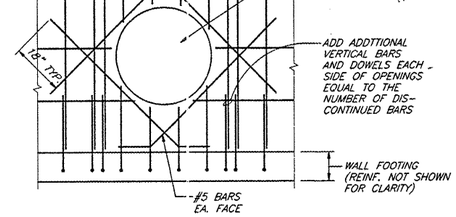
TYPICAL CHANNEL SECTION AT OUTLET TRANSITION
SCALE: 1/2" = 1'-0"



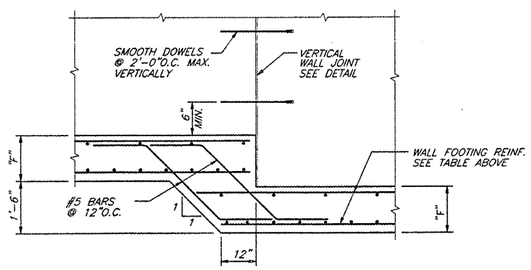
TYPICAL CHANNEL SECTION
SCALE: 1/4" = 1'-0"



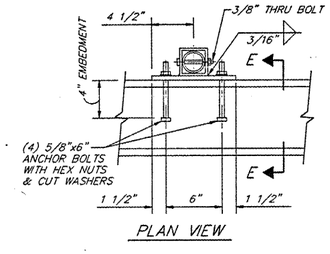
G 12 VERTICAL WALL JOINT DETAIL
SCALE: 1" = 1'-0"



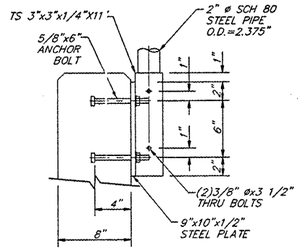
H 12 REINFORCING DETAIL @ PIPE PENETRATION
NO SCALE



J 12 OUTLET WALL STEPPED FOOTING DETAIL
SCALE: 1/2" = 1'-0"

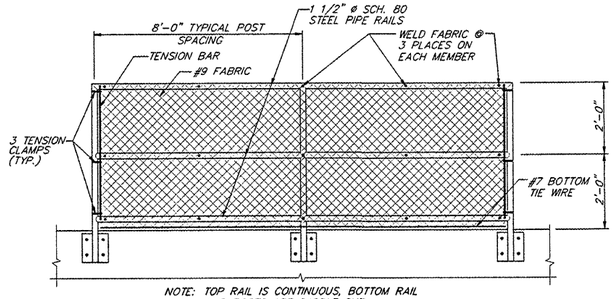


PLAN VIEW



SECTION E-E

K 12 FENCE POST CONNECTOR DETAIL
NO SCALE



NOTE: TOP RAIL IS CONTINUOUS, BOTTOM RAIL AND POSTS ARE SADDLE CUT.

TYPICAL FENCE DETAIL
NO SCALE

FENCE NOTES
1. 4' CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH C.O.A. STANDARD DRAWING 2252.
2. ALL POST, RAILS, PLATES, ANGLES, BOLTS, ETC. SHALL BE OF STRUCTURAL STEEL AND GALVANIZED PER C.O.A. STANDARDS.
3. INSTALL CHAIN LINK FENCE ON OUTSIDE OF PIPE RAIL.
4. TENSION WIRE SHALL BE 7 GA. SPRING STEEL WITH 11 GA. WIRE TIES @ ±24" O.C.
5. TENSION BARS AND THREE (3) CLAMPS AT EACH END POST.
6. TACK WELD CHAIN LINK FABRIC @ THREE (3) POINTS ALONG EACH FRAME MEMBER.
7. PAINT ALL FIELD WELDS WITH GALVANIZING COATING.
8. FINAL TOP COAT PAINT ON POSTS, RAILS, PLATES, & ANGLES SHALL BE TURQUOISE COLOR.

SURVEY INFORMATION

BENCH MARKS
A.C.S. 1 3/4" ALUMINUM DISK, STAMPED "A.C.S. BM. 2-S13 EPOXIED TO TOP OF CONCRETE BASE OF GALV STL POLE #IC-28 AT ANGLE PT. IN THE ELECTRIC TRANSMISSION 248' +/- NORTHERLY OF THE BERNALLO/ SANDOVAL COUNTY LINE, 78.5' EASTERLY OF ℄ OF RIO RANCHO BLVD (SR 528) ON SW CORNER OF SAID CONC BASE. FIELD ELEV= 5215.872. SEE SHT 5 FOR LOCATION

AS-BUILT INFORMATION
CONTRACTOR DATE
STAKED BY DATE
ACCEPTANCE BY DATE
FIELD INSPECTION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
DAVID W. BERNARD 10016 REGISTERED PROFESSIONAL ENGINEER 22-96

NO. DATE REMARKS BY
DESIGN DESIGNED BY DMB DATE 5-96
REVISIONS DRAWN BY AAG DATE 5-96
CHECKED BY GEL DATE 5-96

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE • ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

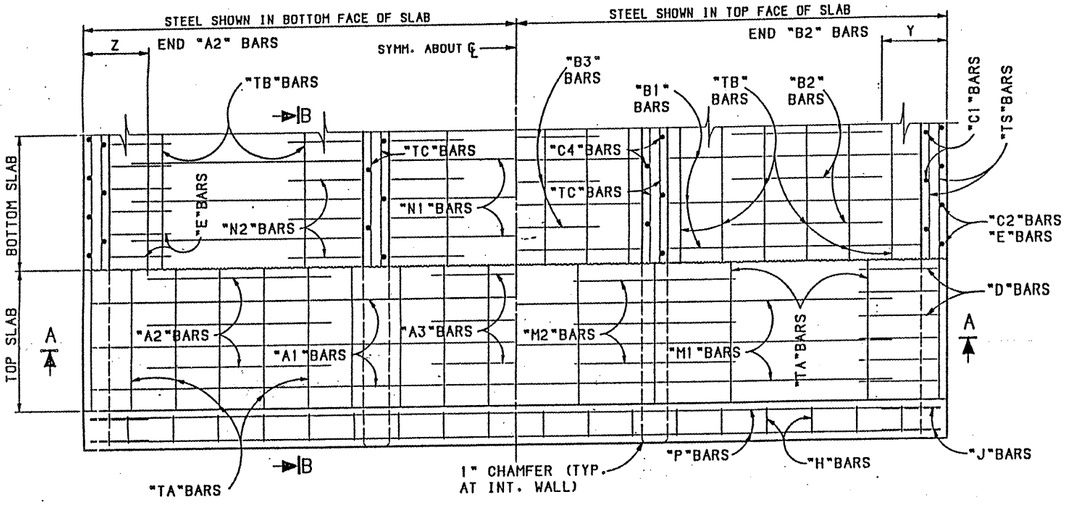
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: WESTSIDE BLVD.
CBC INLET/OUTLET TRANSITION DETAILS

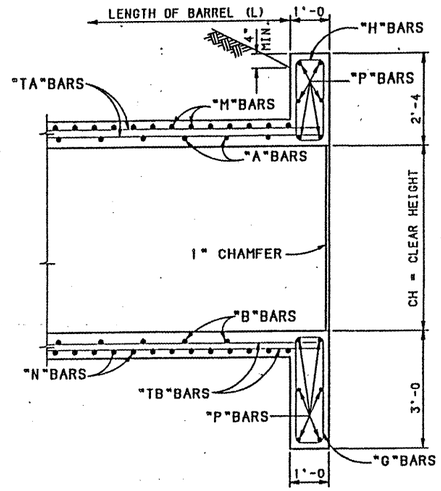
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.
			6/20/96	

CITY PROJECT NO. 3725 | ZONE MAP NO. A-13-Z | SHEET 12 OF 32

TRANS:[T95343A32222.ACAD]CBCDTL.DWG 8/19/96



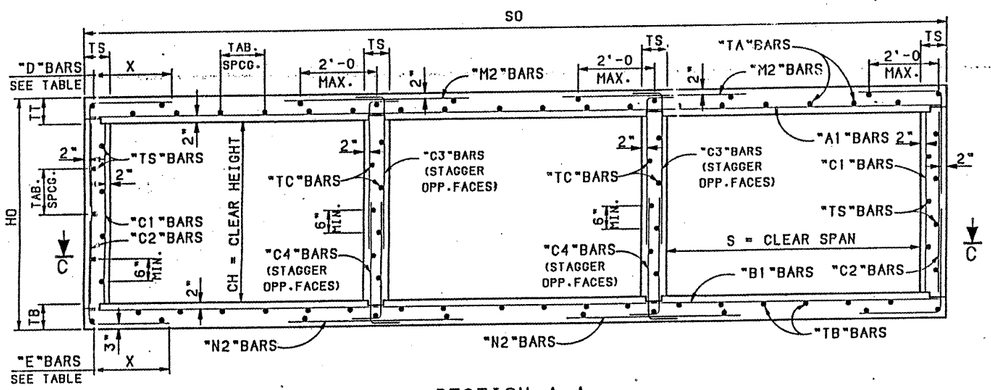
PART PLAN AND PART SECTION C-C



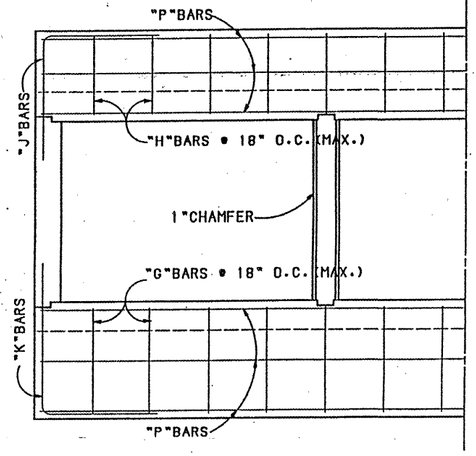
PART SECTION B-B

GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS "A". CHAMFER ALL THE EXPOSED EDGES 3/4".
2. ⚠ ALL REINFORCING STEEL TO BE DEFORMED BARS, CONFORMING TO AASHTO M-31, GRADE 60. ALL DIMENSIONS REFER TO THE CENTERLINE OF BAR.
3. WHEN NECESSARY, "T" BARS MAY BE SPLICED BY LAPPING AT LEAST 20 BAR DIAMETERS. PAY WEIGHT FOR REINFORCING STEEL DOES NOT INCLUDE SPLICES. THE COST OF THE SPLICE MATERIAL IS TO BE INCLUDED IN THE UNIT PRICE BID FOR REINFORCING STEEL.
4. VOLUME OF CONCRETE = (L) x (CONCRETE QUANTITY/LIN. FT.) PLUS CONCRETE AT ENDS.
5. WEIGHT OF REINFORCING STEEL = (L) x (WEIGHT OF REINF./LIN.FT.) PLUS WEIGHT AT ENDS.
6. PLACE "TA" BARS ON "A" BARS AND "TB" BARS UNDER "E" BARS, SPACED AS SHOWN IN THE TABLE, THE REMAINING "TA" BARS, AND "TB" BARS ARE TO BE PLACED ADJACENT TO THE "D", "E", "M", AND "N" BARS AS INDICATED IN "SECTION A-A", AT 2'-0 MAX.
7. PLACE "TS" BARS NEXT TO "C1" BARS, SPACED AS SHOWN IN THE TABLE; THE REMAINING "TS" BARS SHALL BE PLACED IN SIDEWALL NEXT TO "C2", "D", AND "E" BARS. WHEN "C1" BARS ARE NOT REQUIRED, PLACE ALL "TS" BARS NEXT TO "C2", "D", AND "E" BARS.
8. PLACE "A1", "A3", "B1", "B3", "M1", AND "N1" BARS SYMMETRICAL TO THE CENTERLINE OF THE BOX. PLACE "M2" AND "N2" BARS SYMMETRICAL TO THE CENTERLINE OF THE WALLS.
9. "COVER" IS HEIGHT OF FILL FROM TOP OF THE BOX TO THE FINISHED GRADE.



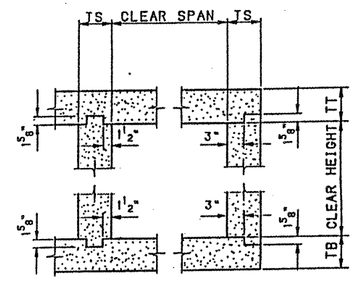
SECTION A-A



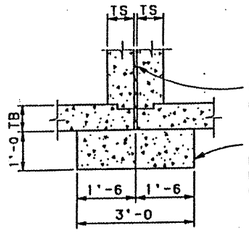
PART END ELEVATION

DESIGN DATA

DESIGN ACCORDING TO A.A.S.H.O. SPECIFICATIONS, 1957.
LIVE LOAD: H20-S16-44 & INTERSTATE ALTERNATE LOADING
WEIGHT OF FILL ON TOP OF BOX: 84#/CU.FT.
HORIZONTAL EARTH PRESSURE: 30#/CU.FT., 2' SURCHARGE
DESIGN STRESSES: f'c = 3000 psi, fs = 1200 psi.
fs = 20,000 psi, n = 10.



CONSTRUCTION JOINT DETAIL



½" PREFORMED BITUMINOUS JOINT FILLER SHALL BE USED BETWEEN ADJACENT UNITS AND IT SHALL EXTEND BETWEEN BARRELS, PARAPETS, AND CUT-OFF WALLS.

THE FOUNDATION BLOCK SHALL BE PLACED IN NEAT EXCAVATION AND EXTENDED FOR THE ENTIRE LENGTH OF BARREL UNDER JOINT BETWEEN UNITS. PLACE ONE LAYER OF TAR PAPER OVER THE ENTIRE TOP SURFACE OF THE FOUNDATION BLOCK. CONCRETE QUANTITY = 0.111 CU. YDS. PER LIN. FT. OF BLOCK.

JOINT DETAIL FOR MULTIPLE UNIT BOXES

NO.	DESCRIPTION	DATE	BY
6			
5			
4			
3			
2			
1	REVISED NOTE #2	6-8-94	PH

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONCRETE BOX CULVERT BARRELS
TRIPLE OPENING - NORMAL
ALL DESIGNS

GENERAL DATA

CITY PROJECT# 3725

LAYOUT BY
DRAWN BY
CHECKED BY

APPROVAL RECOMMENDED: BRIDGE ENGINEER — DATE 4/6/94
APPROVED: JOSEPH L. CHAVEZ, BRIDGE ENGINEER DIRECTOR — DATE 2-22-94

SERIAL CB-33

SHEET 13 OF 32

PLOT DATE: 10/28/93

DESIGNED BY: H.T. 10/60 CHECKED BY: S.J.M. 10/93
DETAILED BY: J.A.K. 10/93 CHECKED BY: R.A. 10/93

BRIDGE#1/STANDARDS/BRIDGE/STANDARDS#16

N. M. P. ..... SHEET .....

CLEAR SPAN	CLEAR HEIGHT	DIMENSIONS TT	TS	TB	SO	HO	Y	Z	QUANTITIES PER L.F. OF BARREL: REINFORCING STEEL POUNDS PER L.F.	CONCRETE CU. YDS. PER L.F.	QUANTITIES AT ONE END *: REINFORCING STEEL POUNDS	CONCRETE CU. YDS.
4	2	7"	6"	6½"	14'-0	3'-1½	----	----	115.8	0.731	337	2.91
	3	7"	6"	6½"	14'-0	4'-1½	----	----	122.8	0.806	347	2.99
	4	7"	6"	6½"	14'-0	5'-1½	----	----	124.3	0.880	355	3.06
6	2	7½"	6"	7"	20'-0	3'-2½	1'-0	2"	185.4	1.043	472	4.10
	3	7½"	6"	7"	20'-0	4'-2½	1'-0	2"	191.0	1.117	460	4.17
	4	7½"	6"	7"	20'-0	5'-2½	1'-0	2"	197.6	1.191	493	4.25
	5	7½"	6"	7"	20'-0	6'-2½	1'-0	2"	210.4	1.285	505	4.32
	6	7½"	6"	7"	20'-0	7'-2½	1'-0	2"	227.9	1.339	550	4.40
8	4	8"	6"	8½"	26'-0	5'-4½	1'-0	2"	292.4	1.620	790	5.43
	5	8"	6"	8½"	26'-0	6'-4½	1'-0	2"	314.7	1.694	804	5.51
	6	8"	6"	8½"	26'-0	7'-4½	1'-0	2"	333.4	1.769	816	5.59
	7	8"	7"	8½"	26'-4	8'-4½	1'-0	2"	347.3	1.946	882	5.82
	8	8"	8"	8½"	26'-8	9'-4½	1'-0	2"	359.3	2.148	905	6.07
10	4	9"	6½"	9½"	32'-2	5'-6½	1'-3	2"	370.3	2.158	1144	6.68
	5	9"	6½"	9½"	32'-2	6'-6½	1'-3	2"	382.5	2.238	1157	6.76
	6	9"	6"	9½"	32'-0	7'-6½	1'-3	2"	385.0	2.272	1201	6.77
	7	9"	7"	9½"	32'-4	8'-6½	1'-3	2"	411.6	2.451	1223	7.00
	8	9"	8"	9½"	32'-8	9'-6½	1'-3	2"	430.0	2.655	1262	7.26
	9	9"	8"	10"	32'-8	10'-7	1'-3	2"	455.1	2.804	1294	7.37
	10	9"	9"	10"	33'-0	11'-7	1'-3	-2"-	466.0	3.046	1318	7.66
	11	9"	9"	10"	33'-0	12'-7	1'-3	2"	487.3	3.157	1338	7.82
	12	9"	9"	10"	33'-0	13'-7	1'-3	2"	516.1	3.268	1363	8.00
12	6	10"	6½"	11"	38'-2	7'-9	2"	2"	480.7	2.955	1720	8.02
	8	10"	8"	11"	38'-8	9'-9	2"	2"	524.6	3.296	1803	8.44
	10	10"	9"	11"	39'-0	11'-9	2"	2"	574.9	3.639	1834	8.85
	12	10"	9"	11"	39'-0	13'-9	2"	2"	609.6	3.861	1898	9.18
14	8	11½"	8"	12"	44'-8	9'-11½	2"	2"	711.1	4.030	2464	9.63
	10	11½"	9"	12"	45'-0	11'-11½	2"	2"	730.2	4.375	2519	10.03
	12	11½"	9"	12½"	45'-0	14'-0	2"	2"	809.9	4.667	2521	10.37
	14	11½"	10"	12½"	45'-4	16'-0	2"	2"	846.8	5.086	2646	10.96

REINFORCING BARS

CLEAR SPAN	CLEAR HEIGHT	"A" BARS "A1" SIZE	"A1" LENGTH	"A2" SIZE	"A2" LENGTH	"A3" SIZE	"A3" LENGTH	"A" SPACING	"B" BARS "B1" SIZE	"B1" LENGTH	"B2" SIZE	"B2" LENGTH	"B3" SIZE	"B3" LENGTH	"B" SPACING
4	2	#5	13'-9	--	NONE	--	NONE	6"	#4	13'-9	--	NONE	--	NONE	12"
	3	#5	13'-9	--	NONE	--	NONE	6"	#4	13'-9	--	NONE	--	NONE	12"
	4	#5	13'-9	--	NONE	--	NONE	6"	#4	13'-9	--	NONE	--	NONE	12"
6	2	#5	18'-6	#6	5'-9	#5	5'-0	12"	#4	19'-9	#4	5'-0	--	NONE	14"
	3	#5	18'-6	#6	5'-9	#5	5'-0	12"	#4	19'-9	#4	5'-0	--	NONE	14"
	4	#5	18'-6	#6	5'-9	#5	5'-0	12"	#4	19'-9	#4	5'-0	--	NONE	14"
	5	#5	18'-6	#6	5'-9	#5	5'-6	12"	#4	19'-9	#4	5'-6	--	NONE	13"
	6	#5	18'-6	#6	5'-9	#5	5'-9	11"	#4	19'-9	#4	5'-9	--	NONE	12"
8	4	#5	25'-9	#7	7'-9	#6	6'-3	12"	#4	25'-9	#4	6'-6	--	NONE	11"
	5	#5	25'-9	#7	7'-9	#6	6'-3	12"	#4	25'-9	#4	6'-6	--	NONE	10½"
	6	#5	25'-9	#7	7'-9	#6	6'-3	11½"	#4	25'-9	#4	6'-6	--	NONE	10"
	7	#5	26'-0	#7	8'-0	#6	6'-6	12"	#5	26'-0	#4	6'-6	--	NONE	14"
	8	#5	26'-3	#8	8'-0	#7	6'-6	15"	#5	26'-3	#4	6'-6	--	NONE	14"
10	4	#6	29'-6	#6	9'-6	#5	7'-3	12"	#4	32'-0	#4	6'-9	--	NONE	9"
	5	#6	29'-6	#6	9'-6	#5	7'-6	12"	#4	32'-0	#4	7'-0	--	NONE	9"
	6	#6	29'-6	#7	9'-6	#6	8'-0	14"	#4	31'-9	#5	7'-6	--	NONE	9"
	7	#6	30'-0	#6	9'-6	#5	8'-0	12"	#5	32'-0	#5	7'-0	--	NONE	14"
	8	#6	30'-3	#6	9'-6	#5	8'-0	12"	#5	32'-3	#4	7'-0	--	NONE	12"
	9	#6	30'-3	#6	9'-6	#5	8'-0	12"	#5	32'-3	#4	7'-0	--	NONE	12"
	10	#6	30'-6	#6	9'-6	#5	8'-0	12"	#5	32'-9	#4	7'-0	--	NONE	12"
	11	#6	30'-6	#6	9'-6	#5	8'-0	12"	#5	32'-9	#4	7'-0	--	NONE	11½"
	12	#6	30'-6	#5	9'-6	#5	8'-0	11"	#5	32'-9	#4	7'-0	--	NONE	11"
12	6	#5	33'-0	#8	11'-9	#7	10'-0	14"	#4	30'-6	#7	11'-6	#4	6'-0	14"
	8	#5	32'-6	#8	13'-0	#7	10'-3	14"	#4	30'-6	#7	11'-6	#4	6'-3	14"
	10	#5	32'-0	#8	13'-0	#7	10'-6	14"	#4	30'-9	#7	11'-6	#5	6'-6	14"
	12	#5	31'-9	#8	13'-0	#7	10'-6	14"	#4	30'-9	#7	11'-6	#5	6'-9	14"
14	8	#5	40'-0	#6	13'-0	#5	10'-6	9"	#5	40'-0	#5	12'-0	--	NONE	9"
	10	#5	40'-0	#6	13'-3	#5	10'-9	9"	#5	40'-0	#5	12'-0	--	NONE	9"
	12	#5	39'-9	#6	13'-6	#5	11'-0	9"	#6	40'-0	#5	12'-0	--	NONE	12"
	14	#5	39'-6	#6	14'-0	#5	11'-3	9"	#6	40'-0	#5	12'-0	--	NONE	10½"

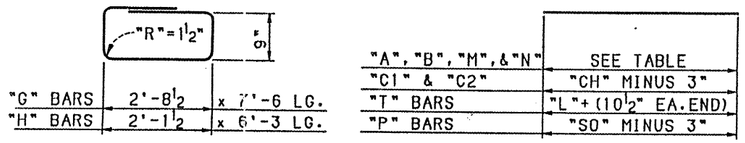
CLEAR SPAN	CLEAR HEIGHT	"B" BARS "B2" SIZE	"B2" LENGTH	"B3" SIZE	"B3" LENGTH	"B" SPACING	"C" BARS "C1" SIZE	"C1" SPACING	"C2" SIZE	"C2" SPACING	C3 SIZE	C3 LENGTH	C4 LENGTH	"C" SPACING
4	2	--	NONE	--	NONE	12"	NONE		NONE		#4	2'-3	2'-3	12"
	3	--	NONE	--	NONE	12"	NONE		NONE		#4	2'-9	2'-9	12"
	4	--	NONE	--	NONE	12"	NONE		NONE		#4	3'-3	3'-3	13"
6	2	--	NONE	--	NONE	14"	NONE		NONE		#4	2'-3	2'-3	9"
	3	--	NONE	--	NONE	14"	NONE		NONE		#4	2'-9	2'-9	9"
	4	--	NONE	--	NONE	14"	NONE		NONE		#4	3'-3	3'-3	9"
	5	--	NONE	--	NONE	13"	NONE		NONE		#4	4'-3	3'-3	9"
	6	--	NONE	--	NONE	12"	NONE		NONE		#4	5'-3	3'-3	9"
8	4	--	NONE	--	NONE	11"	NONE		NONE		#5	4'-3	3'-0	10"
	5	--	NONE	--	NONE	10½"	NONE		NONE		#5	5'-3	3'-0	10"
	6	--	NONE	--	NONE	10"	NONE		NONE		#5	6'-3	3'-0	10"
	7	--	NONE	--	NONE	14"	#4	18"	NONE		#5	7'-3	3'-0	12"
	8	--	NONE	--	NONE	14"	#4	18"	#5	13"	#5	8'-3	3'-0	14"
10	4	--	NONE	--	NONE	9"	NONE		NONE		#5	4'-3	3'-0	10½"
	5	--	NONE	--	NONE	9"	NONE		NONE		#5	5'-0	3'-3	10½"
	6	--	NONE	--	NONE	9"	NONE		NONE		#5	5'-9	3'-6	12"
	7	--	NONE	--	NONE	14"	NONE		NONE		#5	7'-3	3'-0	12"
	8	--	NONE	--	NONE	12"	NONE		#5	13"	#5	8'-3	3'-0	12"
	9	--	NONE	--	NONE	12"	#4	13"	#5	13"	#5	9'-3	3'-0	12"
	10	--	NONE	--	NONE	12"	#4	13"	#5	12"	#5	10'-3	3'-0	15"
	11	--	NONE	--	NONE	11½"	#4	12"	#5	12"	#5	11'-3	3'-0	15"
	12	--	NONE	--	NONE	11"	#5	14"	#5	11"	#5	12'-3	3'-0	11"
12	6	#4	30'-6	#7	11'-6	14"	NONE		NONE		#5	6'-0	3'-6	12"
	8	#4	30'-6	#7	11'-6	14"	#4	18"	#6	15"	#5	8'-0	3'-6	12"
	10	#4	30'-9	#7	11'-6	14"	#4	18"	#6	12"	#5	10'-0	3'-6	12"
	12	#5	30'-9	#7	11'-6	14"	#4	18"	#6	12"	#5	12'-0	3'-6	12"
14	8	#5	40'-0	#5	12'-0	9"	#4	18"	NONE		#6	8'-9	3'-6	15"
	10	#5	40'-0	#5	12'-0	9"	#4	18"	#5	11"	#6	10'-9	3'-6	11"
	12	#5	40'-0	#5	12'-0	9"	#6	12"	#5	9"	#6	12'-9	3'-6	9"
	14	#5	40'-0	#5	12'-0	9"	#6	10½"	#6	10½"	#6	14'-9	3'-6	10½"

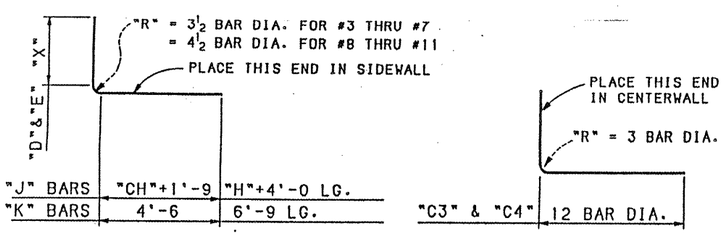
CLEAR SPAN	CLEAR HEIGHT	"M" BARS "M1" SIZE	"M1" LENGTH	"M2" SIZE	"M2" LENGTH	"M" SPACING	"N" BARS "N1" SIZE	"N1" LENGTH	"N2" SIZE	"N2" LENGTH	"N" SPACING	"D" SIZE	"D" LENGTH	"D" "X"	"D" SPACING
4	2	#4	12'-6	#4	3'-9	12"	#4	12'-6	#4	3'-3	18"	#5	3'-6	1'-6	12"
	3	#4	12'-6	#4	3'-9	12"	#4	12'-6	#4	3'-3	18"	#5	4'-0	1'-6	12"
	4	#4	12'-6	#4	3'-9	13"	#4	12'-6	#4	3'-3	18"	#5	4'-6	1'-6	13"
6	2	#4	18'-6	#6	5'-0	18"	#4	18'-6	#6	7'-0	12"	#5	3'-6	1'-6	13"
	3	#4	18'-6	#6	5'-0	18"	#4	18'-6	#6	7'-0	12"	#5	4'-3	1'-6	12"
	4	#4	18'-6	#6	5'-0	18"	#4	18'-6	#6	7'-0	12"	#6	5'-0	1'-6	18"
	5	#4	18'-6	#6	5'-3	18"	#4	18'-6	#6	7'-0	13"	#6	5'-6	1'-6	15"
	6	#4	18'-6	#6	5'-6	18"	#4	18'-6	#6	7'-3	14"	#7	6'-3	1'-6	18"
8	4	#4	24'-0	#6	6'-3	12"	#4	24'-0	#6	6'-0	11"	#6	4'-3	1'-6	11"
	5	#4	25'-6	#6	6'-9	12"	#4	25'-6	#6	6'-9	10½"	#6	4'-8	1'-6	10½"
	6	#4	25'-6	#6	7'-9	12"	#4	25'-6	#6	7'-9	11"	#6	5'-6	1'-6	10½"
	7	#4	25'-6	#6	8'-6	12"	#4	25'-6	#7	8'-6	14"	#7	6'-9	1'-6	14"
	8	#4	25'-6	#7	9'-6	13"	#4	25'-6	#7	9'-6	13"	#7	4'-6	1'-6	13"
10	4	#5	30'-0	#6	7'-0	10½"	#5	30'-0	#6	6'-0	10½"	#6	4'-3	1'-6	10"
	5	#5	30'-0	#6	7'-0	10½"	#5	30'-0	#6	6'-0	10½"	#6	4'-6	1'-6	10"
	6	#5	30'-0	#7	7'-6	12"	#4	30'-0	#7	6'-3	12"	#7	5'-6	1'-6	12"
	7	#5	30'-0	#7	7'-6	12"	#5	30'-0	#7	6'-3	12"	#7	6'-9	1'-9	12"
	8	#5	30'-0	#7	7'-3	12"	#5	29'-6	#7	7'-3	12"	#7	6'-0	2'-3	12"
	9	#5	29'-0	#7	7'-3	12"	#5	29'-3	#7	6'-3	12"	#7	6'-0	2'-3	15"
	10	#5	28'-9	#7	7'-3	12"	#5	28'-3	#7	6'-6	12"	#7	6'-3	2'-6	12"
	11	#5	28'-9	#7	7'-3	12"	#5	27'-9	#7	6'-6	12"	#7	6'-6	2'-9	12"
	12	#5	28'-9	#7	7'-3	12"	#5	27'-9	#7	6'-9	12"	#7	6'-6	2'-9	12"
12	6	#5	37'-3	#8	7'-6	12"	#4	37'-3	#8	5'-9	12"	#8	5'-6	1'-6	13"
	8	#5	37'-3	#8	7'-6	12"	#4	37'-3	#8	6'-0	12"	#8	4'-9	1'-8	15"
	10	#5	37'-0	#8	7'-6	12"	#5	37'-0	#8	6'-0	12"	#8	5'-0	1'-11	12"
	12	#5	37'-0	#8	7'-6	12"	#5	37'-0	#8	6'-0	12"	#8	5'-0	1'-11	12"
14	8	#5	36'-9	#8	7'-6	12"	#5	36'-9	#8	6'-0	12"	#8	5'-3	2'-2	12"
	10	#5	40'-0	#8	8'-3	12"	#7	40'-0	#8	7'-3	12"	#8	9'-6	3'-0	12"
	12	#5	40'-0	#8	8'-3	12"	#6	40'-0	#8	7'-3	11"	#8	9'-6	3'-0	12"
	14	#5	40'-0	#8	8'-3	10½"	#5	40'-0	#8	7'-3	10½"	#8	7'-0	3'-3	10½"

CLEAR SPAN	CLEAR HEIGHT	"D" "E" SPACING	"E" SIZE	"E" LENGTH	"E" "X"	"E" SPACING	"TA" NO.	"TA" SIZE	"TA" SPACING	"TB" NO.	"TB" SIZE	"TB" SPACING	"TC" NO.	"TC" SIZE	"TC" SPACING	"TS" NO.	"TS" SIZE	"TS" SPACING	G.H NO. OF EA. AT 1 END
4	2	12"	#4	3'-6	1'-6	12"	19	#4	16"	19	#4	16"	6	#4	18"	4	#4	18"	9
	3	12"	#4	4'-0	1'-6	12"	19	#4	16"	19	#4	16"	8	#4	18"	6	#4	15"	9
	4	13"	#4	4'-6	1'-6	13"	19	#4	16"	19	#4	16"	10	#4	18"	6	#4	18"	9
6	2	13"	#5	3'-6	1'-6	15"	31	#4	16"	25	#4	18"	6	#4	18"	4	#4	18"	12
	3	12"	#4	4'-3	1'-6	12"	31	#4	16"	25	#4	18"	8	#4	18"	6	#4	15"	12
	4	18"	#5	4'-3	1'-6	18"	31	#4	16"	25	#4	18"	10	#4	18"	6	#4	18"	12
	5	15"	#5	4'-6	1'-6	15"	31	#4	16"	25	#4	18"	14	#4	18"	8	#4	18"	12
	6	18"	#6	5'-0	1'-6	18"	31	#4	16"	25	#4	18"	16	#4	18"	10	#4	15"	12
8	4	14"	#5	5'-3	1'-6	11"	43	#4	14"	34	#4	16"	10	#4	18"	6	#4	18"	18
	5	10½"	#5	6'-0	1'-6	10½"	43	#4	14"	34	#4	16"	14	#4	18"	8	#4	16"	18
	6	10½"	#5	6'-6	1'-6	10½"	43	#4	14"	34	#4	16"	16	#4	18"	10	#4	15"	18
	7	14"	#6	5'-6	1'-6	14"	40	#4	17"	34	#4	16"	18	#4	18"	10	#4	18"	18
	8	13"	#6	4'-3	1'-6	13"	37	#4	16"	34	#4	16"	22	#4	18"	22	#4	18"	18
10	4	10"	#5	5'-3	1'-6	10"	49	#4	16"	43	#4	18"	10	#4	18"	6	#4	18"	21
	5	10"	#5	6'-0	1'-6	10"	49	#4	16"	43	#4	18"	14	#4	18"	8	#4	16"	21
	6	10"	#6	6'-3	1'-6	12"	49	#4	16"	43	#4	18"	18	#4	18"	10	#4	18"	21
	7	12"	#6	6'-9	1'-9	12"	49	#4	16"	43	#4	18"	18	#4	18"	10	#4	18"	21
	8	12"	#7	6'-0	2'-3	12"	49	#4	16"	43	#4	18"	22	#4	18"	12	#4	17"	21
	9	15"	#7	6'-0	2'-3	15"	49	#4	16"	43	#4	18"	24	#4	18"	24	#4	18"	21
	10	12"	#7	6'-3	2'-6	12"	49	#4	16"	43	#4	18"	24	#4	18"	24	#4	18"	21
	11	12"	#7	6'-6	2'-9	12"	49	#4	16"	43	#4	18"	26	#4	18"	26	#4	18"	21
	12	12"	#7	7'-0	3'-3	12"	49	#4	16"	43	#4	18"	26	#4	18"	26	#4	18"	21
12	6	13"	#7	6'-0	1'-6	13"	64	#4	15"	52	#4	18"	16	#4	18"	10	#4	15"	24
	8	15"	#8	4'-9	1'-8	15"	64	#4	15"	52	#4	18"	22	#4	18"	22	#4	18"	24
	10	12"	#7	5'-0	1'-11	12"	64	#4	15"	52	#4	18"	26	#4	18"	26	#4	18"	24
	12	12"	#8	5'-3	2'-2	12"	61	#4	15"	52	#4	18"	32	#4	18"	32	#4	18"	24
14	8	12"	#8	5'-3	3'-1	12"	79	#4	13"	64	#4	16"	22	#4	18"	22	#4	18"	30
	10	12"	#7	8'-0	3'-3	11"	79	#4	13"	64	#4	16"	26	#4	18"	26	#4	18"	30
	12	9"	#7	7'-0	3'-3	9"	79	#4	13"	64	#4	16"	32	#4	18"	32	#4	18"	30
	14	12"	#8	7'-0	3'-3	10½"	79	#4	13"	64	#4	16"	38	#4	18"	38	#4	18"	30

* NOTE: QUANTITIES "AT ONE END" INCLUDE PARAPET, CUT-OFF WALL, AND BARREL BEYOND LENGTH "L". WINGWALL QUANTITIES ARE NOT INCLUDED.

"P" BARS						
CLEAR SPAN	4'	6'	8'	10'	12'	14'
SIZE	#5	#5	#6	#7	#8	#9





NOTE: "J" BARS ARE THE SAME SIZE AS "D" BARS.
"K" BARS ARE THE SAME SIZE AS "E" BARS.

REINFORCING STEEL DIAGRAM

NUMBER OF BARS REQUIRED

"A1", "A3", "B1", "B3", "M1", & "N1" BARS: 12L ÷ SPACING
"A2", "B2", "C2", "D", "E", "M2", & "N2" BARS: 24L ÷ SPACING
"P" BARS: 12 FOR CUT-OFF & PARAPET AT EACH END
"C1" BARS: (24L ÷ SPACING) PLUS
2 AT EACH END
"C3" & "C4" BARS: (48L ÷ SPACING) PLUS
4 AT EACH END
"J" & "K" BARS: 4 OF EACH AT EACH END
(FOR PARAPET AND CUT-OFF WALL)

OTHER BARS: SEE TABLE
"L" = LENGTH OF BARREL IN FEET
"CH" = CLEAR HEIGHT

NOTE: REFER TO SERIAL CB-33 SHEET 1 OF 5 FOR CONCRETE BOX CULVERT DETAILS, DESIGN DATA, AND GENERAL NOTES.

NO.	DESCRIPTION	DATE	BY
6			
5			
4			
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONCRETE BOX CULVERT BARRELS
TRIPLE OPENING - NORMAL
DESIGN No. 1
0' TO 5' COVER

CITY PROJECT #3725

LAYOUT BY
DRAWN BY
CHECKED BY
APPROVAL RECOMMENDED: BRIDGE ENGINEER — DATE 4/14/94
APPROVED: BUREAU CHIEF — DATE 4-22-94

SERIAL CB-33 SHEET 14 OF 32

DESIGNED BY: H.T 1/61 CHECKED BY: S.J.M. 10/93
DETAILED BY: J.A.K. 10/93 CHECKED BY: R.A. 10/93
PLOT DATE: 10/28/93

BRIDGE#1/STANDARDS/BRIDGE/STANDARDS#16A

N. M. P. ..... SHEET. . . .

POINT DATA

POINT	STATION	OFFSET	INV ELEV
1	52+18.89	148.09' RT	5201.80+-
2	52+01.40	56.79' RT	5202.53
3	52+35.23	89.38' LT	5203.58
4	52+65.93	107.92' LT	5203.86
5	52+92.11	165.49' LT	5205.30+-

GENERAL NOTES:

① BUILD 3' DEPTH CONCRETE CUTOFF WALL.

② BUILD DIVERSION CHANNEL/BERM. SEE TYPICAL SECTION THIS SHEET. ACTUAL ALIGNMENT MAY VARY PER CONTRACTOR OPTION.

③ TRANSITION FROM VEE DITCH TO FLAT BOTTOM CHANNEL AT TIE IN LOCATIONS.

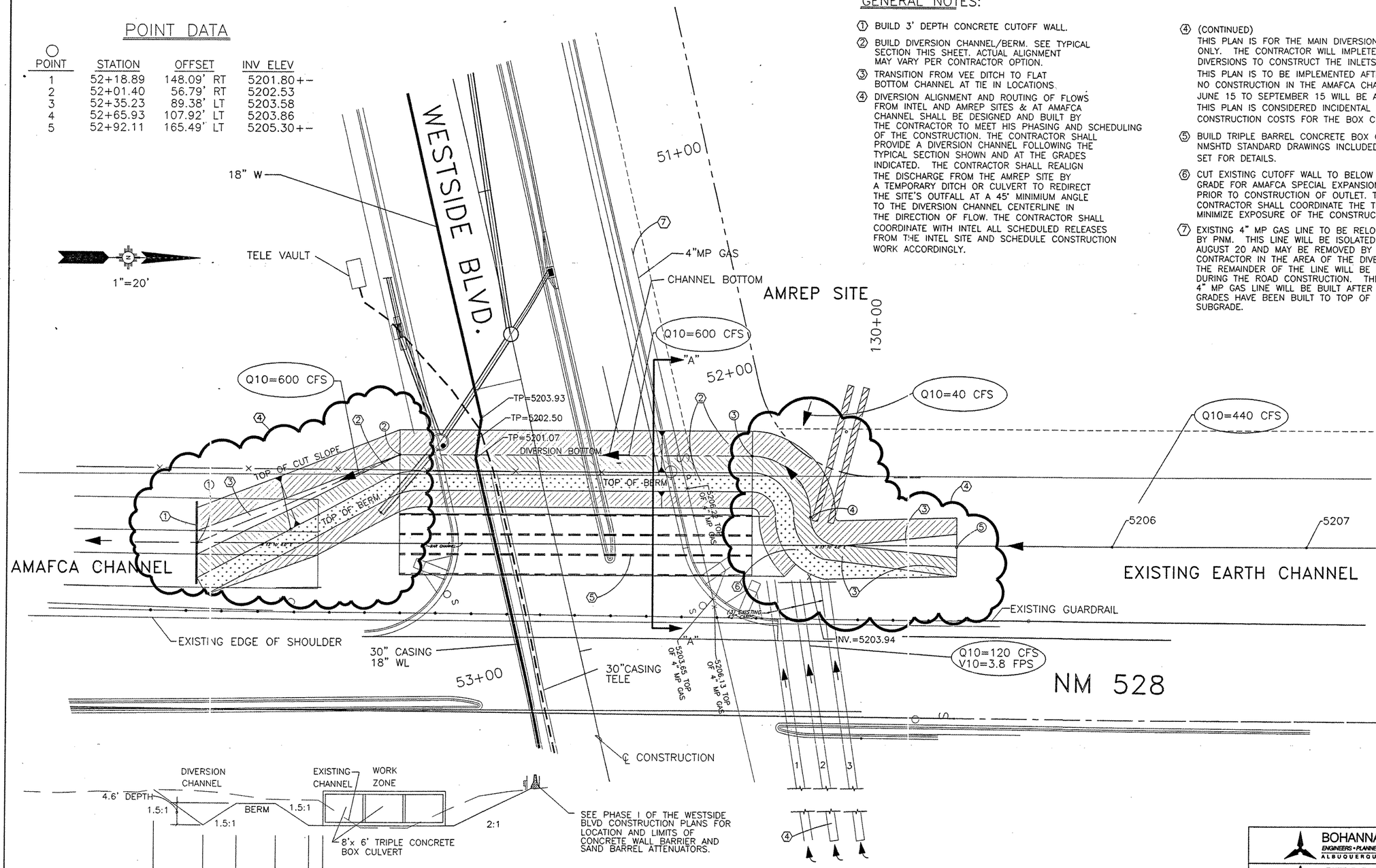
④ DIVERSION ALIGNMENT AND ROUTING OF FLOWS FROM INTEL AND AMREP SITES & AT AMAFCA CHANNEL SHALL BE DESIGNED AND BUILT BY THE CONTRACTOR TO MEET HIS PHASING AND SCHEDULING OF THE CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE A DIVERSION CHANNEL FOLLOWING THE TYPICAL SECTION SHOWN AND AT THE GRADES INDICATED. THE CONTRACTOR SHALL REALIGN THE DISCHARGE FROM THE AMREP SITE BY A TEMPORARY DITCH OR CULVERT TO REDIRECT THE SITE'S OUTFALL AT A 45° MINIMUM ANGLE TO THE DIVERSION CHANNEL CENTERLINE IN THE DIRECTION OF FLOW. THE CONTRACTOR SHALL COORDINATE WITH INTEL ALL SCHEDULED RELEASES FROM THE INTEL SITE AND SCHEDULE CONSTRUCTION WORK ACCORDINGLY.

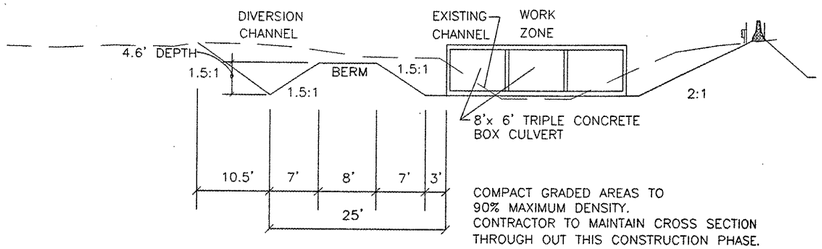
④ (CONTINUED)
THIS PLAN IS FOR THE MAIN DIVERSION CHANNEL ONLY. THE CONTRACTOR WILL IMPLETEMENT ADDITONAL DIVERSIONS TO CONSTRUCT THE INLETS & OUTLETS
THIS PLAN IS TO BE IMPLEMENTED AFTER SEPT 15, 1996
NO CONSTRUCTION IN THE AMAFCA CHANNEL FROM JUNE 15 TO SEPTEMBER 15 WILL BE ALLOWED.
THIS PLAN IS CONSIDERED INCIDENTAL TO THE CONSTRUCTION COSTS FOR THE BOX CULVERT.

⑤ BUILD TRIPLE BARREL CONCRETE BOX CULVERT. SEE NMSHTD STANDARD DRAWINGS INCLUDED IN THE PLAN SET FOR DETAILS.

⑥ CUT EXISTING CUTOFF WALL TO BELOW SLAB GRADE FOR AMAFCA SPECIAL EXPANSION JOINT PRIOR TO CONSTRUCTION OF OUTLET. THE CONTRACTOR SHALL COORDINATE THE TIMING TO MINIMIZE EXPOSURE OF THE CONSTRUCTION TO RUNOFF.

⑦ EXISTING 4" MP GAS LINE TO BE RELOCATED BY PNM. THIS LINE WILL BE ISOLATED BY AUGUST 20 AND MAY BE REMOVED BY THE CONTRACTOR IN THE AREA OF THE DIVERSION. THE REMAINDER OF THE LINE WILL BE REMOVED DURING THE ROAD CONSTRUCTION. THE NEW 4" MP GAS LINE WILL BE BUILT AFTER THE ROAD GRADES HAVE BEEN BUILT TO TOP OF FINISHED SUBGRADE.





CHANNEL/BERM TYPICAL SECTION

SECTION "A–A"

COMPACT GRADED AREAS TO 90% MAXIMUM DENSITY. CONTRACTOR TO MAINTAIN CROSS SECTION THROUGH OUT THIS CONSTRUCTION PHASE. CONTRACTOR WILL REPAIR ANY DAMAGE TO EARTH BERM AND CHANNEL.

SEE PHASE I OF THE WESTSIDE BLVD CONSTRUCTION PLANS FOR LOCATION AND LIMITS OF CONCRETE WALL BARRIER AND SAND BARREL ATTENUATORS.

AS-BUILT INFORMATION

BENCH MARKS
A.C.S. 1 3/4" ALUMINUM DISK, STAMPED "A.C.S. BM. 2-#13 EPOXIED TO TOP OF CONCRETE BASE OF GALV STL POLE #IC-28 AT ANGLE PT. IN THE ELECTRIC TRANSMISSION 248' +/- NORTHERLY OF THE BERNALILLO/ SANDOVAL COUNTY LINE, 78.5' EASTERLY OF ℄ OF RIO RANCHO BLVD (SR 528) ON SW CORNER OF SAID CONC BASE. FIELD ELEV= 5215.872. SEE SHT 5 FOR LOCATION

CONTRACTOR — DATE
STAKED BY — DATE
INSPECTORS — DATE
FIELD VERIFICATIONS BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL
ELLIS F. GREEN
10146
REGISTERED PROFESSIONAL ENGINEER
8/22/96

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY TG	DATE 8-96
		DRAWN BY TG/SG	DATE 8-96
		CHECKED BY TG	DATE 8-96

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: WESTSIDE BLVD.
CHANNEL DIVERSION PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
3725	A-13-Z	15	32

TRANS:[T95343A32222.SHEETS.DRAINAGE]PHASE2R.DWG 8\22\96 10:50 am