PUBLIC WORKS/HYDROLOGY
L10/D10

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L10/D10

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FILE COPY

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 11, 1990

Donald S. Dixon, P.E.
Holmes and Narver
6501 Americas Parkway, NE Suite #700
Albuquerque, New Mexico 87110

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR STREET MAINTENANCE FACILITY, (L-10/D10), ENGINEER'S STAMP DATED SEPTEMBER 26, 1990

Dear Mr. Dixon:

Based on the information provided on the referenced submittal, received September 27, 1990, the plan is approved by the Hydrology Development Section for Site Development Plan for EPC.

Prior to Site Development Plan approval by DRB, an infrastructure list will be required by our section for the public improvements.

Please be advised that prior to Work Order or Building Permit approval from our section, a detailed drainage plan will be required as per the DPM Checklist. Please check your runoff coefficients, they appear too low and in non-compliance with the Mayor's 1986 Emergency Rule.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology Development

GA
wp+2212

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: L-10 DATE: 20 August 90

EPC NO.: DRB NO.: ZONE:

SUBJECT: Street Maintenance Facility

STREET ADDRESS: Coors Blvd & Bridge Blvd

LEGAL DESCRIPTION: Lot 101 & 102, Town of Atrisco Grants Unit No. 6

APPROVAL REQUESTED:

___	PRELIMINARY PLAT	___	FINAL PLAT
X	SITE DEVELOPMENT PLAN	X	BUILDING PERMIT
___	GRADING/PAVING PERMIT	___	OTHER

ATTENDANCE:	WHO	REPRESENTING
	Don Dixon	Holmes & Narver
	Joe Alvens	"
	Gilbert Alcaz	City of Alb

FINDINGS:

1. Present Zoning is R-1, will change zoning to SU-1; therefore a conceptual grading and drainage plan required for site development approval.
2. Consultant to determine if detention pond adjacent to Coors Blvd if designed for free-discharge otherwise onsite detention ponding required if storm drain has limited capacity, address offsite flows.
3. Work order drawings required ~~f~~ for construction within R.O.W.
4. A drainage plan is required for Building Permit Approval.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	[signature]	SIGNED:	[signature]
TITLE:	Principal Architect	TITLE:	August 20, 1990
DATE:	8-20-90	DATE:	Civil Engineer

NOTE PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.

25× 32×

0000 0000 0904

CONCEPTUAL GRADING AND DRAINAGE REPORT

For The

CITY OF ALBUQUERQUE STREET MAINTENANCE FACILITY

Prepared By:

HOLMES & NARVER, INC.

6501 Americas Parkway, N.E. Suite 700
Albuquerque New Mexico 87110

SEPTEMBER 1990

0000 0000 0905

Holmes & Narver

September 26, 1990
230411L.053

Gilbert Aldaz, P.E.
City of Albuquerque
Public Works Department
Utility Development Division/Hydrology Section
P.O. Box 1293
Albuquerque, NM 87103

RE: STREET MAINTENANCE FACILITY

Dear Mr. Aldaz:

In accordance with our Pre-Design Conference of 20 August, 1990, Holmes & Narver, Inc. is pleased to submit this Conceptual Grading and Drainage Report for the above referenced project for your review and comment. The Report address site grading, off-site flows and the impact of this site development on the existing Detention Facility at Coors and Bridge.

If you have any questions, please don't hesitate to call.

Sincerely,

Donald Dixon

Donald Dixon, P.E.
Project Manager

DD/sch

CC: Project File
Master File

RECEIVED
SEP 27 19[illegible]
HYDROLOGY DIVISION

DONALD S. DIXON
NEW MEXICO
11043
REGISTERED PROFESSIONAL ENGINEER
9/26/90

6501 Americas Parkway, N.E. Suite 700
Albuquerque, New Mexico 87110
(505) 889-4100 • FAX: (505) 884-7231

25×10 32×10

0000 0000 0906

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Street Maint. Facility ZONE ATLAS/DRNG. FILE #: L-10

LEGAL DESCRIPTION: Lots 101 + 102, Town of Atrisco Grant, Unit Six

CITY ADDRESS: NA INTERSECTION of Bridge + Coors

ENGINEERING FIRM: Holmes + Narver Inc CONTACT: Donald Dixon PE

ADDRESS: 6501 Americas Pkwy NE 87110 PHONE: 889-4180

OWNER: City of Albuquerque CONTACT: Dean Wall

ADDRESS: Pino Yards Bldg F PHONE: 857-8025

ARCHITECT: Holmes + Narver CONTACT: Joe Almeks

ADDRESS: 6501 Americas Pkwy NE 87110 PHONE: 889-4100

SURVEYOR: NA CONTACT: ____

ADDRESS: ____ PHONE: ____

CONTRACTOR: NA CONTACT: ____

ADDRESS: ____ PHONE: ____

PRE-DESIGN MEETING:

✓ YES

___ NO

✓ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ____

EPC NO. ____

PROJECT NO. ____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

✓ CONCEPTUAL GRADING & DRAIN. PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

✓ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

OTHER ____ (SPECIFY)

RECEIVED SEP 27 [redacted] HYDROLOGY DIVISION

DATE SUBMITTED: 9/27/90

BY: Donald Dixon, PE

Rev. 11/84

25×10 32×10

0000 0000 0907

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: L-10 DATE: 20 August 90
EPC NO.: DRB NO.: ZONE:
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ATTENDANCE:	WHO	REPRESENTING
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	Joe Alvers	"
	Gilbert Alcaz	City of Alb

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SIGNED:	[signature]	SIGNED:	[signature]
TITLE:	Principal Architect	TITLE:	August 20, 1990
DATE:	8.20.90	DATE:	Civil Engineer

NOTE PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.

25×10 32×10

0000 0000 0908

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25×10 32×10

0000 0000 0909

CONCEPTUAL GRADING AND DRAINAGE PLAN
FOR CITY OF ALBUQUERQUE
STREET MAINTENANCE FACILITY

SITE DESCRIPTION:

The site under consideration for development as a Street Maintenance Facility is located at the intersection of Coors Boulevard and Bridge, Lots 101 & 102, Town of Atrisco Grant, Unit Six (Map L-10). Immediately south, across Bridge Boulevard, there is a city-owned storm water Detention Facility, and 1,100' to the west is located the Skyview subdivision. There are several parcels of undeveloped land, totaling some 20 acres, between the proposed site and the Skyview subdivision. See Figure 1.

EXISTING CONDITIONS:

Under existing conditions, the area west of Coors Boulevard slopes to the east at approximately 3-4%. Along its eastern boundary, the Skyview subdivision drains to Bridge Boulevard and then flows in roadside ditches to Coors Boulevard and the parcels to the west drain onto the proposed site. A low ridge, not shown on the 1980 Ortho-Topo map but probably constructed as part of the North-South Coors Connection, blocks flow onto Coors north of the Bridge/Coors intersection and forces runoff to drain toward south the intersection where it is captured by a series of catch basins that are part of the 72" Coors Storm Drain System. This system outfalls into the Detention Facility at Coors and Bridge. The Drainage Management Study - North/South Coors Connection considered the proposed site along with the adjacent areas as part of the contributing drainage basin for this Detention Facility, which was constructed as part of that project. This facility was originally designed as a temporary retention facility to be replaced by the Amole del Norte Channel. However, the subsequent design of the Amole del Norte System incorporated it as a Detention Facility to reduce peak flows.

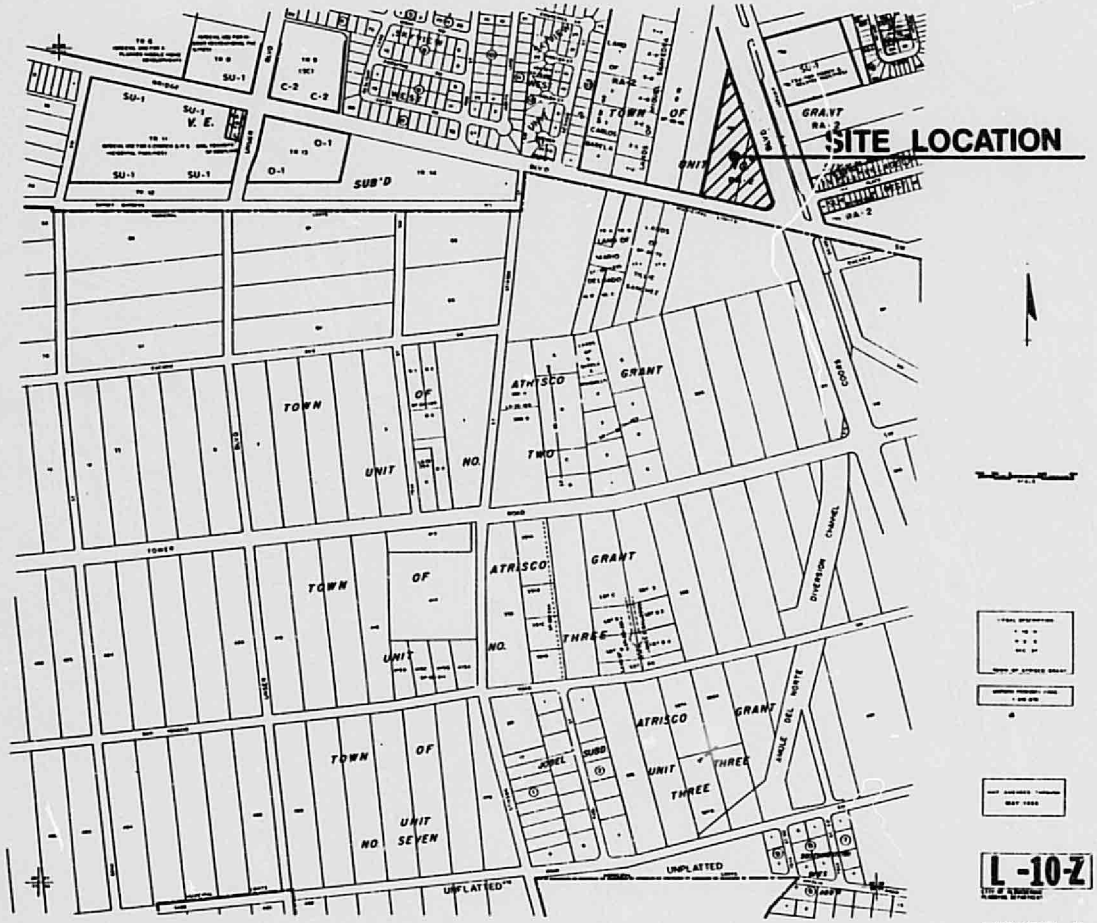
The Drainage Management Study - North/South Coors Connection reports the soil type as BCC - Bluepoint, a fine loamy sand. This soil is in hydrologic Soil Group "A". It has high infiltration rates, but is subject to wind and water erosion.

The 100-year runoff was calculated for the proposed site and the adjacent contributing areas utilizing the Rational Method. The results are reported in Table 1.

TABLE 1

AREA (Acres)	INTENSITY (in/hr)	PEAK FLOW (CFS)	VOLUME (Ac-Ft.)
25.2	4.65	42.2	.46

25×10 32×10



L-10-Z

FIGURE 1

25×10

32×10

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PROPOSED FUTURE CONDITIONS

The conceptual site development design is shown in Figure 2. The paved parking area will be surrounded by a 8-ft. CMU wall. Between this wall and the property line there will be a 40-ft. landscaped buffer that will also serve as drainage swale. Access to the site will be from Coors (entrance only) and Bridge (entrance and exit).

The rational Method was used to calculate the estimated 100-year runoff. The results are shown in Table 2.

TABLE 2

	AREA (Acres)	INTENSITY (in/hr)	PEAK FLOW (CFS)	VOLUME (Ac-Ft.)
Offsite	18.9	4.65	43.9	.79
Site	6.3	4.65	23.7	.68
TOTAL	25.2		67.6	1.47

The conceptual grading plan is shown in Exhibit A. Offsite flows will be diverted toward Bridge Boulevard where they will be picked up by a 36" culvert that will either outfall to the proposed Tierra Bayita storm drain or channel that is currently under design or directly to the Detention Facility itself. It is anticipated that runoff from the Skyview Subdivision will be intercepted by the Tierra Bayita Storm Drain System. The site will be graded so that runoff is carried away from buildings and walls and toward two drop inlets on the south end of the parking area. These drop inlets will be connected to either the 72" RCP Coors Storm Drain or the future Tierra Bayita Drainage System. Both of these systems outfall to the Detention Facility at Coors and Bridge.

This detention facility has a volume of 175 Ac-Ft. at spillway elevation according to the Preliminary Analysis Report for the Tierra Bayita Drainage Facilities. Under existing conditions, the 100-yr. runoff volume was reported to be 105.7 Ac-Ft. and under fully developed conditions, 160.8 ac-ft. Therefore, the facility should have the capacity to accept the additional 1.01 Ac-Ft. of runoff generated by the Street Maintenance Facility.

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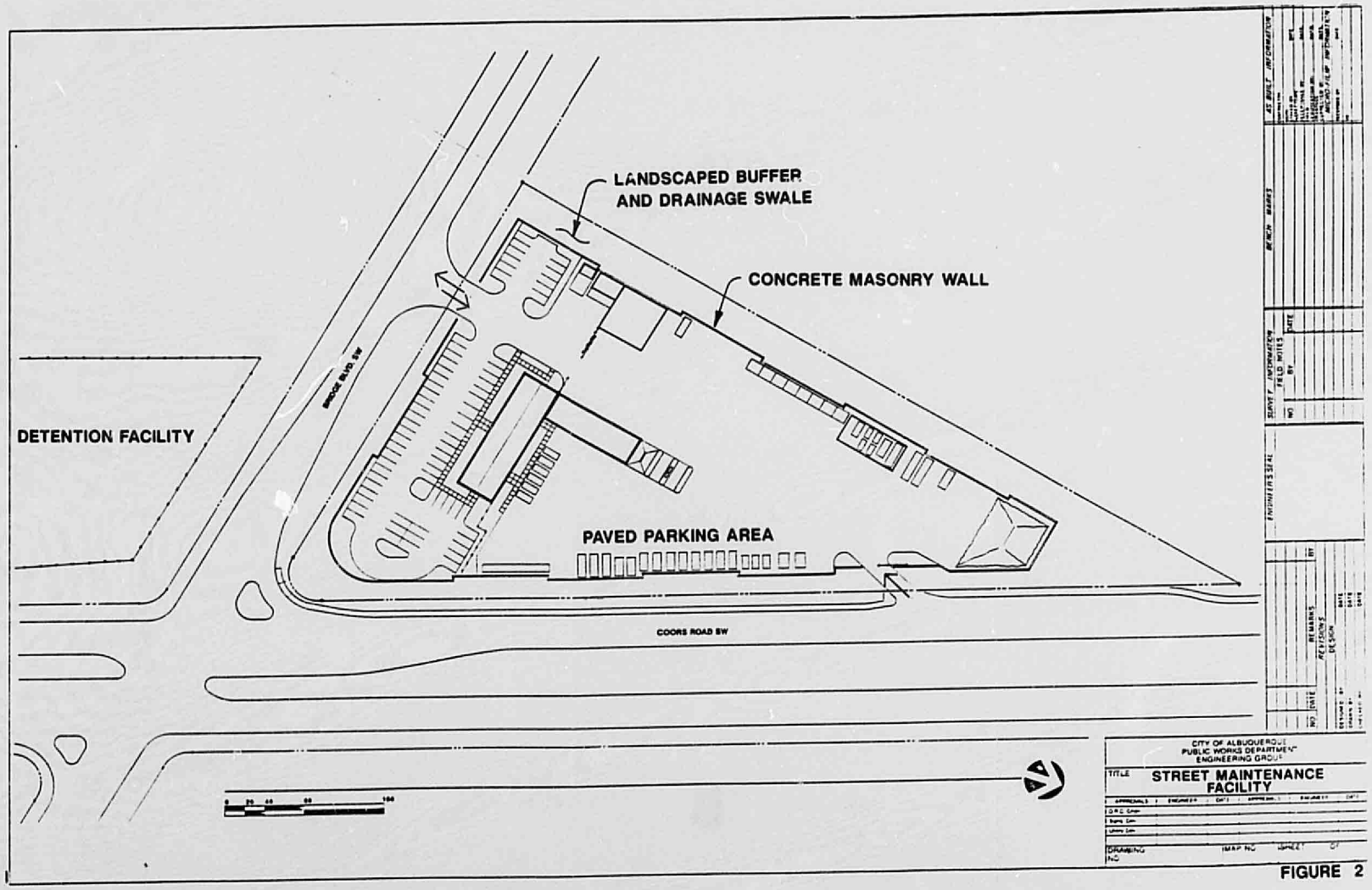

FIGURE 2

25×10 32×10 25×10

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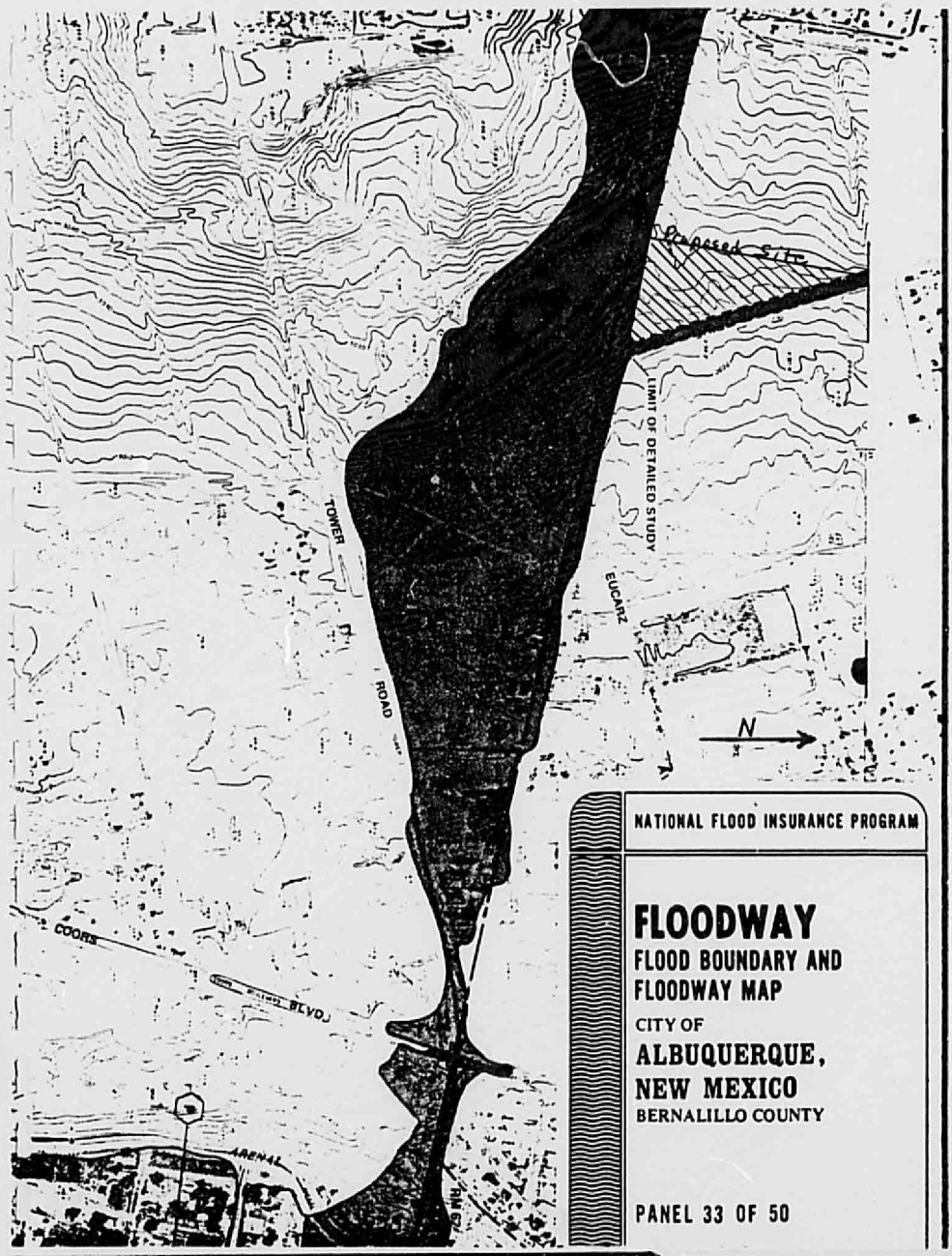

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF

ALBUQUERQUE, NEW MEXICO

BERNALILLO COUNTY

PANEL 33 OF 50

25×10 32×10

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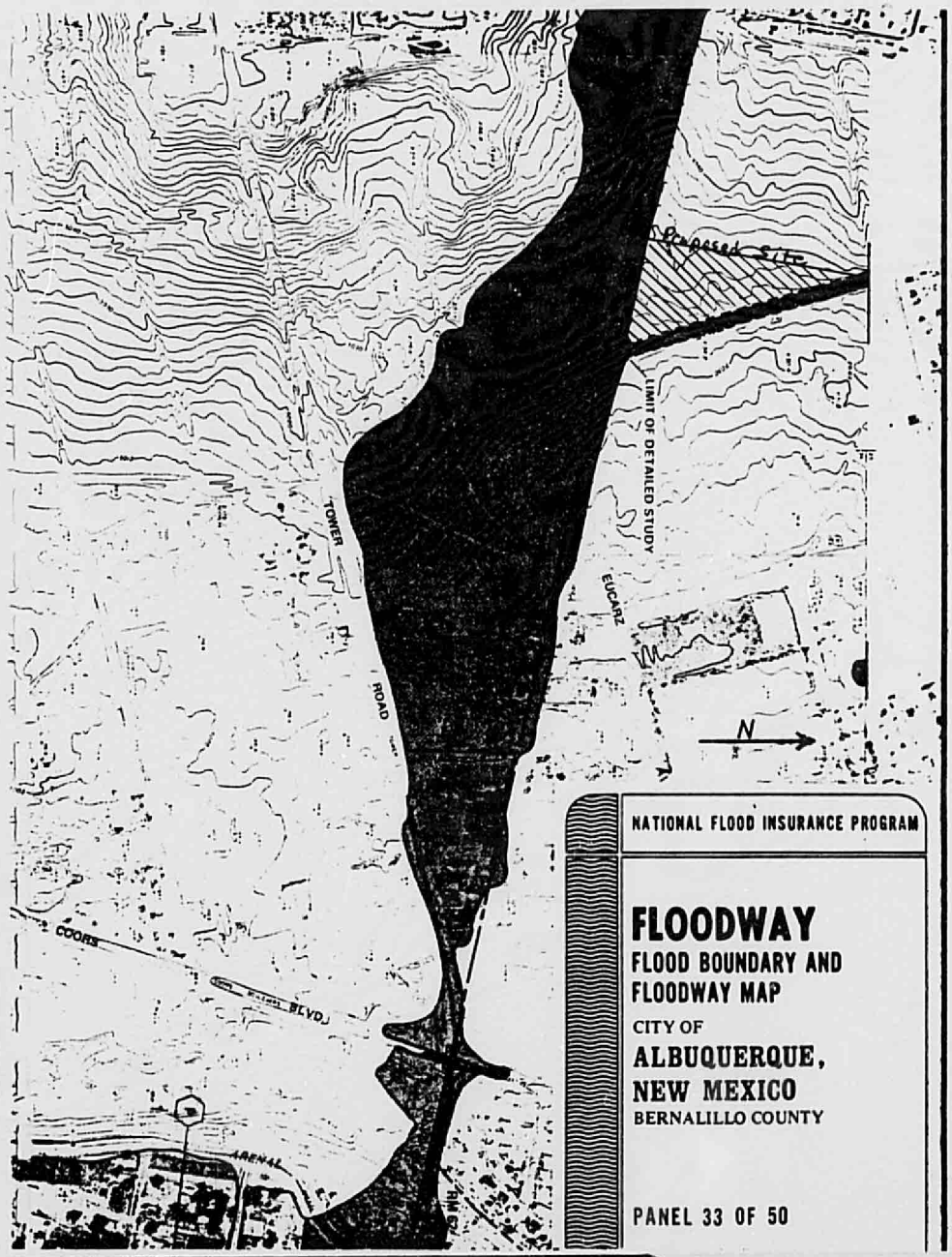

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF

ALBUQUERQUE, NEW MEXICO

BERNALILLO COUNTY

PANEL 33 OF 50

25×10 32×10

0000 0000 0915

REFERENCES

City of Albuquerque, Development Process Manual

Denney-Gross & Associates, Drainage Management Study North/South Coors Connection

Greiner Engineering, Preliminary Analysis Report for Amole Del Norte Storm Diversion Facilities: Tierra Bavita Drainage System

25×10 32×10

0000 0000 0916

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
Ameriwest Financial Center
6501 Americas Parkway, NE, Suite 700
Albuquerque, NM 87110

CHECKED _____ DATE _____
APPROVED _____ DATE _____
JOB NO. _____
SHEET _____ OF _____
TITLE Q100 Calculations
BY DAO DATE 8/23

Site Area: 4.9 Acres + Adj. Row = 6.3 Acres

Use rational method for preliminary design:

Composite $\bar{C}$:

$$\bar{C} = \frac{4.9 \times .90 + 1.4 \times .50}{6.3} = .81$$

For future conditions Assume 18.9 Acres to West are mixture of Residential + Commercial; $\bar{C} = .50$ very low

both Areas $T_c < 10$ based on what time and equation

$$i_{100} = (2.2)6.84(10)^{-.51} = 4.65$$

Offsite = .50(4.65) 7.1 = 16.5 cfs
Offsite = .50(4.65) 11.8 = 27.4 cfs
Qsite = .81(4.65)(6.3) = 23.7 use 24 cfs

Total 67.6 cfs

25×10 32×10

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HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
Ameriwest Financial Center
6501 Americas Parkway, NE, Suite 700
Albuquerque, NM 87110

CHECKED _____ DATE _____ JOB NO. _____
APPROVED _____ DATE _____ SHEET _____ OF _____
TITLE Q 100 CALCULATIONS BY DD DATE 9/20

Existing Conditions (100 yr)

$Q_{offsite} = .30(4.65)22.68 + .9(4.65)2.52 = 42.2$ cfs

to low check emergency rule

~~based~~

25×10 32×10

0000 0000 0918

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
Ameriwest Financial Center
6501 Americas Parkway, NE, Suite 700
Albuquerque, NM 87110

CHECKED _____ DATE _____ JOB NO. _____
APPROVED _____ DATE _____ SHEET _____ OF _____
TITLE Runoff Volume Calculations 100-yr BY [illegible] DATE 8/24

Runoff Volume, Existing Cond.

Soil Group A, Range, fair cond.

CN = 54 10% imp. CN = 90

Q = .10 inches Q = 1.13"

$Vol = \frac{Q}{12} \times Area\ (Acres)$

$Vol = \frac{.10}{12} \times 22.68 + \frac{1.3}{12}\ 2.52 = .46\ Ac\text{-}ft$

Runoff Volume, Developed

Site CN = 90 Q = 1.3"

Off-site CN = 75 Q = .5"

$Vol = \frac{.5}{12} \times 18.9 + \frac{1.3}{12}\ 6.3 = 1.47\ Ac\text{-}ft$

25×10 32×10

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HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
Ameriwest Financial Center
6501 Americas Parkway, NE, Suite 700
Albuquerque, NM 87110

CHECKED _____ DATE _____ JOB NO. _____
APPROVED _____ DATE _____ SHEET _____ OF _____
TITLE Q_{10} Calculations BY DM DATE 8/23

$P_{100} = 2.2''$ (Plate 22.2 01) $T_c = 10$

$P_{10} = .657(2.2) = 1.44''$

$i_{10} = (1.44)(6.84)(10)^{-.51} = 3.04$ in/hr

developed

$Q_{offsite} = .50(3.04)7.1 = 10.8$ cfs

$Q_{offsite} = .50(3.04)11.8 = 17.9$ cfs

$Q_{site} = .81(3.04)6.3 = 15.5$ cfs

Total 10yr = 44.2 cfs

Existing

(paved area)

$Q_{10} = .30(3.04)22.68 + .9(3.04)2.52 = \underline{27.6}$ cfs

25×10 32×10

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*** OPEN CHANNEL CALCULATIONS ***

HOLMES & WARNER, INC.
PROJECT NO.: 2304.10

TYPE OF CHANNEL: TRAPEZOIDAL
BOTTOM WIDTH (ft) : 10.00
LEFT SIDE SLOPE (ft/ft) : 4.00
RIGHT SIDE SLOPE (ft/ft) : 4.00

MAXIMUM DEPTH (ft) : 1.00

STATION	Q (cfs)	D (ft)	V (fps)	WP (ft)	A (sq.ft)	HR (ft)	SLOPE (ft/ft)	N
typ	1.99	0.10	1.91	10.82	1.04	0.10	0.01500	0.0200
typ	6.39	0.20	2.96	11.65	2.16	0.19	0.01500	0.0200
typ	12.75	0.30	3.80	12.47	3.36	0.27	0.01500	0.0200
typ	20.93	0.40	4.31	13.30	4.84	0.35	0.01500	0.0200
typ	30.86	0.50	5.14	14.12	6.00	0.42	0.01500	0.0200
typ	42.52	0.60	5.72	14.95	7.44	0.50	0.01500	0.0200
typ	55.93	0.70	6.24	15.77	8.96	0.57	0.01500	0.0200
typ	71.09	0.80	6.73	16.60	10.56	0.64	0.01500	0.0200
typ	88.03	0.90	7.19	17.42	12.24	0.70	0.01500	0.0200
typ	2.29	0.10	2.20	10.82	1.04	0.10	0.02000	0.0200
typ	7.38	0.20	3.42	11.65	2.16	0.19	0.02000	0.0200
typ	14.73	0.30	4.38	12.47	3.36	0.27	0.02000	0.0200
typ	24.16	0.40	5.21	13.30	4.64	0.35	0.02000	0.0200
typ	35.63	0.50	5.94	14.12	6.00	0.42	0.02000	0.0200
typ	49.10	0.60	6.60	14.95	7.44	0.50	0.02000	0.0200
typ	64.58	0.70	7.21	15.77	8.96	0.57	0.02000	0.0200
typ	82.08	0.80	7.77	16.60	10.56	0.64	0.02000	0.0200
typ	101.64	0.90	8.30	17.42	12.24	0.70	0.02000	0.0200

25×10 32×10

0000 0000 0921

HOLMES & NARVER, INC.
ENGINEERS-CONSTRUCTORS
Ameriwest Financial Center
6501 Americas Parkway, NE, Suite 700
Albuquerque, NM 87110

CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE _____

JOB NO. _____
SHEET _____ OF _____
BY DD DATE 9/20/91

Swale: $S \cong 1.5\% - 2\%$ Q_{100} (MAX) = 27.4 cfs

$b = 10'$

side slopes 4:1

$d \cong .4' \text{ to } .5'$

25×10 32×10

0000 0000 0922

CONCEPTUAL GRADING AND DRAINAGE REPORT

For The

CITY OF ALBUQUERQUE STREET MAINTENANCE FACILITY

Prepared By:

HOLMES & NARVER, INC.
6501 Americas Parkway, N.E. Suite 700
Albuquerque New Mexico 87110

SEPTEMBER 1990

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Holmes & Narver

RECEIVED
SEP 27 1990
HYDROLOGY DIVISION

September 26, 1990
230411L.058

Gilbert Aldaz, P.E.
City of Albuquerque
Public Works Department
Utility Development Division/Hydrology Section
P.O. Box 1293
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RE: STREET MAINTENANCE FACILITY

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If you have any questions, please don't hesitate to call.

Sincerely,

Donald Dixon

Donald Dixon, P.E.
Project Manager

DD/sch

CC: Project File
Master File

DONALD S. DIXON
NEW MEXICO
11043
REGISTERED PROFESSIONAL ENGINEER
9/26/90

6501 Americas Parkway, N.E. Suite 700
Albuquerque, New Mexico 87110
(505) 889-4100 • FAX: (505) 884-7231

25×10 32×10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Street Maint. Facility ZONE ATLAS/DRNG. FILE #: L-10/D10

LEGAL DESCRIPTION: Lots 101 + 102, Town of Atrisco Grant, Unit Six

CITY ADDRESS: NA INTERSECTION of Bridge + Coors

ENGINEERING FIRM: Holmes + Narver Inc CONTACT: Donald Dixon PE

ADDRESS: 6501 Americas Pkwy NE 87110 PHONE: 889-4180

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CONTRACTOR: NA CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

✓ YES DRB NO.

NO EPC NO.

✓ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJECT NO.

TYPE OF SUBMITTAL:

DRAINAGE REPORT

DRAINAGE PLAN

✓ CONCEPTUAL GRADING & DRAIN. PLAN

GRADING PLAN

EROSION CONTROL PLAN

ENGINEERS CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

SKETCH PLAT APPROVAL

PRELIMINARY PLAT APPROVAL

✓ SITE DEVELOPMENT PLAN APPROVAL

FINAL PLAT APPROVAL

BUILDING PERMIT APPROVAL

FOUNDATION PERMIT APPROVAL

CERTIFICATE OF OCCUPANCY APPROVAL

ROUGH GRADING PERMIT APPROVAL

GRADING/PAVING PERMIT APPROVAL

OTHER (SPECIFY)

RECEIVED SEP 27 [redacted] HYDROLOGY DIVISION

DATE SUBMITTED: 9/26/88

BY: Donald Dixon, PE

Rev. 11/84

103

25×10 32×10

0000 0000 0925

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: L-10 DATE: 20 August 90
EPC NO.: DRB NO.: ZONE:
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X BUILDING PERMIT
___ OTHER

ATTENDANCE:	WHO	REPRESENTING
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	Gilbert Alcaz	City of Alb

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SIGNED: [illegible] SIGNED: Gilbert Alcaz
TITLE: PRINCIPAL ARCHITECT TITLE: August 20 1990
DATE: 8.20.90 DATE: Civil Engineer

NOTE PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.

25×10 32×10

0000 0000 0926

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25×10 32×10

0000 0000 0927

CONCEPTUAL GRADING AND DRAINAGE PLAN
FOR CITY OF ALBUQUERQUE
STREET MAINTENANCE FACILITY

SITE DESCRIPTION:

The site under consideration for development as a Street Maintenance Facility is located at the intersection of Coors Boulevard and Bridge, Lots 101 & 102, Town of Atrisco Grant, Unit Six (Map L-10). Immediately south, across Bridge Boulevard, there is a city-owned storm water Detention Facility, and 1,100' to the west is located the Skyview subdivision. There are several parcels of undeveloped land, totaling some 20 acres, between the proposed site and the Skyview subdivision. See Figure 1.

EXISTING CONDITIONS:

Under existing conditions, the area west of Coors Boulevard slopes to the east at approximately 3-4%. Along its eastern boundary, the Skyview subdivision drains to Bridge Boulevard and then flows in roadside ditches to Coors Boulevard and the parcels to the west drain onto the proposed site. A low ridge, not shown on the 1980 Ortho-Topo map but probably constructed as part of the North-South Coors Connection, blocks flow onto Coors north of the Bridge/Coors intersection and forces runoff to drain toward south the intersection where it is captured by a series of catch basins that are part of the 72" Coors Storm Drain System. This system outfalls into the Detention Facility at Coors and Bridge. The Drainage Management Study - North/South Coors Connection considered the proposed site along with the adjacent areas as part of the contributing drainage basin for this Detention Facility, which was constructed as part of that project. This facility was originally designed as a temporary retention facility to be replaced by the Amole del Norte Channel. However, the subsequent design of the Amole del Norte System incorporated it as a Detention Facility to reduce peak flows.

The Drainage Management Study - North/South Coors Connection reports the soil type as BCC - Bluepoint, a fine loamy sand. This soil is in hydrologic Soil Group "A". It has high infiltration rates, but is subject to wind and water erosion.

The 100-year runoff was calculated for the proposed site and the adjacent contributing areas utilizing the Rational Method. The results are reported in Table 1.

TABLE 1

AREA (Acres)	INTENSITY (in/hr)	PEAK FLOW (CFS)	VOLUME (Ac-Ft.)
25.2	4.65	42.2	.46

25×10 32×10

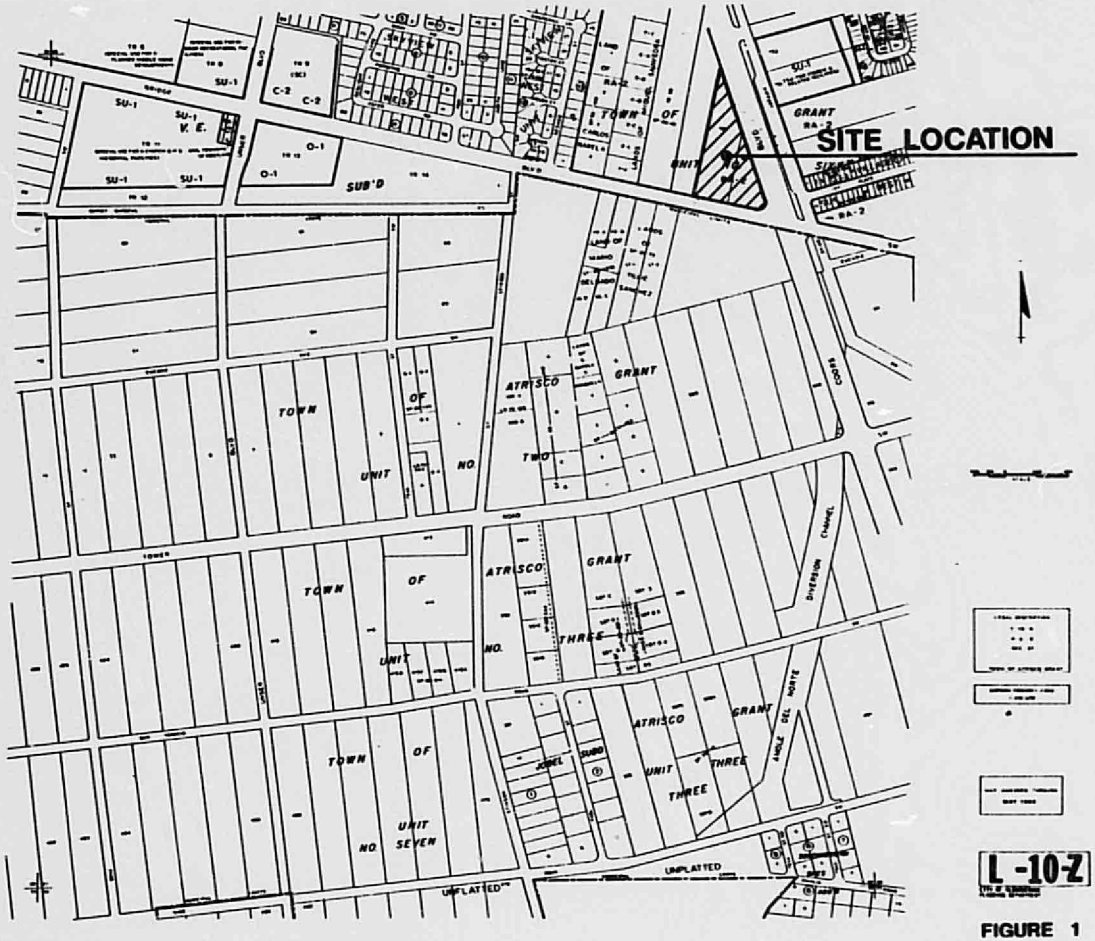

FIGURE 1

25×10
32×10

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PROPOSED FUTURE CONDITIONS

The conceptual site development design is shown in Figure 2. The paved parking area will be surrounded by a 8-ft. CMU wall. Between this wall and the property line there will be a 40-ft. landscaped buffer that will also serve as drainage swale. Access to the site will be from Coors (entrance only) and Bridge (entrance and exit).

The rational Method was used to calculate the estimated 100-year runoff. The results are shown in Table 2.

TABLE 2

AREA (Acres)		INTENSITY (in/hr)	PEAK FLOW (CFS)	VOLUME (Ac-Ft.)
Offsite	18.9	4.65	43.9	.79
Site	6.3	4.65	23.7	.68
TOTAL	25.2		67.6	1.47

The conceptual grading plan is shown in Exhibit A. Offsite flows will be diverted toward Bridge Boulevard where they will be picked up by a 36" culvert that will either outfall to the proposed Tierra Bayita storm drain or channel that is currently under design or directly to the Detention Facility itself. It is anticipated that runoff from the Skyview Subdivision will be intercepted by the Tierra Bayita Storm Drain System. The site will be graded so that runoff is carried away from buildings and walls and toward two drop inlets on the south end of the parking area. These drop inlets will be connected to either the 72" RCP Coors Storm Drain or the future Tierra Bayita Drainage System. Both of these systems outfall to the Detention Facility at Coors and Bridge.

This detention facility has a volume of 175 Ac-Ft. at spillway elevation according to the Preliminary Analysis Report for the Tierra Bayita Drainage Facilities. Under existing conditions, the 100-yr. runoff volume was reported to be 105.7 Ac-Ft. and under fully developed conditions, 160.8 ac-ft. Therefore, the facility should have the capacity to accept the additional 1.01 Ac-Ft. of runoff generated by the Street Maintenance Facility.

25×10 32×10

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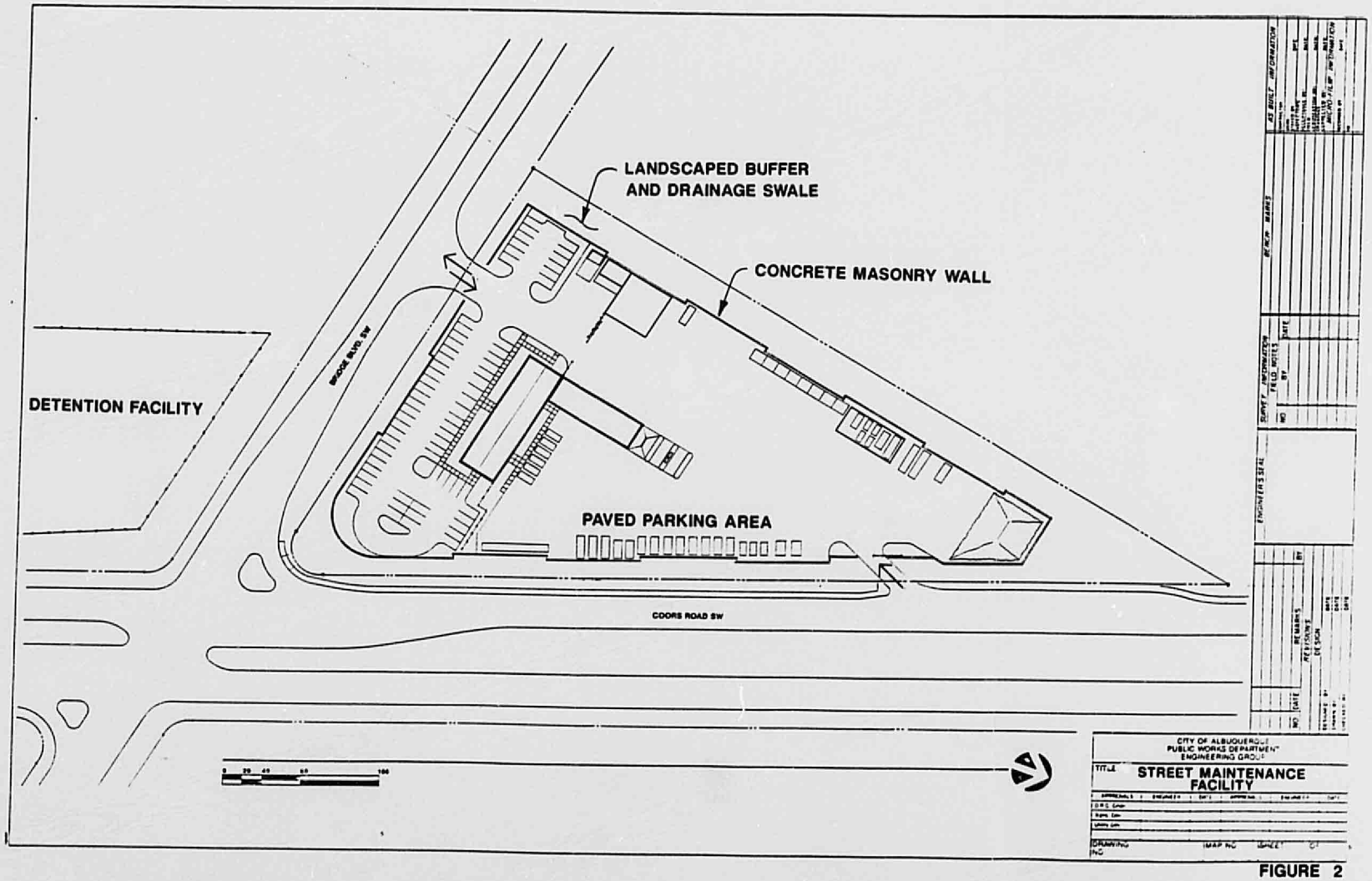

FIGURE 2

25×10 32×10 25×10

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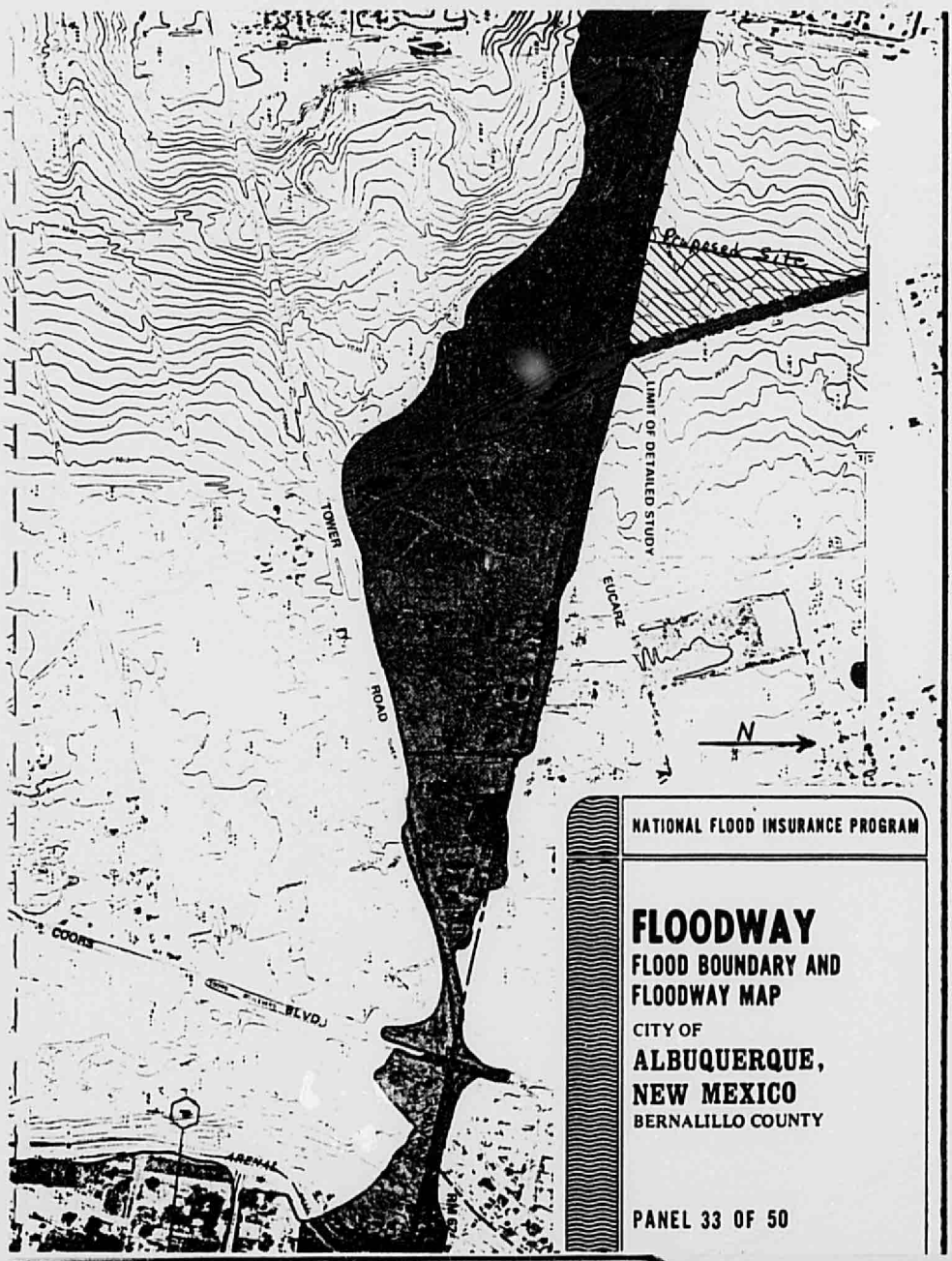

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF

ALBUQUERQUE, NEW MEXICO

BERNALILLO COUNTY

PANEL 33 OF 50

25×10 32×10

0000 0000 0932

REFERENCES

City of Albuquerque, Development Process Manual

Denney-Gross & Associates, Drainage Management Study North/South Coors Connection

Greiner Engineering, Preliminary Analysis Report for Amole Del Norte Storm Diversion Facilities: Tierra Bayita Drainage System

25×10 32×10

0000 0000 0933

HOLMES & NARVER, INC.
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Ameriwest Financial Center
6501 Americas Parkway, NE, Suite 700
Albuquerque, NM 87110

CHECKED _____ DATE _____ JOB NO. _____
APPROVED _____ DATE _____ SHEET _____ OF _____
TITLE Q100 Calculations BY DD DATE 8/23

Site Area: 4.9 Acres + Adj. Row = 6.3 Acres

Use rational method for preliminary design:

Composite $\bar{C}$:

$$\bar{C} = \frac{4.9 \times .90 + 1.4 \times .50}{6.3} = .81$$

For future conditions Assume 18.9 Acres to West are mixture of Residential + Commercial; $\bar{C} = .50$

both Areas $T_c < 10$

$$i_{100} = (2.2)6.84(10)^{-.51} = 4.65$$

Qoffsite = .50(4.65) 7.1 = 16.5 cfs
Offsite = .50(4.65) 11.8 = 27.4 cfs
Qsite = .81(4.65)(6.3) = 23.7 use 24 cfs

Total 67.6 cfs

25×10 32×10

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TITLE Q 100 Calculations BY DD DATE 9/20

Existing Conditions (100 yr)

$Q_{offsite} = .30(4.65)22.68 + .9(4.65)2.52 = 42.2$ cfs

25×10 32×10

0000 0000 0935

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CHECKED _____ DATE _____ JOB NO. _____
APPROVED _____ DATE _____ SHEET _____ OF _____
TITLE Runoff Volume Calculations 100-yr BY [illegible] DATE 8/24

Runoff Volume, Existing. Cond.

Soil Group A, Range, fair cond.
CN = 54 10% imp. CN = 90
Q = .10 inches Q = 1.13"

$Vol = \frac{Q}{12} \times Area\ (Acres)$

$Vol = \frac{.10}{12} \times 22.68 + \frac{1.3}{12}\ 2.52 = .46\ Ac\text{-}ft$

Runoff Volume, Developed

Site CN = 90 Q = 1.3"
Off-site CN = 75 Q = .5"

$Vol = \frac{.5}{12} \times 18.9 + \frac{1.3}{12}\ 6.3 = 1.47\ Ac\text{-}ft$

25×10 32×10

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CHECKED _____ DATE _____ JOB NO. _____
APPROVED _____ DATE _____ SHEET _____ OF _____
TITLE Q_{10} Calculations BY DA DATE 8/2/3

$P_{100} = 2.2''$ (Plate 22.2 01) $T_c = 10$

$P_{10} = .657(2.2) = 1.44''$

$i_{10} = (1.44)(6.84)(10)^{-.51} = 3.04$ in/hr

developed

$Q_{offsite} = .50(3.04)7.1 = 10.8$ cfs

$Q_{offsite} = .50(3.04)11.8 = 17.9$ cfs

$Q_{site} = .81(3.04)6.3 = 15.5$ cfs

Total 10yr = 44.2 cfs

Existing

(paved area)

$Q_{10} = .30(3.04)22.68 + .9(3.04)2.52 = \underline{27.6}$ cfs

25×10 32×10

0000 0000 0937

*** OPEN CHANNEL CALCULATIONS ***

HOLMES & HARVEY, INC.
PROJECT NO.: 2204.10

TYPE OF CHANNEL: TRAPEZOIDAL
BOTTOM WIDTH (ft) : 10.00
LEFT SIDE SLOPE (ft/ft) : 4.00
RIGHT SIDE SLOPE (ft/ft) : 4.00

MAXIMUM DEPTH (ft) : 1.00

STATION	Q (cfs)	D (ft)	V (fps)	WP (ft)	A (sq.ft)	HR (ft)	SLOPE (ft/ft)	N
typ	1.99	0.10	1.91	10.82	1.04	0.10	0.01500	0.0200
typ	6.39	0.20	2.96	11.65	2.16	0.19	0.01500	0.0200
typ	12.75	0.30	3.80	12.47	3.36	0.27	0.01500	0.0200
typ	20.93	0.40	4.51	13.30	4.64	0.35	0.01500	0.0200
typ	30.86	0.50	5.14	14.12	6.00	0.42	0.01500	0.0200
typ	42.52	0.60	5.72	14.95	7.44	0.50	0.01500	0.0200
typ	55.93	0.70	6.24	15.77	8.96	0.57	0.01500	0.0200
typ	71.09	0.80	6.73	16.60	10.56	0.64	0.01500	0.0200
typ	88.03	0.90	7.19	17.42	12.24	0.70	0.01500	0.0200
typ	2.29	0.10	2.20	10.82	1.04	0.10	0.02000	0.0200
typ	7.38	0.20	3.42	11.65	2.16	0.19	0.02000	0.0200
typ	14.73	0.30	4.38	12.47	3.36	0.27	0.02000	0.0200
typ	24.16	0.40	5.21	13.30	4.64	0.35	0.02000	0.0200
typ	35.63	0.50	5.94	14.12	6.00	0.42	0.02000	0.0200
typ	49.10	0.60	6.60	14.95	7.44	0.50	0.02000	0.0200
typ	64.58	0.70	7.21	15.77	8.96	0.57	0.02000	0.0200
typ	82.08	0.80	7.77	16.60	10.56	0.64	0.02000	0.0200
typ	101.64	0.90	8.30	17.42	12.24	0.70	0.02000	0.0200

25×10 32×10

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ENGINEERS-CONSTRUCTORS
Ameriwest Financial Center
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CHECKED _____ DATE _____
APPROVED _____ DATE _____
TITLE _____
JOB NO. _____
SHEET _____ OF _____
BY DD DATE 9/20/5

Swale: $S \cong 1.5\% - 2\%$ Q_{100} (MAN) = 27.4 cfs

b = 10'

side slopes 4:1

$d \cong .4'$ to $.5'$

25×10 32×10

0000 0000 0939

PLANS/PLATS ON FILE

FILE DESC: L10/D10

PLANS/PLATS 2

25×10 32×10

0000 0000 0440