A14/D4A7

0000 0000 1265

A14/D4A7

25×10 32×10

0000 0000 1266

CITY OF
Albuquerque
Public Works Department

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

July 3,1997

Larry Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: ENGINEER CERTIFICATION FOR DIAMOND SHAMROCK CORNER STORE (A14-D4A7) CERTIFICATION STATEMENT DATED 5/2/97

Dear Mr. Parker:

Based on the information provided on your May 6,1997 submittal, Engineer Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Associate Engineer

25×10 32×10

0000 0000 1267

City of Albuquerque

P. O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103
PUBLIC WORKS DEPARTMENT

August 13, 1997

CERTIFICATE OF WORK ORDER COMPLETION

Diamond Shamrock
520 E 56th
Denver, CO 80216

RE: DIAMOND SHAMROCK CORRALES - PROJECT NO. 555381 (MAP NO. A-14)

Dear Sir:

This is to certify that the City of Albuquerque accepts Project No. 555381 as being completed according to approved plans and construction specifications. Please be advised this certificate of completion shall only become effective upon final plat approval and filling in the office of the Bernalillo County Clerk's Office.

The project is described as follows:

- Built a 12' left turn bay from Calle Cuervo to Diamond Shamrock west of Corrales Road NW.

The contractor's correction period began the date of this letter and is effective for a period of one (1) year.

Sincerely,

Russell B. Givler, P.E.
Chief Construction Engineer,
Public Works Department

25×10 32×10

0000 0000 1268

cc: Glen Bates
R.H.C. Inc.
Fred Aguirre, Hydrology, PWD
Tina Pohl, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Martin Barker, Materials Testing Lab
Linda Adamsko, Special Assessments, DFM
Sam Hall, Water Systems, PWD
Jim Fink, Liquid Waste, PWD
Dean Wall, Street Maintenance, PWD
Jack McDonough, Water/Wastewater Group, PWD
Ray Chavez, Traffic Engineering, PWD
Josie Jaramillo, New Meter Sales, Finance Group, PWD
Richard Zamora, Maps and Records, PWD
John Ewing, Risk Management
f/Project No. 555381
f/Readers
f/Warranty:Contract

25×10 32×10

0000 0000 1269

CITY OF
Albuquerque

Martin J. Chávez, Mayor

August 19, 1997

CERTIFICATE OF COMPLETION AND ACCEPTANCE

A.W. O'Donnell
Vice President
Diamond Shamrock Refining and Marketing Company
PO Box 69600
San Antonio, TX 78269

RE: DIAMOND SHAMROCK-CORRALES; CITY PROJECT NO. 555381; MAP NO. A-14

Dear Mr. O'Donnell:

This is to certify that the City of Albuquerque accepts the construction of the infrastructure provided in the Work Order Construction Plans, City Project No. 555381 as compliance with completing the required public infrastructure listed in the Subdivision Improvements Agreement (SIA) between Diamond Shamrock Refining and Marketing Company and the City of Albuquerque executed on December 23, 1996.

Having satisfied the requirements referenced above, the SIA and any associated Financial Guaranty, held by the City, can now be released. The Contractors one-year warranty period started at the date of acceptance by the Chief Construction Engineer, dated August 13, 1997.

Please be advised this Certificate of Completion and Acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

Should you have any questions or issues regarding this project, please contact me.

Sincerely,

Ricardo B. Roybal, P.E.
City Engineer
Dev. & Bld. Services Div.
Public Works Department

25× 32×

0000 0000 1270

c. Larry Parker, Galloway Romero & Assoc.
Mary Chavarria, Nations Bank
Teresa Martin, Project Administrator, Project Review
Theresa Lucero, Assistant Project Administrator , PWD
Fred Aguirre, Hydrology, PWD
Richard Dourte, Transportation Development, PWD
John M. Stomp, Jr. III, Utility Development, PWD
Ed Stang, Planning Section, CIP
f/Project file

25×10 32×10

0000 0000 1271

CITY OF
Albuquerque

August 13, 1996

Martin J. Chávez, Mayor

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A14/D4A7). DRAINAGE PLAN FOR BUILDING PERMIT AND SO #19 PERMIT APPROVALS. ENGINEER'S STAMP DATED 7-29-96 (SHEET SP-3.0.1 AND SHEET SP-3.0) AND 7-2-96 (SHEET 1).

Dear Mr. Parker:

Based on the information provided on your August 1, 1996 submittal, the above referenced project is approved for Building and SO #19 permits.

Prior to Certificate of Occupancy, an Engineer's Certification will be required.

If I can be of further assistance, please feel free to contact me at 505-768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Arlene Portillo
Andrew Garcia
File

25×10 32×10

0000 0000 1272

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

April 18, 1996

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A14/D4A7). DRAINAGE REPORT FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 3-25-96.

Dear Mr. Parker:

Based on the information provided on your 3-27-96 submittal, City Hydrology has the following comments:

1. Historically, flow from the shopping center to the south of your site, is routed to an existing swale along the east side of the site. Just past (north) the delivery entrance to the shopping center is a short length of concrete rundown/apron. This concrete apron directs flow to the Diamond Shamrock site where I assume it infiltrates and or ponds. Your grading plan shows construction of a rip rap extension and swale at the end of the existing concrete apron to route the flow away from your site and onto Corrales Road. Is there downstream capacity for this flow?

2. While I realize the flow from your site is discharged at a relatively small rate, please discuss downstream capacity to justify the release rate.

3. It appears that your pond outlet pipe goes through an existing curb. A SO #19 permit is required for this type of construction. Refer to the DPM for SO #19 Permit instructions (required notes and sign off block). You must also submit two sets of the plan sheets when requesting SO #19 Permit approval.

4. Please show finish floor to mean sea level

If I can be of further assistance, please feel free to contact me at 505-768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

25×10 32×10

0000 0000 1273

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DIAMOND SHAMROCK CORNER STORE ZONE ATLAS/DRNG. FILE #: A14/D4A7

DRB #: _____ EPC #: 1241 WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT D-4-H-1, SEVEN BAR RANCH

CITY ADDRESS: 10731 CORRALES ROAD NW

ENGINEERING FIRM: GALLOWAY ROMERO & ASSOC CONTACT: LARRY L. PARKER

ADDRESS: 5350 DTC BLVD ENGLEWOOD CO 80111 PHONE: (303) 770-8884

OWNER: DIAMOND SHAMROCK CONTACT: DAN LAMB

ADDRESS: 520 E. 86TH AVE DENVER CO 80216 PHONE: (303) 293-6626

ARCHITECT: GALLOWAY ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 5350 DTC BLVD ENGLEWOOD CO 80111 PHONE: (303) 770-8884

SURVEYOR: FORSTBAUER SURVEYING CO CONTACT: RON FORSTBAUER

ADDRESS: 1100 ALVARADO NE ALBUQUERQUE, NM 87110 PHONE: (505) 268-2112

CONTRACTOR: NUCKOLLS CONSTRUCTION CONTACT: RICK HANNA

ADDRESS: 1705 KOENIG LANE AUSTIN TX 78756 PHONE: (512) 453-0313

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
✓ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
___ GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D. APPROVAL
___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
✓ CERTIFICATE OF OCCUPANCY APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (SPECIFY)

RECEIVED MAY 06 1997 HYDROLOGY SECTION

DATE SUBMITTED: MAY 5, 1997

BY: [signature]

25× 32×

0000 0000 1274

EXHIBIT
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
(LEGAL DESCRIPTION OF SUBDIVISION)
(NAME and UNIT OF SUBDIVISION)
~~SITE DEV. PLAN~~

DRB Case No. 96-217
DRC Project No. XXXX.XX
Prelim. Plat Approved: XX/XX/XX
Prelim. Plat Expires: XX/XX/XX
Site Plan Approved: XX/XX/XX
Date Submitted: XX/XX/XX 7/23/96

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County, and/or AMAFCA determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider's responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City, County, and/or AMAFCA.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
*	Standard Curb & Gutter	Southeasterly Property Line	Calle Cuervo	SE Property Corner
*	6' Detached Sidewalk	Southeasterly Property Line	Calle Cuervo	SE Property Corner
*	Widen Corrales 4'± with Arterial Asphalt Section	Southeasterly Property Line	Calle Cuervo	SE Property Corner
	~~Wheelchair Ramp~~	~~SW Corner of Calle Cuervo and Corrales~~	------	------
12' wide	Left Turn Bay	Calle Cuervo Existing Median Opening West of Site		
** 30"	Reinforced Concrete Pipe	Southeasterly Property Line	Calle Cuervo	SE Property Corner
**	Storm Sewer Manhole	SW Corner of Calle Cuervo and Corrales	------	------
**	Type B Storm Inlet	SW Corner of Calle Cuervo and Corrales	------	------
**	Reinforced Concrete Pipe Inlet Lateral	SW Corner of Calle Cuervo and Corrales	------	------

Signed by: Glenn F. Bates
Print Name: Glenn F. Bates
Firm: Kenn Georges and Associates 255-4975

* Items to be deferred.

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

** ~~[illegible]~~ FINAL SIZE TO BE DETERMINED AT DRC (AMA AND TO be deferred Robert W. Kaufman 7-23-96 Ed Adams 7/23/96

Traffic	Date	Utility Dev.	Date	Parks & G.S.	Date
Fred Depaji	7/23/96	JDL	7/23/96		7/23/96
City Engineer	Date	AMAFCA	Date	DRB Chairman	Date
BCPWD DRE	Date	BCPWD DRAN	Date		

25×10 32×10

0000 0000 1275

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DIAMOND SHAMROCK CORNERSTORE # 184 ZONE ATLAS/DRNG. FILE #: A14/D4A7

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT D-4-H-1 SEVEN BAR RANCH

CITY ADDRESS: 10731 CORRALES RD NW

ENGINEERING FIRM: GALLOWAY, ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVE. AORORA CO. 80014 PHONE: (303) 745-7448

OWNER: DIAMOND SHAMROCK MARKETING & REFINING CONTACT: DAN LAMB

ADDRESS: 520 E. 56th AVENUE DENVER, CO 80216 PHONE: (303) 297-9777

ARCHITECT: GALLOWAY, ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVENUE AURORA CO. 80014 PHONE: (303) 745-7448

SURVEYOR: RONALD A. FORSTBAUER SURVEYING CO. CONTACT: RONALD A. FORSTBAUER

ADDRESS: 1100 ALVARODO NE ALBUQUERQUE NM 87110 PHONE: (505) 268-2112

CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ✓ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- ✓ YES
- ___ NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ✓ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ✓ OTHER SO#19 (SPECIFY)

DATE SUBMITTED: JULY 29, 96

BY: [signature]

AUG - 1

25×10 32×10

0000 0000 1276

Easterling & Associates, Inc.

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

March 7, 1996

LISA
FYI & file

Fred Aguirre, P.E.
Hydrology Division
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

A14/D-147

RE: Storm Drain Size in Corrales Road

Dear Fred:

The Cabezon Channel project anticipated the collection of storm water runoff from the Corrales Shopping Center/Calle Cuervo Road area. As a result a 30" storm drain was stubbed out southward on the west side of Corrales Road. There is adequate grade available to carry most, if not all, runoff currently flowing northward from Corrales Center in a 30" RCP equivalent line.

Please find attached an excerpt from the Cabezon Channel Record Drawings.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Charles M. Easterling, P.E.

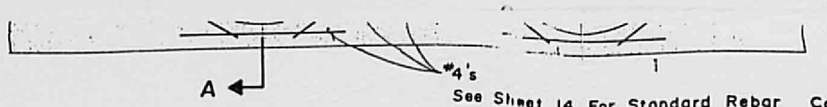
CME/das
Job No. 4110

Attachment

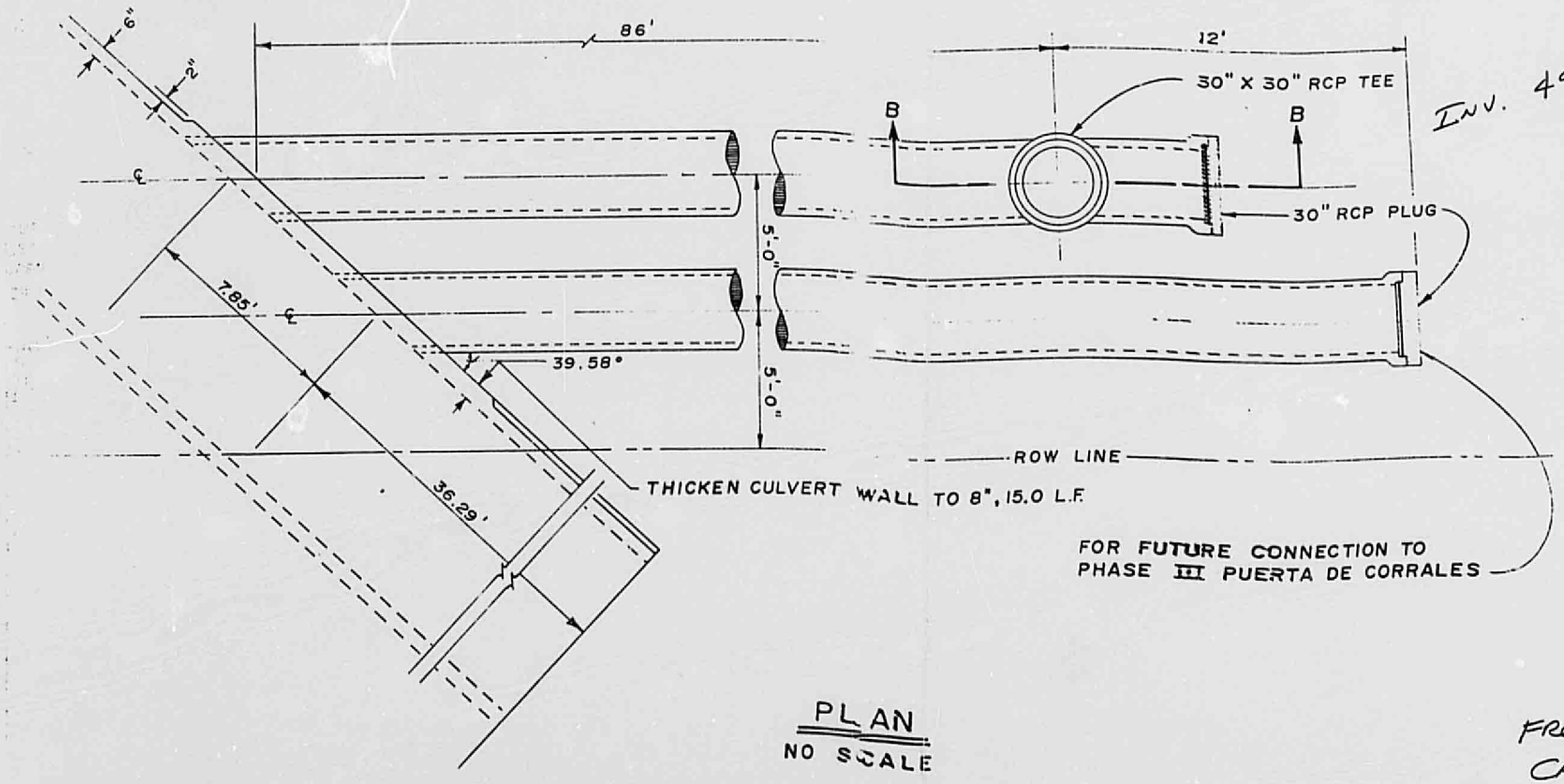
cc: John Black, Las Colinas Realty & Development
Ken Baca, Diamond Shamrock
Larry Parker, Galloway, Romero & Associates

25× 32×

0000 0000 1277



STORM SEWER CONNECTION TO CULVERT
NO SCALE



PLAN
NO SCALE

FROM
CABEZON
CHANNEL PLANS
CME 3-6-96

25×10 32×10 25×10

0000 0000 1278

Galloway, Romero & Associates
Design Engineering Planning

5350 DTC Parkway
Englewood, CO 80111
(303) 770-8884
FAX: (303) 770-3636

A14/D417

October 28, 1996

Lisa Manwill
Hydrology Division
Public Works Department
PO Box 1293
Albuquerque, NM 87103

Re: DRC Comments for City Project 555381
Diamond Shamrock @ Corrales Road and Calle Cuervo

Dear Lisa:

In reference to the above referenced site, we would like to offer the following responses:

The Corrales Road improvement project will be designed and constructed through the New Mexico Department of Transportation. Those improvements will include curb, gutter, sidewalk and storm sewer facilities. Currently NMDOT has not determined the final configuration.

The intention of deferring that portion of these improvements adjacent to the Diamond Shamrock site is to provide available funding once this project takes place. The size of the storm sewer was previously sized by Mr. Chuck Easterling with the Cabezon Channel Project. A letter to Fred Aguirre dated March 7, 1996, confirmed the pipe size. The initial instructions were to defer main line piping only along the Corrales Road frontage. I took the initiative to speculate on additional facilities and added the storm sewer manhole, the type B inlet and the inlet lateral piping. This was done to provide reasonable and adequate funding for this future project.

A speculative, tentative design of the facilities was never part of this process. Again, design of these facilities will be finalized by the New Mexico Department of Transportation. We respectfully request that the review comment to show these improvements in plan and profile view be withdrawn.

25×10 32×10

0000 0000 1279

The attached letter and connection detail, prepared by Easterling & Associates, Inc., will provide the pipe sizing justification you requested.

Should you need additional information or have any questions, please feel free to call at (303) 770-8884.

Sincerely,
Galloway, Romero & Associates

Larry L. Parker

cc: Dan Lamb - Diamond Shamrock
Glenn Bates - Kevin Georges & Associates

F:\CORRES\DIAMONDS\D039\961028LP.LT1

25×10 32×10

0000 0000 1280

Easterling & Associates, Inc.

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 896-8021
FAX (505) 896-8801

March 7, 1996

Fred Aguirre, P.E.
Hydrology Division
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RE: Storm Drain Size in Corrales Road

Dear Fred:

The Cabezon Channel project anticipated the collection of storm water runoff from the Corrales Shopping Center/Calle Cuervo Road area. As a result a 30" storm drain was stubbed out southward on the west side of Corrales Road. There is adequate grade available to carry most, if not all, runoff currently flowing northward from Corrales Center in a 30" RCP equivalent line.

Please find attached an excerpt from the Cabezon Channel Record Drawings.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Charles M. Easterling, P.E.

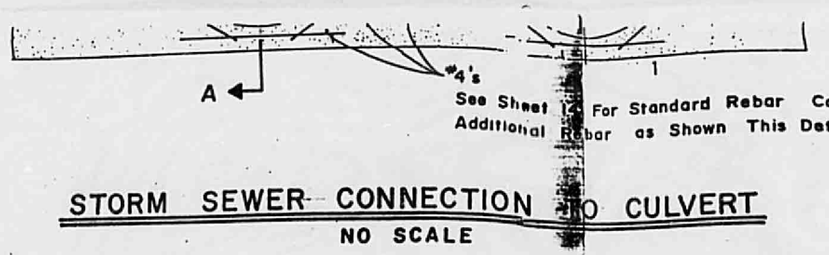
CME/das
Job No. 4110

Attachment

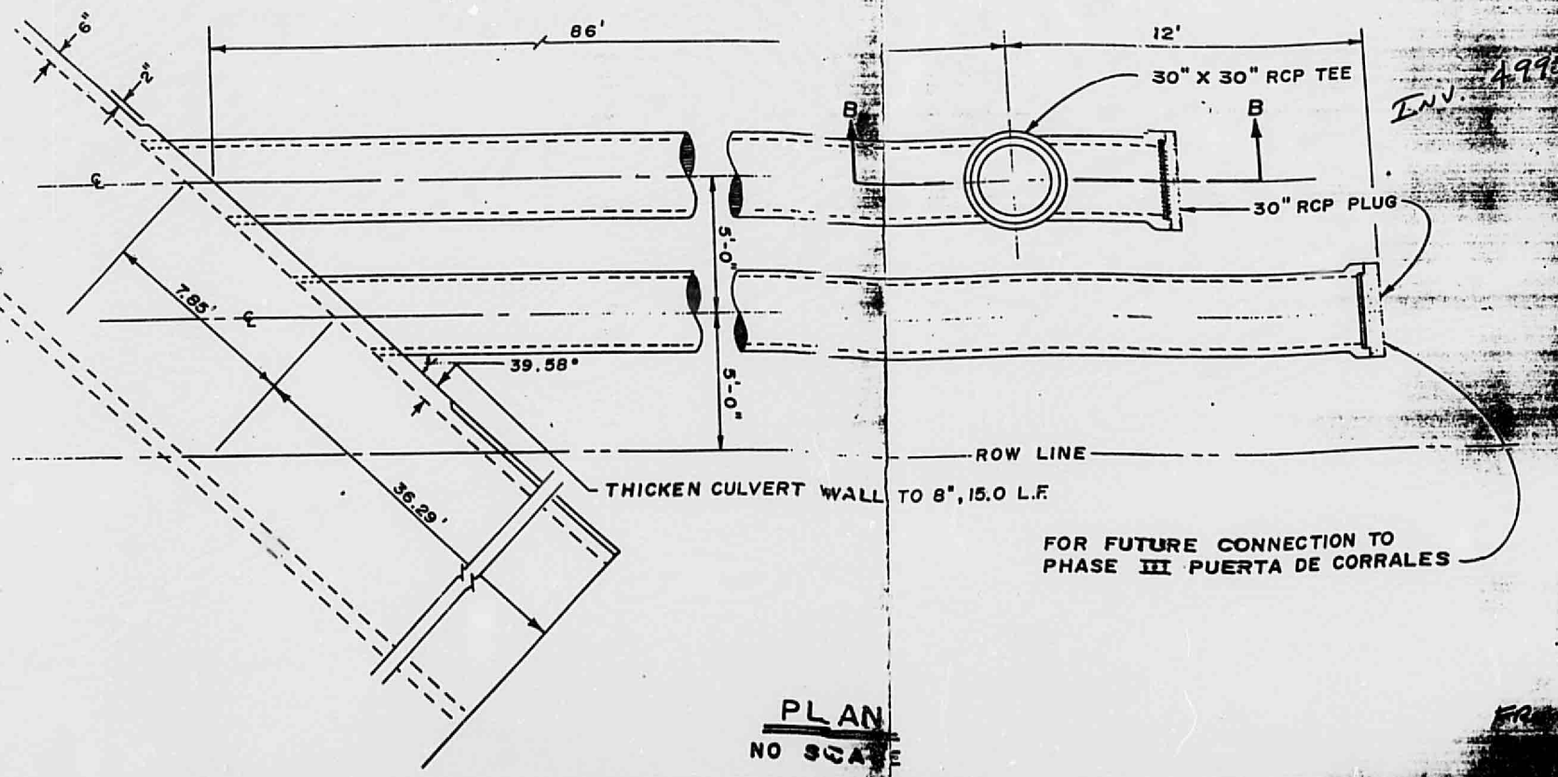
cc: John Black, Las Colinas Realty & Development
Ken Baca, Diamond Shamrock
Larry Parker, Galloway, Romero & Associates

25× 32×

0000 0000 1281



STORM SEWER CONNECTION TO CULVERT
NO SCALE



PLAN
NO SCALE

25×10 32×10 25×10

0000 0000 1282

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DIAMOND SHAMROCK CORNERSTORE # 1241 ZONE ATLAS/DRNG. FILE #: A-14/D4A7

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT D-4-H-1 SEVEN-BAR RANCH

CITY ADDRESS: 10731 CORRALES RD NW

ENGINEERING FIRM: GALLOWAY, ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVE. AORORA CO. 80014 PHONE: (303) 745-7448

OWNER: DIAMOND SHAMROCK MARKETING & REFINING CONTACT: DAN LAMB

ADDRESS: 520 E. 56th AVENUE DENVER, CO 80216 PHONE: (303) 297-9777

ARCHITECT: GALLOWAY, ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVENUE AURORA CO. 80014 PHONE: (303) 745-7448

SURVEYOR: RONALD A. FORSTBAUER SURVEYING CO. CONTACT: RONALD A. FORSTBAUER

ADDRESS: 1100 ALVARODO NE ALBUQUERQUE NM 87110 PHONE: (505) 268-2112

CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ✓ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- ✓ YES
- ___ NO
- ✓ COPY PROVIDED IN REPORT

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ✓ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ✓ OTHER SO #19 (SPECIFY)

RECEIVED JUL - 3 1996

DATE SUBMITTED: _____

BY: _____

25×10 32×10

0000 0000 1283

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
AN EQUAL OPPORTUNITY EMPLOYER

DISTRICT THREE OFFICE

March 29, 1996

GARY E. JOHNSON
GOVERNOR

COMMISSION

Holm Bursum, III
Chairman, Socorro

Edward T. Begay
Vice-Chairman, Gallup

Peter T. Mocho, Sr.
Secretary, Albuquerque

Joe M. Anaya
Member, Stanley

Albert N. Sanchez
Member, Santa Rosa

Sidney G. Strebeck
Member, Clovis

DEPARTMENT

Secretary
Pete K. Rahn

General Office
P.O. Box 1149
Santa Fe, N.M.
87504-1149
505-827-5100

District One Office
P.O. Box 231
Deming, N.M.
88031-0231
505-546-2603

District Two Office
P.O. Box 1457
Roswell, N.M.
88202-1457
505-624-3300

District Three Office
P.O. Box 91750
Albuquerque, N.M.
87199-1750
505-841-2700

District Four Office
P.O. Box 30
Las Vegas, N.M.
87701-0030
505-454-3600

District Five Office
P.O. Box 4127
Coronado Station
Santa Fe, N.M.
87502-4127
505-827-9500

District Six Office
P.O. Box 2159
Vaan, N.M.
87021
505-285-6623

Mr. Larry Parker, P.E.
Gallaway, Romero & Associates
14202 East Evans Avenue
Aurora, Colorado 80014

Dear Mr. Parker:

The proposed drainage report and plan on NM 448 (Corrales Rd.) for the Diamond Shamrock Corner Store #1241 has been reviewed by our Drainage Engineer, Ms. Raymunda Van Hoven. The drainage ditch along the southbound right turn deceleration lane and the swale across Calle Cuervo seem to be the temporary solution for the ponding problems on the southwest corner of NM 448 and Calle Cuervo. A permanent solution is necessary for the long run.

The recommendation from our Drainage Engineer for a permanent solution is to fill the bottom of the roadside ditch along NM 448 with eighteen (18) inches of rock and to lower the elevation of the swale an additional six (6) inches. The comments regarding the ponding are attached for your files.

If we can be of further assistance please contact us at (505) 841-2700.

Sincerely,

ANTHONY LOPEZ
District Three Traffic Engineer

/al
xc: Michael Barnes
Julian Vigil

APR 2 0 1996

DIAMOND
CALLE CUERVO & CORRALES

25×10 32×10

0000 0000 1284

A-Mike

New Mexico
State Highway and Transportation Department

INTRA-DEPARTMENTAL CORRESPONDENCE

BJECT: Diamond Shamrock, Corrales Road and Calle Cuervo NW

Date: 03/26/96

: Anthony Lopez
District Three Traffic Engineer

File Ref:

Attention of: Mike Barnes

Steve Harris
District Three Maintenance Engineer

OM: Raymunda A. Van Hoven R. Van Hoven
Drainage Engineer

I have reviewed the subject development and found the developer has made the site drainage in acceptable condition with ponding volume to accommodate the additional run-off. However, I offer the following comments and recommendations to the District Office.

EXISTING CONDITION

The existing drainage to the southwest of the development (offsite run-off) has an estimated 100-year discharge of 38 CFS which drains toward the east and ponds at the Diamond Shamrock site, and then crosses the Calle Cuervo Road intersection toward Cabezon Arroyo.

PROPOSED CONDITION

The site development at Diamond Shamrock will raise the site up to approximately two feet. The run-off of 24 CFS for a 10 year storm will drain through the ditch, will cross Calle Cuervo intersection, and continue through Corrales Road ditch into Cabezon Channel. This 10-year discharge of 24 CFS will flood or pond the intersection until the peak discharge is over with a ponding depth of at least one half foot and higher frequency flow will have higher ponding depth.

RECOMMENDATION

I recommend to fill the bottom of the roadside ditch along Corrales Road with 18" thick rocks between the Diamond Shamrock Driveway and Calle Cuervo and the bottom ditch elevation shall be lower by at least 6" from the invert elevation of the concrete pans (valley gutters).

/RVH

25×10 32×10

0000 0000 1285

CITY OF
Albuquerque

July 24, 1996

Martin J. Chávez, Mayor

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A14/D4A7). DRAINAGE REPORT FOR BUILDING PERMIT AND SO #19 PERMIT APPROVALS. ENGINEER'S STAMP DATED 7-2-96 (SHEET SP-3.0.1 AND SHEET 1) AND 7-22-96 (SHEET SP-3.0).

Dear Mr. Parker:

Based on the information provided on your July 3, 1996 submittal, City Hydrology has the following comment:

1. Provide an oil/water separator.

If I can be of further assistance, please feel free to contact me at 505-768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!

25×10 32×10

0000 0000 1286

CITY OF
Albuquerque

June 11, 1996

Martin J. Chávez, Mayor

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A14/D4A7). DRAINAGE REPORT FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 5-30-96.

Dear Mr. Parker:

Based on the information provided on your June 3, 6996 submittal, the above referenced project is approved for Site Development Plan for Building Permit only. The City conditionally approves this project for building permit and will grant final approval upon receipt of the following:

1. Provide an extended grading plan adjacent to Corrales Road and south of Calle Cuervo showing that the flow you have diverted does not pond along Corrales Road, and that it does indeed get to the Cabezon Channel.

2. Include a copy of the infrastructure list.

Please be certain to request SO #19 permit approval on your next submittal.

If I can be of further assistance, please feel free to contact me at 505-768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Dan Lamb - Diamond Shamrock
Ken Schultz - The Advantage
Fred Aguirre - COA
File

25× 32×

0000 0000 1287

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DIAMOND SHAMROCK CORNERSTORE # 1241 ZONE ATLAS/DRNG. FILE #: A-14 / 104A7

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract D-4-H-1, Tract D-4-H-1 & D-4-H-2, Seven Bar Ranch

CITY ADDRESS: 10731 Corrales Road NW

ENGINEERING FIRM: GALLOWAY, ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVE. AORORA CO. 80014 PHONE: (303) 745-7448

OWNER: DIAMOND SHAMROCK MARKETING & REFINING CONTACT: DAN LAMB

ADDRESS: 520 E. 56th AVENUE DENVER, CO 80216 PHONE: (303) 297-9777

ARCHITECT: GALLOWAY, ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVENUE AURORA CO. 80014 PHONE: (303) 745-7448

SURVEYOR: RONALD A. FORSTBAUER SURVEYING CO. CONTACT: RONALD A. FORSTBAUER

ADDRESS: 1100 ALVARODO NE ALBUQUERQUE NM 87110 PHONE: (505) 268-2112

CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- X DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- X YES
- ___ NO
- X COPY PROVIDED IN REPORT

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER _____ (SPECIFY)

DATE SUBMITTED: MAY 31 1996

BY: Larry L. Parker

25×10 32×10

0000 0000 1288

flows to be 37.22 cfs at the discharge point 130 feet south of the site and 43.89 cfs at the intersection of Calle Cuervo and Corrales Road. This runoff crosses Corrales Road in the vicinity of the site's northeasterly corner, due to the roadway's superelevation, and continues to the Cabezon Channel. Due to the overall area's flatness and the absence of an overall storm sewer system, the conveyance of these flows is less than ideal. Since these flows are not routed through the site and will be prevented from doing so by the proposed grading, they and the routing will not be included in this report.

Specific Details. The entire site is considered as a single basin, designated "A" and to be entirely composed of land treatment A. The 10 and 100 year runoff is 0.18 and 0.95 cfs, respectively.

IV. DEVELOPED DRAINAGE

General. As previously stated, the majority of runoff from the undeveloped area south and west of the site will not be routed through the site and was not included in the runoff calculations. Runoff in Corrales Road will not be taken onsite and was also omitted from the calculations.

Specific Details. The site is divided into two basins, A and B. Basin A is a 0.160 acre basin along the site's northerly and easterly perimeter. A proposed development west of the basin, titled "Corrales Mini-Storage", will be contributing offsite flows to Basin A. The offsite basin, OS-1, is a 0.026 acre basin that will be entirely land treatment D. The 10 and 100 year runoff from offsite Basin OS-1 of 0.08 and 0.11 cfs, respectively, combines with Basin A's 10 and 100 year runoff of 0.29 and 0.51 cfs, respectively. The combined 10 and 100 year runoff of 0.37 and 0.62, respectively, is largely unconcentrated and exits the site undetained.

Basin B is a 0.577 acre basin that consists of roof, paved and landscaped areas. The 10 and 100 year runoff of 1.47 and 2.30 cfs, respectively, flows to the onsite detention pond. A 4" PVC outfall lateral with an orifice plate will restrict the pond's 100 year release to 0.47 cfs. The restricted release from the pond and the undetained release from Basin A equals the 100 year historic release from this site. The developed site does not increase runoff.

Offsite Runoff. As previously stated, 37.22 cfs is discharged from the shopping center site approximately 130 feet south of the Diamond Shamrock site. A small swale directs this runoff northerly towards the southwesterly corner of Calle Cuervo and Corrales. A berm west of the swale confined the majority of the runoff to the Corrales Road right-of-way. This berm also prevents undeveloped runoff from the proposed Corrales Mini Storage and the Diamond Shamrock site from combining with the shopping center's runoff. That runoff ponds until it percolates or evaporates. At the intersection and during a low flow storm the minor crowns (2 inches plus or minus) of the road caused runoff from the shopping center to pond in the right-of-way area. A storm with a greater intensity would cause this runoff to overtop the crowns and flow northerly in a small roadside ditch on the westerly side of Corrales Road and northeasterly, across the intersection, to a small swale on the easterly side of Corrales Road. Runoff on the

THIS ENTIRE SUBSECTION IS NEW

25× 32×

0000 0000 1289

westerly side of Corrales Road and north of Calle Cuervo eventually flows across the road when this small swale meets the superelevated portion of Corrales Road a short distance north of the intersection. The runoff is ultimately conveyed to the Cabezon Channel. This has been the historic drainage pattern of the area since Calle Cuervo was constructed. Prior to that construction the runoff was not blocked by the roadway crowns. This pattern was verified by examination of supplemental topographic information submitted with the drainage report for the Corrales Mini Storage Facility, City of Albuquerque Reference A14/D4A6, approved May 9, 1996.

The proposed drainage facilities for the offsite runoff are temporary and intended to mimic the historic drainage patterns, the solution will be the storm sewer construction proposed with the future Corrales Road improvements by the State Department of Transportation. The Diamond Shamrock development proposes minor, temporary facilities to ease the drainage impact and to post bond for future storm sewer facilities. The proposed temporary facilities are as follows:

A.) Redirection of runoff away from Corrales Road with the Mini Storage Facility development. The proposed grading decreases the runoff by approximately 3 cfs. This runoff is directed westerly to a proposed detention pond.

B.) Improving the swale from the shopping center to the southerly property line. At the point of discharge, a riprap pad takes up elevation as well as reducing erosion potential. The swale is more of a "V" shape versus the existing "U" shape. This allows more runoff to be conveyed. The swale slope is relatively flat and the velocity will be reduced allowing a greater opportunity for percolation.

C.) The area between the southerly curb cut and the roadway intersection is a minor retention facility. The swale has been set 0.5 feet below a uniform grade and the area is lined with an 18 inch thick cobble rock pad. This enhances the runoffs opportunity to percolate.

D.) A concrete pan crosses Calle Cuervo and allows water to flow versus causing water to pond.

The temporary drainage facilities as shown do not and will not rectify the inherent drainage problems this area has. They are only intended to alleviate the situation until permanent storm sewer facilities are constructed. Diamond Shamrock will be bonding for 30" RCP, or equivalent, across the entire Corrales Road frontage in anticipation of the future highway improvements. Even runoff from a minor storm will over capacitate the concrete pan crossing Calle Cuervo and cause an overtopping of the minor roadway crown of Corrales Road. This overtopping is not a new condition but rather a duplication of existing conditions.

25×10 32×10

0000 0000 1290

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 8, 1995

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A21/D4A7). DRAINAGE REPORT AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 7-11-95.

Dear Mr. Parker:

Based on the information provided on your 7-14-95 14 submittal, some additional concerns have come up. I am sorry that these comments were not noted on my previous letter, dated 7-27-95. I hope this does not cause too much inconvenience with your resubmittal. Prior to Building Permit Approval, please address the following comments:

1) Install a drainage inlet in the bottom of the detention basin, using an oil trap type inlet.

2) The City suggests that the area around the fueling bays be graded so that in the future the fueling area can be contained and all washdown water collected and routed to an oil/water separator. This separator would be connected directly to sanitary sewer, not to storm drainage.

3) The detention basin and rundown should be lined with cobblestone or landscape rock. Grass lining is also acceptable, but rock is be better for removal of floating oils/fuels.

4) The on-site manager should have a regular maintenance schedule for removing oil from the trapped inlet.

If I can be of further assistance, please feel free to contact me at 505-768-3622 or Loren Meinz at 505-768-3654.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Loren Meinz
Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

25×10 32×10

0000 0000 1291

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

June 27, 1995

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A14/D4A7). DRAINAGE REPORT AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 7-11-95

Dear Mr. Parker:

Based on the information provided on your July 14, 1995 submittal, the above referenced site is not approved for Building Permit.

Prior to Building Permit Approval, please address the following:

1. Does this project comply with the Master Plan? what is the allowable and actual rate of discharge? Verify downstream capacity.

2. Provide pond outlet details.

If I can be of further assistance, please feel free to contact me at 505-768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Associate

c: File
Andrew Garcia

lam

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

25×10 32×10

0000 0000 1292

CITY OF
Albuquerque

May 23, 1996

Martin J. Chávez, Mayor

Larry L. Parker
Galloway Romero & Associates
14202 E. Evans Ave.
Aurora, CO 80014

RE: DIAMOND SHAMROCK CORNER STORE (A14/D4A7). DRAINAGE REPORT FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 4-29-96.

Dear Mr. Parker:

Based on the information provided on your43-30-96 submittal, City Hydrology has the following comments:

1. Historically, flow from the shopping center to the south of your site, is routed to an existing swale along the east side of the site. Just past (north) the delivery entrance to the shopping center is a short length of concrete rundown/apron. This concrete apron directs flow to the Diamond Shamrock site where I assume it ponds. Your grading plan shows construction of a rip rap extension and swale at the end of the existing concrete apron to route the flow away from your site and toward Corrales Road. Is there downstream capacity for this flow?

2. While I realize the flow from your site is discharged at a relatively small rate, please discuss downstream capacity to justify the release rate.

If I can be of further assistance, please feel free to contact me at 505-768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!

25×10 32×10

0000 0000 1293

Galloway, Romero & Associates
Design Engineering Planning

14202 East Evans Ave.
Aurora, CO 80014
(303) 745-7448
(303) 745-7480 FAX

FAX TRANSMITTAL

TO: FRED AGUIRRE FAX NUMBER:
COMPANY: CITY OF ALBUQUERQUE HYDROLOGY DIV
CITY & STATE:

FROM: LARRY PARKER
DATE: MAY 22, 94
PROJECT: DIAMOND SHAMROCK- CALLE CUERVO & CORRALES
RE:
DESCRIPTION OF CONTENTS:

NUMBER OF PAGES INCLUDING TRANSMITTAL LETTER 1

COMMENTS: FRED- COULD YOU PLEASE CALL TO DISCUSS EXACTLY WHAT HAS TO BE DONE TO SATISFY THE CITY'S CONCERN. I JUST SPOKE W/MARK GOODWIN & IT SOUNDS LIKE THE INFORMATION HE PROVIDED SHOULD HAVE ANSWERED CAPACITY QUESTIONS AND HELPED JUSTIFY OVERALL RELEASE ISSUES OF THE AREA.

MY NORMAL WORKING HOURS ARE 5:15 AM TO 3:30 P.M. PLEASE CALL AS WE CANNOT PROCEED UNTIL WE KNOW YOUR EXACT CONCERNS

THANK YOU
LLP

CC: DAN LAMB W/DIAMOND SHAMROCK

MAY 23

25×10 32×10

0000 0000 1294

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DIAMOND SHAMROCK ZONE ATLAS/DRNG. FILE #: A-14/D447

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT D-4-H-1 SEVEN BAR RANCH

CITY ADDRESS: SW CORNER CORRALES & CALLE CUERVO

ENGINEERING FIRM: GALLOWAY ROMERO & ASSOC. CONTACT: LARRY L. PARKER

ADDRESS: 14202 E EVANS AVE PHONE: (303) 745-7448

OWNER: DIAMOND SHAMROCK CONTACT: DAN LAMB

ADDRESS: 520 E 56TH AVE DENVER PHONE: (303) 279-9777

ARCHITECT: GALLOWAY ROMERO & ASSOC CONTACT: LARRY L. PARKER

ADDRESS: 14202 E. EVANS AVE PHONE: (303) 745-7448

SURVEYOR: SURV-TEK INC CONTACT: RUSS HUGG

ADDRESS: 5643 PARADISE BLVD NW PHONE: (505) 897-3366

CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ✓ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER _____

PRE-DESIGN MEETING:

- ✓ YES
- ___ NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ✓ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ SUBDIVISION CERTIFICATION
- ___ OTHER _____ (SPECIFY)

DATE SUBMITTED: APRIL 30, 96

BY: [signature]

25×10 32×10

0000 0000 1295

LETTER OF TRANSMITTAL

Galloway, Romero & Associates
Design Engineering Planning

14202 East Evans Avenue
Aurora, Colorado 80014
(303) 745-7448
(303) 745-7480 Fax

DATE APRIL 30, 96
PROJECT DIAMOND SHAMROCK
LOCATION CALLE CUERVO & CORRALES

ATTENTION LISA MANWILL
RE:

To:
CITY OF ALBUQUERQUE
HYDROLOGY DEPT

WE ARE SENDING YOU: ☑ HEREWITH ☐ DELIVERED BY HAND ☐ OVERNIGHT
☐ VIA

THE FOLLOWING ITEMS: ☑ PRINTS ☐ MYLARS ☐ PHOTOCOPIES ☑ COPY OF LETTER ☐ SPECIFICATIONS
☐

COPIES	DATE OR NO.	DESCRIPTION
2 SETS	4	SP-3.0 & SP-3.0.1
1		HIGHWAY DEPT REVIEW LETTER
1		DRAINAGE INFO SHEET

THESE ARE TRANSMITTED AS INDICATED BELOW
☐ FOR YOUR USE ☐ AS REQUESTED ☐ FOR REVIEW AND COMMENT ☐ FOR APPROVAL
☐ APPROVED AS NOTED ☐ RETURNED FOR CORRECTIONS ☐

REMARKS: SP 3.0 WAS REVISED PER YOUR COMMENTS. SP 3.0.1 WAS REVISED PER NMDOT.

APR 30 1996

COPIES TO: DAN LAMB w/DIAMOND

SIGNED [signature]

25 × 10 32 × 10

0000 0000 1296

Final Drainage Report
for
Diamond Shamrock Cornerstore Number 1241
Calle Cuervo NW & Corrales Rd NW
Albuquerque, New Mexico

March 1996
Revised May 1996

Prepared for:
Diamond Shamrock
520 E. 56th Avenue
Denver, Colorado 80216
(303) 297-9777
Attn: Dan Lamb

Prepared by:
Galloway, Romero & Associates
14202 E. Evans Avenue
Aurora, Colorado 80014
(303) 745-7448
Attn: Larry L. Parker

JUN - 3 1996
GEOLOGY DIV.

REGISTERED PROFESSIONAL ENGINEER
NO. 4859
NEW MEXICO
RAFAEL E. ROMERO

25×10 32×10

0000 0000 1297

TABLE OF CONTENTS

		Page
I.	Introduction	1
II.	Design Criteria	1
III.	Historic Drainage	1
IV.	Developed Drainage	2
V.	Detention	4
VI.	Conclusions	4

APPENDIX A

Vicinity Map	A.1
Flood Insurance Rate Map	A.2
Pre-Design Conference Findings	A.3
Historic and Developed Peak Discharge, Detention and Pond Volume	A.4
Conceptual Drainage Plan by Bordenave Designs	A.5-A.7
Cabuzon Channel Capacity Analysis by Easterling & Associates	A.8-A.10
Orifice Sizing Calculations	A.11
Developed Offsite Basin OS-1	A.12
Historic Drainage Map, Developed Drainage Plan and Temporary Offsite Flow Conveyance	Back Pocket of this Report

25×10 32×10

0000 0000 1248

I. INTRODUCTION

This report is being prepared for Diamond Shamrock, Inc., the owner/developer of the site, to fulfill the final drainage requirements of Albuquerque, New Mexico. The report analyzes offsite and onsite runoff from the minor, 10 year frequency, and major, 100 year frequency storms and routes these flows through the site to an onsite detention pond.

The 0.7371 acre site is located in projected Section 5, Township 11 North, Range 3 East of the New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico. The site is bound by Calle Cuervo on the north, by Corrales Road on the east and by undeveloped, SU-1 zoned property on the south and west. According to the Flood Insurance Rate Map for the City of Albuquerque, Community Panel Number 350002 0002C, with an effective date of October 14, 1983, the site lies within Zone C, an area of minimal flooding.

Currently the site is undeveloped and covered with native grasses and weeds. The site and the offsite area along the south and west is relatively flat and doesn't display any well defined drainage ways. It is believed that the majority of the precipitation falling on the site evaporates/percolates rather than flowing offsite. Runoff for the overall region, of which the Diamond Shamrock site is a part, is in a general north/northeasterly direction to the Cabezon Channel.

This site, as well as the surrounding area to the south and west, has been replatted and is known as Tracts D-4-H-1 and D-4-H-2, Seven Bar Ranch. The Diamond Shamrock is legally described as Tract D-4-H-1.

II. DESIGN CRITERIA

This report is being prepared using the criteria and methodology as presented in Section 22.2, Hydrology of the "Development Process Manual" for the City of Albuquerque in cooperation with Bernalillo County, New Mexico, dated January 1993. Peak runoff for the minor and major storms (10 and 100 year frequency, respectively), excess precipitation, runoff volume and detention volume was calculated using values for Precipitation Zone 1. Calculations and applicable tables and graphs are included in the Appendix of this report.

III. HISTORIC DRAINAGE

General. When the area immediately to the south and west of the site develops, its runoff will not be routed through the site and consequently this area has been excluded from the existing drainage. A discussion of this runoff is presented in the "Developed Drainage, Offsite Runoff" section of this report.

Runoff from an area south of the entire subdivision, approximately 130 feet south of the Diamond Shamrock site, flows northerly in Corrales Road toward the Cabezon Channel. Previous drainage reports, included in the Appendix, indicate these 100 year

25×10 32×10

flows to be 37.22 cfs at the discharge point 130 feet south of the site and 43.89 cfs at the intersection of Calle Cuervo and Corrales Road. This runoff crosses Corrales Road in the vicinity of the site's northeasterly corner, due to the roadway's superelevation, and continues to the Cabezon Channel. Due to the overall area's flatness and the absence of an overall storm sewer system, the conveyance of these flows is less than ideal. Since these flows are not routed through the site and will be prevented from doing so by the proposed grading, they and the routing will not be included in this report.

Specific Details. The entire site is considered as a single basin, designated "A" and to be entirely composed of land treatment A. The 10 and 100 year runoff is 0.18 and 0.95 cfs, respectively.

IV. DEVELOPED DRAINAGE

General. As previously stated, the majority of runoff from the undeveloped area south and west of the site will not be routed through the site and was not included in the runoff calculations. Runoff in Corrales Road will not be taken onsite and was also omitted from the calculations.

Specific Details. The site is divided into two basins, A and B. Basin A is a 0.160 acre basin along the site's northerly and easterly perimeter. A proposed development west of the basin, titled "Corrales Mini-Storage", will be contributing offsite flows to Basin A. The offsite basin, OS-1, is a 0.026 acre basin that will be entirely land treatment D. The 10 and 100 year runoff from offsite Basin OS-1 of 0.08 and 0.11 cfs, respectively, combines with Basin A's 10 and 100 year runoff of 0.29 and 0.51 cfs, respectively. The combined 10 and 100 year runoff of 0.37 and 0.62, respectively, is largely unconcentrated and exits the site undetained.

Basin B is a 0.577 acre basin that consists of roof, paved and landscaped areas. The 10 and 100 year runoff of 1.47 and 2.30 cfs, respectively, flows to the onsite detention pond. A 4" PVC outfall lateral with an orifice plate will restrict the pond's 100 year release to 0.47 cfs. The restricted release from the pond and the undetained release from Basin A equals the 100 year historic release from this site. The developed site does not increase runoff.

Offsite Runoff. As previously stated, 37.22 cfs is discharged from the shopping center site approximately 130 feet south of the Diamond Shamrock site. A small swale directs this runoff northerly towards the southwesterly corner of Calle Cuervo and Corrales. A berm west of the swale confined the majority of the runoff to the Corrales Road right-of-way. This berm also prevents undeveloped runoff from the proposed Corrales Mini Storage and the Diamond Shamrock site from combining with the shopping center's runoff. That runoff ponds until it percolates or evaporates. At the intersection and during a low flow storm the minor crowns (2 inches plus or minus) of the road caused runoff from the shopping center to pond in the right-of-way area. A storm with a greater intensity would cause this runoff to overtop the crowns and flow northerly in a small roadside ditch on the westerly side of Corrales Road and northeasterly, across the intersection, to a small swale on the easterly side of Corrales Road. Runoff on the

25×10 32×10

westerly side of Corrales Road and north of Calle Cuervo eventually flows across the road when this small swale meets the superelevated portion of Corrales Road a short distance north of the intersection. The runoff is ultimately conveyed to the Cabezon Channel. This has been the historic drainage pattern of the area since Calle Cuervo was constructed. Prior to that construction the runoff was not blocked by the roadway crowns. This pattern was verified by examination of supplemental topographic information submitted with the drainage report for the Corrales Mini Storage Facility, City of Albuquerque Reference A14/D4A6, approved May 9, 1996.

The proposed drainage facilities for the offsite runoff are temporary and intended to mimic the historic drainage patterns, the solution will be the storm sewer construction proposed with the future Corrales Road improvements by the State Department of Transportation. The Diamond Shamrock development proposes minor, temporary facilities to ease the drainage impact and to post bond for future storm sewer facilities. The proposed temporary facilities are as follows:

A.) Redirection of runoff away from Corrales Road with the Mini Storage Facility development. The proposed grading decreases the runoff by approximately 3 cfs. This runoff is directed westerly to a proposed detention pond.

B.) Improving the swale from the shopping center to the southerly property line. At the point of discharge, a riprap pad takes up elevation as well as reducing erosion potential. The swale is more of a "V" shape versus the existing "U" shape. This allows more runoff to be conveyed. The swale slope is relatively flat and the velocity will be reduced allowing a greater opportunity for percolation.

C.) The area between the southerly curb cut and the roadway intersection is a minor retention facility. The swale has been set 0.5 feet below a uniform grade and the area is lined with an 18 inch thick cobble rock pad. This enhances the runoffs opportunity to percolate.

D.) A concrete pan crosses Calle Cuervo and allows water to flow versus causing water to pond.

The temporary drainage facilities as shown do not and will not rectify the inherent drainage problems this area has. They are only intended to alleviate the situation until permanent storm sewer facilities are constructed. Diamond Shamrock will be bonding for 30" RCP, or equivalent, across the entire Corrales Road frontage in anticipation of the future highway improvements. Even runoff from a minor storm will over capacitate the concrete pan crossing Calle Cuervo and cause an overtopping of the minor roadway crown of Corrales Road. This overtopping is not a new condition but rather a duplication of existing conditions.

25×10 32×10

0000 0000 1301

V. DETENTION

Using the values for Precipitation Zone 1 and the methodology described in the "Development Process Manual", a 100 year detention volume of 3687 cubic feet was calculated. This volume is achieved in a single pond at the northeasterly corner of the site. The pond's release rate was established by subtracting the undetained 100 year developed flow from Basin A from the historic 100 year runoff for the overall site. This limits the site's runoff to historic levels.

The pond's outlet structure will be a concrete headwall with trashrack and a 4 inch PVC outfall lateral with an orifice plate. Should the outlet plug or fail, emergency overflow will occur at the Corrales Road and Calle Cuervo curb cuts. The overflow elevation coincides with the pond's 100 year water surface of 9.4. This elevation is 1.4 feet below the convenience store finished floor elevation of 10.8.

The pond provides a freeboard of 0.6 feet where 1 foot is normal. With all the site constraints (lack of storm sewer, small size and the City's requirement of a 6 foot wide detached sidewalk along Calle Cuervo) the additional 0.4 foot freeboard could not be provided. This will not have an adverse affect on the site for the following reasons:

A.) Offsite flows are not routed through the pond and little variance of the calculated 100 year runoff is expected.

B.) Emergency overflows have been provided over paved areas in two locations. If a surcharge occurs, it will be minor and will be routed away from the site before it approaches the freeboard elevation.

IV. CONCLUSIONS

This report has been prepared using the methodology and information contained within Section 22.2 of the Development Process Manual for the City of Albuquerque in cooperation with Bernalillo County, New Mexico, dated January, 1995. Runoff from the minor/major storms is safely routed through this site and is discharged without causing potential harm to the public.

Runoff from the shopping center south of the Diamond Shamrock site will not enter the site. Temporary measures, as indicated on "Temporary Offsite Flow Conveyance", sheet 3 of 3, will convey this runoff toward the Cabezon Channel. Should these temporary measures become overburdened, the runoff will simulate existing conditions and overtop Corrales Road before entering the site.

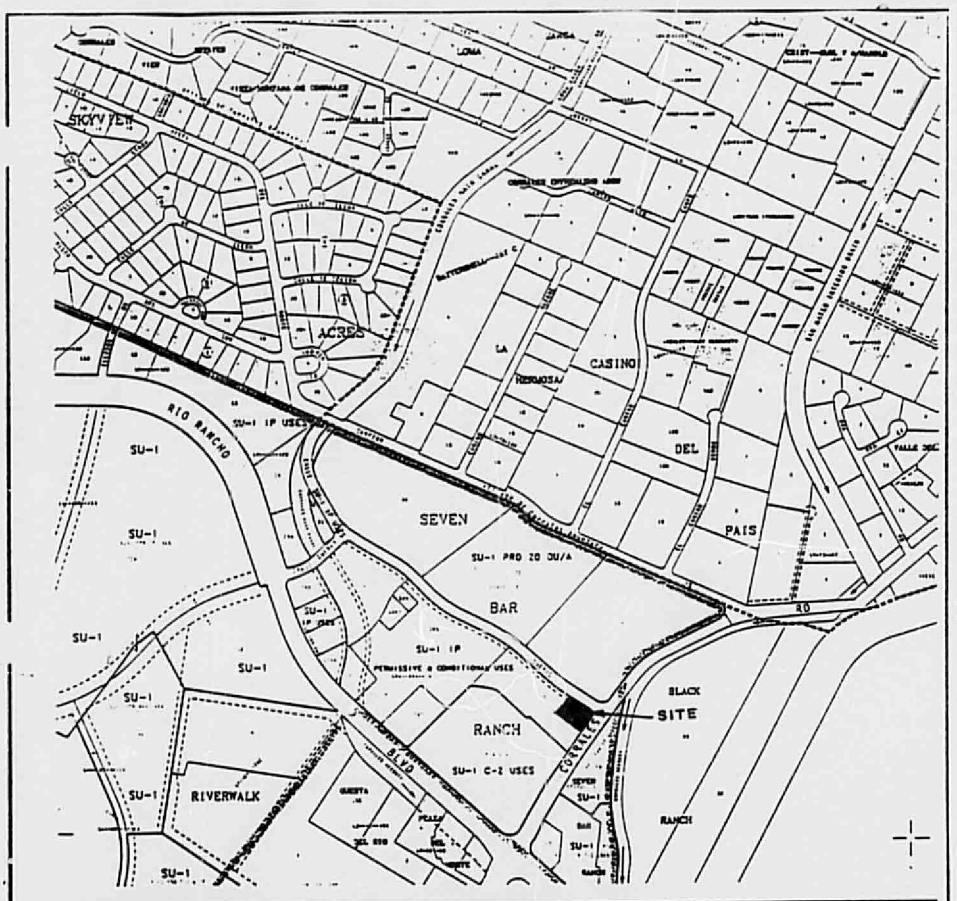
25× 32×

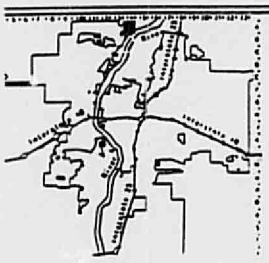
0000 0000 1302

APPENDIX A

25×10 32×10

0000 0000 1303





750 375 0 750

Scale: 1" = 750'

A G I S

© Planning Department June 30, 1993

LEGAL DESCRIPTION

T11N

R3E

SEC 5

UNIFORM PROPERTY CODE

1-014-066

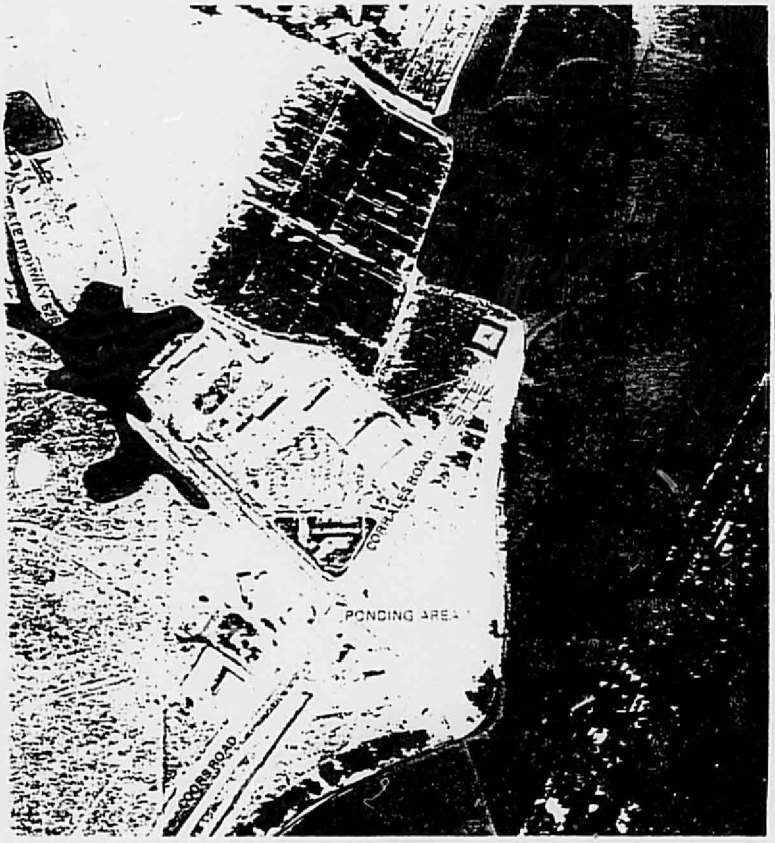
A-14-Z

VICINITY MAP

A.1

25×10 32×10

0000 0000 1304



NATIONAL FLOOD INSURANCE PROGRAM

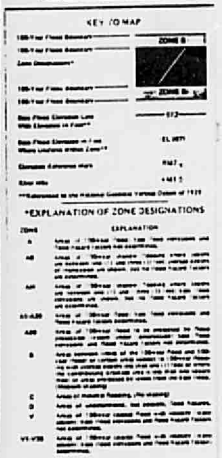
FIRM
FLOOD INSURANCE RATE MAP

CITY OF
ALBUQUERQUE,
NEW MEXICO
BERNALILLO COUNTY

PANEL 2 OF 10

COMMUNITY-PANEL NUMBER
350002 0002 2
EFFECTIVE DATE:
OCTOBER 14, 1983

Federal Emergency Management Agency


KEY TO MAP

ZONE B

*EXPLANATION OF ZONE DESIGNATIONS

ZONE | EXPLANATION

FLOOD

25× 32×

0000 0000 1305

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

PRE-DESIGN CONFERENCE

.INAGE FILE/ZONE ATLAS PAGE NO.: A-14 DATE: 12-15-94

EPC NO.: _____ DRB NO.: _____ ZONE: SU-1 IP

SUBJECT: Diamond Shamrock

STREET ADDRESS: SW Calle Cuervo & Corrales Rd

LEGAL DESCRIPTION: _____

APPROVAL REQUESTED:

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

ATTENDANCE:	WHO	REPRESENTING
	Glen Bates	
	John Curtin	

FINDINGS:

Firm Panel 2 indicates that the site is not in a floodplain.

Identify off-site Flows

Verify Downstream Capacity & Justify Discharge Rate.

Corrales Rd drain to Cabezon Channel See File A-14/D4B.

Discuss Cabezon Channel Capacity with Chuck Easterling.

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 are based on inaccurate information.

SIGNED: John P. Curtin SIGNED: Glenn F. Bates

TITLE: CE/Hydrology TITLE: For and on behalf Diamond Shamrock

DATE: 12-15-94 DATE: 12/15/94

A.3

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

25× 32×

0000 0000 1306

HISTORIC PEAK DISCHARGE: cfs

CONSIDER ENTIRE 0.737 ACRE SITE AS TREAMENT A

Q10= 0.18

Q100= 0.95

DEVELOPED PEAK DISCHARGE: cfs

BASIN NAME	OVERALL AREA SF	TREATMENT B ACRES	TREATMENT D ACRES	PEAK DISCHARGE 10 YR	PEAK DISCHARGE 100 YR
A	0.160	0.081	0.079	0.29	0.51
B	0.577	0.093	0.484	1.47	2.30
TOTALS	0.737	0.174	0.563		

OFFSITE DEVELOPED PEAK DISCHARGE: cfs

BASIN NAME	OVERALL AREA SF	TREATMENT B ACRES	TREATMENT D ACRES	PEAK DISCHARGE 10 YR	PEAK DISCHARGE 100 YR
OS-1	0.026	0.000	0.026	0.08	0.11

EXCESS PRECIPITATION: BASIN B; inches

E = 1.760

DETENTION VOLUME: cubic feet

V360= 3687

POND VOLUME

ELEVATION	AREA SF	VOLUME CF	CUMULATIVE VOLUME CF
7.9	0		
		8	8
8.0	165		
		402	410
8.5	1443		
		1268	1679
9.0	3630		
		2058	3737
9.4	6662		

REQUIRED VOLUME IS 3687

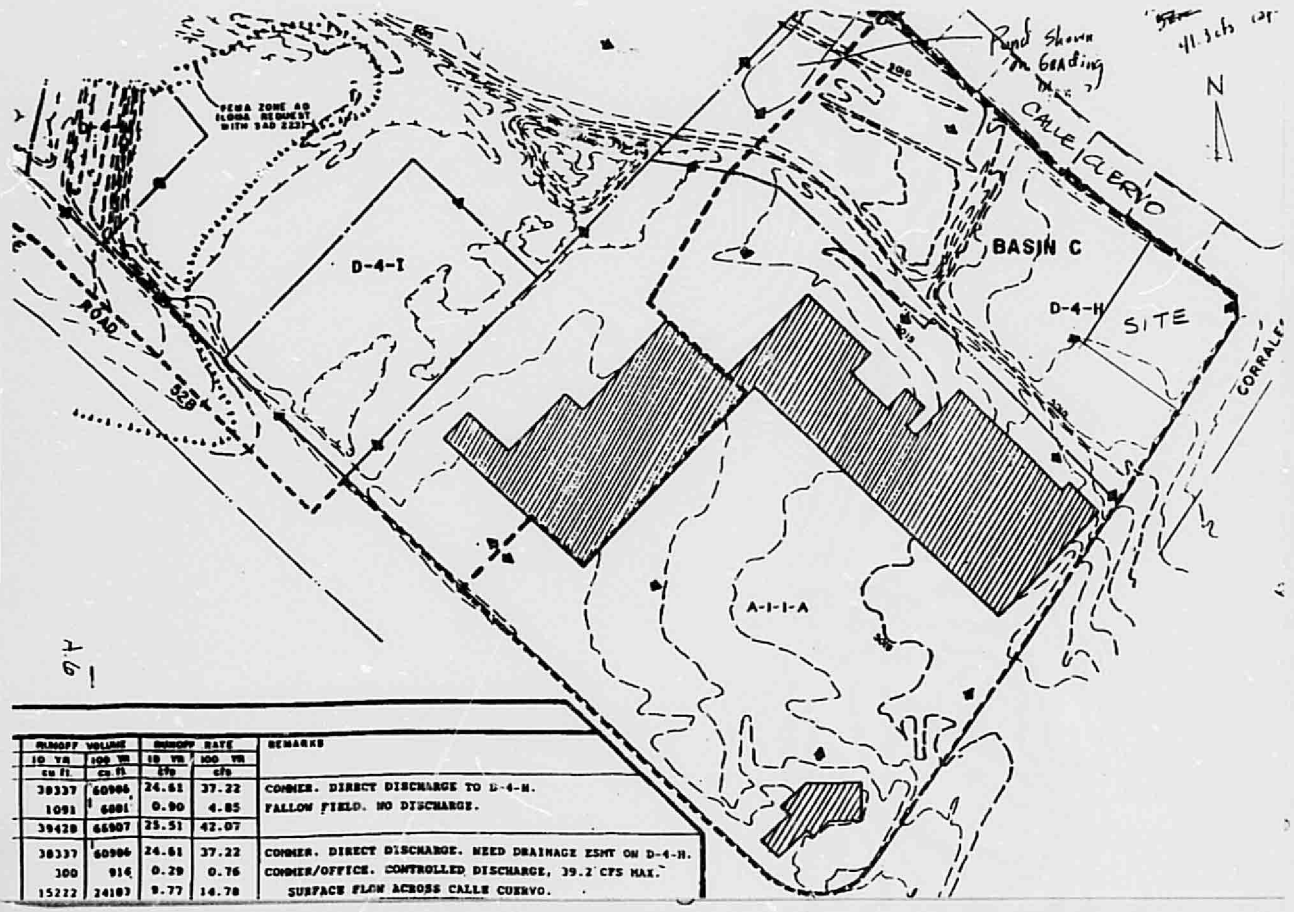
A.4

25×10 32×10

0000 0000 1307

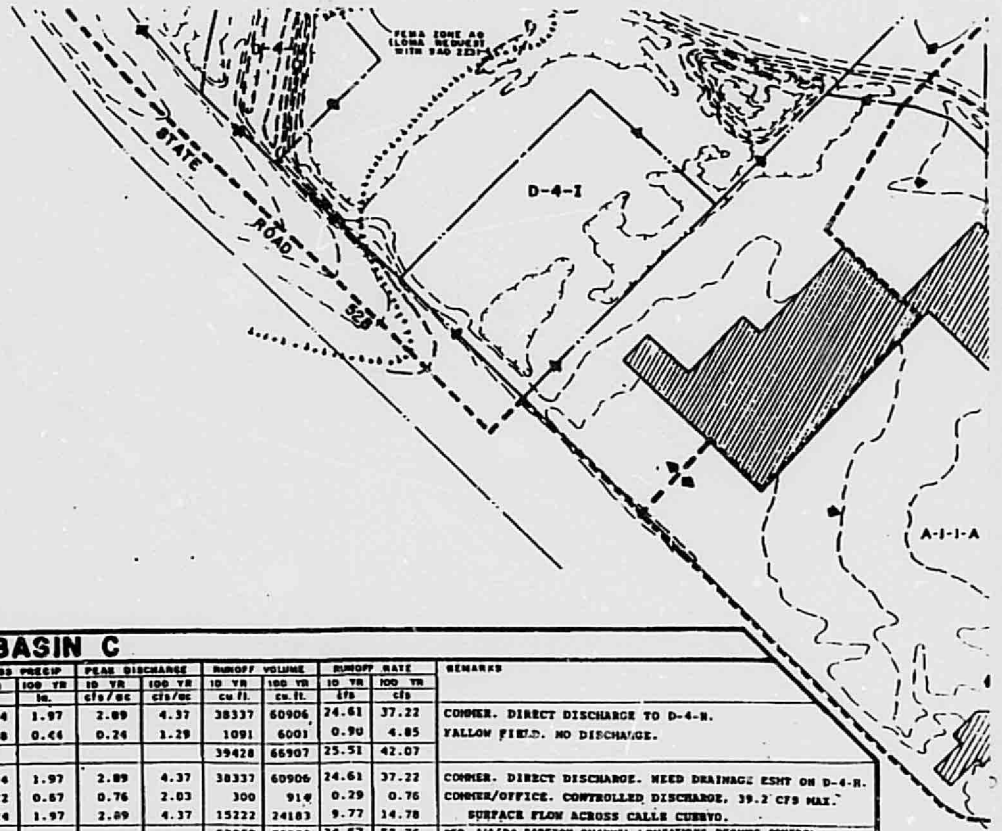
CONCEPTUAL DRAINAGE PLAN
TRACT D-4-G THRU
SEVEN BAR RANCH

25×10 32×10



RUNOFF VOLUME 10 YR cu ft	RUNOFF VOLUME 100 YR cu ft	RUNOFF RATE 10 YR cfs	RUNOFF RATE 100 YR cfs	REMARKS
38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE TO D-4-H.
1091	6001	0.90	4.85	FALLOW FIELD. NO DISCHARGE.
39428	66907	25.51	42.07	
38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE. NEED DRAINAGE ESMT ON D-4-H.
300	916	0.29	0.76	COMMER/OFFICE. CONTROLLED DISCHARGE, 39.2 CFS MAX.
15222	24187	9.77	14.78	SURFACE FLOW ACROSS CALLE CUERVO.

25×
32×
0000 0000 0000 1308



A.7

HYDROLOGY BASIN C

COND.	TRACT	AREA sq. ft.	LAND TREATMENT	EXCESS PRECIP 10 YR in.	EXCESS PRECIP 100 YR in.	PEAK DISCHARGE 10 YR cfs/ac	PEAK DISCHARGE 100 YR cfs/ac	RUNOFF VOLUME 10 YR cu ft.	RUNOFF VOLUME 100 YR cu. ft.	RUNOFF RATE 10 YR cfs	RUNOFF RATE 100 YR cfs	REMARKS
EXISTING	A-1-1-A	371000	D	1.24	1.97	2.89	4.37	38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE TO D-4-H.
	D-4-H	163670	A	0.08	0.44	0.24	1.29	1091	6001	0.90	4.85	FALLOW FIELD. NO DISCHARGE.
	TOTAL	534670						39428	66907	25.51	42.07	
DEVELOPED	A-1-1-A	371000	D	1.24	1.97	2.89	4.37	38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE. NEED DRAINAGE ESMT ON D-4-H.
	D-4-H	16365	B	0.22	0.67	0.76	2.03	300	914	0.29	0.76	COMMER/OFFICE. CONTROLLED DISCHARGE. 39.2 CFS MAX.
		147305	D	1.24	1.97	2.89	4.37	15222	24183	9.77	14.78	SURFACE FLOW ACROSS CALLE CUERVO.
	TOTAL	534670						53859	86003	34.67	52.76	PER A10/D4 CABEZON CHANNEL LIMITATIONS REQUIRE CONTROL

25×10

32×10

0000 0000 1310

SAD NO. 223

CABEZON CHANNEL CAPACITY ANALYSIS

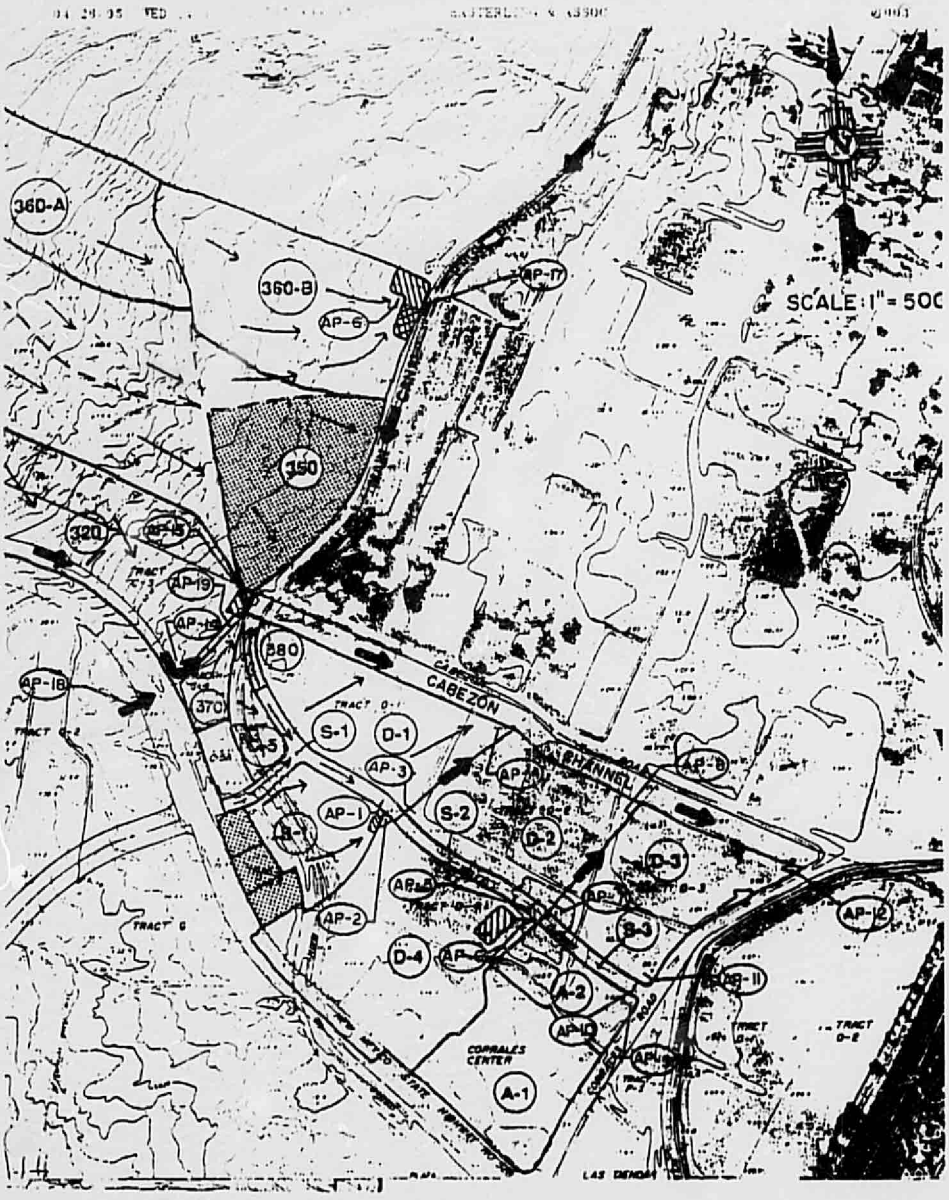
JUNE 1993

A.6

25×10 32×10

A14/D4A7

0000 0000 1311



25× 32×

0000 0000 1312

SUMMARY OF PEAK DISCHARGES - DEVELOPED/WORST CASE CONDITIONS					
ANALYSIS POINT (AP)	DA (SQ. MI.)	TP (HRS)	100 YR. RUNOFF VOLUME (AC-FT)	100 YR. Q (CFS)	DESCRIPTION
AP-1	0.0060	5.550	0.7876	13.58	Basin D-5 and Street Flows
AP-2	0.0080	5.650	1.0098	16.21	B-1 Pond Discharge Allowable Release Rate = 16.5 cfs
AP-3	0.0140	5.600	1.7974	29.58	Combined Flows Phase I Side Channel
AP-4	0.0140	5.650	1.7974	28.78	Routed Flow From AP-3
AP-5	0.0020	5.550	0.2726	5.39	Street Flow
AP-6	0.0290	5.700	3.6766	39.71	D-4 Pond Discharge Allowable Release Rate = 41.3 cfs
AP-7	0.0310	5.700	3.9492	42.83	Combined Flows Phase II Side Channel
AP-8	0.0310	5.700	3.9492	42.78	Routed Flow From AP-7
AP-9	0.0180	5.500	2.1713	43.89	Routed Flow From Basin A-1 Plus Runoff From Basin A-2
AP-10	0.0013	5.500	0.1772	3.61	Street Flows
AP-11	0.0193	5.550	2.3485	47.50	Combined Flow Road Side Conveyance
AP-12	0.0193	5.650	2.3485	39.60	Routed Flow Prior to Entering Cabezon Channel
AP-13	0.0794	5.600	4.0484	95.36	Runoff From Basin 310
AP-14	0.0794	5.650	4.0484	90.85	Routed Flow NM 528 Asphalt Swale
AP-15	0.1158	5.600	7.4300	178.33	Runoff From Basin 330 Skyview Acres
AP-16	0.0797	5.550	4.9365	133.02	Skyview Pond Inflow
AP-17	0.0797	6.100	4.9211	18.99	Skyview Pond Outflow
AP-18	0.0927	6.167	9.5439	41.23	Flow Crossing NM 528 via Exist (3) 30" x 42" CMPA
AP-19	0.1975	5.633	14.5927	39.38	Combined Flow Entering Cabezon Pond via Tract 0-2A Outfall Channel

4.10

25×10 32×10

0000 0000 1313

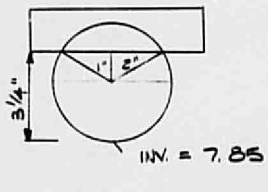
ORIFICE SIZING CALCULATIONS

Q_{100} HISTORIC = 0.95 CFS

Q_{100} DEVELOPED UNDETAINED = - 0.51 CFS

Q_{100} ALLOWABLE = 0.44 CFS

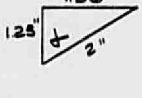
TRY A 4" PVC LATERAL W/ORIFICE PLATE



100 YR WS = 9.4

AREAS

TRIANGLES



$A = 2\left(\tfrac{1}{2}(1.25 \cdot 1.56)\right)/144$

$A = 0.0135\ FT^2$

$\cos\alpha = 1.25/2,\ \alpha = 51°\ 19'\ 04''$

CIRCLE SEG

$\Delta = 360 - 2\alpha = 360° - 2(51°\ 19'\ 04'')$

$\Delta = 257°\ 21'\ 52''$

$A = \left(\pi R^2 \frac{\Delta}{360}\right)/144$

$A = 0.0624\ FT^2$

TOTAL AREA = $0.0759\ FT^2$

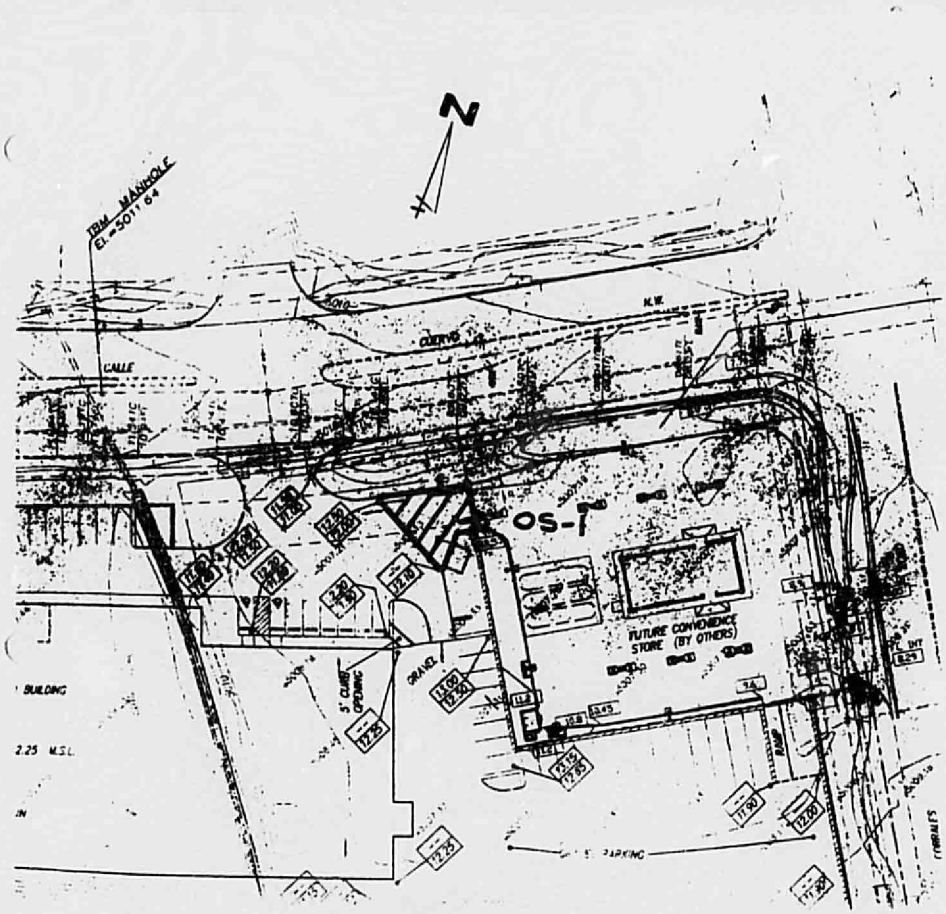
$h = 9.4 - \left(\left(\tfrac{3.25}{2}\right)/12\right) + 7.85 = 1.415\ FT$

$Q = 0.65(A)(2 \cdot G \cdot h)^{1/2}$

$Q = 0.65(0.0759)(2 \cdot 32.2 \cdot 1.415)^{1/2} = 0.47\ CFS \cong 0.44$ OK

25×10 32×10

0000 0000 1314



DEVELOPED OFFSITE BASIN OS-1

4.12

25×10 32×10

0000 0000 1315

Final Drainage Report
for
Diamond Shamrock Cornerstore Number 1241
Calle Cuervo NW & Corrales Rd NW
Albuquerque, New Mexico

March 1996
Revised May 1996

Prepared for:
Diamond Shamrock
520 E. 56th Avenue
Denver, Colorado 80216
(303) 297-9777
Attn: Dan Lamb

Prepared by:
Galloway, Romero & Associates
14202 E. Evans Avenue
Aurora, Colorado 80014
(303) 745-7448
Attn: Larry L. Parker

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
NO. 4859
7-2-96
RAFAEL E. ROMERO

25×10 32×10

0000 0000 1316

TABLE OF CONTENTS

		Page
I.	Introduction	1
II.	Design Criteria	1
III.	Historic Drainage	1
IV.	Developed Drainage	2
V.	Detention	4
VI.	Conclusions	4

APPENDIX A

Vicinity Map	A.1
Flood Insurance Rate Map	A.2
Pre-Design Conference Findings	A.3
Historic and Developed Peak Discharge, Detention and Pond Volume	A.4
Conceptual Drainage Plan by Bordenave Designs	A.5-A.7
Cabezon Channel	A.8-A.10
Capacity Analysis by Easterling & Associates	
Orifice Sizing Calculations	A.11
Developed Offsite Basin OS-1	A.12
Historic Drainage Map, Developed Drainage Plan and Temporary Offsite Flow Conveyance	Back Pocket of this Report

25×10 32×10

0000 0000 1317

I. INTRODUCTION

This report is being prepared for Diamond Shamrock, Inc., the owner/developer of the site, to fulfill the final drainage requirements of Albuquerque, New Mexico. The report analyzes offsite and onsite runoff from the minor, 10 year frequency, and major, 100 year frequency storms and routes these flows through the site to an onsite detention pond.

The 0.7371 acre site is located in projected Section 5, Township 11 North, Range 3 East of the New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico. The site is bound by Calle Cuervo on the north, by Corrales Road on the east and by undeveloped, SU-1 zoned property on the south and west. According to the Flood Insurance Rate Map for the City of Albuquerque, Community Panel Number 350002 0002C, with an effective date of October 14, 1983, the site lies within Zone C, an area of minimal flooding.

Currently the site is undeveloped and covered with native grasses and weeds. The site and the offsite area along the south and west is relatively flat and doesn't display any well defined drainage ways. It is believed that the majority of the precipitation falling on the site evaporates/percolates rather than flowing offsite. Runoff for the overall region, of which the Diamond Shamrock site is a part, is in a general north/northeasterly direction to the Cabezon Channel.

This site, as well as the surrounding area to the south and west, has been replatted and is known as Tracts D-4-H-1 and D-4-H-2, Seven Bar Ranch. The Diamond Shamrock is legally described as Tract D-4-H-1.

II. DESIGN CRITERIA

This report is being prepared using the criteria and methodology as presented in Section 22.2, Hydrology of the "Development Process Manual" for the City of Albuquerque in cooperation with Bernalillo County, New Mexico, dated January 1993. Peak runoff for the minor and major storms (10 and 100 year frequency, respectively), excess precipitation, runoff volume and detention volume was calculated using values for Precipitation Zone 1. Calculations and applicable tables and graphs are included in the Appendix of this report.

III. HISTORIC DRAINAGE

General. When the area immediately to the south and west of the site develops, its runoff will not be routed through the site and consequently this area has been excluded from the existing drainage. A discussion of this runoff is presented in the "Developed Drainage, Offsite Runoff" section of this report.

Runoff from an area south of the entire subdivision, approximately 130 feet south of the Diamond Shamrock site, flows northerly in Corrales Road toward the Cabezon Channel. Previous drainage reports, included in the Appendix, indicate these 100 year

25×10 32×10

0000 0000 1318

flows to be 37.22 cfs at the discharge point 130 feet south of the site and 43.89 cfs at the intersection of Calle Cuervo and Corrales Road. This runoff crosses Corrales Road in the vicinity of the site's northeasterly corner, due to the roadway's superelevation, and continues to the Cabezon Channel. Due to the overall area's flatness and the absence of an overall storm sewer system, the conveyance of these flows is less than ideal. Since these flows are not routed through the site and will be prevented from doing so by the proposed grading, they and the routing will not be included in this report.

Specific Details. The entire site is considered as a single basin, designated "A" and to be entirely composed of land treatment A. The 10 and 100 year runoff is 0.18 and 0.95 cfs, respectively.

IV. DEVELOPED DRAINAGE

General. As previously stated, the majority of runoff from the undeveloped area south and west of the site will not be routed through the site and was not included in the runoff calculations. Runoff in Corrales Road will not be taken onsite and was also omitted from the calculations.

Specific Details. The site is divided into two basins, A and B. Basin A is a 0.160 acre basin along the site's northerly and easterly perimeter. A proposed development west of the basin, titled "Corrales Mini-Storage", will be contributing offsite flows to Basin A. The offsite basin, OS-1, is a 0.026 acre basin that will be entirely land treatment D. The 10 and 100 year runoff from offsite Basin OS-1 of 0.08 and 0.11 cfs, respectively, combines with Basin A's 10 and 100 year runoff of 0.29 and 0.51 cfs, respectively. The combined 10 and 100 year runoff of 0.37 and 0.62, respectively, is largely unconcentrated and exits the site undetained.

Basin B is a 0.577 acre basin that consists of roof, paved and landscaped areas. The 10 and 100 year runoff of 1.47 and 2.30 cfs, respectively, flows to the onsite detention pond. A 4" PVC outfall lateral with an orifice plate will restrict the pond's 100 year release to 0.47 cfs. The restricted release from the pond and the undetained release from Basin A equals the 100 year historic release from this site. The developed site does not increase runoff.

Offsite Runoff. As previously stated, 37.22 cfs is discharged from the shopping center site approximately 130 feet south of the Diamond Shamrock site. A small swale directs this runoff northerly towards the southwesterly corner of Calle Cuervo and Corrales. A berm west of the swale confined the majority of the runoff to the Corrales Road right-of-way. This berm also prevents undeveloped runoff from the proposed Corrales Mini Storage and the Diamond Shamrock site from combining with the shopping center's runoff. That runoff ponds until it percolates or evaporates. At the intersection and during a low flow storm the minor crowns (2 inches plus or minus) of the road caused runoff from the shopping center to pond in the right-of-way area. A storm with a greater intensity would cause this runoff to overtop the crowns and flow northerly in a small roadside ditch on the westerly side of Corrales Road and northeasterly, across the intersection, to a small swale on the easterly side of Corrales Road. Runoff on the

25× 32×

0000 0000 1319

westerly side of Corrales Road and north of Calle Cuervo eventually flows across the road when this small swale meets the superelevated portion of Corrales Road a short distance north of the intersection. The runoff is ultimately conveyed to the Cabezon Channel. This has been the historic drainage pattern of the area since Calle Cuervo was constructed. Prior to that construction the runoff was not blocked by the roadway crowns. This pattern was verified by examination of supplemental topographic information submitted with the drainage report for the Corrales Mini Storage Facility, City of Albuquerque Reference A14/D4A6, approved May 9, 1996.

The proposed drainage facilities for the offsite runoff are temporary and intended to mimic the historic drainage patterns, the solution will be the storm sewer construction proposed with the future Corrales Road improvements by the State Department of Transportation. The Diamond Shamrock development proposes minor, temporary facilities to ease the drainage impact and to post bond for future storm sewer facilities. The proposed temporary facilities are as follows:

A.) Redirection of runoff away from Corrales Road with the Mini Storage Facility development. The proposed grading decreases the runoff by approximately 3 cfs. This runoff is directed westerly to a proposed detention pond.

B.) Improving the swale from the shopping center to the southerly property line. At the point of discharge, a riprap pad takes up elevation as well as reducing erosion potential. The swale is more of a "V" shape versus the existing "U" shape. This allows more runoff to be conveyed. The swale slope is relatively flat and the velocity will be reduced allowing a greater opportunity for percolation.

C.) The area between the southerly curb cut and the roadway intersection is a minor retention facility. The swale has been set 0.5 feet below a uniform grade and the area is lined with an 18 inch thick cobble rock pad. This enhances the runoffs opportunity to percolate.

D.) A concrete pan crosses Calle Cuervo and allows water to flow versus causing water to pond.

The temporary drainage facilities as shown do not and will not rectify the inherent drainage problems this area has. They are only intended to alleviate the situation until permanent storm sewer facilities are constructed. Diamond Shamrock will be bonding for 30" RCP, or equivalent, across the entire Corrales Road frontage in anticipation of the future highway improvements. Even runoff from a minor storm will over capacitate the concrete pan crossing Calle Cuervo and cause an overtopping of the minor roadway crown of Corrales Road. This overtopping is not a new condition but rather a duplication of existing conditions.

25× 32×

0000 0000 1320

V. DETENTION

Using the values for Precipitation Zone 1 and the methodology described in the "Development Process Manual", a 100 year detention volume of 3687 cubic feet was calculated. This volume is achieved in a single pond at the northeasterly corner of the site. The pond's release rate was established by subtracting the undetained 100 year developed flow from Basin A from the historic 100 year runoff for the overall site. This limits the site's runoff to historic levels.

The pond's outlet structure will be a concrete headwall with trashrack and a 4 inch PVC outfall lateral with an orifice plate. Should the outlet plug or fail, emergency overflow will occur at the Corrales Road and Calle Cuervo curb cuts. The overflow elevation coincides with the pond's 100 year water surface of 9.4. This elevation is 1.4 feet below the convenience store finished floor elevation of 10.8.

The pond provides a freeboard of 0.6 feet where 1 foot is normal. With all the site constraints (lack of storm sewer, small size and the City's requirement of a 6 foot wide detached sidewalk along Calle Cuervo) the additional 0.4 foot freeboard could not be provided. This will not have an adverse affect on the site for the following reasons:

A.) Offsite flows are not routed through the pond and little variance of the calculated 100 year runoff is expected.

B.) Emergency overflows have been provided over paved areas in two locations. If a surcharge occurs, it will be minor and will be routed away from the site before it approaches the freeboard elevation.

IV. CONCLUSIONS

This report has been prepared using the methodology and information contained within Section 22.2 of the Development Process Manual for the City of Albuquerque in cooperation with Bernalillo County, New Mexico, dated January, 1995. Runoff from the minor/major storms is safely routed through this site and is discharged without causing potential harm to the public.

Runoff from the shopping center south of the Diamond Shamrock site will not enter the site. Temporary measures, as indicated on "Temporary Offsite Flow Conveyance", sheet 3 of 3, will convey this runoff toward the Cabezon Channel. Should these temporary measures become overburdened, the runoff will simulate existing conditions and overtop Corrales Road before entering the site.

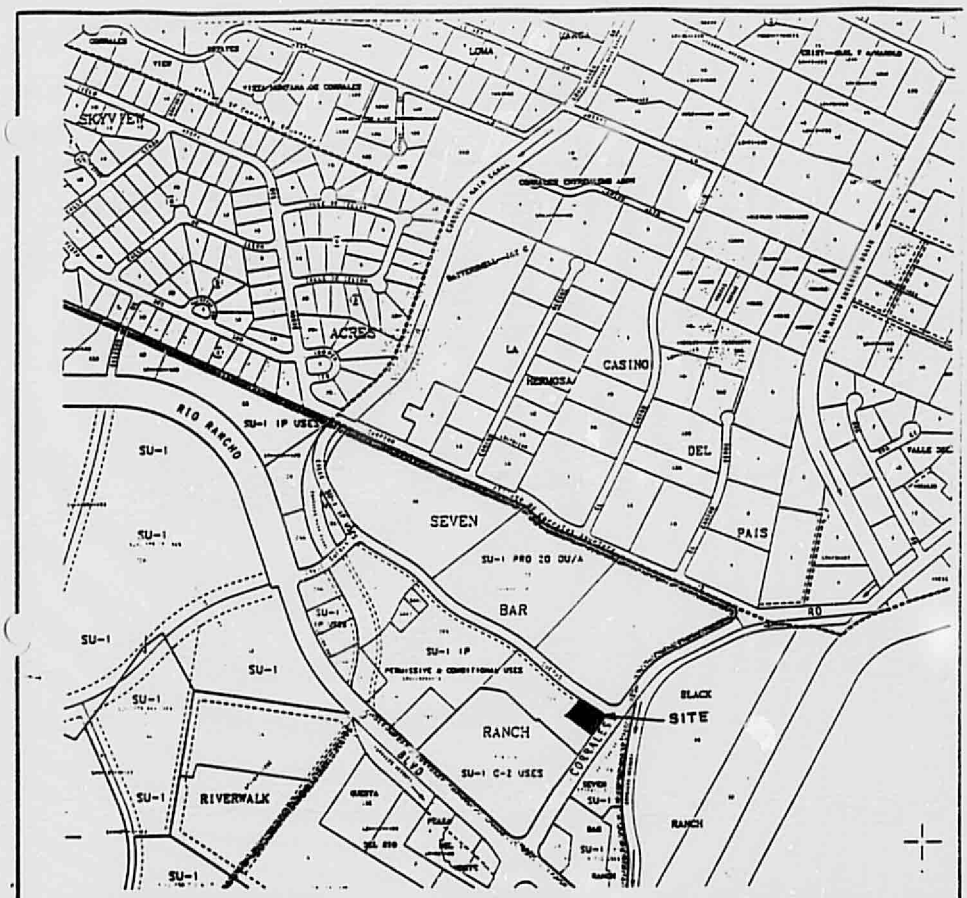
25×10 32×10

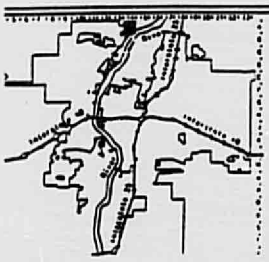
0000 0000 1321

APPENDIX A

25×10 32×10

0000 0000 1322





750 375 0 750

Scale: 1" = 750'

A G I S

© Planning Department June 30, 1993

LEGAL DESCRIPTION

T11N

R3E

SEC 5

UNIFORM PROPERTY CODE

1-014-066

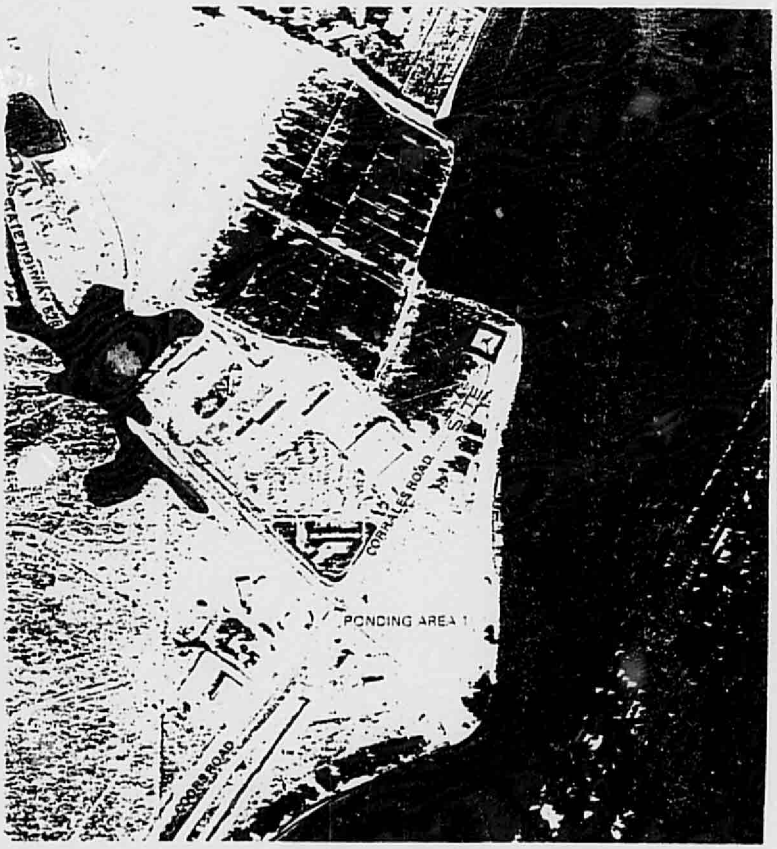
A-14-Z

VICINITY MAP

A.1

25× 32×

0000 0000 1323



NATIONAL FLOOD INSURANCE PROG

FIRM
FLOOD INSURANCE RATE MA

CITY OF
ALBUQUERQUE,
NEW MEXICO
BERNALILLO COUNTY

PANEL 2 OF 10

COMMUNITY-PANEL NUMBE
350002 0002
EFFECTIVE DATE
OCTOBER 14, 198

Federal Emergency Management Agen

KEY TO MAP

ZONE B

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AE	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
AO	Areas of 100-year flood to be inundated by flood of shallow depth; average depths of inundation are shown, but no flood hazard factors are determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flood with average depths of less than one foot or drainage areas less than one (1) square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

FLOOD IN

25× 32×

0000 0000 1324

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

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: A-14 DATE: 12-15-94

EPC NO.: _____ DRB NO.: _____ ZONE: SU-1 IP

SUBJECT: Diamond Shamrock

STREET ADDRESS: SW Calle Cuervo & Corrales Rd

LEGAL DESCRIPTION: _____

APPROVAL REQUESTED:
- X PRELIMINARY PLAT
- X SITE DEVELOPMENT PLAN
- ___ GRADING/PAVING PERMIT
- ___ FINAL PLAT
- X BUILDING PERMIT
- ___ OTHER

ATTENDANCE: WHO	REPRESENTING
Glen Bates	
John Curtin	

FINDINGS:

Firm Panel 2 indicates that the site is not in a floodplain.

Identify off-site flows

Verify Downstream Capacity & Justify Discharge Rate.

Corrales Rd drain to Cabezon Channel. See File A-14/D4B.

Discuss Cabezon Channel Capacity with Chuck Easterling.

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 are based on inaccurate information.

SIGNED: John P Curtin SIGNED: Glenn F. Bates

TITLE: PCE/Hydrology TITLE: For and on behalf Diamond Shamrock

DATE: 12-15-94 DATE: 12/15/94

A.3

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

25× 32×

0000 0000 1325

HISTORIC PEAK DISCHARGE: cfs

CONSIDER ENTIRE 0.737 ACRE SITE AS TREAMENT A

Q10= 0.18

Q100= 0.95

DEVELOPED PEAK DISCHARGE: cfs

BASIN NAME	OVERALL AREA SF	TREATMENT B ACRES	TREATMENT D ACRES	PEAK DISCHARGE 10 YR	PEAK DISCHARGE 100 YR
A	0.160	0.081	0.079	0.29	0.51
B	0.577	0.093	0.484	1.47	2.30
TOTALS	0.737	0.174	0.563		

OFFSITE DEVELOPED PEAK DISCHARGE: cfs

BASIN NAME	OVERALL AREA SF	TREATMENT B ACRES	TREATMENT D ACRES	PEAK DISCHARGE 10 YR	PEAK DISCHARGE 100 YR
OS-1	0.026	0.000	0.026	0.08	0.11

EXCESS PRECIPITATION: BASIN B; inches

E = 1.760

DETENTION VOLUME: cubic feet

V360= 3687

POND VOLUME

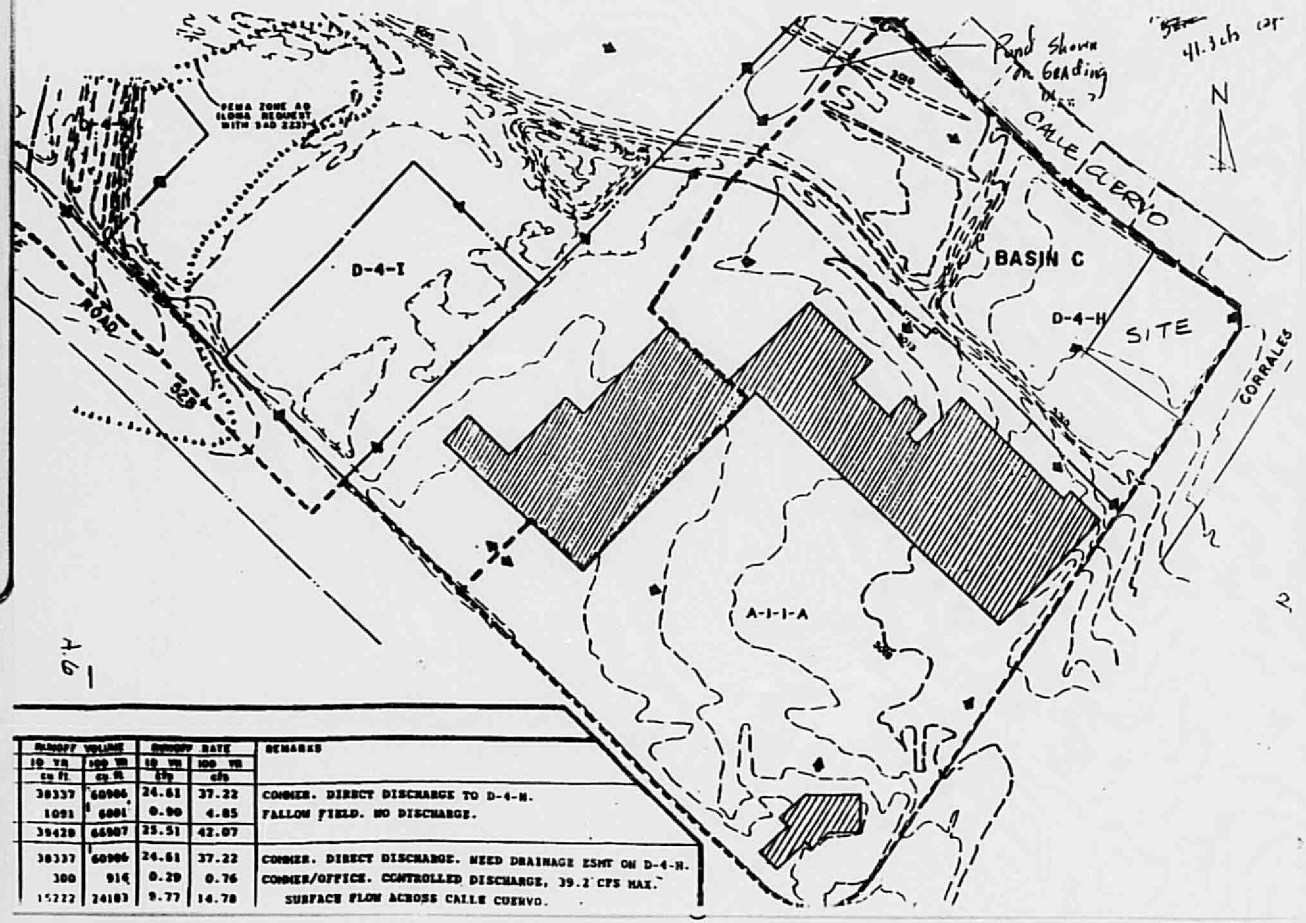
ELEVATION	AREA SF	VOLUME CF	CUMULATIVE VOLUME CF
7.9	0		
		8	8
8.0	165		
		402	410
8.5	1443		
		1268	1679
9.0	3630		
		2058	3737
9.4	6662		

REQUIRED VOLUME IS 3687

25×10 32×10

0000 0000 1326

25×10 32×10

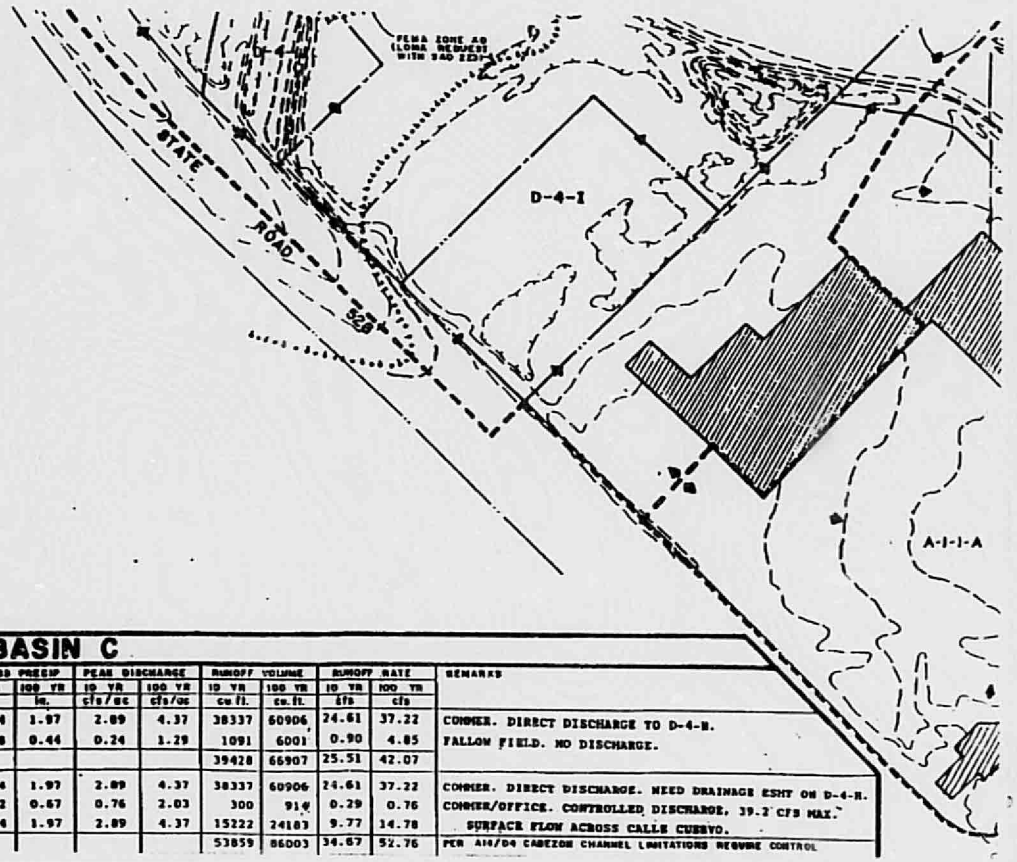


RUNOFF VOLUME 10 YR sq ft	RUNOFF VOLUME 100 YR cu ft	RUNOFF RATE 10 YR cfs	RUNOFF RATE 100 YR cfs	REMARKS
38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE TO D-4-H.
1091	6001	0.90	4.85	FALLOW FIELD. NO DISCHARGE.
39428	65907	25.51	42.07	
38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE. NEED DRAINAGE ESMT ON D-4-H.
300	916	0.29	0.76	COMMER/OFFICE. CONTROLLED DISCHARGE, 39.2 CFS MAX.
15222	24183	9.77	14.78	SURFACE FLOW ACROSS CALLE CUERVO.

25 X □

32 X □

0000 0000 0000 1327



A.7

HYDROLOGY BASIN C

CONDITION	TRACT	AREA sq. ft.	LAND TREATMENT	EXCESS PRECIP 10 YR in.	EXCESS PRECIP 100 YR in.	PEAK DISCHARGE 10 YR cfs/ac	PEAK DISCHARGE 100 YR cfs/ac	RUNOFF VOLUME 10 YR cu. ft.	RUNOFF VOLUME 100 YR cu. ft.	RUNOFF RATE 10 YR cfs	RUNOFF RATE 100 YR cfs	REMARKS
EXISTING	A-1-1-A	371000	D	1.24	1.97	2.89	4.37	38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE TO D-4-H.
	D-4-H	163670	A	0.08	0.44	0.24	1.29	1091	6001	0.90	4.85	FALLOW FIELD. NO DISCHARGE.
	TOTAL	534670						39428	66907	25.51	42.07	
DEVELOPED	A-1-1-A	371000	D	1.24	1.97	2.89	4.37	38337	60906	24.61	37.22	COMMER. DIRECT DISCHARGE. NEED DRAINAGE ESMT ON D-4-H.
	D-4-H	16365	D	0.22	0.67	0.76	2.03	300	914	0.29	0.76	COMMER/OFFICE. CONTROLLED DISCHARGE, 39.2 CFS MAX.
		147305	D	1.24	1.97	2.89	4.37	15222	24183	9.77	14.78	SURFACE FLOW ACROSS CALLE CUERVO.
	TOTAL	534670						53859	86003	34.67	52.76	PER A14/D4 CABEZON CHANNEL LIMITATIONS REQUIRE CONTROL

25 X

32 X

0000 0000 1328

0000 0000 1329

SAD NO. 223

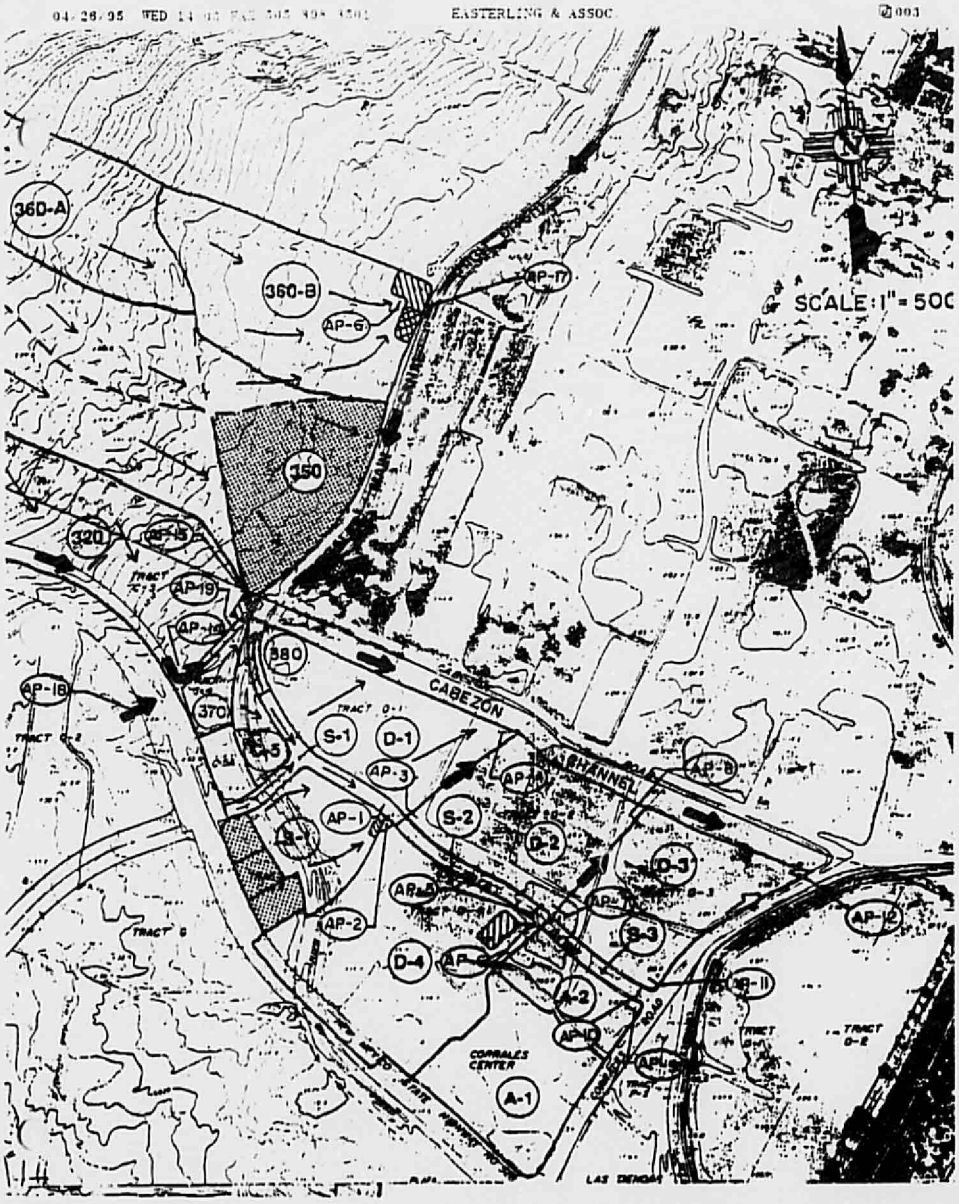
CABEZON CHANNEL CAPACITY ANALYSIS

JUNE 1993

A.6

25×10 32×10

0000 0000 1330



25× 32×

0000 0000 1331

SUMMARY OF PEAK DISCHARGES - DEVELOPED/WORST CASE CONDITIONS					
NALYSIS POINT (AP)	DA (SQ. MI.)	TP (HRS)	100 YR. RUNOFF VOLUME (AC-FT)	100 YR. Q (CFS)	DESCRIPTION
AP-1	0.0060	5.550	0.7876	13.58	Basin D-5 and Street Flows
AP-2	0.0080	5.650	1.0098	16.21	B-1 Pond Discharge Allowable Release Rate = 16.5 cfs
AP-3	0.0140	5.600	1.7974	29.58	Combined Flows Phase I Side Channel
AP-4	0.0140	5.650	1.7974	28.78	Routed Flow From AP-3
AP-5	0.0020	5.550	0.2726	5.39	Street Flow
AP-6	0.0290	5.700	3.6766	39.71	D-4 Pond Discharge Allowable Release Rate = 41.3 cfs
AP-7	0.0310	5.700	3.9492	42.83	Combined Flows Phase II Side Channel
AP-8	0.0310	5.700	3.9492	42.78	Routed Flow From AP-7
AP-9	0.0180	5.500	2.1713	43.89	Routed Flow From Basin A-1 Plus Runoff From Basin A-2
AP-10	0.0013	5.500	0.1772	3.61	Street Flows
AP-11	0.0193	5.550	2.3485	47.50	Combined Flow Road Side Conveyance
AP-12	0.0193	5.650	2.3485	39.60	Routed Flow Prior to Entering Cabezon Channel
AP-13	0.0794	5.600	4.0484	95.36	Runoff From Basin 310
AP-14	0.0794	5.650	4.0484	90.85	Routed Flow NM 528 Asphalt Swale
AP-15	0.1158	5.600	7.4300	178.33	Runoff From Basin 330 Skyview Acres
AP-16	0.0797	5.550	4.9365	133.02	Skyview Pond Inflow
AP-17	0.0797	6.100	4.9211	18.99	Skyview Pond Outflow
AP-18	0.0927	6.167	9.5439	41.23	Flow Crossing NM 528 via Exist (3) 30" x 42" CMPA
AP-19	0.1973	5.633	14.5927	39.38	Combined Flow Entering Cabezon Pond via Tract 0-2A Outfall Channel

A.10

25×10 32×10

0000 0000 1332

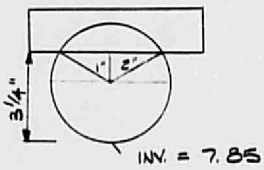
ORIFICE SIZING CALCULATIONS

Q_{100} HISTORIC = 0.95 CFS

Q_{100} DEVELOPED UNDETAINED = - 0.51 CFS

Q_{100} ALLOWABLE = 0.44 CFS

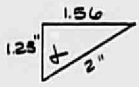
TRY A 4" PVC LATERAL W/ORIFICE PLATE



100 YR WS = 9.4

AREAS

TRIANGLES

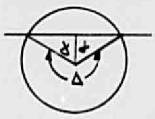


$A = 2\left(\frac{1}{2}(1.25 \cdot 1.56)\right)/144$

$A = 0.0135\ FT^2$

$\cos\alpha = 1.25/2,\ \alpha = 51°\ 19'\ 04"$

CIRCLE SEG



$\Delta = 360 - 2\alpha = 360° - 2(51°\ 19'\ 04")$

$\Delta = 257°\ 21'\ 52"$

$A = \left(\pi R^2 \frac{\Delta}{360}\right)/144$

$A = 0.0624\ FT^2$

TOTAL AREA = $0.0759\ FT^2$

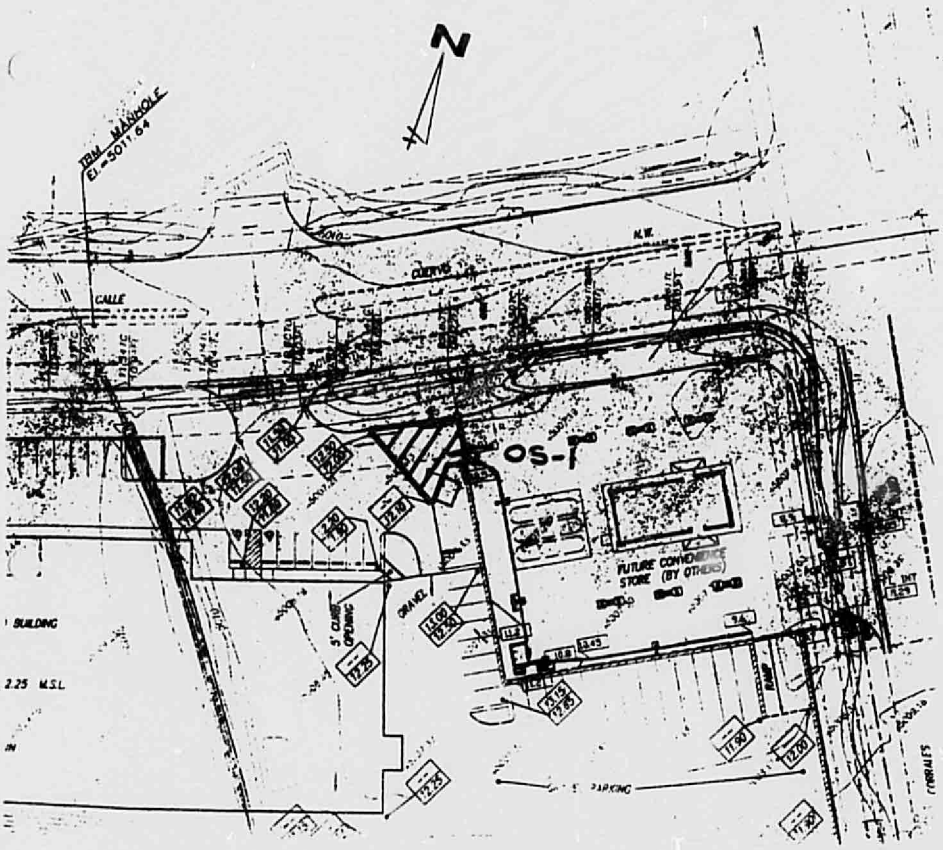
$h = 9.4 - \left(\left(\frac{3.25}{2}\right)/12\right) + 7.85 = 1.415\ FT$

$Q = 0.65(A)(2 \cdot G \cdot h)^{1/2}$

$Q = 0.65(0.0759)(2 \cdot 32.2 \cdot 1.415)^{1/2} = 0.47\ CFS \approx 0.44$ OK

25× 32×

0000 0000 1333



DEVELOPED OFFSITE BASIN OS-1

CORRAL
CONCEPTUAL
dmg
Drawn by: DMG
Scale: 1" = 40'

J.12

25×10 32×10

0000 0000 1334

PLANS/PLATS ON FILE

FILE DESC: A14/D4A7

PLANS/PLATS 16

25×10 32×10

0000 0000 1335