HYDROLOGY E18/D29 NORTHSIDE PROFESSIONAL OFFIC
BLDG. (PRESBYTERIAN)

E 18/ D29

NORTHSIDE
PROFESSIONAL
OFFICE BLDG.
(PRESBYTERIAN)

3 PLANS

June 28, 1984

RECEIVED
JUN 28 1984
HYDROLOGY SECTION

MEMORANDUM

TO: Billy Goolsby

FROM: Thornton Schwenk Thornton

We are pleased to hear that your staff was able to find the preliminary report (E18-D29a) for the Northside Professional Office Building, dated December 28, 1983.

As it turns out, your much-appreciated approval for the issuance of a Foundation Permit does not help the contractor get underway. He will not be given his Notice to Proceed from Jack Clifford until he obtains the full Building Permit. However, Drainage Approval is the last "Reject" to be cleared from the plans. Could you give this update to the "lost" report, sufficient immediate review in order to clear the way for the full permit. If you think it helpful, I would be glad to assist you in locating important features in the report which could accelerate your review.

As you know the main thrust of the report is to re-locate and increase the temporary ponding area for the entire North Campus, in order to permit free discharge from the portion occupied by the NPOB facility.

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

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

July 3, 1984

Mr. Thornton Schwenk
Boyle Engineering Corp.
3939 San Pedro NE, Suite D
Albuquerque, NM 87110

REF: REVISION TO DRAINAGE REPORT FOR THE NORTHSIDE PROFESSIONAL OFFICE BUILDING (E18-D29A) RECEIVED JUNE 28, 1984

Dear Thornton:

The above referenced plan, dated June 26, 1984, is approved.

Please attach a copy of this approved plan to the construction set prior to issuance of the building permit.

If I can be of further assistance, please contact me at 766-7644.

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

BJG:mrk

Klinger Constructors, Inc.

RECEIVED
MAR 08 1985
HYDROLOGY SECTION

March 7, 1985

Mr. Bernie Montoya
City of Albuquerque
Hydrology Department
Albuquerque, New Mexico

RE: 6100 Pan American Freeway

Dear Mr. Montoya:

We request a 30-day temporary certificate of occupancy be granted for the above project. Boyle Engineering is in the process of certifying the as-built grading plan and will submit it to your office in a few days.

If you have any further questions or concerns, please call 881-4961.

Sincerely,

KLINGER CONSTRUCTORS, INC.

Steven C. Collins
Project Engineer

NORTHSIDE PROFESSIONAL OFFICE BUILDING

Daniel J. McDonald
Construction Manager

SCC/DJM/pr

American Financial Center • Bldg. #4, Suite 110 • 2400 Louisiana Blvd. N.E.
Box 35489 • Albuquerque, New Mexico 87176 • (505) 881-4961
N.M. License No. 20545

DRAINAGE INFORMATION SHEET

E18-D29

PROJECT TITLE: Northside Prof. Office Bldg. ZONE ATLAS/DRNG. FILE #: Drainage Report

LEGAL DESCRIPTION: A portion of parcel B-5 Academy Acres, Unit 5.

CITY ADDRESS: 6100 Pan American Hwy., N.E.

ENGINEERING FIRM: Boyle Engineering Corporation CONTACT: Thornton D. Schwenk

ADDRESS: 3939-D San Pedro, N.E. PHONE: (505) 883-7700

OWNER: Jack M. Clifford CONTACT: Bob Wharton

ADDRESS: 2400 Louisiana NE, Suite 190, Bldg.4 PHONE: 884-5573

ARCHITECT: Stevens, Mallory, Pearl & Campbell CONTACT: Bob Moraga

ADDRESS: 115 Amherst Dr. S.E. PHONE: 255-8668

SURVEYOR: Albuquerque Surveying Company CONTACT: Fred Sanchez

ADDRESS: 2119 Menaul, N.E. PHONE: 884-2036

CONTRACTOR: Klinger Construction CONTACT: Steve Collins

ADDRESS: 2400 Louisiana, N.E. PHONE: 881-4961

RECEIVED
APR 03 1985
HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 84-294 4/24/84

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

X ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

X CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 3-28-85

BY: Thornton D. Schwenk

Boyle Engineering Corporation
Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110

consulting engineers
505 / 883-7700

LETTER OF TRANSMITTAL

TO: CITY OF ALBUQUERQUE
DESIGN HYDROLOGY SECTION
123 CENTRAL AVE, NW

DATE: 4-12-85

RE: ENGINEER'S CERTIFICATION
NORTHSIDE PROFESSIONAL OFFICE BLDG.
E18-D29a

ATTN: BERNIE MONTOYA

B.E.C. PROJECT No. S01-240-00

GENTLEMEN:
We are sending you: ☒ Attached ☐ Under separate cover via _____
the following items:

- ☐ Shop Drawings
- ☐ Reproducible Drawings
- ☐ Design Calculations
- ☐ Prints
- ☐ Details
- ☐ Copy of Report
- ☐ Addendum
- ☒ Copy of letter
- ☐ Specifications
- ☐ Schedules
- ☐ Descriptive Literature
- ☐ _____

Item No.	Date	No. Copies	Description
1	4-12-85	1	LETTER OF CONCURRENCE FROM NMSHD ON DRAINAGE IMPROVEMENTS IN E. FRONTAGE RD. R.O.W.

These are transmitted as checked below:

- ☐ For approval
- ☐ Please correct and resubmit
- ☐ Resubmittal not required. Corrections, if any, are noted.
- ☐ Returned for corrections
- ☒ As Requested
- ☐ Please return
- ☐ For Bids due _____ 19 _____
- ☐ Prints returned after loan to us
- ☐ Resubmit _____ copies for approval
- ☐ Return _____ corrected prints
- ☒ For your use
- ☐ For review and comment
- ☐ _____ copies for distribution
- ☐ _____

REMARKS: _____

RECEIVED
APR 12 1985
HYDROLOGY SECTION

Copies also sent to: _____

From: Thornton A. Sherard

Boyle Engineering Corporation

Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110

505 883-7700

RECEIVED
APR 12 1985
HYDROLOGY SECTION

New Mexico State Highway Department
District III Project Office
2425 Carlisle Blvd., N.E.
Albuquerque, New Mexico 87110

April 12, 1985
AL-S01-240-00

ATTN: Barbara Bovee, District III Project Engineer

RE: DRAINAGE IMPROVEMENTS WITHIN I-25 E. FRONTAGE ROAD R.O.W.
FOR PRESBYTERIAN HOSPITAL NORTHSIDE MEDICAL BUILDING,
6100 PAN AMERICAN HIGHWAY, N.E.
(REF. NMSHD PROJ. NO. I-IR-4(66)227)

As we discussed in your office on April 11, our firm has furnished an As-built survey to the City of site drainage features for the newly constructed Northside Medical Building (NMB). As part of the approval process for issuing a Certificate of Occupancy (C.O.) for the building, the Hydrology Section has requested that the Highway Department concur with the findings of our Engineer's Drainage Certification, which relate to runoff from the NMB site into the NMSHD right-of-way.

The site is graded to allow this runoff to pass through one-foot openings spaced at 20 feet in the west curb of the parking lot, and thence across a 15-ft wide sodded area, before entering the R.O.W. ditch. Our site inspection for the Engineer's Certification showed that:

(1) this ditch has been properly graded within the R.O.W. of the E. Frontage Road;

(2) an 18-in CMP culvert has been constructed with the proper line and grade to allow ditch flow to pass northward under the main driveway entrance into the site; and

(3) the flow thus can reach the two 36-inch RCP culverts under the Frontage Road, thereby draining the site as planned.

Although it is not required at this time for NMB site drainage, we understand the work on the new 14 ga. 81"x59" CMPA culvert under the Frontage Road is proceeding on schedule. When the end sections and earthwork have been completed, Presbyterian Hospital will be in a position to proceed with the next phase of the North Campus development: elimination of the 1.5-acre detention ponds north of the NMB site.

Please indicate your concurrence with the three itemized findings above, by signing below and returning a copy to our office. I will forward your concurrence to the City at once so that the C.O. can be released.

Thank you for your assistance on behalf of our client.

Sincerely,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer

cc: Dan McDonald, Jack M. Clifford & Co.
Don Stevens, SMPC
Gordon Aird, SCHS

CONCUR: Barbara Bovee DATE: 4/12/85

TITLE: PROJECT MANAGER
NMSHD District III Project Office

4-11-85 NMB Site
Looking S. down R.O.W.
@ I-25 E. Frontage Rd.

4-11-85 NMB Site
Looking N. along R.O.W @
I-25 E. Frontage Rd. 18" CMP

RECEIVED
APR 12 1985
HYDROLOGY SECTION

4-11-85 Sideslope of 1-way
3-lane northbound E.
Frontage Rd. I-25

4-11-85 Excavation for
81"x59" CMPA outlet
I-25 E. Frontage Rd.

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

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

April 16, 1985

Thornton Schwenk
Boyle Engineering Corporation
3939 San Pedro Drive, NE Suite D
Albuquerque, New Mexico 87110

RE: CERTIFICATION FOR THE NORTHSIDE PROFESSIONAL OFFICE BUILDING
(E-18/D29)

Dear Mr. Schwenk:

Based on the information provided on your April 12, 1985 resubmittal, certification for the referenced drainage plan is acceptable.

If you have any questions or comments regarding this project, please call me at 766-7644.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

Boyle
Engineering
Corporation
consulting engineers
Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110
505 883-7700

PRELIMINARY

DRAINAGE REPORT
FOR THE

NORTHSIDE PROFESSIONAL OFFICE BUILDING

AT THE NORTH CAMPUS
OF
PRESBYTERIAN HOSPITAL

ALBUQUERQUE, NEW MEXICO

RECEIVED
JUN 05 1984
HYDROLOGY SECTION

DECEMBER 27, 1983

Boyle Engineering Corporation

Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110

consulting engineers

505 / 883-7700

City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

December 27, 1983
AL-S01-240-00

ATTN: Mr. Fred J. Aguirre, Civil Engineer/Hydrology

RE: DRAINAGE REPORT FOR NORTHSIDE PROFESSIONAL OFFICE BUILDING
PRESBYTERIAN HOSPITAL NORTH CAMPUS, E-17-Z & E-18-Z

Dear Fred:

Transmitted herewith are four copies of the subject Drainage Report.

This report is preliminary in nature and is presented for conceptual review in conjunction with Site Development Plan review by the EPC. Drainage details are being coordinated with Stevens, Mallory, Pearl & Campbell for subsequent submittal of the final Drainage Report.

Please call if you have any questions regarding these concepts as our final Report must be submitted shortly after EPC approval of the Development Plan.

Sincerely,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer

cc: Bob Moraga; Stevens, Mallory, Pearl & Campbell
Bob Wharton; Jack M. Clifford & Co.

TABLE OF CONTENTS

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INFORMATION SHEET

CONFERENCE RECAP NOVEMBER 28, 1983

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III. LOCATION

IV. EXISTING DRAINAGE CONDITIONS

V. PROPOSED DRAINAGE CONDITIONS

VI. GENERAL RECOMMENDATIONS FOR PHASED CONSTRUCTION

FIGURE 1 - RELOCATED POND WITHIN TEMPORARY DRAINAGE EASEMENT

FIGURE 2 - EXISTING DETENTION PONDS FOR APCH & NSH

LETTER FROM LEPIC TO BUCHLY, NOVEMBER 28, 1983

PLAN LOCATION OF NEW 54" RCP CULVERT IN R.O.W. OF FRONTAGE ROAD

CROSS-SECTION OF NEW 54" RCP CULVERT

INFORMATION SHEET

PROJECT TITLE Northside Prof. Office Bldg. TYPE OF SUBMITTAL Conceptual Review

ZONE ATLAS PAGE NO. E-17-18 D29a CITY ADDRESS —

LEGAL DESCRIPTION A portion of parcel B-5 Academy Acres, Unit 5.

ENGINEERING FIRM Boyle Engineering Corporation CONTACT Thornton D. Schwenk

ADDRESS 3939-D San Pedro, N.E. PHONE (505) 883-7700

OWNER Jack M. Clifford CONTACT Bob Wharton

ADDRESS 2400 Louisiana N.E., Suite 190, Bldg.4 PHONE 884-5573

ARCHITECT Stevens, Mallory, Pearl & Campbell CONTACT Bob Moraga

ADDRESS 115 Amherst Dr. S.E. PHONE 255-8668

SURVEYOR Albuquerque Surveying Company CONTACT Fred Sanchez

ADDRESS 2119 Menaul, N.E. PHONE 884-2036

CONTRACTOR Klinger Construction CONTACT

ADDRESS 2400 Louisiana. N.E. PHONE 881-4961

PRE-DESIGN MEETING:

X YES
__ NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

__ SKETCH PLAT APPROVAL
__ PRELIMINARY PLAT APPROVAL
X SITE DEVELOPMENT PLAN APPROVAL
__ FINAL PLAT APPROVAL
__ BUILDING PERMIT APPROVAL
__ CERTIFICATE OF OCCUPANCY APPROVAL
__ ROUGH GRADING PERMIT APPROVAL
__ GRADING/PAVING PERMIT APPROVAL
__ OTHER _____ (SPECIFY)

RECEIVED
JUN 05 1984
HYDROLOGY SECTION

DATE SUBMITTED: January 3, 1984 BY: Thornton D. Schwenk

P R E L I M I N A R Y

DRAINAGE REPORT

FOR THE

NORTHSIDE PROFESSIONAL OFFICE BUILDING

AT THE NORTH CAMPUS OF

PRESBYTERIAN HOSPITAL

DEVELOPED BY

JACK M. CLIFFORD & CO.

ALBUQUERQUE, NEW MEXICO

PREPARED BY

BOYLE ENGINEERING CORPORATION

DECEMBER 27, 1983

I. PURPOSE:

The purpose of this report is to present information, calculations, and recommendations relative to storm runoff for the site of the proposed Northside Professional Office Building, a medical support facility being developed by Jack M. Clifford & Co. within the North Campus of Presbyterian Hospital.

II. SCOPE:

This report is limited to an investigation of the existing and proposed conditions which affect storm flows on the study site. The drainage scheme must incorporate certain restrictions established by the City of Albuquerque in the approved Drainage Reports for the adjacent facilities. These facilities are the Anne Pickard Convalescent Hospital (APCH) and the Northside Presbyterian Hospital (NPH), both owned and operated by the Southwest Community Health Services (SCHS). The drainage solution must also be coordinated with the New Mexico State Highway Department, which is preparing to commence re-construction of the I-25 East Frontage Road under Project I-IR-025-4(66) 227.

The proposed development is to be protected from flooding due to storm runoff, without increasing the threat of damage to downstream properties. Upstream areas which have been constructed since 1972 are presumed to meet the restrictions of applicable drainage ordinances and resolutions, beginning with AMAFCA Resolution 1972-2. Estimation of maximum runoff is based on the site being developed as proposed.

The report is preliminary in nature, with the main emphasis being a discussion of the conceptual drainage schemes. Once a detailed grading and site plan becomes available, flow directions can be established, drainage sub-basins deliniated, impervious areas identified, and detailed drainage calculations carried out.

III. LOCATION:

The study site is a 3.125-acre (136,114 sq. ft.) parcel located adjacent to the east right-of-way of the Interstate 25 East Frontage Road (State Road 422) and west of a fully developed residential neighborhood in the Northeast Heights of Albuquerque. The site comprises a portion of the 34-acre North Campus lying between Forest Hills Drive and Harper Drive.

Legally the site is defined as a portion of Parcel B-5 of Tract B, Unit 5, Academy Acres Subdivision as shown on the "Redivision of Parcels 'B-1-A' and 'B-2-A' ", acknowledged by Richard Barr, President of Southwest Community Health Services on October 4, 1983. The site is zoned SU for Hospital Use.

The lands surrounding this portion of Parcel B-5 are described as follows:

The north property line is bounded by a 30-ft permanent drainage easement, dedicated to the City and filed on August 19, 1981 in Volume C18, Folio 162 of the records of the Bernalillo County Clerk. This easement lies between the site and a 1.782-acre Temporary Drainage Easement to the north, which was granted to the City of Albuquerque for a temporary detention pond and which was filed on October 26, 1983 in Volume C22, Folio 90.

The east property line is bounded by the proposed internal roadway connecting the APCH and the NPH. This roadway is presently under construction.

The south property line is bounded by an undeveloped 4.2 acre parcel at the intersection of the Frontage Road and Harper Drive.

The west property line is coincident with the right-of-way line of the East Frontage Road.

IV. EXISTING DRAINAGE CONDITIONS:

A. Topography and Soils

Slopes on the site are generally from east to west. The high point is approximately 5194 MSL at the east tip of the property. The low point is at elevation 5180 at the northwest corner. The distance between these points is 550 feet, giving an average slope of 2.55%.

The natural soils at the site consist of interbedded layers of silty sand and sandy clay. The vegetative cover consists of a light growth of native grass and brush.

B. On-Site Drainage Conditions

A portion of the existing detention pond, constructed orginally for the APCH, extends into the site as shown in Figures 1 and 2. Calculated 100-year flows of 83 cfs from the subdivision to the east (Academy Acres Unit 3) would pass through the pond and over the spillway within the 30-ft easement due to the fact that the 24-in pond drain has a design capacity of only 12 cfs. As discussed below this pond will temporarily be relocated to the Temporay Drainage Easement shown on Figure 2.

Runoff from the remainder of the site and controlled discharge from the detention pond presently enters the ditch of the Frontage Road where it flows slowly northward to two existing 36-in culvert pipes which drain under Interstate 25 at Station 329+90.

In the event of the 100-year storm, the ditch within the right-of-way and a small strip of land within the site (approximately 5 feet wide) lie in the Zone A Flood Boundary as shown on the Flood Hazard Boundary Map, Community Panel Number 350002 0002B published on December 4, 1979, by the Federal Insurance Administration.

This condition results because the two 36-in RCP's do not have sufficient capacity to pass the estimated 300 cfs flow coming from three directions. During the 100-year storm the water level would rise to approximately 5182.6 and therefore flow across the existing Frontage Road, as shown on the FHBM map, with a depth of several inches. Drainage improvements designed for this site and for adjacent sites are expected to mitigate this flooding problem.

C. Approved Drainage Reports on Adjacent Parcels

Further details and discussions of site drainage solutions can be found in the following publis documents on file with the City Engineer's office.

(1) Anne Pickard Convalescent Hospital Drainage Study, Revision No. 5, dated January 29, 1982, prepared by Boyle Engineering. The Drainage Certification for this site (E18-D5A) was approved by the City Engineer's office on May 31, 1983.

(2) North Satellite Hospital Drainage Study, Revision No. 1, dated May 11, 1983, prepared by Boyle Engineering Corporation. The Drainage Study for this 20.5-acre site was approved on May 23, 1983, but certification of the project awaits completion of construction in late 1984.

V. PROPOSED DRAINAGE CONDITIONS:

A. Criteria

The computations, conclusions and recommendations contained in this report are based on criteria found in the City of Albuquerque Development Process Manual, Volume 2, Design Criteria.

B. Drainage for the Entire 34-acre Site

A brief historical summary of the drainage solutions for the various parcels within the 34-acre site is given as follows:

The present detention pond was required under then-current drainage policy (1981), which stated that the difference in runoff between the developed and the undeveloped site had to be detained. This policy was relaxed with the enactment of Ordinance No. 63-1982 on October 4, 1982. Under the new ordinance ponding is not required if it can be demonstrated that downstream drainage structures have sufficient capacities to carry the increased flows.

With the enactment of this ordinance, SCHS and its Consulting Drainage Engineer proceeded with investigations which indicated that appropriate downstream structures could be built to eliminate the flooding problem adjacent to its property. Such construction would then permit free discharge from the 34-acre site and permit the elimination of the original APCH detention pond. Full and efficient land use would then be possible.

As development and construction continues on the remaining land, interim ponding will still be provided until construction of the improved downstream facilities is complete. These same findings were set forth in the initial planning conference with the City Engineer/Hydrology on November 28, 1983 and are included here for reference.

Proceeding concurrently with the Presbyterian Hospital work, the New Mexico State Highway Department and their consultant, Bohannan-Huston, Inc., completed the detail design of Project I-IR-025-4(66) 227, which included certain drainage improvements in the Frontage Road system. The Bohannan-Huston report entitled, "Interstate 25 Frontage Roads, Drainage Structure Analysis", dated October 7, 1982, included recommendations to either extend existing structures within the highway right-of-way or to replace them if they had insufficient capacity.

Plate I of the Bohannan report recommended that the two 36" x443' RCP's at Station 320+90 be replaced by one 84" RCP. An alternate, and less-costly, scheme was to leave the two 36-inch culverts in place and add a new 54" RCP which would supplement the capacity at the east inlets.

However due to budgetary limitations, the NMSHD decided that replacement costs of the undersized structures would be borne by the affected property owners and developers. Consequently the Bohannan proposals were deleted from the final contract drawings prior to bid letting for their project. Instead, the two 36-inch RCP's are to be extended 10 feet to accommodate the increased width of the new Frontage Road.

The NMSHD has agreed to permit construction of the 54-inch pipe. This would be done by the State's Contractor, but at SCHS expense. (Reference November 28, 1983 letter from Don Lepic, TSE to Dan Buchly.) Engineering design data for this scheme will be presented to the NMSHD Contractor prior to the pre-construction meeting for the Frontage Road Project.

C. Drainage for the Specific Site of the Northside Professional Office Building

At this time, specific approval is being sought only for the development of the 3.125-acre parcel. Therefore only the drainage factors which affect this development will be discussed further.

The site will be graded in such a way that runoff will continue to flow westward into the east ditch of the Frontage Road. Surface runoff will exit the property through curb openings in the parking lot curb. The ditch will be regraded and reshaped, but will continue to allow the flow to pass northward to the inlets of the two 36-inch RCP's.

ponding is planned for this site. Therefore to accommodate the increase in developed flow, the net discharge for the remainder of the 34-acre site will be decreased by increasing the size of the relocated detention pond

within the 1.782-acre Temporary Drainage Easement. The 5-year controlled discharge from this pond will also then be decreased. As presented, this solution does not depend on the new 54-inch RCP being in place to supplement the existing 36-inch culverts.

VI. GENERAL RECOMMENDATIONS FOR PHASED CONSTRUCTION

A. For the immediate development of the 3.125 acre site:

1. Relocate and enlarge the existing APCH detention pond within the Temporary Drainage Easement.

2. Grade the existing site to permit runoff to reach the ditch containing the inlets to the extensions of the existing 36-inch RCP's.

B. For future development of the remaining sites within the 34-acre parcel:

1. Construct the new 54-inch RCP and the associated slope protection within the Frontage Road right-of-way.

2. Provide or await improvements of remaining downstream structures, specifically, the Beta Channel.

3. Eliminate the temporary pond and regrade the north parcel.

4. Replot the 34-acre parcel in accordance with the reversionary language in the Plat for Temporary Drainage Easement.

Respectfully submitted,

December 27, 1983

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer

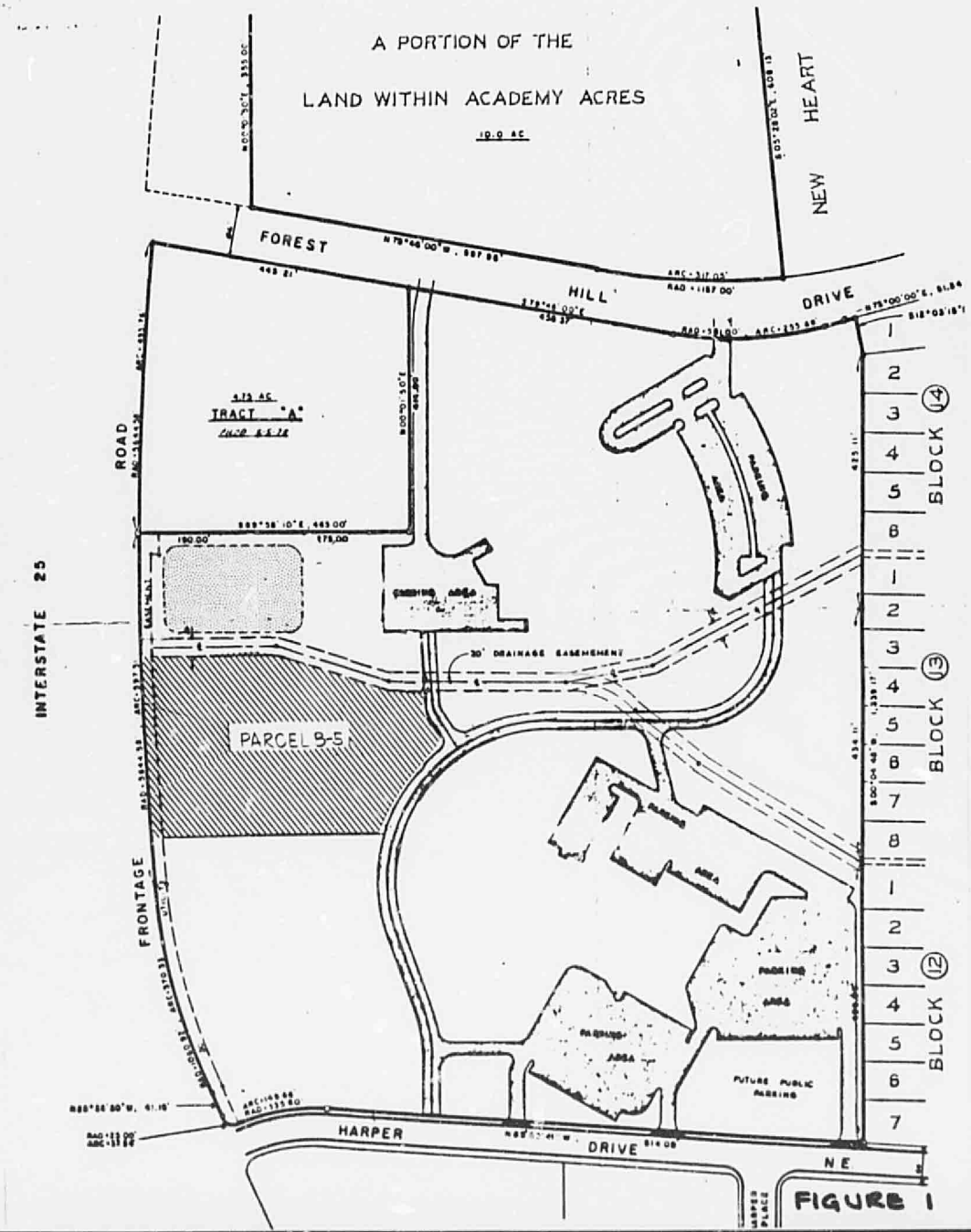

A PORTION OF THE
LAND WITHIN ACADEMY ACRES
10.0 AC
NEW HEART
FOREST HILL DRIVE
TRACT "A"
ROAD
INTERSTATE 25
PARCEL 9-5
30' DRAINAGE EASEMENT
FRONTAGE
HARPER DRIVE NE
FUTURE PUBLIC PARKING
BLOCK 14
BLOCK 13
BLOCK 12

FIGURE 1

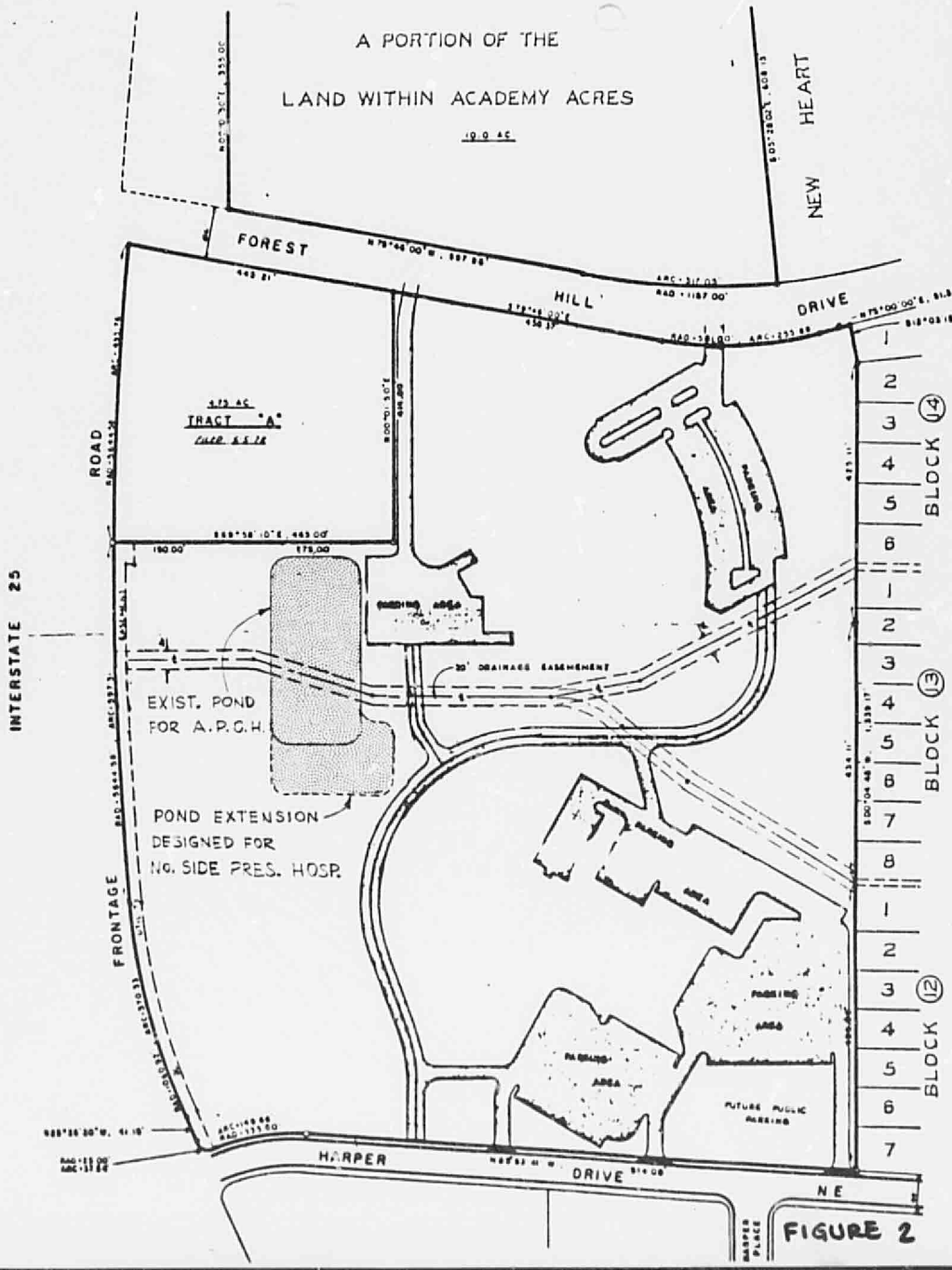

A PORTION OF THE
LAND WITHIN ACADEMY ACRES
NEW HEART
FOREST HILL DRIVE
TRACT "A"
INTERSTATE 25
FRONTAGE ROAD
EXIST. POND FOR A.P.C.H.
POND EXTENSION DESIGNED FOR NO. SIDE PRES. HOSP.
30' DRAINAGE EASEMENT
PARKING AREA
FUTURE PUBLIC PARKING
BLOCK 14
BLOCK 13
BLOCK 12
HARPER DRIVE NE

FIGURE 2

STATE OF NEW MEXICO
HIGHWAY DEPARTMENT

RECEIVED
Boyle Engineering Corporation
NOV 30 1983
Albuquerque Office
FILE

TONEY ANAYA
GOVERNOR

COMMISSION

Louis M. Whitlock
Chairman, Carlsbad

James W. Chaney
Vice-Chairman, Moriarty

Sosimo Padilla
Secretary, Albuquerque

Max Maez, Jr.
Member, Springer

Stephen T. "Bud" Richards
Member, Las Cruces

DEPARTMENT

Chief Highway Administrator
L. A. Larranaga

General Office
P.O. Box 1149
Santa Fe, NM 87503
505-983-0100

District One Office
P.O. Box 231
Deming, NM 88030
505-546-2603

District Two Office
P.O. Box 1457
Roswell, NM 88201
505-622-8441

District Three Office
P.O. Box 3768-Station D
Albuquerque, NM 87110
505-821-4651

District Four Office
P.O. Box 30
Las Vegas, NM 87701
505-425-7527

District Five Office
P.O. Box 4127-Coronado Sta.
Santa Fe, NM 87503
505-983-0221

AN EQUAL
OPPORTUNITY
EMPLOYER

November 28, 1983

Mr. Dan Buchly
Dan Buchly and Associates
2201 San Pedro N.E.
Building 1, Suite 1200D
Albuquerque, NM 87110

Re: SCHS development, I-25 Frontage Roads - I-IR-025-4(66)227
Control Number: 333

Dear Mr. Buchly:

This is in response to your letter of November 15, 1983, and to confirm our discussion on November 18. Coordination with our Contractor and Project Construction Team for improvements within rights-of-way is essential. Our Construction Team Manager is Bill Moore, phone 841-6504.

Construction of a 54" culvert pipe under the east frontage road is acceptable. The inlet shall be immediately south of the two existing 36" culvert pipes (extended) and have the same invert elevation, and you will be required to extend the proposed concrete blanket south to include the 54" culvert. A wire enclosed riprap erosion control blanket at the outlet and grading of a ditch to the Beta Channel will be required. This will be done by our Contractor at SCHS's expense.

The temporary detour to Forest Hills will connect to the existing frontage road north of Harper. This detour will include extension of the two 36" culverts to drain SCHS's property. We do not expect this detour to have much value after it is no longer needed, and we expect to remove it; however, if a portion on the south end is useful to you we can retain it.

If the driveway you plan to establish 300 feet south of the drainage easement is in place when the frontage road is being constructed, we can extend a turnout from the frontage road to SCHS property. We would prefer that you locate this driveway farther north as this could have the advantages of a safer access point at the frontage road and a less desireable route for drivers who would use your parking lots and internal roads from Harper Drive.

Reversion of the 35 foot strip of land previously dedicated for frontage road improvements should be requested of the City of Albuquerque. We could not support reversion until the changes to the frontage road system are completed and in operation.

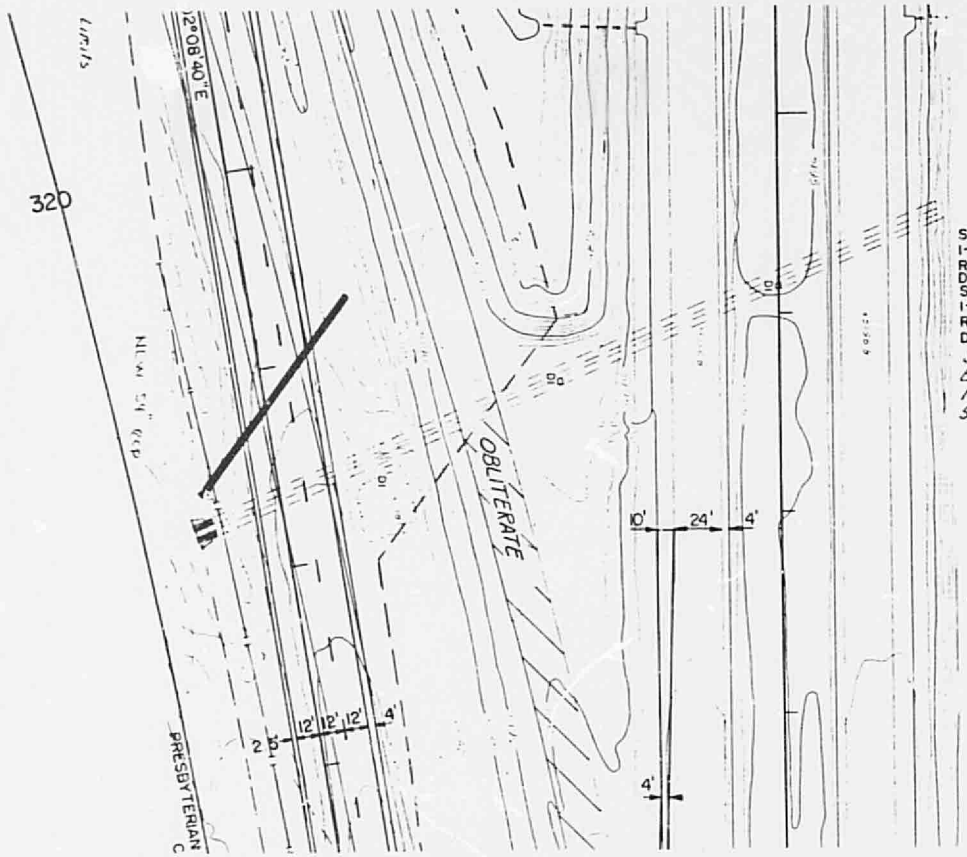
Very truly yours,

Donald E. Lepic

Donald E. Lepic
Technical Services Engineer

DEL/lls

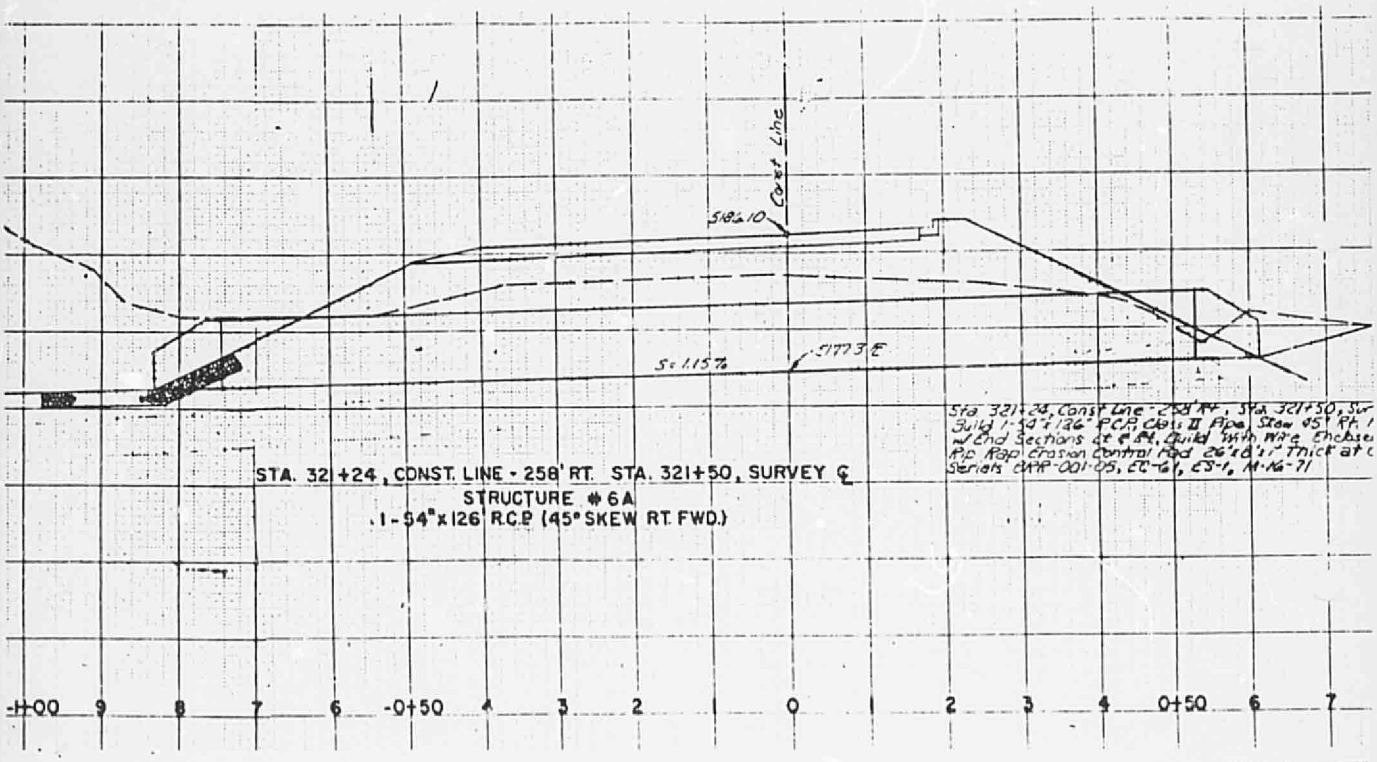
xc: Luis Duffy
K. E. Bower, Jr.
Gordon Aird, SCHS
Jack J. Clifford
Thornton Schwenk, Boyle Engineering
Don Arp, District 3
Bill Moore, District 3
Joseph A. Martin, City Transportation



~~320~~

STA 320+80.45
1-36"x443.34'
RCP 23° Skew Rt FWD
D.A. 128 A.C.
STA 320+87.31
1-36"x443.34'
RCP 23° Skew Rt FWD
D.A. 128 A.C.

Sta 320+80.45 & 320+87.31
Extend 2-36" Culvert Pipe
10' Rt, w/ Conc. Blanket Re-
Skew 23° Rt Fwd


Const Line
518.10
S=1.15%
517.73E
Sta 321+24, Const Line - 258' Rt., Sta 321+50, Su
Bulid 1-54" x 126' RCP Class II Pipe, Skew 45° Rt.
w/ End Sections at ℄ Rt. Build with Wire Enclose
Rip Rap Erosion Control Pad 26' x 8' x 1' Thick at
Series CMP-001-05, EC-61, ES-1, M-K6-71
STA. 321+24, CONST. LINE - 258' RT. STA. 321+50, SURVEY ℄
STRUCTURE # 6A
1-54" x 126' R.C.P. (45° SKEW RT. FWD.)
-1+00
9
8
7
6
-0+50
4
3
2
1
0
1
2
3
4
0+50
6
7

E18/D29

UPDATE TO DRAINAGE REPORT

FOR THE

NORTHSIDE PROFESSIONAL OFFICE BUILDING

AT THE NORTH CAMPUS OF

PRESBYTERIAN HOSPITAL

6100 PAN AMERICAN HIGHWAY, N.E.
ALBUQUERQUE, NEW MEXICO

(E18 - D29a)

E - 17 & E - 18

RECEIVED
JUN 28 1984
HYDROLOGY SECTION

DECEMBER 27, 1983

(Rev. No. 1 - May 30, 1984)

Boyle Engineering Corporation
consulting engineers
Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110
505 883-7700

Boyle Engineering Corporation

Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110

consulting engineers

505 / 883-7700

City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

June 28, 1984
S01-240-00

Attn: Billy J. Goolsby, P.E.
City/County Flood Plain Administration

RE: REVISIONS TO DRAINAGE REPORT FOR THE NORTHSIDE PROFESSIONAL OFFICE BUILDING 6100 PAN AMERICAN HIGHWAY N.E. ALBUQUERQUE, NEW MEXICO E18-D29a

Dear Billy:

The attached report is an update to our December 27, 1983, submittal. Moreover, as we discussed on June 26, it contains the calculations which will permit a reduction in pond depths to 18 inches, thereby eliminating the required safety fence around the Temporary Drainage Easement.

We believe that our report still meets the checklist requirements of the DPM, and therefore request your approval as soon as possible.

Sincerely,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer

cc: Bob Moraga; Stevens, Mallory, Pearl & Campbell
Bob Kastning; Jack M. Clifford & Co.

RECEIVED
JUN 28 1984
HYDROLOGY SECTION

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REDIVISION OF PARCELS "B-1-A" & "B-2-A" (NOW COMPRISING TRACT "B-5") UNIT 5, ACADEMY ACRES SUBDIVISION, FILED JAN 11, 1984

DRAINAGE IMPROVEMENTS FOR THE N. CAMPUS OF PRESBYTERIAN HOSPITAL ASSOCIATED WITH THE CONSTRUCTION OF THE I-25 E. FRONTAGE ROAD REF. NMSHD PROJ. NO. I-IR-025-4(66) 227, SHTS 1 & 2, 3-20-84

INFORMATION SHEET

E18-D29a

PROJECT TITLE Northside Prof. Office Bldg. TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. E-17 & 18 CITY ADDRESS 6100 Pan American Hwy., N.E.

LEGAL DESCRIPTION A portion of parcel B-5 Academy Acres, Unit 5.

ENGINEERING FIRM Boyle Engineering Corporation CONTACT Thornton D. Schwenk

ADDRESS 3939-D San Pedro, N.E. PHONE (505) 883-7700

OWNER Jack M. Clifford CONTACT Bob Wharton

ADDRESS 2400 Louisiana N.E.,Suite 190,Bldg.4 PHONE 884-5573

ARCHITECT Stevens,Mallory,Pearl & Campbell CONTACT Bob Moraga

ADDRESS 115 Amherst Dr. S.E. PHONE 255-8668

SURVEYOR Albuquerque Surveying Company CONTACT Fred Sanchez

ADDRESS 2119 Menaul, N.E. PHONE 884-2036

CONTRACTOR Klinger Construction CONTACT Tom Novak

ADDRESS 2400 Louisiana, N.E. PHONE 881-4961

PRE-DESIGN MEETING:

X YES (11-28-83)
___ NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

RECEIVED JUN 28 1984 HYDROLOGY SECTION

DATE SUBMITTED: Report dated Dec. 27, 1983 January 3, 1984 BY: Thornton D. Schwenk

RE-SUBMITTED: May 30, 1984

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. _____ DATE: 11/28/83

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: [redacted] Northside Professional (E17&18) Office Building

WHO	REPRESENTING
ATTENDANCE: Thornton Schwenk	
Robert Moraga	
Billy Goolsby	

FINDINGS: ① Update Master Plan for entire site showing Phase development.

② If demonstrated, ~~free disch~~ that downstream capacities will be constructed then free discharge will be allowed. For the interim, ponding is to be provided.

③ Drainage easements may be incorporated in ponding until pond is eliminated. Temporary fencing around pond required if depth is over 18". *

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

SIGNED: Billy Goolsby — SIGNED: Thornton A. Schwenk

TITLE: CE/Hydrology — TITLE: SR. CIVIL ENGR. BOYLE ENGINEERING CORP.

DATE: 11/28/83 — DATE: 11-28-83

* Coordination between City, State and developer should be entertained for the improvement to frontage road with particular attention to structure under detour.

DRAINAGE REPORT

for the

NORTHSIDE PROFESSIONAL OFFICE BUILDING

at the North Campus of

PRESBYTERIAN HOSPITAL

occupying a 3.262-acre portion of the 34-acre Tract B-5
of Academy Acres Subdivision

6100 Pan American Highway, N.E.

Albuquerque, New Mexico

E17 - D29a

December 27, 1983

(Revision No. 1, May 30, 1984)

I. PURPOSE:

The purpose of this report is to present information, calculations, and recommendations relative to storm runoff for the site of the proposed Northside Professional Office Building, a medical support facility being developed by Jack M. Clifford & Co. within the North Campus of Presbyterian Hospital.

II. SCOPE:

This report is limited to an investigation of the existing and proposed conditions which affect storm flows on the study site. The drainage scheme must also incorporate certain design features approved by the City of Albuquerque in the Drainage Reports for the adjacent hospital facilities. These facilities are the Anne Pickard Convalescent Hospital (APCH), (recently renamed the Pickard Presbyterian Hospital) and the Northside Presbyterian Hospital (NPH), both owned and operated by the Southwest Community Health Services (SCHS). Finally, the drainage solution must be coordinated with the New Mexico State Highway Department, whose contractor, Yeargin Western, Inc., has begun re-construction of the I-25 East Frontage Road under Project I-IR-025-4(66) 227.

The proposed development is to be protected from flooding due to storm runoff, without increasing the threat of damage to downstream properties. Upstream areas which have been constructed since 1972 are presumed to meet the restrictions of applicable drainage ordinances and resolutions, beginning with AMAFCA Resolution 1972-2. Estimation of maximum runoff is based on the site being developed as proposed.

III. LOCATION:

The study site is a 3.262-acre (142,100 sq. ft.) parcel located adjacent to the east right-of-way of the Interstate 25 East Frontage Road (State Road 422) and west of a fully developed residential neighborhood in the Northeast Heights of Albuquerque. (See Figure 1.) The site comprises a portion of the 34-acre Presbyterian North Campus lying between Forest Hills Drive and Harper Drive. The site includes a 400' x 15' parking easement along the south property line of Parcel B-5-B, containing 6000 sq. ft. (0.1377 acres). The bulk of the site is contained in parcel B-5-B itself, which is legally defined as Parcel B-5-B of Tract B, Unit 5, Academy Acres Subdivision as shown on the "Redivision of Parcels 'B-1-A' and 'B-2-A' ", Unit 5, Academy Acres Subdivision, December 1983". The site is zoned SU for Hospital Use.

The lands surrounding Parcel B-5-B are described as follows:

The north property line is bounded by a 30-ft permanent drainage easement, dedicated to the City and filed on August 19, 1981 in Volume C18, Folio 162 of the records of the Bernalillo County Clerk. This easement lies between the site and a 1.782-acre Temporary Drainage Easement to the north, which was granted to the City of Albuquerque for a temporary detention pond and which was filed on October 26, 1983 in Volume C22, Folio 90.

The east property line is bounded by the proposed internal roadway connecting the APCH and the NPH. This roadway is presently under construction.

The south property line is bounded by an undeveloped 4.2 acre parcel at the intersection of the Frontage Road and Harper Drive.

The west property line is coincident with the right-of-way line of the East Frontage Road.

IV. EXISTING DRAINAGE CONDITIONS:

A. Topography and Soils

Slopes on the site are generally from east to west. The high point is approximately 5194 MSL at the east tip of the property. The low point is at elevation 5181 at the northwest corner. The distance between these points is 550 feet, giving an average slope of 2.36%.

Vegetative cover consists of a light growth of native grass and brush. The natural soils at the site consist of interbedded layers of silty sand and sandy clay, which are described in the SCS Soil Survey of Bernalillo County as a combination of "EmB - Embudo: gravelly, fine sandy loam", and "EtC - Embudo-Tijeras complex". The Hydrologic Soil Group for both soils is "B". (See Figure 7.)

B. On-Site Drainage Conditions

A portion of the existing detention pond, constructed orginally for the APCH, extends into the site as shown in Figure 2. Calculated 100-year flows of 83 cfs from the subdivision to the east (Academy Acres Unit 3) would pass through the pond and over the spillway within the 30-ft easement due to the fact that the 24-in pond drain has a design capacity of only 12 cfs. As discussed below this pond will temporarily be relocated to the Temporay Drainage Easement shown on Figure 3.

Runoff from the remainder of the site and controlled discharge from the detention pond presently enters the ditch of the Frontage Road where it flows slowly northward to two existing 36-in culvert pipes which drain under Interstate 25 at Station 329+90.

In the event of the 100-year storm, the ditch within the right-of-way and a small strip of land within the site (approximately 5 feet wide) lie in the Zone A Flood Boundary as shown on the Floodway Maps, Community Panel Numbers 350002 16 & 17 published on September 15, 1983, by the Federal Insurance Administration.

This condition results because the two 36-in RCP's do not have sufficient capacity to pass the calculated 309 cfs coming from three directions. During the 100-year storm the water level would rise to approximately 5182.6 (Ref. 1) and therefore flow across the existing Frontage Road, as shown on the floodway map, with a depth of several inches. Drainage improvements designed for this site and for adjacent sites are expected to mitigate this flooding problem.

C. Approved Drainage Reports on Adjacent Parcels

Further details and discussions of site drainage solutions can be found in the following public documents on file with the City Engineer's office.

Reference 1, E18-D15a,b,c

Anne Pickard Convalescent Hospital Drainage Study, Revision No. 5, dated January 29, 1982, prepared by Boyle Engineering. The Drainage Certification for this site (E18-D5A) was approved by the City Engineer's office on May 31, 1983.

Reference 2, E18-D29

North Satellite Hospital Drainage Study, Revision No. 1, dated May 11, 1983, prepared by Boyle Engineering Corporation. The Drainage Study for this 20.5-acre site was approved on May 23, 1983, but certification of the project awaits completion of construction in late 1984.

V. PROPOSED DRAINAGE CONDITIONS:

A. Criteria

The computations, conclusions and recommendations contained in this report are based on criteria found in the City of Albuquerque Development Process Manual, Volume 2, Design Criteria.

B. Drainage for the Entire 34-acre Site

A brief historical summary of the drainage solutions for the various parcels within the 34-acre site is given as follows:

The present detention pond was required under then-current drainage policy (1981), which stated that the difference in runoff between the developed and the undeveloped site had to be detained. This policy was relaxed with the enactment of Ordinance No. 63-1982 on October 4, 1982. Under the new ordinance ponding is not required if it can be demonstrated that downstream drainage structures have sufficient capacities to carry the increased flows.

With the enactment of this ordinance, SCHS and its Consulting Drainage Engineer proceeded with investigations which indicated that appropriate downstream structures could be built to eliminate the flooding problem adjacent to its property. Such construction would then permit free

discharge from the 34-acre site and permit the elimination of the original APCH detention pond. Full and efficient land use would then be possible.

As development and construction continues on the remaining land, interim ponding will still be provided until construction of the improved downstream facilities is complete. These same findings were set forth in the initial planning conference with the City Engineer/Hydrology on November 28, 1983 and are included in the present report for reference.

Proceeding concurrently with the Presbyterian Hospital work, the New Mexico State Highway Department and their consultant, Bohannan-Huston, Inc., completed the detail design of Project I-IR-025-4(66) 227, which included certain drainage improvements in the Frontage Road system. The Bohannan-Huston report entitled, "Interstate 25 Frontage Roads, Drainage Structure Analysis", dated October 7, 1982, included recommendations to either extend existing structures within the highway right-of-way or to replace them if they had insufficient capacity.

Plate I of the Bohannan report recommended that the two 36" x 443' RCP's at Station 320+90 be replaced by one 84" RCP. An alternate, and less-costly, scheme was to leave the two 36-inch culverts in place and add a new 54" RCP which would supplement the capacity at the east inlets. However due to budgetary limitations, the NMSHD decided that replacement costs of the undersized structures would be borne by the affected property owners and developers. Consequently the Bohannan proposals were deleted from the final contract drawings prior to bid letting for their project. Instead, as shown on these drawings, the two 36-inch RCP's are to be extended 12 feet to accommodate the increased width of the new Frontage Road.

The NMSHD agreed to permit construction of the 54-inch pipe. This would be done by the State's Contractor, but at SCHS expense. (Reference November 28, 1983 letter from Don Lepic, TSE to Dan Buchly.) However, further analysis indicated that the recommended 54-inch culvert would not sufficient to pass the flows and still maintain backwater at an acceptable elevation for the site. Accordingly, an 83" x 57" CMP arch culvert was designed to supplement the capacity of the existing two 36" RCP culverts and limit the high water level to elevation 5183.10. The construction of this proposed improvement under the East Frontage Road was approved by the NMSHD District Office on May 2, 1984, for incorporation in Project I-IR-025-4(66) 227. (See Figure 6 and Sheets 1 & 2 of Job S14-100-51.)

C. Drainage for the Specific Site of the Northside Professional Office Building

At this time, specific approval is being sought only for the development of the 3.262-acre parcel. Therefore only the drainage factors which affect this development will be discussed further.

The site will be graded in such a way that runoff will continue to flow westward into the east ditch of the Frontage Road. Surface runoff will exit the property through curb openings in the parking lot curb. The ditch will be regraded and reshaped, but will continue to allow the flow to pass northward to the inlets of the two 36-inch RCP's.

No ponding is planned for this site. Therefore to accommodate the increase in developed flow, the net discharge for the remainder of the 34-acre site will be decreased by increasing the size of the relocated detention pond within the 1.782-acre Temporary Drainage Easement. The 5-year controlled discharge from this pond will also then be decreased as necessary. As presented, this solution does not depend on the new 83" x 57" CMP arch being in place to supplement the existing 36-inch culverts.

VI. EROSION CONTROL PLAN

This site discharges directly into a drainage ditch within the public right-of-way at the I-25 East Frontage Road. All downstream discharge past this point is confined to other public rights-of-way (I-25, the Beta Channel and the Pino Arroyo). Because the low point in the property is lower than the surface of the Frontage Road detour by at least eight feet, any soil deposition from site runoff will be confined almost entirely to the ditch as the sediment-laden water ponds against the berm of the detour. Any such deposition occurring in this ditch will be re-graded when the new Frontage Road construction is completed in August 1985. Construction on the site is scheduled to be completed slightly before the road construction, with the building being occupied by July 1985. No further erosion control is therefore necessary.

VII. GENERAL RECOMMENDATIONS FOR PHASED CONSTRUCTION

A. For the immediate development of the 3.262 acre site:

1. Relocate and enlarge the existing APCH detention pond within the Temporary Drainage Easement.

2. Grade the existing site to permit runoff to reach the ditch containing the inlets to the extensions of the existing 36-inch RCP's.

B. For future development of the remaining sites within the 34-acre parcel:

1. Construct the new 83" x 57" CMP culvert and the associated slope protection within the Frontage Road right-of-way.

2. Provide or await improvements of remaining downstream structures, specifically, the Beta Channel.

3. Eliminate the temporary pond and regrade the north parcel.

4. Replat the 34-acre parcel in accordance with the reversionary language in the Plat for Temporary Drainage Easement.

VIII. FINDINGS AND CONCLUSIONS FOR 3.262-ACRE SITE

A. The 100-year developed discharge from parcel B-5-B is 13.5 cfs which exceeds the undeveloped flow by 8.34 cfs. The total developed runoff is 23,200 cu. ft. which exceeds the undeveloped runoff by 14,340 cu.ft.

B. Instead of ponding the net runoff on the subject property, the size of the detention ponds in the adjacent temporary drainage easement will be increased to accommodte an additional 14,340 cu.ft.

C. A thorough analysis of the percent imperviousness for the two sites upstream of the ponds resulted in a reduction of the coefficient of runoff "C" from 0.9 to 0.55. The ponding requirement for the APCH and the NPH sites could therefore be reduced from 98,471 to 71,000 cu.ft. The ponding requirement to allow free discharge from the Northside Professional Office Building site could be reduced from 112,811 to 85,340 cu.ft.

D. Reduction in computed runoff reduced ponding depth to 18", thereby eliminating the safety requirement of chain link fencing from around the ponds on the Temporary Drainage Easement.

E. Pond drainage culverts have the capacity to empty the ponds in less than two hours, at a 5-year undeveloped rate.

F. The proposed development is protected from off-site flooding due to storm-runoff, without increasing the threat of damage to downstream properties.

G. The two 36" RCP culverts, by themselves, do not have sufficient capacity to pass the total 100 year flow reaching that point, even with controlled discharge from the APCH and NPH sites. Water would pond in the Frontage Road right-of-way to elevation 5182.6 with the maximum water surface extending into the first row of parking on the property. After construction of the approved 83" x 57" culvert, this flood condition would be eliminated. The total capacity at this point will be 347 cfs with the CMP arch in place, to accept a total runoff of 263 cfs. The construction of this CMP arch culvert by the NMSHD will occur simultaneously with the final stages of construction on the NPOB site.

Respectfully submitted,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer

APPENDIX

DRAINAGE CALCULATIONS

DRAINAGE CALCULATIONS

NORTHSIDE PROFESSIONAL OFFICE BUILDING

at the North Campus of

PRESBYTERIAN HOSPITAL

occupying a 3.262-acre portion of the 34-acre Tract B-5
of Academy Acres Subdivision

6100 Pan American Highway, N.E.

Albuquerque, New Mexico

E17 - D29a

December 27, 1983

(Revision No. 1, May 30, 1984)

Prepared by

BOYLE ENGINEERING CORPORATION

I. TIME OF CONCENTRATION:

Basin length, L = 550 ft

Elev. difference = 5194 - 5181 = 13 ft

Slope, S = 13/550 = 0.0236 = 2.36%

$T_c = 0.0078\ (L^{0.77}/S^{0.385})$ (P. 22.2-3, DPM)

$= 0.0078\ (550^{0.77}/0.0236^{0.385})$

= 4.25 min. Use minimum T_c = 10 min.

II. RAINFALL INTENSITY: (Ref. Plate 22.2 D-1, DPM)

i_{100} = 2.20 inches (100-year, 6-hour rainfall volume)

$I_{100} = i_{100}\ (6.84)\ T_c^{-0.51}$ (Plate 22.2 D-2, DPM))

$= 2.20\ (6.84)\ 10^{-0.51}$

$= 4.65$ inches/hr

$I_5 = 0.541\ I_{100}$ (Plate 22.2 D-1, DPM)

$= 0.541\ (4.65) = 2.52$ inches/hr

III. UNDEVELOPED FLOWS AND VOLUMES:

A = 3.262 acres = 142,100 sq ft

C = 0.34 (Soil Group B)

$V_{100} = (2.20/12)(142,100)(0.34) = 8,860$ cu ft

$Q_{100} = 0.34\ (4.65)(3.262) = 5.16$ cfs

IV. DRAINAGE AREAS AND "C" FACTORS: (Plate 22.2 C-1, DPM)

SCS Soil Group: B

AREA NO.	DESC.	AREA (acres)	UNDEVL.	PLANTED	IMPERVIOUS	PERCENT IMPERVIOUS	"C" FACTOR
1	Bldg.	0.409	0.	0.	0.409	100.	1.0
2	Parking	2.646	0.	0.	2.646	100.	1.0
3	Landsc.	0.207	0.	0.207	0.	0.	0.34
		3.262			3.055		

Percent impervious = 3.055/3.262 x 100 = 93.7

Average "C" Factor = 0.89

V. DEVELOPED FLOWS AND VOLUMES AND NET DISCHARGE:

$V_{100} = (2.2/12)(142,100)(0.89) = 23,200$ cu ft

$Q_{100} = 0.89(4.65)(3.262) = 13.5$ cfs

Net discharge = Developed V_{100} - Undeveloped V_{100}

23,200 - 8,860 = 14,340 cu ft

VI. RE-DESIGN OF TEMPORARY PONDING AREA:

Reference 1 (Section II, Appendix A, North Satellite Hospital Drainage Study, Revision No. 1, May 11, 1983, E18 - D29)
No ponding is planned for the 3.262-acre site. To accommodate the net discharge of 14,340 cu. ft., the volume of the main ponding area for the Anne Pickard Convalescent Hospital (APCH)

and the Northside Presbyterian (North Satellite) Hospital (NPH) will be increased. The enlarged ponding area will be located within the 1.7825-acre (77,644 sq. ft.) Temporary Drainage Easement shown on the plat "Tract 'B-5', Unit 5, Academy Acres Subdivision", filed for record in the Office of the County Clerk of Bernalillo County, New Mexico, January 11, 1984, in Volume C23, Folio 1. (See Figure 3 & Plat.)

The ponding requirements based on the original drainage reports (Refs. 1 & 2) were:

APCH & NPH (page A-4, Reference 1):	98,471 cu. ft.
NPOB (net discharge):	14,340
	112,811 cu. ft.

Due to the slope of the Temporary Drainage Easement, two ponds in series will be used to detain the required volume. Assume for a moment that the full area of the Easement can be utilized. The average pond depth is then:

$$d_{avg.} = 112{,}811/\ 77{,}646 = 1.45 \text{ ft.}$$

Because a portion of the Easement area is taken up by berms and setbacks from existing waterlines, the actual depth will be greater than 18 inches. This would mean that the temporary ponds would have to be protected with chain link fence. To eliminate the need for expensive fencing, the ponding requirements stated in the APCH and NPH reports will be re-examined to see if they can be reduced, thereby reducing the pond depth below 18".

AREA DESC.	AREA (acres)	UNDEVL.	PLANTED	IMPERVIOUS	PERCENT IMPERVIOUS	"C" FACTOR
APCH (Ref. 1)						
W. Park. Lot	0.890	0.	0.	0.890	100.	1.0
E. Park. Lot	1.940	0.	0.	1.940	100.	1.0
Hospital	1.539	0.	0.	1.539	100.	1.0
Sidewalks	0.085	0.	0.	0.085	100.	1.0
Landscap.	6.256	2.500	3.756	0.	0.	0.34
	10.710			4.454		

Avg. percent impervious = 4.454/10.710 x 100 = 41.6

Avg. "C" = 0.53

NPH (Ref. 2)						
Area 1	6.560	0.	2.250	4.310	65.7	0.66
Area 5	3.250	2.560	0.	0.690	21.2	0.43
	9.810			5.000		

Avg. percent impervious = 5.000/9.810 x 100 = 51.0

Avg. "C" = 0.58

Composite average percent impervious

= (4.454 + 5.000)/(10.710 + 9.810) x 100 = 46.1

Composite average "C" = 0.55

Re-compute required pond volume for APCH and NPH:

Q_5 = 20.68 (Ref. 2, page A-3)

Allowable pond discharge per acre-imperviousness:

Q_o = 20.68/(20.52 x 0.55) = 1.832

Maximum storage time:

$T = -25 + (7087.5/Q_o)^{0.5}$

$= -25 + (7087.5/1.832)^{0.5} = 37.19$

Maximum volume of storage per acre-imperviousness

$V_S = 11,340\ T/\ (T + 25)$

$= 11,340\ (37.19)/(37.19 + 25) = 6782$

Total volume of storage required for APCH & NPH:

$V_T = V_S AC$

$= 6782(20.52)(0.55) = 76,500$ cu. ft. (cf. 98,471 in Ref 2)

The ponding requirement is therefore reduced by 18,971 cu. ft. compared to the May 11, 1983, NPH Report.

The ponding requirement of 76,500 cu. ft. can be reduced even further because approximately 1.5 acres of Area 5 (NPH) overlaps the NPOB site and is therefore included twice in the runoff calculations. Reducing the APCH and NPH site by this amount gives:

A = 20.52 - 1.50 = 19.02 acres

$Q_5 = 0.4\ (2.52)(19.02) = 19.17$

$Q_o = 19.17/(19.02)(0.55) = 1.833$

$T = -25 + (7087.5/1.833)^{0.5}\ 37.18$

$V_S = 11,340\ (37.18)/(37.18 + 25) = 6781$

The new ponding requirements for APCH and NPH are:

V_T = 6781 (19.02)(0.55) = 71,000 cu. ft.

Net runoff for NPOB site = 14,340

Total required for all sites = 85,340 cu. ft.

By graphical methods the available ponding was determined as:

Pond M-1

Between elev. 87.0 (bottom) and 88.0 =	29,000 cu. ft.	
Between elev. 88.0 and 88.5 (spillway) =	16,100	
		45,100

Pond M-2

Between elev. 84.0 (bottom) and 85.0 =	21,700	
Between elev. 85.0 and 85.5 (spillway) =	11,700	
		33,400

Area 1 Pond on NPH site

Unused reserve capacity in pond for NPH =	13,500
TOTAL CAPACITY =	92,000 cu ft
TOTAL REQUIRED =	85,340 cu ft

Therefore pond depths less than 18" can be achieved and fencing is not required.

VII. CHECK CAPACITIES OF POND DISCHARGES:

Limit the discharge to the 5-year undeveloped discharge using i_5 = 2.52 inches.

Pond M-1

Q_5 = 0.34 (2.52)(19.02) = 16.3 cfs

24" CMP: HW/D = 1.5/2.0 = 0.75

Q = 7.5 cfs BPR Chart 5, Dec 1965

18" CMP: HW/D = 1.5/1.5 = 1.0

Q = 4.8 cfs

Total discharge = 7.5 + 4.8 = 12.3 (less than 16.3 cfs limit)

Pond M-2

Q_5 = 0.34 (2.52)(20.32) = 17.4 cfs (incl. areas of ponds)

Two 24" CMP's: Q = 7.5 cfs

Total discharge = 7.5 + 7.5 = 15.0 (less than 17.4 cfs limit)

VIII. CHECK SPILLWAY CAPACITIES FOR MAIN PONDS

Use trapeziodal wier formula: $Q = C\ L\ H^{1.5}$

or: $H = (Q/LC)^{2/3}$

where C = 3.3

L = 25' length of spillway

Q = 100-year runoff passing through the pond

On-site:

Q_{100} = 0.55(4.65)(20.52) = = 52.5 cfs

Off-site:

Sub-Basin "A" (Ref. 1): Q = 40.8

Sub-Basin "B" (Ref. 1): Q = 42.0

Total flow routed thru ponds 135.3 cfs

$H = (135.3/25x3.3)^{2/3} = 1.39'$

The existing spillway depth is 1.5' > 1.39', therefore the spillway for Pond M-2 has adequate capacity. By inspection, the spillway for Pond M-1 is adequate as Q_{100} is less, Pond M-1 having a smaller tributary area than Pond M-2.

IX. CHECK CAPACITY OF APPROVED 83" x 57" CMP ARCH CULVERT AND TWO 36" RCP CULVERTS UNDER I-25

The existing theoretical capacity of the two RCP culverts is given in Figure 5 (Plate I, Drainage Structure Analysis Report for the I-25 Frontage Roads, by Bohannan-Huston, 10-7-82)

The capacity of the approved 83" x 57" CMP arch culvert is given in Figure 9 (Figure 3, Drainage Analysis of Downstream Facilities for the 34-acre North Campus of Presbyterian Hospital, by Boyle Engineering Corp[oration, May 1984).

Peak capacity 2-36" RCP, STA 320+00 , Q_{100} = 140 cfs
Peak capacity 83" x 57" CMP arch, STA 321+12, Q_{100} = 207

TOTAL PEAK DISCHARGE CAPACITY 347 cfs

The sum of the peak flows reaching these culverts is tabulated as follows:

Sub-Basin "A" (Ref. 2)	=	40.8 cfs
Sub-Basin "B" (Ref. 2)	=	42.0
APCH & NPH sites (controlled discharge)	=	20.5
NSPOB site (free discharge)	=	13.5
Ditch flow from site to south of B-5-B	=	9.2
Ditch flow from north (Ref. 1)	=	136.8

TOTAL RUNOFF	=	262.8 < 347 cfs O.K.

X. CHECK CAPACITY OF DITCH AT WEST PROPERTY LINE:

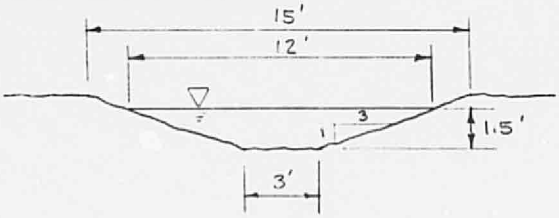
INPUT DATA

n	Q (cfs)	S (ft/ft)	B (ft)	Z	D (ft)
.0300	Unknown	.01820	3.00	3.000	1.500

OUTPUT DATA

Q (cfs)	V (fps)	A (sq ft)	R (ft)	S (ft/ft)	n	B (ft)	Z	Depth (ft)	Crit Depth (ft)
70.1	6.23	11.3	.90	.01820	.0300	3.000	3.000	1.500	1.596

Q = 70.1 >13.5 free discharge, O.K.



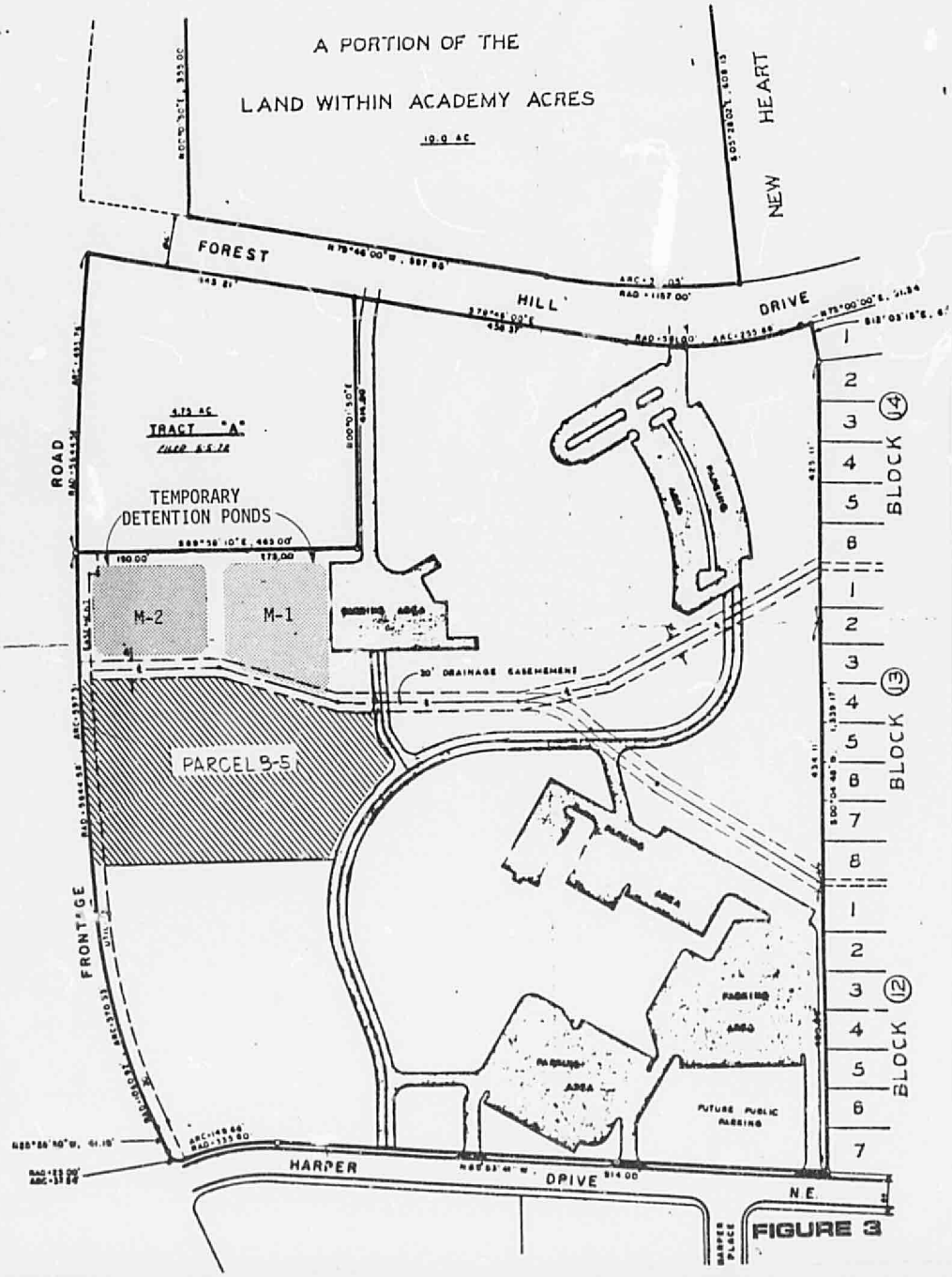

A PORTION OF THE
LAND WITHIN ACADEMY ACRES
10.0 AC
NEW HEART
FOREST HILL DRIVE
4.75 AC
TRACT "A"
TEMPORARY
DETENTION PONDS
M-2
M-1
PARCEL B-5
20' DRAINAGE EASEMENT
PARKING AREA
FUTURE PUBLIC PARKING
FRONTAGE ROAD
HARPER DRIVE N.E.
BLOCK 14
BLOCK 13
BLOCK 12

FIGURE 3

STATION	EXISTING STRUCTURE	STRUCTURE NUMBER	AREA (Acres)	RUNOFF COEFFICIENT (C)	FLOW LENGTH (FT)	ELEVATION DIFFERENCE (FT)	TIME OF CONCENTRATION (IN MIN.)	2yr	10yr	100yr	Q100 (CFS)	HEADWATER DEPTH Q100 (FT)	HEADWATER DEPTH Q50 (FT)	HEADWATER DEPTH 50 YR STORM (FT)	HEADWATER 100 YR STORM (FT)	HEADWATER AVAILABLE (FT)	STRUCTURE SLOPE (%)	MANNINGS "n"	CAPACITY (CFS)	OUTLET VELOCITY AT NORMAL DEPTH	EXISTING STRUCTURE CAPACITY (CFS)			RECOMMENDED STRUCTURE	COMMENTS
[illegible]	[illegible]	1	373	55	2760	2.6	7.22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2	35	55	9750	140	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	499	55	1125	226	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	6	[illegible]	55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	7	10	35	250	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	8	10	35	1250	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	9	0	0	[illegible]	2	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	10	21	35	2750	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	11	25	50	[illegible]	66	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	12	0	0	0	0	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	13	18	35	1750	45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	14	[illegible]	0	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	15	0	0	0	0	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	16	53	35	4200	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	17	53	35	4200	125	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	18	50	35	4200	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	19	125	40	[illegible]	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	20	125	40	[illegible]	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	21	125	40	[illegible]	137	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(PLATE I)
DRAINAGE STRUCTURE ANALYSIS
I-25 FRONTAGE ROADS
OCTOBER 7, 1982
BOHANNAN-HUSTON

FIGURE 5

NEW MEXICO STATE HIGHWAY DEPARTMENT

FORM A 267

CONFERMEMO

TO Thorton Schwenk, Boyle Engineering DATE 5-2-84

Your drainage improvement plans for N. Campus, Presbyterian Hospital dated 4/12/84 are approved for incorporation in project # I-IR-025-4(66)227.

SIGNED Barbra Bovee

Barbra Bovee, District III

PLEASE REPLY HERE

TO DATE

SIGNED

NOTE: INDIVIDUAL ORIGINATING CONFERMEMO RETAINS YELLOW COPY. FORWARDING FIRST AND TRIPLICATE INTACT WITH CARBONS. ADDRESSEE REPLIES, EXTRACTS CARBON, RETAINS TRIPLICATE, RETURNING FIRST PART TO ORIGINATOR OF CONFERMEMO.

FIGURE 6

CONTROL STATION DATA

City of Albuquerque, New Mexico
Public Works Department
Engineering Division

Name of Station I25-16 State New Mexico County Bernalillo

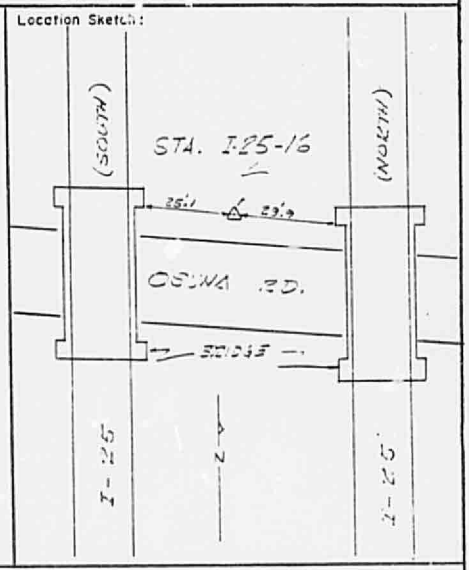
Establishing Agency NMSHC Year 1969 Chief of Party S. R. Cunningham

Section ____ Township ____ Range ____ Map No. E17

Description: Station is located 6 miles NE of downtown Albuquerque, in the center of the median of U. S. Interstate Highway 25 (I-25), at the north end of the I-25 bridges crossing Osuna Rd., N.E. (See sketch opposite).

Station mark is a standard NMSHC brass tablet, stamped "I25-16, 1969", set in top of a concrete post, projecting 0.2 ft. above the ground.

Location Sketch:



HORIZONTAL DATA

FIELD METHOD: [X] Traverse [ ] Triangulation [ ] Trilateration

GEOGRAPHIC POSITION (NAD 1927) 2nd -order

Latitude 35° 09' 12.42868" Longitude 106° 35' 16.81229"

PLANE COORDINATES Projection TM State NM Zone Central

X 398,964.46 Y 1,511,266.74 Ground-to-Grid Factor 0.99966308

ELEVATION DATA

SPIRIT LEVEL ELEVATION (SLD 1929) Feet ____ Meters ____ -Order

TRIGONOMETRIC ELEVATION Feet 5195.7 Meters 1583.66

AZIMUTH DATA

O (or $\Delta\alpha$) Angle -0° 11' 41"

Station	Azimuth ° ' "	Back Azimuth	DISTANCE Feet	DISTANCE Meters
Heaven	227 16 10			

FIGURE 9

Boyle Engineering Corporation
consulting engineers / architects

OUTFLOW HYDROGRAPH

FOR : 2 - 36" & 1 - 83" X 57"

NORTH CAMPUS SITE

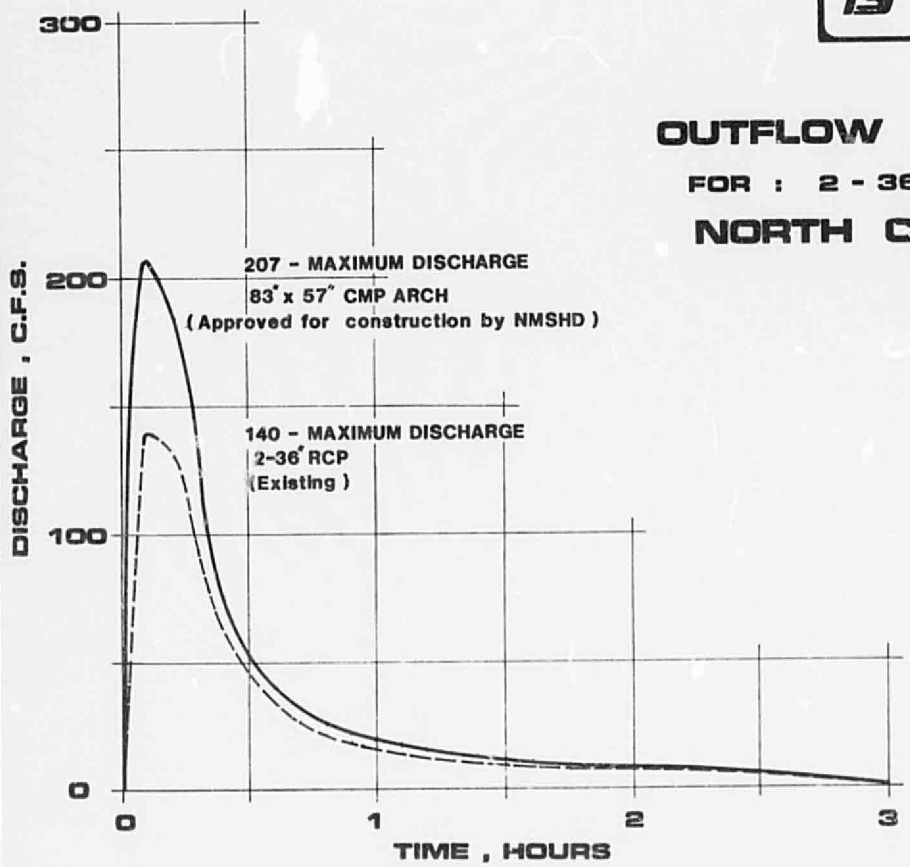


FIGURE 9

STATE OF NEW MEXICO
HIGHWAY DEPARTMENT

TONEY ANAYA
GOVERNOR

COMMISSION

Louis M. Whitlock
Chairman, Carlsbad

James W. Chaney
Vice-Chairman, Moriarty

Sosimo Padilla
Secretary, Albuquerque

Max Maez, Jr.
Member, Springer

Stephen T. "Bud" Richards
Member, Las Cruces

DEPARTMENT

hief Highway Administrator
L. A. Larranaga

General Office
P.O. Box 1149
Santa Fe, NM 87503
505-983-0100

District One Office
P.O. Box 231
Deming, NM 88030
505-546-2603

District Two Office
P.O. Box 1457
Roswell, NM 88201
505-622-8441

District Three Office
P.O. Box 3768-Station D
Albuquerque, NM 87110
505-821-4651

District Four Office
P.O. Box 30
Las Vegas, NM 87701
505-425-7527

District Five Office
P.O. Box 4127-Coronado Sta.
Santa Fe, NM 87503
505-983-0221

AN EQUAL
OPPORTUNITY
EMPLOYER

November 28, 1983

Mr. Dan Buchly
Dan Buchly and Associates
2201 San Pedro N.E.
Building 1, Suite 1200D
Albuquerque, NM 87110

Re: SCHS development, I-25 Frontage Roads - I-IR-025-4(66)227
Control Number: 333

Dear Mr. Buchly:

This is in response to your letter of November 15, 1983, and to confirm our discussion on November 18. Coordination with our Contractor and Project Construction Team for improvements within rights-of-way is essential. Our Construction Team Manager is Bill Moore, phone 841-6504.

Construction of a 54" culvert pipe under the east frontage road is acceptable. The inlet shall be immediately south of the two existing 36" culvert pipes (extended) and have the same invert elevation, and you will be required to extend the proposed concrete blanket south to include the 54" culvert. A wire enclosed riprap erosion control blanket at the outlet and grading of a ditch to the Beta Channel will be required. This will be done by our Contractor at SCHS's expense.

The temporary detour to Forest Hills will connect to the existing frontage road north of Harper. This detour will include extension of the two 36" culverts to drain SCHS's property. We do not expect this detour to have much value after it is no longer needed, and we expect to remove it; however, if a portion on the south end is useful to you we can retain it.

If the driveway you plan to establish 310 feet south of the drainage easement is in place when the frontage road is being constructed, we can extend a turnout from the frontage road to SCHS property. We would prefer that you locate this driveway farther north as this could have the advantages of a safer access point at the frontage road and a less desireable route for drivers who would use your parking lots and internal road from Harper Drive.

FIGURE 10

Reversion of the 35 foot strip of land previously dedicated for frontage road improvements should be requested of the City of Albuquerque. We could not support reversion until the changes to the frontage road system are completed and in operation.

Very truly yours,

Donald E. Lepic

Donald E. Lepic
Technical Services Engineer

DEL/lls

xc: Luis Duffy
K. E. Bower, Jr.
Gordon Aird, SCHS
Jack J. Clifford
Thornton Schwenk, Boyle Engineering
Don Arp, District 3
Bill Moore, District 3
Joseph A. Martin, City Transportation

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