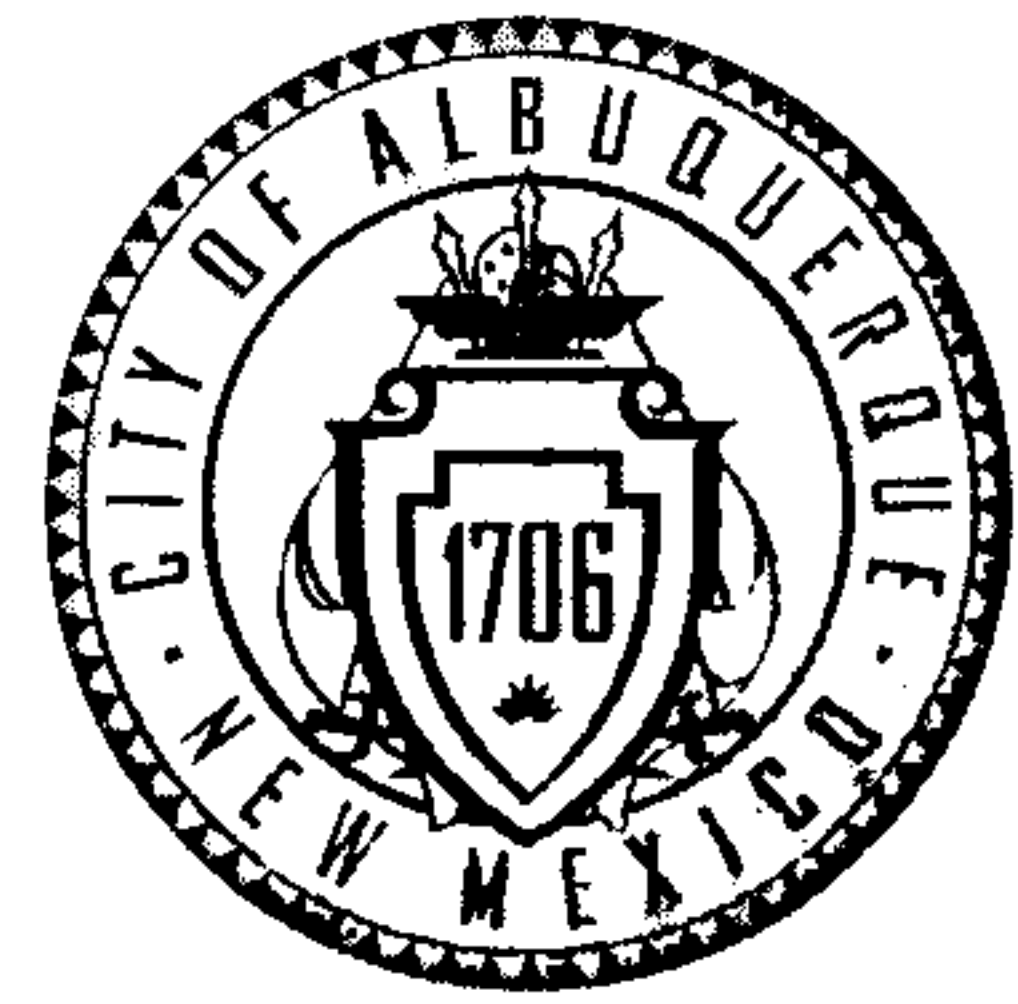


CITY OF ALBUQUERQUE



March 5, 2016

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande Blvd. NW Suite A
Albuquerque, New Mexico 87107

RE: **Car Crafters**
5600 Holly Ave NE
Request Permanent C.O. – Accepted
Engineers Stamp Date 1/29/15 (C18D044)
Certification Dated: 3/30/16

Dear Mr. Lorenz,

Based on the Certification received 3/31/2016, the site is acceptable for release of Certificate of Occupancy by Hydrology.

PO Box 1293

If you have any questions please contact me at 924-3986 or Totten Elliott at 924-3982.

Albuquerque

Sincerely,

New Mexico 87103

Abiel Carrillo, P.E.,
Principal Engineer, Planning Department
Development and Review Services

www.cabq.gov

TE/AC

C: e-mail, Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

March 5, 2016

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande Blvd. NW Suite A
Albuquerque, New Mexico 87107

RE: **Car Crafters**
5600 Holly Ave NE
Request Permanent C.O. – Accepted
Engineers Stamp Date 1/29/15 (C18D044)
Certification Dated: 3/30/16

Dear Mr. Lorenz,

Based on the Certification received 3/31/2016, the site is acceptable for release of Certificate of Occupancy by Hydrology.

If you have any questions please contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

Abiel Carrillo, P.E.,
Principal Engineer, Planning Department
Development and Review Services

TE/AC

C: e-mail, Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 04/2009)

PROJECT TITLE: CAR CRAFTERS ZONE MAP: C-18/D044
DRB#: NA EPC#: NA WORK ORDER#: NA

LEGAL DESCRIPTION: LOTS 8-B AND 8-C, BLOCK 18, TRACT A, UNIT B, NAA

CITY ADDRESS: 5600 HOLLY AVENUE NE

ENGINEERING FIRM: LORENZ DESIGN & CONSULTING CONTACT: DENNIS LORENZ
ADDRESS: 2501 RIO GRANDE BLVD. NW SUITE A PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87104

OWNER: CAR CRAFTERS CONTACT: JIM GUTHRIE
ADDRESS: 600 MONTANO NE PHONE: 881-8889
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

ARCHITECT: RICK BENNETT ARCHITECTS CONTACT: R. BENNETT
ADDRESS: 1104 PARK AVENUE SW PHONE: 242-1859
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87103

SURVEYOR: CARTESIAN SURVEYS CONTACT: W. PLOTNER
ADDRESS: PO BOX 44414 PHONE: 896-3050
CITY, STATE: RIO RANCHO, NEW MEXICO ZIP CODE: 87174

CONTRACTOR: GLOBAL STRUCTURES, LLC CONTACT: UNKNOWN
ADDRESS: 510 CANDELARIA NE PHONE: 343-0990
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:

☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ GRADING CERTIFICATION
☐ OTHER (SPECIFY) SO-19

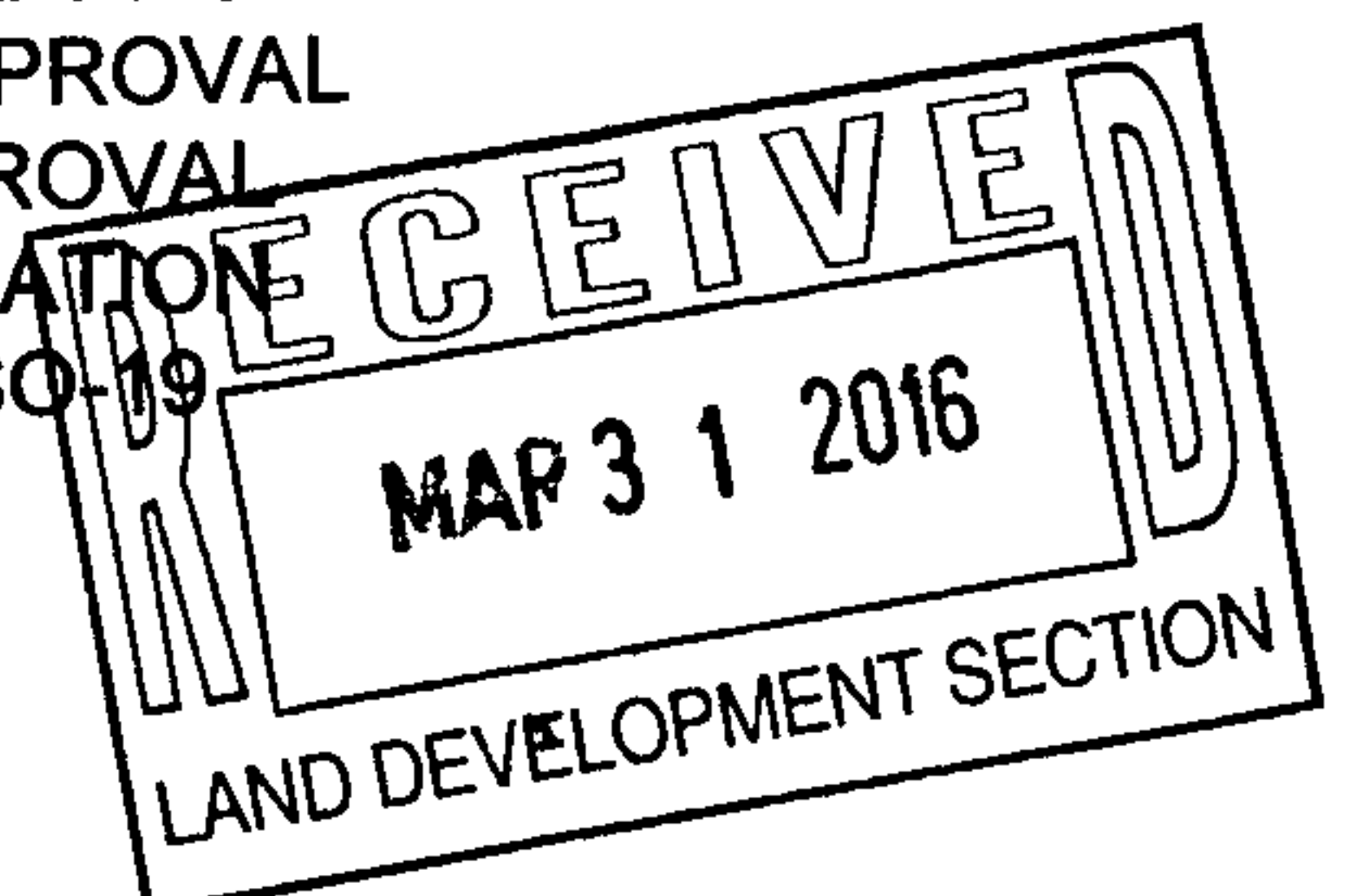
WAS A PRE-DESIGN CONFERENCE ATTENDED:

☐ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: 03-30-2016 BY: [Signature]

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.





March 30, 2016

Abiel Carrillo, PE
Principal Engineer - Hydrology Section
Development and Building Services
City of Albuquerque
Plaza Del Sol
Albuquerque, New Mexico 87102

SUBJECT: CAR CRAFTERS (C23/D044)
Engineer's Certification of Grading & Drainage for Permanent Certificate of Occupancy

Dear Abiel:

Submitted herewith in support of Permanent Certificate of Occupancy approval is one copy of the Engineer's Certification of the Grading and Drainage Plan for the subject site. The certification has been amended to add as-constructed information describing the drainage swale along the east property line. The following improvements were made:

1. The concrete pad and drainage line have been removed at the northeast building corner.
2. A railroad tie retaining wall, approximately 2 courses high, with a 6' chain link fence was constructed along the east property line.
3. The roof over the compressor pad is equipped with a gutter and downspout draining roof water to the yard swale.
4. A swale was constructed behind the building draining north to the compressor pad. Swale flows drain through the compressor pad and are directed west to the paved parking lot by the refuse enclosure wall. This situation is not ideal, but excess runoff is expected to be minor since the swale only drains flow from the swale itself and the compressor roof.
5. The swale north of the refuse enclosure drains to a rip rap erosion control pad before existing to the paved parking lot.

All on-site drainage flows are now managed by the constructed improvements. Off-site flows between the property line and the drainage channel to the east will drain north to Holly Avenue until the property develops. Upon development these flows will drain to a proposed retention pond.

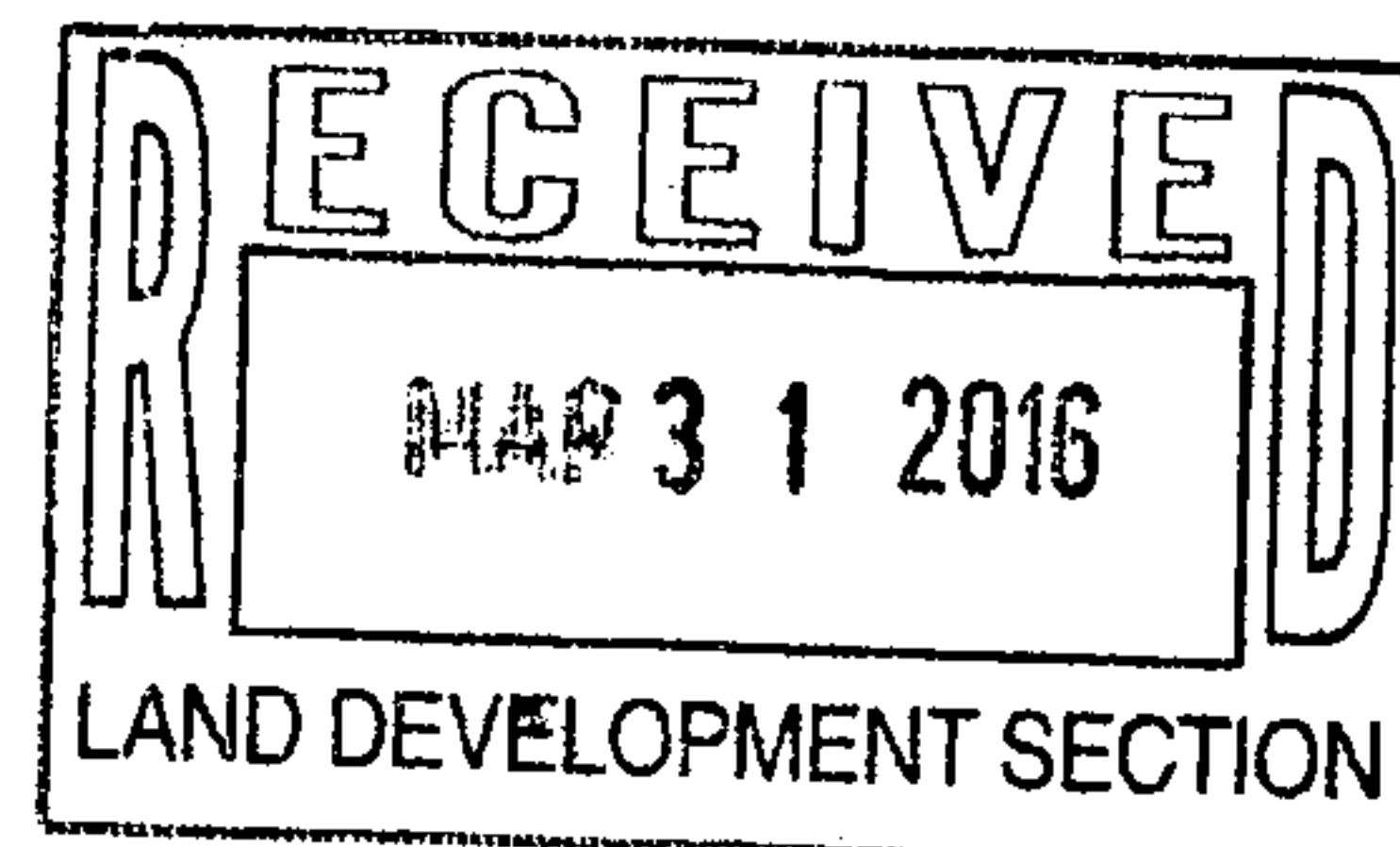
We respectfully request Permanent Certificate of Occupancy approval. If you have any questions regarding this request, please call me.

Sincerely,

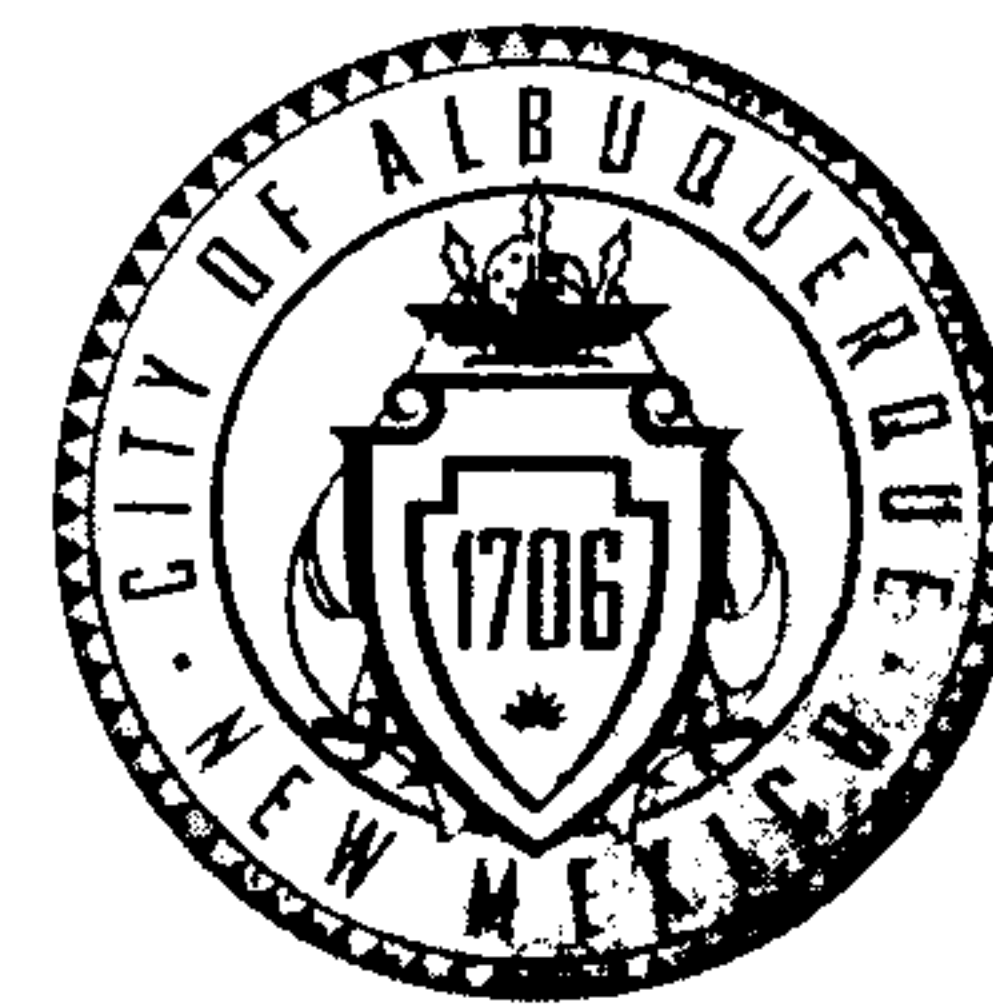
LORENZ DESIGN & CONSULTING, LLC

Dennis A. Lorenz, PE

P\14-032\AC03302016



CITY OF ALBUQUERQUE



February 17, 2016

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande Blvd. NW Suite A
Albuquerque, New Mexico 87107

**RE: Car Crafters
5600 Holly Ave NE
Request 30-Day Temporary C.O. – Accepted
Engineers Stamp Date 1/29/15 (C18D044)
Certification Dated: 2/1/156**

Dear Mr. Lorenz,

Based on the Certification received 2/9/2016, the site is released for a 30-day Temporary Release of Occupancy by Hydrology. However, before a permanent CO can be accepted the following comments must be addressed.

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

- On the east side of the building define swale to ensure that it does not discharge water to the adjacent site.
- Remove portion of stoop on east side of building so that it does not extend underneath the fence on to the adjacent site.
- Starting north of the above mention stoop, water draining north is blocked by the stoop. The swale does not exist from the stoop all the way to the NE corner and turning west at the fence corner. The swale must be defined so that water does not discharge to the adjacent site or the sidewalk north of the site. Overflow must be routed thru a sidewalk culvert.
- Provide new drainage calculations for 3'-7" channel on key note #27. The drawing calls out 4'-0".

If you have any questions please contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

Abiel Carrillo, P.E.,
Principal Engineer, Planning Department
Development and Review Services

TE/AC

C: e-mail, Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

Elliott, Stanice

From: Abiel X. Carrillo
Sent: Wednesday, February 17, 2016 4:17 PM
To: Dennis Lorenz; Elliott, Stanice
Subject: RE: 5600 Holly Ave

Mr. Lorenz,

Yes, we can do a 30-day temp CO, can we talk about the needed improvements tomorrow morning over the phone? I have been swamped today so I haven't been able to sit down and go over the proposal.

Thanks,

Abiel Carrillo, P.E.

Principal Engineer - Hydrology
Planning Department
Development Review Services Division
City of Albuquerque
505-924-3986
acarrillo@cabq.gov
600 2nd Street NW
Albuquerque, NM 87102

From: Dennis Lorenz [<mailto:DennisL@lorenznm.com>]
Sent: Wednesday, February 17, 2016 2:54 PM
To: Abiel X. Carrillo; Elliott, Stanice
Subject: RE: 5600 Holly Ave

Abiel:

Is it possible to get a 30 day temporary CO? Hydrology is the only department not to approve. Let me know. Thanks.

Dennis A. Lorenz, PE
Lorenz Design & Consulting LLC
Office 505-888-6088
Mobile 505-220-0869

From: Abiel X. Carrillo [<mailto:acarrillo@cabq.gov>]
Sent: Friday, February 12, 2016 3:45 PM
To: Elliott, Stanice
Cc: Dennis Lorenz
Subject: RE: 5600 Holly Ave

I'll review the proposal as soon as I have a chance.

Thanks,

Abiel Carrillo, P.E.

Principal Engineer - Hydrology
Planning Department
Development Review Services Division
City of Albuquerque
505-924-3986
acarrillo@cabq.gov
600 2nd Street NW
Albuquerque, NM 87102

From: Elliott, Stanice
Sent: Friday, February 12, 2016 3:29 PM
To: Abiel X. Carrillo
Subject: FW: 5600 Holly Ave

FYI

Stanice 'Totten' Elliott
Planning Department
Hydrology Section
City of Albuquerque
505-924-3982
505-924-3864 fax

From: Dennis Lorenz [<mailto:DennisL@lorenznm.com>]
Sent: Friday, February 12, 2016 3:21 PM
To: Elliott, Stanice
Cc: rick@obsidiancontractors.com
Subject: RE: 5600 Holly Ave

Ms Elliott:

Your comments dated 2-11-2016 are addressed as follows:

1. The bigger issue here is the unmanaged runoff that enters our property from the undeveloped property to the east. The property is littered with trash and construction debris, not to mention the large dirt stockpile that becomes airborne when the wind blows. Field conditions and differences in the topographic survey along the property line have made it impossible to construct the swale that we recommended within the landscape area along the east property line. The best we can do is maintain a swale along the fence line then build a curb and gutter section (see attached) to capture as much runoff as possible and drain it to the parking lot. When the adjoining property develops this drainage issue will be permanently remedied, but for now we are doing the best practical thing we can.
2. The existing stoop is not a drainage improvement and will be trimmed if required by Zoning.
3. The existing 8-inch storm drain will be cleaned and the swale re-graded to drain the area south of the stoop.
4. Calculations are provided demonstrating capacity of the channel that was built narrower than recommended.

Please review our proposal to remedy the conditions along the east property line with Mr. Carrillo. To avoid difficulties later we request your approval prior to construction. The owner and his new employees are scheduled to move in on February 22, 2016. Your timely assistance is greatly appreciated. Please call me with any questions. Thank you.

Dennis A. Lorenz, PE

Lorenz Design & Consulting LLC

Office 505-888-6088

Mobile 505-220-0869

From: Elliott, Stanice [<mailto:staniceelliott@cabq.gov>]

Sent: Thursday, February 11, 2016 3:24 PM

To: Dennis Lorenz

Cc: rick@obsidiancontractors.com

Subject: 5600 Holly Ave

Dennis

The Car Crafters submittal for CO PERM cannot be approved. I will send pics in a separate e-mail from site visit today.

Stanice 'Totten' Elliott

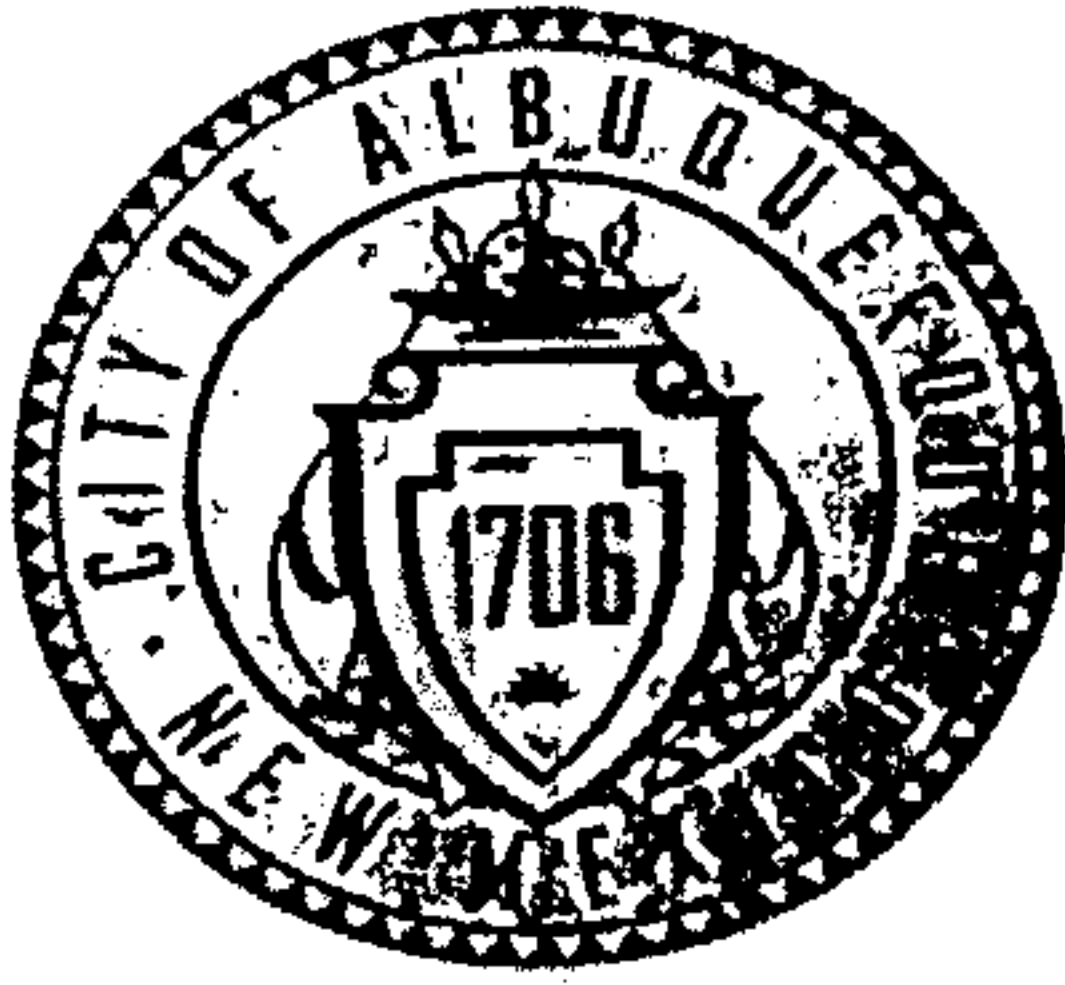
Planning Department

Hydrology Section

City of Albuquerque

505-924-3982

505-924-3864 fax



City of Albuquerque

Planning Department

Stormwater Control Permit for Erosion and Sediment Control

Project Title O'Reilly Auto Parts 12700 Lomas Blvd NE, K22E019

Project Location (Major Cross Streets/Arroyo or address)

12700 Lomas Blvd NE. Albuquerque, NM 87123

Property Owner: (or authorized agent provided in writing) O'Reilly Automotive Stores, Inc.

eNOI Number: NMR12BF26

Attach 2012 Construction General Permit eNOI Detail sheet.

Property Owner: O'Reilly Automotive Stores, Inc.

Site Contact Name Sheldon Jennings

Site Contact Phone (417) 829-5896

Site Contact e-mail sjennings@oreillyauto.com

Applicant: Print Name Scott Kraus Date 02-08-2016

For City personnel use only:

Check boxes if plans/permit are approved:

☒ ^{lu} ESC Plan ☐ Grading Plan ☐ Flood Plain Permit (strike if not required)

The Project is approved for grading (enter date): _____

City Personnel Printed Name: _____



You are here: [Permits Landing Page](#) [2012 CGP](#) [2012 CGP Details](#)

Date submitted 2-10-14

2012 Construction General Permit eNOI Detail

[Quick Jump to Other Permits](#)

Details for NMR12BF26

General Information

Project / Site Name:	O'Reilly Auto Parts–Albuquerque, NM #15
Current Status:	Submitted To EPA
Tracking Number:	NMR12BF26
Permit Type:	NOI

Interview Page Answers

Is your project/site located in Indian Country Lands?	No
Are you requesting coverage under this NOI as a 'federal operator' as defined in Appendix A?	No

Operator Information

Operator's Name:	O'Reilly Automotive Stores, Inc.
Street:	233 S. Patterson Ave.
City:	Springfield
State:	Missouri
Zip Code:	65802
Point of Contact Name:	Sheldon Jennings
Phone Number:	4178295896
Operator Email:	sjennings@oreillyauto.com
Fax:	N/A
IRS Employer Identification Number (EIN):	N/A

Project / Facility Information

Project / Site Name:	O'Reilly Auto Parts–Albuquerque, NM #15
Street:	12700 Lomas Blvd NE
City:	Albuquerque
State:	New Mexico
Zip Code:	87123
Project / Facility on Indian Land?	No
Reservation Name:	N/A

Additional Project Information

Is your project an 'emergency-related project' as defined in Appendix A?

N/A

Have stormwater discharges from your project/site been covered previously under an NPDES permit?

No

Estimated Project Start Date:

03/01/2016

Estimated Project End Date

12/31/2016

Have earth-disturbing activities commenced on your project/site?

No

County or Similar government subdivision:

Bernalillo

Latitude and Longitude Information

Longitude:

106,30,20

Longitude Unit:

(degrees, minutes, seconds)

Latitude:

35,5,9

Latitude Unit:

(degrees, minutes, seconds)

Latitude / Longitude Data Source:

Google Earth

Horizontal Reference Datum

NAD 83 or WGS 84

Estimated Area to be Disturbed (to the nearest quarter acre):

1.25

Chemical Treatment Information

Will you use polymers, flocculants, or other treatment chemicals at your construction site?

No

ESA

Under which criterion listed in Appendix D are you eligible for coverage under this permit?

A. No federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's "action area" as defined in Appendix A of this permit
U.S. Fish and Wildlife Service Trust Resource Report

Provide the basis for criterion selection selected:

1) Any federal listed species and/or designated habitat located in your area:

N/A

2) The distance between your site and the listed species or designated critical habitat (in miles):

N/A

SWPPP Point of Contact

Name:

Sheldon Jennings

Organization Name:

O'Reilly Automotive Stores, Inc.

Phone:

4178295896

Fax:

N/A

Email:

sjennings@oreillyauto.com

Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)?

No

Are there any surface waters within 50 feet of your project's earth disturbances?

No

If a TMDL has been approved or established, identify the title or reference of the TMDL document:

N/A

Impaired Surface Waters to Which you Discharge

Surface water(s) to which you discharge	Impaired Water	Listed Water Pollutant(s)	Tier 2, 2.5 or 3	Source	TMDL Name and Pollutant
Gutter of Chelwood Park Blvd NE	No		No	N/A, does not discharge directly to receiving waters	

Historic Preservation

Is your project/site located on a property of religious or cultural significance to an Indian tribe? Are you installing any stormwater controls as described in Appendix E that require? (Appendix E, Step 1):

No

If yes, have prior surveys or evaluations conducted on the site have already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties? (Appendix E, Step 2):

N/A

If no, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? (Appendix E, Step 3):

N/A

If no, did the SHPO, THPO, or other tribal representative (whichever applies) respond to you within the 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? (Appendix E, Step 4)

N/A

If yes, describe the nature of their response:

N/A

Certifier Information

Name:

Scott Kraus

Title:

Vice President of Real Estate

Email:

pengel@aeincmo.com

Certified Date:

02/09/2016

15 DAYS AFTER
DATE SUBMITTED

Preparer Information

Name:

Steve Peterie

Phone:

(417) 866-2741

Fax:

N/A

Organization:

O'Reilly Automotive Stores, Inc.

Email:

speterie@aeincmo.com

Corresponding Documents

Back to Search Results



No data found.



CITY OF ALBUQUERQUE
BUILDING SAFETY DIVISION
600 2ND STREET N.W.
ALBUQUERQUE, N.M. 87102
OFFICE 505-924-3964 FAX 505-924-3967
E-PLAN APPLICATION

FOR OFFICIAL USE ONLY

PERMIT # _____
ADDITIONAL PERMIT #S _____
CITY PROJECT # _____

APPLICANT TO PROVIDE ALL INFORMATION BELOW:

CONSTRUCTION ADDRESS: 1200 Lomas Blvd NE. 87123

WITHIN 1000' OF FORMER LANDFILL FOR ZONING OFFICIAL ONLY

☐ YES ☐ NO INITIAL/DATE _____

LEGAL DESCRIPTION:

LOT # 1 BLOCK # 1
SUBDIVISION Chelwood Park, a subdivision in the City of Albuquerque
TRACT _____ PARCEL _____ UNIT _____
UPC # 102205727950212303
ZONE C-1 ZONE ATLAS PAGE K-22-Z

OWNER:

NAME O'Reilly Automotive Stores, Inc., contact: Steve Peterie
ADDRESS 233 S. Patterson, Springfield MO
ZIP 65802 PHONE (417) 874-7147

PERSON WHO WILL UPLOAD ELECTRONIC PLANS:

NAME Nancy Kirklin
ADDRESS 10877 Watson Road
ZIP 63127 PHONE (314) 821-1100
EMAIL ADDRESS oreillygu@cascocorp.com
(ENTER IN APPLICANT & CONTACT FIELD IN SYSTEM)

ARCHITECT / ENGINEER / DESIGNER:

NAME Contact: Mike Chura
ADDRESS 10877 Watson Road
ZIP 63127 PHONE (314) 821-1100

CONTRACTOR:

NAME TBD
ADDRESS _____
ZIP _____ PHONE _____
NM STATE LICENSE # _____
LICENSE CLASSIFICATION _____
NM STATE CRS # _____
ABQ. BUSINESS REG. # FA

SIGNATURE _____

DATE 9/22/15

TYPE OF APPLICATION:

- | | | |
|--|---|--------------------------------|
| ☒ COMMERCIAL | ☐ RESIDENTIAL | ☐ GREEN |
| ☒ NEW BUILDING | ☐ TENANT IMPROVEMENT | |
| ☐ SHELL ONLY | ☐ SWIMMING POOL | |
| ☐ ADDITION | ☐ GARDEN WALL, FENCE, RETAINING WALL | |
| ☐ REMODEL | ☐ FOUNDATION FOR MODULAR BUILDING | |
| ☐ REPAIR | ☐ FOUNDATION FOR MOVED BUILDING | |
| ☐ FOUNDATION ONLY | ☐ OTHER | |

OWNERSHIP:

☒ PRIVATE ☐ PUBLIC

CONSTRUCTION DATA: (THIS PROJECT ONLY)

OF STORIES 1
SQUARE FOOTAGE:
HEATED 7453
GARAGE _____
CARPORT, PORCH _____
OR PATIO COVER _____
TOTAL SQ. FT. 7453

VALUATION OF WORK \$ 700,000.00

OF PHASES 1 (MUST BE APPROVED AT SUBMITTAL)

OCCUPANT LOAD 130 (FOR COMMERCIAL PROJECTS ONLY)

OF APT. OR MOTEL UNITS _____ # OF BUILDINGS 1

DESCRIPTION OF WORK: New Retail Auto Parts Store
"retail store"

- | | |
|--|--|
| ☐ SINGLE FAMILY RESIDENCE | ☐ GARAGE |
| ☐ REISSUE | ☐ CARPORT |
| ☐ TOWNHOUSE | ☐ PATIO COVER |
| ☐ DUPLEX | ☐ PATIO ENCLOSURE |

☐ Racquel Michel ☐ Gary Sandoval ☐ Rita Harmon ☐ John Gurulé
☐ Totten Elliott ☐ Monica Ortiz ☐ Rudy Rael ☐ Abiel Carillo

DRS - Transportation & Hydrology Staff Meeting

February 12, 2016

Notes from Department Head Meeting:

N/A

Department Update:

1. Curtis issued the first ESC fine. They are \$500/day.
2. New furniture for the conference room will be selected soon. It will probably take a couple months for it to arrive.
3. Totten will be on Jury Duty next week.
4. Who will be floating on Presidents Day?

Staff Comments and Concerns:

5. Project Review

CITY OF ALBUQUERQUE



February 11, 2016

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande Blvd. NW Suite A
Albuquerque, New Mexico 87107

**RE: Car Crafters
5600 Holly Ave NE
Request Permanent C.O. – Not Accepted
Engineers Stamp Date 1/29/15 (C18D044)
Certification Dated: 2/1/156**

Dear Mr. Lorenz,

Based on the Certification received 2/9/2016, the site cannot be accepted for release of Certificate of Occupancy by Hydrology until the following comments are addressed.

- On the east side of the building define swale to ensure that it does not discharge water to the adjacent site.
- Remove portion of stoop on east side of building so that it does not extend underneath the fence on to the adjacent site.
- Starting north of the above mention stoop, water draining north is blocked by the stoop. The swale does not exist from the stoop all the way to the NE corner and turning west at the fence corner. The swale must be defined so that water does not discharge to the adjacent site or the sidewalk north of the site. Overflow must be routed thru a sidewalk culvert.
- Provide new drainage calculations for 3'-7" channel on key note #27. The drawing calls out 4'-0".

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

If you have any questions please contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

Abiel Carrillo, P.E.,
Principal Engineer, Planning Department
Development and Review Services

TE/AC

C: e-mail, Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 04/2009)

PROJECT TITLE: CAR CRAFTERS ZONE MAP: C-18/D044
DRB#: NA EPC#: NA WORK ORDER#: NA

LEGAL DESCRIPTION: LOTS 8-B AND 8-C, BLOCK 18, TRACT A, UNIT B, NAA

CITY ADDRESS: 5600 HOLLY AVENUE NE

ENGINEERING FIRM: LORENZ DESIGN & CONSULTING CONTACT: DENNIS LORENZ
ADDRESS: 2501 RIO GRANDE BLVD. NW SUITE A PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87104

OWNER: CAR CRAFTERS CONTACT: JIM GUTHRIE
ADDRESS: 600 MONTANO NE PHONE: 881-8889
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

ARCHITECT: RICK BENNETT ARCHITECTS CONTACT: R. BENNETT
ADDRESS: 1104 PARK AVENUE SW PHONE: 242-1859
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87103

SURVEYOR: CARTESIAN SURVEYS CONTACT: W. PLOTNER
ADDRESS: PO BOX 44414 PHONE: 896-3050
CITY, STATE: RIO RANCHO, NEW MEXICO ZIP CODE: 87174

CONTRACTOR: GLOBAL STRUCTURES, LLC CONTACT: UNKNOWN
ADDRESS: 510 CANDELARIA NE PHONE: 343-0990
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:

☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ GRADING CERTIFICATION
☐ OTHER (SPECIFY) SO-19

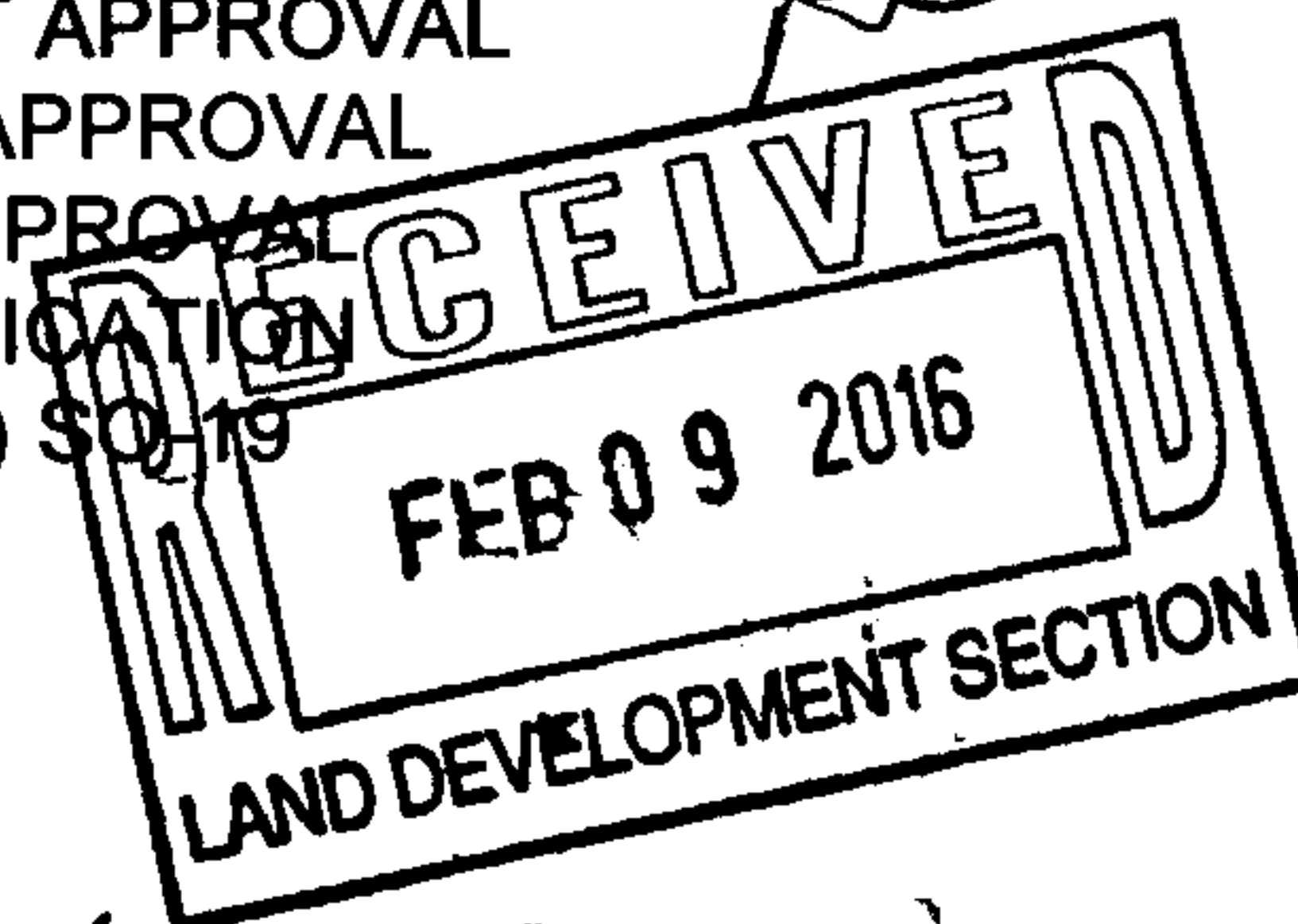
WAS A PRE-DESIGN CONFERENCE ATTENDED:

☐ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: 02-09-2016 BY: [Signature]

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.



CITY OF ALBUQUERQUE



February 15, 2016

Doug Gallagher
RBA Architecture
1101 Park Ave, SW
Albuquerque, NM

Re: Car Crafters
5600 Holly Ave., NE
Request for Certificate of Occupancy- Transportation Development
Engineer's/Architect's Stamp dated 5-18-15 (C18-D044)
Certification dated 2-2-16

Dear Mr. Gallagher,

Based upon the information provided in your submittal received 2-9-16, Transportation Development has no objection to the issuance of a Permanent Certificate of Occupancy. This letter serves as a "green tag" from Transportation Development for a Permanent Certificate of Occupancy to be issued by the Building and Safety Division.

PO Box 1293

If you have any questions, please contact Gary Sandoval at (505) 924-3675 or me at (505)924-3660.

Albuquerque

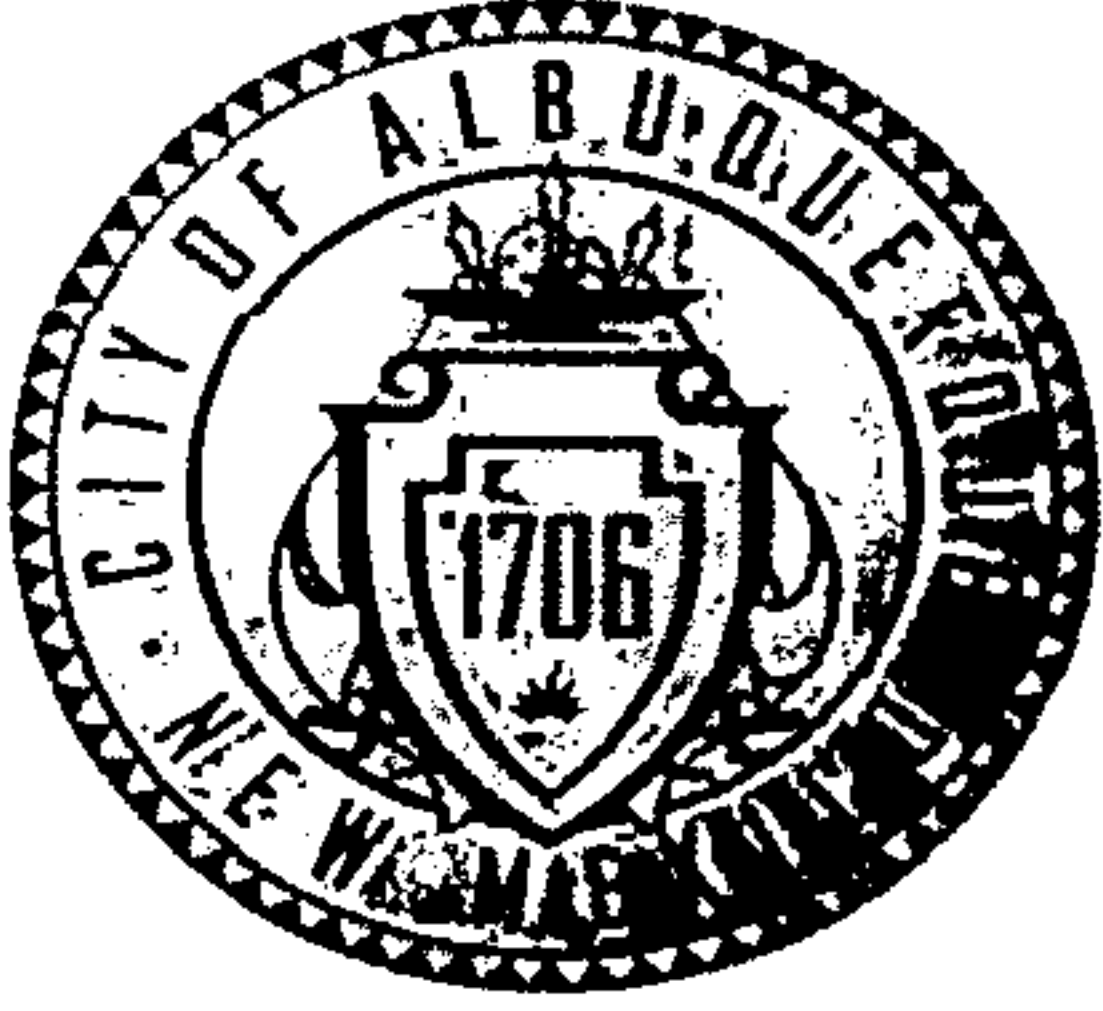
Sincerely,

New Mexico 87103

Racquel M. Michel, P.E.
Traffic Engineer, Planning Dept.
Development Review Services

www.cabq.gov

\gs via: email
C: CO Clerk, File



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 1/2016)

Project Title: CAR GRABTIERS Building Permit #: T201590751 Hydrology File #: C18P044
DRB#: 15 DRB 70190 EPC#: _____ Work Order#: _____
Legal Description: _____
City Address: 5600 HOLLY AVE NE

Applicant: RBA ARCHITECTURE Contact: DOUG GAUAGHER
Address: 1104 PARK AVE SW
Phone#: (505) 242-1859 Fax#: (505) 242-6630 E-mail: douge.rba@1.com
Other Contact: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

- ☐ HYDROLOGY/ DRAINAGE
☒ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ AS-BUILT CERTIFICATION

☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☐ DRAINAGE REPORT
☐ CLOMR/LOMR

☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ NEIGHBORHOOD IMPACT ASSESMENT (NIA)

☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
☐ OTHER (SPECIFY) _____

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY
☐ GRADING/ESC PERMIT APPROVAL

☐ PRELIMINARY PLAT APPROVAL
☐ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL

☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL
☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR

☐ PRE-DESIGN MEETING?

☐ OTHER (SPECIFY) _____

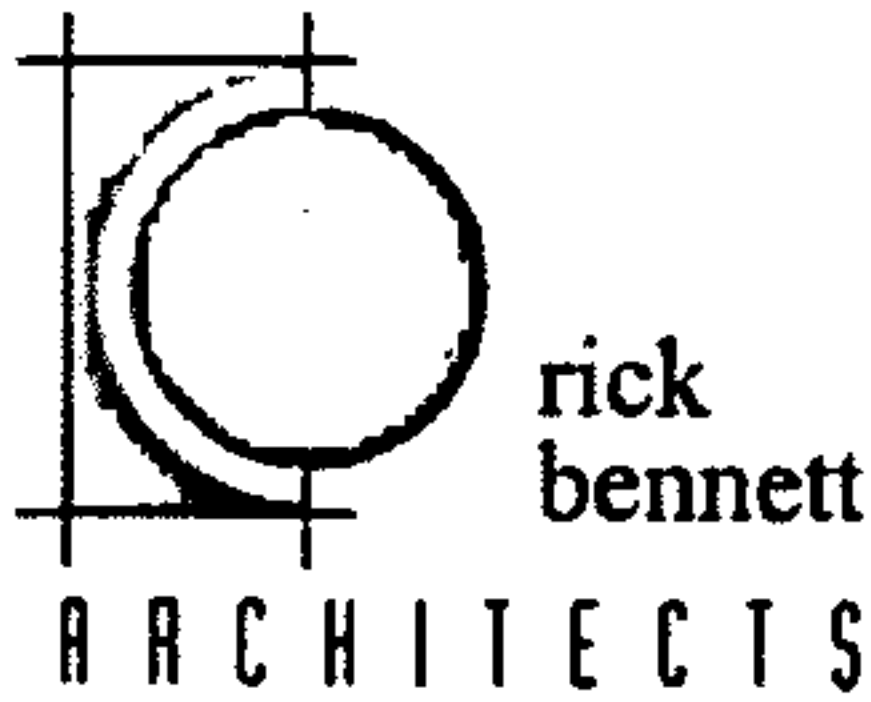
IS THIS A RESUBMITTAL?: ☐ Yes ☒ No

DATE SUBMITTED: 4/8/16 By: Douglas Gallagher

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE RECEIVED: _____





February 4, 2016

Re: CarCrafters:
5600 Holly Ave NE
Engineer's/Architect's stamp dated: 3-24-15 (L20-D067)

TRAFFIC CERTIFICATION

I, **Rick Bennett**, NMRA # 1240, of The Firm of Rick Bennett Architect, hereby certify that this project is in substantial compliance with and in accordance with the design intent of the Traffic Circulation Layout, approved plan dated, May 18, 2015.

The record information edited onto the original design document has been obtained by **Rick Bennett Architect**, of the firm. I further certify that I have personally visited the project site on February 2, 2016 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for Certificate of Occupancy (Permanent) for CarCrafters. Located at 5600 Holly Ave NE, All of Lots 11 and 18, Block 18, Tract A, Unit B North Albuquerque Acres within the Elena Gallegos Land Grant, Projected Section 12, Township 11 North, Range 3 East, NMPM City of Albuquerque, Bernalillo County, New Mexico.

The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the traffic aspects of this project. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

Date: 2/4/16



RECEIVED
2-9-16

Sincerely,

Rick Bennett, Architect

CITY OF ALBUQUERQUE



**Planning Department
Transportation Development Services**

June 1, 2015

Mr. Doug Gallagher
RBA Architects
1104 Park Ave SW
Albuquerque, NM

**Re: Car Crafters
5600 Holly Ave. NE
Traffic Circulation Layout
Engineer's/Architect's Stamp dated 3-24-15 (C18-D044)**

Dear Mr. Gallagher,

The TCL submittal received 5-28-15 is approved for Building Permit. A copy of the stamped and signed plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation.

When the site construction is completed and a Certificate of Occupancy (C.O.) is requested, use the original City stamped approved TCL for certification. Redline any minor changes and adjustments that were made in the field. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed Drainage and Transportation Information Sheet to front counter personnel for log in and evaluation by Transportation.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3690.

Sincerely,

Racquel M. Michel, P.E.
Senior Engineer, Planning Dept.
Development Review Services

c: File
CO Clerk



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: CAR Crafters Building Permit #: _____ City Drainage #: C18-0044

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: _____

City Address: #57 5600 Holly Ave NE

Engineering Firm: RBA ARCHITECTS Contact: DOUG GAUAGHER

Address: 1104 PARK AVE SW ABQ, NM 87102

Phone#: 242-1859 Fax#: _____ E-mail: doug@rba81.com

Owner: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

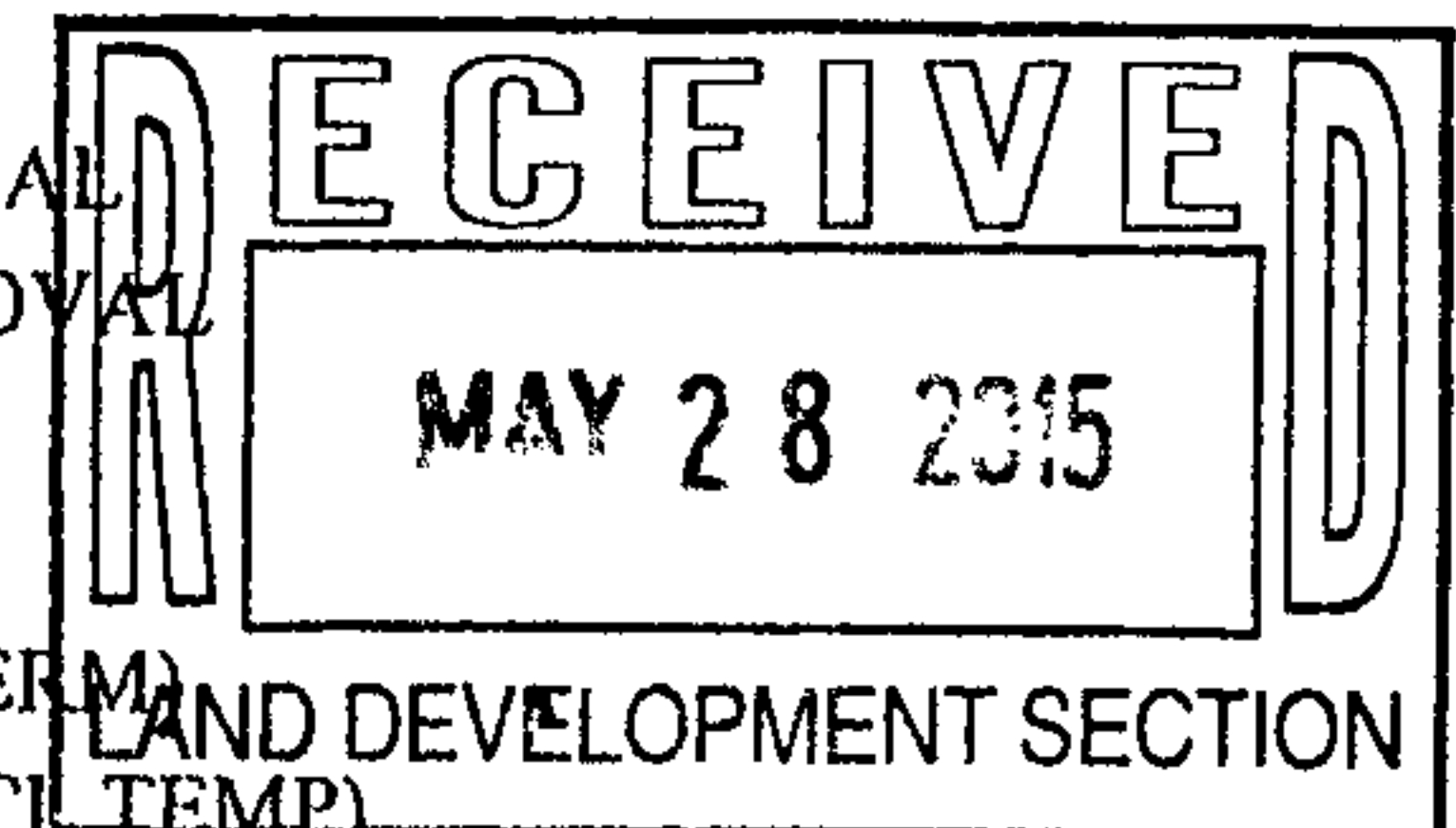
Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☒ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERT (TCL)
- ☐ ENGINEER'S CERT (DRB SITE PLAN)
- ☐ ENGINEER'S CERT (ESC)
- ☐ SO-19
- ☐ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D APPROVAL
- ☐ S. DEV. FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ GRADING CERTIFICATION
- ☐ SO-19 APPROVAL
- ☐ ESC PERMIT APPROVAL
- ☐ ESC CERT. ACCEPTANCE
- ☐ OTHER (SPECIFY)



WAS A PRE-DESIGN CONFERENCE ATTENDED: _____

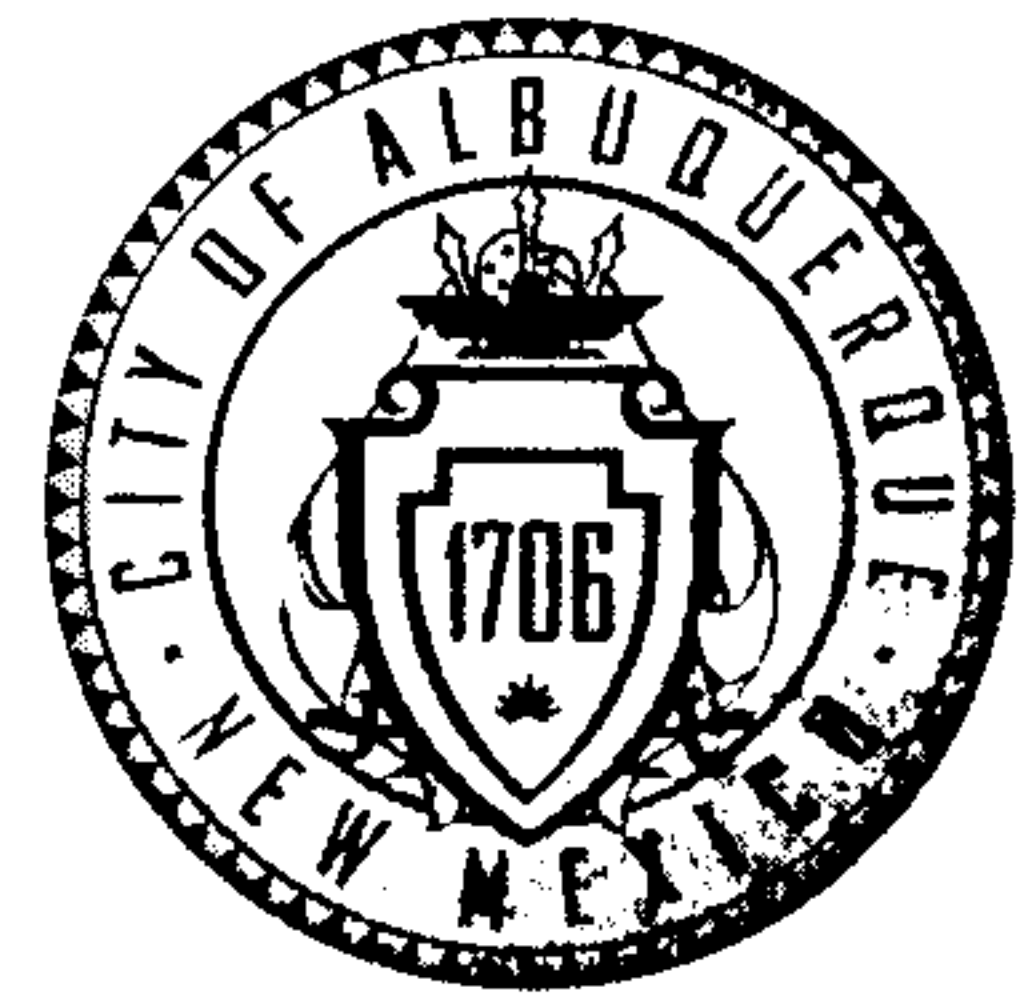
DATE SUBMITTED: 5/28/2015

By: [Signature] Yes ☒ No ☐ Copy Provided

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

CITY OF ALBUQUERQUE



Planning Department Transportation Development Services

May 14, 2015

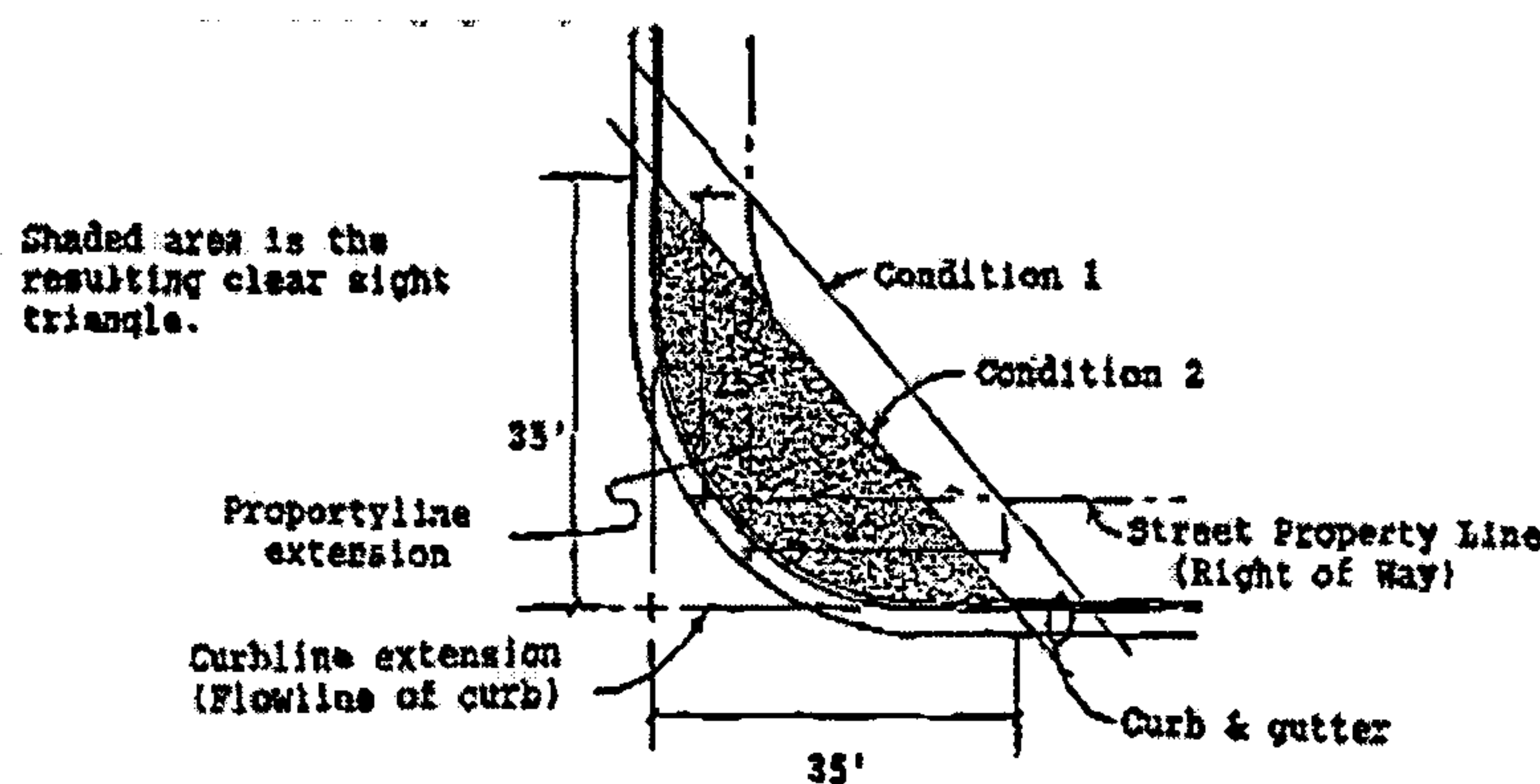
Mr. Gallagher
RBA Architects
1104 Park Ave. SW
Albuquerque, NM 87102

Re: Car Crafters
5600 Holly Ave. NE
Traffic Circulation Layout
Engineer's/Architect's Stamp dated 3-24-15 (C18-D044)

Dear Mr. Gallagher,

Based upon the information provided in your submittal received 5-13-15, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. Please identify and dimension both exiting drive pads and ensure that they comply with the Clear Sight Triangle requirements. Ensure that the existing tree does not interfere with Clear Sight requirements.
2. Please provide a sight distance exhibit (see the *Development Process Manual, Chapter 23, Section 3, Part D.5 Intersection Sight Distance*).



3. Please add the following note to the clear sight triangle: "Landscaping and signage will not interfere with clear sight requirements. Therefore, signs, walls, trees, and shrubbery between 3 and 8 feet tall (as measured from the gutter pan) will not be acceptable in this area."
4. Please list the width and length for all parking spaces. The lengths of the parking spaces on the west side and north side are not dimensioned.

CITY OF ALBUQUERQUE



5. The ADA accessible sign must have the required language per 66-7-352.4C NMSA 1978 **"Violators Are Subject to a Fine and/or Towing."**
6. The ADA access aisle shall have the words **"NO PARKING"** in capital letters, each of which shall be at least one foot high and at least two inches wide, placed at the rear of the parking space so as to be close to where an adjacent vehicle's rear tire would be placed. (66-1-4.1.B NMSA 1978)
7. Show all drive aisle widths and radii.
8. Per the DPM, a 6 ft. wide ADA accessible pedestrian pathway is required from the public sidewalk to the building entrances. Please clearly show this pathway and provide details. The Site Drawing does not identify a pedestrian pathway from the public sidewalk.
9. Design delivery vehicle route needs to be shown or provided in an exhibit.
10. Please specify the City Standard Drawing Number when applicable.
11. Work within the public right of way requires a work order with DRC approved plans.
12. Please include two copies of the traffic circulation layout at the next submittal.

PO Box 1293

Resubmit acceptable package along with fully completed Drainage Transportation Information Sheet to front counter personnel for log in and evaluation by Transportation. If you have any questions, please contact me at (505) 924-3630.

Albuquerque

Sincerely,

New Mexico 87103

Racquel M. Michel, P.E.
Senior Engineer, Planning Dept.
Development Review Services

www.cabq.gov

c: File
CO Clerk



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Raquel
Michel
Transportation

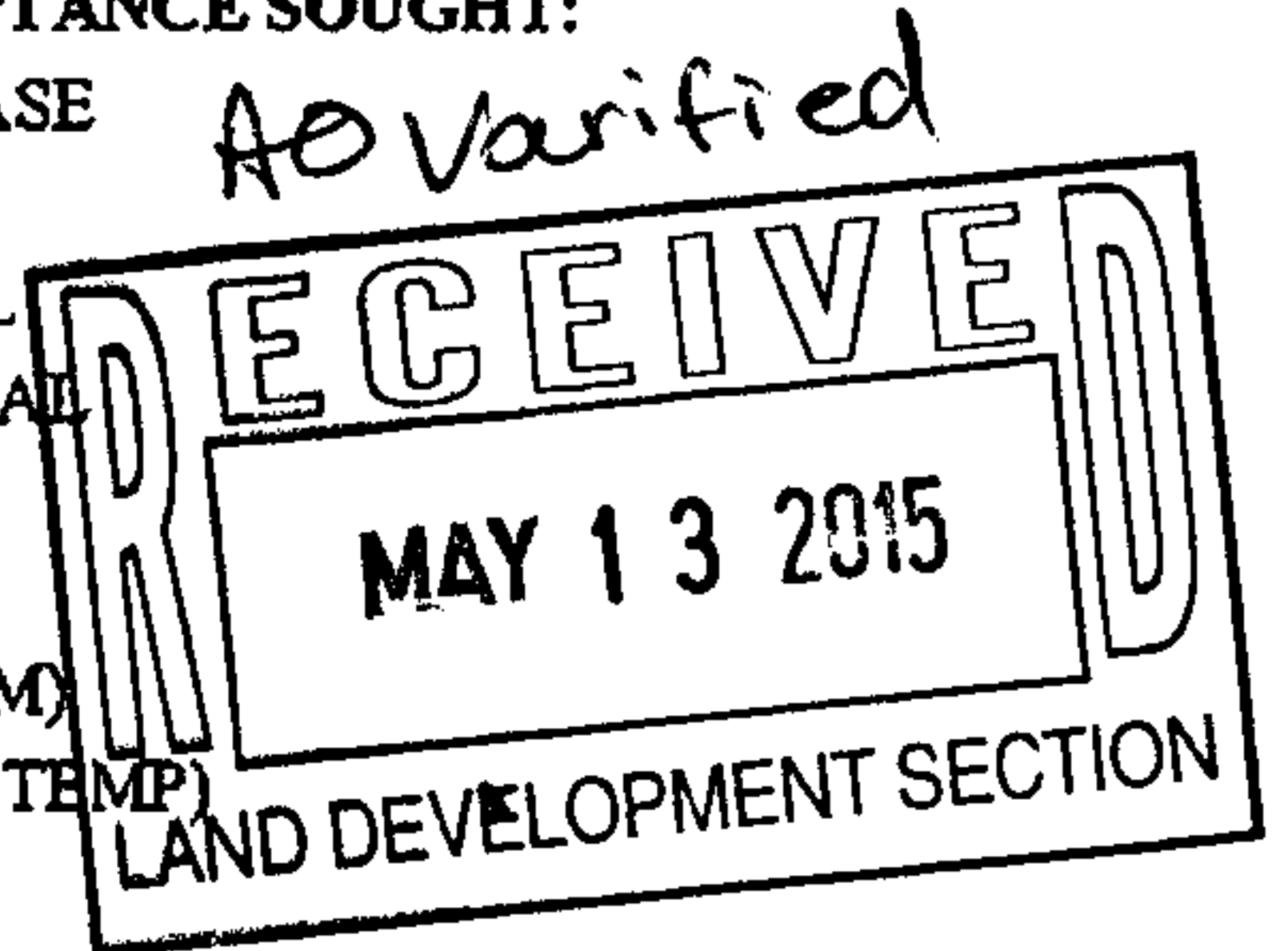
Project Title: CAR CRAFTERS Building Permit #: 1201590751 City Drainage #: C18-D044
 DRB#: _____ EPC#: _____ Work Order#: _____
 Legal Description: LOT 8B & 8C BLOCK 18 TRACTA UNIT B NORTH ALBU. ACRES
 City Address: 5600 HOLLY AVE NE, ALBU. NM. 87113
 Engineering Firm: LORENZ DESIGN & CONSULTING Contact: DENNIS LORENZ
 Address: 2501 RIO GRANDE BLVD NW SUITE A
 Phone#: 505-888-6088 Fax#: _____ E-mail: dennis@lorenznm.com
 Owner: CAR CRAFTERS Contact: JIM GUTHERIE
 Address: 600 MONTANO NE, ALBU. NM 87107
 Phone#: 505-881-8889 Fax#: _____ E-mail: _____
 Architect: RBA ARCHITECTS Contact: Doug Gallagher
 Address: 1104 PARK AVE SW, ALBU. NM 87102
 Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: doug@rba81.com
 Surveyor: WILL PLOTNER; CARTESIAN SURVEYS, INC Contact: WILL PLOTNER
 Address: P.O. Box 44414, RIO RANCHO, NM 87174
 Phone#: 505-896-3050 Fax#: 505-891-0244 E-mail: wplotner@gmail.com
 Contractor: OBSIDIAN CONTRACTORS Contact: RICK OSBOURNE
 Address: 3800A MIDWAY PLACE SE, ALBU. NM 87109
 Phone#: 505-573-0011 Fax#: _____ E-mail: ricke.obsidiancontractors.com

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☒ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ ENGINEER'S CERT (ESC)
☐ SO-19
☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
☒ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ GRADING CERTIFICATION
☐ SO-19 APPROVAL
☐ ESC PERMIT APPROVAL
☐ ESC CERT. ACCEPTANCE
☐ OTHER (SPECIFY) _____



WAS A PRE-DESIGN CONFERENCE ATTENDED: Yes ☒ No ☐ Copy Provided ☐

DATE SUBMITTED: 4/28/15

By: [Signature]

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. Drainage Report: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. Erosion and Sediment Control Plan: Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

CITY OF ALBUQUERQUE

TRAFFIC IMPACT STUDY (TIS) FORM

APPLICANT: CARCRAFTERS DATE OF REQUEST: 4/28/15 ZONE ATLAS PAGE(S): C-18-Z

CURRENT:

ZONING SU-2 M-1
PARCEL SIZE (AC/SQ. FT.) 1.2184 ac

LEGAL DESCRIPTION:

LOT OR TRACT # 8B & 8C BLOCK # 18
SUBDIVISION NAME NORTH ABQ. ACRES

REQUESTED CITY ACTION(S):

ANNEXATION ☐
ZONE CHANGE ☐: From _____ To _____
SECTOR, AREA, FAC, COMP PLAN ☐
AMENDMENT (Map/Text) ☐

SITE DEVELOPMENT PLAN:

SUBDIVISION* ☐ AMENDMENT ☐
BUILDING PERMIT ☒ ACCESS PERMIT ☐
BUILDING PURPOSES ☐ OTHER ☒ **ADDITION**
*includes platting actions

PROPOSED DEVELOPMENT:

NO CONSTRUCTION/DEVELOPMENT ☐
NEW CONSTRUCTION ☐
EXPANSION OF EXISTING DEVELOPMENT ☐

GENERAL DESCRIPTION OF ACTION:

OF UNITS: 1
BUILDING SIZE: 5,820 (sq. ft.) **ADDITION**

Note: changes made to development proposals / assumptions, from the information provided above, will result in a new TIS determination.

APPLICANT OR REPRESENTATIVE _____

DATE 4/28/15

(To be signed upon completion of processing by the Traffic Engineer)

Planning Department, Development & Building Services Division, Transportation Development Section -
2ND Floor West, 600 2nd St. NW, Plaza del Sol Building, City, 87102, phone 924-3994

TRAFFIC IMPACT STUDY (TIS) REQUIRED: YES ☐ NO ☐ BORDERLINE ☐

THRESHOLDS MET? YES ☐ NO ☐ MITIGATING REASONS FOR NOT REQUIRING TIS: PREVIOUSLY STUDIED: ☐
Notes:

If a TIS is required: a scoping meeting (as outlined in the development process manual) must be held to define the level of analysis needed and the parameters of the study. **Any subsequent changes to the development proposal identified above may require an update or new TIS.**

TRAFFIC ENGINEER _____

DATE _____

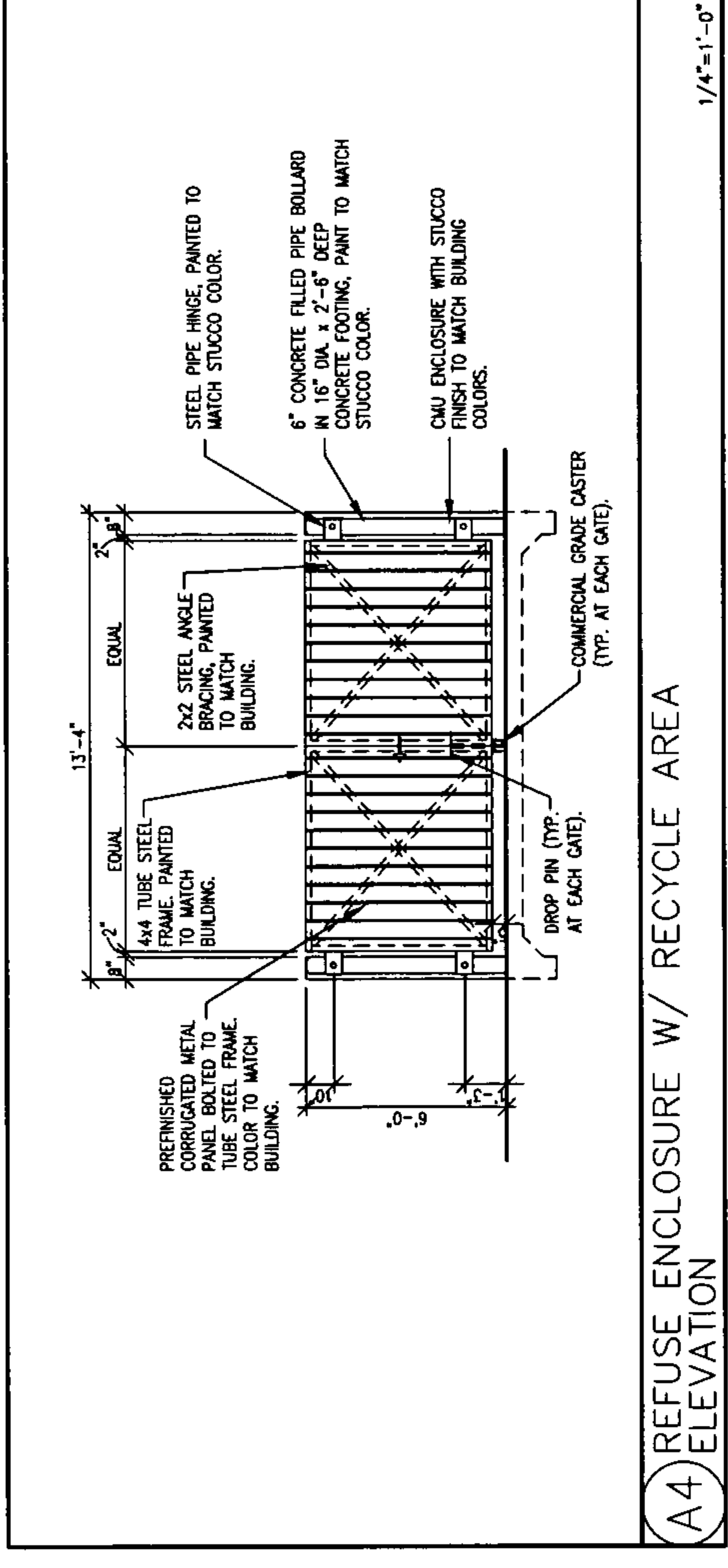
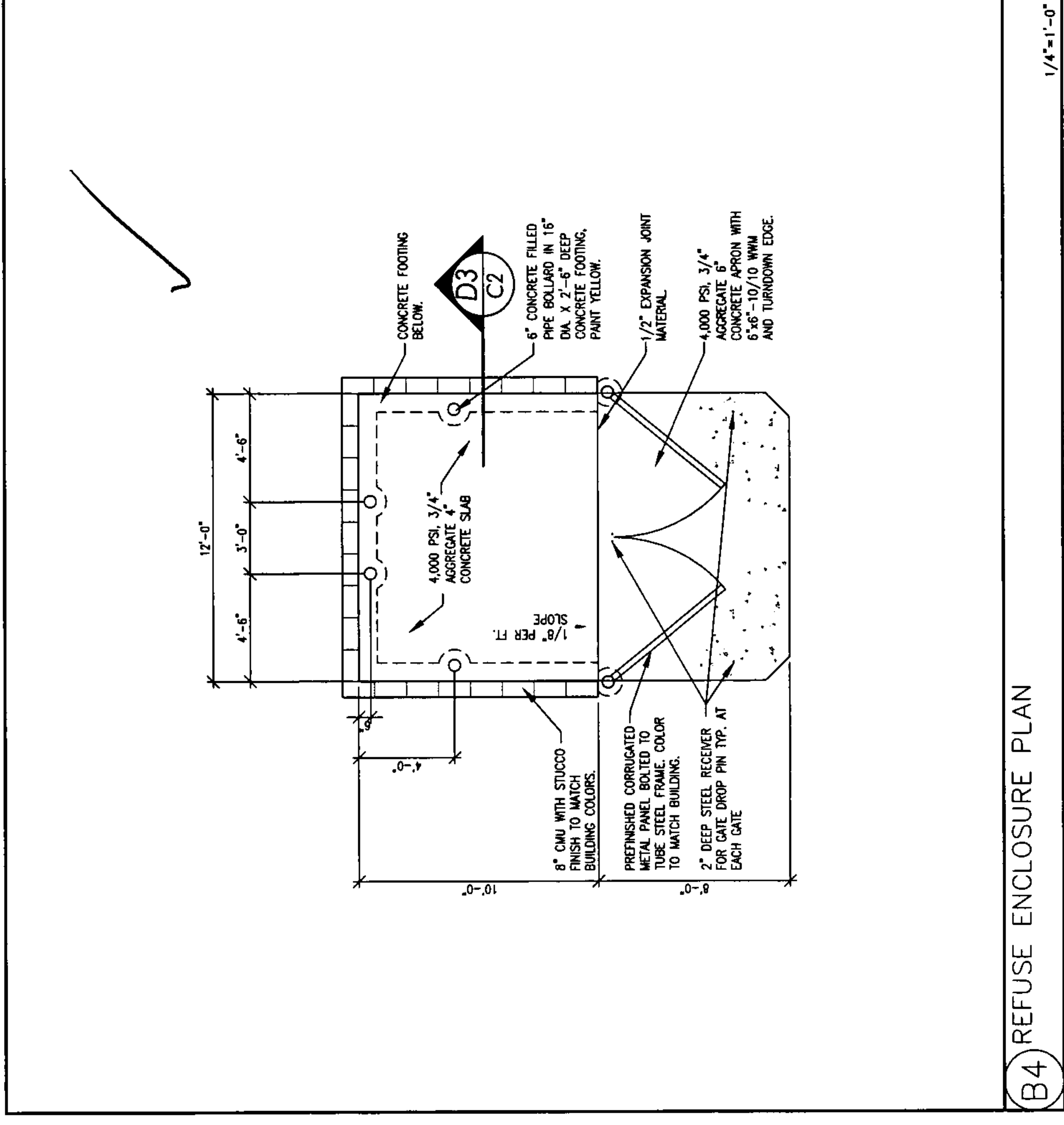
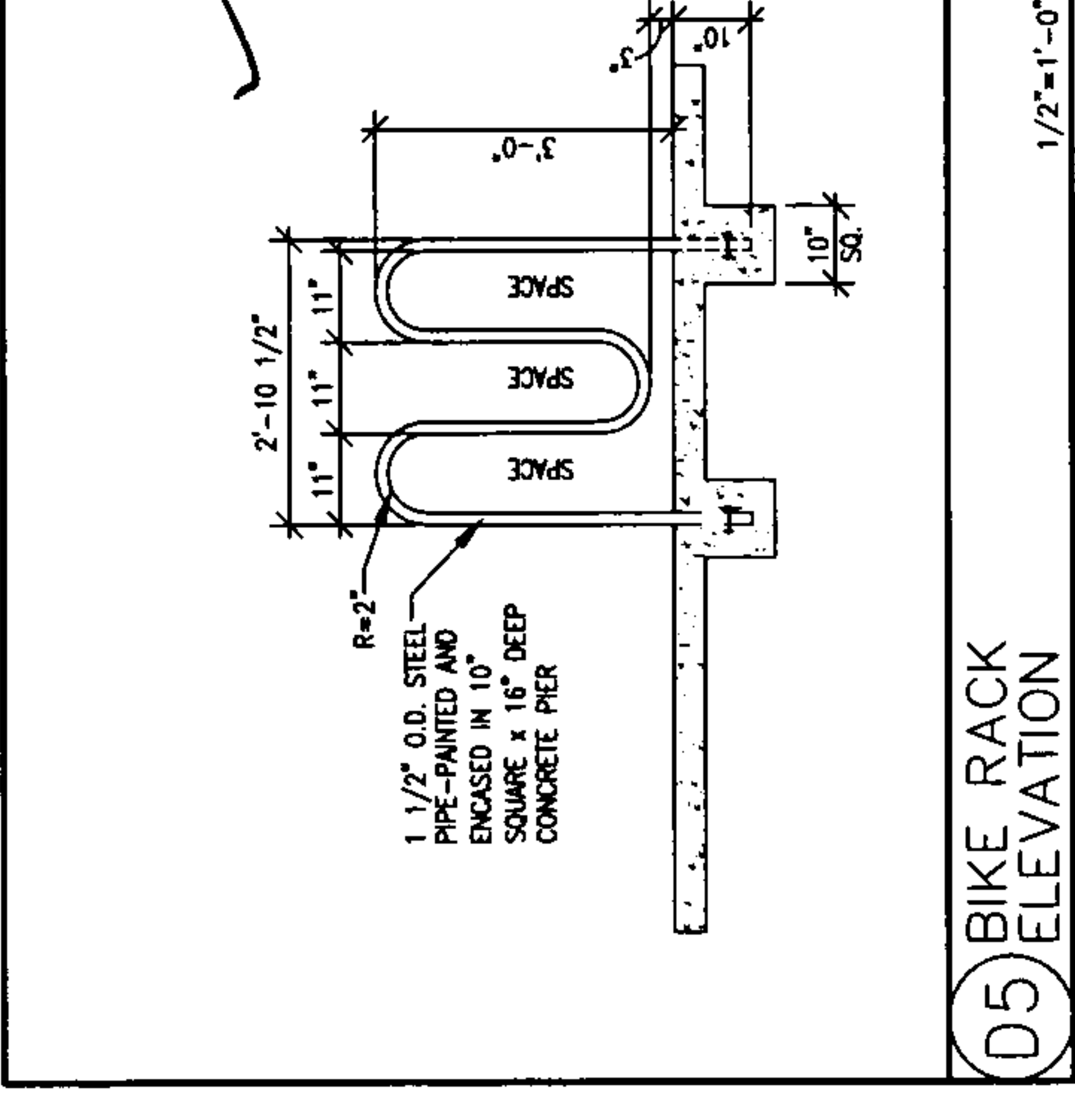
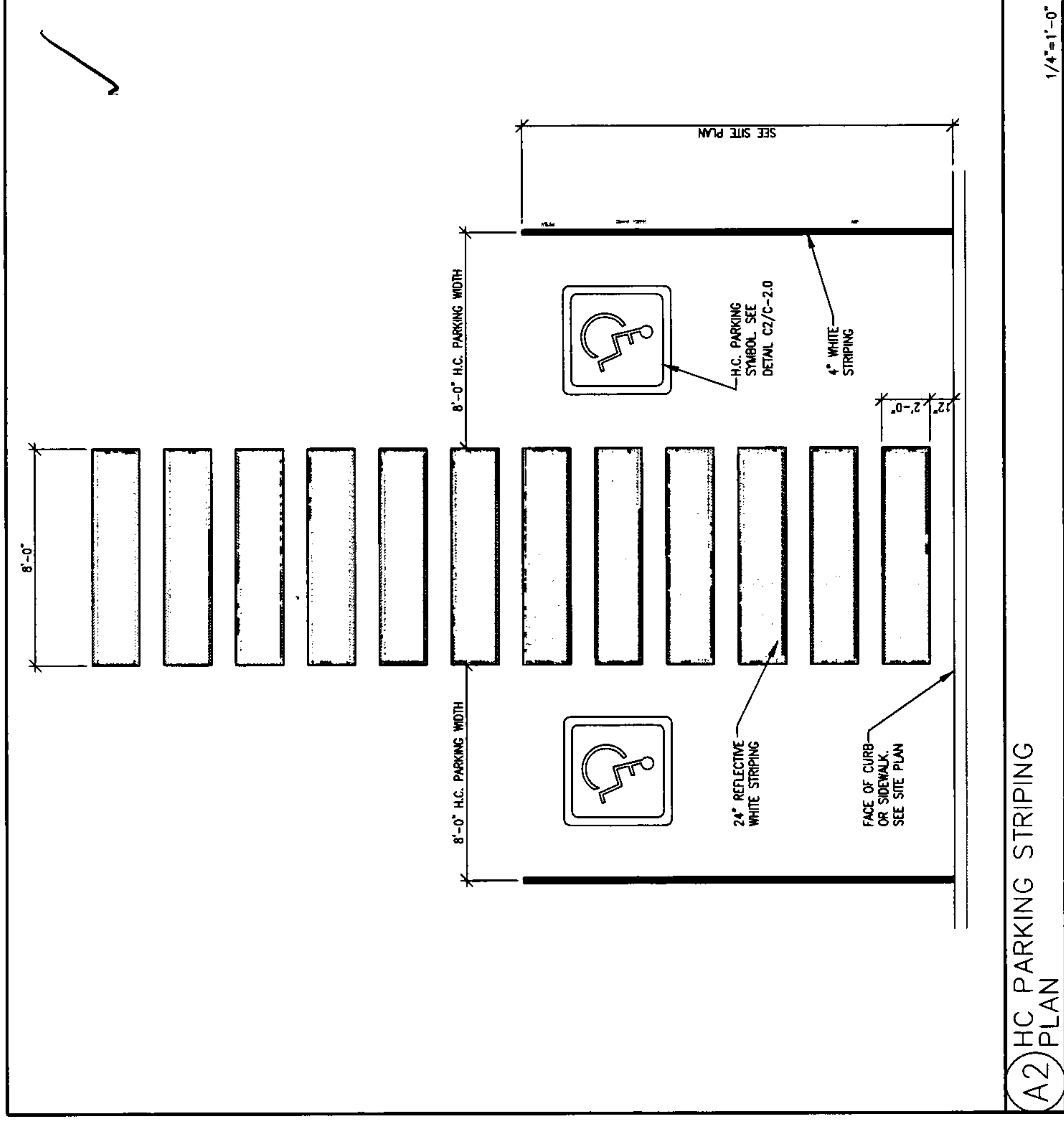
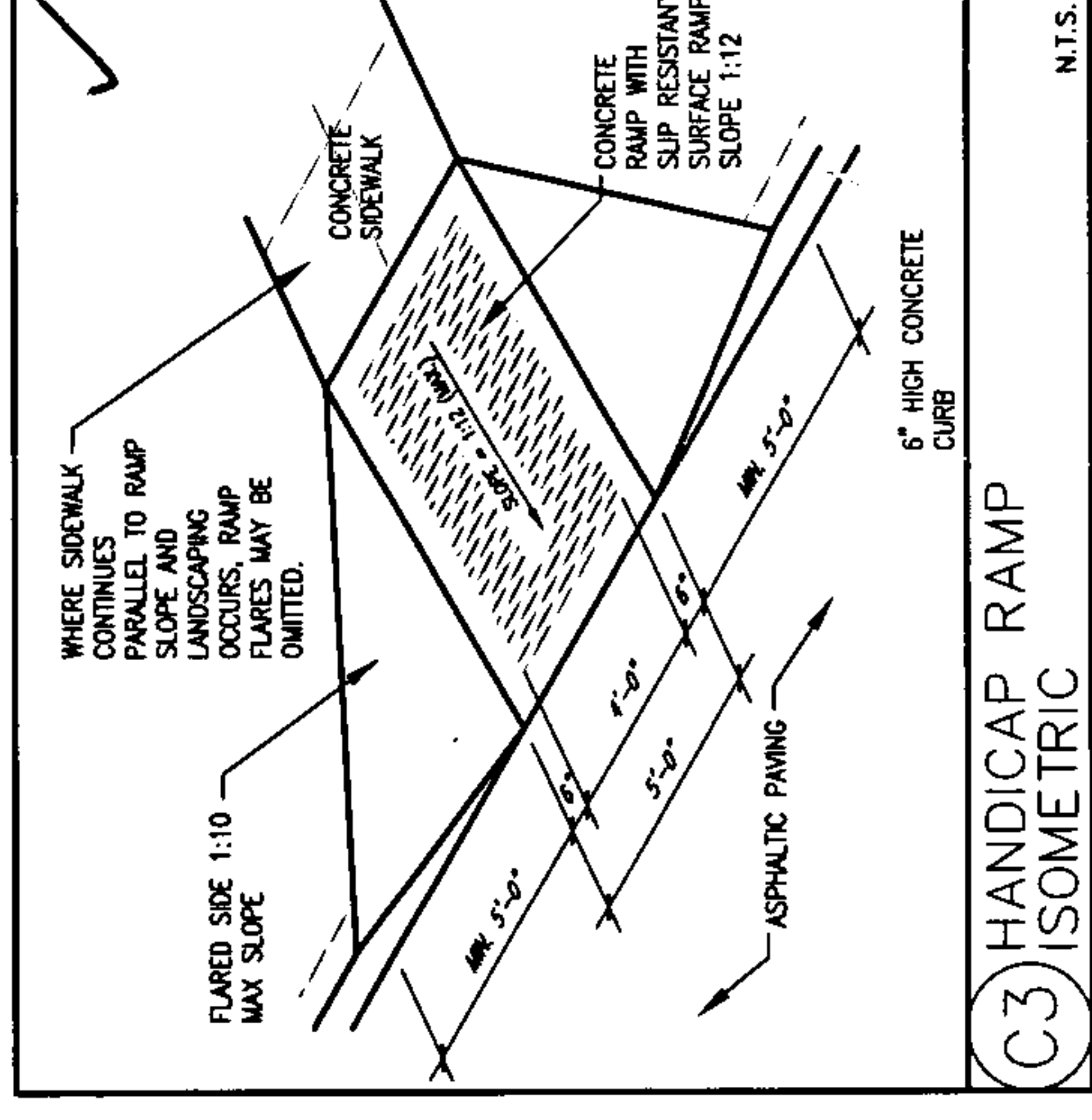
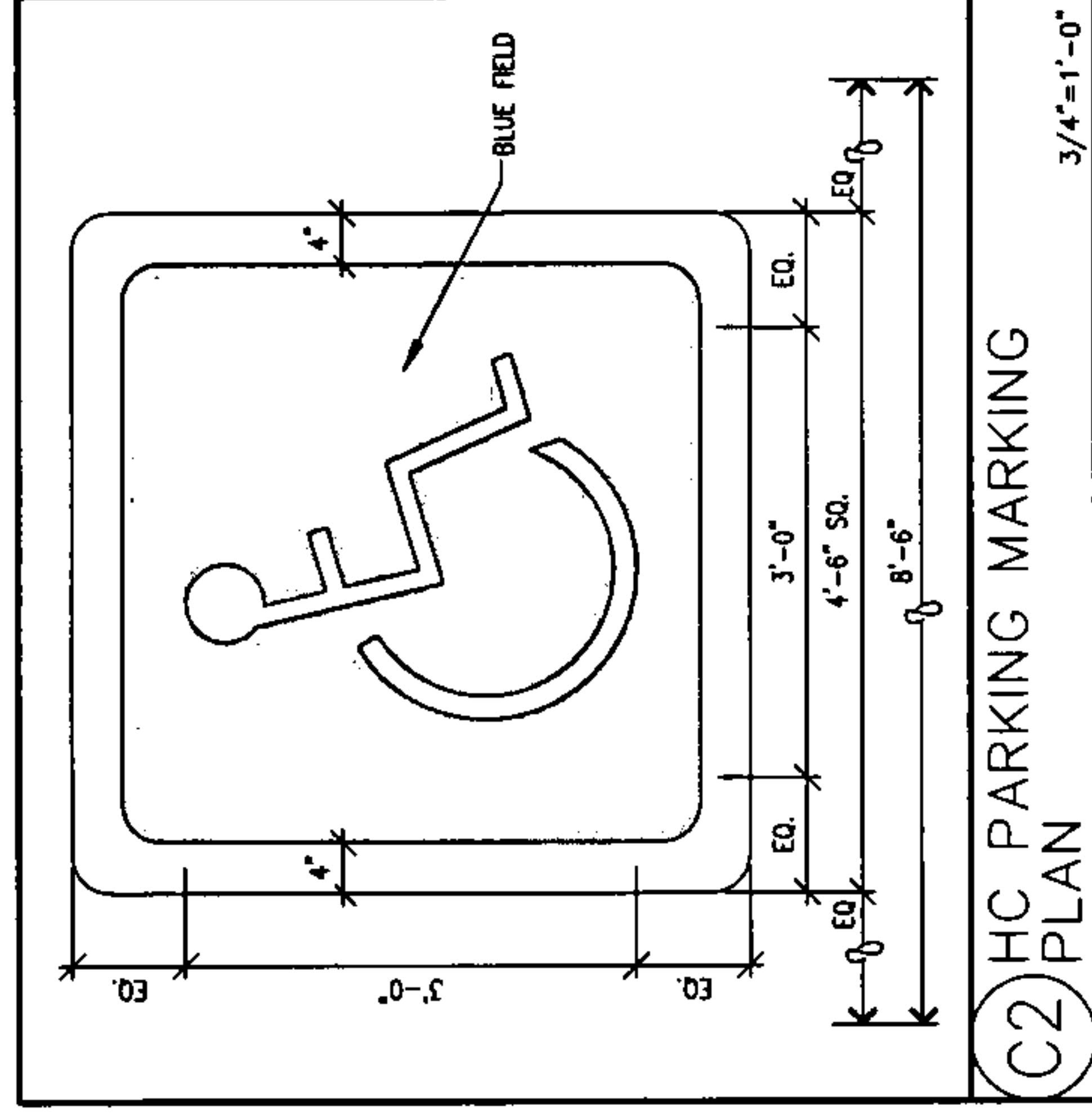
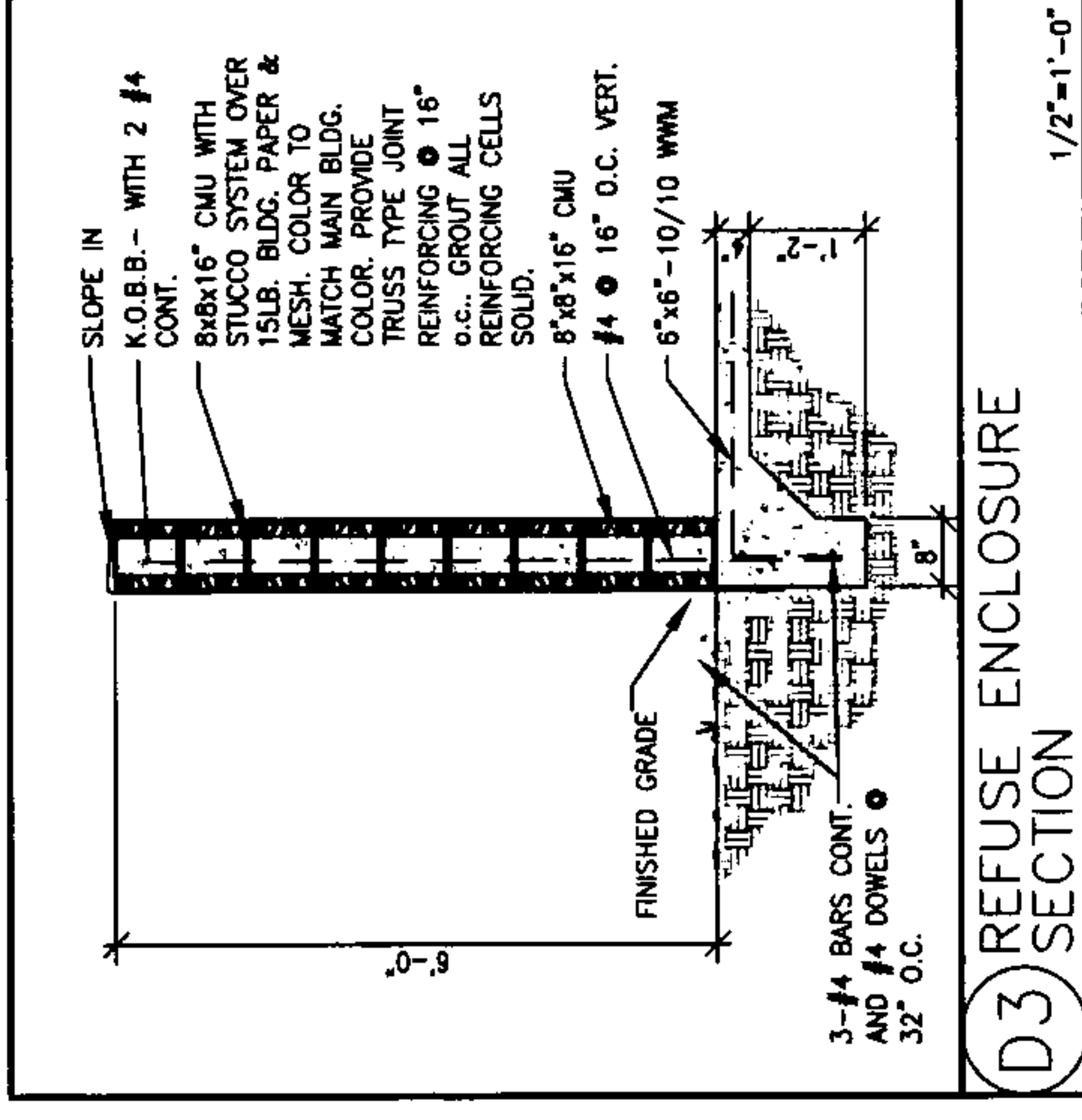
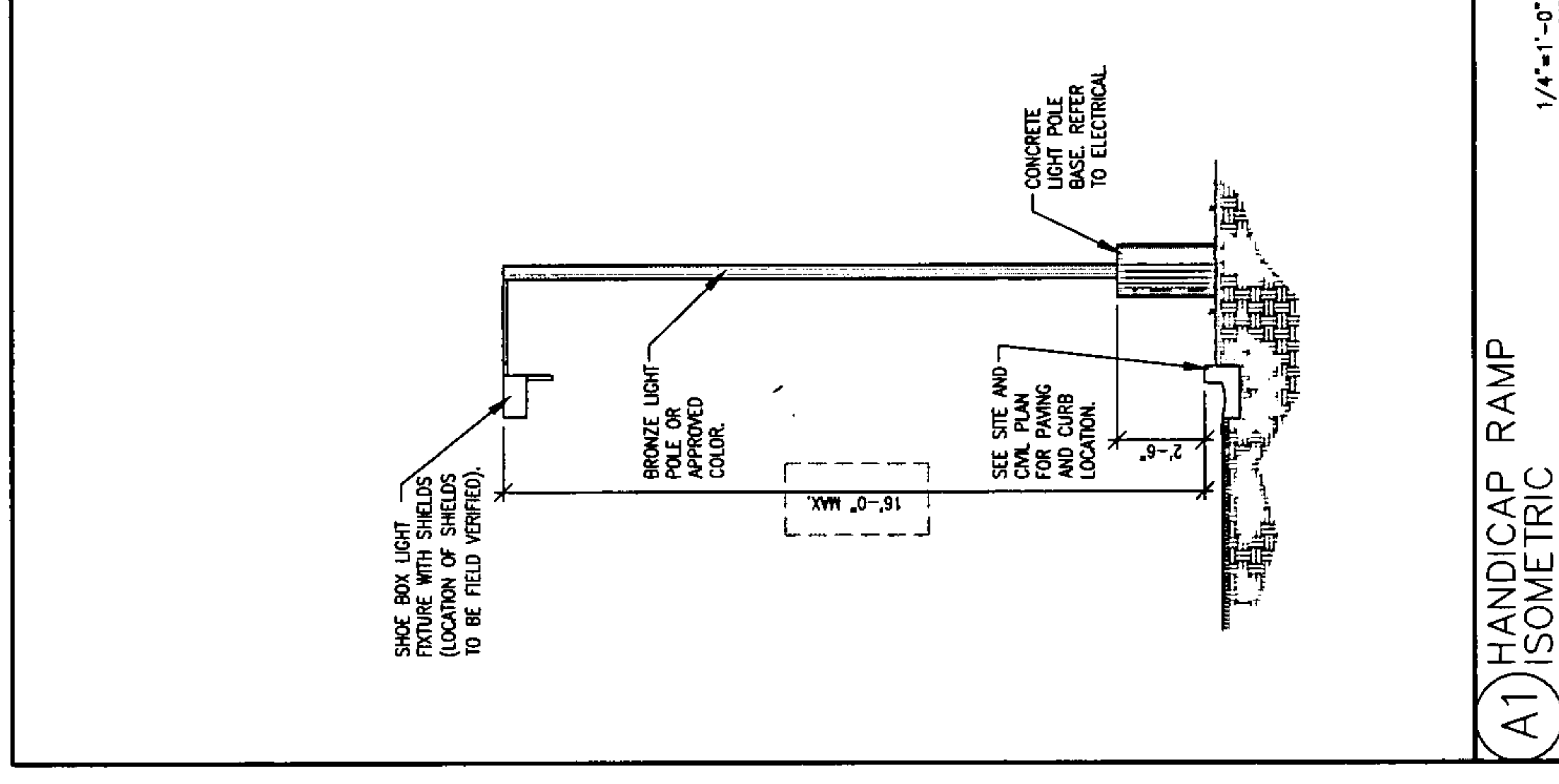
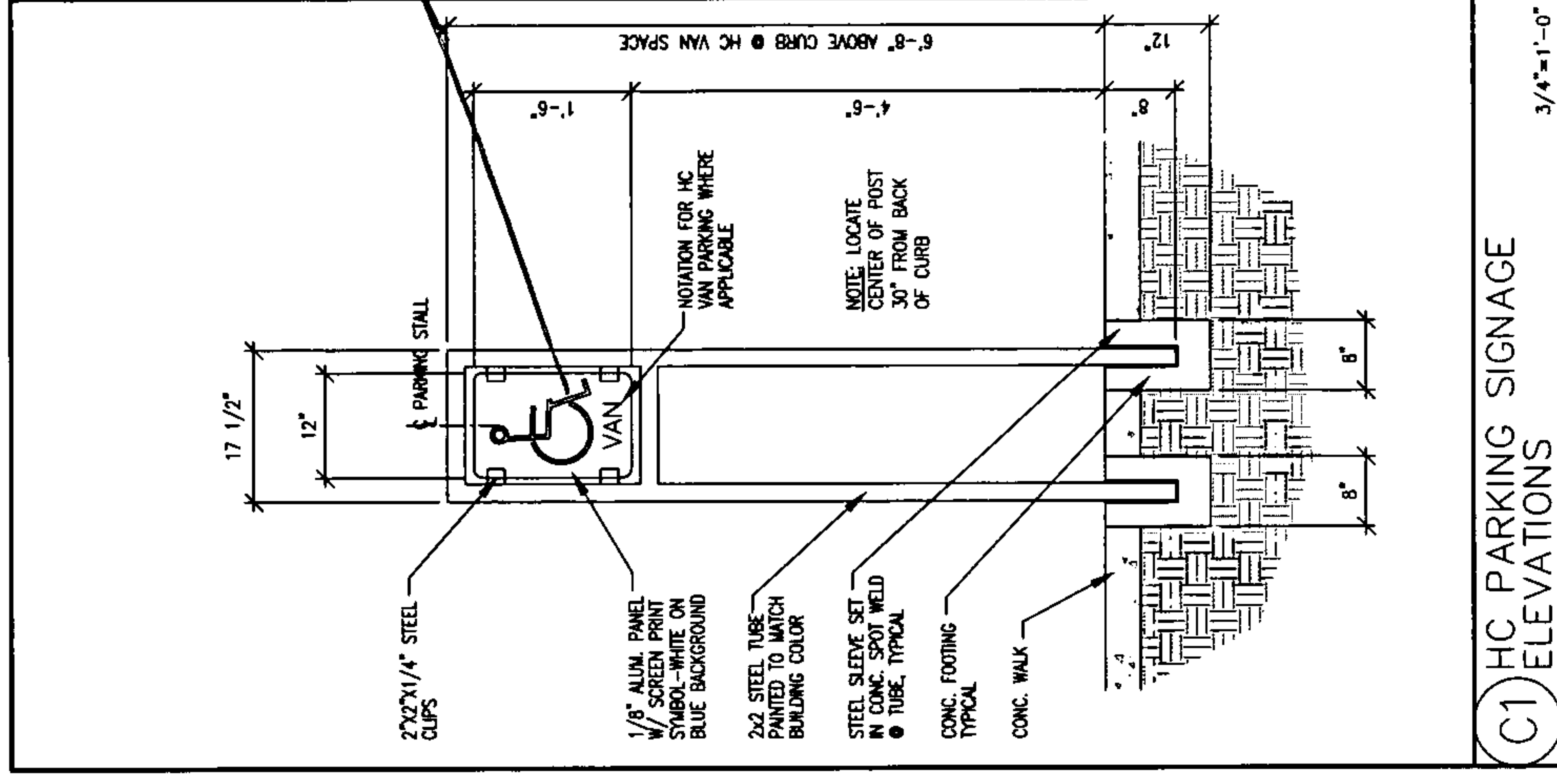
Required TIS **must be completed prior to applying to the EPC and/or the DRB.** Arrangements must be made prior to submittal if a variance to this procedure is requested and noted on this form, otherwise the application may not be accepted or deferred if the arrangements are not complied with.

TIS -SUBMITTED / /
-FINALIZED / /

TRAFFIC ENGINEER _____

DATE _____

Revised January 20, 2011



DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 04/2009)

PROJECT TITLE: CAR CRAFTERS ZONE MAP: C-18/D044
DRB#: NA EPC#: NA WORK ORDER#: NA

LEGAL DESCRIPTION: LOTS 8-B AND 8-C, BLOCK 18, TRACT A, UNIT B, NAA

CITY ADDRESS: 5600 HOLLY AVENUE NE

ENGINEERING FIRM: LORENZ DESIGN & CONSULTING CONTACT: DENNIS LORENZ
ADDRESS: 2501 RIO GRANDE BLVD. NW SUITE A PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87104

OWNER: CAR CRAFTERS CONTACT: JIM GUTHRIE
ADDRESS: 600 MONTANO NE PHONE: 881-8889
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

ARCHITECT: RICK BENNETT ARCHITECTS CONTACT: R. BENNETT
ADDRESS: 1104 PARK AVENUE SW PHONE: 242-1859
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87103

SURVEYOR: CARTESIAN SURVEYS CONTACT: W. PLOTNER
ADDRESS: PO BOX 44414 PHONE: 896-3050
CITY, STATE: RIO RANCHO, NEW MEXICO ZIP CODE: 87174

CONTRACTOR: GLOBAL STRUCTURES, LLC CONTACT: UNKNOWN
ADDRESS: 510 CANDELARIA NE PHONE: 343-0990
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

TYPE OF SUBMITTAL:

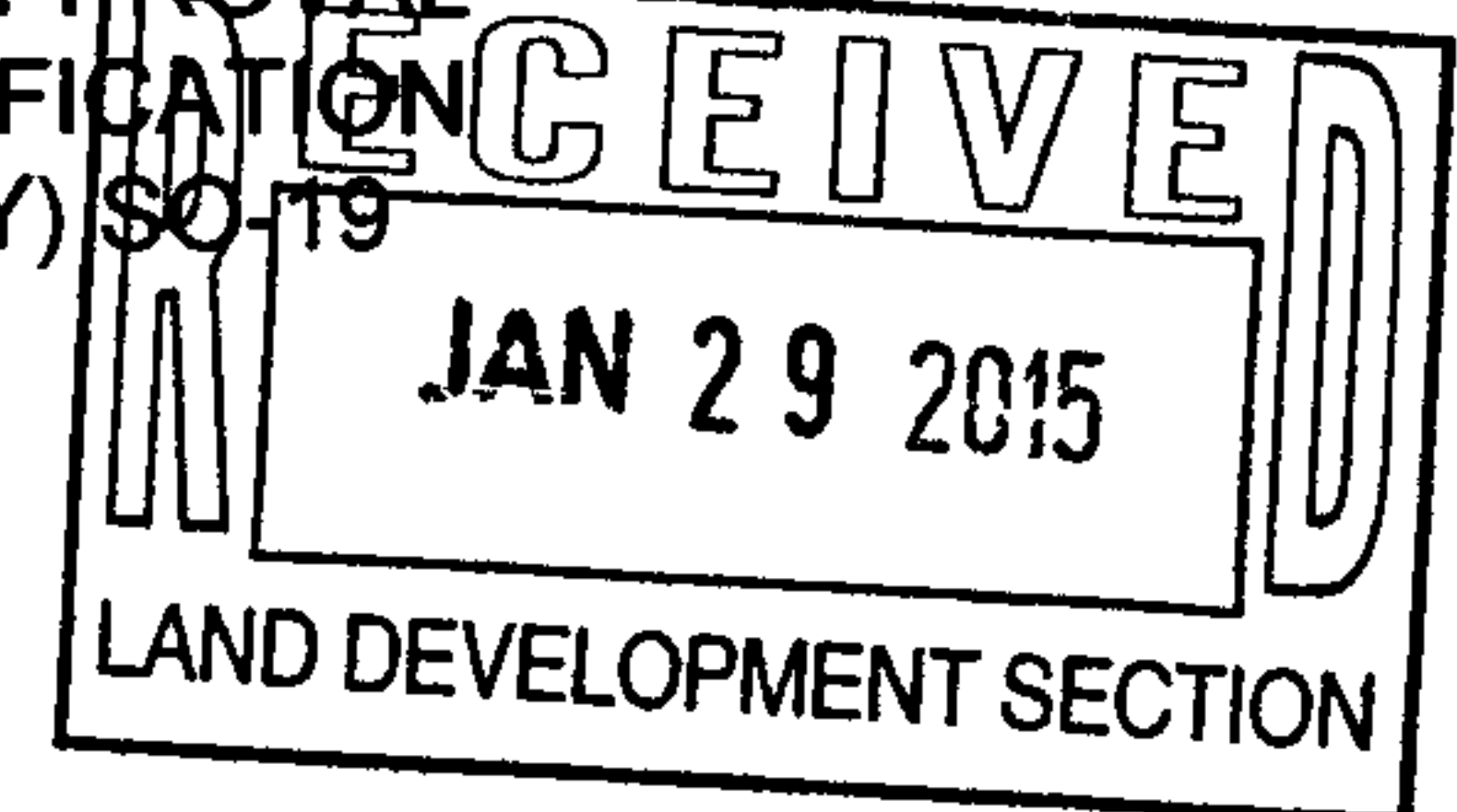
☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL
☒ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:

☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☒ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ GRADING CERTIFICATION
☐ OTHER (SPECIFY) SO-19

WAS A PRE-DESIGN CONFERENCE ATTENDED:

☒ YES
☐ NO
☐ COPY PROVIDED

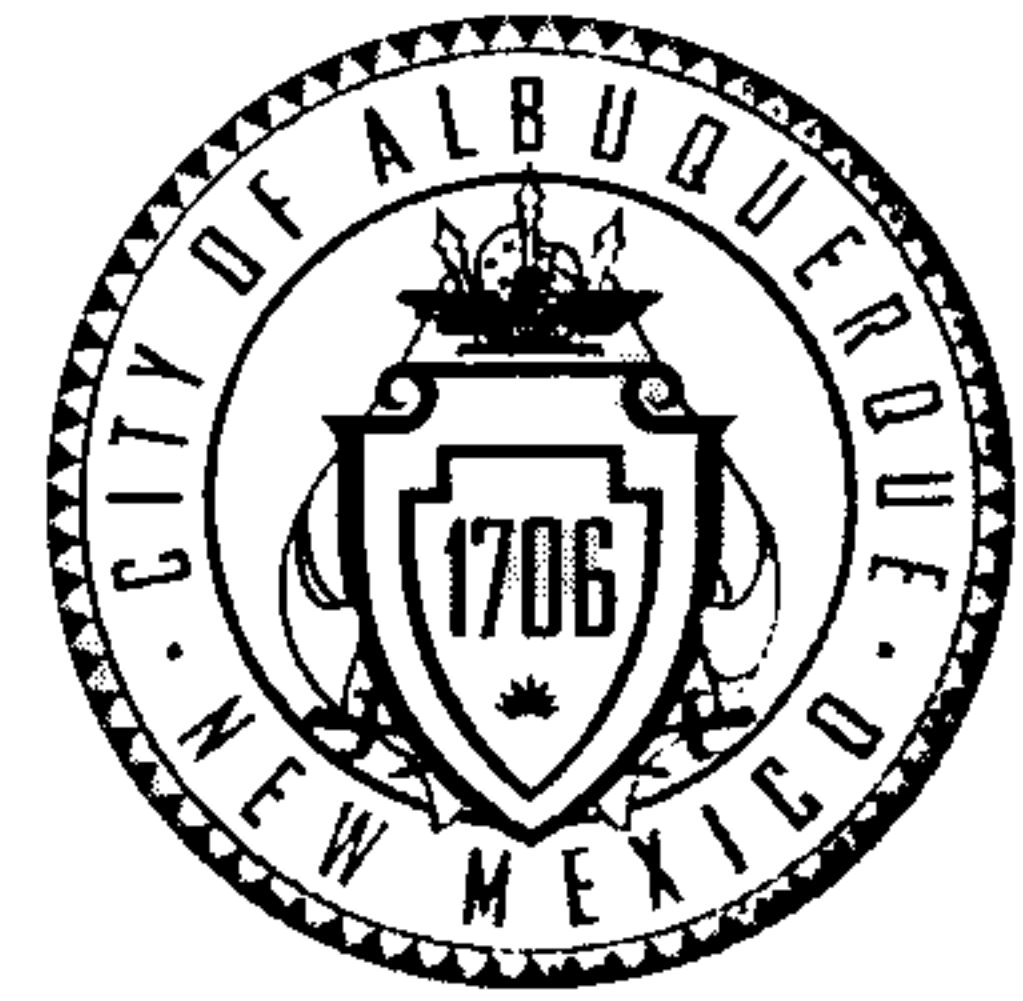


DATE SUBMITTED: 01-29-2015 BY: DENNIS A. LORENZ

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE



February 5, 2015

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande Blvd. NW Suite A
Albuquerque, New Mexico 87107

RE: **Car Crafters**
Grading and Drainage Plan
Engineers Stamp Date 1/29/15 (C18-D044)

Dear Mr. Lorenz,

Based upon the information provided in your submittal received 1/29/2015, the above referenced Grading and Drainage Plan is accepted for Grading Permit and Building Permit. Attach a copy of this approved plan to the construction sets in the permitting process prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

A separate permit (SO 19) is required for construction within City ROW. A copy of this approval letter must be on hand when applying for the excavation or barricading permit. If there is a Work Order associated with this project, this work is to be included in the Work Order. To obtain a permanent CO the sidewalk culvert must be inspected and accepted. Please contact Jason Rodriguez, 235-8016, to schedule an inspection.

In the future if lots 8B and 8C are sold separately, a cross lot drainage agreement should be obtained.

If you have any questions please contact me at 924-3986 or Rudy Rael at 924-3977.

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Planning Department
Development and Review Services

RR/CC
C: File

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov



January 28, 2015

Curtis A. Cherne, PE
Principal Engineer - Hydrology Section
Development and Building Services
City of Albuquerque
Plaza Del Sol
Albuquerque, New Mexico 87102

SUBJECT: CAR CRAFTERS (C23/D044)

Dear Curtis:

Submitted herewith for review and approval is one copy of the Grading and Drainage Plan for the subject site. The Plan has been revised to address your comments issued January 27, 2015. Your comments are addressed as follows:

1. As mandated by Environmental Services Division, landscaped areas will not be depressed to retain water nor will surface flows be routed through the landscape areas, as typically required by ordinance.
2. An agreement with NMDOT allows the construction of a narrow 3:1 fill slope along the south property line to manage the grade differential. Existing drainage patterns on the NMDOT property will not be altered.
3. The west access drive is located within an existing 25' private access and drainage easement cited on the plan (99C-71, filed 04-05-1999).
4. The detention pond has been redesigned to discharge directly through the sidewalk culverts. Detention storage will be located on the paved surface, not within landscaped areas.

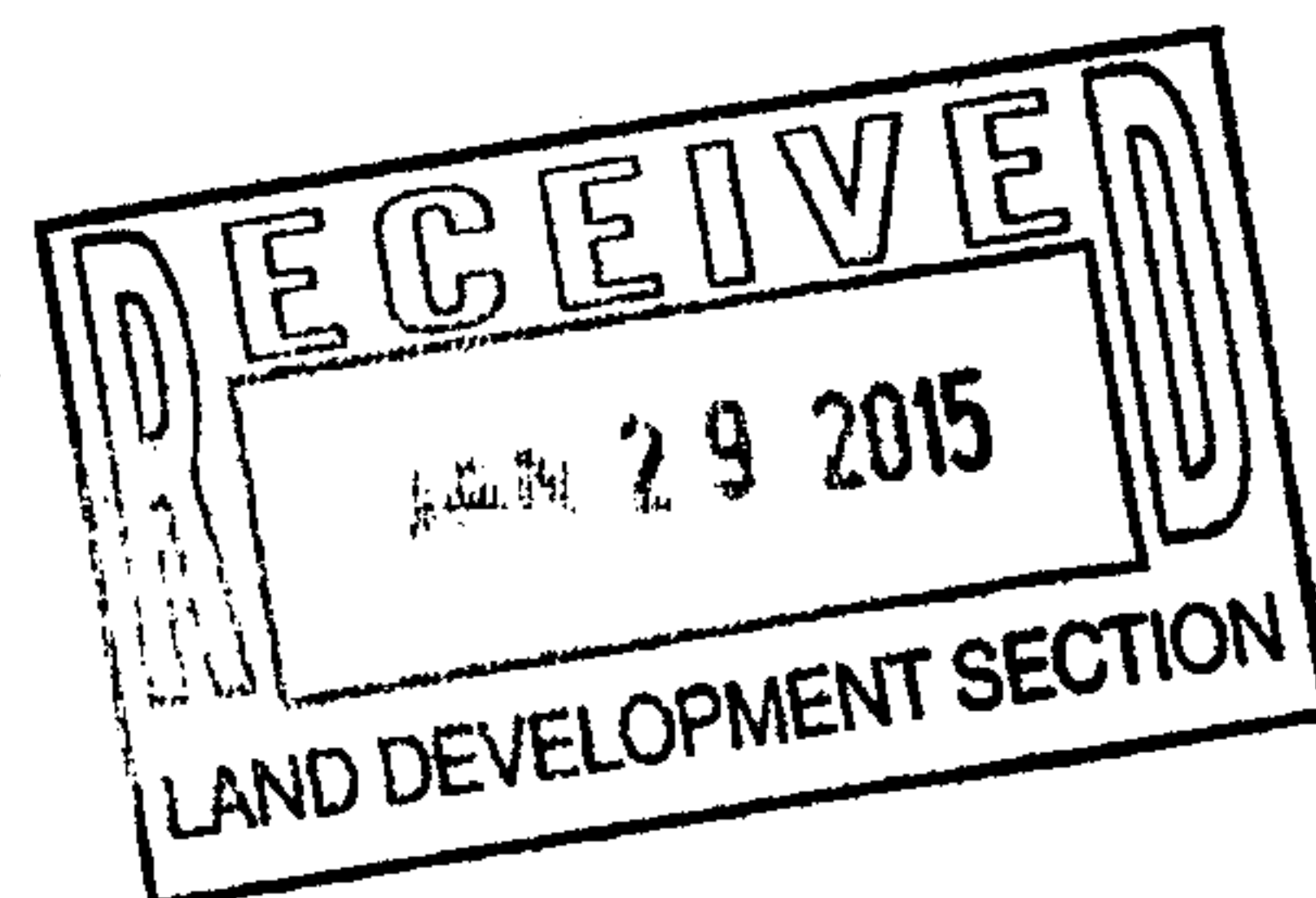
A "Foundation Only" application is pending. I trust this plan will allow permit approval. If you have any questions regarding this request, please call me.

Sincerely,

LORENZ DESIGN & CONSULTING, LLC

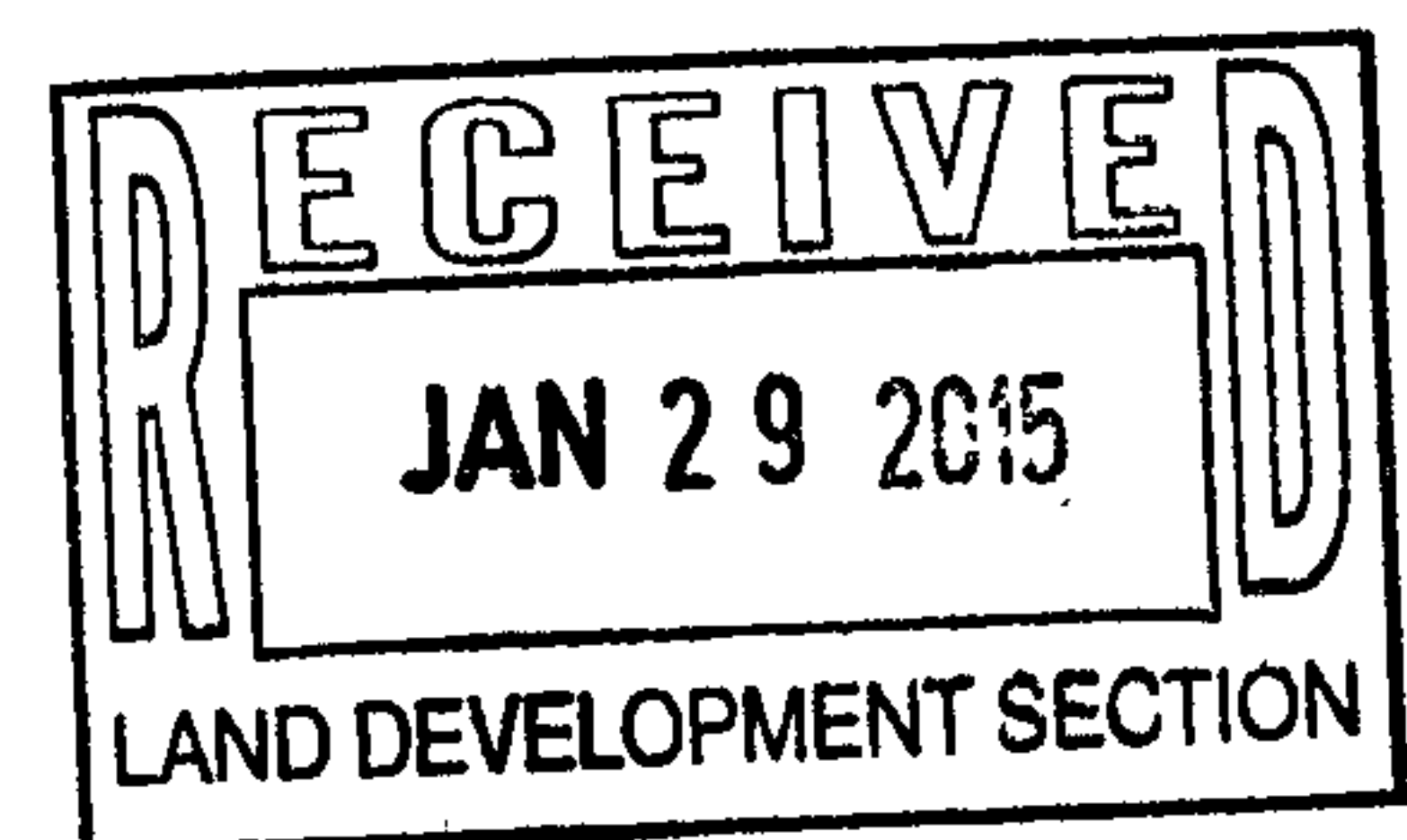
Dennis A. Lorenz, PE

P\14-032\CC01292015



DRAINAGE REPORT FOR CAR CRAFTERS

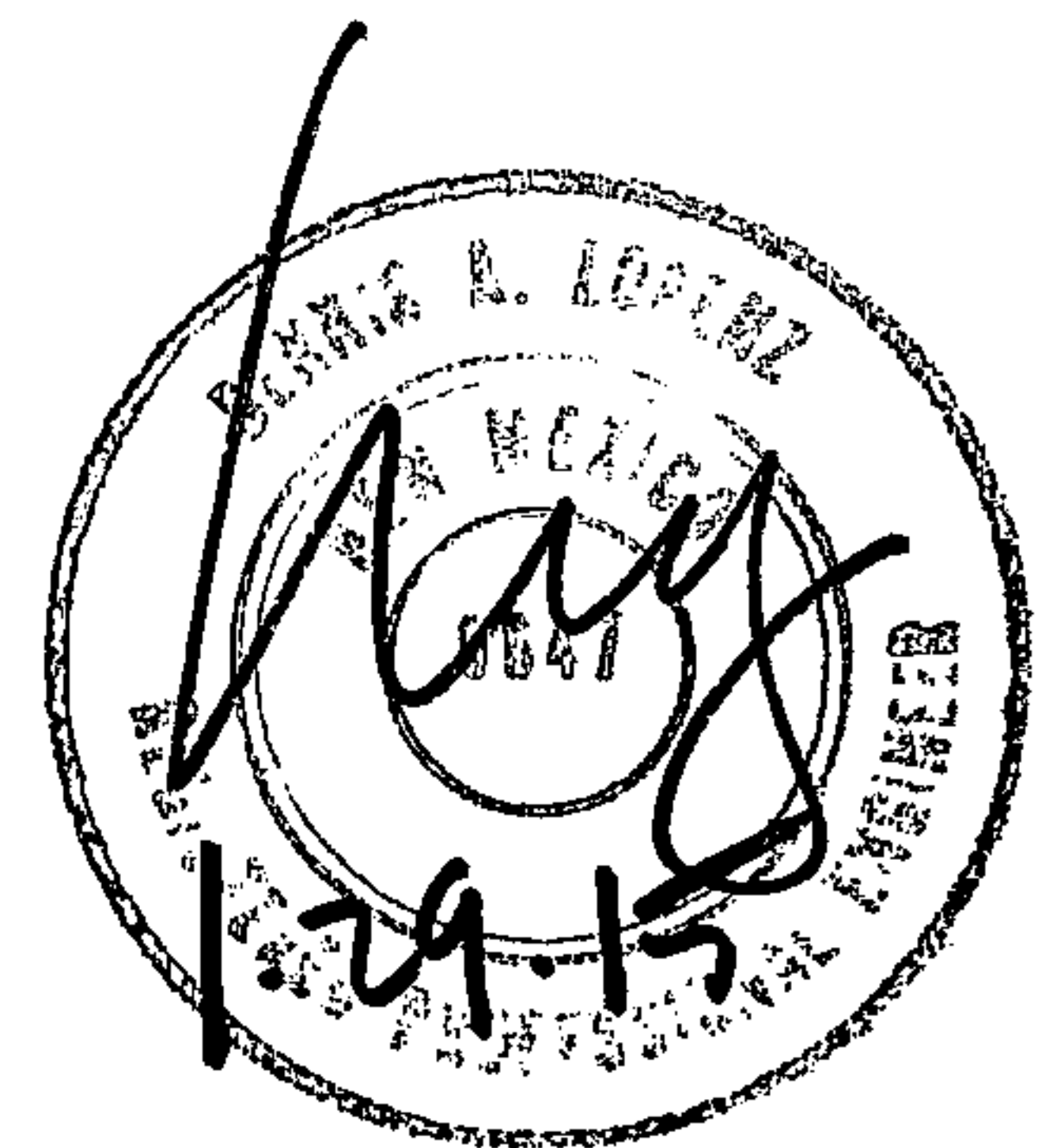
5600 Holly Avenue NE
Albuquerque, New Mexico 87113



Prepared For:

Jim Guthrie
Car Crafters
600 Montano Boulevard NE
Albuquerque, New Mexico 87107

Prepared by:



 **LORENZ**
DESIGN & CONSULTING, LLC
Civil Engineering | Construction Management

January 2015

TABLE OF CONTENTS

TITLE	PAGE NO.
PURPOSE AND SCOPE	1
EXISTING CONDITIONS	1
DRAINAGE MASTERPLANS	1
PROPOSED CONDITIONS	2
CALCULATIONS	3

APPENDIX INDEX

TITLE	SECTION
MAPS	1
LOCATION MAP - FIGURE 1	
FIRM PANEL - FIGURE 2	
DEVELOPED DRAINAGE BASIN MAP - FIGURE 3	
CALCULATIONS	2
PONDING CRITERIA	
DRAINAGE STRUCTURE CAPACTIES	
AHYMO INPUT FILE	
AHYMO OUTPUT FILES	
DRAINAGE MASTERPLANS	3
EXHIBITS	4
GRADING & DRAINAGE PLAN	
SITE DETAILS	

PURPOSE AND SCOPE

This project involves the re-development of the subject property for Car Crafters, an auto body repair center. The project proposes site improvements to support the development, including access, grading, drainage and utility improvements.

The purpose of this report is to outline the criteria for re-development of the site and demonstrate that this project will not negatively impact the project site, or upstream and downstream properties. This report is prepared and submitted in support of a pending building permit application.

The scope of this report is to provide analysis of the existing and improved conditions utilizing state of the art technological storm drainage modeling tools, thereby demonstrating the before and after behavior of the project site during rainfall events. It will be demonstrated that this project will be developed in accordance with the City of Albuquerque, Development Process Manual, Volume 2, the City of Albuquerque Drainage Ordinance, and the approved drainage master plan for the watershed.

EXISTING CONDITIONS

The 1.2-acre project site is presently partially developed. Site improvements consist of an 11,520-square foot commercial building with limited site improvements constructed to support the previous property use. The site is bounded north by Holly Avenue NE, undeveloped property on the east, and unimproved NMDOT properties on the west and south. The NMDOT land to the west is the site of an un-remediated landfill.

The site is impacted by a small undeveloped drainage Basin OS-1 that enters the site as sheet flow from the east. The NMDOT land on the west and south drains where flows appear to collect in shallow depressions before overflowing to the Paseo Del Norte-I-25 Interchange drainage system. Holly Avenue drains west to the end of the cul-de-sac, where flows drain through sidewalk culverts to a public drainage channel. The channel drains to the Paseo Del Norte-I-25 Interchange drainage system.

As shown by FIRM Panel 35001C0137H, this property is not located within a mapped 100 year floodplain.

DRAINAGE MASTERPLANS

The property was originally developed as a retail business in the 1970's. It was later re-developed as a Caliber's Shooting Range. Recent development upstream and the construction of the Paseo Del Norte corridor improvements have resulted in the establishment of upgraded storm drainage criteria. The **Holly Place Commercial Center**, located at San Pedro and Holly, and the development of the **After Hours Pediatrics Center**, located southeast of the project site recognized downstream

limitations and established the unit developed discharge rate of 4.63 cfs/acre. As a result this project will implement on-site detention ponding.

Both Drainage Master Plans are provided in the Appendix for review.

PROPOSED CONDITIONS

As shown by the Grading and Drainage Plan (see back pocket), the property is to be re-developed by upgrading and expanding the existing building, and re-constructing the site improvements. New parking lot and service area paving improvements will be constructed. Pedestrian access improvements and new landscaping will be provided.

In accordance with the Drainage Master Plans all surface storm runoff will be directed to a detention pond to be constructed along the Holly Avenue frontage. The pond will discharge at a rate not to exceed 4.63 cfs/acre to Holly Avenue, where street improvements will convey flows to the public drainage channel located at the west end of the cul-de-sac. Due to the proximity of the landfill to the site, City Environmental Health has mandated that the detention pond be designed to minimize infiltration of storm water runoff from this site that may potentially drain to the landfill. The site will meet these criteria by providing detention storage on the asphalt pavement, not within landscaping. A small detention pond will be located on the paved surface at AP-3, draining directly to Holly through 3-24-inch sidewalk culverts, limiting the peak discharge to the unit discharge rate of 4.63 cfs/acre.

As shown by the Developed Drainage Basins Map, Figure 3, the developed site is divided into 5 drainage basins, and is impacted by 2 off-site basins. Each drainage basin is described below:

Basin A is the largest on-site basin. It drains north by surface flows thru a concrete channel to Basin "C" at AP-1.

Basin B is a small basin that will free discharge thru the drivepad at AP-2.

Basin C is a paved service area north of the building draining with flows from Basin "B" to Holly Avenue thru 3-24-inch sidewalk culverts at AP-4.

Basin D is a portion of the paved service area the drains directly to Holly thru the east drivepad at AP-5.

Basin E is a small landscape area along the east property line that drains to a sidewalk culvert to Holly Avenue at AP-6. Basin 'E' accepts undeveloped interim flows from off-site Basin OS-1.

Basin OS-1 is an undeveloped basin that drains as sheet flow to Basin 'E' as described

above.

As shown by the AHYMO output files and the Pond Routing Calculations, the detention pond discharges at a maximum rate of 4.98 cfs thru 3-24-inch sidewalk culverts. Basins B, D and E free discharge to Holly as described above at a combine rate of 0.53 cfs. The total combined developed discharge from the project site to Holly Avenue is 5.51 cfs, which is below the threshold allowed by the DMP's of 5.83cfs.

90th Percentile Storm

In accordance with the City of Albuquerque Drainage Ordinance, effective May 12, 2014, all new development projects are required to manage the runoff which occurs during the 90th percentile storm event. In order to comply with this criteria, where practical, all surface drainage shall be routed through landscaped areas before release into downstream drainage facilities.

Due to the proximity of the landfill to the site, City Environmental Health has mandated that this criteria be waived to minimize infiltration of storm water runoff from this site that may potentially drain to the landfill. Additionally all landscape areas must be designed to minimize infiltration.

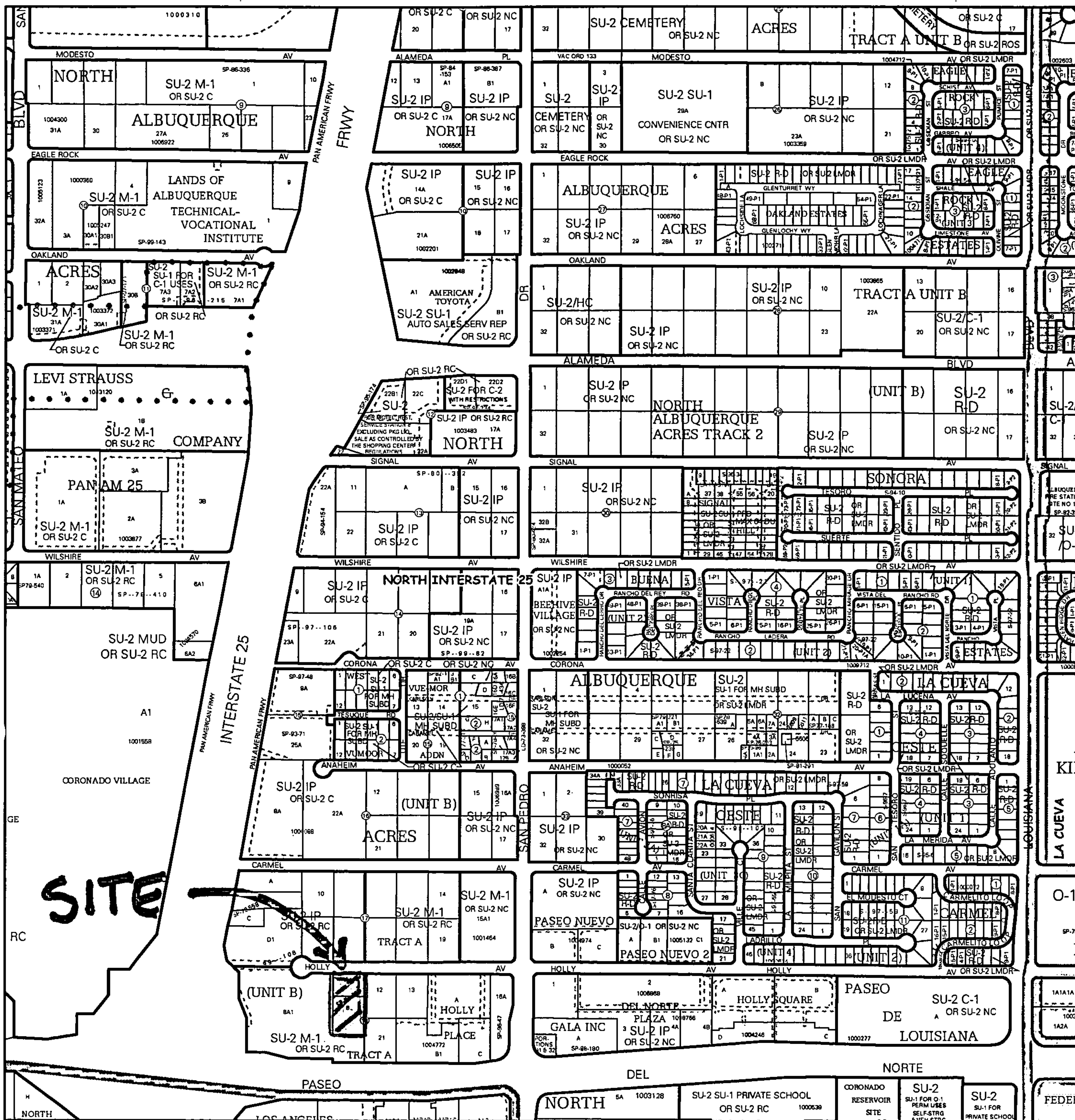
CALCULATIONS

Hydrology

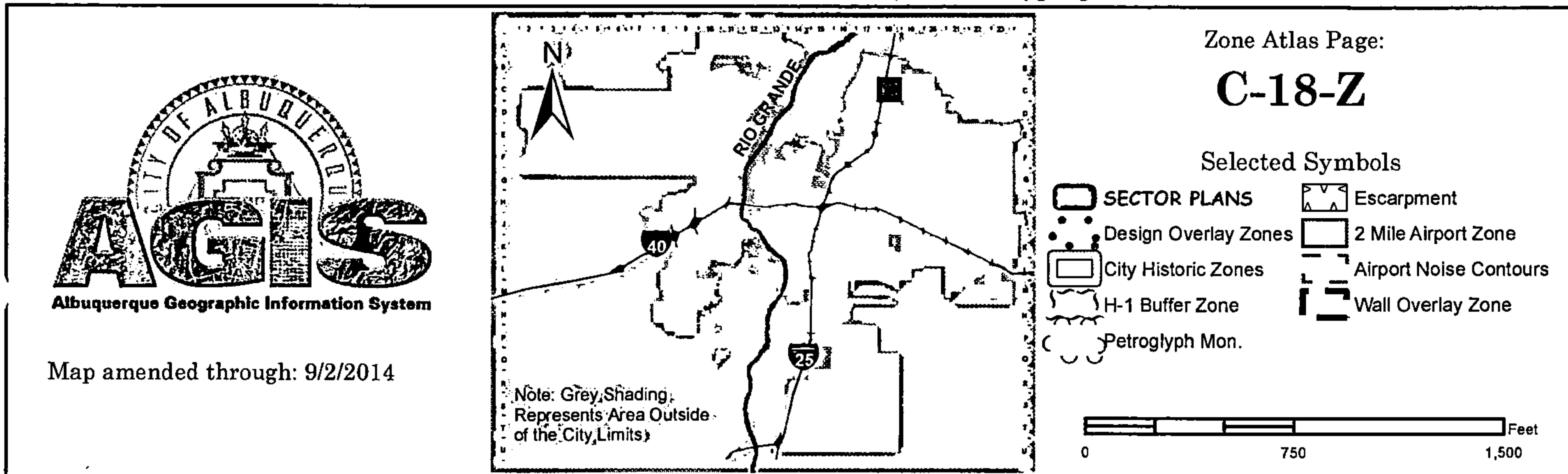
The calculations contained herein define the 100-year/6-hour rainfall event falling within the project site and contributing off-site areas under existing and developed conditions. The hydrology is per the City of Albuquerque, Development Process Manual, Chapter 22, Volume 2, 1997 Revision. The AHYMO 97 model is used to determine peak runoff. The calculations are presented to demonstrate the capacity and function of all proposed storm drainage improvements.

APPENDIX

MAPS

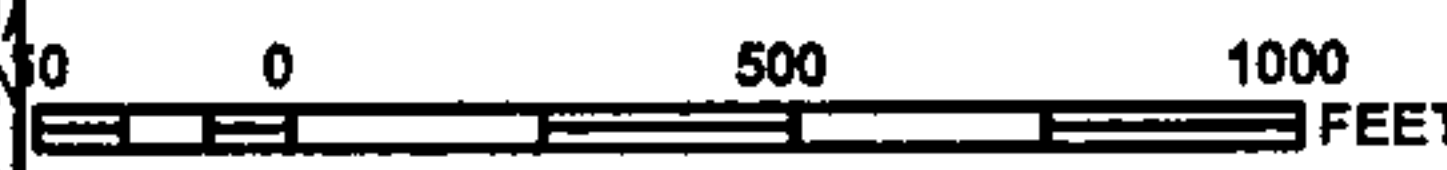


For more current information and details visit: <http://www.cabq.gov/gis>





MAP SCALE 1" = 500'



PANEL 0137H

FIRM

FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY,
NEW MEXICO
AND INCORPORATED AREAS

PANEL 137 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0137	H
BERNALILLO COUNTY			
UNINCORPORATED AREAS	350001	0137	H

Notice to User: The Map Number shown below should be used when placing map orders the Community Number shown above should be used on insurance applications for the subject community.

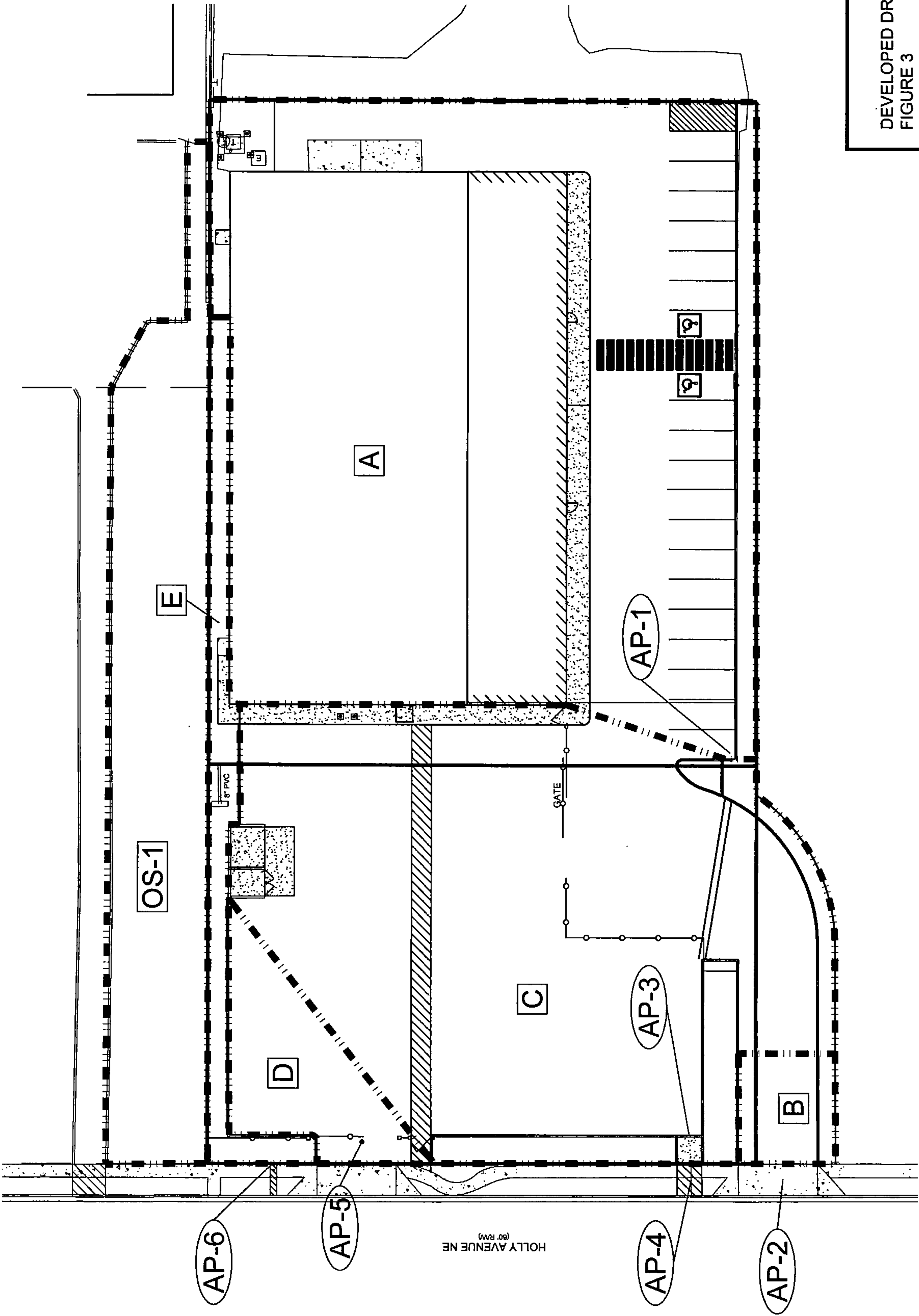


MAP NUMBER
35001C0137H

MAP REVISED
AUGUST 16, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



DEVELOPED DRAINAGE BASINS
FIGURE 3

CALCULATIONS

PONDING CRITERIA

SITE PONDING CRITERIA

I. FIRST FLUSH

By ordinance the site is required to retain the 90th percentile rainfall depth. However, an un-remediated landfill is located immediately west of the site on land owned by NMDOT. The City of Albuquerque Environmental Health Department has mandated that the first flush criteria be waived to minimize infiltration of storm water runoff on this site that may potentially drain to the landfill. Additionally all landscape areas must be designed to minimize infiltration.

II. DETENTION POND CRITERIA

Per the DMP the allowable discharge rate is established at 4.63 cfs/acre. This rate will be applied to the site (1.22 ac) plus the west access drive, Basin OS-2 (0.04 ac).

The total allowed discharge from the site is $1.26 \text{ ac} \times 4.63 \text{ cfs/ac} = 5.83 \text{ cfs}$.

Due to site grading issues, on-site Basin "B" will free discharge 0.11 cfs thru the west drivepad. On-site Basin "D" will free discharge 0.27 cfs thru the east drivepad. Basin OS-1 and Basin "E" will discharge to Holly Avenue thru a 12-inch sidewalk culvert. The Basin "E" portion of this flow is 0.15 cfs. A combined developed peak flowrate of 0.42 cfs will be subtracted from the allowable rate resulting in a maximum discharge rate of 5.30 cfs from the detention pond.

POND STORAGE INDICATION TABLE

ELEVATION feet	Q OUT cfs	AREA sf	VOLUME acre feet
5204.75	0.00	0	0.0000
5205.00	2.00	450	0.0013
5205.30	8.90	3850	0.0507

As illustrated by the AHYMO Output file, the discharge from the pond is calculated at 4.98 cfs, with a maximum water surface elevation of 5205.43 feet.

The total developed discharge from the project site is as follows:

Detention Pond (AP-4)	4.98 cfs
Basin "B" (AP-2)	0.11 cfs
Basin "D" (AP-5)	0.27 cfs
Basin "E" (AP-6)	0.15 cfs
Total	5.51 cfs < Q100 (5.83 cfs)

DRAINAGE STRUCTURE CAPACITIES

3

CAR CRAFTERS
SIDEWALK CULVERT AND CURB BLOCKOUT WIDTHS

ANALYSIS POINT	STRUCTURE TYPE	Q100 cfs	H ft	L FT
AP-1	CONCRETE CHANNEL	3.54	0.5	4.0
AP-3	POND OUTLET	5.89	0.5	7.5
AP-4	3-24" SWC	5.89	0.67	6.0
AP-6	12" SWC	0.68	0.5	1.0

AHYMO INPUT FILE

AHYMO OUTPUT FILES


```

TP=0.1333 HR  MASS RAIN=-1
PRINT HYD      ID=8  CODE=20
* BASIN D - 0.05 ACRES (AP-5)
COMPUTE NM HYD  ID=9  HYD NO=DEV-D  DA=0.000078 SQ MI
                PER A=0 PER B=0 PER C=0 PER D=100
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD      ID=9  CODE=20
* BASIN E - 0.04 ACRES (AP-6)
COMPUTE NM HYD  ID=10  HYD NO=DEV-E  DA=0.000063 SQ MI
                PER A=0 PER B=47 PER C=47 PER D=6
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD      ID=10  CODE=20
*****
*  ADD HYDROGRAPHS  *
*****
ADD HYD          ID=11  HYD NO=HYD-AP-4      ID I=6 ID II=8
PRINT HYD        ID=11  CODE=20
ADD HYD          ID=12  HYD NO=HYD-AP-6      ID I=5 ID II=10
PRINT HYD        ID=12  CODE=20
*****
* ROUTE DEVELOPED SITE THROUGH DETENTION POND AT AP-4 TO      *
* 3-24 INCH SW CULVERTS. ALLOWABLE DISCHARGE IS 4.63 CFS/AC  *
* LESS BASINS B, D AND E (FREE DISCHARGE)OR 5.30 CFS        *
*****
ROUTE RESERVOIR  ID=13  HYD NO=POND.OUT  INFLOW ID=11  CODE=10
                OUT (CFS)  STORAGE (AC-FT)  ELEV (FT)
                0.0        0                5204.75
                2.0        0.00133          5205.00
                8.9        0.0507           5206.00
PRINT HYD        ID=13  CODE=20
FINISH

```

RUN DATE (MON/DAY/YR) =01/28/2015

USER NO.= Lorenz-NMSingleA33825816

COMMAND		HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME=	0.00
LOCATION			ALBUQUERQUE									
RAINFALL TYPE= 1 NOAA 14			RAIN6= 2.600									
COMPUTE NM HYD	EX-SITE	-	1	0.00191	5.42	0.186	1.82493	1.533	4.434	PER IMP= 48.00		
COMPUTE NM HYD	EX-OS-1	-	2	0.00027	0.53	0.015	1.07948	1.533	3.089	PER IMP= 0.00		
COMPUTE NM HYD	EX-OS-2	-	3	0.00006	0.16	0.005	1.34222	1.533	4.044	PER IMP= 0.00		
COMPUTE NM HYD	DEV-SITE	-	4	0.00191	6.05	0.224	2.20273	1.500	4.950	PER IMP= 87.00		
COMPUTE NM HYD	DEV-OS-1	-	5	0.00027	0.53	0.015	1.07948	1.533	3.089	PER IMP= 0.00		
COMPUTE NM HYD	DEV-A	-	6	0.00108	3.54	0.133	2.30199	1.500	5.123	PER IMP= 96.00		
COMPUTE NM HYD	DEV-B	-	7	0.00003	0.11	0.004	2.17690	1.500	5.470	PER IMP= 83.00		
COMPUTE NM HYD	DEV-C	-	8	0.00072	2.35	0.087	2.27905	1.500	5.102	PER IMP= 94.00		
COMPUTE NM HYD	DEV-D	-	9	0.00008	0.27	0.010	2.34787	1.500	5.366	PER IMP= 100.00		
COMPUTE NM HYD	DEV-E	-	10	0.00006	0.15	0.004	1.26970	1.533	3.819	PER IMP= 6.00		
ADD HYD	HYD-AP-4	6&8	11	0.00180	5.89	0.220	2.29250	1.500	5.115			
ADD HYD	HYD-AP-6	5&10	12	0.00033	0.68	0.020	1.11383	1.533	3.229			
ROUTE RESERVOIR	POND.OUT	-11	13	0.00180	4.98	0.220	2.29250	1.600	4.326	AC-FT= 0.023		
FINISH												

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 01/28/2015
 START TIME (HR:MIN:SEC) = 17:47:35 USER NO.= Lorenz-NMSingleA33825816
 INPUT FILE = P:\14-032 - Car Crafters\Drainage Report\AHYMO\CARCRAFTERS.DAT

 * CAR CRAFTERS
 * PROJECT HYDROLOGY

START TIME=0.0 PUNCH CODE=0
 LOCATION ALBUQUERQUE
 City of Albuquerque soil infiltration values (LAND FACTORS) used for computations.

Land Treatment	Initial Abstr.(in)	Unif. Infilt.(in/hour)
A	0.65	1.67
B	0.50	1.25
C	0.35	0.83
D	0.10	0.04

RAINFALL TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.14
 RAIN SIX=2.60 RAIN DAY=3.10 DT=0.03333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
 DT = 0.033330 HOURS END TIME = 5.999400 HOURS

0.0000	0.0020	0.0041	0.0062	0.0085	0.0108	0.0133
0.0158	0.0185	0.0214	0.0243	0.0306	0.0368	0.0435
0.0505	0.0575	0.0652	0.0728	0.0807	0.0887	0.0967
0.1052	0.1136	0.1225	0.1319	0.1414	0.1520	0.1627
0.1783	0.1989	0.2196	0.2472	0.2748	0.3080	0.3466
0.3853	0.4433	0.5014	0.5804	0.6807	0.7809	1.0473
1.3144	1.5225	1.6705	1.8186	1.8933	1.9677	2.0284
2.0753	2.1221	2.1547	2.1872	2.2154	2.2391	2.2629
2.2809	2.2990	2.3130	2.3230	2.3330	2.3419	2.3508
2.3589	2.3663	2.3736	2.3803	2.3871	2.3937	2.4002
2.4067	2.4098	2.4129	2.4160	2.4189	2.4219	2.4247
2.4275	2.4302	2.4329	2.4356	2.4382	2.4409	2.4434
2.4459	2.4483	2.4507	2.4531	2.4555	2.4578	2.4601
2.4623	2.4645	2.4667	2.4688	2.4710	2.4731	2.4752
2.4772	2.4792	2.4812	2.4832	2.4851	2.4870	2.4889
2.4909	2.4927	2.4946	2.4964	2.4983	2.5001	2.5019
2.5037	2.5054	2.5072	2.5089	2.5107	2.5124	2.5141
2.5158	2.5175	2.5191	2.5208	2.5224	2.5240	2.5256
2.5272	2.5288	2.5304	2.5320	2.5335	2.5351	2.5366
2.5381	2.5396	2.5412	2.5426	2.5441	2.5456	2.5471
2.5485	2.5500	2.5514	2.5528	2.5542	2.5556	2.5570
2.5584	2.5598	2.5612	2.5625	2.5639	2.5652	2.5666
2.5679	2.5692	2.5705	2.5719	2.5732	2.5744	2.5757
2.5770	2.5783	2.5795	2.5808	2.5820	2.5833	2.5845
2.5857	2.5870	2.5882	2.5894	2.5906	2.5918	2.5930
2.5942	2.5953	2.5965	2.5977	2.5988	2.6000	

* EXISTING CONDITIONS *

* SITE - 1.22 ACRES

COMPUTE NM HYD ID=1 HYD NO=EX-SITE DA=0.00191 SQ MI
PER A=0 PER B=0 PER C=52 PER D=48
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 3.6196 CFS UNIT VOLUME = 0.9961 B = 526.28 P60 = 2.1400
AREA = 0.000917 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.108912HR TP = 0.133300HR K/TP RATIO = 0.817047 SHAPE CONSTANT, N = 4.373953
UNIT PEAK = 2.8267 CFS UNIT VOLUME = 0.9957 B = 379.38 P60 = 2.1400
AREA = 0.000993 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=1 CODE=20

HYDROGRAPH FROM AREA EX-SITE

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	1.4	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.7	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 1.82493 INCHES = 0.1859 ACRE-FEET
PEAK DISCHARGE RATE = 5.42 CFS AT 1.533 HOURS BASIN AREA = 0.0019 SQ. MI.

* BASIN OS-1 = 0.17 ACRES

COMPUTE NM HYD ID=2 HYD NO=EX-OS-1 DA=0.000266 SQ MI
PER A=0 PER B=100 PER C=0 PER D=0
TP=0.1333 HR MASS RAIN=-1

K = 0.133656HR TP = 0.133300HR K/TP RATIO = 1.002670 SHAPE CONSTANT, N = 3.520654
UNIT PEAK = 0.64223 CFS UNIT VOLUME = 0.9793 B = 321.84 P60 = 2.1400
AREA = 0.000266 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=2 CODE=20

HYDROGRAPH FROM AREA EX-OS-1

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
------	------	------	------	------	------	------	------	------	------

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.1	2.000	0.1	2.666	0.0

RUNOFF VOLUME = 1.07948 INCHES = 0.0153 ACRE-FEET
 PEAK DISCHARGE RATE = 0.53 CFS AT 1.533 HOURS BASIN AREA = 0.0003 SQ. MI.

* BASIN OS-2 - 0.04 ACRES

COMPUTE NM HYD ID=3 HYD NO=EX-OS-2 DA=0.000063 SQ MI
 PER A=0 PER B=0 PER C=100 PER D=0
 TP=0.1333 HR MASS RAIN=-1

K = 0.108912HR TP = 0.133300HR K/TP RATIO = 0.817047 SHAPE CONSTANT, N = 4.373953
 UNIT PEAK = 0.17930 CFS UNIT VOLUME = 0.9258 B = 379.38 P60 = 2.1400
 AREA = 0.000063 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=3 CODE=20

HYDROGRAPH FROM AREA EX-OS-2

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.0	2.000	0.0		

RUNOFF VOLUME = 1.34222 INCHES = 0.0045 ACRE-FEET
 PEAK DISCHARGE RATE = 0.16 CFS AT 1.533 HOURS BASIN AREA = 0.0001 SQ. MI.

 * DEVELOPED CONDITIONS *

* SITE - 1.22 ACRES

COMPUTE NM HYD ID=4 HYD NO=DEV-SITE DA=0.00191 SQ MI
 PER A=0 PER B=5 PER C=8 PER D=87
 TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 6.5605 CFS UNIT VOLUME = 0.9976 B = 526.28 P60 = 2.1400
 AREA = 0.001662 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.118429HR TP = 0.133300HR K/TP RATIO = 0.888440 SHAPE CONSTANT, N = 3.992353
 UNIT PEAK = 0.66064 CFS UNIT VOLUME = 0.9795 B = 354.66 P60 = 2.1400
 AREA = 0.000248 SQ MI IA = 0.40769 INCHES INF = 0.99154 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD

ID=4 CODE=20

HYDROGRAPH FROM AREA DEV-SITE

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	1.7	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.9	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.20273 INCHES = 0.2244 ACRE-FEET
PEAK DISCHARGE RATE = 6.05 CFS AT 1.500 HOURS BASIN AREA = 0.0019 SQ. MI.

*_BASIN OS-1 - 0.17 ACRES (AP-6)

COMPUTE NM HYD ID=5 HYD NO=DEV-OS-1 DA=0.000266 SQ MI
PER A=0 PER B=100 PER C=0 PER D=0
TP=0.1333 HR MASS RAIN=-1

K = 0.133656HR TP = 0.133300HR K/TP RATIO = 1.002670 SHAPE CONSTANT, N = 3.520654
UNIT PEAK = 0.64223 CFS UNIT VOLUME = 0.9793 B = 321.84 P60 = 2.1400
AREA = 0.000266 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD

ID=5 CODE=20

HYDROGRAPH FROM AREA DEV-OS-1

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	0.667	0.0	1.333	0.1	2.000	0.1	2.666	0.0

RUNOFF VOLUME = 1.07948 INCHES = 0.0153 ACRE-FEET
PEAK DISCHARGE RATE = 0.53 CFS AT 1.533 HOURS BASIN AREA = 0.0003 SQ. MI.

*_BASIN A - 0.69 ACRES (AP-1)

COMPUTE NM HYD ID=6 HYD NO=DEV-A DA=0.00108 SQ MI
PER A=0 PER B=2 PER C=2 PER D=96
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 4.0933 CFS UNIT VOLUME = 0.9965 B = 526.28 P60 = 2.1400
AREA = 0.001037 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
UNIT PEAK = 0.11276 CFS UNIT VOLUME = 0.8838 B = 347.94 P60 = 2.1400

AREA = 0.000043 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=6 CODE=20

HYDROGRAPH FROM AREA DEV-A

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	1.1	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.5	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.30199 INCHES = 0.1326 ACRE-FEET
PEAK DISCHARGE RATE = 3.54 CFS AT 1.500 HOURS BASIN AREA = 0.0011 SQ. MI.

* BASIN B - 0.020 ACRES (AP-2)

COMPUTE NM HYD ID=7 HYD NO=DEV-B DA=0.000031 SQ MI
PER A=0 PER B=0 PER C=17 PER D=83
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.10158 CFS UNIT VOLUME = 0.8874 B = 526.28 P60 = 2.1400
AREA = 0.000026 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.108912HR TP = 0.133300HR K/TP RATIO = 0.817047 SHAPE CONSTANT, N = 4.373953
UNIT PEAK = 0.14999E-01CFS UNIT VOLUME = 0.8762 B = 379.38 P60 = 2.1400
AREA = 0.000005 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=7 CODE=20

HYDROGRAPH FROM AREA DEV-B

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.0	2.000	0.0		

RUNOFF VOLUME = 2.17690 INCHES = 0.0036 ACRE-FEET
PEAK DISCHARGE RATE = 0.11 CFS AT 1.500 HOURS BASIN AREA = 0.0000 SQ. MI.

* BASIN-C - 0.46 ACRES (AP-3)

COMPUTE NM HYD ID=8 HYD NO=DEV-C DA=0.000719 SQ MI
PER A=0 PER B=3 PER C=03 PER D=94
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 2.6683 CFS UNIT VOLUME = 0.9949 B = 526.28 P60 = 2.1400
 AREA = 0.000676 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
 UNIT PEAK = 0.11260 CFS UNIT VOLUME = 0.8838 B = 347.94 P60 = 2.1400
 AREA = 0.000043 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=8 CODE=20

HYDROGRAPH FROM AREA DEV-C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.7	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.3	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.27905 INCHES = 0.0874 ACRE-Feet
 PEAK DISCHARGE RATE = 2.35 CFS AT 1.500 HOURS BASIN AREA = 0.0007 SQ. MI.

* BASIN D -- 0.05 ACRES (AP-5)

COMPUTE NM HYD ID=9 HYD NO=DEV-D DA=0.000078 SQ MI
 PER A=0 PER B=0 PER C=0 PER D=100
 TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 0.30795 CFS UNIT VOLUME = 0.9610 B = 526.28 P60 = 2.1400
 AREA = 0.000078 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=9 CODE=20

HYDROGRAPH FROM AREA DEV-D

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.1	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.0	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.34787 INCHES = 0.0098 ACRE-Feet
 PEAK DISCHARGE RATE = 0.27 CFS AT 1.500 HOURS BASIN AREA = 0.0001 SQ. MI.

*BASIN E - 0.04 ACRES (AP-6)
 COMPUTE NM HYD ID=10 HYD NO=DEV-E DA=0.000063 SQ MI
 PER A=0 PER B=47 PER C=47 PER D=6
 TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 0.14924E-01CFS UNIT VOLUME = 0.8874 B = 526.28 P60 = 2.1400
 AREA = 0.000004 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
 UNIT PEAK = 0.15458 CFS UNIT VOLUME = 0.9118 B = 347.94 P60 = 2.1400
 AREA = 0.000059 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=10 CODE=20

HYDROGRAPH FROM AREA DEV-E

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	0.667	0.0	1.333	0.0	2.000	0.0		

RUNOFF VOLUME = 1.26970 INCHES = 0.0043 ACRE-FEET
 PEAK DISCHARGE RATE = 0.15 CFS AT 1.533 HOURS BASIN AREA = 0.0001 SQ. MI.

 * .ADD HYDROGRAPHS *

ADD HYD ID=11 HYD NO=HYD-AP-4 ID I=6 ID II=8
 PRINT HYD ID=11 CODE=20

HYDROGRAPH FROM AREA HYD-AP-4

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	1.7	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.9	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.29250 INCHES = 0.2200 ACRE-FEET
 PEAK DISCHARGE RATE = 5.89 CFS AT 1.500 HOURS BASIN AREA = 0.0018 SQ. MI.

ADD HYD ID=12 HYD NO=HYD-AP-6 ID I=5 ID II=10
 PRINT HYD ID=12 CODE=20

HYDROGRAPH FROM AREA HYD-AP-6

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.1	2.000	0.1	2.666	0.0

RUNOFF VOLUME = 1.11383 INCHES = 0.0195 ACRE-FEET
 PEAK DISCHARGE RATE = 0.68 CFS AT 1.533 HOURS BASIN AREA = 0.0003 SQ. MI.

 * ROUTE DEVELOPED SITE THROUGH DETENTION POND AT AP-4 TO *
 * 3-24 INCH SW CULVERTS. ALLOWABLE DISCHARGE IS 4.63 CFS/AC *
 * LESS BASINS B, D AND E (FREE DISCHARGE) OR 5.30 CFS *

ROUTE RESERVOIR ID=13 HYD NO=POND.OUT INFLOW ID=11 CODE=10
 OUT (CFS) STORAGE (AC-FT) ELEV (FT)
 0.0 0 5204.75
 2.0 0.00133 5205.00
 8.9 0.0507 5206.00

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5204.75	0.000	0.00
0.33	0.00	5204.75	0.000	0.00
0.67	0.00	5204.75	0.000	0.00
1.00	0.31	5204.79	0.000	0.29
1.33	1.74	5204.96	0.001	1.66
1.67	3.33	5205.35	0.019	4.41
2.00	0.87	5204.86	0.001	0.89
2.33	0.28	5204.79	0.000	0.29
2.67	0.07	5204.76	0.000	0.08
3.00	0.04	5204.76	0.000	0.04
3.33	0.03	5204.75	0.000	0.03
3.67	0.03	5204.75	0.000	0.03
4.00	0.03	5204.75	0.000	0.03
4.33	0.03	5204.75	0.000	0.03
4.67	0.03	5204.75	0.000	0.03
5.00	0.03	5204.75	0.000	0.03
5.33	0.03	5204.75	0.000	0.03
5.67	0.03	5204.75	0.000	0.03
6.00	0.04	5204.75	0.000	0.04
6.33	0.00	5204.75	0.000	0.00

PEAK DISCHARGE = 4.980 CFS - PEAK OCCURS AT HOUR 1.60
 MAXIMUM WATER SURFACE ELEVATION = 5205.432
 MAXIMUM STORAGE = 0.0227 AC-FT INCREMENTAL TIME= 0.033330HRS

PRINT HYD

ID=13 CODE=20

HYDROGRAPH FROM AREA POND.OUT

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	1.7	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.9	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.29250 INCHES = 0.2200 ACRE-FEET
PEAK DISCHARGE RATE = 4.98 CFS AT 1.600 HOURS BASIN AREA = 0.0018 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 17:47:35

DRAINAGE MASTERPLAN

OCTOBER 26, 2007

SUPPLEMENTAL INFORMATION

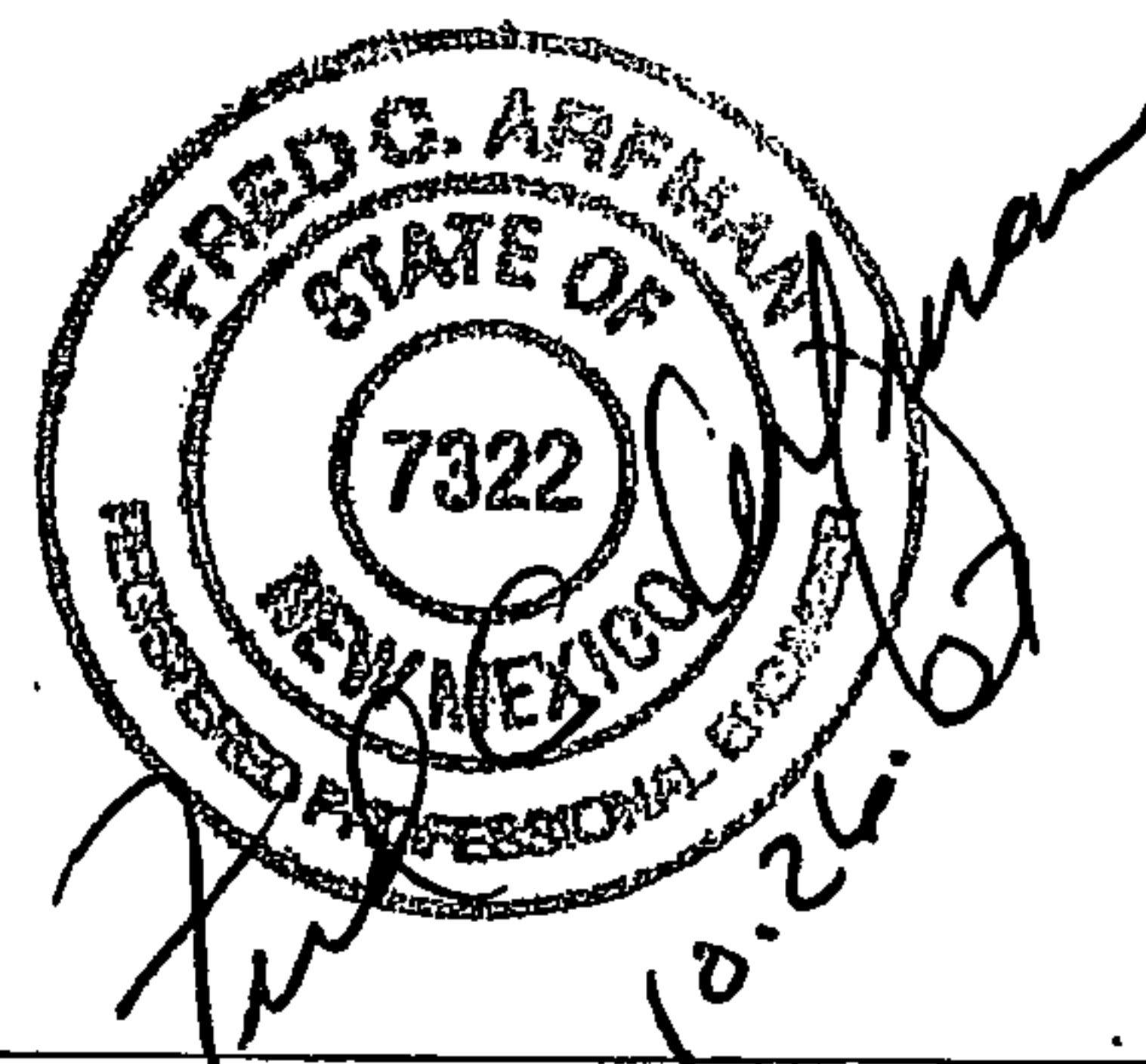
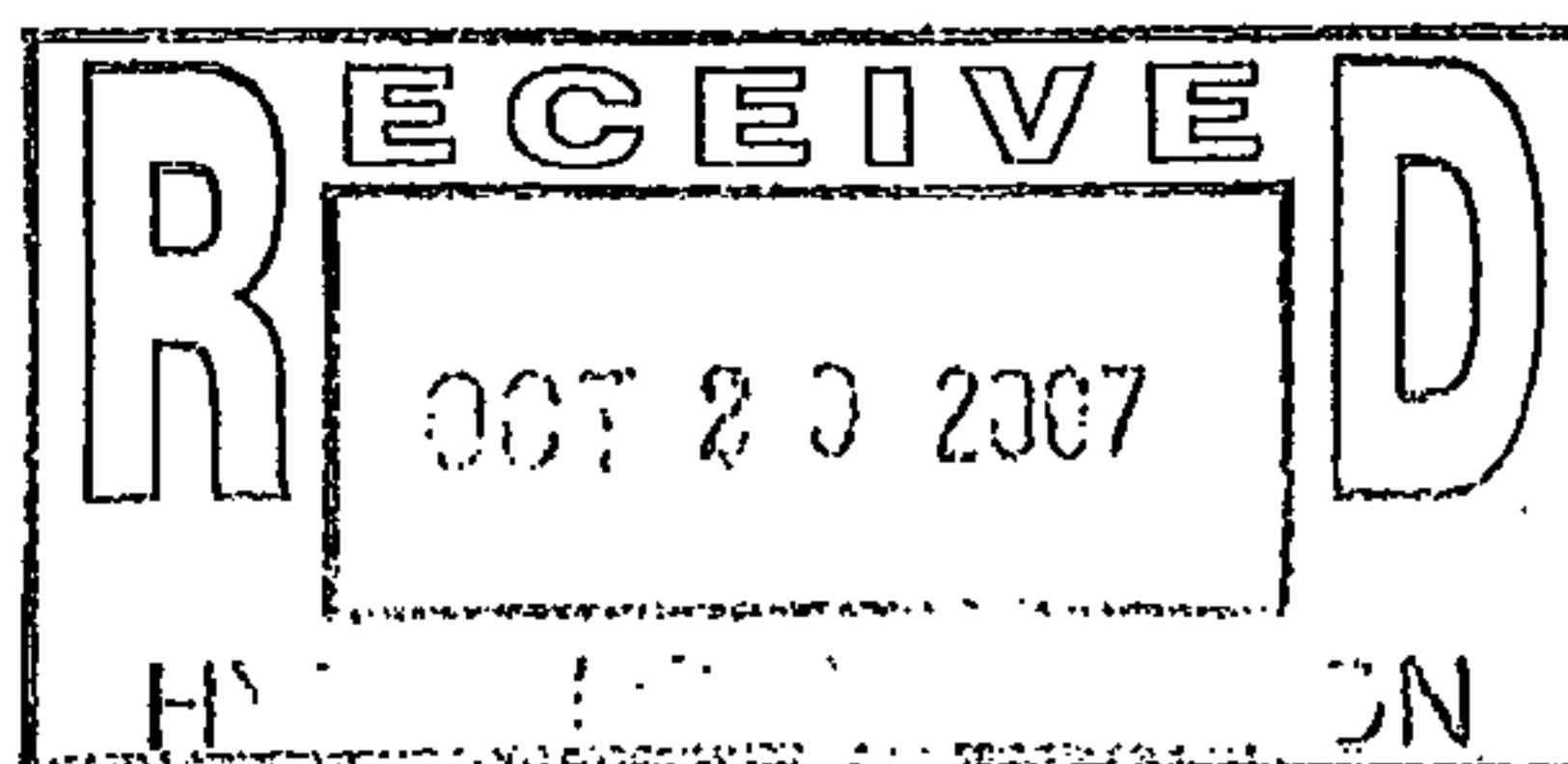
FOR

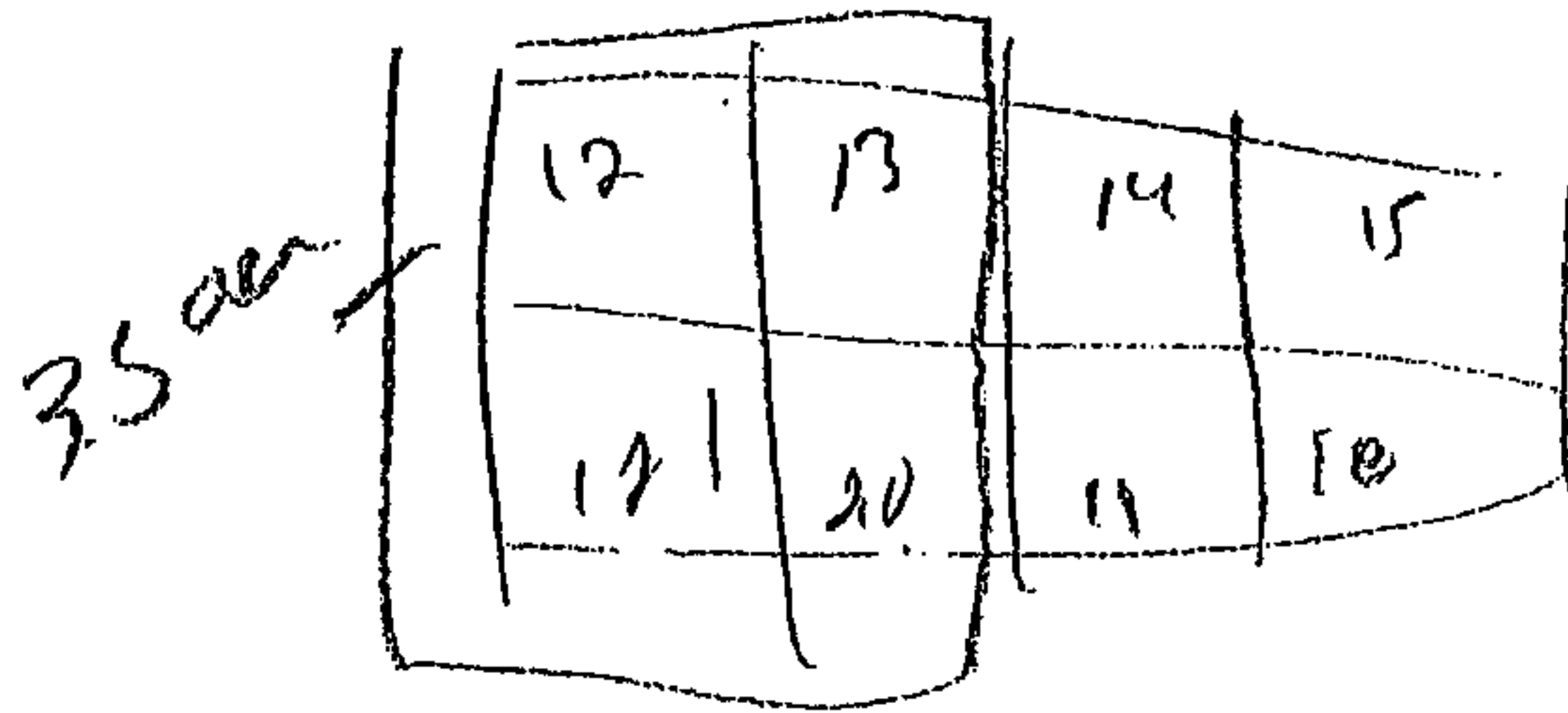
HOLLY PLACE COMMERCIAL PHASE II

BY



Project No. 1435.2





DRAINAGE ANALYSIS

7c

The overall referenced PROPERTY included in this analysis consists of HOLLY PLACE COMMERCIAL (Lots 14A, 18 and 19A = 3.5 acres) and an ADJACENT COMMERCIAL site (Lots 12, 13, 20 and 21 = 3.5 acres). The PROPERTY is located on the south side of Holly Avenue west of San Pedro Blvd. – Zone Atlas Page C-18. Paseo del Norte borders the PROPERTY to the south, developed commercial property to the east and west and Holly Ave. to the north. The existing site slopes at an average of 3% to the northwest. It has been previously developed and currently, the majority of the site surface consists of deteriorated asphalt and gravel.

Legal description: HOLLY PLACE COMMERCIAL: Lots 14A, 18 and 19A BLOCK 18, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES.

Legal description: ADJACENT COMMERCIAL: Lots 12, 13, 20 and 21 BLOCK 18, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES.

Development: Phase I of HOLLY PLACE COMMERCIAL (Discount Tire - Lot 18) is currently under construction. This submittal referenced as Phase II will develop Lot 14A. The final portion of the Holly Place Commercial property, Lot 19A will be developed as Phase III. The ADJACENT COMMERCIAL portion will be developed by others. The purpose of including the ADJACENT COMMERCIAL is to provide all necessary ponding for all referenced lots on Lot 14A thus removing all detention requirements from the remaining properties.

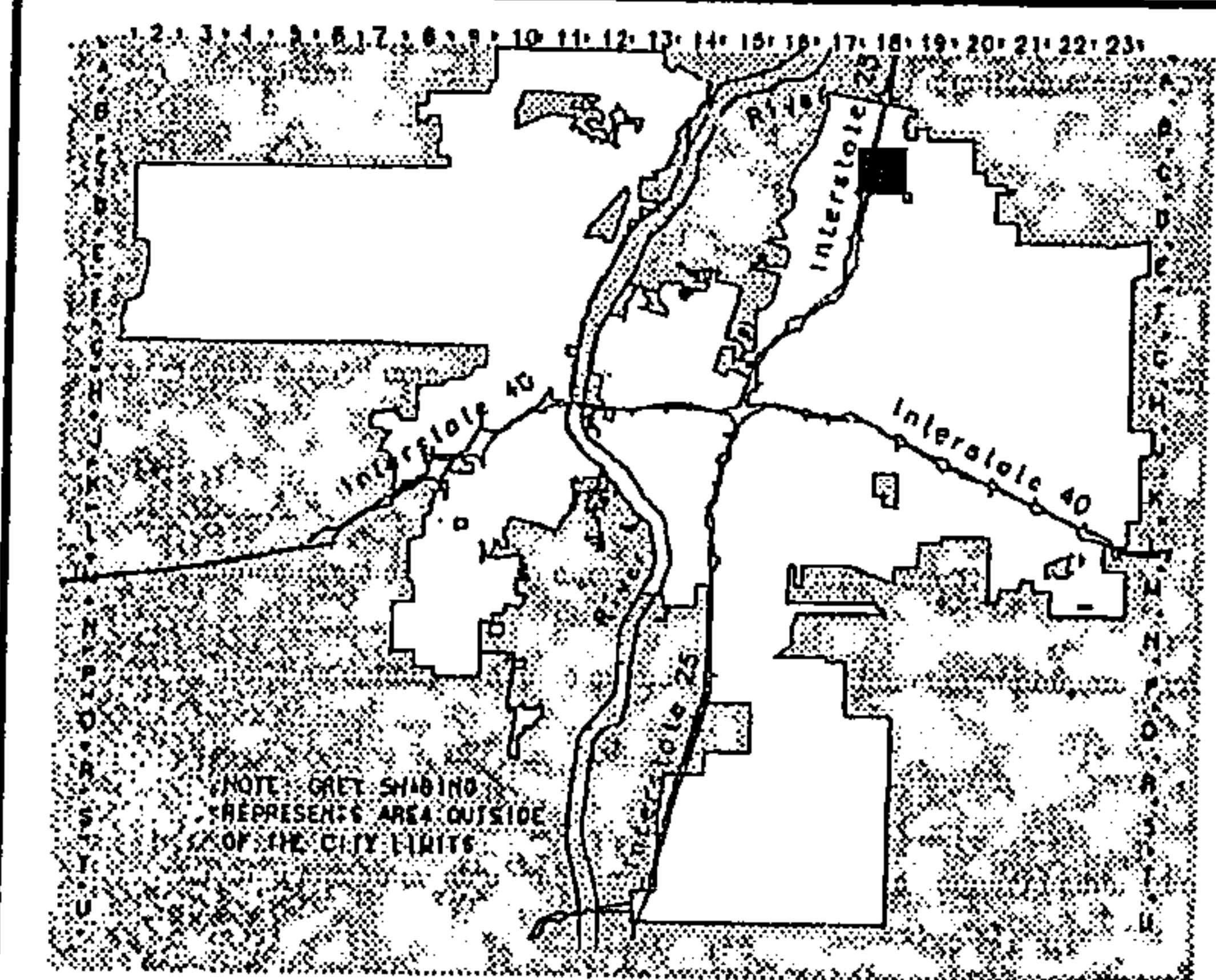
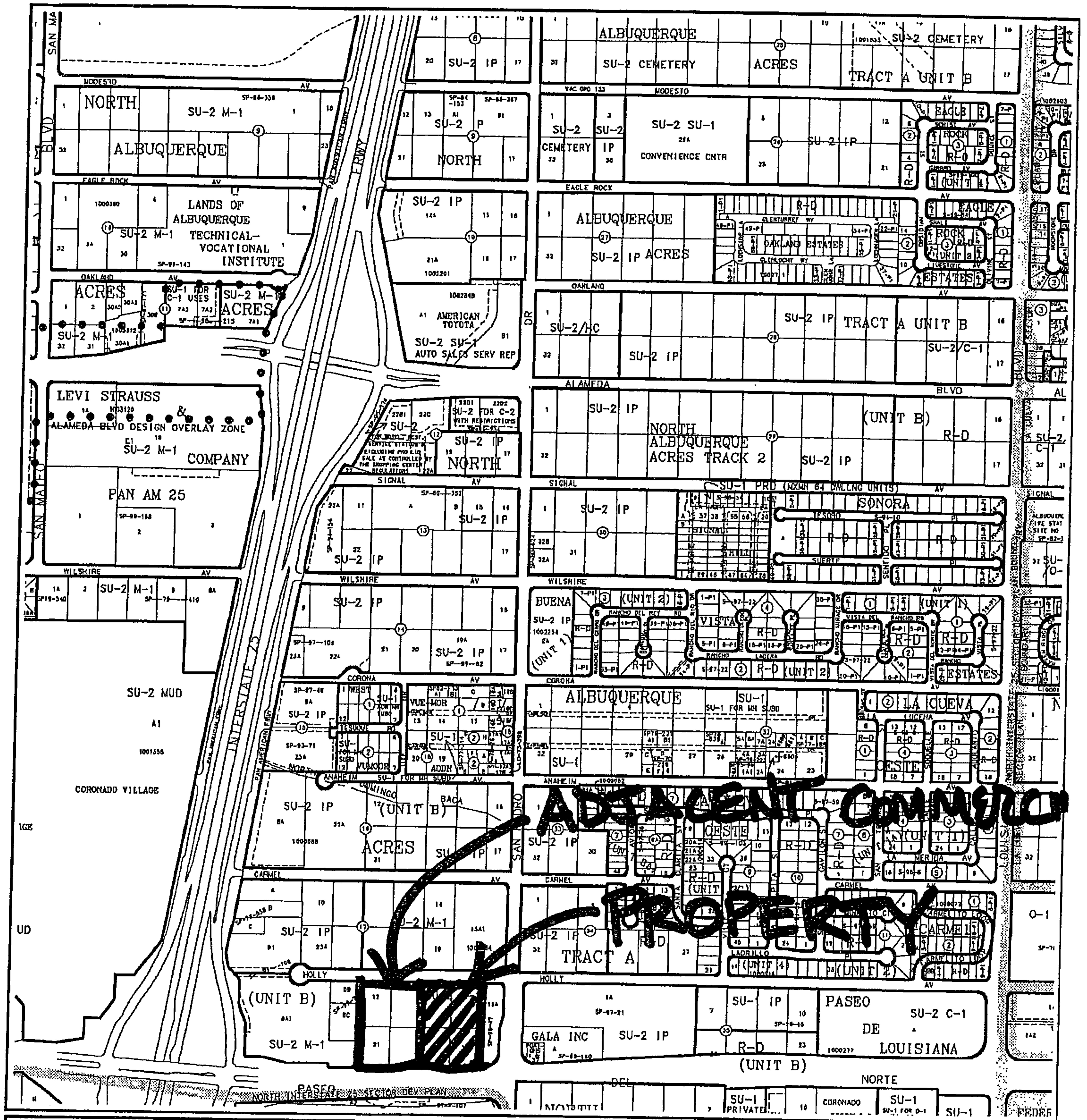
The intent of this plan is to show:

- * Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.
- * The extent of proposed site improvements, including buildings, walks and pavement.

- * The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City of Albuquerque requirements for drainage management.
- * The relationship of on-site improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

Pertinent information:

- PROPERTY is located within Floodzone 'X' – 'Areas determined to be outside the 500-year floodplain'.



Zone Atlas Page
C-18-Z
 Map Amended through February 01, 2005

Albuquerque **G**eographic **I**nformation **S**ystem
PLANNING DEPARTMENT
 © Copyright 2004

The PROPERTY was previously developed. Approximately 75% of the PROPERTY consists of deteriorated asphalt and gravel with the remainder hard-packed earth. Per the calculations, the pre-existing discharge is 32.7 cfs.

		EXISTING STATE		
Area of PROPERTY =	307534	SF	=	7.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)			TREATMENT	
Weighted E	=	2.09 in.	A =	0%
Sub-basin Volume of Runoff (see formula above)			B =	0%
V360	=	53626 CF	C =	25%
Sub-basin Peak Discharge Rate: (see formula above)			D =	75%
Qp	=	32.7 cfs		

- SAD #224, developed for Holly Avenue and approved in 1998 states that flows from PROPERTY have free discharge to Holly Ave. based on assumed developed land treatments of 10%A, 15%B, 10%C, 65%D. Total allowable discharge rate is 29.5 cfs.

		ALLOWABLE DISCHARGE PER SAD #224		
Area of PROPERTY =	307534	SF	=	7.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)			TREATMENT	
Weighted E	=	1.87 in.	A =	10%
Sub-basin Volume of Runoff (see formula above)			B =	15%
V360	=	47847 CF	C =	10%
Sub-basin Peak Discharge Rate: (see formula above)			D =	65%
Qp	=	29.5 cfs		

- The fully developed PROPERTY (HOLLY PLACE COMMERCIAL and ADJACENT COMMERCIAL), estimating actual land treatment values of 0%A, 10%B, 5%C and 85%D will generate 33.2 cfs.

PROPOSED DEVELOPED STATE			
Area of PROPERTY =	307534	SF	= 7.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.16 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 55420 CF

Sub-basin Peak Discharge Rate: (see formula above)

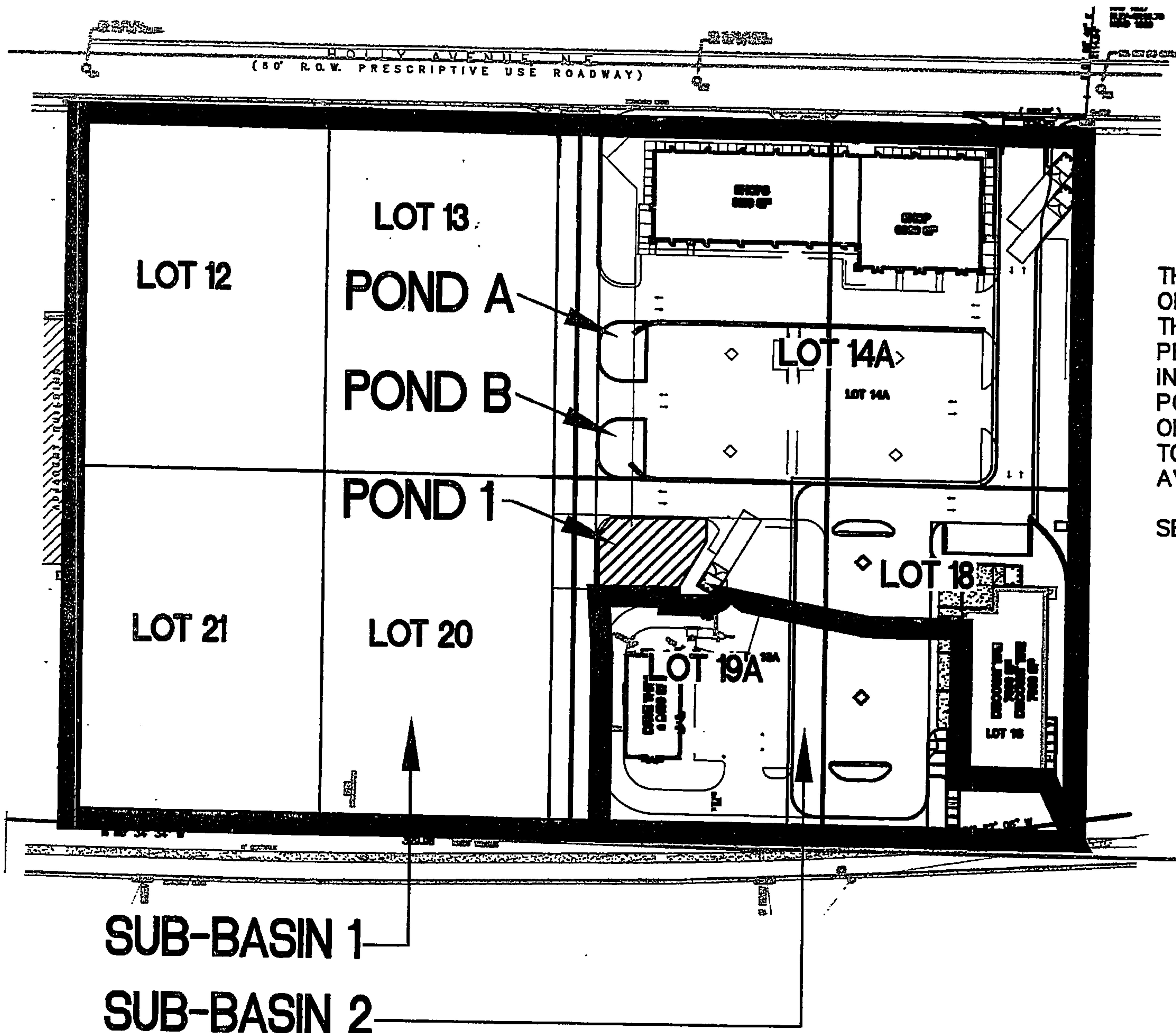
Qp = 33.2 cfs

TREATMENT	
A =	0%
B =	10%
C =	5%
D =	85%

33.2 cfs (fully developed discharge) – 29.5 cfs (allowable discharge) = 3.7 cfs to be detained.

$$\frac{33.2}{1.7} = \frac{x}{1.8} \quad x =$$

HOLLY AVENUE N.E.
(50' R.O.W. PRESCRIPTIVE USE ROADWAY)



THE PONDS TO BE CONSTRUCTED ON LOT ARE SIZED TO DETAIN THE REQUIRED DISCHARGE TO PERMIT SUB-BASIN 1, WHICH INCLUDES LOTS 12, 13, 14A, A PORTION OF LOT 18, A PORTION OF LOT 19, LOT 20 AND LOT 21 TO FREE DISCHARGE TO HOLLY AVENUE N.E.

SEE ATTACHED CALCULATIONS

SUB-BASIN / POND EXHIBIT

PROPOSED SOLUTION:

The fully developed PROPERTY will consist of two (2) drainage sub-basins (see SUB-BASIN / POND EXHIBIT).

Sub-Basin 1, which includes Lots 12, 13, 14a, a portion of Lot 18, a portion of Lot 19, Lot 20 and Lot 21 will generate 28.7 cfs to free discharge to Holly Avenue N.E..

SUB-BASIN 1			
Area of PROPERTY =	270894	SF	= 6.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.11 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 47610 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 28.7 cfs

TREATMENT

A = 0%

B = 10%

C = 10%

D = 80%

4.629 cfs/Ac

Sub-Basin 2, consisting of the majority of Lot 19A and a portion of Lot 18 will generate 4.0 cfs to be directed to the proposed detention ponds. The main pond will utilize a water quality inlet with a bleeder pipe to release the detained volume at a rate not to exceed 0.8 cfs in order to drain the pond within a 24-hour (max.) period.

SUB-BASIN 2			
Area of PROPERTY =	37243	SF	= 0.9 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.16 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 6711 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 4.0 cfs

TREATMENT

A = 0%

B = 10%

C = 5%

D = 85%

The total discharge (100-year, 6-hour storm event) to Holly Ave. will be 28.7 cfs (Sub-Basin 1) + 0.8 cfs (Detention Pond controlled release) = 29.5 cfs = ALLOWABLE DISCHARGE RATE.

Per the attached hydrograph, the pond is required to detain a volume of 4891 cf.

Pond calculations show the main proposed pond, at a depth of 18", has a volume of

POND VOLUME		
<i>CONTOUR</i>	<i>AREA</i>	<i>VOL (CF)</i>
17.5	2965	
18.0	3100	1516
19.0	3358	3229
		0
Pond Volume		4745

Each of the minor landscape island ponds has a volume of

Pond A	Pond B	Volume (each pond)	
<i>CONTOUR</i>	<i>CONTOUR</i>	<i>AREA</i>	<i>VOL (CF)</i>
16.5	17.5	355	
17.0	18.0	926	320
			0
Pond Volume			320

For a total detained volume of $4745 + 320 + 320 = 5385 \text{ CF} > 4891 \text{ CF}$ (required) OK

The outlet pipe will be 6" dia. at 0.5% slope with a discharge rate of 0.57 cfs to 1.21 cfs (see attached pond discharge line calculations).

Hydrograph

CALCULATIONS: 1435 Holly Place Commercial - Phase II : 'DPM Calculations'!C6
HYDROGRAPH FOR SMALL WATERSHED
DPM SECTION 22-2 * PAGE A-13/14

Base time, t_B , for a small watershed hydrograph is,

$$t_B = (2.107 * E * AT / QP) - (0.25 * AD / AT)$$

Where

E	=	2.16 inches
AT	=	0.85 acres
AD	=	0.73 acres
QP	=	4.0 cfs

t_B	=	0.76 hours
-------	---	------------

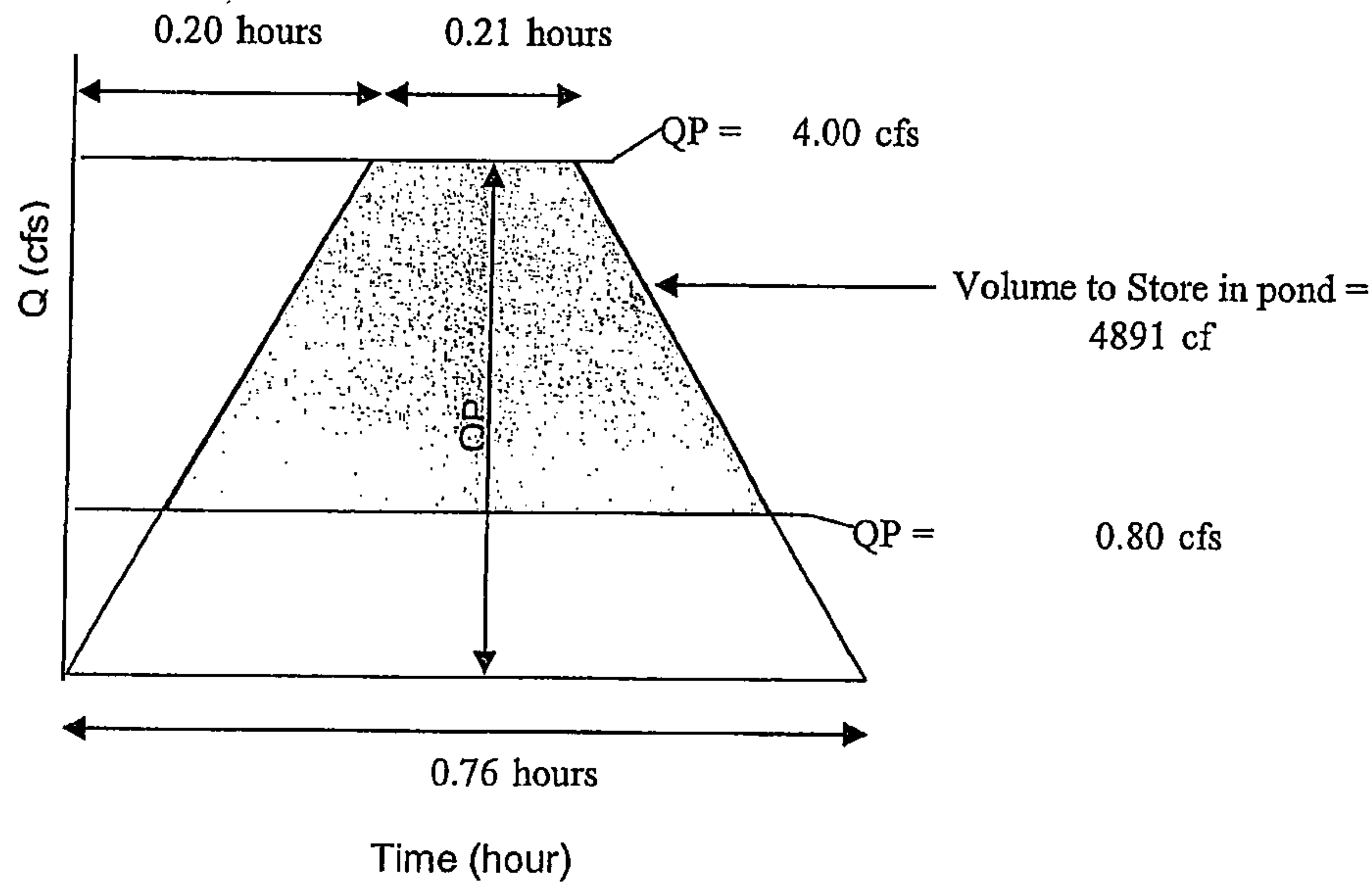
E is the excess precipitation in inches (from DPM TABLE A-8), QP is the peak flow, AD is the area (acres) of treatment D, and AT is the total area in acres. Using the time of concentration, t_C (hours), the time to peak in hours is:

$$t_P = (0.7 * t_C) + ((1.6 - (AD / AT)) / 12)$$

Where $t_C = 0.20$ hours

$$t_P = 0.20 \text{ hours}$$

Continue the peak for $0.25 * AD / AT$ hours. When AD is zero, the hydrograph will be triangular. When AD is not zero, the hydrograph will be trapezoidal. see the graph below:



INFLOW / OUTFLOW HYDROGRAPH

6" DIA. CAPACITY (NO PRESSURE)
Worksheet for Circular Channel

Project Description	
Project File	c:\haestad\academic\fmw\1435.fm2
Worksheet	Pond Discharge - 6"
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data	
Mannings Coefficient	0.009
Channel Slope	0.005000 ft/ft
Diameter	6.00 in

Results		
Depth	0.50	ft
Discharge	0.57	cfs
Flow Area	0.20	ft ²
Wetted Perimeter	1.57	ft
Top Width	0.00	ft
Critical Depth	0.39	ft
Percent Full	100.00	
Critical Slope	0.005648	ft/ft
Velocity	2.92	ft/s
Velocity Head	0.13	ft
Specific Energy	FULL	ft
Froude Number	FULL	
Maximum Discharge	0.62	cfs
Full Flow Capacity	0.57	cfs
Full Flow Slope	0.005000	ft/ft

Non-PRESSURIZED
POND DISCHARGE
LINE CONDITION
 $Q = 0.57 \text{ cfs}$

6" DIA. POND DISCHARGE
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\academic\fmw\1435.fm2
Worksheet	6" POND OUTLET PIPE
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Input Data	
Pressure at 1	3.45 feet H2O
Pressure at 2	0.00 feet H2O
Elevation at 1	1.30 ft
Elevation at 2	0.00 ft
Length	258.00 ft
C Coefficient	150.0
Diameter	6.00 in

PRESSURIZED POND
DISCHARGE LINE

Results		
Discharge	1.2112	cfs
Headloss	4.75	ft
Energy Grade at 1	5.96	ft
Energy Grade at 2	1.21	ft
Hydraulic Grade at 1	4.75	ft
Hydraulic Grade at 2	0.00	ft
Flow Area	0.20	ft ²
Wetted Perimeter	1.57	ft
Velocity	6.17	ft/s
Velocity Head	0.59	ft
Friction Slope	0.018410	ft/ft

* POND @ 100% CAPACITY

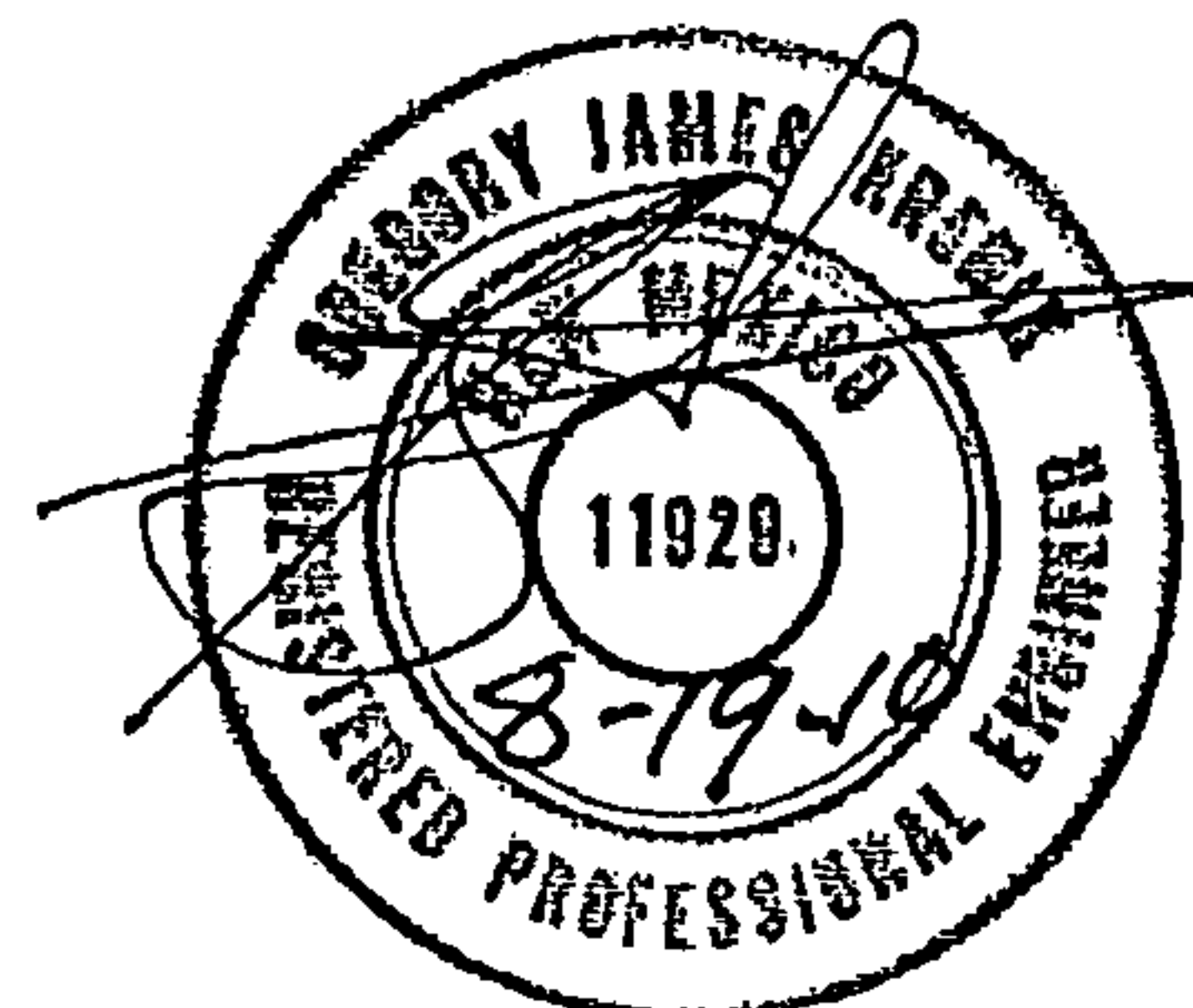
$$Q = 1.21 \text{ cfs}$$

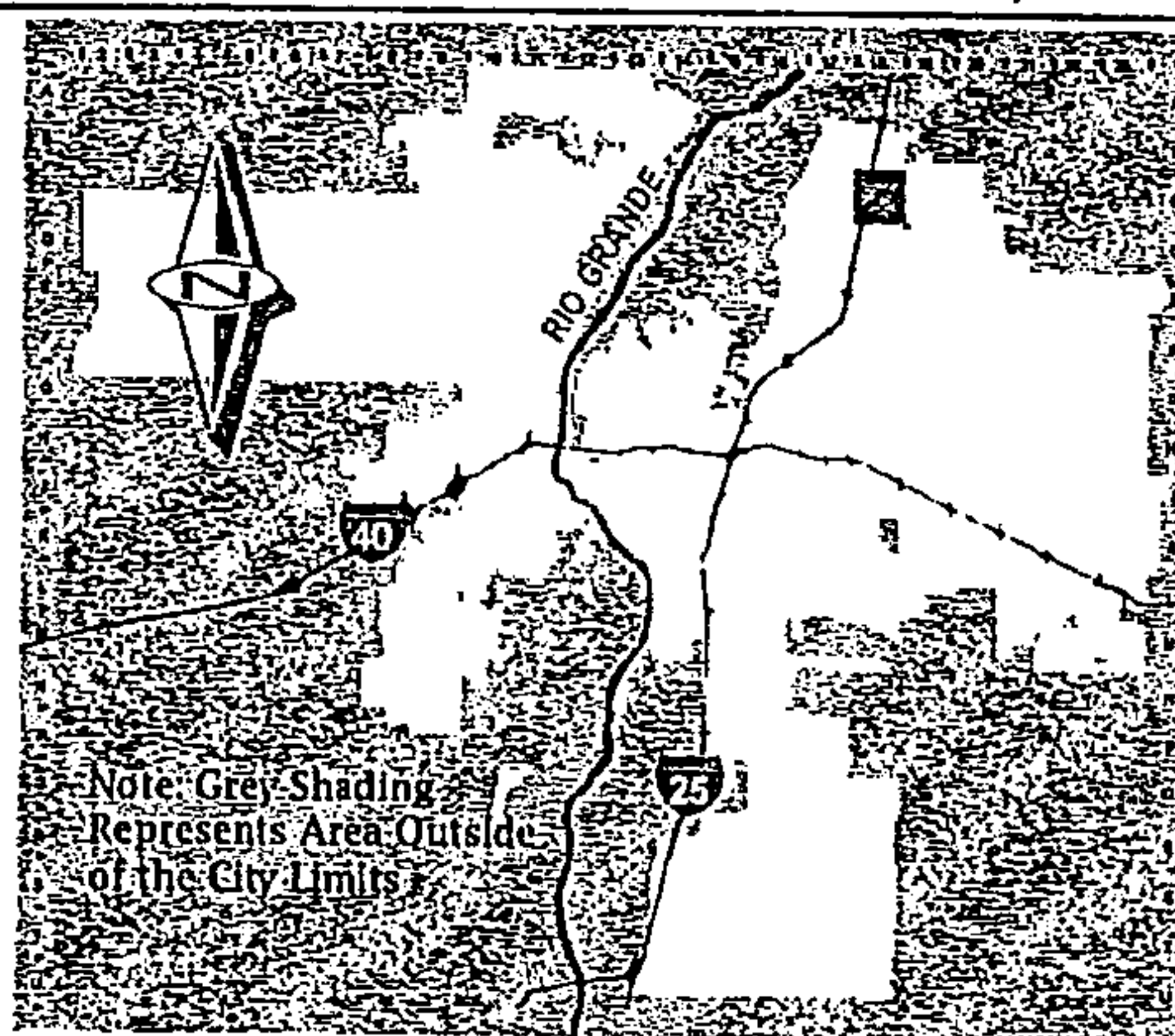
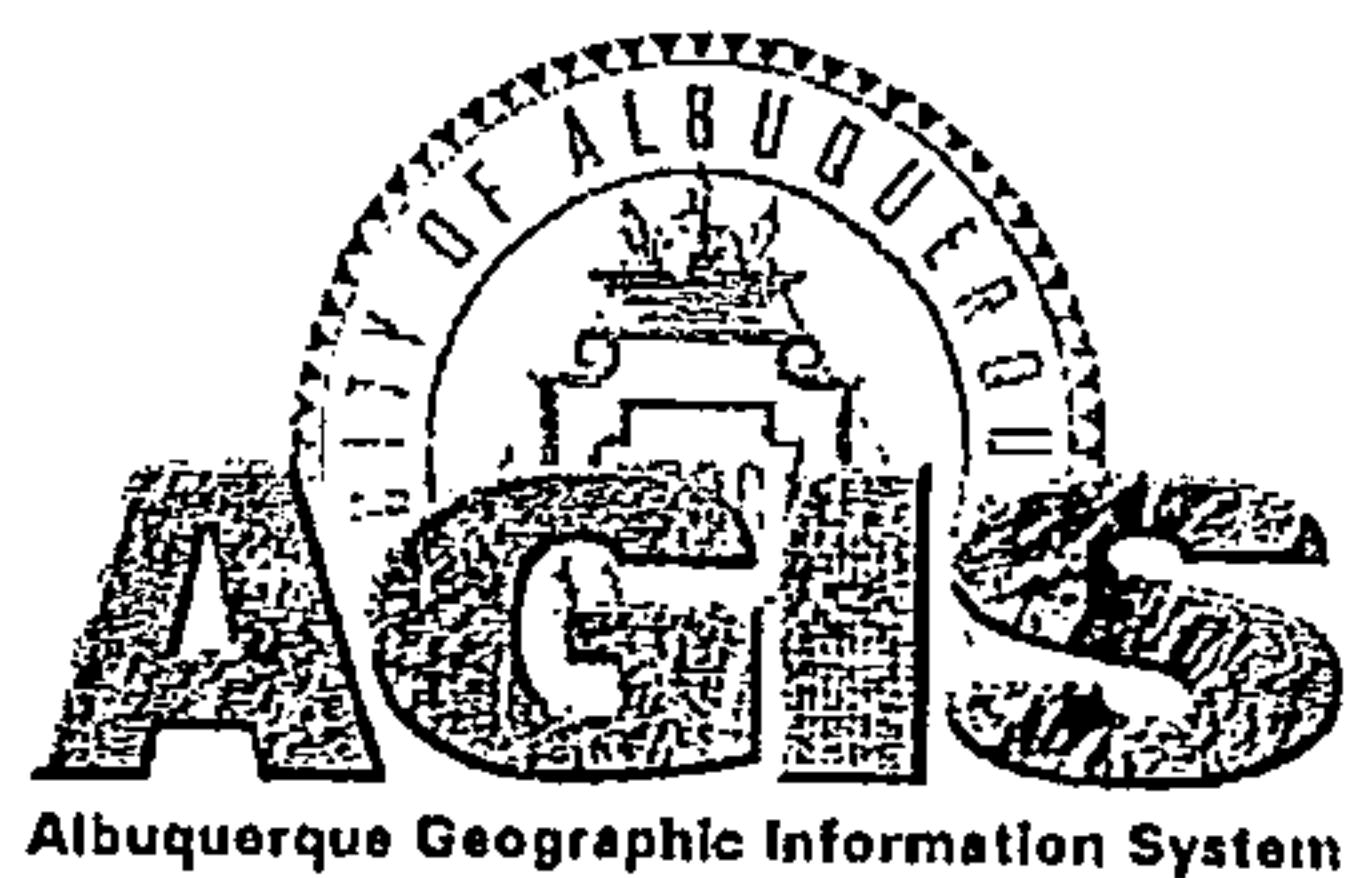
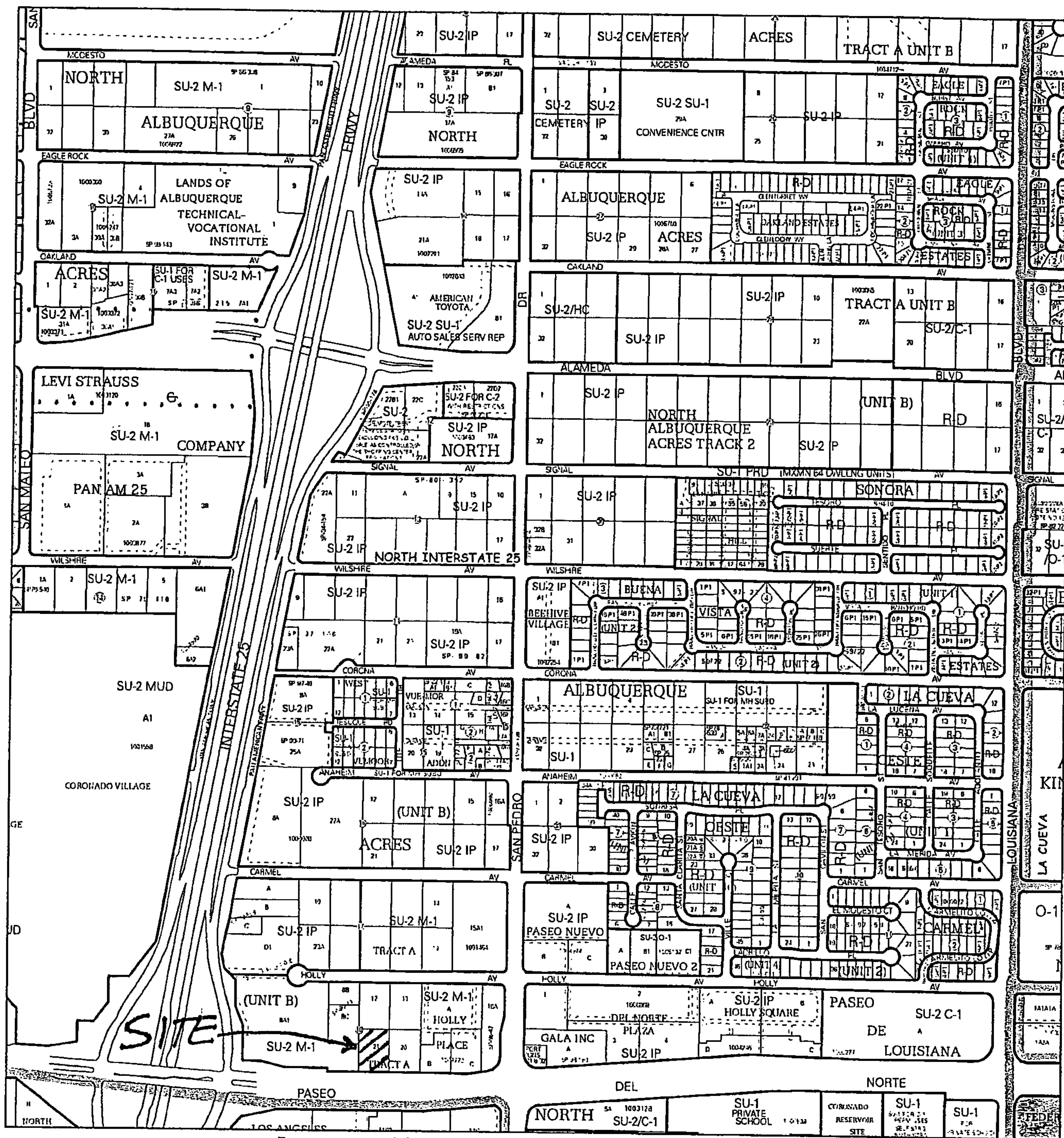
DRAINAGE REPORT
for
AFTER HOURS PEDIATRICS

Prepared by

Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199
(505) 828-2200

August 2010



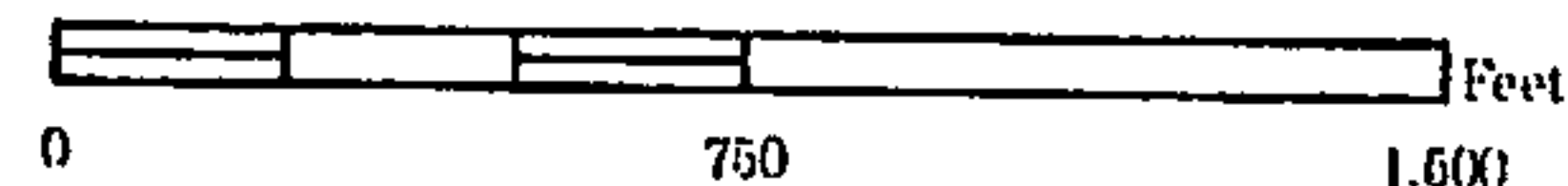


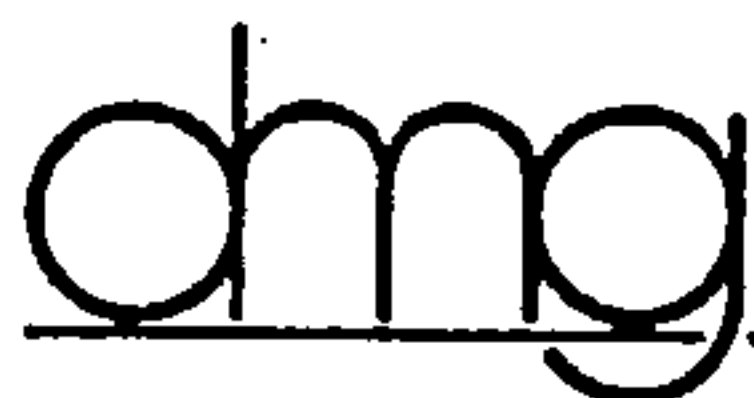
Zone Atlas Page:

C-18-Z

Selected Symbols

-  **SECTOR PLANS**
 **Design Overlay Zones**
 **City Historic Zones**
 **H-1 Buffer Zone**
 **Petroglyph Mon.**
-  **Escarpment**
 **2 Mile Airport Zone**
 **Airport Noise Contours**
 **Wall Overlay Zone**





D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT AFTER HOURS PEDIATRICS
SUBJECT DRAINAGE CALCS

BY GJK DATE 8-5-10
CHECKED _____ DATE _____

SHEET 1 OF _____
REVISED 8-19-10

- SITE DOES NOT LIE IN A 100 YR FLOOD ZONE
 - SITE IS ALLOWED FREE DISCHARGE AS LONG AS IT FOLLOWS THE PARAMETERS OF THE "DRAINAGE AGREEMENT" RECORDED 2-19-08 FOR THESE PROPERTIES (APPENDIX A)
[THIS SITE IS ALLOWED 4.6290 CFS/ACRE BASED ON THE DRAINAGE AGREEMENT.]
 - SITE CONSISTS OF 0.8843 ACRES.
 - OFFSITE FLOWS FROM LOT 20 ARE ALLOWED TO PASS THROUGH THIS SITE. CURRENTLY THE LOT IS UNDEVELOPED BUT BOTH UNDEVELOPED AND DEVELOPED FLOWS ARE ALLOWED TO PASS THROUGH THIS SITE.
 - RUNOFF DISCHARGE WILL BE ACROSS LOT 12 VIA A TEMPORARY ASPHALT CHANNEL WHERE IT WILL DISCHARGE TO HOLLY AVE BY WAY OF FOUR SUNK-CULVERTS.
 - THERE IS AN OFFSITE AREA OF PAVED DEL NORTE ROW THAT DRAINS INTO OUR SITE IT CONSISTS OF A STRIP 150' LONG BY 18' WIDE FOR AN AREA OF 0.0620 AC.
 - DETERMINE RUNOFF
$$P_1 = 2.1011$$
$$P_6 = 2.4511$$
$$P_{24} = 2.8511$$
 - TOTAL AREA OF SITE
$$= 0.8843$$
- SITE LANDSCAPING = 0.1793 AC = 0.08965 AC 'B' + 0.08965 AC 'C'
REMAINING SITE AREA = 0.7050 AC TYPE 'D'
- TOTAL 'B' = 0.08965 AC = 10.14 %
'C' = 0.08965 AC = 10.14 %
'D' = 0.7050 AC = 79.72 %
- FROM ANYMO OUTPUT SHEETS 4-7
 $Q = 3.99 \text{ CFS}$
- PER THE DRAINAGE AGREEMENT
$$Q = 0.8843 \text{ AC} \times 4.6290 \text{ CFS/AC}$$
$$= 4.09 \text{ CFS} > 3.99 \text{ CFS} \text{ OK}$$



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT AFTER HOURS PEDIATRICS
SUBJECT DRAINAGE CALCS
BY GSK DATE 8-5-10
CHECKED _____ DATE _____
REvised 8-19-10 SHEET 2 OF _____

$$PDN ROW = 0.0620 AC \quad 100\% "C"$$

FROM AHYMO OUTPUT SHEETS 4-7

$$Q = 0.22 CFS$$

- WE ASSUME THE RUNOFF FROM THE PDN ROW IS ALLOWED TO PASS THROUGH THE SITE WITHOUT PONDING.

TOTAL Q THROUGH LOT 21

$$Q = 3.99 + 0.22 \\ = 4.21 CFS$$

ASSUME LOT 20 RUNOFF IS THE SAME AS LOT 21.

TOTAL Q TO CHANNEL ACROSS LOT 12 IS

$$Q = 4.21 \times 2 = 8.42 CFS$$

- DETERMINE THE FLOW AT ROOF DRAINS

THE ROOF WILL BE DIVIDED INTO 9 BASINS

FROM AHYMO OUTPUT SHEETS 4-7

$$Q = 0.87 CFS \text{ FOR ENTIRE ROOF}$$

FIND EACH ROOF BASIN BASED ON PERCENTAGE

ROOF BASIN	% OF AREA	Q CFS	
1	3.45	0.03	} DRAIN TO SWALE
2	6.90	0.06	
3	14.94	0.13	
4	8.04	0.07	
5	36.78	0.32	
6	10.34	0.09	} DRAIN TO PARKING LOT
7	6.90	0.06	
8	5.75	0.05	
9	6.90	0.06	
		0.87 CFS	

- DETERMINE FLOW IN SWALE AROUND BUILDING

$$BLDG AREA = 6672 SF \quad \text{TYPE 'D'}$$

$$PDN AREA = 2700 SF \quad \text{TYPE 'C'}$$

$$PNM PAD AREA = 36 SF \quad \text{TYPE 'D'}$$

$$LANDSCAPE AREA = 4713 SF \quad 50\% 'B' + 50\% 'C'$$

$$TOTAL = 14,121 SF$$

$$= 0.3242 AC$$



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT AFTER HOURS PEDIATRICS
SUBJECT DRAINAGE CALCS

BY GSK DATE 8-5-10

CHECKED _____ DATE _____

SHEET 3 OF _____

REVISED 8-19-10

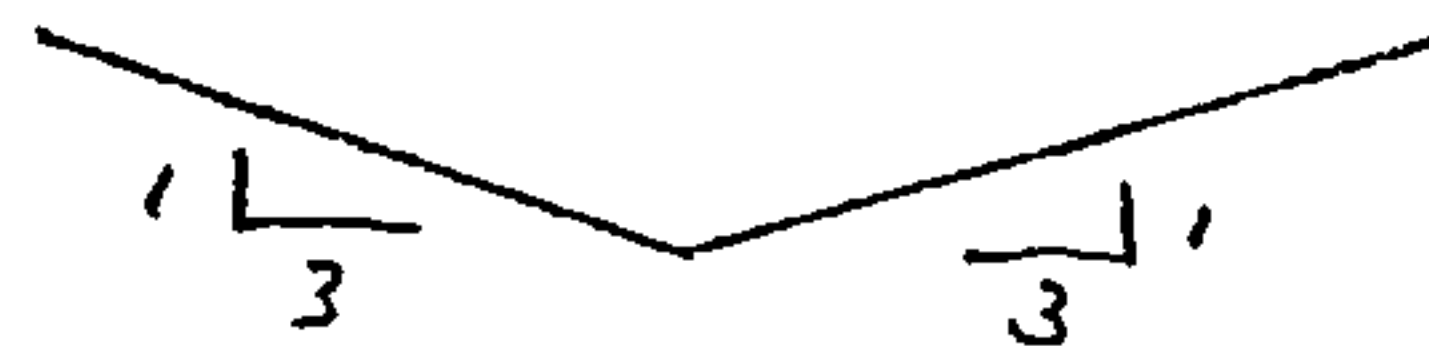
TOTAL $B' = 16.61\%$
 $C' = 35.73\%$
 $D = 47.66\%$

FROM AH440 OUTPUT SHEETS 4-7

$Q = 1.29 \text{ CFS}$

• SIZE SWALE

$d = 0.55'$
 $WP = 3.4785$
 $A = 0.9075$
 $V = 1.43 \text{ F/S}$
 $Q = 1.30 \text{ CFS} \approx 1.29 \text{ CFS}$
 $d + V^2/2g = 0.58$

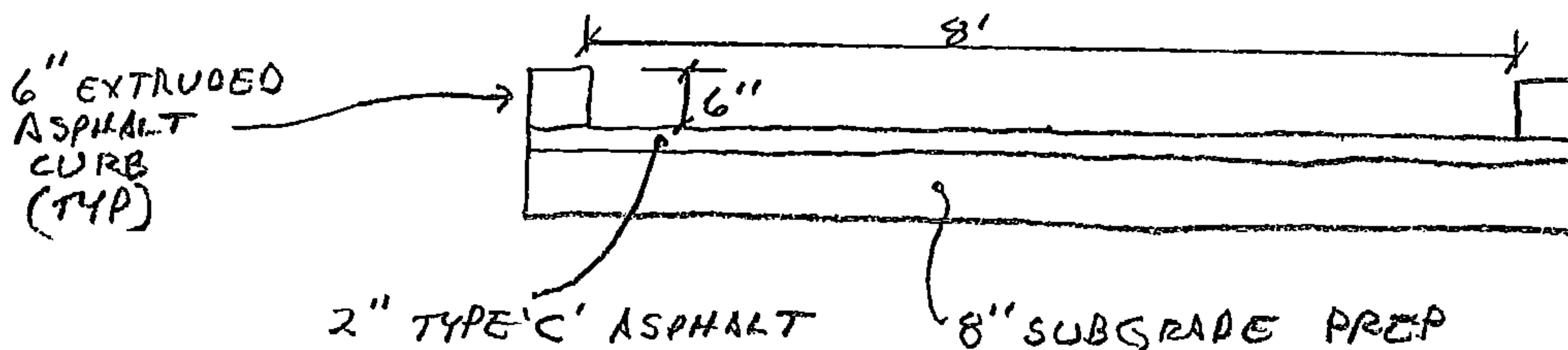


$S = 0.5\%$
 $n = 0.03$

MINIMUM DEPTH OF SWALE TO BE 0.6'

• DETERMINE CHANNEL ACROSS LOT 12

WORST CASE $Q = 8.42 \text{ CFS}$ FULLY DEVELOPED LOTS 20+21



• DETERMINE CHANNEL OPENING & WIDTH

$Q = 2.95 L H^{1.5}$

$L = 8.07'$

USE 10'

$H = 0.5$

$Q = 8.42 \text{ CFS}$

$S = 1.0\%$ $n = 0.017$

$d = 0.29$

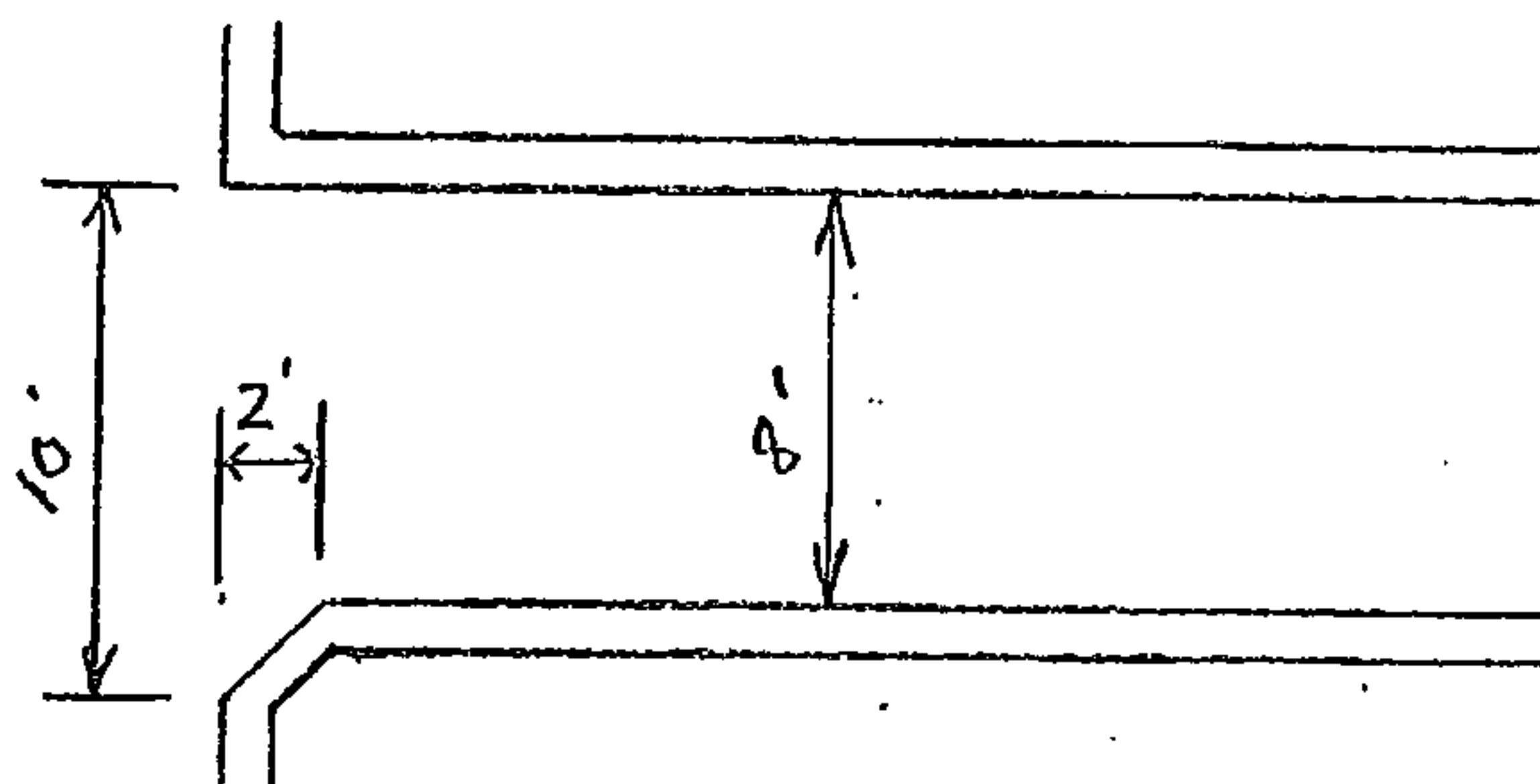
$WP = 8.58$

$A = 2.32$

$V = 3.66 \text{ F/S}$

$Q = 8.49 \text{ CFS} \approx 8.42 \text{ CFS}$

$d + V^2/2g = 0.5 = 0.5 \text{ CFS}$



• CHANNEL WILL TERMINATE AT FOUR NEW 2' SINK CULVERTS AT HOLLY AVE NE.

```
START                TIME=0.0
***** HYDROGRAPH FOR PEDIATRIC CLINIC - PASEO DEL NORTE
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.10 IN RAIN SIX=2.45 IN
                     RAIN DAY=2.85 IN DT=0.03333 HR

***** SITE ONLY
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.001382 SQ MI
                     PER A=0 B=10.14 C=10.14 D=79.72
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** ROOF AREA ONLY
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.000275 SQ MI
                     PER A=0 B=0 C=0 D=100
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** ROOF AREA WITH PDN ROW AND SWALE AREA
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.000507 SQ MI
                     PER A=0 B=16.61 C=35.73 D=47.66
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** PDN ROW ONLY
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.000097 SQ MI
                     PER A=0 B=0 C=100 D=0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
FINISH
```

AHYMO PROGRAM (AHYMO 97) -

- Version: 1997.02d

RUN DATE (MON/DAY/YR) = 08/19/2010

START TIME (HR:MIN:SEC) = 14:30:27

USER NO.= AHYMO-I-9702dGoodwinM-AH

INPUT FILE = pedclin.dat

START TIME=0.0

***** HYDROGRAPH FOR PEDIATRIC CLINIC - PASEO DEL NORTE

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN

RAIN ONE=2.10 IN RAIN SIX=2.45 IN

RAIN DAY=2.85 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK

AT 1.40 HR.

DT = .033330 HOURS			END TIME = 5.999400 HOURS			
.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0161	.0181	.0202	.0223	.0244
.0267	.0290	.0314	.0338	.0364	.0390	.0417
.0445	.0475	.0505	.0537	.0570	.0605	.0641
.0679	.0720	.0763	.0821	.0883	.0949	.1091
.1410	.1900	.2605	.3566	.4830	.6441	.8447
1.0895	1.3168	1.4117	1.4918	1.5631	1.6279	1.6876
1.7430	1.7948	1.8433	1.8890	1.9321	1.9728	2.0114
2.0479	2.0825	2.1153	2.1465	2.1761	2.1829	2.1892
2.1952	2.2009	2.2063	2.2115	2.2165	2.2213	2.2259
2.2304	2.2347	2.2388	2.2429	2.2468	2.2506	2.2543
2.2580	2.2615	2.2649	2.2683	2.2716	2.2748	2.2779
2.2810	2.2840	2.2869	2.2898	2.2927	2.2955	2.2982
2.3009	2.3035	2.3061	2.3087	2.3112	2.3137	2.3161
2.3185	2.3209	2.3232	2.3255	2.3278	2.3300	2.3322
2.3344	2.3365	2.3387	2.3408	2.3428	2.3449	2.3469
2.3489	2.3509	2.3528	2.3547	2.3567	2.3585	2.3604
2.3623	2.3641	2.3659	2.3677	2.3695	2.3712	2.3729
2.3747	2.3764	2.3781	2.3797	2.3814	2.3830	2.3847
2.3863	2.3879	2.3895	2.3910	2.3926	2.3942	2.3957
2.3972	2.3987	2.4002	2.4017	2.4032	2.4046	2.4061
2.4075	2.4090	2.4104	2.4118	2.4132	2.4146	2.4160
2.4173	2.4187	2.4200	2.4214	2.4227	2.4240	2.4254
2.4267	2.4280	2.4292	2.4305	2.4318	2.4331	2.4343
2.4356	2.4368	2.4380	2.4393	2.4405	2.4417	2.4429
2.4441	2.4453	2.4465	2.4476	2.4488	2.4500	

***** SITE ONLY

COMPUTE NM HYD

ID=1 HYD NO=101.1 AREA=0.001382 SQ MI

PER A=0 B=10.14 C=10.14 D=79.72

TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 4.3497 CFS UNIT VOLUME = .9969 B = 526.28
P60 = 2.1000
AREA = .001102 SQ MI IA = .10000 INCHES INF = .04000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

K = .120817HR TP = .133300HR K/TP RATIO = .906356 SHAPE
CONSTANT, N = 3.908546
UNIT PEAK = .73384 CFS UNIT VOLUME = .9820 B = 349.03
P60 = 2.1000
AREA = .000280 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =

6
.033330

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.97232 INCHES = .1454 ACRE-FEET
PEAK DISCHARGE RATE = 3.99 CFS AT 1.500 HOURS BASIN AREA = .0014
SQ. MI.

***** ROOF AREA ONLY

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000275 SQ MI
PER A=0 B=0 C=0 D=100
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 1.0857 CFS UNIT VOLUME = .9881 B = 526.28
P60 = 2.1000
AREA = .000275 SQ MI IA = .10000 INCHES INF = .04000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 2.21516 INCHES = .0325 ACRE-FEET
PEAK DISCHARGE RATE = .87 CFS AT 1.500 HOURS BASIN AREA = .0003
SQ. MI.

***** ROOF AREA WITH PDN ROW AND SWALE AREA

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000507 SQ MI
PER A=0 B=16.61 C=35.73 D=47.66
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = .95399 CFS UNIT VOLUME = .9881 B = 526.28
P60 = 2.1000
AREA = .000242 SQ MI IA = .10000 INCHES INF = .04000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

K = .116304HR TP = .133300HR K/TP RATIO = .872495 SHAPE
CONSTANT, N = 4.070878
UNIT PEAK = .71640 CFS UNIT VOLUME = .9824 B = 359.87
P60 = 2.1000
AREA = .000265 SQ MI IA = .39760 INCHES INF = .96329 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD

ID=1 CODE=1

7

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.62415 INCHES = .0439 ACRE-FEET
PEAK DISCHARGE RATE = 1.29 CFS AT 1.500 HOURS BASIN AREA = .0005
SQ. MI.

***** PDN ROW ONLY

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000097 SQ MI
PER A=0 B=0 C=100 D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .108461HR TP = .133300HR K/TP RATIO = .813662 SHAPE
CONSTANT, N = 4.394154
UNIT PEAK = .27699 CFS UNIT VOLUME = .9513 B = 380.65
P60 = 2.1000
AREA = .000097 SQ MI IA = .35000 INCHES INF = .83000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.21559 INCHES = .0063 ACRE-FEET
PEAK DISCHARGE RATE = .22 CFS AT 1.500 HOURS BASIN AREA = .0001
SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:30:27

EXHIBITS

7/1/85

CROSS
Lot
2
1

Car Crafters

C180044

1/21/15

Landfill area?

1.2 AC ONSITE
2.1 AC OFFSITE
1.41

MAX
RATE

~~4.629 CFS/AC~~

~~28.7~~

~~29.5 CFS~~

~~4.15 CFS~~

~~4.15~~

~~6.2~~

~~7.1~~

~~7.1 AC~~

~~AC~~

↑ THIS IS NOT ACCOUNTING FOR 1 AC IN SUB-BASIN 2

BASED ON 10% A, 15% B, 10% C, 65% D

PRIV
ACCESS BASEMENT? + DRAIN BASE

USING 4.629 CFS/AC - (DON'T AGREE WITH)

$$\frac{4.629 \text{ CFS}}{\text{AC}} \times 1.2 \text{ AC} = 5.55 \text{ CFS}$$

OS-1 = 0.17 AC .78 CFS

OS-2 = 0.04 AC .19

TOTAL A = 1.41 AC

$$4.629 \text{ CFS/AC} \times 0.21 \text{ AC} = 0.97 \text{ CFS}$$

where is 5.83 CFS FROM (28 DIFF). I GET 5.55

$$4.629 \text{ CFS} \times 1.41 \text{ AC} = 6.53 \text{ CFS MAX DISCHARGE}$$

↑ GOOD

~~5.89 + 0.97 = 6.86 CFS~~

Now trying into exist contours on west?

Permission to grade NMDOT prop to south?

Provide NMDOT agreement

List on pond info - top + bottom

WSE AT 5.20 BUT FLOW SLOWLY W AT 5.0 aww.
TOP SW CURV = 5.23 7"

WHOLE SITE 6.05 CFS

$$Free\ D = 0.95\ CFS = 0.51 + D + E - 0.53 + 0.27 + 0.15$$

$$He\ says\ 0.42\ CFS$$

$$Pond\ out = 4.67\ CFS$$

$$Total\ proposed\ discharge = 4.67 + 0.42 = 5.09\ CFS$$

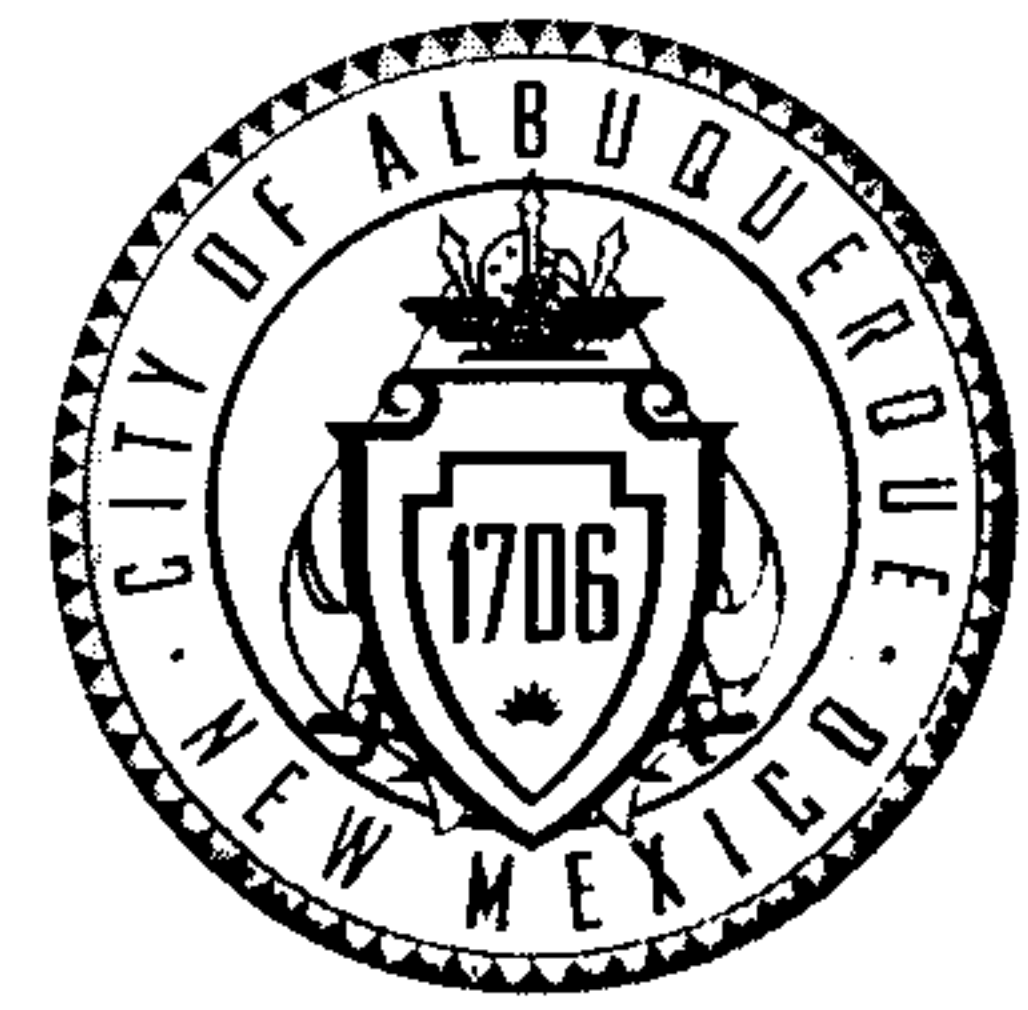
Shouldn't Atty (D) influence ID to pond for 14 not 13

impacts pond out

$$R = 0.34 \times A_p = 0.34 \times$$

$$1345\ pond\ 1638\ provided$$

CITY OF ALBUQUERQUE



January 27, 2015

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande Blvd. NW Suite A
Albuquerque, New Mexico 87107

RE: **Car Crafters**
Grading and Drainage Plan
Engineers Stamp Date 1/12/15 (C18-D044)

Dear Mr. Lorenz,

Based upon the information provided in your submittal received 1/12/2015, the above referenced Grading and Drainage Plan cannot be approved for Grading Permit or Building Permit until the following comments are addressed.

- The current "First Flush" quantities will not be made to follow for this site, due to the location, which is next to an old dump site. The Environmental Services Division requested this rule be ignored.
- Grading in the adjacent properties requires written permission from the current owners.
- The driveway to the northwest of your property encroaches onto the property next to this site. A letter of permission from the current owner needs to be provided along with a written maintenance agreement.
- Make sure that all flows leave this site via the north driveways and sidewalk culverts, including accepting the flows from the property to the south.
- The requirement of detention ponding will remain for this site however, due to the proximity to an old dump site infiltration will not allowed, therefore the pond should be lined. This requirement has been directed by the Environmental Services Division.

In the future if lots 8B and 8C are sold separately, a cross lot drainage agreement should be obtained.

If you have any questions please contact me at 924-3986 or Rudy Rael at 924-3977.

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Planning Department
Development and Review Services

RR/CC



City of Albuquerque

Environment Department

Richard J. Berry, Mayor

Interoffice Memorandum

January 26, 2015

To: Curtis Cherne, City Hydrologist

From: Paul Olson, Principal Engineer, Environmental Services Division

Subject: Review of CarCrafters Project at 5600 Holly Avenue

I am requesting the project at 5600 Holly does not infiltrate water into the ground and does not direct flows to the property directly west of the project.

This project is located adjacent to a closed landfill. Infiltrating water could increase the available water in the landfill and could increase the generation of methane. Historic monitoring of the site has not shown movement of landfill gases off the historic landfill. However, by increasing the available water in the landfill the methane generation could potentially increase as the landfill would act more like a landfill in a moist environment and not as a typical arid environment landfill. The increase in landfill gas generation could potentially increase gas movement offsite creating a health and safety hazard for neighboring properties.

If you need any additional information please let me know.

Thank you,

Paul Olson
768-2633

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 04/2009)

PROJECT TITLE: CAR CRAFTERS ZONE MAP: C-18
DRB#: NA EPC#: NA WORK ORDER#: NA

LEGAL DESCRIPTION: LOTS 8-B AND 8-C, BLOCK 18, TRACT A, UNIT B, NAA

CITY ADDRESS: 5600 HOLLY AVENUE NE

ENGINEERING FIRM: LORENZ DESIGN & CONSULTING CONTACT: DENNIS LORENZ
ADDRESS: 2501 RIO GRANDE BLVD. NW SUITE A PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87104

OWNER: CAR CRAFTERS CONTACT: JIM GUTHRIE
ADDRESS: 600 MONTANO NE PHONE: 881-8889
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

ARCHITECT: RICK BENNETT ARCHITECTS CONTACT: R. BENNETT
ADDRESS: 1104 PARK AVENUE SW PHONE: 242-1859
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87103

SURVEYOR: CARTESIAN SURVEYS CONTACT: W. PLOTNER
ADDRESS: PO BOX 44414 PHONE: 896-3050
CITY, STATE: RIO RANCHO, NEW MEXICO ZIP CODE: 87174

CONTRACTOR: GLOBAL STRUCTURES, LLC CONTACT: UNKNOWN
ADDRESS: 510 CANDELARIA NE PHONE: 343-0990
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87107

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
☒ DRAINAGE PLAN 1st SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ GRADING CERTIFICATION
☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: 01-12-2015 BY: DENNIS A. LORENZ

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE REPORT FOR CAR CRAFTERS

5600 Holly Avenue NE
Albuquerque, New Mexico 87113

Prepared For:

Jim Guthrie
Car Crafters
600 Montano Boulevard NE
Albuquerque, New Mexico 87107

Prepared by:

 **LORENZ**
DESIGN & CONSULTING, LLC
Civil Engineering | Construction Management

January 2015

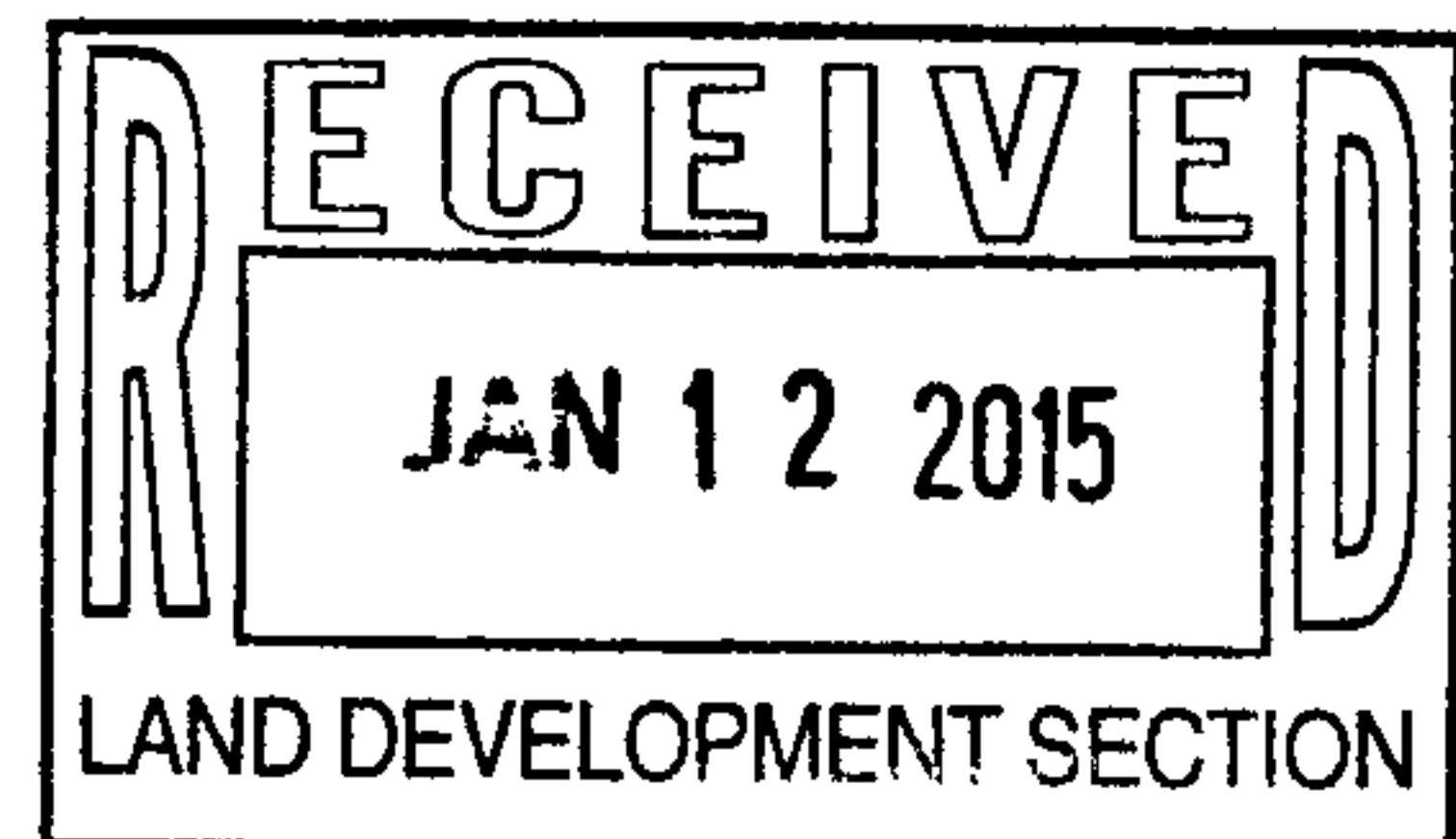
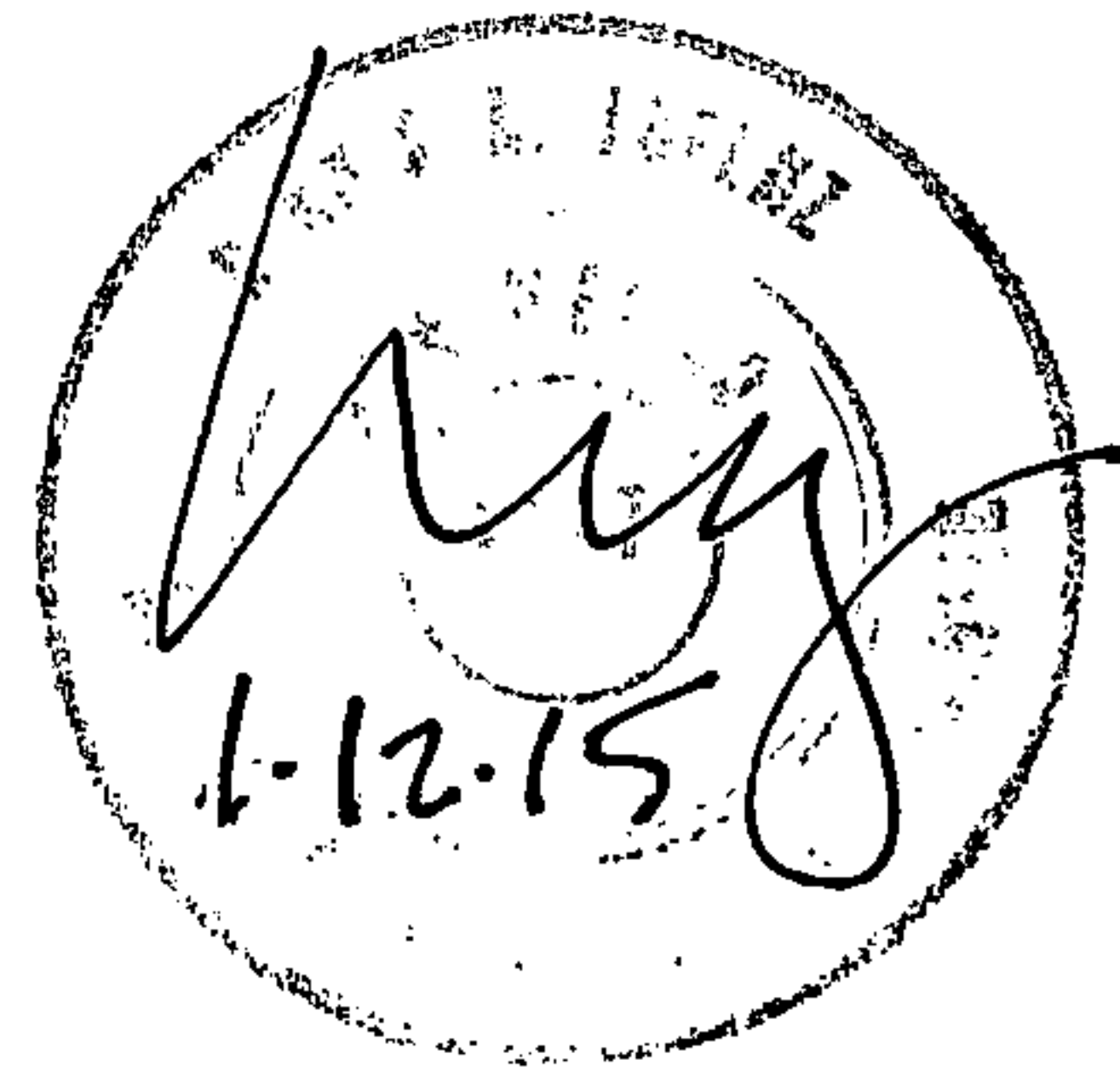


TABLE OF CONTENTS

TITLE	PAGE NO.
PURPOSE AND SCOPE	1
EXISTING CONDITIONS	1
DRAINAGE MASTERPLANS	1
PROPOSED CONDITIONS	2
CALCULATIONS	3

APPENDIX INDEX

TITLE	SECTION
MAPS	1
LOCATION MAP - FIGURE 1	
FIRM PANEL - FIGURE 2	
DEVELOPED DRAINAGE BASIN MAP - FIGURE 3	
CALCULATIONS	2
PONDING CRITERIA	
DRAINAGE STRUCTURE CAPACITIES	
AHYMO INPUT FILE	
AHYMO OUTPUT FILES	
DRAINAGE MASTERPLANS	3
EXHIBITS	4
GRADING & DRAINAGE PLAN	
SITE DETAILS	

PURPOSE AND SCOPE

This project involves the re-development of the subject property for Car Crafters, an auto body repair center. The project proposes site improvements to support the development, including access, grading, drainage and utility improvements.

The purpose of this report is to outline the criteria for re-development of the site and demonstrate that this project will not negatively impact the project site, or upstream and downstream properties. This report is prepared and submitted in support of a pending building permit application.

The scope of this report is to provide analysis of the existing and improved conditions utilizing state of the art technological storm drainage modeling tools, thereby demonstrating the before and after behavior of the project site during rainfall events. It will be demonstrated that this project will be developed in accordance with the City of Albuquerque, Development Process Manual, Volume 2, the City of Albuquerque Drainage Ordinance, and the approved drainage master plan for the watershed.

EXISTING CONDITIONS

The 1.2-acre project site is presently partially developed. Site improvements consist of an 11,520-square foot commercial building with limited site improvements constructed to support the previous property use. The site is bounded north by Holly Avenue NE, undeveloped property on the east, and unimproved NMDOT properties on the west and south.

The site is impacted by a small undeveloped drainage Basin OS-1 that enters the site as sheet flow from the east. The NMDOT land on the west and south drains where flows appear to collect in shallow depressions before overflowing to the Paseo Del Norte-I-25 Interchange drainage system. Holly Avenue drains west to the end of the cul-de-sac, where flows drain through sidewalk culverts to a public drainage channel. The channel drains to the Paseo Del Norte-I-25 Interchange drainage system.

AS shown by FIRM Panel 35001C0137H, this property is not located within a mapped 100 year floodplain.

DRAINAGE MASTERPLANS

The property was originally developed as a retail business in the 1970's. It was later re-developed as a Caliber's Shooting Range. Recent development upstream and the construction of the Paseo Del Norte corridor improvements have resulted in the establishment of upgraded storm drainage criteria. The **Holly Place Commercial Center**, located at San Pedro and Holly, and the development of the **After Hours Pediatrics Center**, located southeast of the project site recognized downstream

limitations and established the unit developed discharge rate of 4.63 cfs/acre. As a result this project will implement on-site detention ponding.

Both Drainage Master Plans are provided in the Appendix for review.

PROPOSED CONDITIONS

As shown by the Grading and Drainage Plan (see back pocket), the property is to be re-developed by upgrading and expanding the existing building, and re-constructing the site improvements. New parking lot and service area paving improvements will be constructed. Pedestrian access improvements and new landscaping will be provided.

In accordance with the Drainage Master Plans all surface storm runoff will be directed to a detention pond to be constructed along the Holly Avenue frontage. The pond will discharge at a rate not to exceed 4.63 cfs/acre to Holly Avenue, where street improvements will convey flows to the public drainage channel located at the west end of the cul-de-sac.

As shown by the Developed Drainage Basins Map, Figure 3, the developed site is divided into 5 drainage basins, and is impacted by 2 off-site basins. Each drainage basin is described below:

Basin A is the largest on-site basin. It drains north to a storm inlet that conveys flows to the detention pond by an 18-inch CMP storm drain.

Basin B is a small basin draining to the detention pond at AP-2 thru a small weir.

Basin C is a paved service area north of the building draining to the detention pond at AP-3 thru a weir.

Basin D is a portion of the paved service area the drains directly to Holly thru the east drivepad.

Basin E is a small landscape area along the east property line that drains to a sidewalk culvert at Holly. Basin 'E' accepts undeveloped interim flows from off-site Basin OS-1.

Basin OS-1 is an undeveloped basin that drains as sheet flow to Basin 'E' as described above.

Basin OS-2 represents a portion of the west access drive located within the private access easement. This basin drains to the detention pond at AP-2 thru a small weir.

As shown by the AHYMO output files and the Pond Routing Calculations, the detention pond discharges at a maximum rate of 4.67 cfs thru 2-24-inch sidewalk culverts. Basins

SHOULD BE $0.51 + D + E = 0.53 + .27 + .15 = 0.95$

D and E free discharge to Holly as described above at a combine rate of ^{0.95}0.42 cfs. The total combined developed discharge from the project site to Holly Avenue is 5.09 cfs, which is below the threshold allowed by the DMP's of 5.83cfs.

90th Percentile Storm

In accordance with the City of Albuquerque Drainage Ordinance, effective May 12, 2014, all new development projects are required to manage the runoff which occurs during the 90th percentile storm event. In order to comply with this criteria, where practical, all surface drainage shall be routed through landscaped areas before release into downstream drainage facilities.

This plan recommends all landscaped areas be depresses a minimum of 3-inches below the adjacent paved surface to retain the first flush runoff, where practical. Due to site grading limitations the bulk of volume will be retained within the proposed retention pond located along the Holly Avenue frontage. A first flush volume of approximately 1,638cf will be retained below the invert of the pond outlet structure.

CALCULATIONS

Hydrology

The calculations contained herein define the 100-year/6-hour rainfall event falling within the project site and contributing off-site areas under existing and developed conditions. The hydrology is per the City of Albuquerque, Development Process Manual, Chapter 22, Volume 2, 1997 Revision. The AHYMO 97 model is used to determine peak runoff. The calculations are presented to demonstrate the capacity and function of all proposed storm drainage improvements.

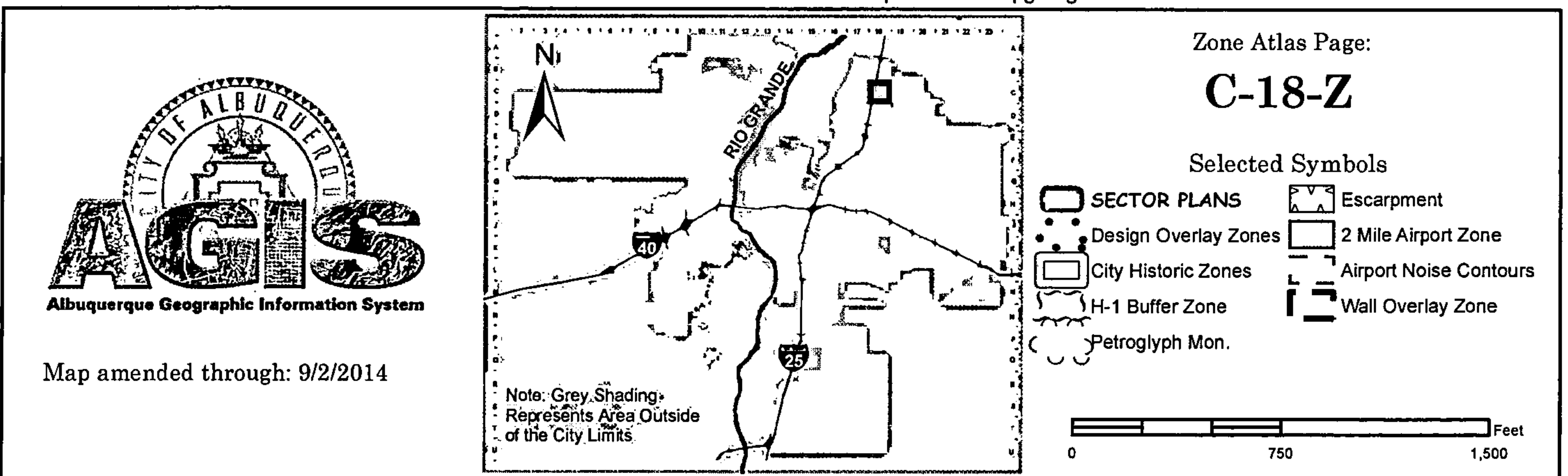
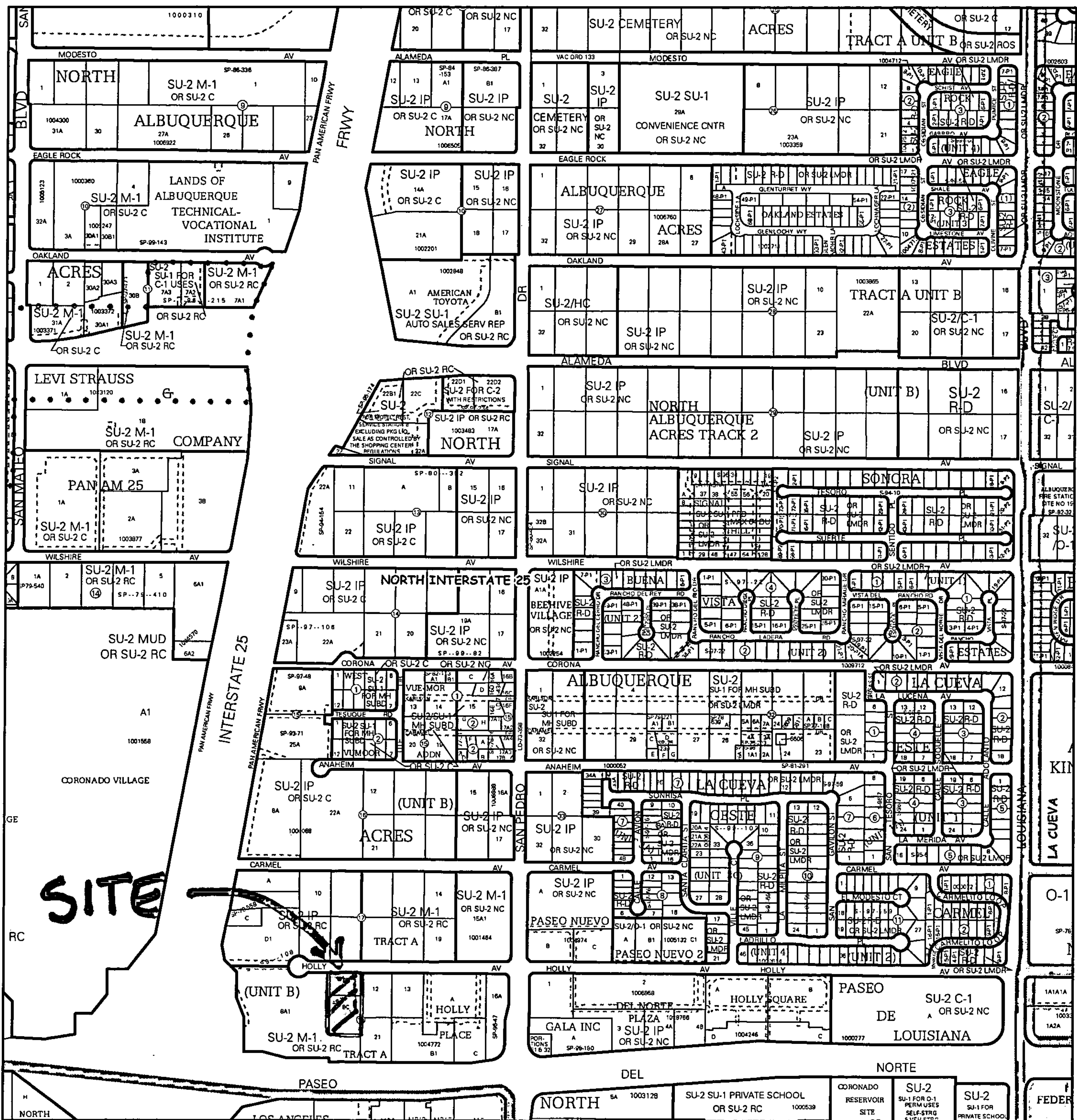
5.67
BUT MS ROAD
OUTFLOW WOULD
BE MISSING
AP 3

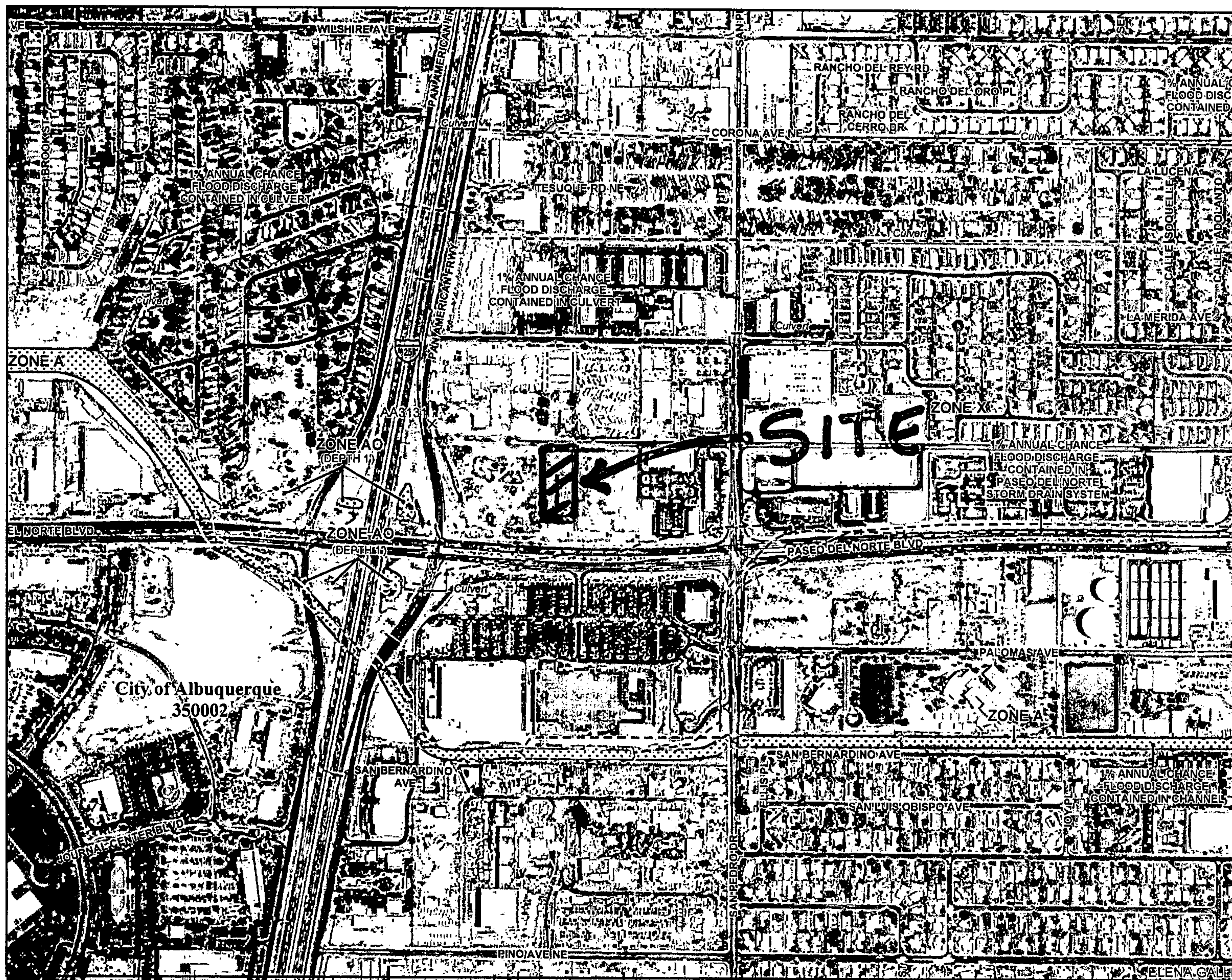
Does not
match
G&D plan

APPENDIX

\

MAPS





MAP SCALE 1" = 500'



PANEL 0137H

FIRM

FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY,
NEW MEXICO
AND INCORPORATED AREAS

PANEL 137 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0137	H
BERNALILLO COUNTY			
UNINCORPORATED AREAS	350001	0137	H

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

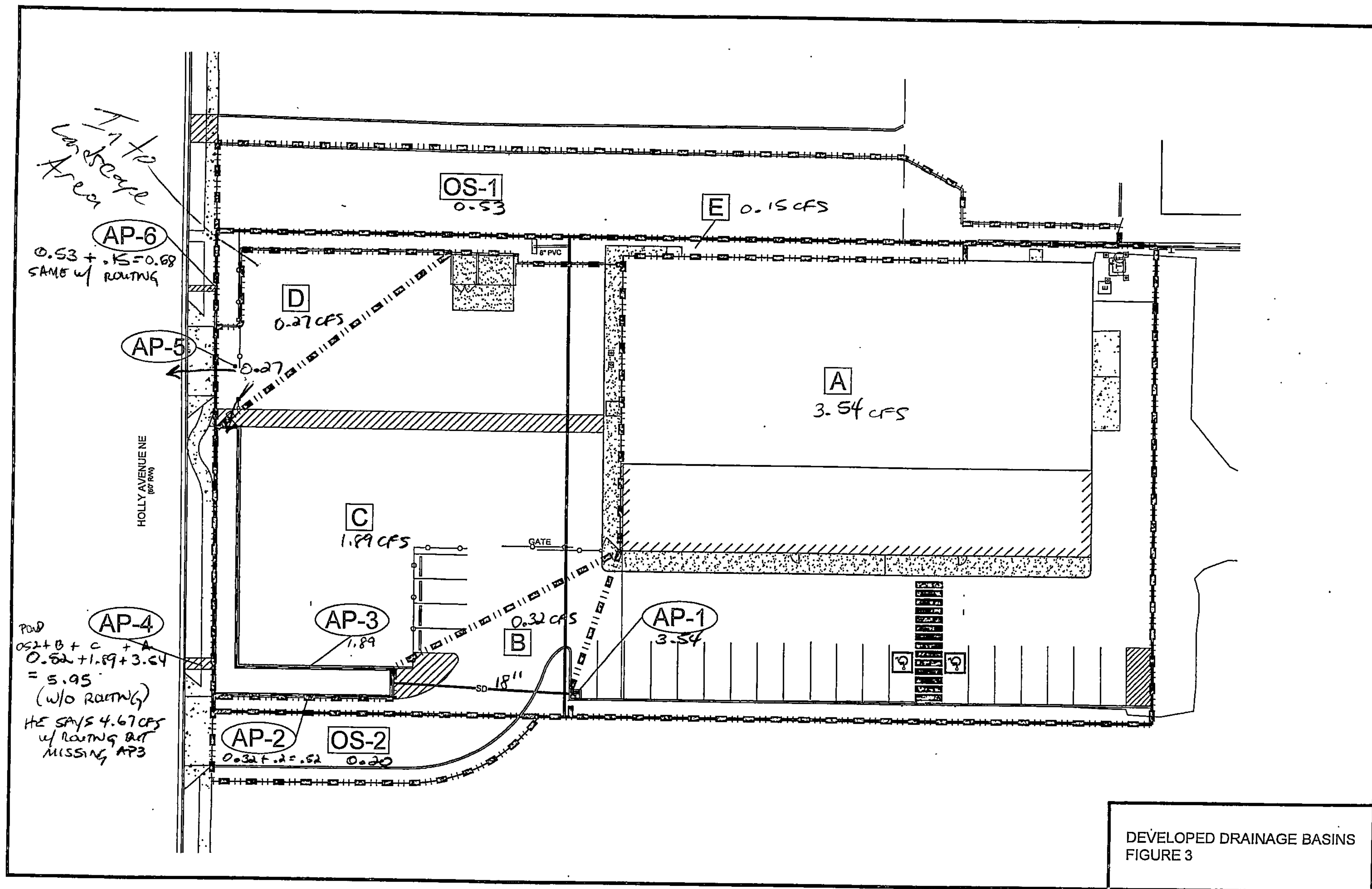


MAP NUMBER
35001C0137H

MAP REVISED
AUGUST 16, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



CALCULATIONS

PONDING CRITERIA

SITE PONDING CRITERIA

I. FIRST FLUSH

By ordinance the site is required to retain the 90th percentile rainfall depth of 0.44 inches less Initial Abstractions of 0.10 inches as follows:

90 th % depth	0.44"
IA	0.10"
Required retained depth	0.34"

The ponding requirement is applied to the impervious area as follows:

$$\begin{aligned}\text{Pond volume} &= Ad(0.34") \\ &= 1.09 \text{ ac}(0.34") = 0.31 \text{ ac-ft} = 1,345 \text{ cf}\end{aligned}$$

Volume provided

The first flush volume will be provided within the "L" shaped pond along the north side of the property at Holly Avenue. Total volume below the sidewalk culvert invert (pond outlet structure) is 0.0376 Ac ft , or 1,638 cf, as indicated in the pond routing table. ✓

II. DETENTION POND CRITERIA

Per the DMP the allowable discharge rate is established at 4.63 cfs/acre. This rate will be applied to the site (1.22 ac) plus the west access drive, Basin OS-2 (0.04 ac).

The total allowed discharge from the site is $1.26 \text{ ac} \times 4.63 \text{ cfs/ac} = 5.83 \text{ cfs}$.

Due to site grading issues, on-site Basin "D" will free discharge 0.27 cfs thru the east drivepad. Basin OS-1 and Basin "E" will discharge to Holly Avenue thru a 12-inch sidewalk culvert. The Basin "E" portion of this flow is 0.15 cfs. A combined developed peak flowrate of 0.42 cfs will be subtracted from the allowable rate resulting in a maximum discharge rate of 5.41 cfs from the detention pond.

POND STORAGE INDICATION TABLE

ELEVATION feet	Q OUT cfs	AREA sf	VOLUME acre feet
5203.00	0.00	965	0.0000
5204.00	0.05	1000	0.0246
5204.65	0.05	1020	0.0376
5205.00	3.00	1240	0.0493
5205.30	5.48	1240	0.0641

As illustrated by the AHYMO Output file, the discharge from the pond is calculated at 4.67 cfs, with a maximum water surface elevation of 5205.20 feet.

The total developed discharge from the project site is as follows:

Detention Pond (AP-4)	4.67 cfs
Basin "D" (AP-5)	0.27 cfs
Basin "E" (AP-6)	0.15 cfs
Total	5.09 cfs

DRAINAGE STRUCTURE CAPACITIES

① STORM INLET
SINGLE GRATE TYPE IS WA.

Ⓐ CHECK WEIR FLOW

$$Q = CLH^{3/2}$$

$$C = 2.5$$

$$L = \text{GRATE PER} \\ = 130' \\ = 10.83'$$

$$\text{LET } H = 4'' \text{ MAX} \\ = 0.33'$$

$$Q = 5.13 \text{ CFS} > Q_{100} 3.54 \text{ CFS} \checkmark$$

Ⓑ CHECK ORIFICE FLOW

$$Q = CA\sqrt{2gh}$$

$$C = 0.6$$

$$A = \text{GRATE OPEN AREA} \\ = 4.31 \text{ SF}$$

$$\text{LET } H = 4'' \text{ MAX} \\ = 0.33'$$

$$g = 32.2 \text{ F/S}^2$$

$$Q = 11.9 \text{ CFS}$$

APPLY COG FACTOR 0.5

$$\Rightarrow Q = 5.95 \text{ CFS} > Q_{100} 3.54 \text{ CFS} \checkmark$$

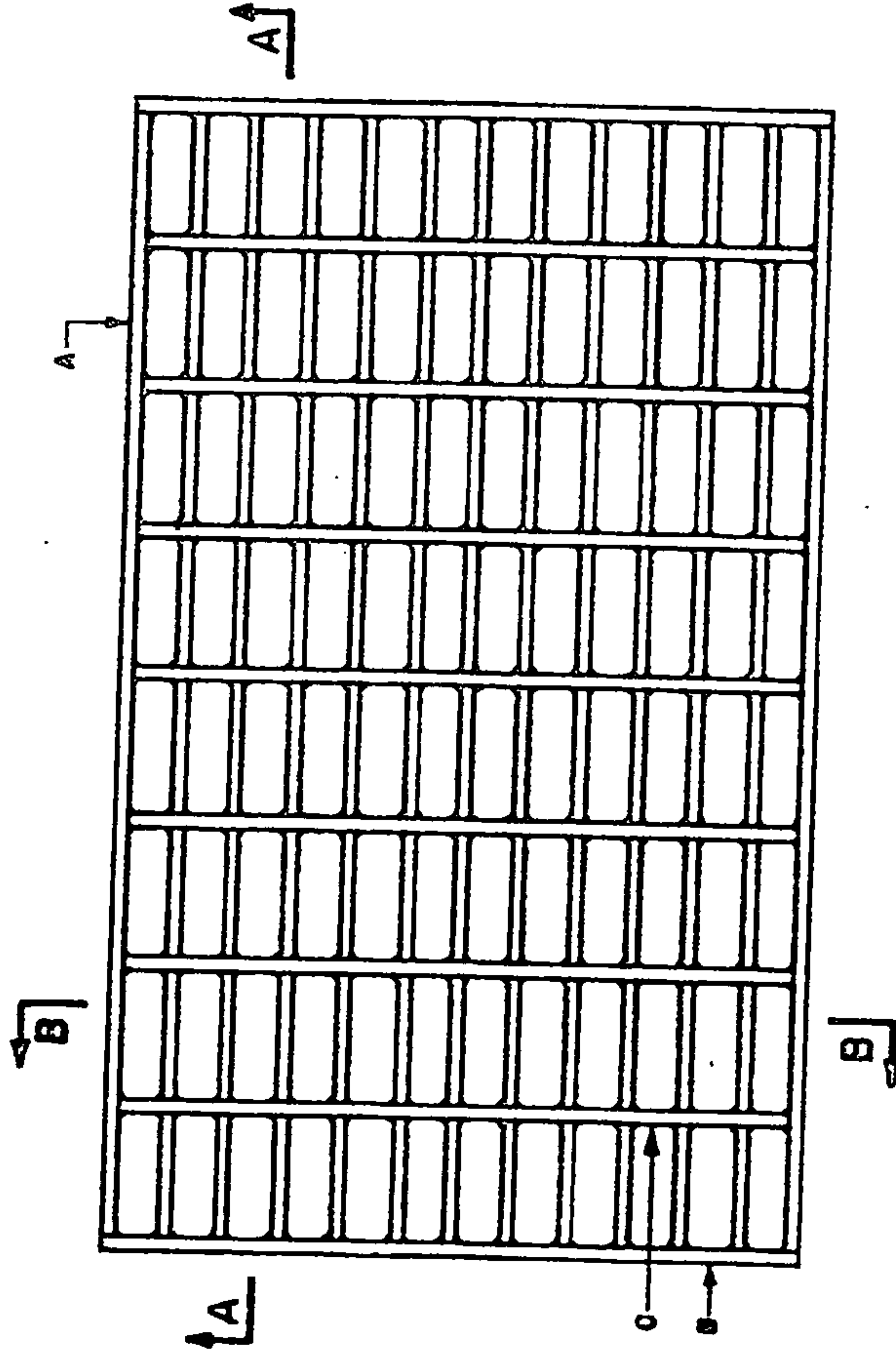
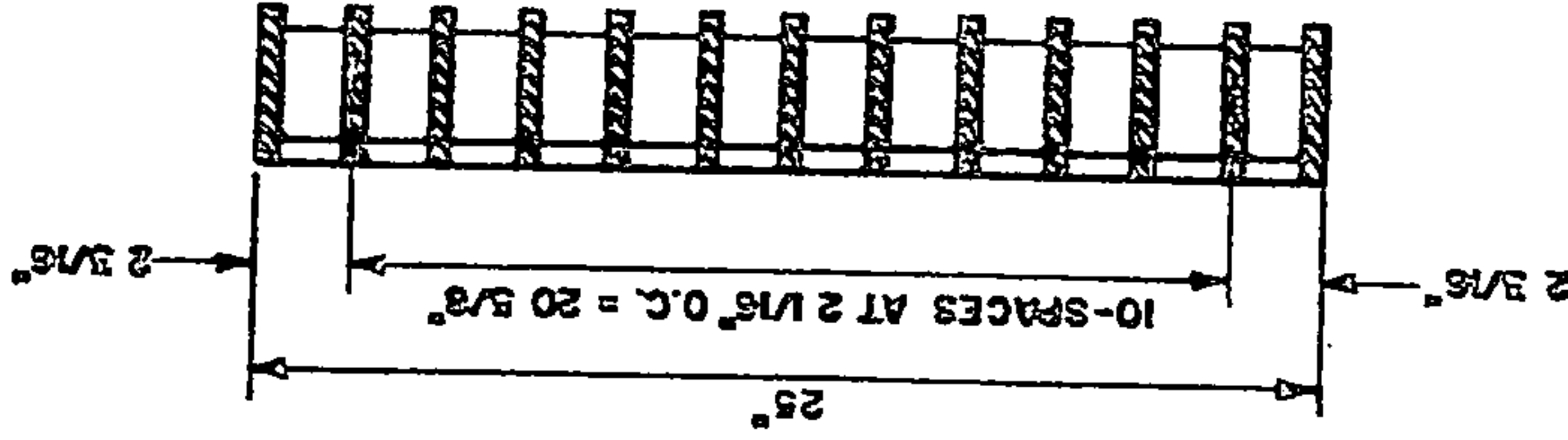
GENERAL NOTES:

1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS, 1/4". FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE, OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS HELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

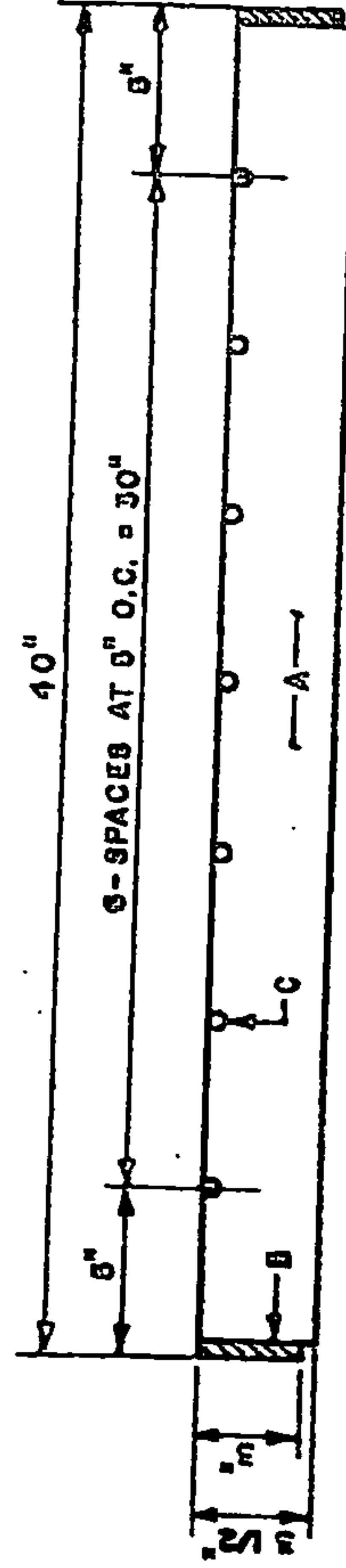
CONSTRUCTION NOTES:

- A. BEARING BARS, (13) 1/2" X 3 1/2" X 39"
- B. END BARS, (2) 1/2" X 3" X 25"
- C. CROSS BARS, (7) 1/2" DIA. X 24"

SECTION B-B



PLAN



SECTION A-A

CITY OF ALBUQUERQUE

**DRAINAGE
STORM INLET
ALBUQUERQUE GRATE
DWG. 2220**

AUG. 1906

REVISIONS

② 18" CMP SD

1/9/2015

Free Online Manning Pipe Flow Calculator

Free Online Manning Pipe Flow Calculator

[List of Calculators](#)

[Hydraulics](#)

[Language](#)

Manning Formula Uniform Pipe Flow at Given Slope and Depth

[Can you help me translate this calculator to your language or host this calculator at your web site?](#)

Car Crafters

Storm drain capacity - AP-1

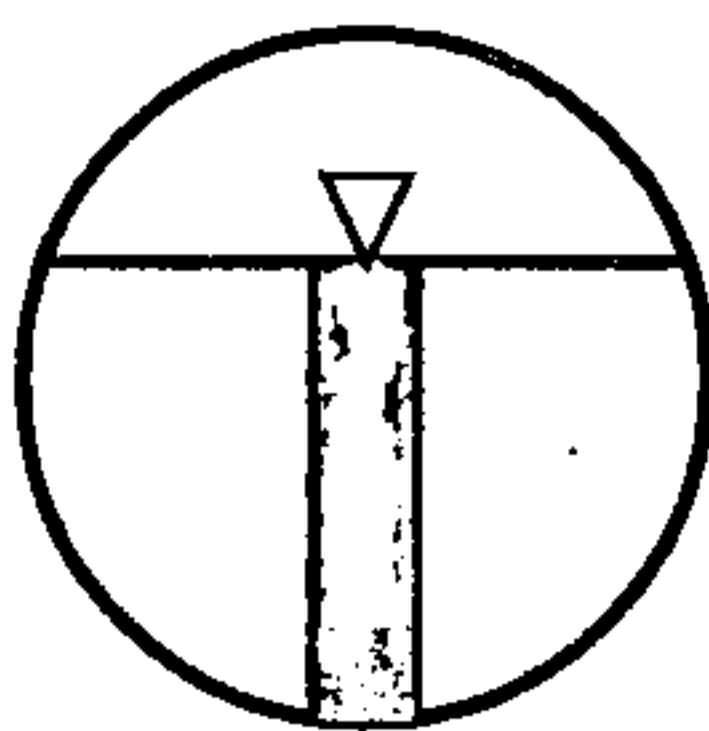
Set units: ☐ m ☐ mm ☐ ft ☐ inches

Pipe diameter, d_0	18 inches ▼
Manning roughness, n ?	.024
Pressure slope (possibly ? equal to pipe slope), S_0	.02 rise/run ▼
Percent of (or ratio to) full depth (100% or 1 if flowing full)	.67 fraction ▼

Results:

Flow, q	6.3508	cfs / ▼
Velocity, v	5.0462	ft/sec ▼
Velocity head, h_v	0.3958	ft ▼
Flow area	181.2345	sq. in. ▼
Wetted perimeter	34.5188	inches ▼
Hydraulic radius	5.2503	inches ▼
Top width, T	16.9277	inches ▼
Froude number, F	0.94	
Shear stress (tractive force), τ	60.0764	N/m ² ▼

18" in place



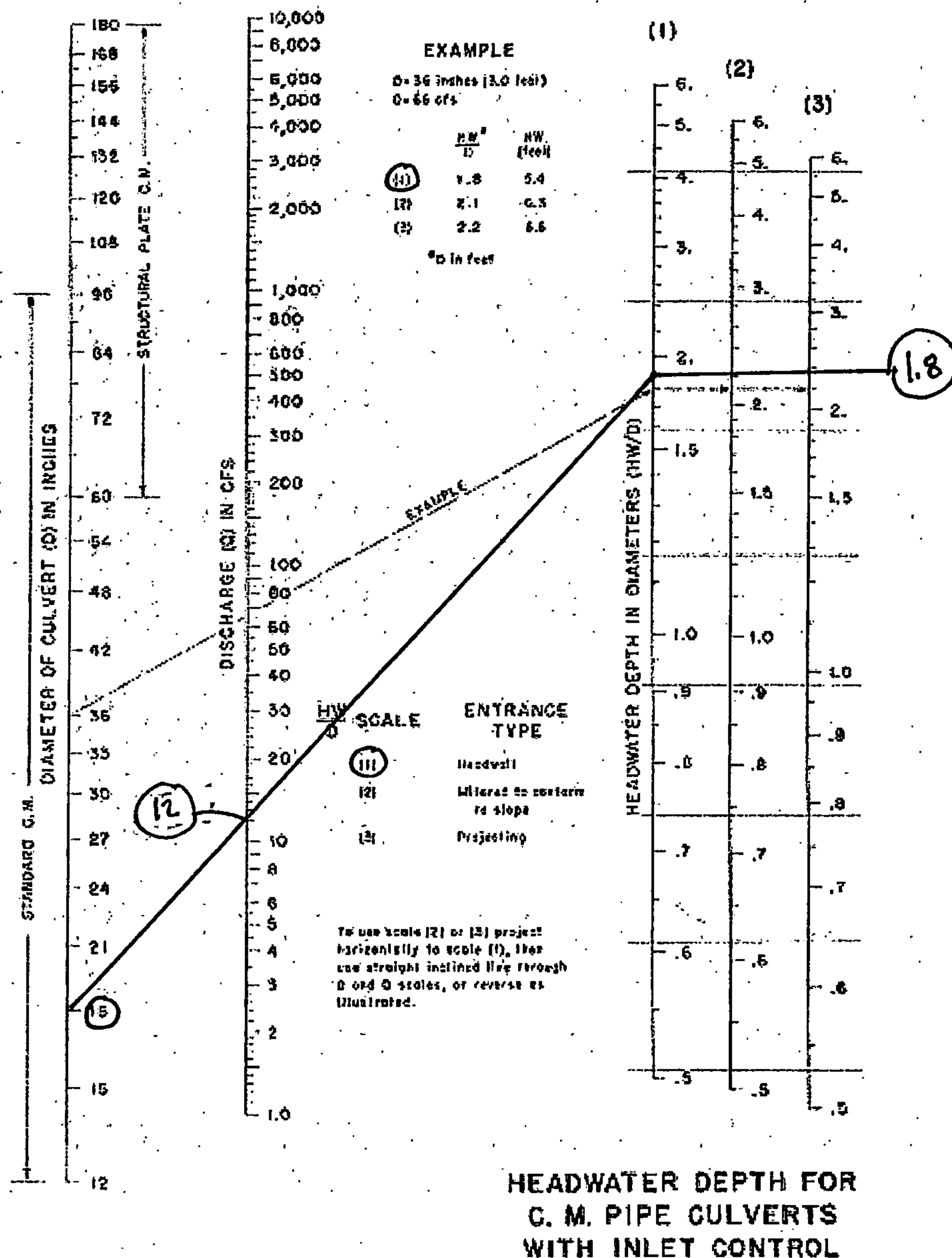
[Please give us your valued words of suggestion or praise. Did this free calculator exceed your expectations in every way?](#)

[Home](#) | [Support](#) | [FreeSoftware](#) | [Engineering Services](#) | [Engineering Calculators](#) | [Technical Documents](#) | [Blog \(new in 2009\)](#) | [Personal essays](#) | [Collaborative Family Trees](#) | [Contact](#)

Go Back to Part II

Go to Chart 6

CHART 5



3

CAR CRAFTERS
SIDEWALK CULVERT AND CURB BLOCKOUT WIDTHS

ANALYSIS POINT	STRUCTURE TYPE	Q100 cfs	H ft	L FT
AP-2	POND INLET	0.32	0.5	1.0
AP-3	POND INLET	1.89	0.5	3.0
AP-4	2-24" SWC	5.56	0.67	4.0
AP-4	POND A SPILLWAY	5.95	0.5	4.0
AP-6	12" SWC	0.68	0.5	1.0

AHYMO INPUT FILE

```

*****
*                                     CAR CRAFTERS
*                                     PROJECT HYDROLOGY
*****
START          TIME=0.0  PUNCH CODE=0
LOCATION         ALBUQUERQUE
RAINFALL        TYPE=1  RAIN QUARTER=0.0  RAIN ONE=2.14
                RAIN SIX=2.60  RAIN DAY=3.10  DT=0.03333 HRS
*****
*****
* EXISTING CONDITIONS *
*****
* SITE - 1.22 ACRES
COMPUTE NM HYD  ID=1  HYD NO=EX-SITE  DA=0.00191 SQ MI
                PER A=0 PER B=0 PER C=52  PER D=48
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=1  CODE=20
* BASIN OS-1 - 0.17 ACRES
COMPUTE NM HYD  ID=2  HYD NO=EX-OS-1  DA=0.000266 SQ MI
                PER A=0 PER B=100 PER C=0 PER D=0
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=2  CODE=20
* BASIN OS-2 - 0.04 ACRES
COMPUTE NM HYD  ID=3  HYD NO=EX-OS-2  DA=0.000063 SQ MI
                PER A=0 PER B=0 PER C=100 PER D=0
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=3  CODE=20
*****
* DEVELOPED CONDITIONS *
*****
* SITE - 1.22 ACRES
COMPUTE NM HYD  ID=4  HYD NO=DEV-SITE  DA=0.00191 SQ MI
                PER A=0 PER B=5 PER C=8  PER D=87
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=4  CODE=20
* BASIN OS-1 - 0.17 ACRES (AP-6)
COMPUTE NM HYD  ID=5  HYD NO=DEV-OS-1  DA=0.000266 SQ MI
                PER A=0 PER B=100 PER C=0 PER D=0
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=5  CODE=20
* BASIN OS-2 - 0.04 ACRES (AP-2)
COMPUTE NM HYD  ID=6  HYD NO=DEV-OS-2  DA=0.000063 SQ MI
                PER A=0 PER B=20 PER C=20 PER D=60
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=6  CODE=20
* BASIN A - 0.69 ACRES (AP-1)
COMPUTE NM HYD  ID=7  HYD NO=DEV-A  DA=0.00108 SQ MI
                PER A=0 PER B=2 PER C=2 PER D=96
                TP=0.1333 HR  MASS RAIN=-1
PRINT HYD       ID=7  CODE=20

```

```

* BASIN B - 0.06 ACRES (AP-2)
COMPUTE NM HYD      ID=8  HYD NO=DEV-B  DA=0.000094 SQ MI
                    PER A=0 PER B=0 PER C=3 PER D=97
                    TP=0.1333 HR  MASS RAIN=-1
PRINT HYD           ID=8  CODE=20
* BASIN C - 0.37 ACRES (AP-3)
COMPUTE NM HYD      ID=9  HYD NO=DEV-C  DA=0.000578 SQ MI
                    PER A=0 PER B=3 PER C=03 PER D=94
                    TP=0.1333 HR  MASS RAIN=-1
PRINT HYD           ID=9  CODE=20
* BASIN D - 0.05 ACRES (AP-5)
COMPUTE NM HYD      ID=10 HYD NO=DEV-D  DA=0.000078 SQ MI
                    PER A=0 PER B=0 PER C=0 PER D=100
                    TP=0.1333 HR  MASS RAIN=-1
PRINT HYD           ID=10 CODE=20
* BASIN E - 0.04 ACRES (AP-6)
COMPUTE NM HYD      ID=11 HYD NO=DEV-E  DA=0.000063 SQ MI
                    PER A=0 PER B=47 PER C=47 PER D=6
                    TP=0.1333 HR  MASS RAIN=-1
PRINT HYD           ID=11 CODE=20
*****
* ADD HYDROGRAPHS *
*****
ADD HYD              ID=12 HYD NO=HYD-AP-2  ID I=6  ID II=8
PRINT HYD            ID=12 CODE=20
ADD HYD              ID=13 HYD NO=HYD-AP-4.1 ID I=7  ID II=9
PRINT HYD            ID=13 CODE=20
ADD HYD              ID=14 HYD NO=HYD-AP-4   ID I=12 ID II=13
PRINT HYD            ID=14 CODE=20
ADD HYD              ID=15 HYD NO=HYD-AP-6   ID I=5  ID II=11
PRINT HYD            ID=15 CODE=20
*****
* ROUTE DEVELOPED SITE THROUGH DETENTION POND AT AP-4 TO *
* 2-24 INCH SW CULVERTS. ALLOWABLE DISCHARGE IS 4.63 CFS/AC *
* LESS BASINS D AND E (FREE DISCHARGE) OR 5.41 CFS 18 *
*****
ROUTE RESERVOIR      ID=16 HYD NO=POND.OUT  INFLOW ID=1314 CODE=10
                    OUT (CFS)  STORAGE (AC-FT)  ELEV (FT)
                    0.0         0              5203.00
                    0.05        0.0246         5204.00
                    0.05        0.0376         5204.55
                    3.00        0.0493         5205.00
                    5.48        0.0641         5205.30
PRINT HYD            ID=16 CODE=20
FINISH

```

Handwritten notes and corrections on the right side of the page:

- 052
- B
- A
- C
- CS-1
- E
- 18
- 14

AHYMO OUTPUT FILES

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)

~ Ver. S4.01a, Rel: 01a

RUN DATE (MON/DAY/YR) =01/09/2015

INPUT FILE = P:\14-032 - Car Crafters\Drainage Report\AHYMO\CARCRAFTERS.DAT

USER NO.= Lorenz-NMSingleA33825816

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											
LOCATION			ALBUQUERQUE		↓						TIME= 0.00
RAINFALL	TYPE= 1 NOAA 14										RAIN6= 2.600
COMPUTE NM HYD	EX-SITE	-	1	0.00191	5.42	0.186	1.82493	1.533	4.434	PER IMP=	48.00
COMPUTE NM HYD	EX-OS-1	-	2	0.00027	0.53	0.015	1.07948	1.533	3.089	PER IMP=	0.00
COMPUTE NM HYD	EX-OS-2	-	3	0.00006	0.16	0.005	1.34222	1.533	4.044	PER IMP=	0.00
COMPUTE NM HYD	DEV-SITE	-	4	0.00191	6.05	0.224	2.20273	1.500	4.950	PER IMP=	87.00
COMPUTE NM HYD	DEV-OS-1	-	5	0.00027	0.53	0.015	1.07948	1.533	3.089	PER IMP=	0.00
COMPUTE NM HYD	DEV-OS-2	-	6	0.00006	0.20	0.006	1.88907	1.533	4.880	PER IMP=	60.00
COMPUTE NM HYD	DEV-A	-	7	0.00108	3.54	0.133	2.30199	1.500	5.123	PER IMP=	96.00
COMPUTE NM HYD	DEV-B	-	8	0.00009	0.32	0.012	2.31770	1.500	5.304	PER IMP=	97.00
COMPUTE NM HYD	DEV-C	-	9	0.00058	1.89	0.070	2.27905	1.500	5.109	PER IMP=	94.00
COMPUTE NM HYD	DEV-D	-	10	0.00008	0.27	0.010	2.34787	1.500	5.366	PER IMP=	100.00
COMPUTE NM HYD	DEV-E	-	11	0.00006	0.15	0.004	1.26970	1.533	3.819	PER IMP=	6.00
ADD HYD	HYD-AP-2	6& 8	12	0.00016	0.51	0.018	2.12236	1.500	5.123		
ADD HYD	HYD-AP-4.1	7& 9	13	0.00166	5.43	0.203	2.29365	1.500	5.118		
ADD HYD	HYD-AP-4	12&13	14	0.00182	5.95	0.221	2.27883	1.500	5.119		
ADD HYD	HYD-AP-6	5&11	15	0.00033	0.68	0.020	1.11383	1.533	3.229		
ROUTE RESERVOIR	POND.OUT	13	16	0.00166	4.67	0.203	2.29365	1.567	4.404	AC-FT=	0.059
FINISH											



AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 01/09/2015
 START TIME (HR:MIN:SEC) = 15:12:53 USER NO.= Lorenz-NMSingleA33825816
 INPUT FILE = P:\14-032 - Car Crafters\Drainage Report\AHYMO\CARCRAFTERS.DAT

 * CAR CRAFTERS
 * PROJECT HYDROLOGY

START TIME=0.0 PUNCH CODE=0
 LOCATION ALBUQUERQUE

City of Albuquerque soil infiltration values (LAND FACTORS) used for computations.

Land Treatment	Initial Abstr.(in)	Unif. Infilt.(in/hour)
A	0.65	1.67
B	0.50	1.25
C	0.35	0.83
D	0.10	0.04

RAINFALL TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.14
 RAIN SIX=2.60 RAIN DAY=3.10 DT=0.03333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
 DT = 0.033330 HOURS END TIME = 5.999400 HOURS

0.0000	0.0020	0.0041	0.0062	0.0085	0.0108	0.0133
0.0158	0.0185	0.0214	0.0243	0.0306	0.0368	0.0435
0.0505	0.0575	0.0652	0.0728	0.0807	0.0887	0.0967
0.1052	0.1136	0.1225	0.1319	0.1414	0.1520	0.1627
0.1783	0.1989	0.2196	0.2472	0.2748	0.3080	0.3466
0.3853	0.4433	0.5014	0.5804	0.6807	0.7809	1.0473
1.3144	1.5225	1.6705	1.8186	1.8933	1.9677	2.0284
2.0753	2.1221	2.1547	2.1872	2.2154	2.2391	2.2629
2.2809	2.2990	2.3130	2.3230	2.3330	2.3419	2.3508
2.3589	2.3663	2.3736	2.3803	2.3871	2.3937	2.4002
2.4067	2.4098	2.4129	2.4160	2.4189	2.4219	2.4247
2.4275	2.4302	2.4329	2.4356	2.4382	2.4409	2.4434
2.4459	2.4483	2.4507	2.4531	2.4555	2.4578	2.4601
2.4623	2.4645	2.4667	2.4688	2.4710	2.4731	2.4752
2.4772	2.4792	2.4812	2.4832	2.4851	2.4870	2.4889
2.4909	2.4927	2.4946	2.4964	2.4983	2.5001	2.5019
2.5037	2.5054	2.5072	2.5089	2.5107	2.5124	2.5141
2.5158	2.5175	2.5191	2.5208	2.5224	2.5240	2.5256
2.5272	2.5288	2.5304	2.5320	2.5335	2.5351	2.5366
2.5381	2.5396	2.5412	2.5426	2.5441	2.5456	2.5471
2.5485	2.5500	2.5514	2.5528	2.5542	2.5556	2.5570
2.5584	2.5598	2.5612	2.5625	2.5639	2.5652	2.5666
2.5679	2.5692	2.5705	2.5719	2.5732	2.5744	2.5757
2.5770	2.5783	2.5795	2.5808	2.5820	2.5833	2.5845
2.5857	2.5870	2.5882	2.5894	2.5906	2.5918	2.5930
2.5942	2.5953	2.5965	2.5977	2.5988	2.6000	

* EXISTING CONDITIONS *

* SITE - 1.22 ACRES

COMPUTE NM HYD ID=1 HYD NO=EX-SITE DA=0.00191 SQ MI
PER A=0 PER B=0 PER C=52 PER D=48
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 3.6196 CFS UNIT VOLUME = 0.9961 B = 526.28 P60 = 2.1400
AREA = 0.000917 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.108912HR TP = 0.133300HR K/TP RATIO = 0.817047 SHAPE CONSTANT, N = 4.373953
UNIT PEAK = 2.8267 CFS UNIT VOLUME = 0.9957 B = 379.38 P60 = 2.1400
AREA = 0.000993 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=1 CODE=20

HYDROGRAPH FROM AREA EX-SITE

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	1.4	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.7	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 1.82493 INCHES = 0.1859 ACRE-FEET
PEAK DISCHARGE RATE = 5.42 CFS AT 1.533 HOURS BASIN AREA = 0.0019 SQ. MI.

* BASIN OS-1 - 0.17 ACRES

COMPUTE NM HYD ID=2 HYD NO=EX-OS-1 DA=0.000266 SQ MI
PER A=0 PER B=100 PER C=0 PER D=0
TP=0.1333 HR MASS RAIN=-1

K = 0.133656HR TP = 0.133300HR K/TP RATIO = 1.002670 SHAPE CONSTANT, N = 3.520654
UNIT PEAK = 0.64223 CFS UNIT VOLUME = 0.9793 B = 321.84 P60 = 2.1400
AREA = 0.000266 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=2 CODE=20

HYDROGRAPH FROM AREA EX-OS-1

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
------	------	------	------	------	------	------	------	------	------

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.1	2.000	0.1	2.666	0.0

RUNOFF VOLUME = 1.07948 INCHES = 0.0153 ACRE-FEET
 PEAK DISCHARGE RATE = 0.53 CFS AT 1.533 HOURS BASIN AREA = 0.0003 SQ. MI.

* BASIN OS-2 - 0.04 ACRES

COMPUTE NM HYD ID=3 HYD NO=EX-OS-2 DA=0.000063 SQ MI
 PER A=0 PER B=0 PER C=100 PER D=0
 TP=0.1333 HR MASS RAIN=-1

K = 0.108912HR TP = 0.133300HR K/TP RATIO = 0.817047 SHAPE CONSTANT, N = 4.373953
 UNIT PEAK = 0.17930 CFS UNIT VOLUME = 0.9258 B = 379.38 P60 = 2.1400
 AREA = 0.000063 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=3 CODE=20

HYDROGRAPH FROM AREA EX-OS-2

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.0	2.000	0.0		

RUNOFF VOLUME = 1.34222 INCHES = 0.0045 ACRE-FEET
 PEAK DISCHARGE RATE = 0.16 CFS AT 1.533 HOURS BASIN AREA = 0.0001 SQ. MI.

* DEVELOPED CONDITIONS *

* SITE - 1.22 ACRES

COMPUTE NM HYD ID=4 HYD NO=DEV-SITE DA=0.00191 SQ MI
 PER A=0 PER B=5 PER C=8 PER D=87
 TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 6.5605 CFS UNIT VOLUME = 0.9976 B = 526.28 P60 = 2.1400
 AREA = 0.001662 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.118429HR TP = 0.133300HR K/TP RATIO = 0.888440 SHAPE CONSTANT, N = 3.992353
 UNIT PEAK = 0.66064 CFS UNIT VOLUME = 0.9795 B = 354.66 P60 = 2.1400
 AREA = 0.000248 SQ MI IA = 0.40769 INCHES INF = 0.99154 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=4 CODE=20

HYDROGRAPH FROM AREA DEV-SITE

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	1.7	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.9	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.20273 INCHES = 0.2244 ACRE-FEET
PEAK DISCHARGE RATE = 6.05 CFS AT 1.500 HOURS BASIN AREA = 0.0019 SQ. MI.

* BASIN OS-1 - 0.17 ACRES (AP-6)
COMPUTE NM HYD ID=5 HYD NO=DEV-OS-1 DA=0.000266 SQ MI
PER A=0 PER B=100 PER C=0 PER D=0
TP=0.1333 HR MASS RAIN=-1

K = 0.133656HR TP = 0.133300HR K/TP RATIO = 1.002670 SHAPE CONSTANT, N = 3.520654
UNIT PEAK = 0.64223 CFS UNIT VOLUME = 0.9793 B = 321.84 P60 = 2.1400
AREA = 0.000266 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=5 CODE=20

HYDROGRAPH FROM AREA DEV-OS-1

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	0.667	0.0	1.333	0.1	2.000	0.1	2.666	0.0

RUNOFF VOLUME = 1.07948 INCHES = 0.0153 ACRE-FEET
PEAK DISCHARGE RATE = 0.53 CFS AT 1.533 HOURS BASIN AREA = 0.0003 SQ. MI.

* BASIN OS-2 - 0.04 ACRES (AP-2)
COMPUTE NM HYD ID=6 HYD NO=DEV-OS-2 DA=0.000063 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.14924 CFS UNIT VOLUME = 0.9169 B = 526.28 P60 = 2.1400
AREA = 0.000038 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
UNIT PEAK = 0.65777E-01CFS UNIT VOLUME = 0.8726 B = 347.94 P60 = 2.1400

AREA = 0.000025 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=6 CODE=20

HYDROGRAPH FROM AREA DEV-OS-2

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.0	2.000	0.0	2.666	0.0

RUNOFF VOLUME = 1.88907 INCHES = 0.0063 ACRE-FEET
PEAK DISCHARGE RATE = 0.20 CFS AT 1.533 HOURS BASIN AREA = 0.0001 SQ. MI.

* BASIN A - 0.69 ACRES (AP-1)

COMPUTE NM HYD ID=7 HYD NO=DEV-A DA=0.00108 SQ MI
PER A=0 PER B=2 PER C=2 PER D=96
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 4.0933 CFS UNIT VOLUME = 0.9965 B = 526.28 P60 = 2.1400
AREA = 0.001037 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
UNIT PEAK = 0.11276 CFS UNIT VOLUME = 0.8838 B = 347.94 P60 = 2.1400
AREA = 0.000043 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=7 CODE=20

HYDROGRAPH FROM AREA DEV-A

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	1.1	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.5	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.30199 INCHES = 0.1326 ACRE-FEET
PEAK DISCHARGE RATE = 3.54 CFS AT 1.500 HOURS BASIN AREA = 0.0011 SQ. MI.

* BASIN B - 0.06 ACRES (AP-2)

COMPUTE NM HYD ID=8 HYD NO=DEV-B DA=0.000094 SQ MI
PER A=0 PER B=0 PER C=3 PER D=97
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.35998 CFS UNIT VOLUME = 0.9664 B = 526.28 P60 = 2.1400
AREA = 0.000091 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.108912HR TP = 0.133300HR K/TP RATIO = 0.817047 SHAPE CONSTANT, N = 4.373953
UNIT PEAK = 0.80258E-02CFS UNIT VOLUME = 0.8762 B = 379.38 P60 = 2.1400
AREA = 0.000003 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=8 CODE=20

HYDROGRAPH FROM AREA DEV-B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.1	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.0	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.31770 INCHES = 0.0116 ACRE-FEET
PEAK DISCHARGE RATE = 0.32 CFS AT 1.500 HOURS BASIN AREA = 0.0001 SQ. MI.

* BASIN C - 0.37 ACRES (AP-3)

COMPUTE NM HYD ID=9 HYD NO=DEV-C DA=0.000578 SQ MI
PER A=0 PER B=3 PER C=03 PER D=94
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 2.1451 CFS UNIT VOLUME = 0.9941 B = 526.28 P60 = 2.1400
AREA = 0.000543 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
UNIT PEAK = 0.90522E-01CFS UNIT VOLUME = 0.8726 B = 347.94 P60 = 2.1400
AREA = 0.000035 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=9 CODE=20

HYDROGRAPH FROM AREA DEV-C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.6	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.3	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.27905 INCHES = 0.0703 ACRE-FEET
PEAK DISCHARGE RATE = 1.89 CFS AT 1.500 HOURS BASIN AREA = 0.0006 SQ. MI.

* BASIN D - 0.05 ACRES (AP-5)

COMPUTE NM HYD ID=10 HYD NO=DEV-D DA=0.000078 SQ MI
PER A=0 PER B=0 PER C=0 PER D=100
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.30795 CFS UNIT VOLUME = 0.9610 B = 526.28 P60 = 2.1400
AREA = 0.000078 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=10 CODE=20

HYDROGRAPH FROM AREA DEV-D

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	0.1	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.0	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.34787 INCHES = 0.0098 ACRE-FEET
PEAK DISCHARGE RATE = 0.27 CFS AT 1.500 HOURS BASIN AREA = 0.0001 SQ. MI.

* BASIN E - 0.04 ACRES (AP-6)

COMPUTE NM HYD ID=11 HYD NO=DEV-E DA=0.000063 SQ MI
PER A=0 PER B=47 PER C=47 PER D=6
TP=0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.14924E-01CFS UNIT VOLUME = 0.8874 B = 526.28 P60 = 2.1400
AREA = 0.000004 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

K = 0.121284HR TP = 0.133300HR K/TP RATIO = 0.909858 SHAPE CONSTANT, N = 3.892482
UNIT PEAK = 0.15458 CFS UNIT VOLUME = 0.9118 B = 347.94 P60 = 2.1400
AREA = 0.000059 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033330

PRINT HYD ID=11 CODE=20

HYDROGRAPH FROM AREA DEV-E

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	0.667	0.0	1.333	0.0	2.000	0.0		

RUNOFF VOLUME = 1.26970 INCHES = 0.0043 ACRE-FEET
 PEAK DISCHARGE RATE = 0.15 CFS AT 1.533 HOURS BASIN AREA = 0.0001 SQ. MI.

* ADD HYDROGRAPHS *

ADD HYD ID=12 HYD NO=HYD-AP-2 ID I=6 ID II=8
 PRINT HYD ID=12 CODE=20

HYDROGRAPH FROM AREA HYD-AP-2

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	0.1	2.666	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.1	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.12236 INCHES = 0.0178 ACRE-FEET
 PEAK DISCHARGE RATE = 0.51 CFS AT 1.500 HOURS BASIN AREA = 0.0002 SQ. MI.

ADD HYD ID=13 HYD NO=HYD-AP-4.1 ID I=7 ID II=9
 PRINT HYD ID=13 CODE=20

HYDROGRAPH FROM AREA HYD-AP-4.1

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	1.6	2.666	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.8	3.333	0.0	4.666	0.0	5.999	0.0

RUNOFF VOLUME = 2.29365 INCHES = 0.2028 ACRE-FEET
 PEAK DISCHARGE RATE = 5.43 CFS AT 1.500 HOURS BASIN AREA = 0.0017 SQ. MI.

ADD HYD ID=14 HYD NO=HYD-AP-4 ID I=12 ID II=13
 PRINT HYD ID=14 CODE=20

HYDROGRAPH FROM AREA HYD-AP-4

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.333	1.8	2.666	0.1	4.000	0.0	5.333	0.0

0.667 0.0 2.000 0.9 3.333 0.0 4.666 0.0 5.999 0.0

RUNOFF VOLUME = 2.27883 INCHES = 0.2206 ACRE-FEET
PEAK DISCHARGE RATE = 5.95 CFS AT 1.500 HOURS BASIN AREA = 0.0018 SQ. MI.

ADD HYD ID=15 HYD NO=HYD-AP-6 ID I=5 ID II=11
PRINT HYD ID=15 CODE=20

HYDROGRAPH FROM AREA HYD-AP-6

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	0.667	0.0	1.333	0.1	2.000	0.1	2.666	0.0

RUNOFF VOLUME = 1.11383 INCHES = 0.0195 ACRE-FEET
PEAK DISCHARGE RATE = 0.68 CFS AT 1.533 HOURS BASIN AREA = 0.0003 SQ. MI.

* ROUTE DEVELOPED SITE THROUGH DETENTION POND AT AP-4 TO *
* 2-24 INCH SW CULVERTS. ALLOWABLE DISCHARGE IS 4.63 CFS/AC *
* LESS BASINS D AND E (FREE DISCHARGE) OR 5.41 CFS *

ROUTE RESERVOIR ID=16 HYD NO=POND.OUT INFLOW ID=13 CODE=10
OUT (CFS) STORAGE (AC-FT) ELEV (FT)
0.0 0 5203.00
0.05 0.0246 5204.00
0.05 0.0376 5204.55
3.00 0.0493 5205.00
5.48 0.0641 5205.30

* * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5203.00	0.000	0.00
0.33	0.00	5203.00	0.000	0.00
0.67	0.00	5203.00	0.000	0.00
1.00	0.29	5203.13	0.003	0.01
1.33	1.61	5203.97	0.024	0.05
1.67	3.07	5205.12	0.055	4.03
2.00	0.80	5204.69	0.041	0.98
2.33	0.26	5204.59	0.039	0.30
2.67	0.07	5204.55	0.038	0.08
3.00	0.04	5204.55	0.038	0.05
3.33	0.03	5204.55	0.038	0.05

3.67	0.02	5204.55	0.038	0.05
4.00	0.02	5204.55	0.038	0.05
4.33	0.02	5204.55	0.038	0.05
4.67	0.03	5204.55	0.038	0.05
5.00	0.03	5204.55	0.038	0.05
5.33	0.03	5204.55	0.038	0.05
5.67	0.03	5204.55	0.038	0.05
6.00	0.03	5204.55	0.038	0.05
6.33	0.00	5204.55	0.038	0.05
6.67	0.00	5204.55	0.038	0.05
7.00	0.00	5204.55	0.038	0.05
7.33	0.00	5204.55	0.038	0.05
7.67	0.00	5204.55	0.038	0.05
8.00	0.00	5203.98	0.024	0.05
8.33	0.00	5203.93	0.023	0.05
8.67	0.00	5203.88	0.022	0.04
9.00	0.00	5203.83	0.020	0.04
9.33	0.00	5203.79	0.019	0.04
9.67	0.00	5203.74	0.018	0.04
10.00	0.00	5203.70	0.017	0.04
10.33	0.00	5203.66	0.016	0.03
10.67	0.00	5203.63	0.015	0.03
11.00	0.00	5203.59	0.015	0.03
11.33	0.00	5203.56	0.014	0.03
11.67	0.00	5203.53	0.013	0.03
12.00	0.00	5203.50	0.012	0.03
12.33	0.00	5203.47	0.012	0.02
12.67	0.00	5203.45	0.011	0.02
13.00	0.00	5203.42	0.010	0.02
13.33	0.00	5203.40	0.010	0.02
13.67	0.00	5203.38	0.009	0.02
14.00	0.00	5203.36	0.009	0.02
14.33	0.00	5203.34	0.008	0.02
14.67	0.00	5203.32	0.008	0.02
15.00	0.00	5203.30	0.007	0.02
15.33	0.00	5203.29	0.007	0.01
15.67	0.00	5203.27	0.007	0.01
16.00	0.00	5203.26	0.006	0.01
16.33	0.00	5203.24	0.006	0.01
16.67	0.00	5203.23	0.006	0.01
17.00	0.00	5203.22	0.005	0.01
17.33	0.00	5203.20	0.005	0.01
17.66	0.00	5203.19	0.005	0.01
18.00	0.00	5203.18	0.005	0.01
18.33	0.00	5203.17	0.004	0.01
TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
18.66	0.00	5203.16	0.004	0.01

19.00	0.00	5203.15	0.004	0.01
19.33	0.00	5203.15	0.004	0.01
19.66	0.00	5203.14	0.003	0.01
20.00	0.00	5203.13	0.003	0.01
20.33	0.00	5203.12	0.003	0.01
20.66	0.00	5203.12	0.003	0.01
21.00	0.00	5203.11	0.003	0.01
21.33	0.00	5203.10	0.003	0.01
21.66	0.00	5203.10	0.002	0.00

PEAK DISCHARGE = 4.674 CFS - PEAK OCCURS AT HOUR 1.57
 MAXIMUM WATER SURFACE ELEVATION = 5205.202
 MAXIMUM STORAGE = 0.0593 AC-FT INCREMENTAL TIME= 0.033330HRS

PRINT HYD ID=16 CODE=20

HYDROGRAPH FROM AREA POND.OUT									
TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	6.666	0.1	13.332	0.0	19.998	0.0	26.664	0.0
0.667	0.0	7.333	0.1	13.999	0.0	20.665	0.0	27.331	0.0
1.333	0.0	7.999	0.0	14.665	0.0	21.331	0.0	27.997	0.0
2.000	1.0	8.666	0.0	15.332	0.0	21.998	0.0	28.664	0.0
2.666	0.1	9.332	0.0	15.998	0.0	22.664	0.0	29.330	0.0
3.333	0.1	9.999	0.0	16.665	0.0	23.331	0.0	29.997	0.0
4.000	0.1	10.666	0.0	17.332	0.0	23.998	0.0	30.664	0.0
4.666	0.1	11.332	0.0	17.998	0.0	24.664	0.0		
5.333	0.1	11.999	0.0	18.665	0.0	25.331	0.0		
5.999	0.1	12.665	0.0	19.331	0.0	25.997	0.0		

RUNOFF VOLUME = 2.29365 INCHES = 0.2028 ACRE-FEET
 PEAK DISCHARGE RATE = 4.67 CFS AT 1.567 HOURS BASIN AREA = 0.0017 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:12:53

DRAINAGE MASTERPLAN

OCTOBER 26, 2007

SUPPLEMENTAL INFORMATION

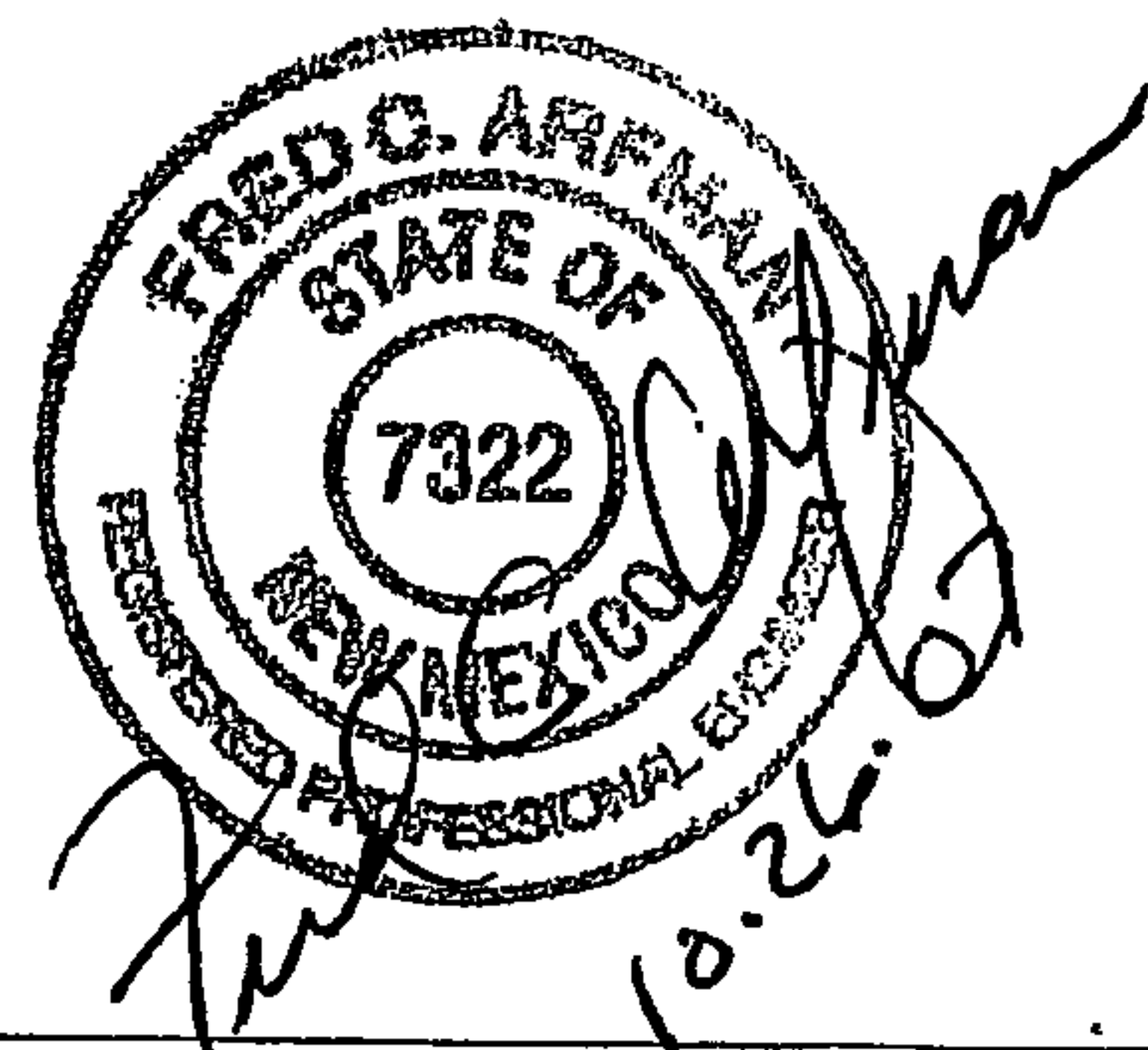
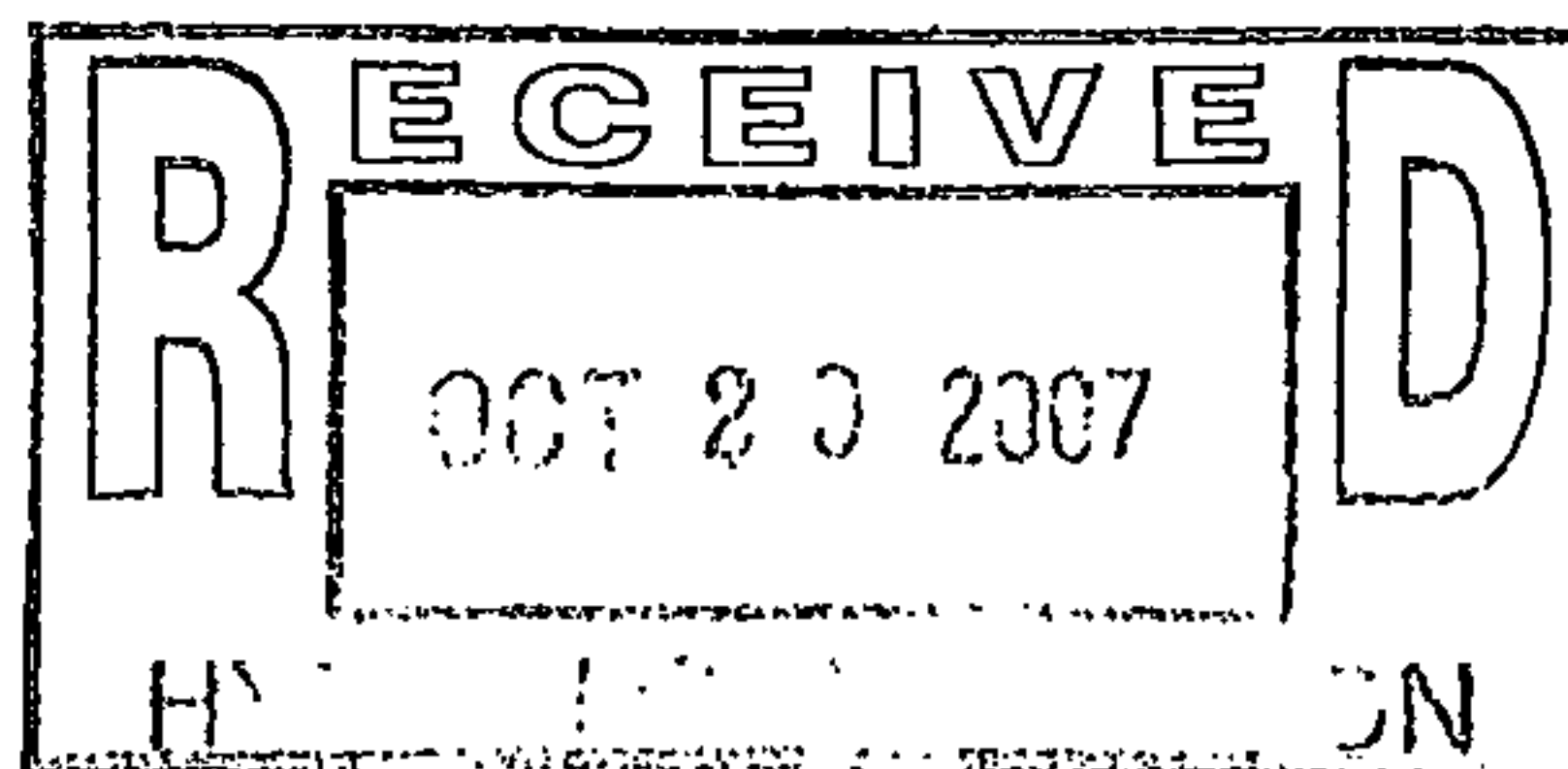
FOR

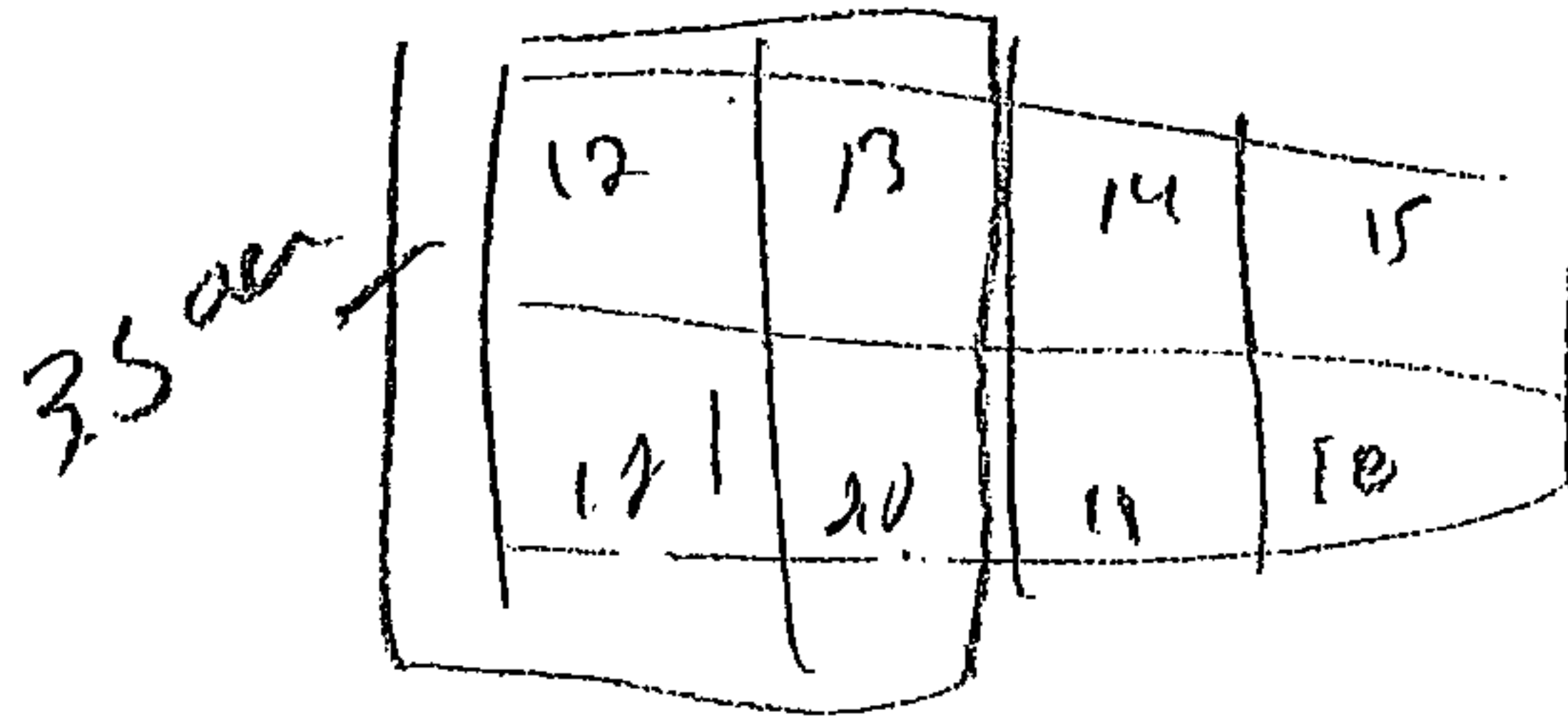
HOLLY PLACE COMMERCIAL PHASE II

BY



Project No. 1435.2





DRAINAGE ANALYSIS

7c

The overall referenced PROPERTY included in this analysis consists of HOLLY PLACE COMMERCIAL (Lots 14A, 18 and 19A = 3.5 acres) and an ADJACENT COMMERCIAL site (Lots 12, 13, 20 and 21 = 3.5 acres). The PROPERTY is located on the south side of Holly Avenue west of San Pedro Blvd. – Zone Atlas Page C-18. Paseo del Norte borders the PROPERTY to the south, developed commercial property to the east and west and Holly Ave. to the north. The existing site slopes at an average of 3% to the northwest. It has been previously developed and currently, the majority of the site surface consists of deteriorated asphalt and gravel.

Legal description: HOLLY PLACE COMMERCIAL: Lots 14A, 18 and 19A BLOCK 18, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES.

Legal description: ADJACENT COMMERCIAL: Lots 12, 13, 20 and 21 BLOCK 18, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES.

Development: Phase I of HOLLY PLACE COMMERCIAL (Discount Tire - Lot 18) is currently under construction. This submittal referenced as Phase II will develop Lot 14A. The final portion of the Holly Place Commercial property, Lot 19A will be developed as Phase III. The ADJACENT COMMERCIAL portion will be developed by others. The purpose of including the ADJACENT COMMERCIAL is to provide all necessary ponding for all referenced lots on Lot 14A thus removing all detention requirements from the remaining properties.

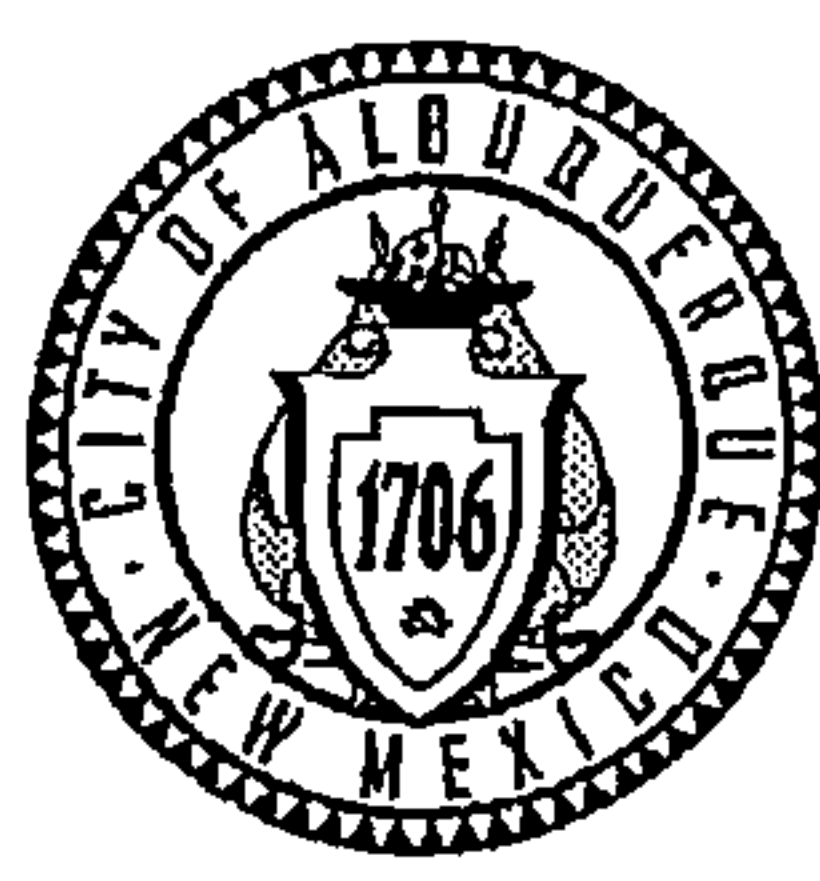
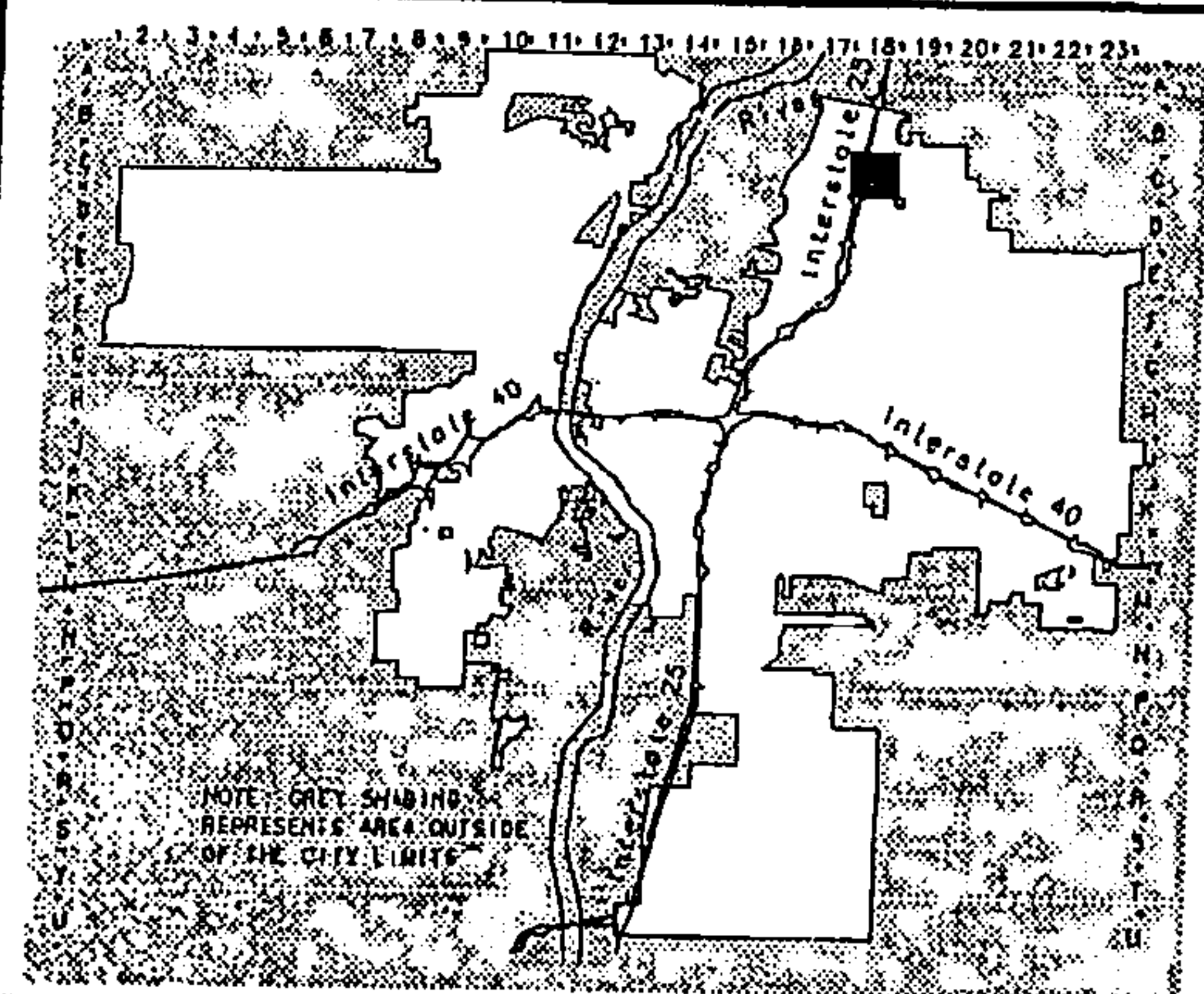
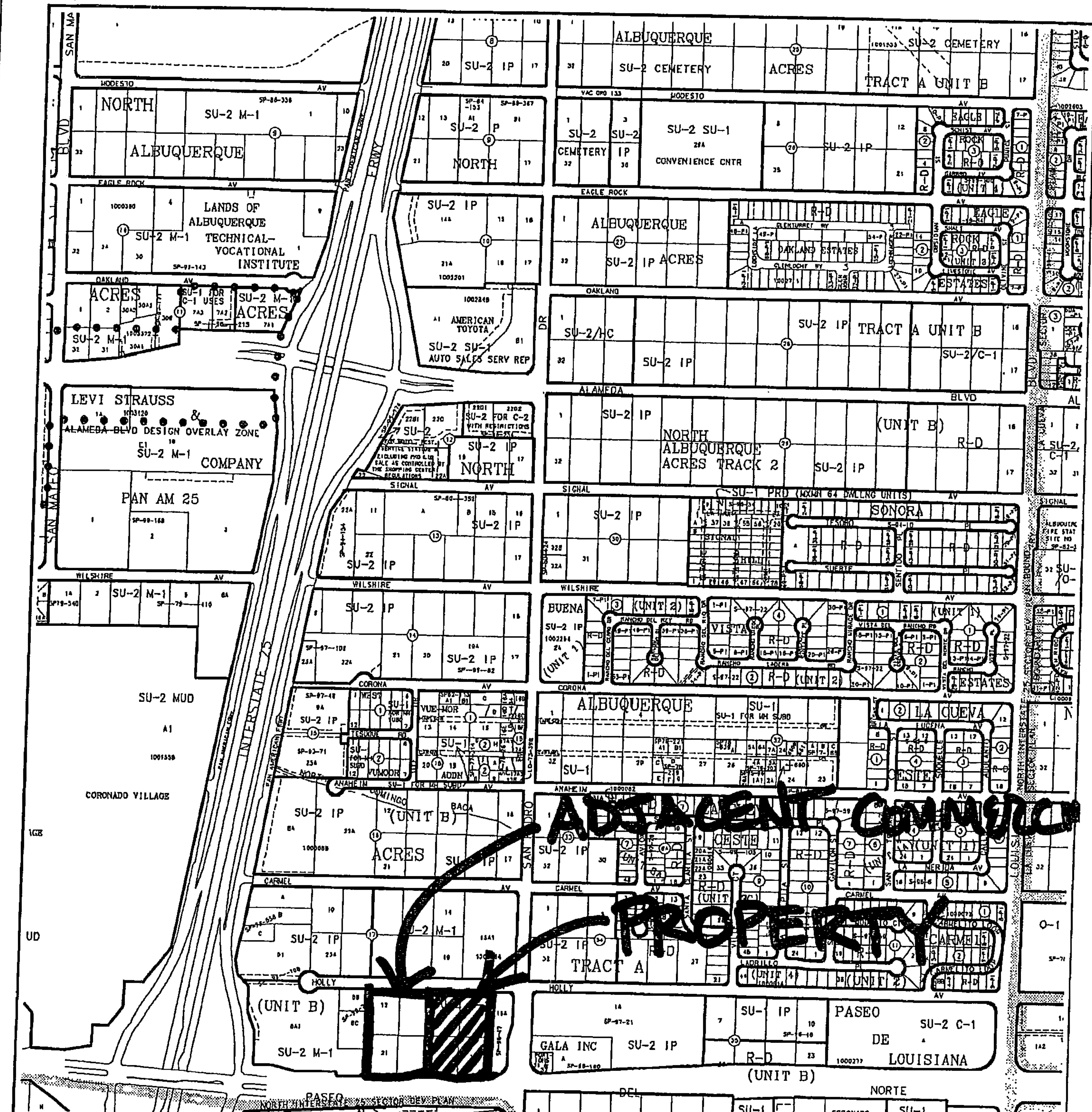
The intent of this plan is to show:

- * Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.
- * The extent of proposed site improvements, including buildings, walks and pavement.

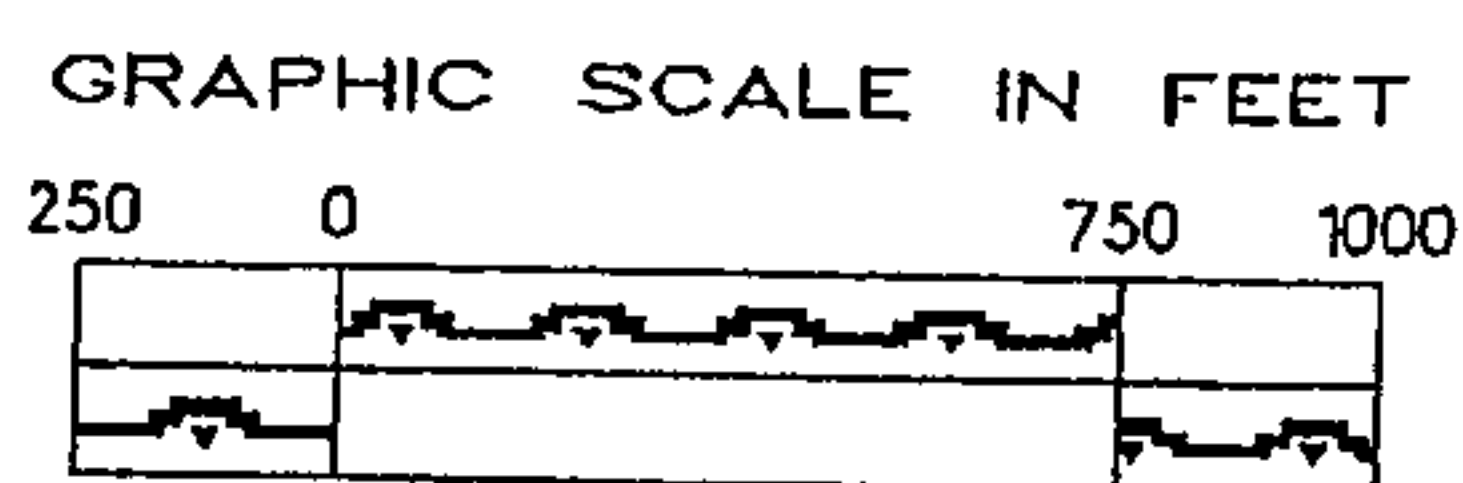
- * The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City of Albuquerque requirements for drainage management.
- * The relationship of on-site improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

Pertinent information:

- PROPERTY is located within Floodzone 'X' – 'Areas determined to be outside the 500-year floodplain'.



Albuquerque Geographic Information Systems
PLANNING DEPARTMENT
© Copyright 2004



Zone Atlas Page
C-18-Z
Map Amended through February 01, 2005

The PROPERTY was previously developed. Approximately 75% of the PROPERTY consists of deteriorated asphalt and gravel with the remainder hard-packed earth. Per the calculations, the pre-existing discharge is 32.7 cfs.

		EXISTING STATE	
Area of PROPERTY =	307534	SF	= 7.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.09 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 53626 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 32.7 cfs

TREATMENT

A = 0%

B = 0%

C = 25%

D = 75%

- SAD #224, developed for Holly Avenue and approved in 1998 states that flows from PROPERTY have free discharge to Holly Ave. based on assumed developed land treatments of 10%A, 15%B, 10%C, 65%D. Total allowable discharge rate is 29.5 cfs.

		ALLOWABLE DISCHARGE PER SAD #224	
Area of PROPERTY =	307534	SF	= 7.06 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.87 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 47847 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 29.5 cfs

TREATMENT

A = 10%

B = 15%

C = 10%

D = 65%

$$\frac{29.5 \text{ cfs}}{7.06 \text{ Ac}} = 4.18 \frac{\text{cfs}}{\text{Ac}}$$

- The fully developed PROPERTY (HOLLY PLACE COMMERCIAL and ADJACENT COMMERCIAL), estimating actual land treatment values of 0%A, 10%B, 5%C and 85%D will generate 33.2 cfs.

PROPOSED DEVELOPED STATE			
Area of PROPERTY =	307534	SF	= 7.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.16 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 55420 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 33.2 cfs

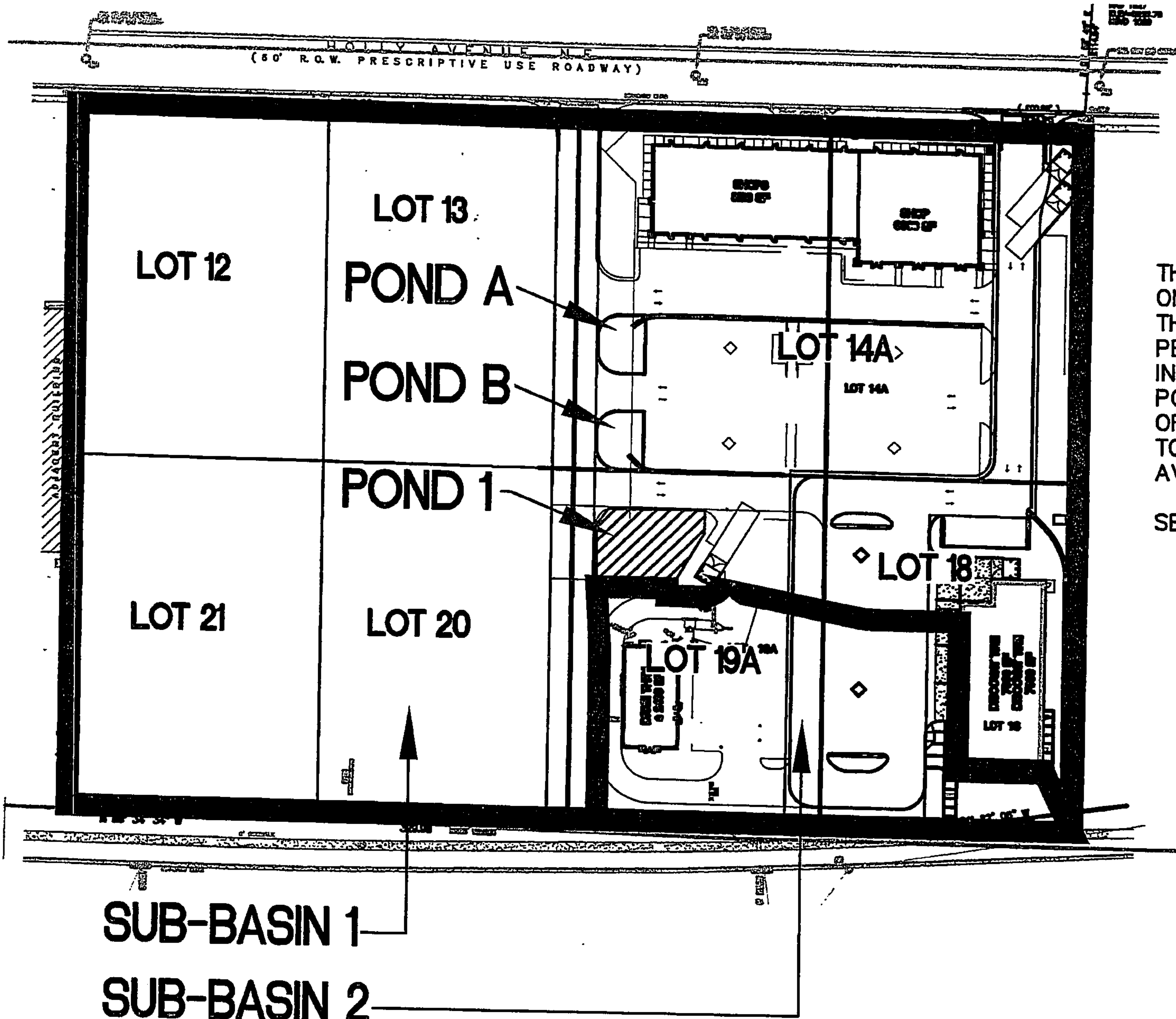
29.5

TREATMENT	
A =	0%
B =	10%
C =	5%
D =	85%

33.2 cfs (fully developed discharge) – 29.5 cfs (allowable discharge) = 3.7 cfs to be detained.

$$\frac{33.2^2}{7} = \frac{x}{1.8} \quad x =$$

HOLLY AVENUE N.E.
(60' R.O.W. PRESCRIPTIVE USE ROADWAY)



THE PONDS TO BE CONSTRUCTED ON LOT ARE SIZED TO DETAIN THE REQUIRED DISCHARGE TO PERMIT SUB-BASIN 1, WHICH INCLUDES LOTS 12, 13, 14A, A PORTION OF LOT 18, A PORTION OF LOT 19, LOT 20 AND LOT 21 TO FREE DISCHARGE TO HOLLY AVENUE N.E.

SEE ATTACHED CALCULATIONS

SUB-BASIN / POND EXHIBIT

PROPOSED SOLUTION:

The fully developed PROPERTY will consist of two (2) drainage sub-basins (see SUB-BASIN / POND EXHIBIT).

Sub-Basin 1, which includes Lots 12, 13, 14a, a portion of Lot 18, a portion of Lot 19, Lot 20 and Lot 21 will generate 28.7 cfs to free discharge to Holly Avenue N.E.. $\frac{28.7}{6.2} = 4.629$

SUB-BASIN 1			
Area of PROPERTY =	270894	SF	= 6.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.11 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 47610 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 28.7 cfs

TREATMENT

A = 0%

B = 10%

C = 10%

D = 80%

4.629
cfs/Ac

Sub-Basin 2, consisting of the majority of Lot 19A and a portion of Lot 18 will generate 4.0 cfs to be directed to the proposed detention ponds. The main pond will utilize a water quality inlet with a bleeder pipe to release the detained volume at a rate not to exceed 0.8 cfs in order to drain the pond within a 24-hour (max.) period.

SUB-BASIN 2			
Area of PROPERTY =	37243	SF	= 0.9 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 2.16 in.

Sub-basin Volume of Runoff (see formula above)

V360 = 6711 CF

Sub-basin Peak Discharge Rate: (see formula above)

Qp = 4.0 cfs

TREATMENT

A = 0%

B = 10%

C = 5%

D = 85%

The total discharge (100-year, 6-hour storm event) to Holly Ave. will be 28.7 cfs (Sub-Basin 1) + 0.8 cfs (Detention Pond controlled release) = 29.5 cfs = ALLOWABLE DISCHARGE RATE.

Per the attached hydrograph, the pond is required to detain a volume of 4891 cf.

Pond calculations show the main proposed pond, at a depth of 18”, has a volume of

POND VOLUME		
CONTOUR	AREA	VOL (CF)
17.5	2965	
18.0	3100	1516
19.0	3358	3229
		0
Pond Volume		4745

Each of the minor landscape island ponds has a volume of

Pond A	Pond B	Volume (each pond)	
CONTOUR	CONTOUR	AREA	VOL (CF)
16.5	17.5	355	
17.0	18.0	926	320
			0
Pond Volume		320	

For a total detained volume of $4745 + 320 + 320 = 5385 \text{ CF} > 4891 \text{ CF}$ (required) OK

The outlet pipe will be 6” dia. at 0.5% slope with a discharge rate of 0.57 cfs to 1.21 cfs (see attached pond discharge line calculations).

Hydrograph

CALCULATIONS: 1435 Holly Place Commercial - Phase II : ='DPM Calculations'!C6
HYDROGRAPH FOR SMALL WATERSHED
DPM SECTION 22-2 * PAGE A-13/14

Base time, t_B , for a small watershed hydrograph is,

$$t_B = (2.107 * E * AT / QP) - (0.25 * AD / AT)$$

Where

E	=	2.16 inches
AT	=	0.85 acres
AD	=	0.73 acres
QP	=	4.0 cfs

t_B	=	0.76 hours
-------	---	------------

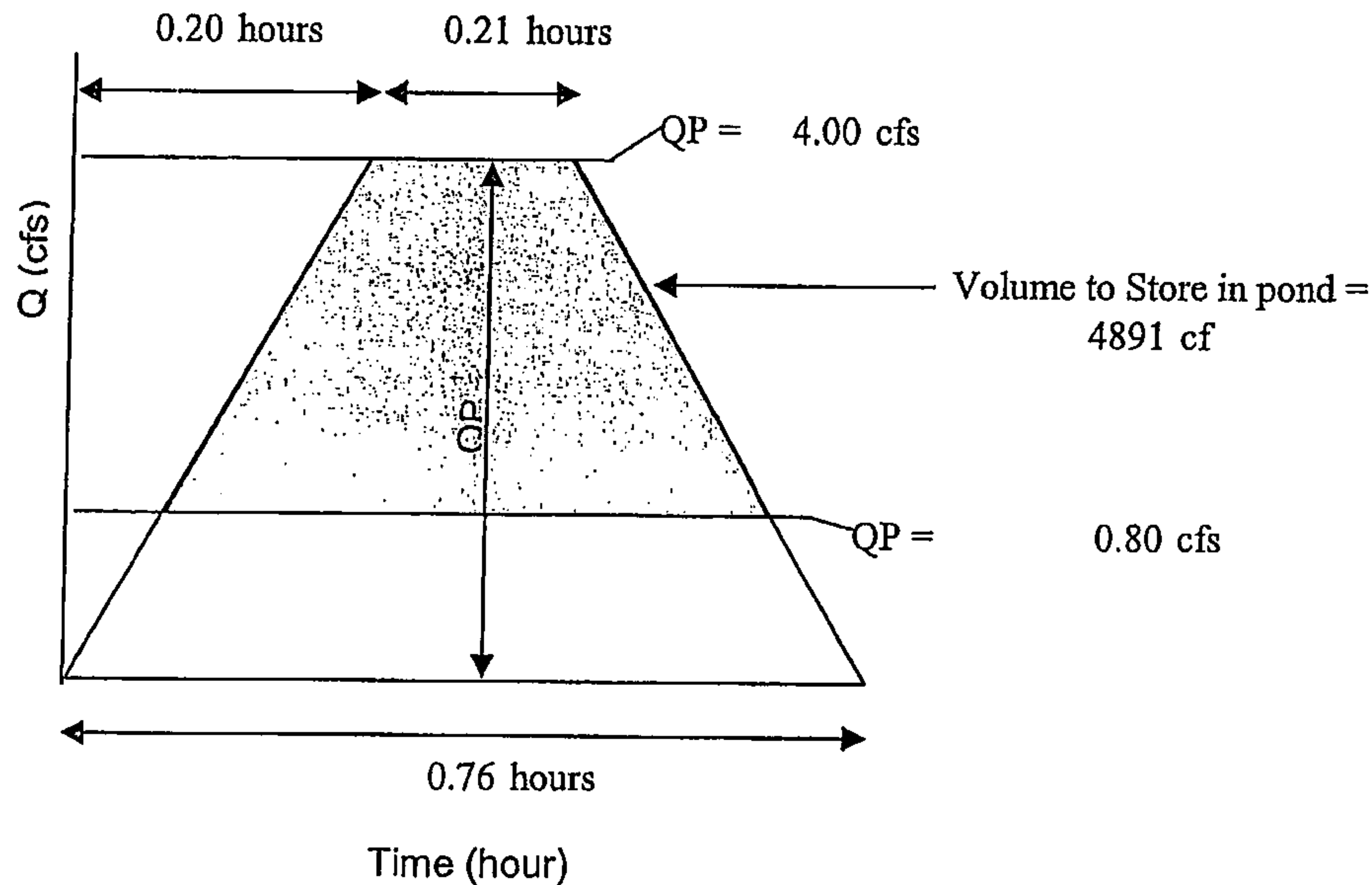
E is the excess precipitation in inches (from DPM TABLE A-8), QP is the peak flow, AD is the area (acres) of treatment D, and AT is the total area in acres. Using the time of concentration, t_C (hours), the time to peak in hours is:

$$t_P = (0.7 * t_C) + ((1.6 - (AD / AT)) / 12)$$

Where t_C = 0.20 hours

t_P = 0.20 hours

Continue the peak for $0.25 * AD / AT$ hours. When AD is zero, the hydrograph will be triangular. When AD is not zero, the hydrograph will be trapezoidal. see the graph below:



INFLOW / OUTFLOW HYDROGRAPH

6" DIA. CAPACITY (NO PRESSURE)
Worksheet for Circular Channel

Project Description	
Project File	c:\haestad\academic\fmw\1435.fm2
Worksheet	Pond Discharge - 6"
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data	
Mannings Coefficient	0.009
Channel Slope	0.005000 ft/ft
Diameter	6.00 in

Results		
Depth	0.50	ft
Discharge	0.57	cfs
Flow Area	0.20	ft ²
Wetted Perimeter	1.57	ft
Top Width	0.00	ft
Critical Depth	0.39	ft
Percent Full	100.00	
Critical Slope	0.005648	ft/ft
Velocity	2.92	ft/s
Velocity Head	0.13	ft
Specific Energy	FULL	ft
Froude Number	FULL	
Maximum Discharge	0.62	cfs
Full Flow Capacity	0.57	cfs
Full Flow Slope	0.005000	ft/ft

NON-PRESSURIZED
POND DISCHARGE
LINE CONDITION
 $Q = 0.57 \text{ cfs}$

6" DIA. POND DISCHARGE
Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\academic\fmw\1435.fm2
Worksheet	6" POND OUTLET PIPE
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Discharge

Input Data	
Pressure at 1	3.45 feet H2O
Pressure at 2	0.00 feet H2O
Elevation at 1	1.30 ft
Elevation at 2	0.00 ft
Length	258.00 ft
C Coefficient	150.0
Diameter	6.00 in

PRESSURIZED POND
DISCHARGE LINE

Results		
Discharge	1.2112	cfs
Headloss	4.75	ft
Energy Grade at 1	5.96	ft
Energy Grade at 2	1.21	ft
Hydraulic Grade at 1	4.75	ft
Hydraulic Grade at 2	0.00	ft
Flow Area	0.20	ft ²
Wetted Perimeter	1.57	ft
Velocity	6.17	ft/s
Velocity Head	0.59	ft
Friction Slope	0.018410	ft/ft

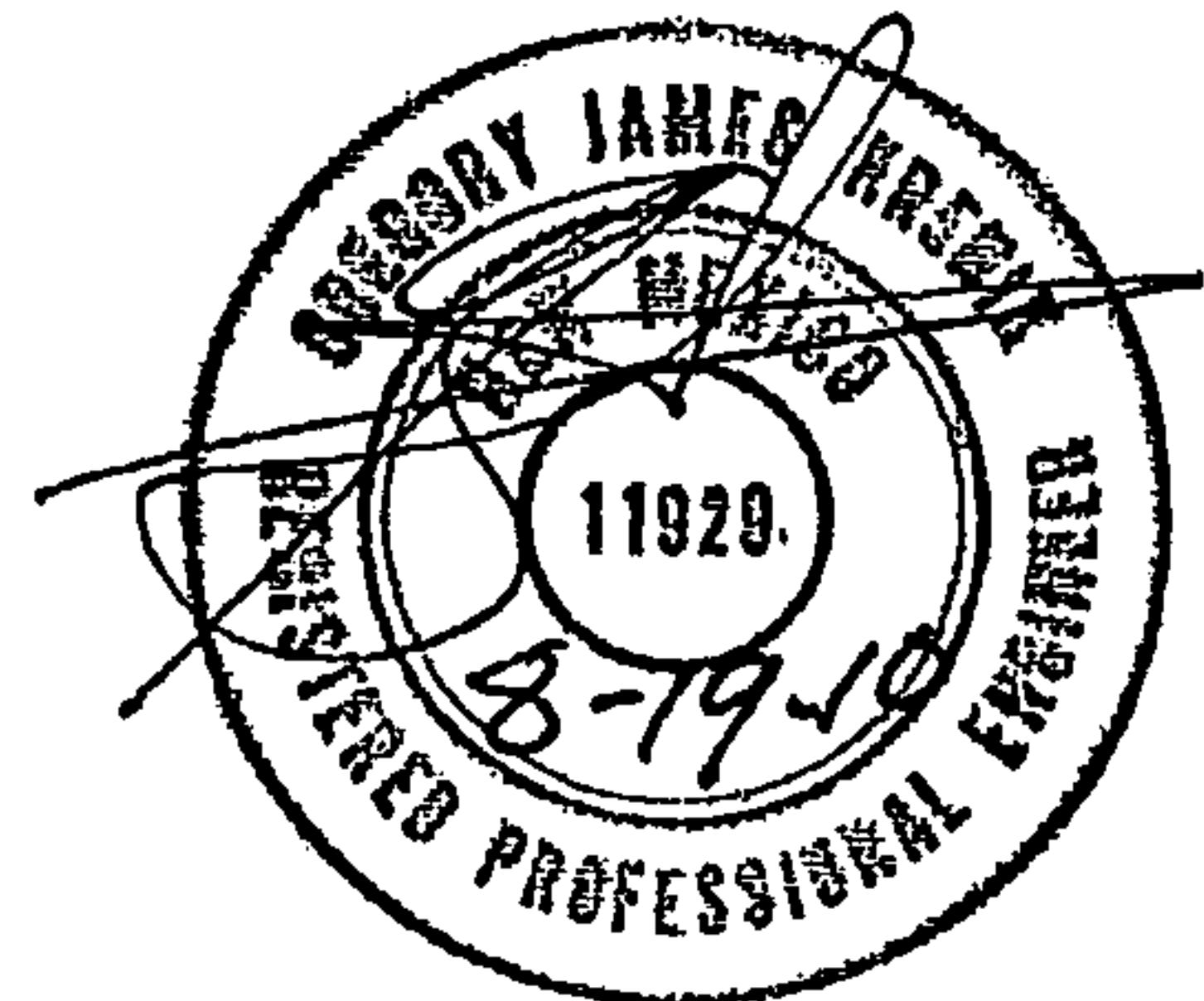
* POND @ 100% CAPACITY

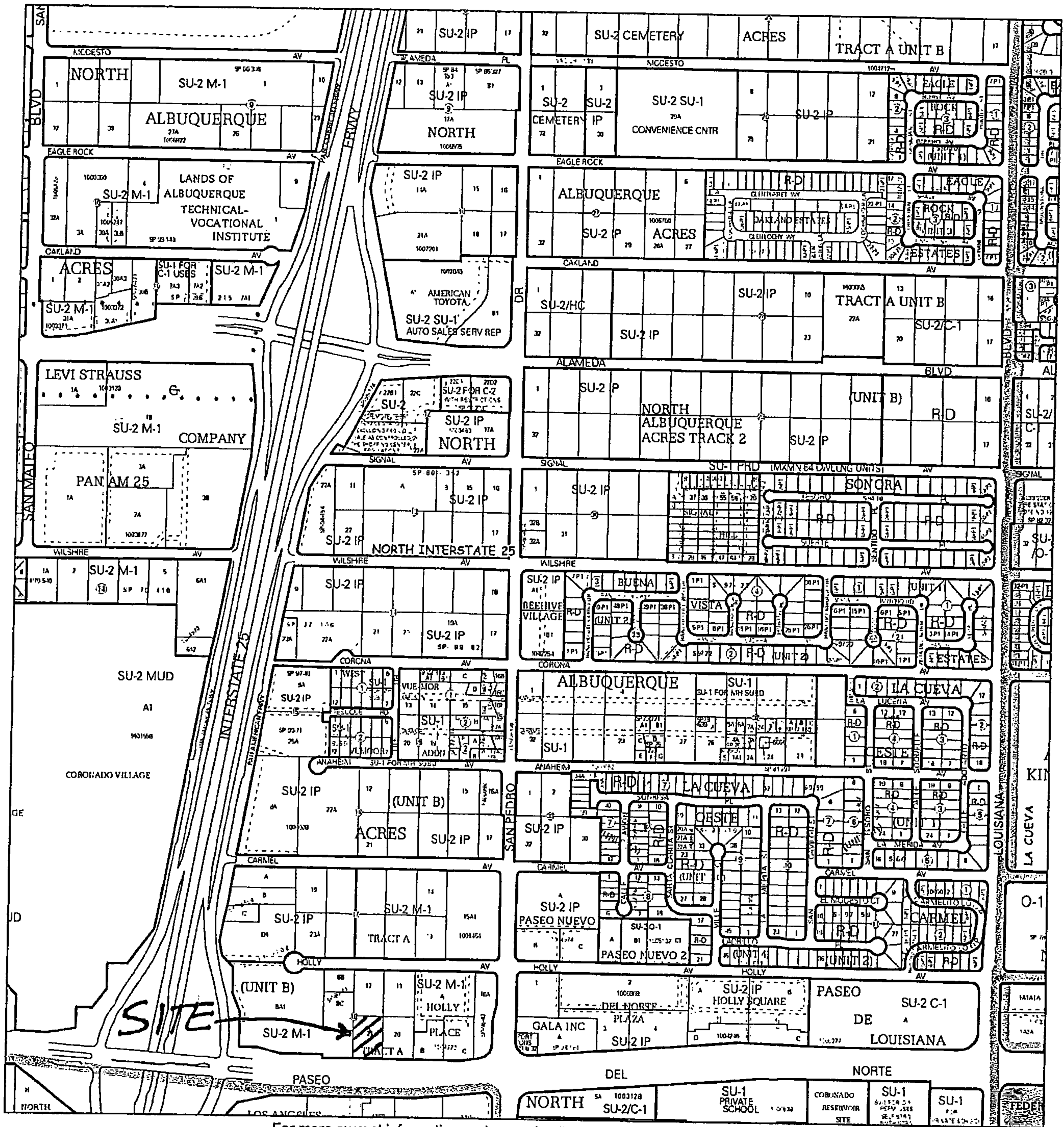
$$Q = 1.21 \text{ cfs}$$

DRAINAGE REPORT
for
AFTER HOURS PEDIATRICS

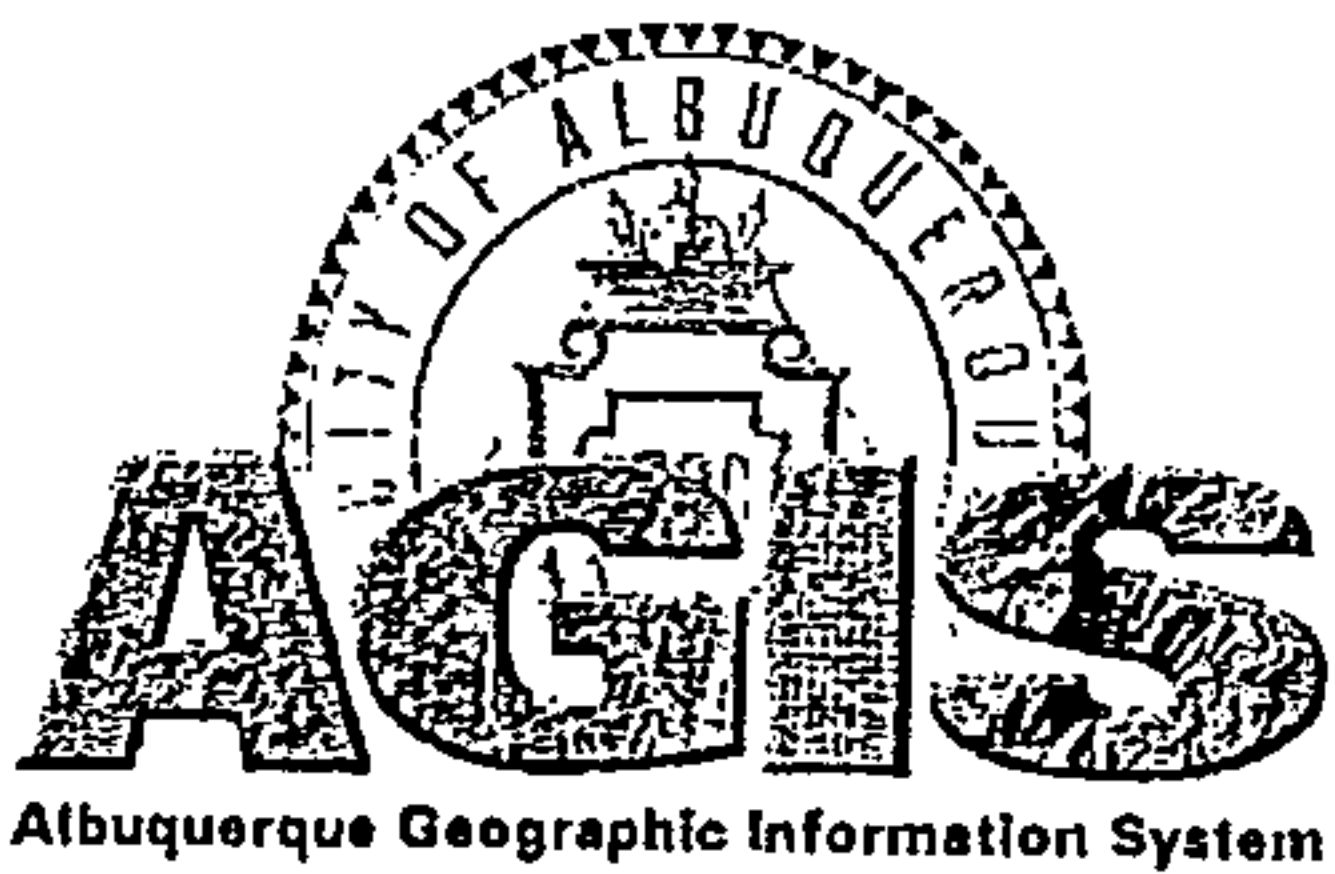
Prepared by
Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199
(505) 828-2200

August 2010

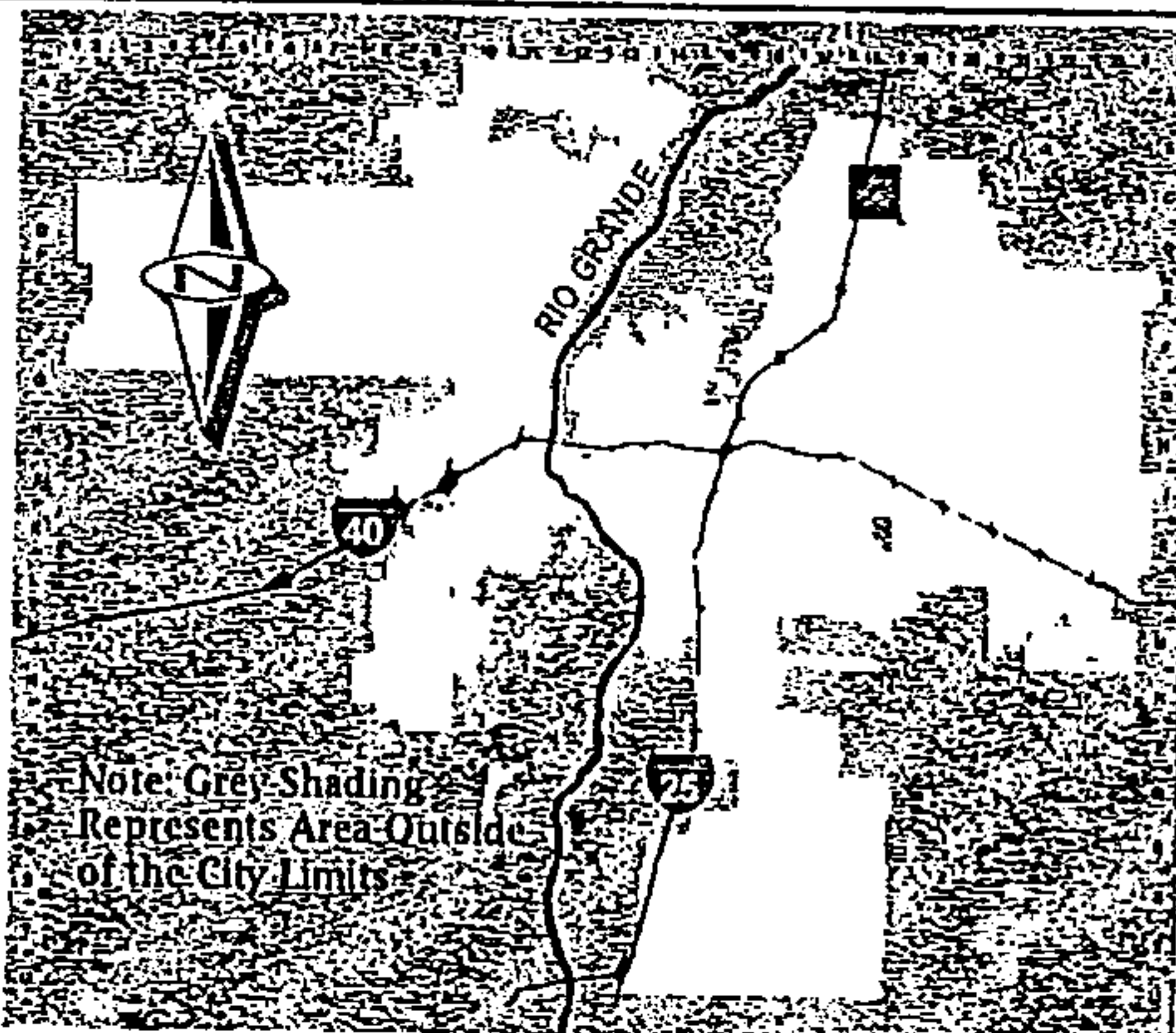




For more current information and more details visit: <http://www.cabq.gov/gis>



Map amended through: 2/4/2010



Note: Grey Shading
Represents Area Outside
of the City Limits

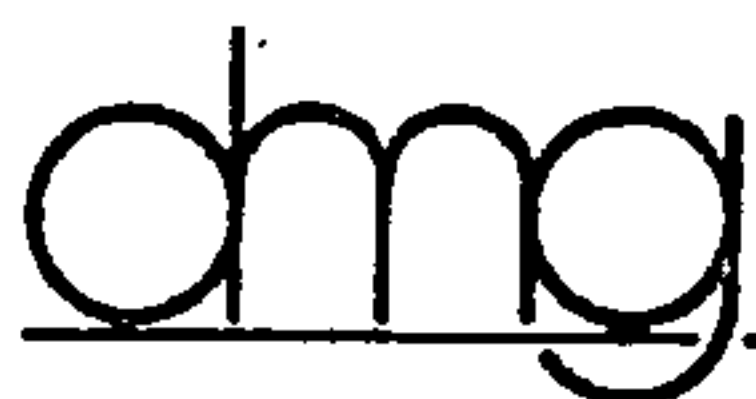
Zone Atlas Page:

C-18-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT AFTER HOURS PEDIATRICS
SUBJECT DRAINAGE CALCS
BY GJK DATE 8-5-10
CHECKED _____ DATE _____

SHEET 1 OF _____
REVISED 8-19-10

- SITE DOES NOT LIE IN A 100 YR FLOOD ZONE
 - SITE IS ALLOWED FREE DISCHARGE AS LONG AS IT FOLLOWS THE PARAMETERS OF THE "DRAINAGE AGREEMENT" RECORDED 2-19-08 FOR THESE PROPERTIES (APPENDIX A)
THIS SITE IS ALLOWED 4.6290 CFS/ACRE BASED ON THE DRAINAGE AGREEMENT.
 - SITE CONSISTS OF 0.8843 ACRES.
 - OFFSITE FLOWS FROM LOT 20 ARE ALLOWED TO PASS THROUGH THIS SITE. CURRENTLY THE LOT IS UNDEVELOPED BUT BOTH UNDEVELOPED AND DEVELOPED FLOWS ARE ALLOWED TO PASS THROUGH THIS SITE.
 - RUNOFF DISCHARGE WILL BE ACROSS LOT 12 VIA A TEMPORARILY ASPHALT CHANNEL WHERE IT WILL DISCHARGE TO HOLLY AVE BY WAY OF FOUR SINK-CULVERTS.
 - THERE IS AN OFFSITE AREA OF PAVED DEL NORTE ROW THAT DRAINS INTO OUR SITE IT CONSISTS OF A STRIP 150' LONG BY 18' WIDE FOR AN AREA OF 0.0620 AC.
 - DETERMINE RUNOFF
 - $P_1 = 2.1011$
 - $P_6 = 2.4511$
 - $P_{24} = 2.8511$
 - TOTAL AREA OF SITE
 - $= 0.8843$
- SITE LANDSCAPING = 0.1793 AC = 0.08965 AC 'B' + 0.08965 AC 'C'
REMAINING SITE AREA = 0.7050 AC TYPE 'D'
- TOTAL 'B' = 0.08965 AC = 10.14 %
'C' = 0.08965 AC = 10.14 %
'D' = 0.7050 AC = 79.72 %
- FROM AH4110 OUTPUT SHEETS 4-7
 $Q = 3.99 \text{ CFS}$
- PER THE DRAINAGE AGREEMENT
 - $Q = 0.8843 \text{ AC} \times 4.6290 \text{ CFS/AC}$
 $= 4.09 \text{ CFS} > 3.99 \text{ CFS} \text{ OK}$



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT AFTER HOURS PEDIATRICS
SUBJECT DRAINAGE CALCS
BY GSK DATE 8-5-10
CHECKED _____ DATE _____
SHEET 2 OF _____
REVISED 8-19-10

$$PDN ROW = 0.0620 AC \quad 100\% "C"$$

FROM AHYMO OUTPUT SHEETS 4-7

$$Q = 0.22 CFS$$

- WE ASSUME THE RUNOFF FROM THE PDN ROW IS ALLOWED TO PASS THROUGH THE SITE WITHOUT PONDING.

TOTAL Q THROUGH LOT 21

$$Q = 3.99 + 0.22$$

$$= 4.21 CFS$$

ASSUME LOT 20 RUNOFF IS THE SAME AS LOT 21.

TOTAL Q TO CHANNEL ACROSS LOT 12 IS

$$Q = 4.21 \times 2 = 8.42 CFS$$

- DETERMINE THE FLOW AT ROOF DRAINS

THE ROOF WILL BE DIVIDED INTO 9 BASINS

FROM AHYMO OUTPUT SHEETS 4-7

$$Q = 0.87 CFS \text{ FOR ENTIRE ROOF}$$

FIND EACH ROOF BASIN BASED ON PERCENTAGE

ROOF BASIN	% OF AREA	Q CFS	
1	3.45	0.03	] DRAIN TO SWALE
2	6.90	0.06	
3	14.94	0.13	
4	8.04	0.07	
5	36.78	0.32	
6	10.34	0.09	
7	6.90	0.06	] DRAIN TO PARKING LOT
8	5.75	0.05	
9	6.90	0.06	
		0.87 CFS	

- DETERMINE FLOW IN SWALE AROUND BUILDING

$$BLDG AREA = 6672 SF \quad \text{TYPE 'D'}$$

$$PDN AREA = 2700 SF \quad \text{TYPE 'C'}$$

$$PVM PAD AREA = 36 SF \quad \text{TYPE 'D'}$$

$$LANDSCAPE AREA = 4713 SF \quad 50\% 'B' + 50\% 'C'$$

$$TOTAL = 14,121 SF$$

$$= 0.3242 AC$$



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT AFTER HOURS PEDIATRICS
SUBJECT DRAINAGE CALCS
BY GSK DATE 8-5-10
CHECKED _____ DATE _____
SHEET 3 OF _____

REVISED 8-19-10

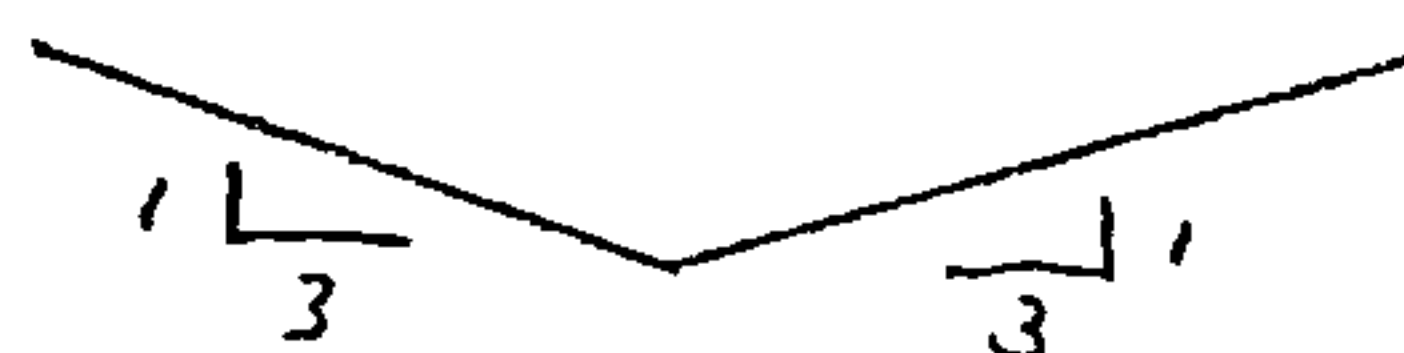
TOTAL $B' = 16.61\%$
 $C' = 35.73\%$
 $D = 47.66\%$

FROM HYMO OUTPUT SHEETS 4-7

$Q = 1.29 \text{ cfs}$

• SIZE SWALE

$d = 0.55'$
 $WP = 3.4785$
 $A = 0.9075$
 $V = 1.43 \text{ F/S}$
 $Q = 1.30 \text{ cfs} \approx 1.29 \text{ cfs}$
 $d + V^2/2g = 0.58$

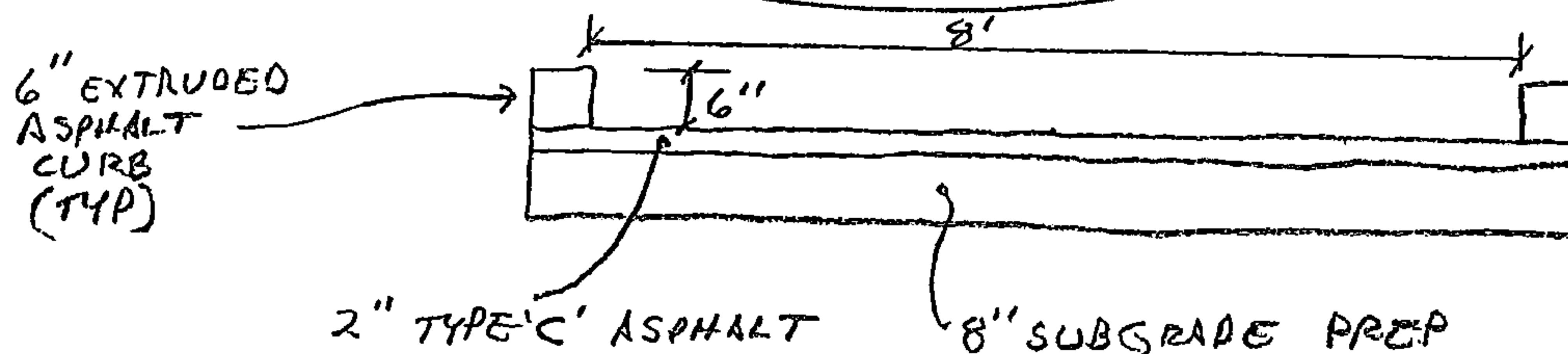


$S = 0.5\%$
 $n = 0.03$

MINIMUM DEPTH OF SWALE TO BE 0.6'

• DETERMINE CHANNEL ACROSS LOT 12

WORST CASE $Q = 8.42 \text{ cfs}$ FULLY DEVELOPED LOTS 20+21



• DETERMINE CHANNEL OPENING + WIDTH

$Q = 2.95 L H^{1.5}$

$H = 0.5$

$Q = 8.42 \text{ cfs}$

$L = 8.07'$

USE 10'

$S = 1.0\%$ $n = 0.017$

$d = 0.29$

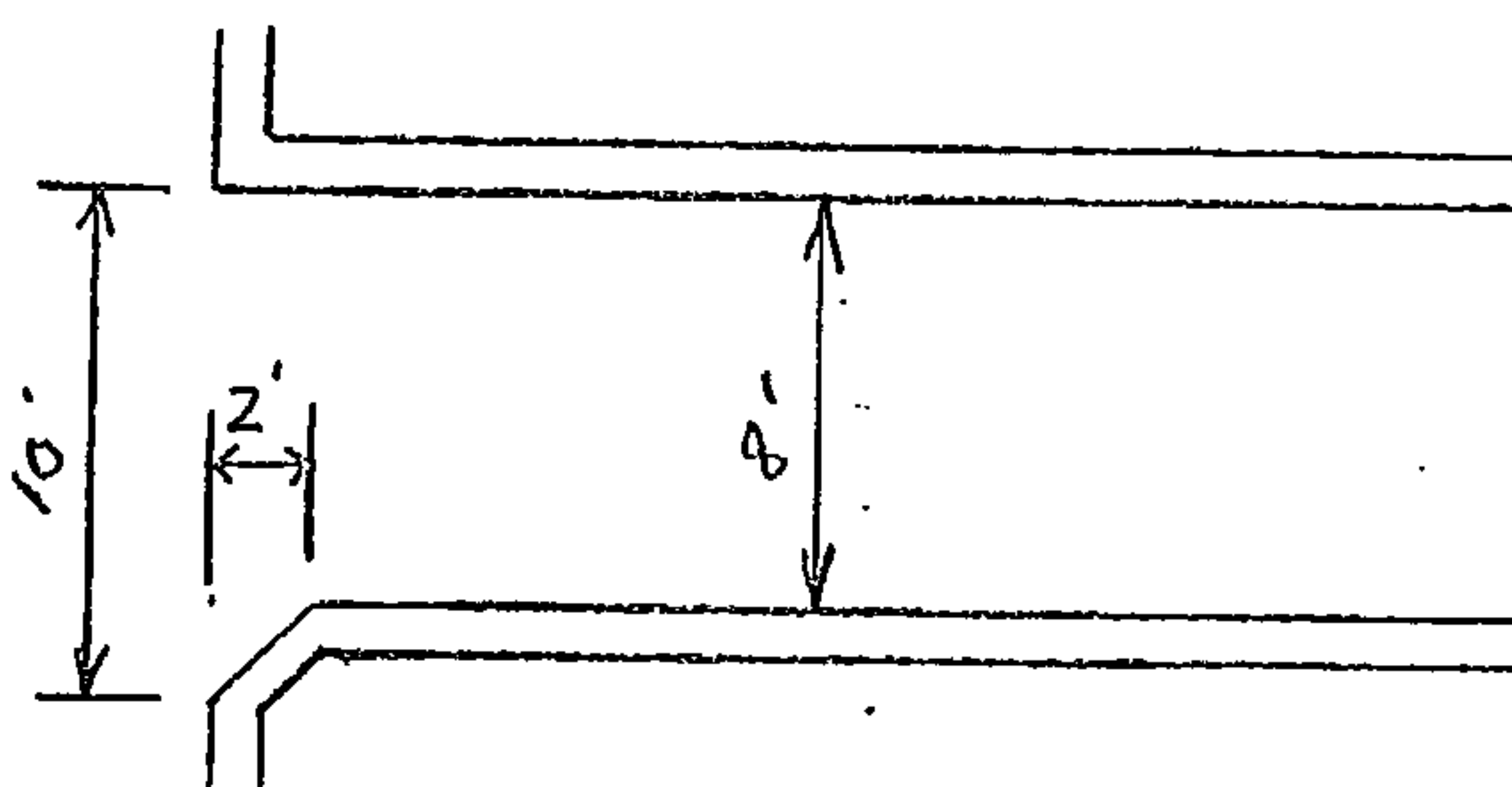
$WP = 8.58$

$A = 2.32$

$V = 3.66 \text{ F/S}$

$Q = 8.49 \text{ cfs} \approx 8.42 \text{ cfs}$

$d + V^2/2g = 0.5 = 0.5 \text{ cfs}$



• CHANNEL WILL TERMINATE AT FOUR NEW 2' SINK CULVERTS AT HOLLY AVE NE.

```
START                TIME=0.0
***** HYDROGRAPH FOR PEDIATRIC CLINIC - PASEO DEL NORTE
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.10 IN RAIN SIX=2.45 IN
                     RAIN DAY=2.85 IN DT=0.03333 HR

***** SITE ONLY
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.001382 SQ MI
                     PER A=0 B=10.14 C=10.14 D=79.72
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** ROOF AREA ONLY
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.000275 SQ MI
                     PER A=0 B=0 C=0 D=100
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** ROOF AREA WITH PDN ROW AND SWALE AREA
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.000507 SQ MI
                     PER A=0 B=16.61 C=35.73 D=47.66
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
***** PDN ROW ONLY
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.000097 SQ MI
                     PER A=0 B=0 C=100 D=0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
FINISH
```

AHYMO PROGRAM (AHYMO 97) -

- Version: 1997.02d

RUN DATE (MON/DAY/YR) = 08/19/2010

START TIME (HR:MIN:SEC) = 14:30:27

USER NO.= AHYMO-I-9702dGoodwinM-AH

INPUT FILE = pedclin.dat

START

TIME=0.0

***** HYDROGRAPH FOR PEDIATRIC CLINIC - PASEO DEL NORTE

RAINFALL

TYPE=1 RAIN QUARTER=0.0 IN

RAIN ONE=2.10 IN RAIN SIX=2.45 IN

RAIN DAY=2.85 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK

AT 1.40 HR.

DT = .033330 HOURS			END TIME = 5.999400 HOURS			
.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0161	.0181	.0202	.0223	.0244
.0267	.0290	.0314	.0338	.0364	.0390	.0417
.0445	.0475	.0505	.0537	.0570	.0605	.0641
.0679	.0720	.0763	.0821	.0883	.0949	.1091
.1410	.1900	.2605	.3566	.4830	.6441	.8447
1.0895	1.3168	1.4117	1.4918	1.5631	1.6279	1.6876
1.7430	1.7948	1.8433	1.8890	1.9321	1.9728	2.0114
2.0479	2.0825	2.1153	2.1465	2.1761	2.1829	2.1892
2.1952	2.2009	2.2063	2.2115	2.2165	2.2213	2.2259
2.2304	2.2347	2.2388	2.2429	2.2468	2.2506	2.2543
2.2580	2.2615	2.2649	2.2683	2.2716	2.2748	2.2779
2.2810	2.2840	2.2869	2.2898	2.2927	2.2955	2.2982
2.3009	2.3035	2.3061	2.3087	2.3112	2.3137	2.3161
2.3185	2.3209	2.3232	2.3255	2.3278	2.3300	2.3322
2.3344	2.3365	2.3387	2.3408	2.3428	2.3449	2.3469
2.3489	2.3509	2.3528	2.3547	2.3567	2.3585	2.3604
2.3623	2.3641	2.3659	2.3677	2.3695	2.3712	2.3729
2.3747	2.3764	2.3781	2.3797	2.3814	2.3830	2.3847
2.3863	2.3879	2.3895	2.3910	2.3926	2.3942	2.3957
2.3972	2.3987	2.4002	2.4017	2.4032	2.4046	2.4061
2.4075	2.4090	2.4104	2.4118	2.4132	2.4146	2.4160
2.4173	2.4187	2.4200	2.4214	2.4227	2.4240	2.4254
2.4267	2.4280	2.4292	2.4305	2.4318	2.4331	2.4343
2.4356	2.4368	2.4380	2.4393	2.4405	2.4417	2.4429
2.4441	2.4453	2.4465	2.4476	2.4488	2.4500	

***** SITE ONLY

COMPUTE NM HYD

ID=1 HYD NO=101.1 AREA=0.001382 SQ MI

PER A=0 B=10.14 C=10.14 D=79.72

TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420

UNIT PEAK = 4.3497 CFS UNIT VOLUME = .9969 B = 526.28
P60 = 2.1000

AREA = .001102 SQ MI IA = .10000 INCHES INF = .04000 INCHES
PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

K = .120817HR TP = .133300HR K/TP RATIO = .906356 SHAPE
CONSTANT, N = 3.908546

UNIT PEAK = .73384 CFS UNIT VOLUME = .9820 B = 349.03
P60 = 2.1000

AREA = .000280 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES
PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =

6

.033330

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.97232 INCHES = .1454 ACRE-FEET
PEAK DISCHARGE RATE = 3.99 CFS AT 1.500 HOURS BASIN AREA = .0014
SQ. MI.

***** ROOF AREA ONLY

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000275 SQ MI
PER A=0 B=0 C=0 D=100
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 1.0857 CFS UNIT VOLUME = .9881 B = 526.28
P60 = 2.1000
AREA = .000275 SQ MI IA = .10000 INCHES INF = .04000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 2.21516 INCHES = .0325 ACRE-FEET
PEAK DISCHARGE RATE = .87 CFS AT 1.500 HOURS BASIN AREA = .0003
SQ. MI.

***** ROOF AREA WITH PDN ROW AND SWALE AREA

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000507 SQ MI
PER A=0 B=16.61 C=35.73 D=47.66
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = .95399 CFS UNIT VOLUME = .9881 B = 526.28
P60 = 2.1000
AREA = .000242 SQ MI IA = .10000 INCHES INF = .04000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

K = .116304HR TP = .133300HR K/TP RATIO = .872495 SHAPE
CONSTANT, N = 4.070878
UNIT PEAK = .71640 CFS UNIT VOLUME = .9824 B = 359.87
P60 = 2.1000
AREA = .000265 SQ MI IA = .39760 INCHES INF = .96329 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD

ID=1 CODE=1

7

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.62415 INCHES = .0439 ACRE-FEET
PEAK DISCHARGE RATE = 1.29 CFS AT 1.500 HOURS BASIN AREA = .0005
SQ. MI.

***** PDN ROW ONLY

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.000097 SQ MI
PER A=0 B=0 C=100 D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .108461HR TP = .133300HR K/TP RATIO = .813662 SHAPE
CONSTANT, N = 4.394154
UNIT PEAK = .27699 CFS UNIT VOLUME = .9513 B = 380.65
P60 = 2.1000
AREA = .000097 SQ MI IA = .35000 INCHES INF = .83000 INCHES
PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

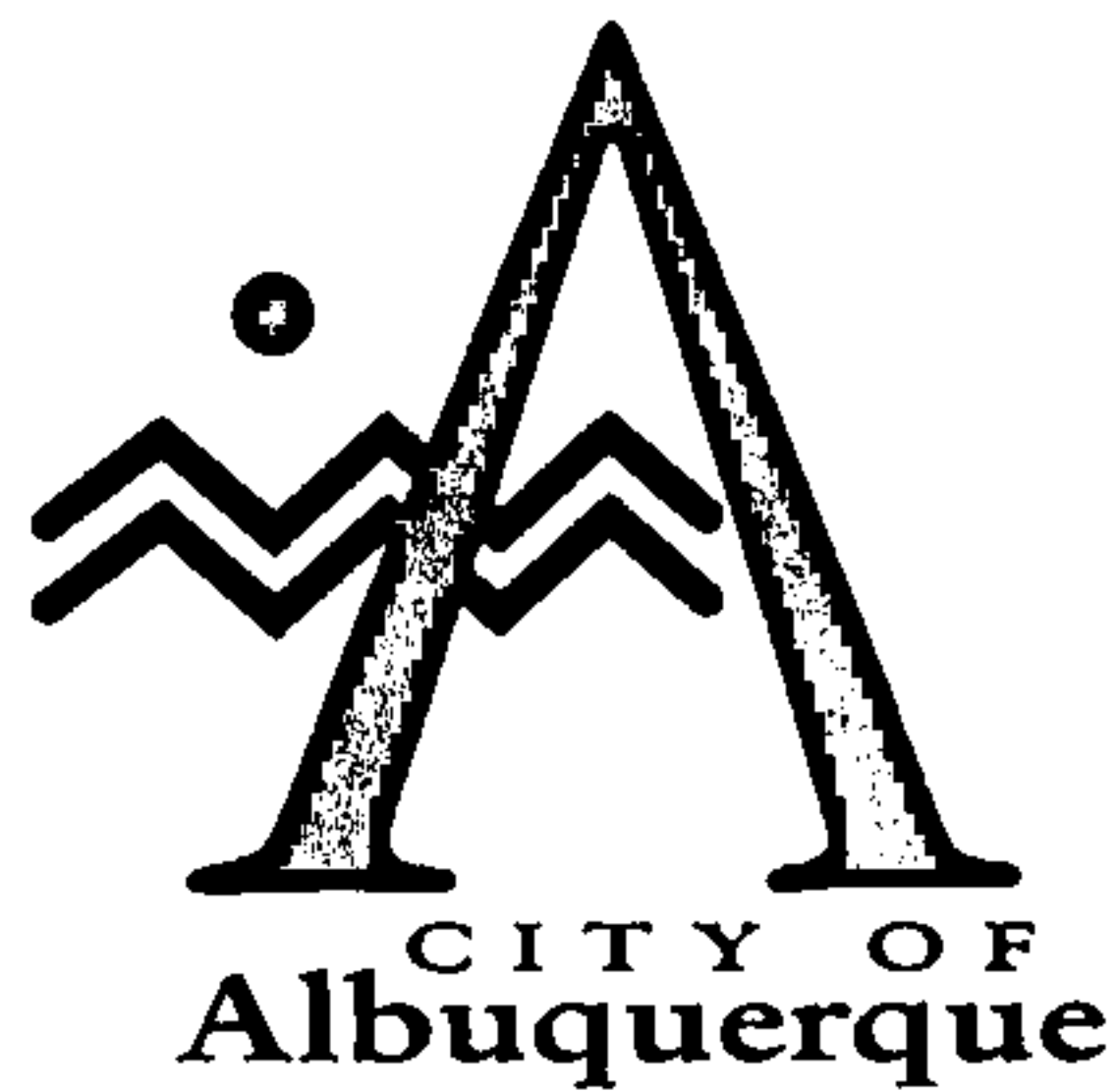
RUNOFF VOLUME = 1.21559 INCHES = .0063 ACRE-FEET
PEAK DISCHARGE RATE = .22 CFS AT 1.500 HOURS BASIN AREA = .0001
SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:30:27

EXHIBITS



October 16, 1998

10/16
was
discussed
w/ Fred
& Gary

Gary Bittner, P.E.
Jeff Mortensen & Associates
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

**RE: CALIBERS SHOOTING RANGE, NORTH ALBUQUERQUE ACRES (C18-D44).
GRADING AND DRAINAGE PLAN FOR GRADING PERMIT AND PAVING
PERMIT APPROVALS. ENGINEER'S STAMP DATED AUGUST 17, 1998.**

Dear Mr. Bittner:

Based on the information provided on your August 18, 1998 submittal, City Hydrology has the following comments;

Site is SU-2 Zoning. Have Planning confirm whether or not a Site Plan is required.

The Notice To Proceed for SAD 224 was given on October 6, 1998 with a construction period of one year for its various segments; therefore, it will be necessary to pond the 100-year storm until the Holly Avenue improvements are made.

Please furnish a second set of plans in order to process the SO#19 Permit for the sidewalk culverts. Add the standard SO#19 signature block to the plan.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Andrew Garcia
File

100-75
Site
SC2

Re Leahurst
Consent to start
Mar 10/19
SAD 224

Good for You, Albuquerque!





October 16, 1998

Gary Bittner, P.E.
Jeff Mortensen & Associates
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

**RE: CALIBERS SHOOTING RANGE, NORTH ALBUQUERQUE ACRES (C18-D44).
GRADING AND DRAINAGE PLAN FOR GRADING PERMIT AND PAVING
PERMIT APPROVALS. ENGINEER'S STAMP DATED AUGUST 17, 1998.**

Dear Mr. Bittner:

Based on the information provided on your August 18, 1998 submittal, the above referenced project is approved for Grading Permit and for Paving Permit.

Please furnish a second set of plans in order to process the SO#19 Permit for the sidewalk culvert. A copy of this approved plan must be on hand when applying for the Excavation Permit.

The Notice To Proceed for SAD 224 was given on October 6, 1998.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

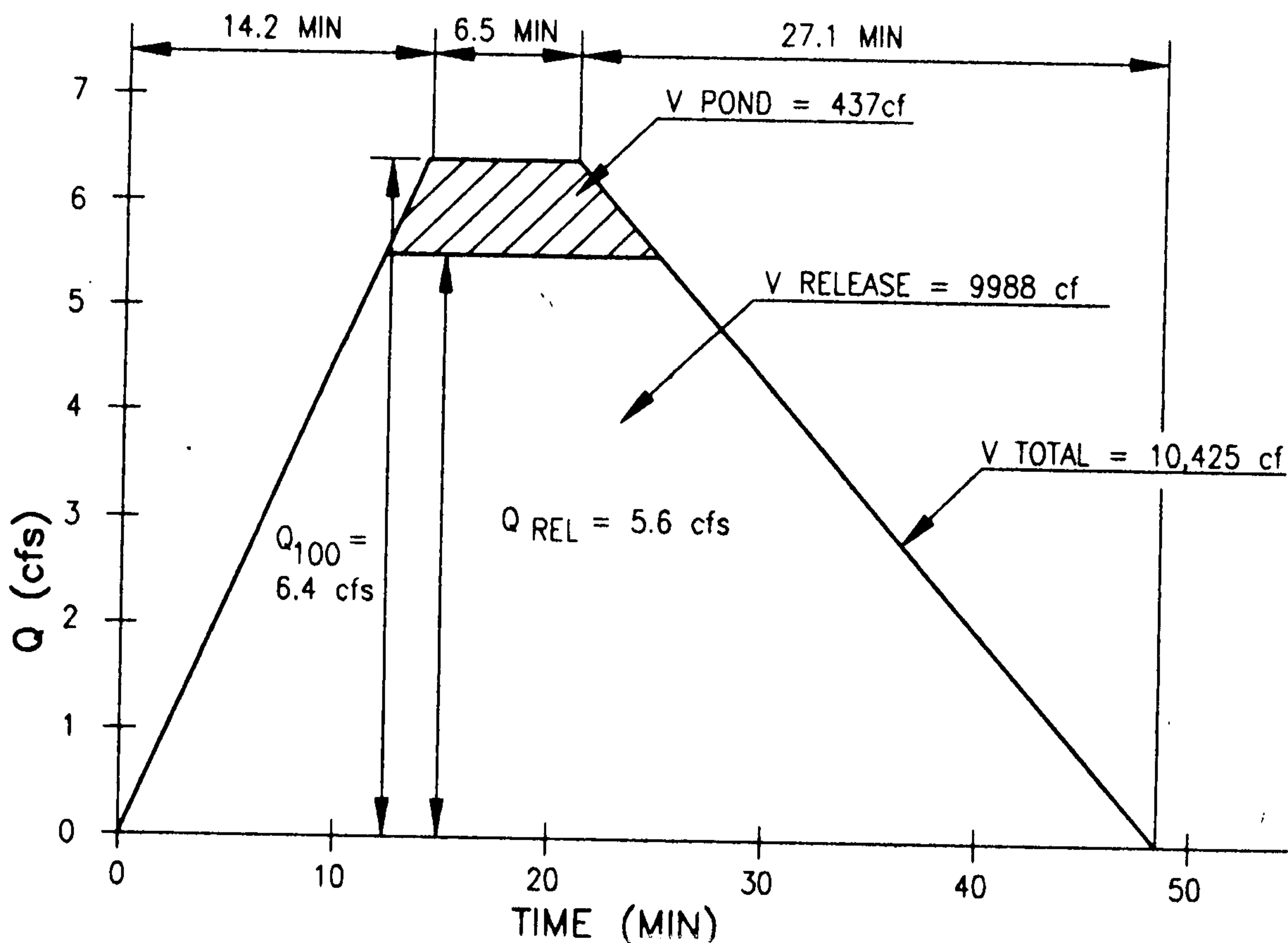
c: Andrew Garcia
File

Good for You, Albuquerque!



BE ROUTED AROUND THE NORTH SIDE OF THE BUILDING TO CONTINUE WEST VIA AN 8" PIPE. BASINS B AND C REFLECT RUNOFF IMPACTING THE SITE FROM THE SOUTHEAST AND SOUTHERN PORTIONS OF THE SITE. BASIN C LIES BETWEEN THE PROPERTY LINE AND THE FUTURE SIDEWALK BEING CONSTRUCTED AS PART OF THE PASEO DEL NORTE RECONSTRUCTION (COA PROJECT 4083.90). BASIN D REPRESENTS OFFSITE RUNOFF ENTERING THE SITE FROM THE NORTHEAST. THE POND IS NOT SIZED TO ACCOMMODATE THESE OFFSITE FLOWS (TOTAL = 15.8 CFS), THEREFORE RUNOFF ROUTED TO THE POND WILL OVERFLOW WEST ONTO THE UNDEVELOPED PROPERTIES WHEN THE POND'S MAXIMUM WATER SURFACE ELEVATION IS EXCEEDED. HOWEVER, NUISANCE FLOWS WILL DISCHARGE INTO HOLLY AVENUE NE. (ULTIMATELY, THE PROPERTY OWNER PLANS TO REPLAT THE PROPERTY DEVELOPED UNDER THIS PLAN, IN ADDITION TO AND INCLUSIVE OF THE ADJOINING LOTS WEST TO THE I-40 RIGHT-OF-WAY (ALL OF LOTS 9 - 11 & 22, AND PORTIONS OF LOTS 8 & 23 - 25, BLOCK 18, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, TOTALING 6.4 ACRES +/-). UPON DEVELOPMENT, THE PROPERTY OWNER WILL BE REQUIRED TO SUBMIT A MASTER DRAINAGE PLAN. IN THE INTERIM, THE PROPERTY OWNER HAS ARRANGED WITH THE SAD ENGINEER TO CONSTRUCT A PRIVATE ENTRANCE AND DRIVEPAD AS PART OF THE SAD. THE DEVELOPER HAS ARRANGED FOR THE PROPERTY OWNER TO GRANT A PRIVATE ACCESS EASEMENT ACROSS LOT 10 TO SERVE LOTS 11 AND 22 AND ALLOW GRADING ONTO LOTS 10 AND 23 TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE PROPERTY OWNER HAS INDICATED AGREEMENT BY SIGNING THESE DRAWINGS BELOW.

THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993 HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE, VOLUME GENERATED, AND HYDROGRAPHIC TIME DURATION. THE WEIR EQUATION, MANNING'S EQUATION, AND THE WEIR EQUATION WAS USED TO CALCULATE RUNOFF CAPACITIES IN THE SIDEWALK CULVERTS. AS SHOWN BY THESE CALCULATIONS, AN INCREASE OF RUNOFF VOLUME OF 390 CF AND A DECREASE OF THE PEAK RATE OF DISCHARGE OF 0.4 CFS IS ANTICIPATED WITH THIS DEVELOPMENT. BECAUSE THIS PLAN IS CONSISTENT WITH THE DISCHARGE REQUIREMENTS OUTLINED IN THE SAD 224 REPORT PREPARED BY WILSON & COMPANY AND IS DISCHARGING TO A DEVELOPED PUBLIC ROADWAY, DISCHARGE FROM THIS SITE VIA A DETENTION POND IS APPROPRIATE.



CURRENTLY DRAINS NORTHERLY TO AN EXISTING RETENTION POND ALONG HOLLY AVENUE NE. THE RETENTION POND OVERFLOWS WEST ONTO THE UNDEVELOPED PROPERTIES.

AS INDICATED BY PANEL 137 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS EFFECTIVE SEPTEMBER 20, 1996 PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. THIS SITE DOES LIE UPSTREAM OF A FLOOD HAZARD ZONE A WHICH LIES ALONG THE I-40 RIGHT-OF-WAY.

THE GRADING PLAN SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS PREPARED BY ALDRICH LAND SURVEYING, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS AND 5) CONTINUITY BETWEEN THE EXISTING AND PROPOSED GRADES. AS SHOWN BY THE GRADING PLAN, DEVELOPMENT OF THIS SITE CONSISTS OF THE INTERIOR BUILD-OUT OF THE EXISTING BUILDING FOR USE AS A SHOOTING RANGE, AN ASSOCIATED SNACK BAR AND RETAIL SHOP. ASSOCIATED LANDSCAPING AND PARKING LOT RECONSTRUCTION IS ALSO PROPOSED FOR THIS DEVELOPMENT. RECONSTRUCTION OF THE PARKING LOT WILL REMOVE THE EXISTING RETENTION POND AND REPLACE IT WITH A DETENTION POND. THE PURPOSE OF THE GRADING AND DRAINAGE PLAN IS TO SUPPORT THE PARKING LOT

RECONSTRUCTION REQUIRED FOR THE BUILDING INTERIOR RENOVATION. HOLLY AVENUE NE IS CURRENTLY UNDEVELOPED, HOWEVER SAD 224 WILL CONSTRUCT CURB & GUTTER AND PERMANENT PAVING WITHIN THE RIGHT-OF-WAY BEGINNING OCTOBER, 1998. THE DRAINAGE REPORT FOR SAD 224 PREPARED BY WILSON & COMPANY DATED MAY, 1998 IDENTIFIES A MAXIMUM ALLOWABLE DISCHARGE RATE OF 3.2 CFS/ACRE FOR DEVELOPED AREAS CONTRIBUTING TO THE HOLLY AVENUE NE DRAINAGE BASIN. TWO

24" SIDEWALK CULVERTS RESTRICT THE DEVELOPED PEAK DISCHARGE RATE TO 5.6 CFS (3.2 CFS/ACRE) INTO HOLLY AVENUE NE BY UTILIZING THE WEIR TO CONTROL DISCHARGE. IN THE EVENT THAT THE CULVERTS BECOME CLOGGED, THE RUNOFF WILL CONTINUE IN ITS HISTORIC DRAINAGE PATTERNS BY FLOWING WEST ONTO THE UNDEVELOPED PROPERTIES TO THE WEST. OFFSITE FLOWS IMPACTING THE SITE WILL FLOW TOWARDS THE DETENTION POND FOR THIS SITE. OFFSITE BASIN A IS DEFINED AS THE AREA IMPACTING THE EAST SIDE OF THE BUILDING. RUNOFF FROM BASIN A WILL BE ROUTED AROUND THE NORTH SIDE OF THE BUILDING TO CONTINUE WEST VIA AN 8" PIPE. BASINS B AND C REFLECT RUNOFF IMPACTING THE SITE FROM THE SOUTHEAST AND SOUTHERN PORTIONS OF THE SITE. BASIN C LIES BETWEEN THE PROPERTY LINE

AND THE FUTURE SIDEWALK BEING CONSTRUCTED AS PART OF THE PASEO DEL NORTE RECONSTRUCTION (COA PROJECT 4083.90). BASIN D REPRESENTS OFFSITE RUNOFF ENTERING THE SITE FROM THE NORTHEAST. THE POND IS NOT SIZED TO ACCOMMODATE THESE OFFSITE FLOWS (TOTAL = 15.8 CFS), THEREFORE RUNOFF ROUTED TO THE POND

WILL OVERFLOW WEST ONTO THE UNDEVELOPED PROPERTIES WHEN THE POND'S MAXIMUM WATER SURFACE ELEVATION IS EXCEEDED. HOWEVER, NUISANCE FLOWS WILL DISCHARGE INTO HOLLY AVENUE NE. ULTIMATELY, THE PROPERTY OWNER PLANS TO REPLAT THE PROPERTY DEVELOPED UNDER THIS PLAN, IN ADDITION TO AND INCLUSIVE OF THE ADJOINING LOTS WEST TO THE I-40 RIGHT-OF-WAY (ALL OF LOTS 9 - 11 & 22, AND PORTIONS OF LOTS 8 & 23 - 25, BLOCK 18, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, TOTALING 6.4 ACRES +/-). UPON DEVELOPMENT, THE PROPERTY OWNER WILL BE REQUIRED TO SUBMIT A MASTER DRAINAGE PLAN. IN THE INTERIM, THE PROPERTY OWNER HAS ARRANGED WITH THE SAD ENGINEER TO CONSTRUCT A PRIVATE ENTRANCE AND DRIVEPAD AS PART OF THE SAD. THE DEVELOPER HAS ARRANGED FOR THE PROPERTY OWNER TO GRANT A PRIVATE ACCESS EASEMENT ACROSS LOT 10 TO SERVE LOTS 11 AND 22 AND ALLOW GRADING ONTO LOTS 10 AND 23 TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE PROPERTY OWNER HAS INDICATED AGREEMENT BY SIGNING THESE DRAWINGS BELOW.

THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993 HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE, VOLUME GENERATED, AND HYDROGRAPHIC TIME DURATION. THE WEIR EQUATION, MANNING'S EQUATION, AND THE WEIR EQUATION WAS USED TO CALCULATE RUNOFF CAPACITIES IN THE SIDEWALK CULVERTS. AS SHOWN BY THESE CALCULATIONS, AN INCREASE OF RUNOFF VOLUME OF 390 CF AND A DECREASE OF THE PEAK RATE OF DISCHARGE OF 0.4 CFS IS ANTICIPATED WITH THIS DEVELOPMENT.

BE ROUTED AROUND THE NORTH SIDE OF THE BUILDING. RUNOFF FROM BASIN A
PIPE. BASINS B AND C REFLECT RUNOFF IMPACTING THE SITE FROM THE SOUTH
AND SOUTHERN PORTIONS OF THE SITE. BASIN C LIES BETWEEN THE PROPERTY
AND THE FUTURE SIDEWALK BEING CONSTRUCTED AS PART OF THE PASEO DEL NO
RECONSTRUCTION (COA PROJECT 4083.90). BASIN D REPRESENTS OFFSITE RUN
ENTERING THE SITE FROM THE NORTHEAST. THE POND IS NOT SIZED TO ACCOM
THESE OFFSITE FLOWS (TOTAL = 15.8 CFS), THEREFORE RUNOFF ROUTED TO THE
WILL OVERFLOW WEST ONTO THE UNDEVELOPED PROPERTIES WHEN THE PONDS
MAXIMUM WATER SURFACE ELEVATION IS EXCEEDED. HOWEVER, NUISANCE FLOWS
WILL DISCHARGE INTO HOLLY AVENUE NE. ULTIMATELY, THE PROPERTY OWNER PL
TO REPLAT THE PROPERTY DEVELOPED UNDER THIS PLAN, IN ADDITION TO AND
INCLUSIVE OF THE ADJOINING LOTS WEST TO THE I-40 RIGHT-OF-WAY (ALL OF L
11 & 22, AND PORTIONS OF LOTS 8 & 23 - 25, BLOCK 18, TRACT A, UNIT B,
ALBUQUERQUE ACRES, TOTALING 6.4 ACRES +/-). UPON DEVELOPMENT, THE PR
OWNER WILL BE REQUIRED TO SUBMIT A MASTER DRAINAGE PLAN. IN THE INTERIM
|| THE PROPERTY OWNER HAS ARRANGED WITH THE SAD ENGINEER TO CONSTRUCT A
PRIVATE ENTRANCE AND DRIVEPAD AS PART OF THE SAD. THE DEVELOPER HAS
ARRANGED FOR THE PROPERTY OWNER TO GRANT A PRIVATE ACCESS EASEMENT
X ACROSS LOT 10 TO SERVE LOTS 11 AND 22 AND ALLOW GRADING ONTO LOTS 10
TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE PROPERTY OWNER HAS INDIC
AGREEMENT BY SIGNING THESE DRAWINGS BELOW.

THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND
DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE
PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION
SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2,
DESIGN CRITERIA, DATED JANUARY, 1993 HAS BEEN USED TO QUANTIFY THE PEAK
OF DISCHARGE, VOLUME GENERATED, AND HYDROGRAPHIC TIME DURATION. THE WEIR
EQUATION, MANNING'S EQUATION, AND THE WEIR EQUATION WAS USED TO CALCULATE
RUNOFF CAPACITIES IN THE SIDEWALK CULVERTS. AS SHOWN BY THESE
CALCULATIONS, AN INCREASE OF RUNOFF VOLUME OF 390 CF AND A DECREASE OF
PEAK RATE OF DISCHARGE OF 0.4 CFS IS ANTICIPATED WITH THIS DEVELOPMENT.
BECAUSE THIS PLAN IS CONSISTENT WITH THE DISCHARGE REQUIREMENTS OUTLINED
THE SAD 224 REPORT PREPARED BY WILSON & COMPANY AND IS DISCHARGING TO
|| DEVELOPED PUBLIC ROADWAY, DISCHARGE FROM THIS SITE VIA A DETENTION POND IS
APPROPRIATE.

