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Danny Hernandez, Director

John P. Kelly, P.E.
Executive Engineer



Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214

M 12 DO/5 c

File

August 3, 2005

Doug Hughes, P.E.
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

Re: Juan Tabo Boulevard Bridge Crossing at Tijeras Arroyo

Dear Doug:

Following AMAFCA's initial comments on the proposed bridge crossing of the Tijeras Arroyo, we received from Ayres and Associates a report on potential sediment issues regarding the design of the bridge crossing. A copy of that report was forwarded to your office. A particular concern on the part of the sediment analysis was the potential for additional aggradation in the Tijeras Arroyo caused by the backwater pool associated with the bridge structure. As indicated in your initial report, the upstream water surface for the 100 year event immediately above the bridge could increase by as much as 5.2 feet, which obviously would cause a backwater pool that eventually could deposit sediment. Conclusions by Ayres and Associates was that up to 4 feet of accumulated sediment is possible in the backwater pool since there is available sediment for that deposition in the upper Tijeras Arroyo.

Per your letter of June 17th, you indicated that additional HEC-RAS information was modeled, assuming a 4 foot sediment accumulation at the bridge opening. Results were that if a 4 foot accumulation occurred immediately above the bridge, that the upstream water elevation would increase by 4 feet. Please submit that HEC-RAS analysis as additional information for the Drainage Report as soon as possible, in the normal form showing input data and the input cross-sections, and the resulting output information, so that we have a complete HEC-RAS file on the information that has been accumulated to date. I am not aware that the additional HEC-RAS information has been submitted to date.

As indicated in my original comments, please submit an inundation map that would provide data for the extent of the inundation pool upstream of the proposed crossing, for the 100 year and 500 year events. An additional inundation map including the additional 4 feet of water elevation increase should also be prepared and submitted to determine the upstream effect of the potential 4 foot deposition of sediment. The information submitted to date on your indicated sheets 3 and 8 is not sufficient to identify where the upstream water pool elevation increases will occur, relative to the upstream properties. The inundation map should reflect the water surface elevations for those areas that would receive an increase in water elevation above the normal 100 and 500 year water elevations for the existing channel. The inundation map should show the existing flood plain areas that will be impacted by the backwater from the bridge.

It would appear from the Ayres report that scour depths, and in general the hydraulic analysis of the bridge, is reasonable. Ayres suggested a design modification to lower the hard surfacing under

Doug Hughes
August 3, 2005
Page 2

the bridge 4 feet to allow for additional scour through the bridge opening in the case of a very large event. There appears to be no reason why the hard lining under the bridge could not be lowered and then backfilled to the current flow elevation, using typical erosive bed materials that would provide the suggested bed erosion to increase conveyance capacity for very large events. The upstream utilities can be protected with a hard-lined capping over those utilities to prevent possible washout in the case of such an erosive event. It may also be possible that, in lieu of capping, a cutoff wall downstream of those utilities could be installed that would effectively prevent erosion below a certain elevation to act as a protection barrier for those utilities. For a bridge of this type, crossing a major arroyo like the Tijeras, with potential flows in the 20,000 cfs range, and lacking any additional input for design for the sediment/erosion potentials for the Tijeras Arroyo, AMAFCA recognizes the information from Ayres and Associates as a significant contribution to a conservative design that should be incorporated into the final plan.

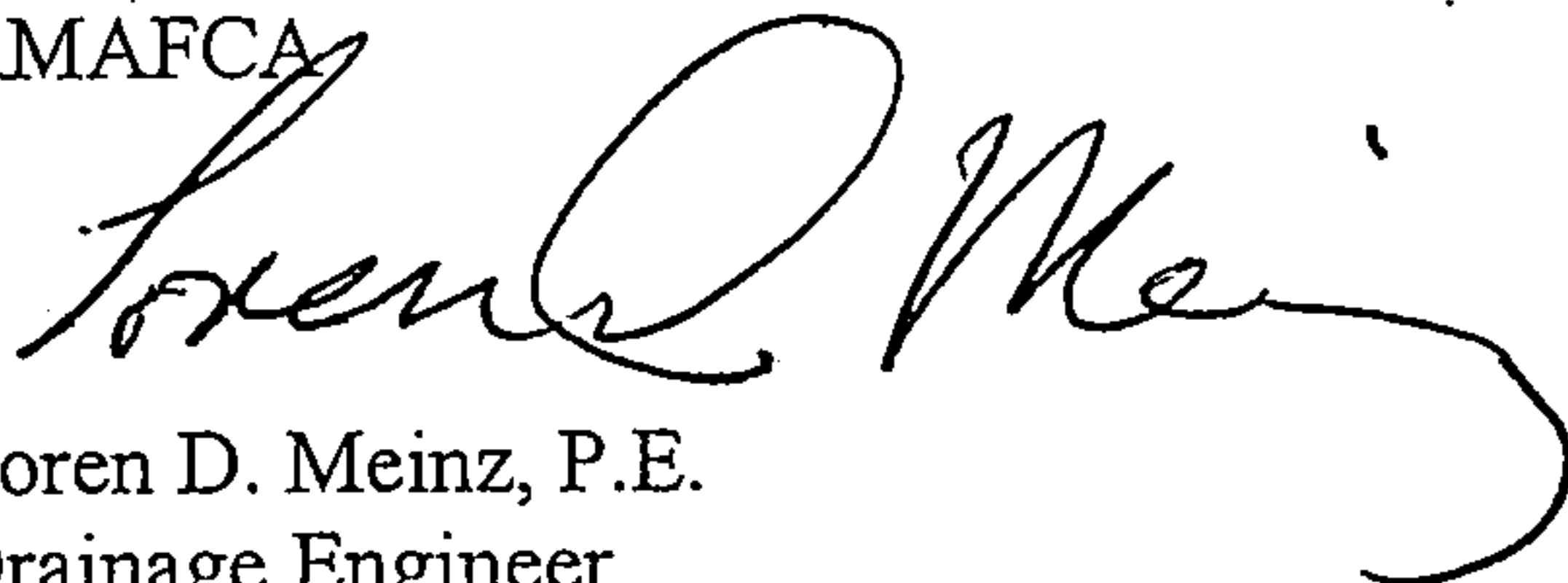
The original data prepared by Leedshill-Herkenhoff for sediment and erosion analysis of the Tijeras Arroyo is still valid. Keep in mind, however, the bridge structure will totally change the character of this section of the arroyo upstream and downstream, and will result in significant changes to the erosion characteristics identified by Leedshill-Herkenhoff.

It would appear on the cross-section of the bridge, plan sheet S3, that the backspans provide significantly less channel opening than the mainspan with the low-flow channel. With the narrower opening, the potential for debris clogging may become a reality. Please provide a HEC-RAS analysis of the main bridge area, assuming that the backspans are blocked out, and the center span low-flow channel is the only area available for conveyance. This condition should be analyzed only for the low-flow, using the 10-year flow, since significantly higher flows would most likely push potential debris downstream. Also, reviewing the layout of the shotcrete immediately adjacent to the bridge structure, it is somewhat difficult to determine the vertical extent of the shotcrete. I assume that, from the data presented, the shotcrete extends all the way up the slope to the bridge abutments, so that no scour under the bridge will occur. Please verify that this is the case, and final plans should reflect the extent of the backslope protection with shotcrete.

Since the 100 year floodplain will be altered by the project, coordinate with the City Floodplain Administrator on meeting FEMA requirements for map revision.

If you have any questions, please contact me at 884-2215.

Sincerely,
AMAFCA



Loren D. Meinz, P.E.
Drainage Engineer

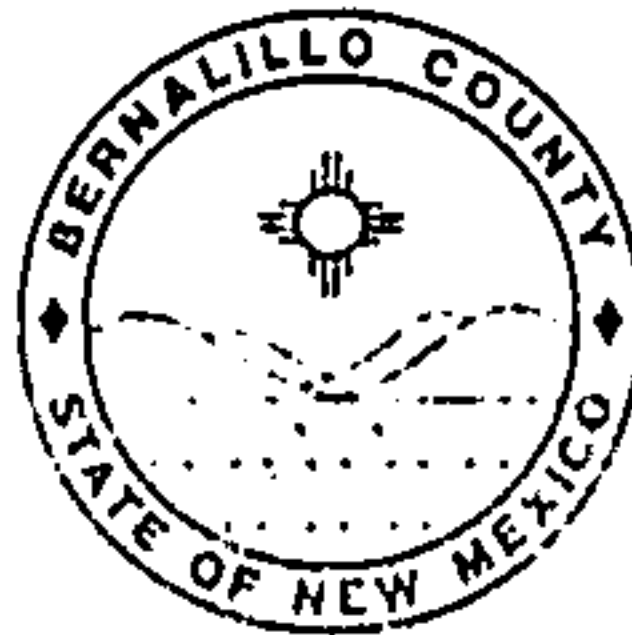
Cc: Brad Bingham, City of Albuquerque

County of Bernalillo

State of New Mexico

BOARD OF COUNTY COMMISSIONERS

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2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

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JOE BOWDICH, SHERIFF
ORLANDO VIGIL, TREASURER

April 8, 1997

Clint Dodge, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

**RE: Engineer's Certification for Kit Carson Elementary School, Phase I (M12/D7)
(PWD-96-63) Submitted for Certificate of Occupancy Release, Engineer's Stamp
Dated 3/22/97.**

Dear Mr. Dodge:

Based on the information provided in the submittal of April 2, 1997, the above referenced Engineer's Certification is acceptable for Certificate of Occupancy release for Phase I.

If I can be of further assistance to you, please do not hesitate to call me at 924-3982.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Kit Carson Master Plan ZONE ATLAS/DRNG.FILE #: M-12/D7
PWD-96-63

DRB #: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tract 198A 1B MRGCO MAP #43

CITY ADDRESS: 1920 Byron Avenue

ENGINEERING FIRM: Leedshill-Herkenhoff, Inc. CONTACT: Clint Dodge, P.E.

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

OWNER: Albuquerque Public Schools CONTACT: Gerry Brown

ADDRESS: 915 Oak SE, Alb., NM 87106 PHONE: (505) 242-5864

ARCHITECT: Leedshill-Herkenhoff, Inc. CONTACT: David Klein

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

SURVEYOR: Wilson & Company CONTACT: Bill Brewster/Dan Aguirre

ADDRESS: 4775 Indian School Rd., NE PHONE: (505) 254-4000

Albuquerque, NM 87110

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☒ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETINGS:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

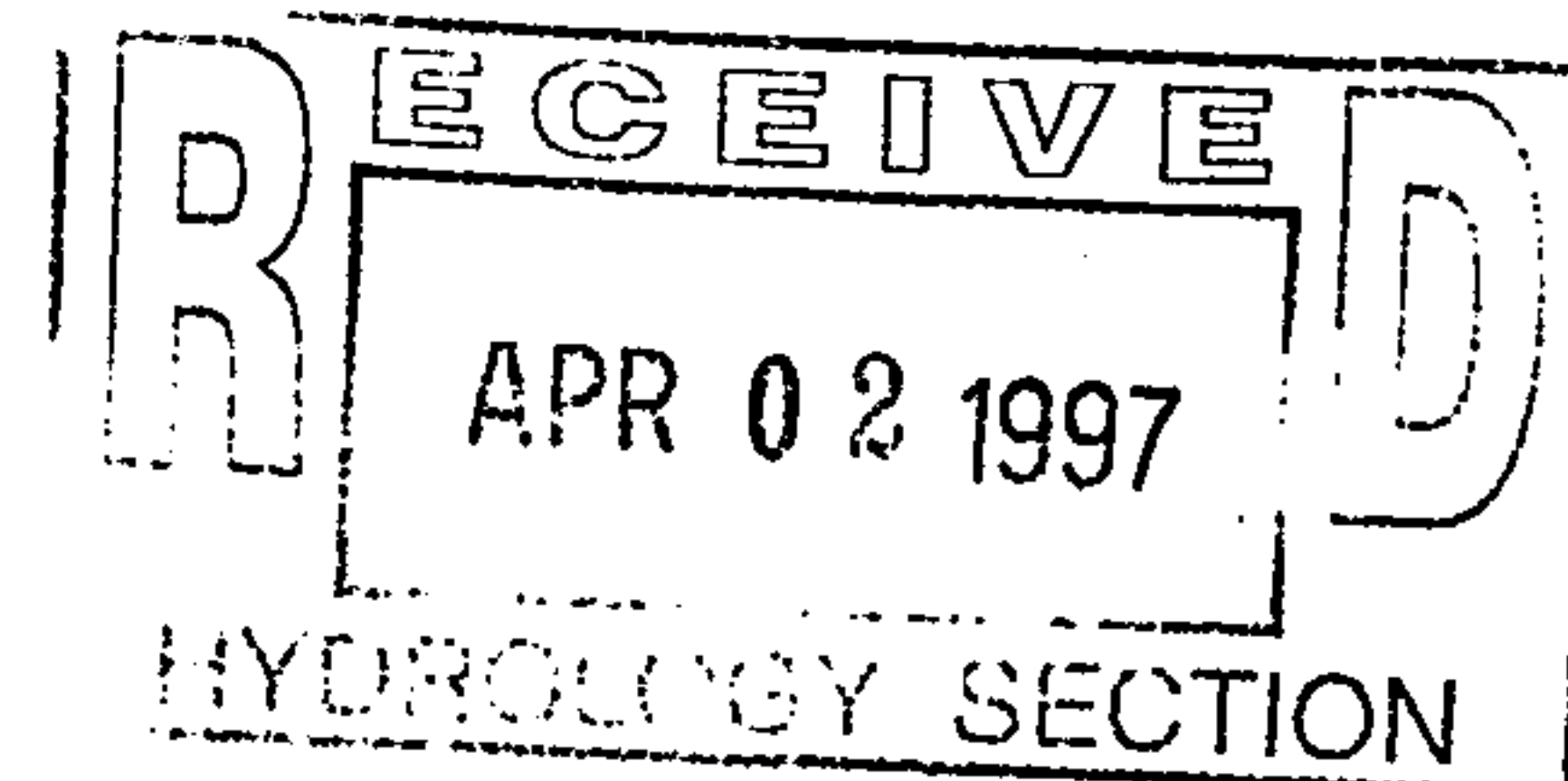
- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S.DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY APPROVAL
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 2/19/97

BY: Clint Dodge

G:\DATA\WPI\APSIKTCARS\DRNG-INF.SHT



Case Routing Slip

31-Mar-97

PWD -96 - 63

Category: Resubmitt

Legal Description: TR 198A 1B MRGCD MAP 4

UPC:

Street Address: 1920 BRYON AVE SW

Submittal Type: Grading & Drainage Plan

Comments Required From:

DRAN ☒ DRE ☐ ENGA ☐

DNPS ☐ TRAF ☐ UTIL ☐

OTHE ☐

FP

Applicant Name: ALBUQ PUBLIC SCHOOLS

Application Date: 31-Mar-97

Applicant Category: Owner

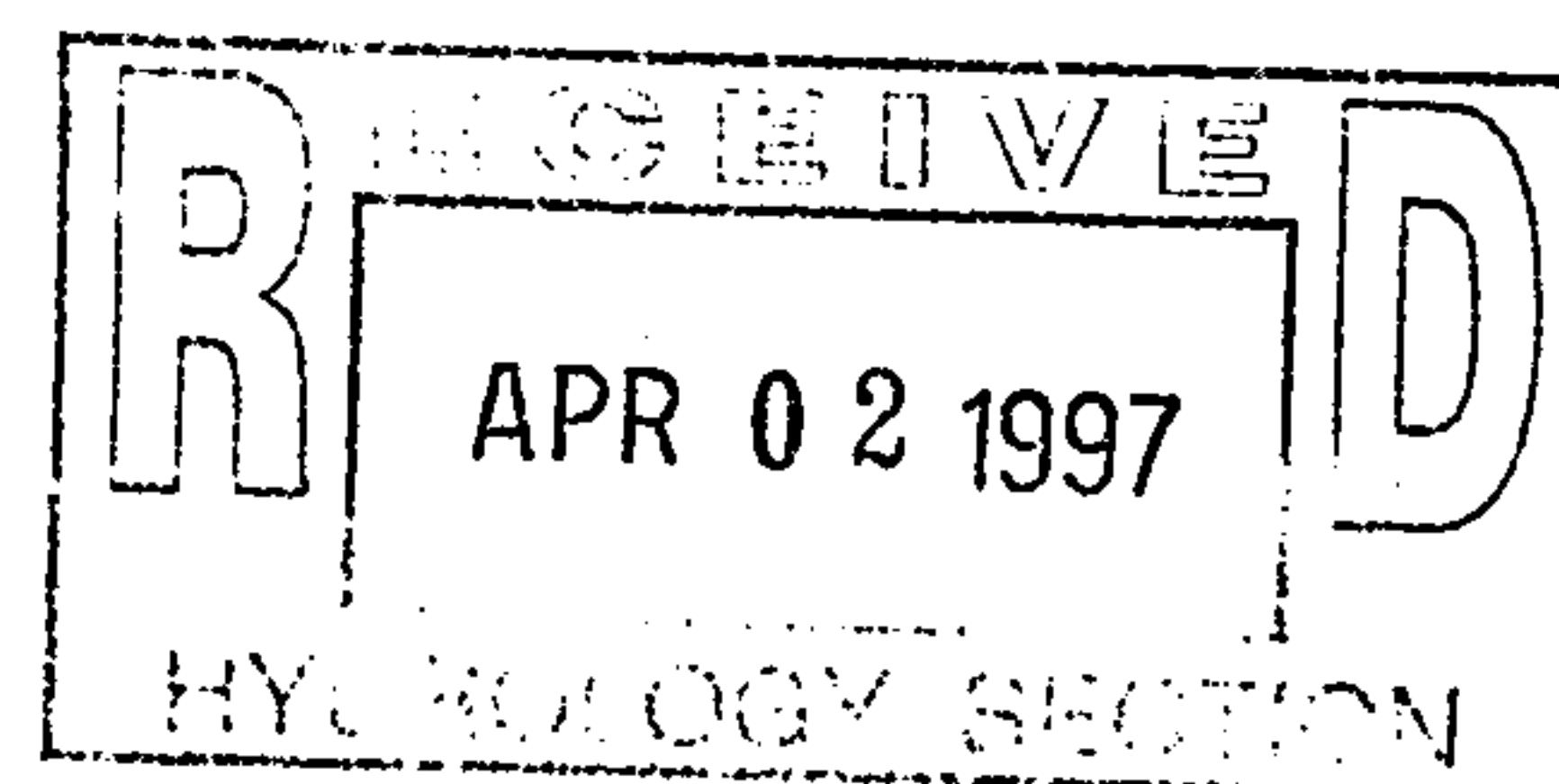
Due Date: 21-Apr-97

Owner Info

Agent Info

Egr/Svy Info

Name	ALBUQ PUBLIC SCHOOL	LEEDSHILL-HERKENHO	
Address	915 OAK SE	P O BOX 1217	
City	ALBUQUERQUE	ALBUQUERQUE	
State	NM	NM	
ZIP	87106	87103	
Ph	242-5865	242-5864	





County of Bernalillo

State of New Mexico

2400 BROADWAY S.E.

ALBUQUERQUE, NEW MEXICO 87102

ADMINISTRATION (505) 768-4000

COMMISSION (505) 768-4217

MARK J. CARRILLO, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESSALL, PROBATE JUDGE

RAY GALLACHER, SHERIFF

H. R. FINE, TREASURER

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DISTRICT 5

JUAN R. VIGIL, COUNTY MANAGER

INCOMPLETE APPLICATIONS WILL BE RETURNED BUT WILL NOT BE REVIEWED

Date: 2/18/97

Submittal X

Subject: Resubmittal X

Final Sign-off X

Case No.: PWD-96-63

Zone Map No.: M-12/D7

Street Address: 1920 Byron Avenue SW, Albuquerque, NM 87105

Legal Description: Tract 198A 1B MRGCD MAP #43

Name of Applicant: Leedshill-Herkenhoff, Inc.

Dear Applicant:

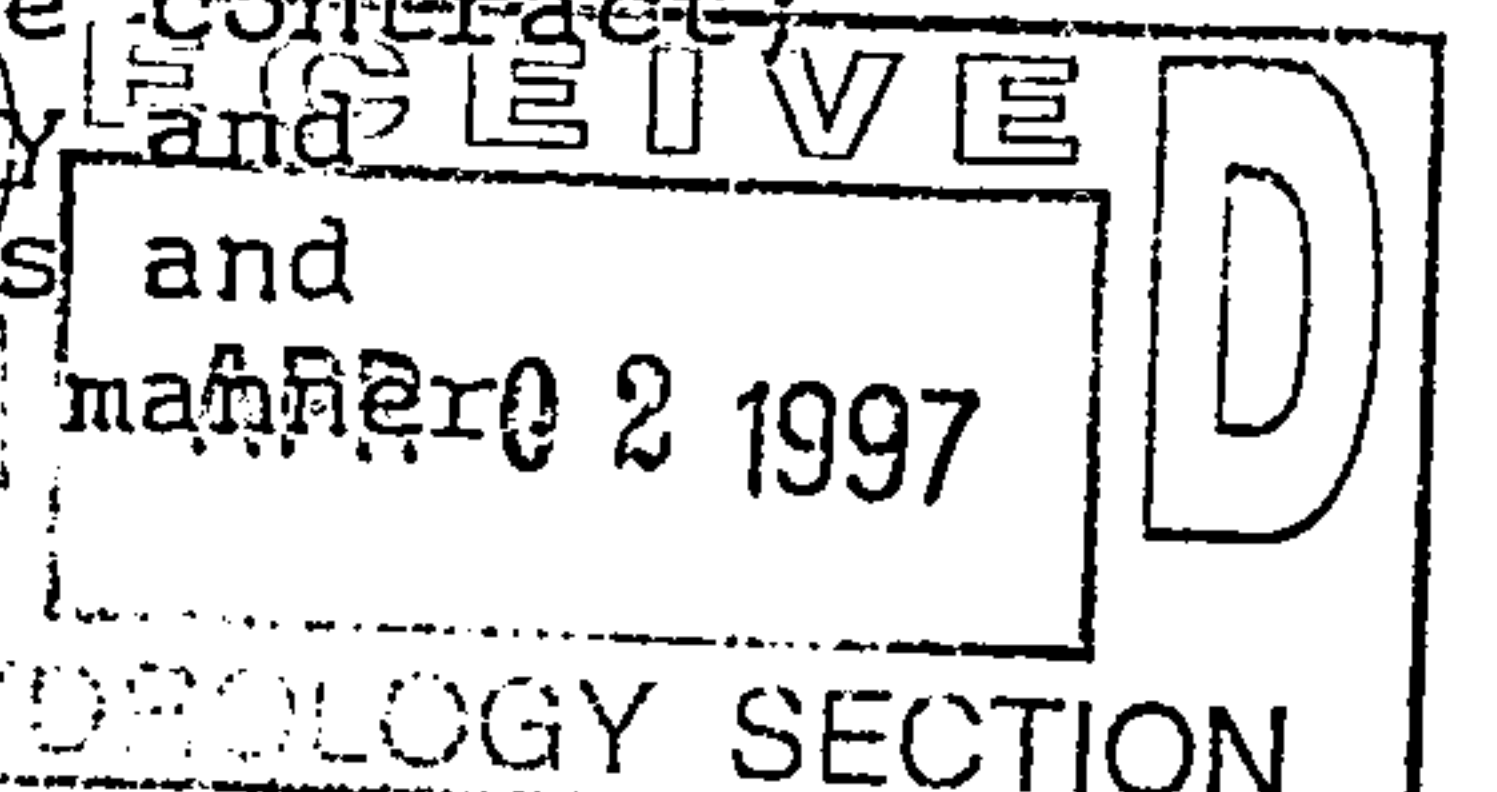
Bernalillo County Public Works Department will require TWO WEEKS for review and comment of submittal and resubmittals, and ONE WEEK for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 1-25-91 MJG

HYDROLOGY SECTION



COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete the following application for review of your case. Submit **THREE** blueines of plat, drawings, or information with case submittals and **THREE** blueines of plat, drawings, or information with final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is (check one):

☐ OWNER ☐ SURVEYOR ☐ AGENT
☒ ENGINEER ☐ DRAINAGE ENGINEER

b. Date of this application: 2/18/97

c. Signature of applicant:

(print) Clint Dodge, P.E.

(sign) *Clint Dodge*

d. OWNER: Albuquerque Public Schools

PHONE: 242-5865

Dept. of Facilities Planning & Construction

ADDRESS: 915 Oak SE Albuquerque, NM

ZIP CODE: 87106

e. AGENT: Gerry Brown

PHONE: 242-5865

ADDRESS: 915 Oak SE Albuquerque, NM

ZIP CODE: 87106

f. OTHER (specify): _____

PHONE: _____

ADDRESS: _____

ZIP CODE: _____

2. TYPE OF SUBMITTAL (check one):

☐ REPLAT

☐ LAND DIVISION (MINOR SUBDIVISION)

☐ MAJOR SUBDIVISION

☐ CONSTRUCTION DRAWINGS

☐ GRADING/DRAINAGE PLAN

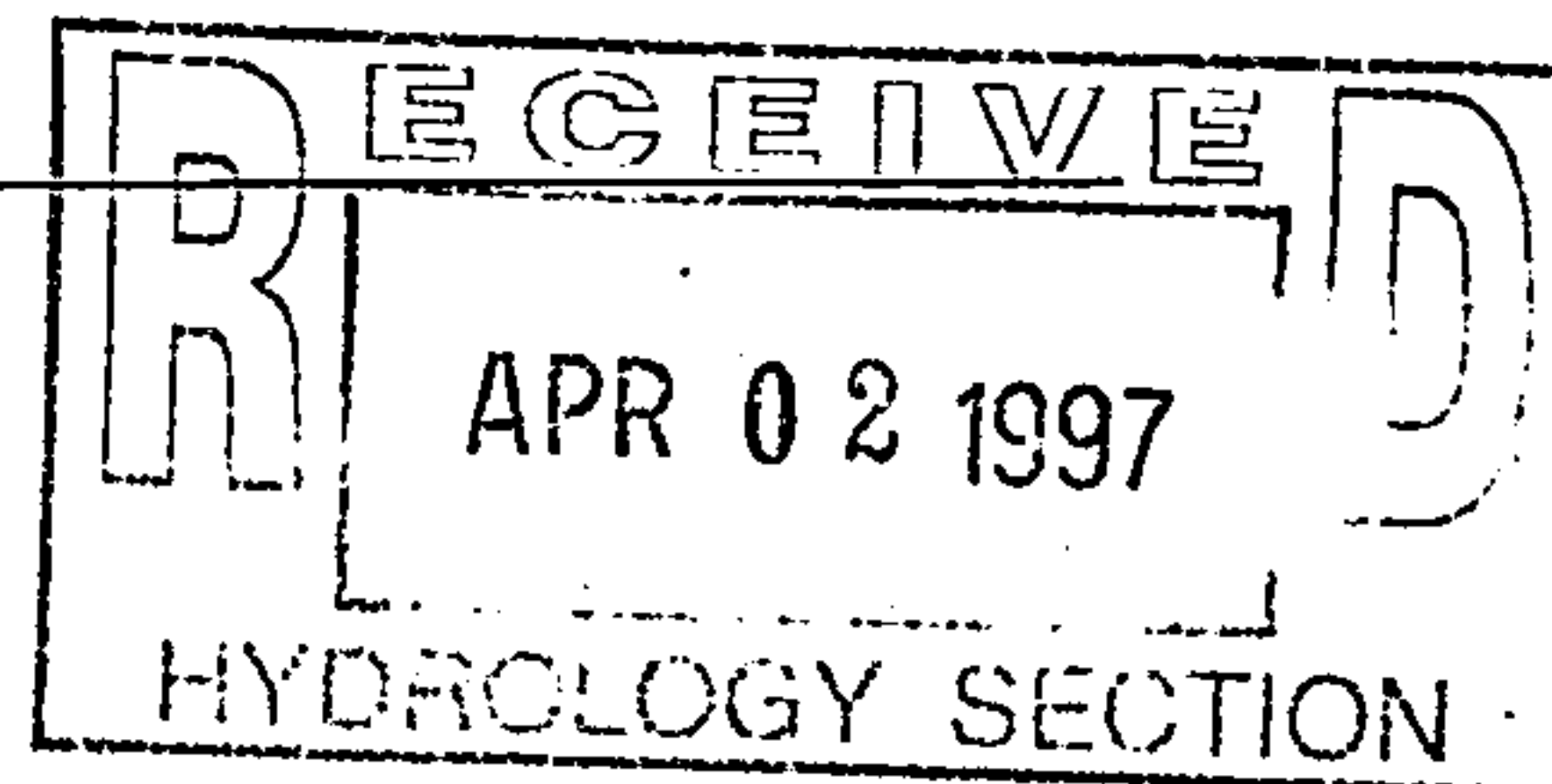
☒ AS-CONSTRUCTED GRADING/DRAINAGE PLAN

☐ VARIANCE REQUEST

☐ TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY

☐ INFRASTRUCTURE LIST/DESIGN REVIEW FEE

☒ OTHER (specify): Certificate of Occupancy



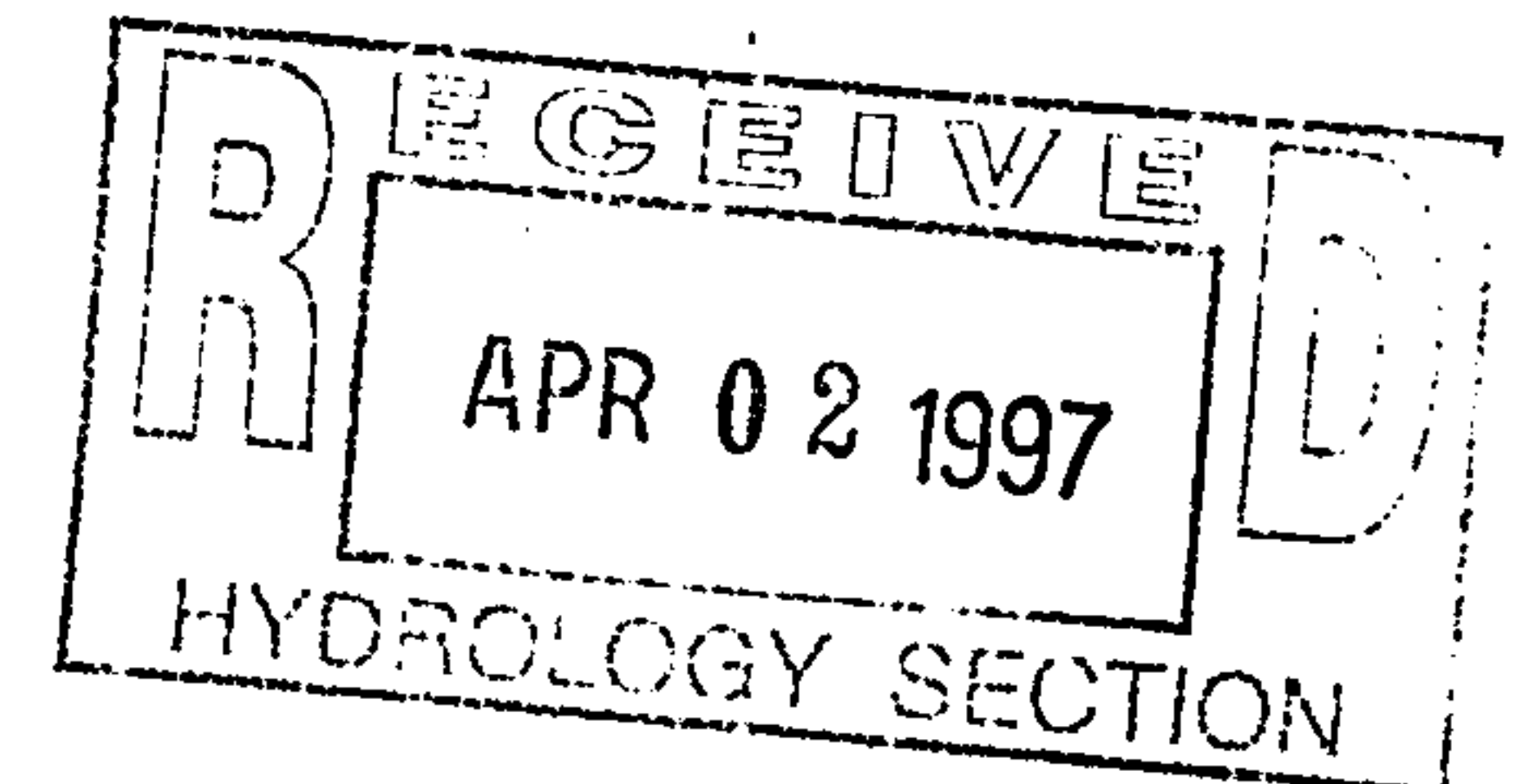


LEEDSHILL-HERKENHOFF, INC.
an ASCG Company
500 Copper Avenue NW, Suite 500
P.O. Box 1217
Albuquerque, New Mexico 87103
(505) 247-0294 Fax (505) 242-4845

152-95023.11-97

February 18, 1997

Roger Paul, P.E.
Bernalillo County Public Works Department
2400 Broadway Boulevard, S.E.
Albuquerque, New Mexico 87102



**RE: KIT CARSON ELEMENTARY SCHOOL (M12/D7)(PWD-96-63),
REVISED GRADING AND DRAINAGE PLAN FOR PHASE I,
ALBUQUERQUE PUBLIC SCHOOLS**

Leedshill-Herkenhoff, Inc. (LH) has prepared this letter to request a Certificate of Occupancy for the above referenced project. A copy of the letter approving the conceptual grading and drainage plans dated May 13, 1996, is provided for your reference. The Master Grading and Drainage Plan (M12/D7)(PWD-96-27) was also approved in that same letter.

With this letter we have included the following:

- Drainage Information Sheet.

- Bernalillo County Application for Case Review.

- The approved Phase I grading and drainage plan.

- The revised grading and drainage plan.

- Drainage calculations performed in accordance with Section 22.2 of the Development Process Manual for the City of Albuquerque.

- Middle Rio Grande Conservancy District License for the use of District Works.

As indicated on the attached revised grading and drainage plan, the Kit Carson Elementary School project consisted of building a Multi-Purpose Facility, moving around some temporary buildings and a small amount of landscaping.

The grading was revised during construction from the original Phase I plans, between the new facility and the existing building. To better meet handicap requirements, it was decided during construction to level off the grade break on the original site plan. This results in more runoff flowing toward the ponding area. Because the pond was designed for smaller flows, it will now "overflow", and the additional ponding will occur in the walkways around the temporary buildings. No buildings or structures will be flooded as a result. All building floor elevations are above the 100 year water surface. APS has decided that because of the infrequency of the design storm, they would like to pump this pond area after such an event. The overflow runoff will be pumped around the new facility to the existing ponding areas at the playing field. This



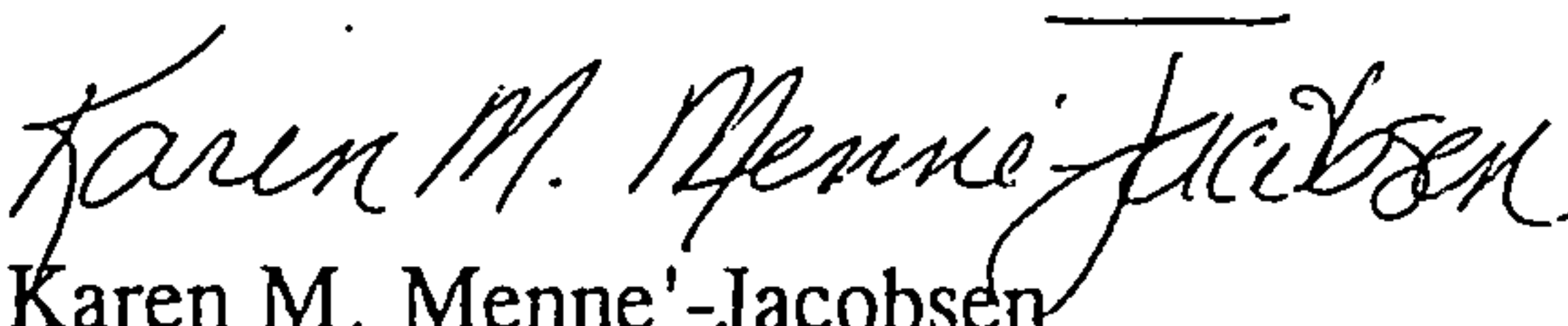
Roger Paul, P.E.
February 18, 1997
Page 2

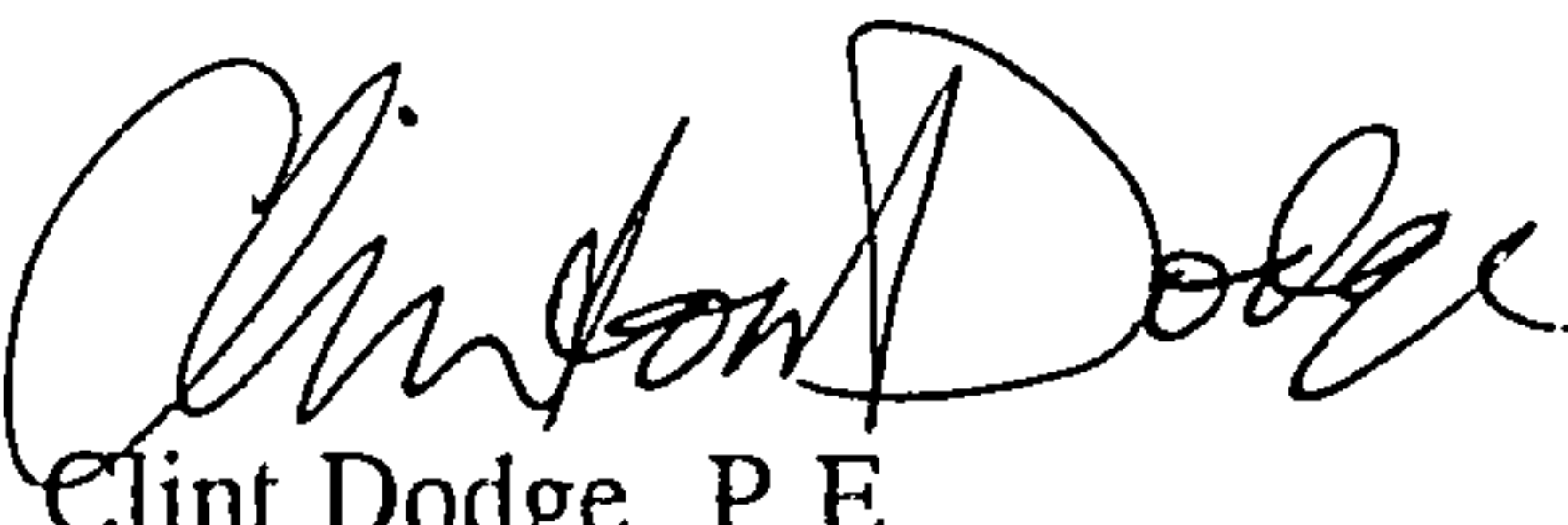
was the flow pattern before the regrading and before construction. A drainage covenant has been filed with the County Clerk's Office.

Also impacted by this decision are the Phase II and III plans for the site. In the next phase the northeast corner will be paved for a parking lot, and additional ponding will be added on the south end of the site. The revised grading follows with the concepts of the Master Grading and Drainage Plan. Details will be provided in subsequent submittals.

The site is partially located in the 100-year flood plain as indicated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), Community Panel 350002 0034 C, as dated October 14, 1983 (copy attached). The portion of the site that was disturbed for Phase I is not in the specified flood zone.

LH requests your consideration for approval for a Certificate of Occupancy for the above referenced site, based on the revised Phase I grading and drainage plan. If you need additional data or have any questions please call me or Clint Dodge at 247-0294.

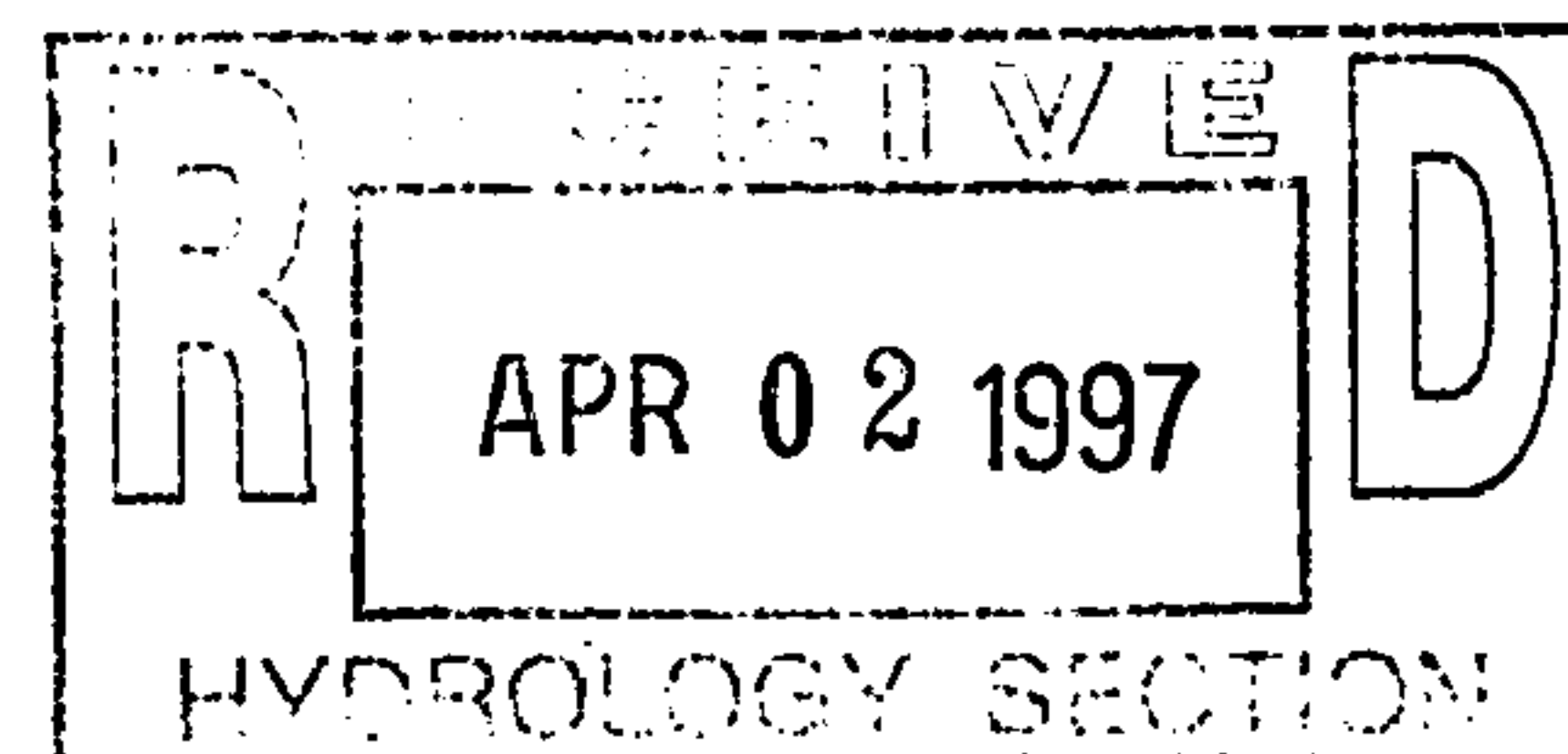

Karen M. Menne'-Jacobsen
Engineering Intern

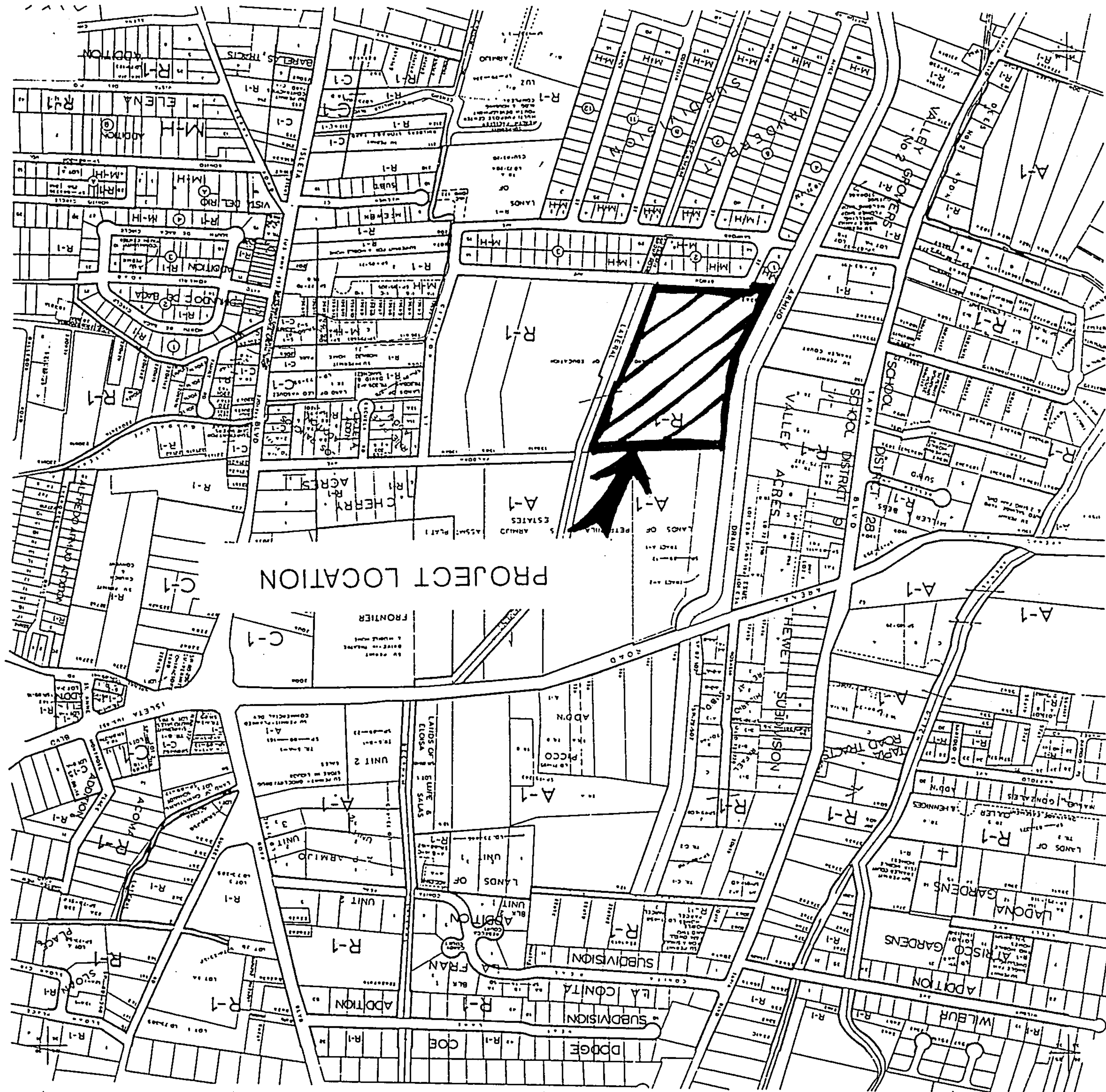
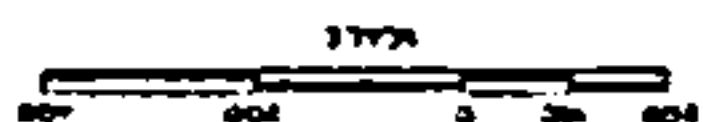
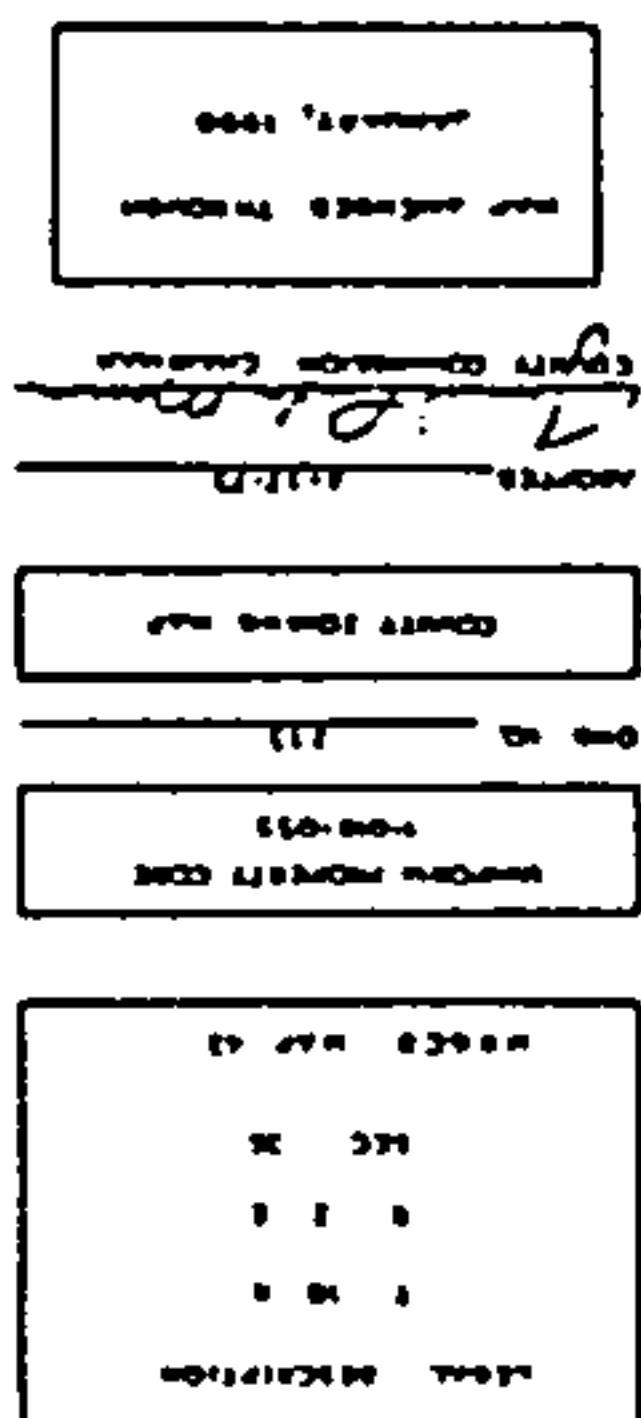

Clint Dodge, P.E.
Principal Engineer

kmj/lfs

cc: David Klein, LH
Gerry Brown, APS

encl





FEMA FIRM MAP

PROJECT LOCATION

ZONE AH
(EL 4935)

ZONE AH
(EL 4936)

ZONE AH
(EL 4935)

ZONE AH
(EL 4936)

ZONE AH
(EL 4934)

ZONE AH
(EL 4935)

ZONE B

BYRON AVENUE

CITATION

BECKHAM

STREET

AVENUE

ISLETA

ARBITO

HAVEN LA

TAPIA

CANDIDO ZON

SOUTH DE BAG

PONITO

ELENA

SB HIGHWAY 57

APR 21 2007



[Handwritten signature]

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PUBLIC WORKS (505) 848-1500

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JUDY D. WOODWARD, CLERK
THOMAS J. MESCALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
H. R. FINE, TREASURER

May 13, 1996

RECEIVED

MAY 16 1996

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

LEEDSHILL - HERKENHOFF, INC.
ALBUQUERQUE

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN
(M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, AND GRADING
AND DRAINAGE PLAN FOR PHASE I (M12/D7) (PWD-96-63) SUBMITTED FOR
GRADING AND BUILDING PERMIT APPROVAL, ENGINEER'S STAMP DATED 4/11/96.

Dear Mr. Blaine:

Based on the information provided in the submittal of April 23, 1996, the above referenced Master Plan is approved. The Grading and Drainage Plan for Phase I is also approved for Grading Permit and Building Permit release.

Please be advised that prior to Certificate of Occupancy release for Phase I, the Engineer's Certification must be submitted to and approved by my office.

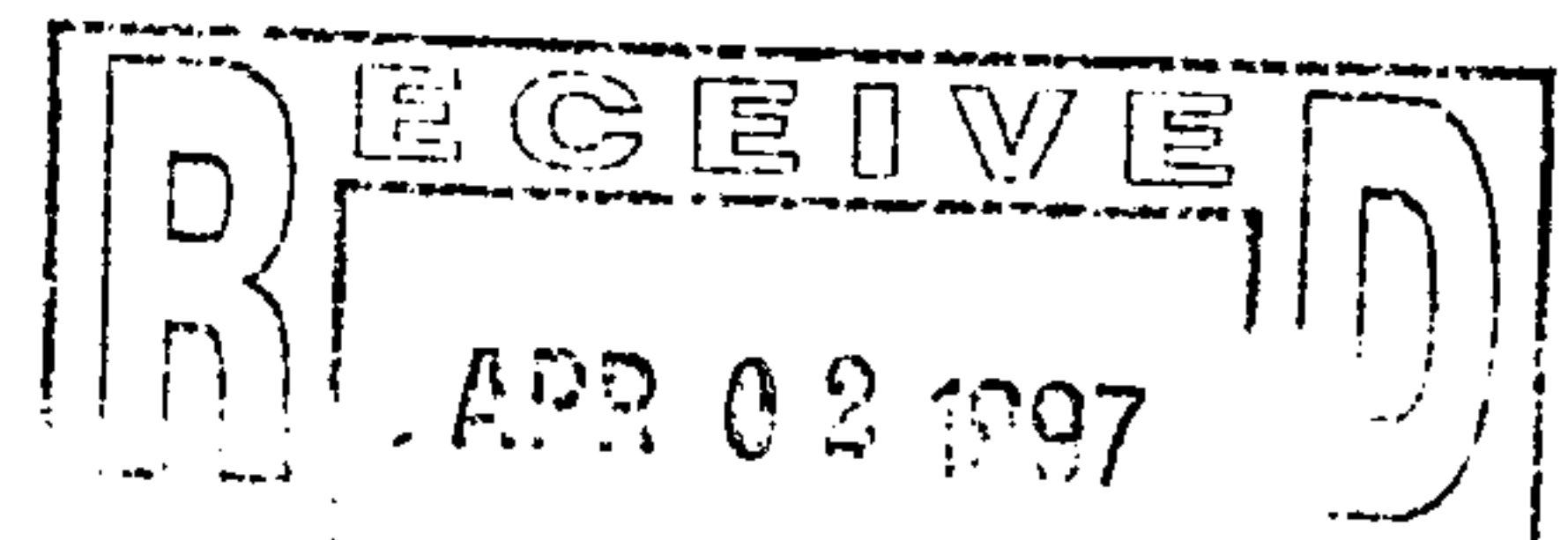
If you should have any questions, please call me at 768-2666.

Sincerely,

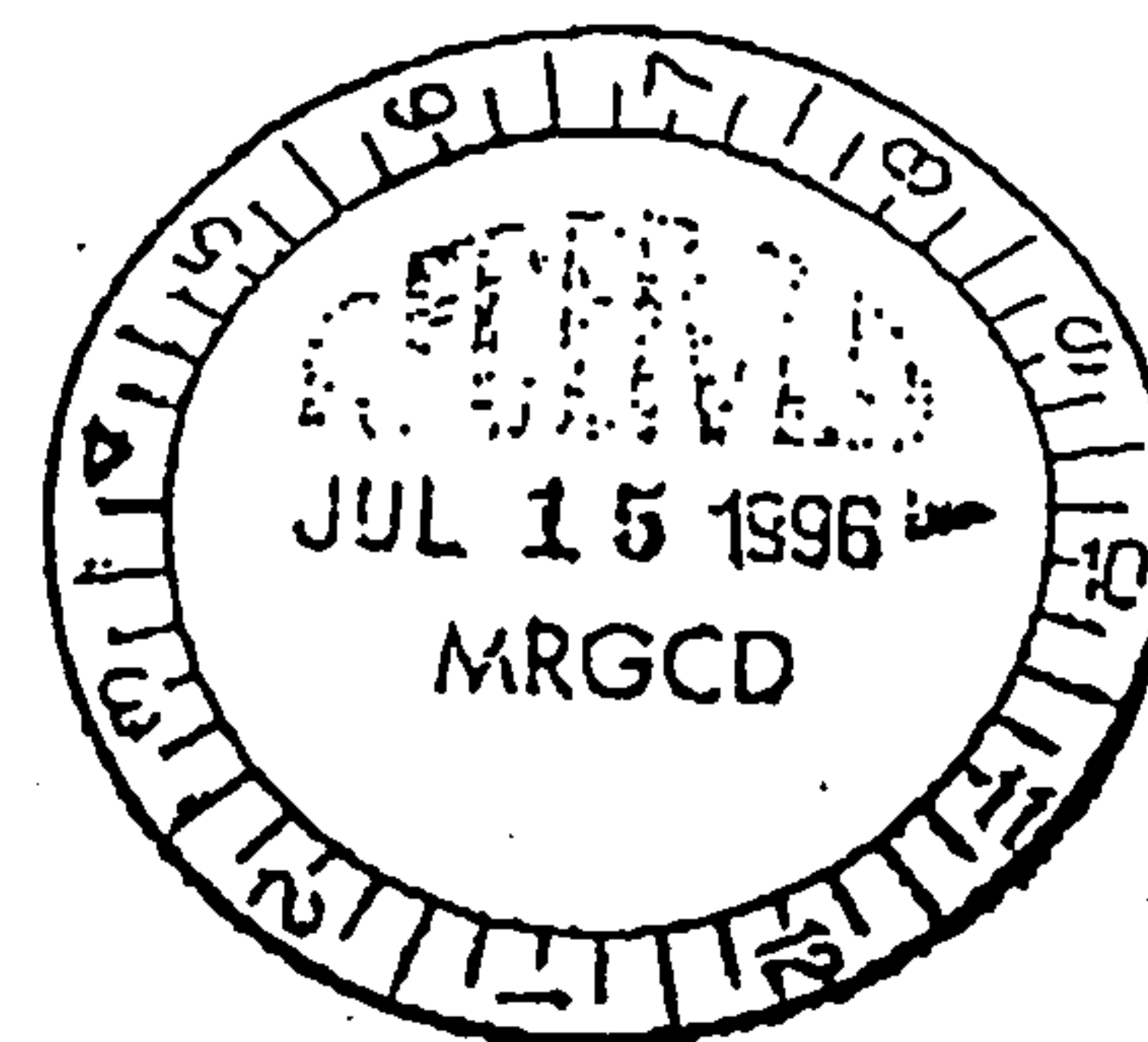
[Handwritten signature of Susan M. Calongne]

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File



57-036-96

BRITTON
CONSTRUCTION INC.

July 11, 1996

Middle Rio Grande Conservancy
PO Box 581
Albuquerque, NM 87103-0581
Attn: Ray Gomez

RE: Kit Carson Elementary School Gym

Dear Ray:

Britton Construction Inc. has a contract with APS to build a bridge over an irrigation ditch located @ Kit Carson Elementary School. We will need a temporary license to perform work in the ditch.

We will be performing work in the ditch between 7/22/96 through 8/30/96.

Project Title: Kit Carson Elementary School Gym Facility

Location: Kit Carson Elementary School
1920 Byron Road SW
Albuquerque, NM 87105

Jobsite Contact: Brent Britton 873-9329

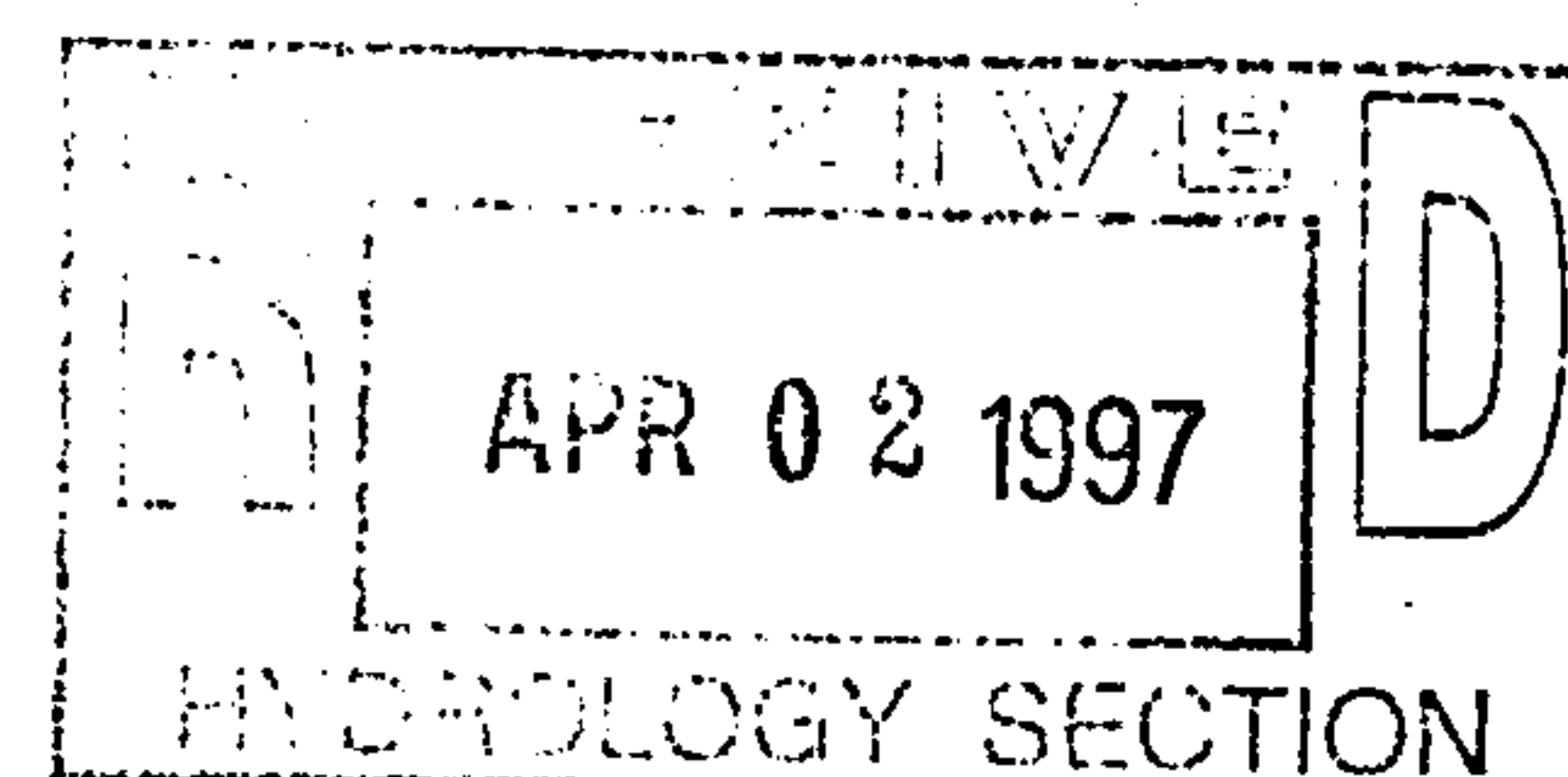
Office Contact: Dan Bergstein 268-2626

Sincerely,

Dan Bergstein

Project Engineer

MRGCD ROUTING STAMP			
OFFICE	DATE	INITIALS	DATE
CW ENG	7/15/96		
IRAS			
AA			
AE			
ATTY			
ALBANY DIV			
Kelly			
FILE			

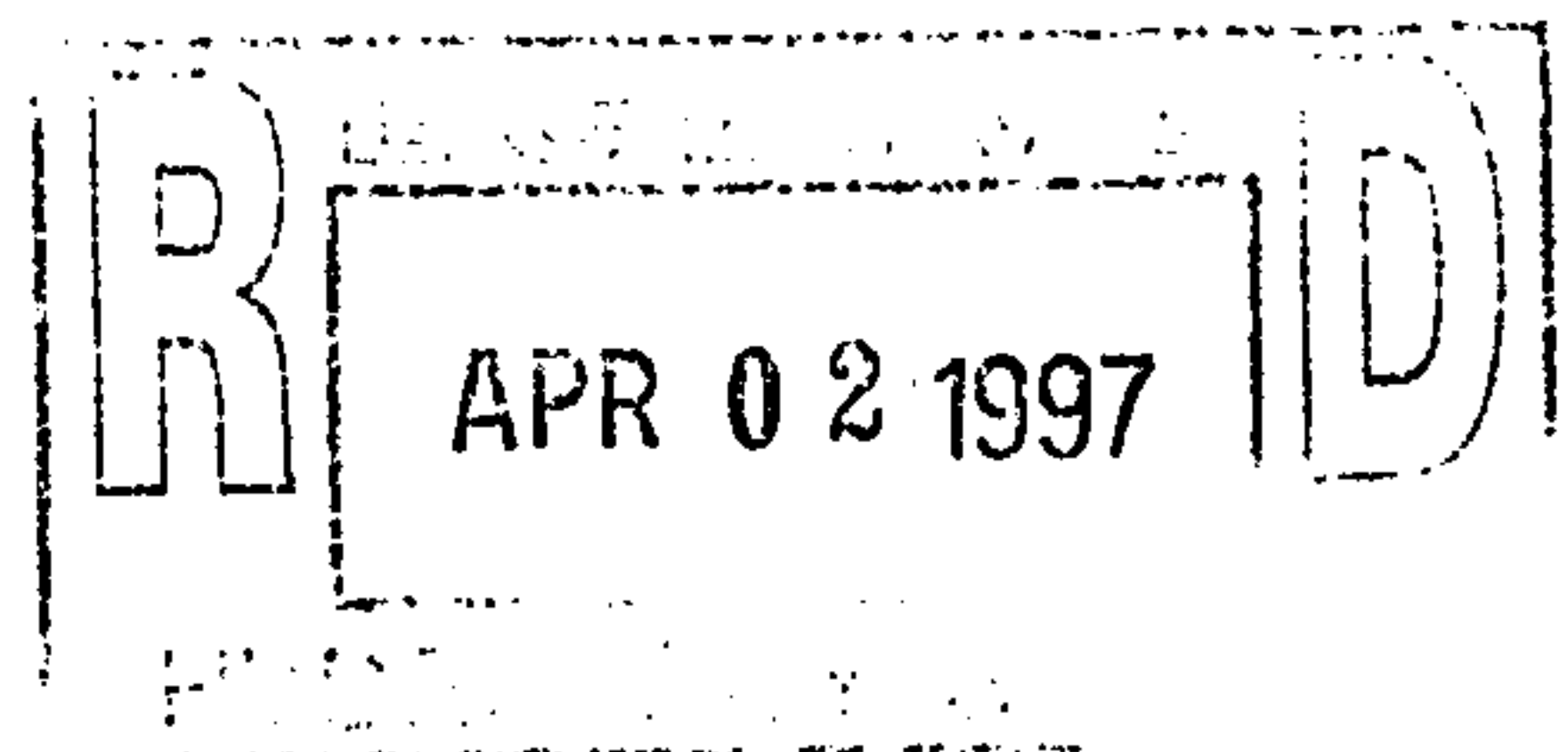


**MIDDLE RIO GRANDE CONSERVANCY DISTRICT
LICENSE FOR THE USE OF DISTRICT WORKS
SP-036-96**

1. The Middle Rio Grande Conservancy District hereby grants to the undersigned who hereby accepts this License to temporarily utilize the following District Right-of-Ways: BECKHAM LATERAL. The use of District right-of-way is necessary in order to REMOVE TWO EXISTING PEDESTRIAN BRIDGE CROSSINGS AND INSTALL A NEW BRIDGE CROSSING ACROSS THE BECKHAM LATERAL.
2. The Licensee shall be liable for any and all damages to the property of the Middle Rio Grande Conservancy District, United States or any third party or parties by reason of the exercise of the privilege conferred by this License. Should any culvert pipe, bridge, utility and or irrigation structure become damaged, collapse, leak, or fail as a result of the Licensees activities, the Licensee shall repair or remove and replace the damaged structure to comply with District specifications at the expense of the Licensee. In addition, the Licensee agrees to hold the Middle Rio Grande Conservancy District harmless from any and all claims or suits of any nature which may arise by reason of the exercise of the privilege conferred by this License.
3. This License shall continue so long as in the opinion of the Middle Rio Grande Conservancy District, it is considered to be expedient and not detrimental to the public interest or the interest of the Middle Rio Grande Conservancy District but in no case longer than AUGUST 30, 1996. This License shall be revocable by the Middle Rio Grande Conservancy District for any reason upon ten (10) days written notice to the Licensee. Upon such revocation, the Licensee shall stop all use of Right-of-Way of the District and shall remove all structures and all accessories without delay at the sole expense of the Licensee. Notice to remove shall be sufficient if mailed to Licensee at: BRITTON CONSTRUCTION INC., P.O. BOX 80194, ALBUQUERQUE, NM 87198, ATTN: DAN BERGSTEIN, PHONE: (505) 268-2626. If Licensee fails or refuses to stop the use of the District Right-of-Way or to remove any structures or accessories, the Middle Rio Grande Conservancy District may at its discretion, remove the items and the Licensee shall be liable to the District for the costs incurred. The Middle Rio Grande Conservancy District may withhold this from the security deposit posted by Licensee and may sue for any additional sums.
4. Upon the natural termination of this License or if prior thereto terminated by the District, the Licensee shall then immediately burn all weeds or any vegetation on the ditches, canals, laterals and feeders which it has used and shall remove all silt in the works of the District including pipe crossings, which has been deposited thereby due to the use of District Right-of-Way by the Licensee and shall reshape the ditches where wash or erosion has occurred. In addition thereto, the Licensee shall build up the ditch bank roads to their original shape and elevation.
5. The Licensee hereby releases the Middle Rio Grande Conservancy District, its agents and employees and the United States from any and all claims for damage to property or personal injury or any damages that may arise as a result of the License's use of the works of the District provided for herein or as a result of the presence of said Licensee and Licensee agrees to hold the Middle Rio Grande Conservancy District, its agents and employees harmless from any such claims. If any claims are brought, Licensee agrees to diligently defend any such claim for the benefit of the Middle Rio Grande Conservancy District at its own expense and to protect the interest of the District.
6. If the Middle Rio Grande Conservancy District is required to bring suit in any court for the purposes of enforcing this agreement or any provisions or portions thereof, the Licensee shall be liable for all costs incurred and for reasonable attorney fees.
7. The Licensee understands that it is imperative that the Middle Rio Grande Conservancy District have full use of all its drains, laterals, ditches and canals at all times and that certain preparatory work must be

Post-It® Fax Note 7871		Date <u>2-11-97</u>	# of pages <u>6</u>
To <u>KAREN JALOSSEK</u>		From <u>Dan Bergstein</u>	
Co./Dept. <u>LODGE HILL</u>		Co.	
Phone #		Phone #	
Fax # <u>216-0507</u>		Fax #	

e 1 of 2



done prior to the use of the District of these works and that if the District does not have full use and access to the works, it will sustain irreparable damage, the value of which would be difficult to ascertain, and as a result therefor, the Licensee agrees to pay the Middle Rio Grande Conservancy District the sum of \$100.00 per day as liquidated damages for each day that the District is unable to use the drain for operation and maintenance of the system or after the expiration of this license in which the licensee is either using the works of the District or has not completed the work required by this license.

8. The Licensee shall post a security deposit in cash with the Middle Rio Grande Conservancy District in the sum of \$2,500.00, said deposit shall be held as security for the performance by Licensee of all the items, covenants and conditions of this agreement. Said deposit shall be returned to Licensee upon termination of this agreement, without interest, provided Licensee has complied with all the terms, conditions and covenants of this agreement. If Licensee fails to perform any of these terms, conditions and covenants of this agreement, the Middle Rio Grande Conservancy District may apply said deposit toward all costs, charges or damages incurred or caused by a breach of this agreement, even though said amount may exceed the amount of the deposit.

9. Licensee is responsible for contacting Leonard Utter, Assistant Engineer, at (505) 247-0234 prior to entering any District Right-of-Ways.

EXECUTED THIS 2nd DAY OF August 19 96

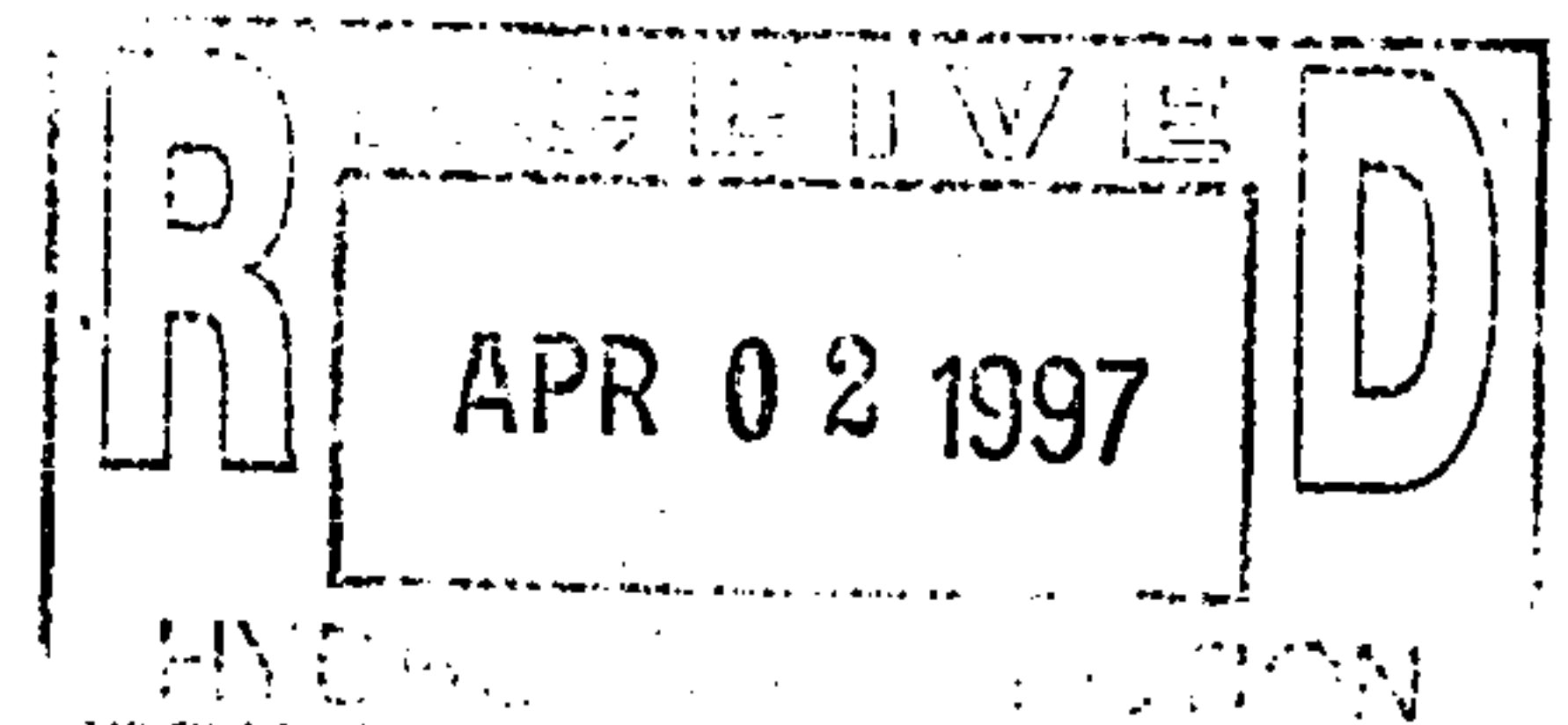
MIDDLE RIO GRANDE CONSERVANCY DISTRICT

BY: [Signature]

LICENSEE

BY: [Signature]

Rev 2/95





LEEDSHILL - HERKENHOFF, INC.

Albuquerque • Santa Fe

ENGINEERING COMPUTATIONS

NAME OF PROJECT

HIL CARSON ELEMENTARY SCHOOL

COMPUTED BY:

KMT

CHECKED BY:

CD

JOB NUMBER

95023.16

SHEET NUMBER

1 OF 3

DATE:

2/13/97

IN THE ORIGINAL CALCULATIONS POND VOLUME ^{SEE PREVIOUS CALC. SHEET 3} NEEDED WAS 0.18 AC-FT. DURING CONSTRUCTION GRADES WERE CHANGED FOR VARIOUS REASONS, AND THAT POND NOW RETAINS 0.10 AC-FT.

THE FOLLOWING IS A CALCULATION TO DETERMINE THE ADDITIONAL VOLUME NEEDED DUE TO GRADE CHANGES, USING COA DPM GUIDELINES (See Previous Calcs)

$$\text{ADDITIONAL AREA} = 1.5 \text{ AC}$$

$$E_D = 1.97 \text{ IN.} \quad P_{360} = 2.20 \text{ IN} \quad P_{10DAY} = 3.67 \text{ IN}$$

$$V_{360} = \text{WEIGHTED } E \times \left(\frac{A_{\text{TOTAL}}}{12 \text{ IN/FT}} \right)$$

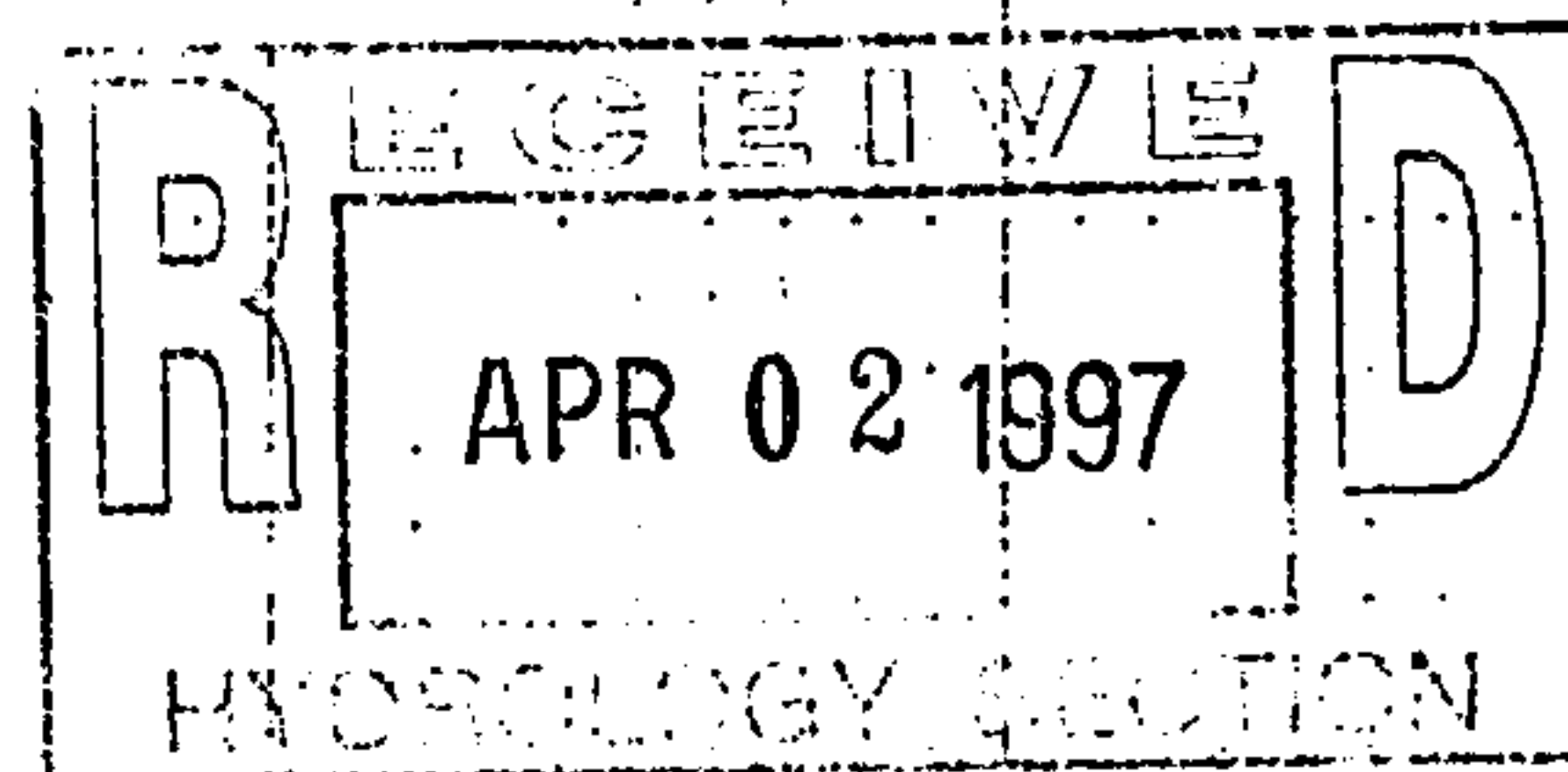
$$V_{360} = \left(\frac{1.97 \times 1.5}{12} \right) = 0.25 \text{ AC-FT}$$

$$V_{10DAY} = V_{360} + A_D \times \left(\frac{P_{10} - P_{360}}{12 \text{ IN/FT}} \right)$$

$$V_{10DAY} = 0.25 \text{ AC-FT} + 1.5 \left(\frac{3.67 - 2.20}{12} \right)$$

$$V_{10DAY} = 0.43 \text{ AC-FT} \quad \text{Additional Volume}$$

$$\begin{aligned} \text{THUS TOTAL VOLUME NOW NEEDED} &= 0.18 + 0.43 \\ &= 0.61 \text{ AC-FT} \end{aligned}$$





LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON PHASE ONE

COMPUTED BY:

KMJ

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

2 OF 3

DATE:

20 MAR 96

PRECIPITATION ZONE

KIT CARSON ELEMENTARY SCHOOL IS WEST OF THE RIO GRANDE. ACCORDING TO THE DPM, TABLE A-1, IT IS IN PRECIPITATION ZONE 1.

"LAND TREATMENT"

ENTIRE ROOF AREA IS IMPERVIOUS, TREATMENT D.

$$\text{AREA} = 5275.8 \text{ SF} = 0.12 \text{ ACRES}$$

OTHER CONTRIBUTING AREA:

TO BE CONSERVATIVE, AREA ASSUMED TO BE IMPERVIOUS, TREATMENT D.

$$\text{AREA} = 22320.7 \text{ SF} = 0.51 \text{ ACRES}$$

$$\text{TOTAL TREATMENT D} = .63 \text{ ACRES.}$$

EXCESS PRECIPITATION

TABLE A-8, DPM, EXCESS PRECIPITATION, E (INCHES)

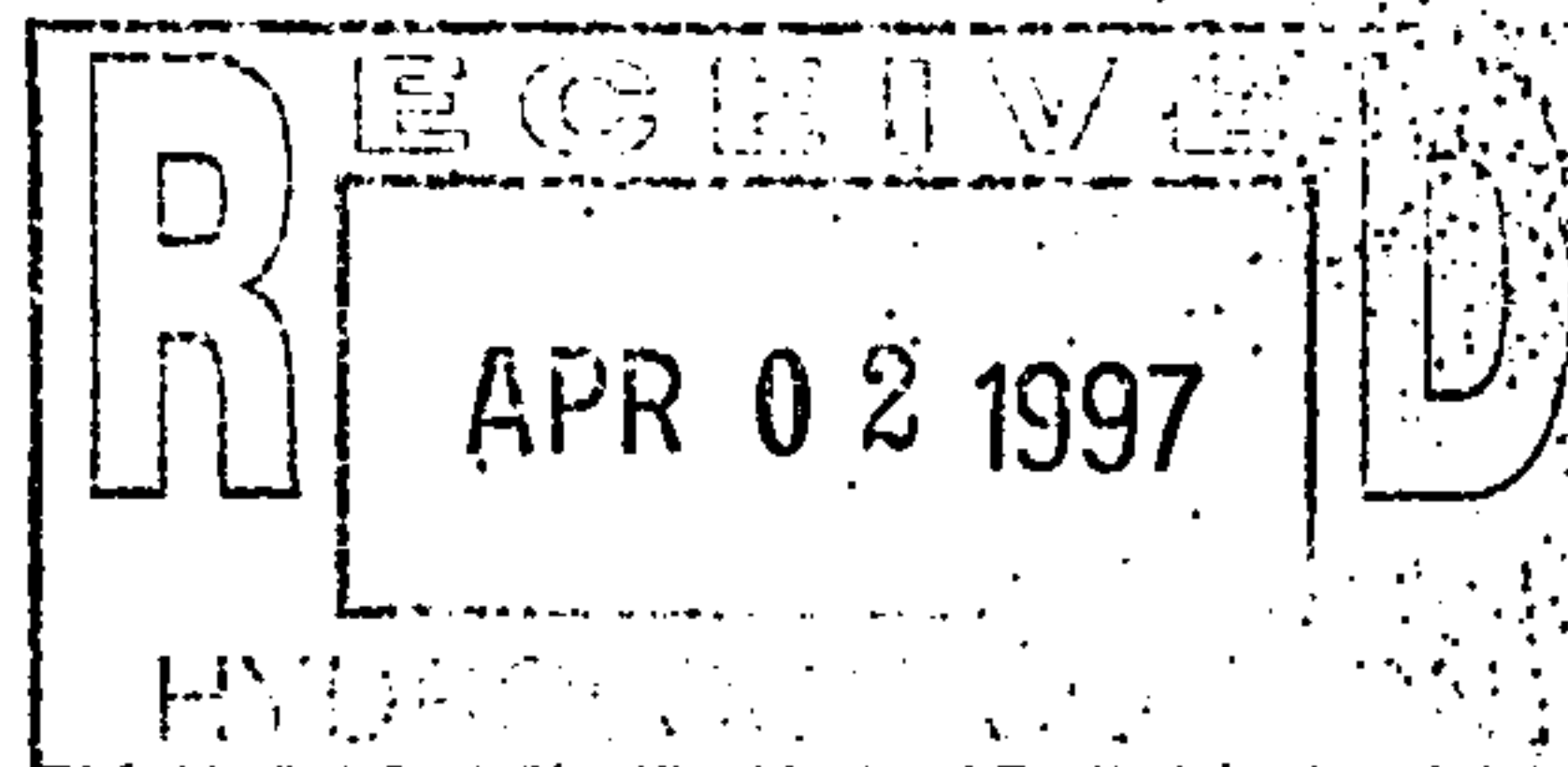
6 HOUR STORM, 100 YR, ZONE 1

$$E_D = 1.97$$

FROM DPM TABLE A-2

$$P_{10 \text{ DAY}} = 3.67 \text{ IN}$$

$$P_{360} = 2.20 \text{ IN}$$





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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON PHASE ONE

COMPUTED BY:

KMS

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

3 OF 3

DATE:

20 MAR 96

$$V_{10DAY} = V_{360} + A_D * (P_{10DAY} - P_{360}) / 12$$

DPM
(EQ a-9)

$$V_{360} = E * A_T / 12$$

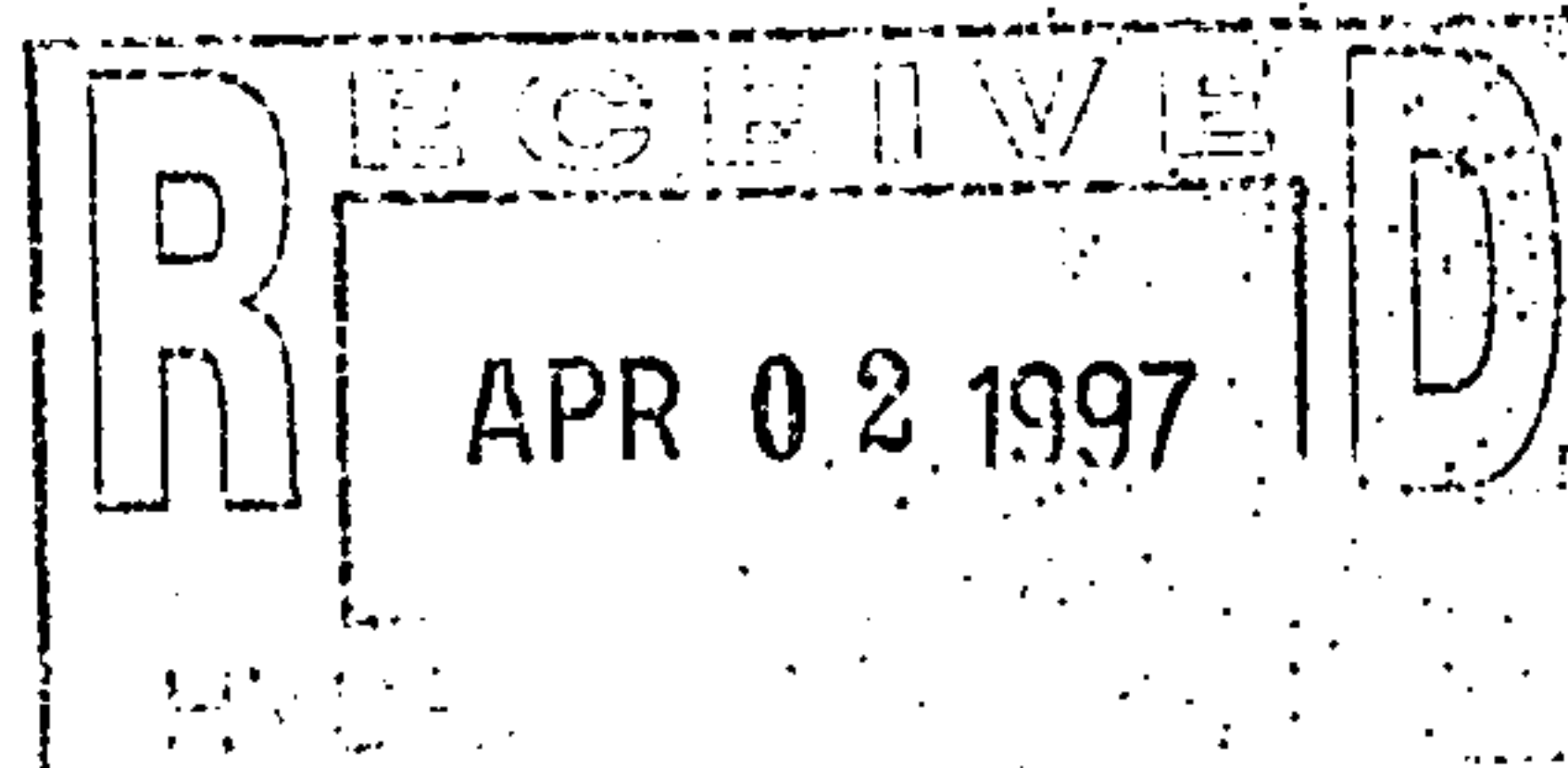
DPM
(EQ a-6)

$$V_{360} = 1.97 * 0.63 / 12 = 0.10 \text{ ac-ft}$$

$$V_{10DAY} = 0.10 + 0.63 * \frac{(3.67 - 2.20)}{12}$$

$$\underline{V_{10DAY} = 0.18 \text{ ac-ft.}}$$

THIS IS THE VOLUME THAT MUST BE CONTAINED
IN THE POND.





LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe

ENGINEERING COMPUTATIONS

NAME OF PROJECT

HIT CARSON PHASE ONE

COMPUTED BY:

KMS

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

1 OF 3

DATE:

20 MAR 06

PREVIOUS CALCULATIONS

1.0 PURPOSE:

TO CALCULATE FLOW OFF OF ROOF DRAIN
AND SIZE "POND".

2.0 DESIGN BASIS / ASSUMPTIONS

USING CITY OF ALBUQUERQUE'S DEVELOPMENT
PROCESS MANUAL, VOLUMES WILL BE
CALCULATED. AREA OF THE ROOF IS TAKEN
FROM AN AUTOCAD DRAWING.

3.0 REFERENCES

CITY OF ALBUQUERQUE DEVELOPMENT PROCESS
MANUAL - SECTION 22.2 (DPM)

4.0 PROCEDURE

DPM DESIGN STORM WILL BE 100yr-10day.

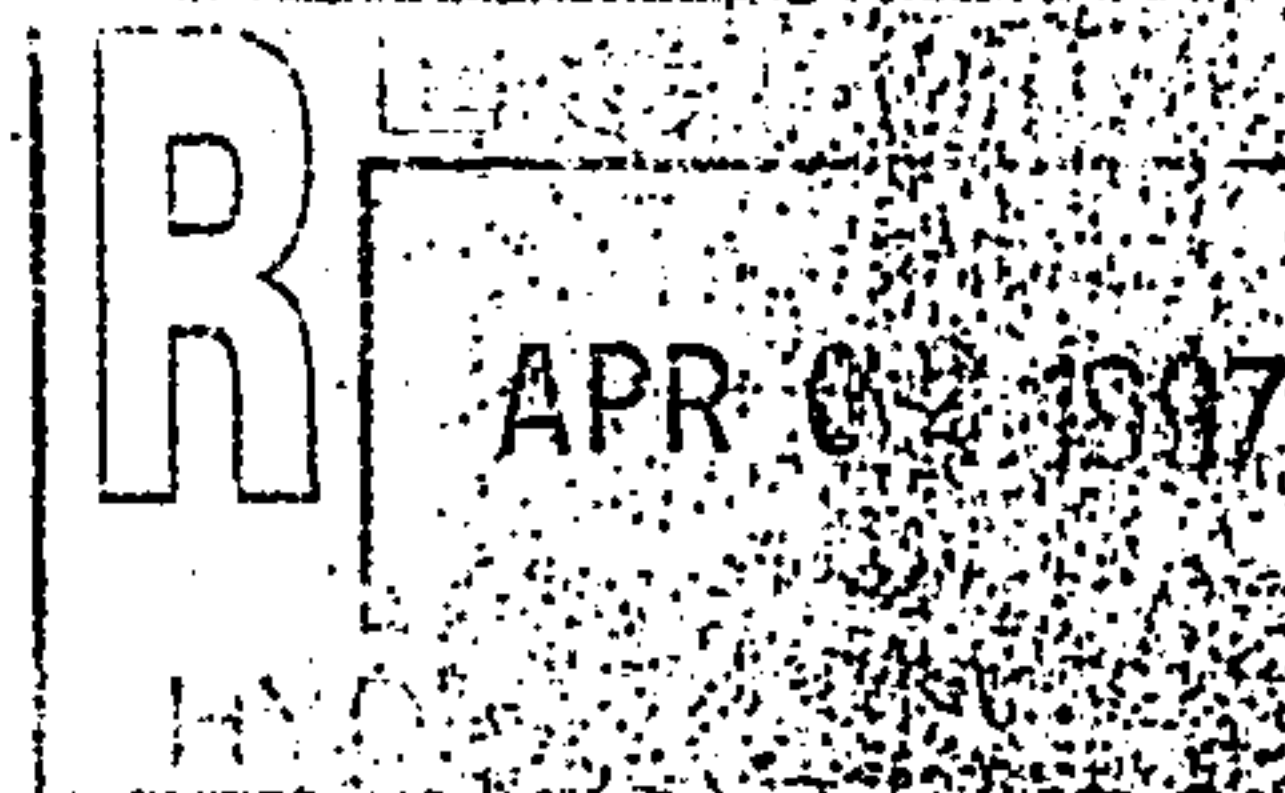
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THE "POND" MUST CONTAIN 0.18 ic-ft.
THIS IS SMALL ENOUGH THAT THERE WILL BE
NO NEED TO CONTACT THE STATE ENGINEER
ABOUT RETAINING WATER.





LEEDSHILL • HERKENHOFF, INC.

Albuquerque • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

HIT CARSON

COMPUTED BY:

KM-J

CHECKED BY:

CD

JOB NUMBER

95003.16

SHEET NUMBER

2 OF 3

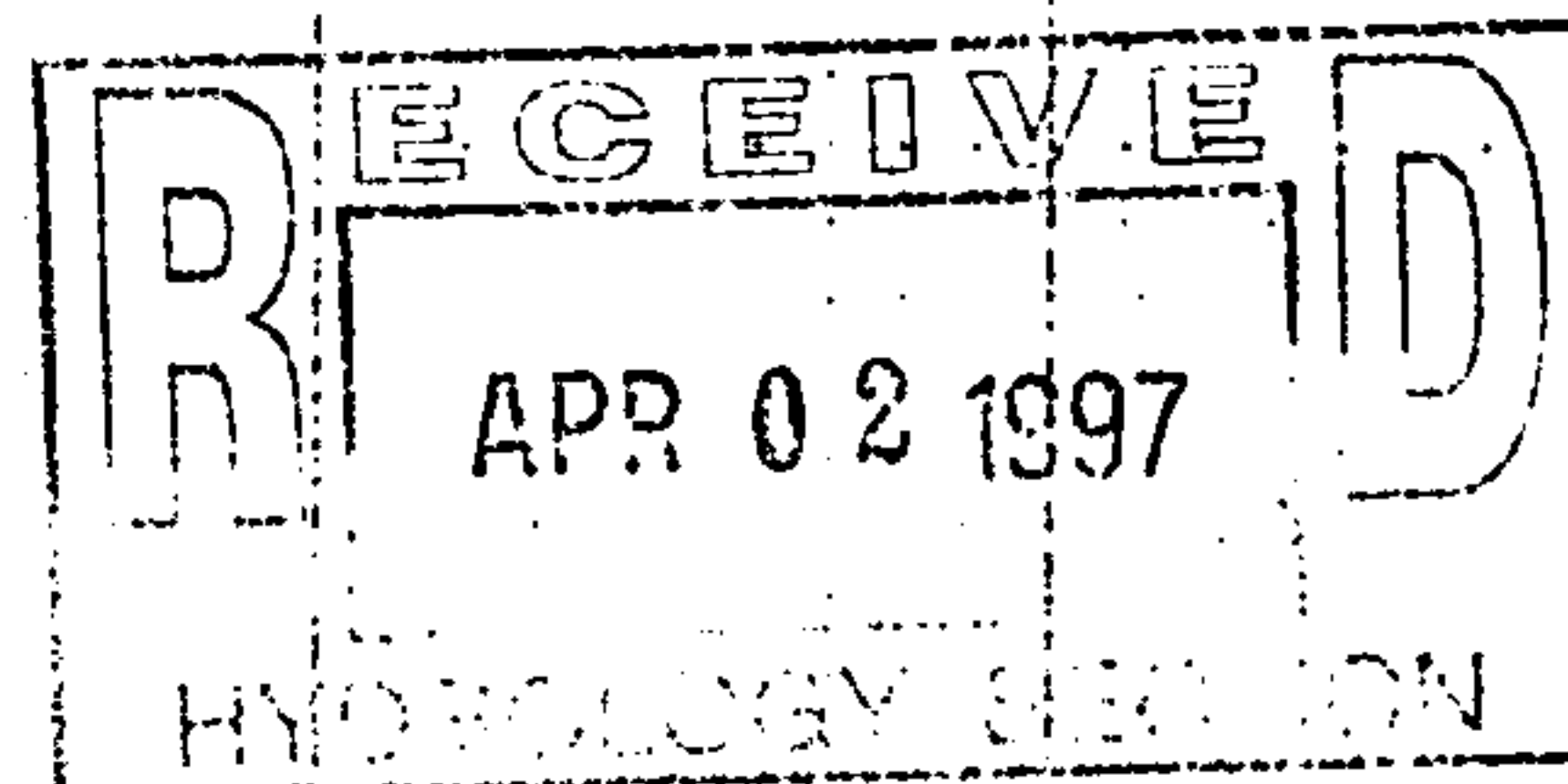
DATE:

2/13/97

BECAUSE OF THE INFREQUENCY OF A 100yr/10 DAY
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TEMPORARILY PONDED (SEE REVISED GRADING
PLAN FOR LIMITS) AND APS MAINTENANCE
HAS AGREED TO PUMP THE RUNOFF AROUND
THE NEW BUILDING TO THE ORIGINAL PONDING
AREA.

(SEE SHEET 3 OF 3 FOR STORAGE RATING
CURVE.)

THE LIMITS OF TEMPORARY PONDING
WILL BE APPROXIMATELY AT THE 4936'
ELEVATION.



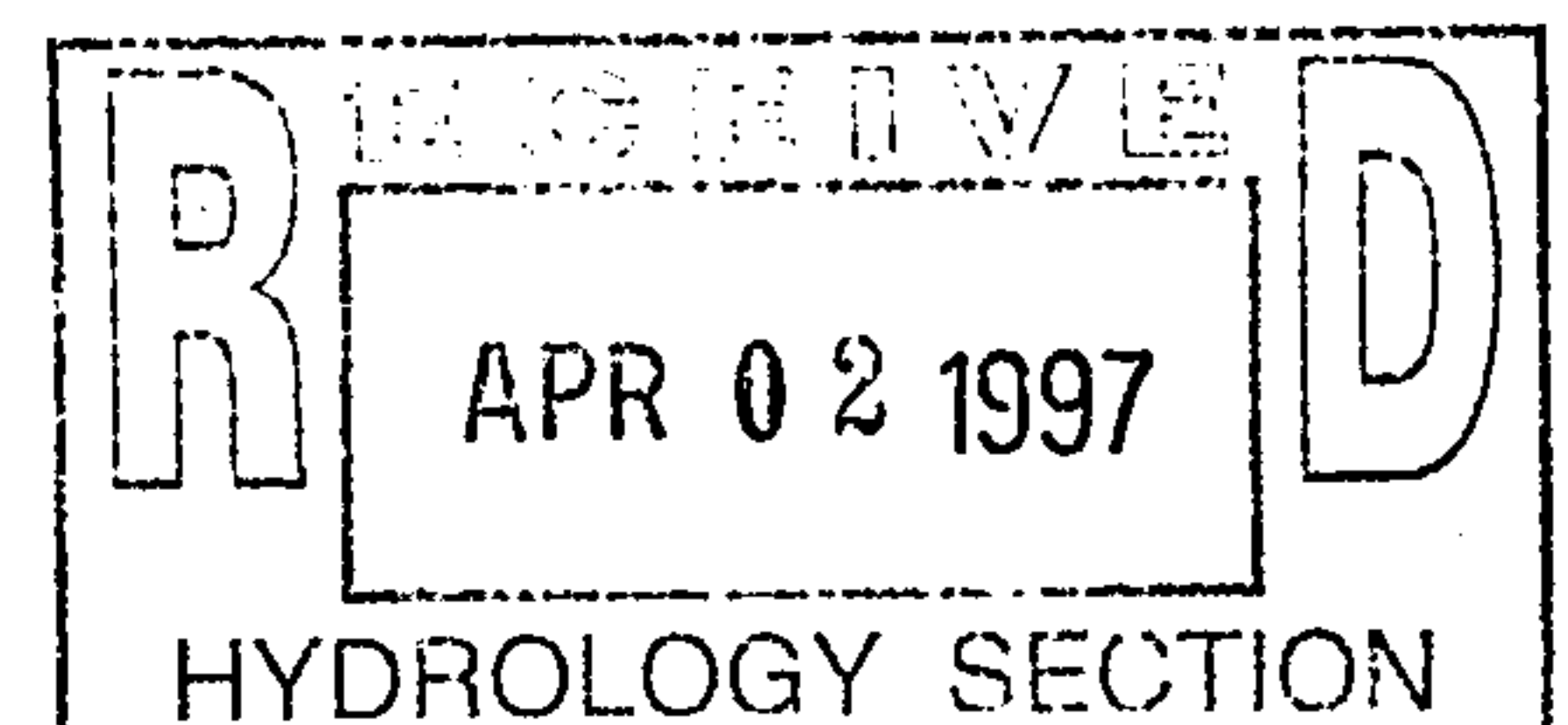
CALCULATIONS FOR REVISED GRADING PLAN
USING AVERAGE END AREA METHOD

02/18/97

Elevation (FT)	Area (SF)	Average Area (sf)	Average Area (ac)	Elevation Diff (ft)	Volume (ac-ft)	TOTAL STORAGE
34	2021	1010.5	0.023	0.5	0.012	0.01
34.5	3297	2659	0.061	0.5	0.031	0.04
35	6009	4653	0.107	0.5	0.053	0.10
35.5	24210	15109.5	0.347	0.5	0.173	0.27
36	52685	38447.5	0.883	0.5	0.441	0.71

← POND
STORAGE

TEMPORARY
PONDING

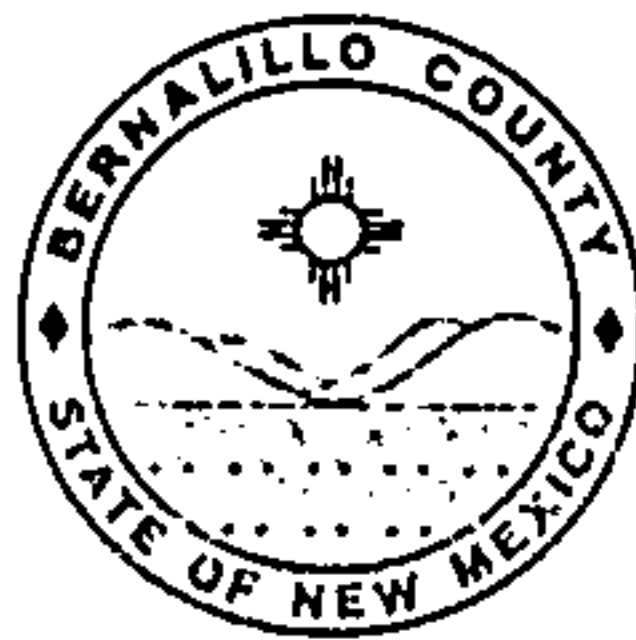


County of Bernalillo

State of New Mexico

BOARD OF COUNTY COMMISSIONERS

TOM RUTHERFORD, CHAIR
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BARBARA J. SEWARD, VICE CHAIR
DISTRICT 4
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DISTRICT 1
STEVE D. GALLEGOS, MEMBER
DISTRICT 2
LES HOUSTON, MEMBER
DISTRICT 5
JUAN R. VIGIL, COUNTY MANAGER



2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

DAVID K. ANDERSON, ASSESSOR
JUDY D. WOODWARD, CLERK
THOMAS J. MESCALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
ORLANDO VIGIL, TREASURER

March 19, 1997

Clint Dodge, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

**RE: Engineer's Certification for Kit Carson Elementary School, Phase I (M12/D7)
(PWD-96-63) Submitted for Certificate of Occupancy Release, Engineer's Stamp
Dated 2/19/97.**

Dear Mr. Dodge:

An engineer's certification should state that the construction was done in substantial compliance with the approved grading and drainage plan. However, the above referenced plan does not match the approved drainage plan dated April 11, 1996. The engineer's certification statement must indicate all of the changes that were made from the approved plan. Prior to approval of this plan, however, it must be revised to move the ponding areas away from the buildings. Most geotechnical investigations do not recommend ponding within 15' of structures, even on a temporary basis. Please revise the plan and resubmit it, along with my copy, to County Public Works.

If you should have any questions, please call me at 924-3982.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File

FAX

PUBLIC WORKS DEPARTMENT DEVELOPMENT AND BUILDING SERVICES

CENTER (ONE STOP SHOP)

600 2ND STREET - PLAZA DEL SOL- 2ND FLOOR W

FAX NO. 924-3864

DATE: 3-24-97

TIME: 8:40

No. of Pages: 2
(Including Cover Page)

To: KAREN JACOBSEN - LEEDSHILL - HERKEN HOFF

From: SUSAN CALONGNE

Comments: KIT CARSON LETTER

County of Bernalillo

State of New Mexico

BOARD OF COUNTY COMMISSIONERS

TOM RUTHERFORD, CHAIR
DISTRICT 3

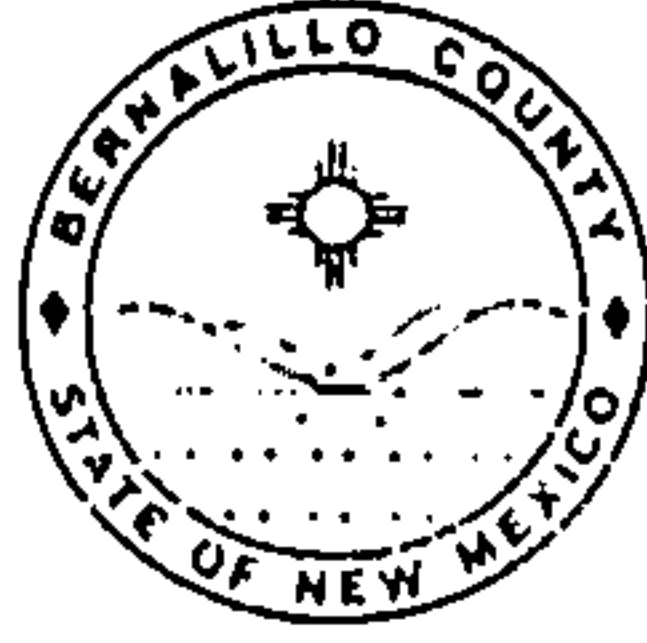
BARBARA J. SEWARD, VICE CHAIR
DISTRICT 4

KEN SANCHEZ, MEMBER
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STEVE D. GALLEGOS, MEMBER
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LES HOUSTON, MEMBER
DISTRICT 5

JUAN R. VIGIL, COUNTY MANAGER



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ORLANDO VIGIL, TREASURER

March 19, 1997

Clint Dodge, P.E.
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P.O. Box 1217
Albuquerque, New Mexico 87103

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City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File



LEEDSHILL-HERKENHOFF, INC.

an ASCG Company

500 Copper Avenue NW, Suite 500

P.O. Box 1217

Albuquerque, New Mexico 87103

(505) 247-0294 Fax (505) 242-4845

152-95023.11-97

February 18, 1997

Roger Paul, P.E.

Bernalillo County Public Works Department

2400 Broadway Boulevard, S.E.

Albuquerque, New Mexico 87102

**RE: KIT CARSON ELEMENTARY SCHOOL (M12/D7)(PWD-96-63),
REVISED GRADING AND DRAINAGE PLAN FOR PHASE I,
ALBUQUERQUE PUBLIC SCHOOLS**

Leedshill-Herkenhoff, Inc. (LH) has prepared this letter to request a Certificate of Occupancy for the above referenced project. A copy of the letter approving the conceptual grading and drainage plans dated May 13, 1996, is provided for your reference. The Master Grading and Drainage Plan (M12/D7)(PWD-96-27) was also approved in that same letter.

With this letter we have included the following:

Drainage Information Sheet.

Bernalillo County Application for Case Review.

The approved Phase I grading and drainage plan.

The revised grading and drainage plan.

Drainage calculations performed in accordance with Section 22.2 of the Development Process Manual for the City of Albuquerque.

Middle Rio Grande Conservancy District License for the use of District Works.

As indicated on the attached revised grading and drainage plan, the Kit Carson Elementary School project consisted of building a Multi-Purpose Facility, moving around some temporary buildings and a small amount of landscaping.

The grading was revised during construction from the original Phase I plans, between the new facility and the existing building. To better meet handicap requirements, it was decided during construction to level off the grade break on the original site plan. This results in more runoff flowing toward the ponding area. Because the pond was designed for smaller flows, it will now "overflow", and the additional ponding will occur in the walkways around the temporary buildings. No buildings or structures will be flooded as a result. All building floor elevations are above the 100 year water surface. APS has decided that because of the infrequency of the design storm, they would like to pump this pond area after such an event. The overflow runoff will be pumped around the new facility to the existing ponding areas at the playing field. This



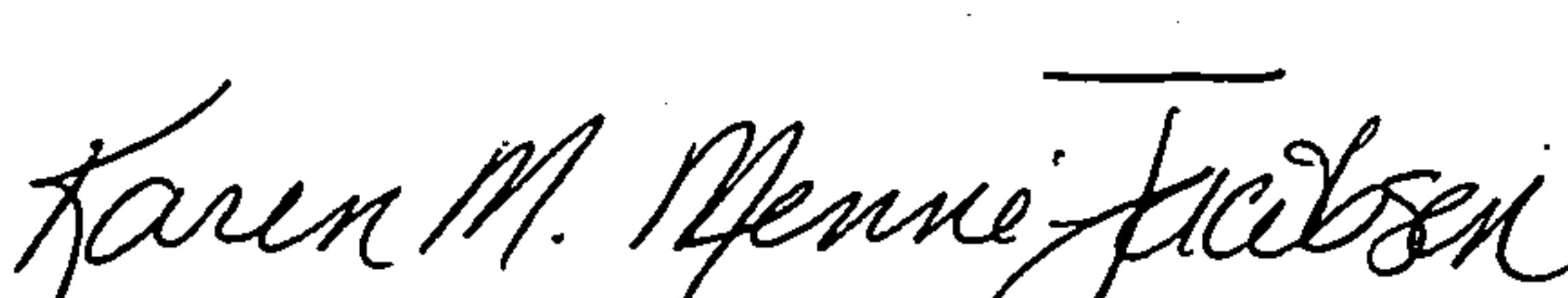
Roger Paul, P.E.
February 18, 1997
Page 2

was the flow pattern before the regrading and before construction. A drainage covenant has been filed with the County Clerk's Office.

Also impacted by this decision are the Phase II and III plans for the site. In the next phase the northeast corner will be paved for a parking lot, and additional ponding will be added on the south end of the site. The revised grading follows with the concepts of the Master Grading and Drainage Plan. Details will be provided in subsequent submittals.

The site is partially located in the 100-year flood plain as indicated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), Community Panel 350002 0034 C, as dated October 14, 1983 (copy attached). The portion of the site that was disturbed for Phase I is not in the specified flood zone.

LH requests your consideration for approval for a Certificate of Occupancy for the above referenced site, based on the revised Phase I grading and drainage plan. If you need additional data or have any questions please call me or Clint Dodge at 247-0294.

 Karen M. Menne'-Jacobsen Engineering Intern	 Clint Dodge, P.E. Principal Engineer
--	--

kmj/lfs

cc: David Klein, LH
Gerry Brown, APS

encl



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • Santa Fe

ENGINEERING COMPUTATIONS

NAME OF PROJECT

HIT CARSON ELEMENTARY SCHOOL

COMPUTED BY:

KMT

CHECKED BY:

CD

JOB NUMBER

95023.16

SHEET NUMBER

1 OF 3

DATE:

2/13/97

IN THE ORIGINAL CALCULATIONS POND VOLUME
NEEDED WAS 0.18 AC-FT. DURING CONSTRUCTION
GRADES WERE CHANGED FOR VARIOUS REASONS,
AND THAT POND NOW RETAINS 0.10 AC-FT.

THE FOLLOWING IS A CALCULATION TO DETERMINE
THE ADDITIONAL VOLUME NEEDED DUE TO
GRADE CHANGES, USING COA DPM GUIDELINES (See
Previous Calcs)

ADDITIONAL AREA = 1.5 AC

$$E_D = 1.97 \text{ IN.} \quad P_{360} = 2.20 \text{ IN.} \quad P_{10DAY} = 3.67 \text{ IN.}$$

$$V_{360} = \text{WEIGHTED } E \times \left(\frac{A_{\text{TOTAL}}}{12 \text{ IN/FT}} \right)$$

$$V_{360} = \left(\frac{1.97 \times 1.5}{12} \right) = 0.25 \text{ AC-FT}$$

$$V_{10DAY} = V_{360} + A_D \times \left(\frac{P_{10} - P_{360}}{12 \text{ IN/FT}} \right)$$

$$V_{10DAY} = 0.25 \text{ AC-FT} + 1.5 \left(\frac{3.67 - 2.20}{12} \right)$$

$$V_{10DAY} = 0.43 \text{ AC-FT} \quad \text{Additional Volume}$$

THUS TOTAL VOLUME NOW NEEDED = $0.18 + 0.43$
= 0.61 AC-FT



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • Santa Fe

ENGINEERING COMPUTATIONS

NAME OF PROJECT

HIT CARSON

COMPUTED BY:

KM-J

CHECKED BY:

CD

JOB NUMBER

95023.16

SHEET NUMBER

2 OF 3

DATE:

2/13/97

BECAUSE OF THE INFREQUENCY OF A 100yr 10 day
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(SEE SHEET 3 OF 3 FOR STORAGE RATING
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THE LIMITS OF TEMPORARY PONDING
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CALCULATIONS FOR REVISED GRADING PLAN
USING AVERAGE END AREA METHOD

02/18/97

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← POND
STORAGE

←
TEMPORARY
PONDING



LEEDSHILL • HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

HIT CARSON PHASE ONE

COMPUTED BY:

KMS

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

1 OF 3

DATE:

20 MAR 96

PREVIOUS CALCULATIONS

1.0 PURPOSE:

TO CALCULATE FLOW OFF OF ROOF DRAIN
AND SIZE "POND".

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USING CITY OF ALBUQUERQUE DEVELOPMENT
PROCESS MANUAL, VOLUMES WILL BE
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MANUAL - SECTION 22.2 (DPM)

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DPM DESIGN STORM WILL BE 100yr-10day.

"LAND TREATMENT" IS IMPERVIOUS.

AREA TAKEN FROM AUTOCAD DRAWING.

V_{360} & V_{10day} ARE DETERMINED.

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LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
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NAME OF PROJECT

KIT CARSON PHASE ONE

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PRECIPITATION ZONE

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AREA = 22320.7 SF = 0.51 ACRES

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EXCESS PRECIPITATION

TABLE A-8, DPM, EXCESS PRECIPITATION, E (INCHES)

6 HOUR STORM, 100 YR, ZONE 1

$$E_D = 1.97$$

FROM DPM TABLE A-2

$$P_{10DAY} = 3.67 \text{ in}$$

$$P_{360} = 2.20 \text{ in}$$



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON PHASE ONE

COMPUTED BY:

KMJ

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

3 OF 3

DATE:

20 MAR 96

$$V_{10DAY} = V_{360} + A_D * (P_{10DAY} - P_{360}) / 12$$

DPM
(EQ a-9)

$$V_{360} = E * A_T / 12$$

DPM
(EQ a-6)

$$V_{360} = 1.97 * 0.63 / 12 = 0.10 \text{ ac-ft}$$

$$V_{10DAY} = 0.10 + 0.63 * \frac{(3.67 - 2.20)}{12}$$

$$\underline{V_{10DAY} = 0.18 \text{ ac-ft.}}$$

THIS IS THE VOLUME THAT MUST BE CONTAINED
IN THE POND.



Handwritten initials 'B'

BOARD OF COUNTY COMMISSIONERS

ALBERT "AL" VALDEZ, CHAIRMAN
DISTRICT 2

KEN SANCHEZ, VICE CHAIR
DISTRICT 1

EUGENE M. GILBERT, MEMBER
DISTRICT 3

BARBARA J. SEWARD, MEMBER
DISTRICT 4

LES HOUSTON, MEMBER
DISTRICT 5

JUAN R. VIGIL, COUNTY MANAGER

County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

DAVID K. ANDERSON, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESCALL, PROBATE JUDGE

JOE BOWDICH, SHERIFF

H. R. FINE, TREASURER

May 13, 1996

RECEIVED

MAY 16 1996

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

LEEDSHILL - HERKENHOFF, INC.
ALBUQUERQUE

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN (M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, AND GRADING AND DRAINAGE PLAN FOR PHASE I (M12/D7) (PWD-96-63) SUBMITTED FOR GRADING AND BUILDING PERMIT APPROVAL, ENGINEER'S STAMP DATED 4/11/96.

Dear Mr. Blaine:

Based on the information provided in the submittal of April 23, 1996, the above referenced Master Plan is approved. The Grading and Drainage Plan for Phase I is also approved for Grading Permit and Building Permit release.

Please be advised that prior to Certificate of Occupancy release for Phase I, the Engineer's Certification must be submitted to and approved by my office.

If you should have any questions, please call me at 768-2666.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.

City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File

**MIDDLE RIO GRANDE CONSERVANCY DISTRICT
LICENSE FOR THE USE OF DISTRICT WORKS
SP-036-96**

1. The Middle Rio Grande Conservancy District hereby grants to the undersigned who hereby accepts this License to temporarily utilize the following District Right-of-Ways: BECKHAM LATERAL. The use of District right-of-way is necessary in order to REMOVE TWO EXISTING PEDESTRIAN BRIDGE CROSSINGS AND INSTALL A NEW BRIDGE CROSSING ACROSS THE BECKHAM LATERAL.
2. The Licensee shall be liable for any and all damages to the property of the Middle Rio Grande Conservancy District, United States or any third party or parties by reason of the exercise of the privilege conferred by this License. Should any culvert pipe, bridge, utility and or irrigation structure become damaged, collapse, leak, or fail as a result of the Licensees activities, the Licensee shall repair or remove and replace the damaged structure to comply with District specifications at the expense of the Licensee. In addition, the Licensee agrees to hold the Middle Rio Grande Conservancy District harmless from any and all claims or suits of any nature which may arise by reason of the exercise of the privilege conferred by this License.
3. This License shall continue so long as in the opinion of the Middle Rio Grande Conservancy District, it is considered to be expedient and not detrimental to the public interest or the interest of the Middle Rio Grande Conservancy District but in no case longer than AUGUST 30, 1996. This License shall be revocable by the Middle Rio Grande Conservancy District for any reason upon ten (10) days written notice to the Licensee. Upon such revocation, the Licensee shall stop all use of Right-of-Way of the District and shall remove all structures and all accessories without delay at the sole expense of the Licensee. Notice to remove shall be sufficient if mailed to Licensee at: BRITTON CONSTRUCTION INC., P.O. BOX 80194, ALBUQUERQUE, NM 87198, ATTN: DAN BERGSTEIN, PHONE: (505) 268-2626. If Licensee fails or refuses to stop the use of the District Right-of-Way or to remove any structures or accessories, the Middle Rio Grande Conservancy District may at its discretion, remove the items and the Licensee shall be liable to the District for the costs incurred. The Middle Rio Grande Conservancy District may withhold this from the security deposit posted by Licensee and may sue for any additional sums.
4. Upon the natural termination of this License or if prior thereto terminated by the District, the Licensee shall then immediately burn all weeds or any vegetation on the ditches, canals, laterals and feeders which it has used and shall remove all silt in the works of the District including pipe crossings, which has been deposited thereby due to the use of District Right-of-Way by the Licensee and shall reshape the ditches where wash or erosion has occurred. In addition thereto, the Licensee shall build up the ditch bank roads to their original shape and elevation.
5. The Licensee hereby releases the Middle Rio Grande Conservancy District, its agents and employees and the United States from any and all claims for damage to property or personal injury or any damages that may arise as a result of the License's use of the works of the District provided for herein or as a result of the presence of said Licensee and Licensee agrees to hold the Middle Rio Grande Conservancy District, its agents and employees harmless from any such claims. If any claims are brought, Licensee agrees to diligently defend any such claim for the benefit of the Middle Rio Grande Conservancy District at its own expense and to protect the interest of the District.
6. If the Middle Rio Grande Conservancy District is required to bring suit in any court for the purposes of enforcing this agreement or any provisions or portions thereof, the Licensee shall be liable for all costs incurred and for reasonable attorney fees.
7. The Licensee understands that it is imperative that the Middle Rio Grande Conservancy District have full use of all its drains, laterals, ditches and canals at all times and that certain preparatory work must be

Post-It® Fax Note 7671		Date <u>2-11-97</u>	# of pages <u>6</u>
To <u>KAREN JALOBEX</u>		From <u>Dan Bergstein</u>	
Co./Dept. <u>LEADS HILL</u>		Co.	
Phone #		Phone #	
Fax # <u>216-0507</u>		Fax #	

e 1 of 2

done prior to the use of the District of these works and that if the District does not have full use and access to the works, it will sustain irreparable damage, the value of which would be difficult to ascertain, and as a result therefor, the Licensee agrees to pay the Middle Rio Grande Conservancy District the sum of \$100.00 per day as liquidated damages for each day that the District is unable to use the drain for operation and maintenance of the system or after the expiration of this license in which the licensee is either using the works of the District or has not completed the work required by this license.

8. The Licensee shall post a security deposit in cash with the Middle Rio Grande Conservancy District in the sum of \$2,500.00, said deposit shall be held as security for the performance by Licensee of all the items, covenants and conditions of this agreement. Said deposit shall be returned to Licensee upon termination of this agreement, without interest, provided Licensee has complied with all the terms, conditions and covenants of this agreement. If Licensee fails to perform any of these terms, conditions and covenants of this agreement, the Middle Rio Grande Conservancy District may apply said deposit toward all costs, charges or damages incurred or caused by a breach of this agreement, even though said amount may exceed the amount of the deposit.

9. Licensee is responsible for contacting Leonard Utter, Assistant Engineer, at (505) 247-0234 prior to entering any District Right-of-Ways.

EXECUTED THIS 2nd DAY OF August, 19 96

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

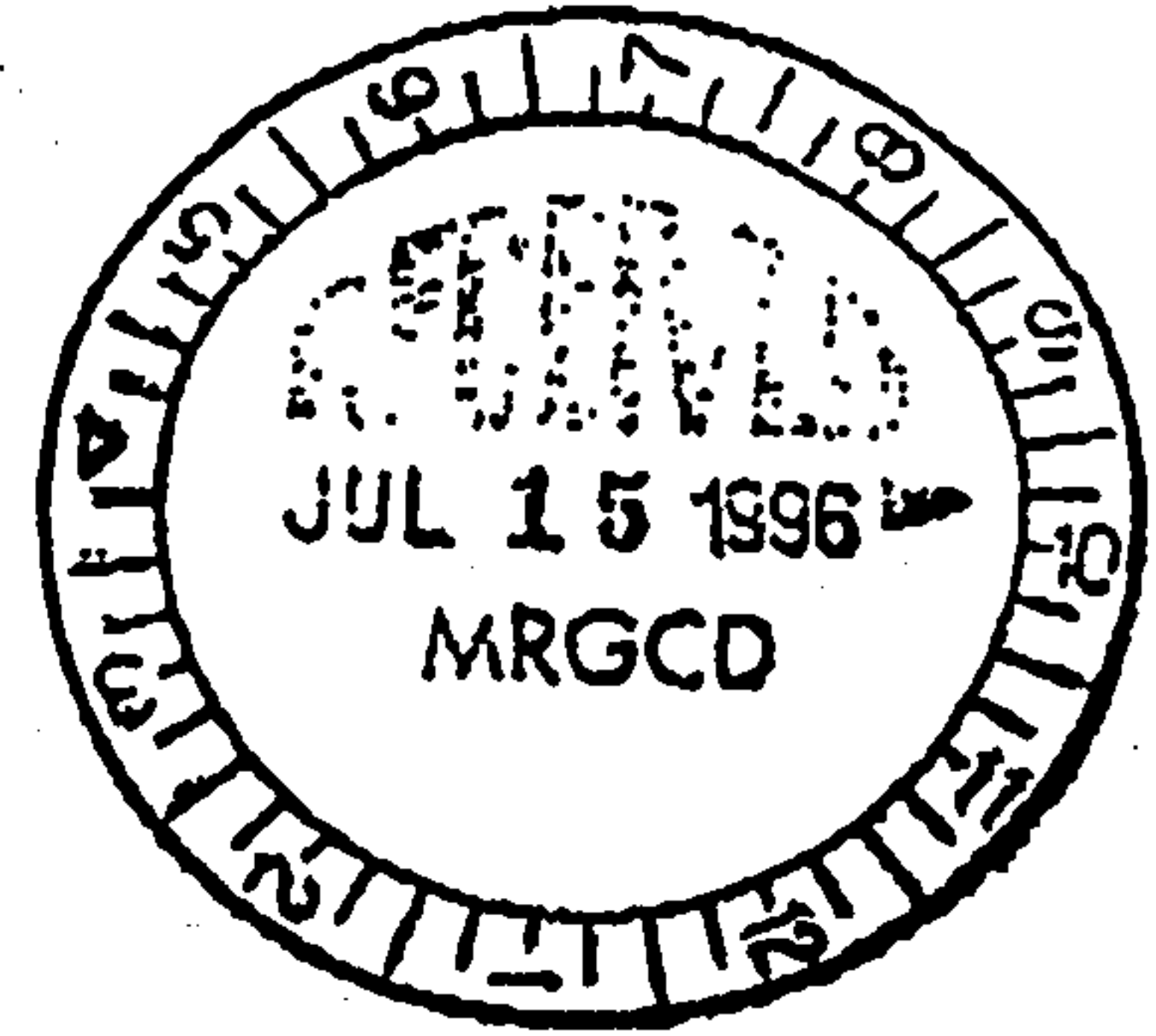
BY: [Signature]

LICENSEE

BY: [Signature]

Rev 2/95

57-036-96

BRITTON
CONSTRUCTION INC.

July 11, 1996

Middle Rio Grande Conservancy
PO Box 581
Albuquerque, NM 87103-0581
Attn: Ray Gomez

RE: Kit Carson Elementary School Gym

Dear Ray:

Britton Construction Inc. has a contract with APS to build a bridge over an irrigation ditch located @ Kit Carson Elementary School. We will need a temporary license to perform work in the ditch.

We will be performing work in the ditch between 7/22/96 through 8/30/96.

Project Title: Kit Carson Elementary School Gym Facility

Location: Kit Carson Elementary School
1920 Byron Road SW
Albuquerque, NM 87105

Jobsite Contact: Brent Britton 873-9329
Office Contact: Dan Bergstein 268-2626

Sincerely,

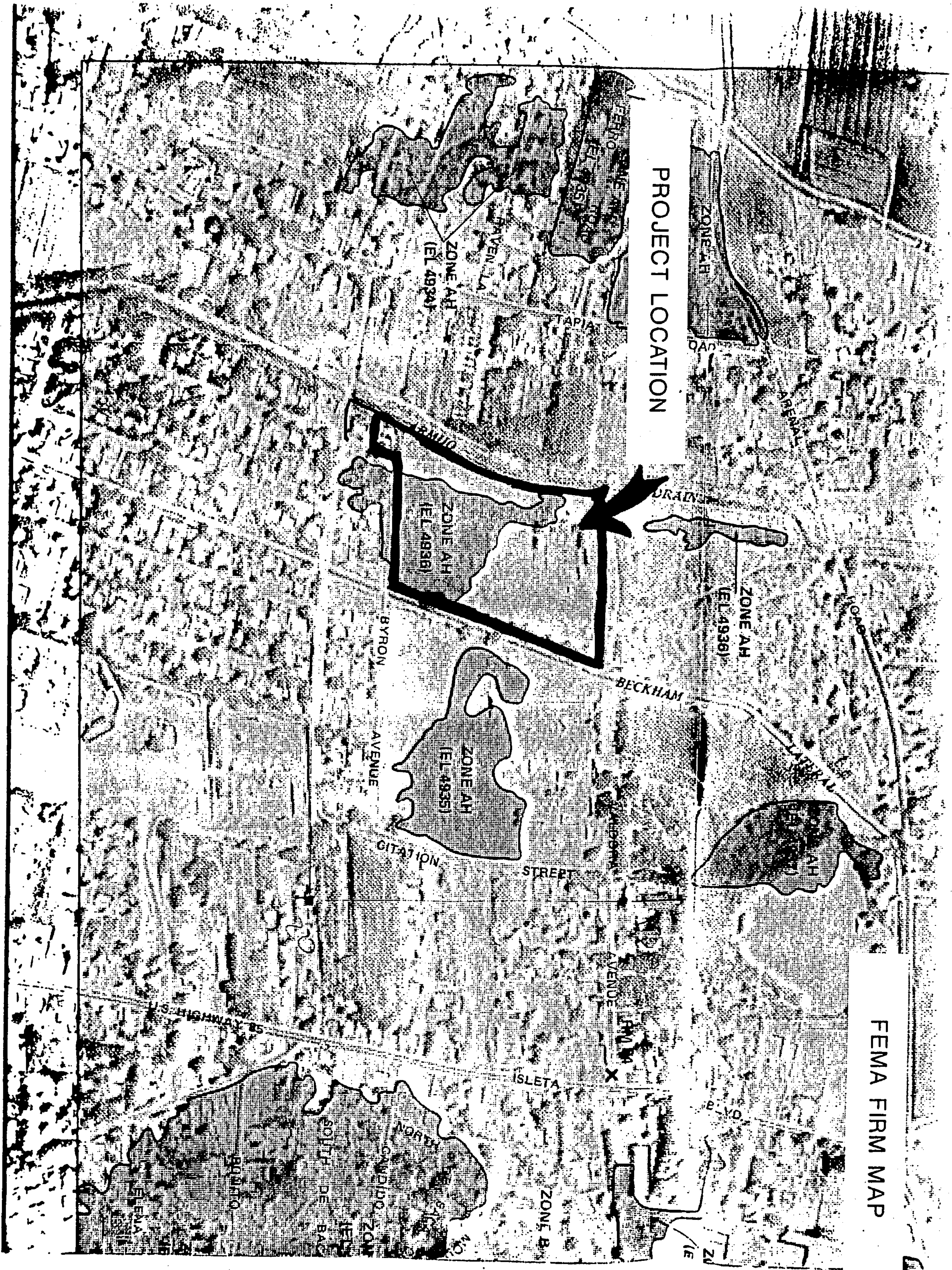

Dan Bergstein

Project Engineer

MRGCD ROUTING STAMP			
OFFICE	DATE	INITIALS	FILE
CNS ENG	7/15/96		
IRAS			
AA			
AL			
ATTY			
ALBUQ DIV			
FILE			

FEMA FIRM MAP

PROJECT LOCATION



DUE DATE

12 - MAR - 97

DRAN-
DRE
INSP
PLAN

X

X

X

ORIGINAL F.P.A.
2-21-97 2-21-97

M-12, T. 198A, 1B, MRGD MAP#43

PWD - 96 - 63

CASE #



15179

BOARD OF COUNTY COMMISSIONERS

PATRICK J. BACA, CHAIRMAN
DISTRICT 1JACQUELYN SCHAEFER, VICE CHAIR
DISTRICT 2ALBERT "AL" VALDEZ, MEMBER
DISTRICT 3EUGENE M. GILBERT, MEMBER
DISTRICT 4BARBARA J. SEWARD, MEMBER
DISTRICT 5

JUAN R. VIGIL, COUNTY MANAGER

County of Bernalillo

State of New Mexico

2400 BROADWAY S.E.

ALBUQUERQUE, NEW MEXICO 87102

ADMINISTRATION (505) 768-4000

COMMISSION (505) 768-4217

MARK J. CARRILLO, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESSALL, PROBATE JUDGE

RAY GALLAGHER, SHERIFF

H. R. FINE, TREASURER

INCOMPLETE APPLICATIONS WILL BE RETURNED, BUT WILL NOT BE REVIEWED

Date: 2/18/97

Submittal

X

Subject: Resubmittal

Final Sign-off

XCase No.: PWD-96-63Zone Map No.: M-12/D7Street Address: 1920 Byron Avenue SW, Albuquerque, NM 87105Legal Description: Tract 198A 1B MRGCD MAP #43Name of Applicant: Leedshill-Herkenhoff, Inc.

Dear Applicant:

Bernalillo County Public Works Department will require TWO WEEKS for review and comment of submittal and resubmittals, and ONE WEEK for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 1-25-91 MJG

COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete the following application for review of your case. Submit **THREE** blueines of plat, drawings, or information with case submittals and **THREE** blueines of plat, drawings, or information with final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

☐ OWNER ☐ SURVEYOR ☐ AGENT
☒ ENGINEER ☒ DRAINAGE ENGINEER

b. Date of this application: 2/18/97

c. Signature of applicant:

(print) Clint Dodge, P.E.

(sign)

Clint Dodge

d. OWNER: Albuquerque Public Schools

PHONE: 242-5865

Dept. of Facilities Planning & Construction

ADDRESS: 915 Oak SE Albuquerque, NM

ZIP CODE: 87106

e. AGENT: Gerry Brown

PHONE: 242-5865

ADDRESS: 915 Oak SE Albuquerque, NM

ZIP CODE: 87106

f. OTHER(specify): _____

PHONE: _____

ADDRESS: _____

ZIP CODE: _____

2. TYPE OF SUBMITTAL (check one):

☐ REPLAT

☐ LAND DIVISION (MINOR SUBDIVISION)

☐ MAJOR SUBDIVISION

☐ CONSTRUCTION DRAWINGS

☐ GRADING/DRAINAGE PLAN

☒ AS-CONSTRUCTED GRADING/DRAINAGE PLAN

☐ VARIANCE REQUEST

☐ TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY

☐ INFRASTRUCTURE LIST/DESIGN REVIEW FEE

☒ OTHER (specify): Certificate of Occupancy

MOLZEN-CORBIN

& Associates

DRAINAGE PLANNERS/CONSULTANTS



LETTER OF TRANSMITTAL

X 2701 Miles Road Southeast, Albuquerque, NM 87106
505-242-5700

☐ 205 West Bous Number 4, Suite Number 5, P.O. Box 1360, Las Cruces, NM 88004
505-525-2397

TO Susan Calongne
600 2nd St. N.W.
Hydrology Division

DATE	Feb. 21, 1997	JOB NO.
ATTENTION	Floodplain Administration	
RE	Drainage Reviews	

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

COPIES	DATE	NO.	DESCRIPTION
1			PWD-96-63(R) New Review

THESE ARE TRANSMITTED as checked below:

☐ For approval

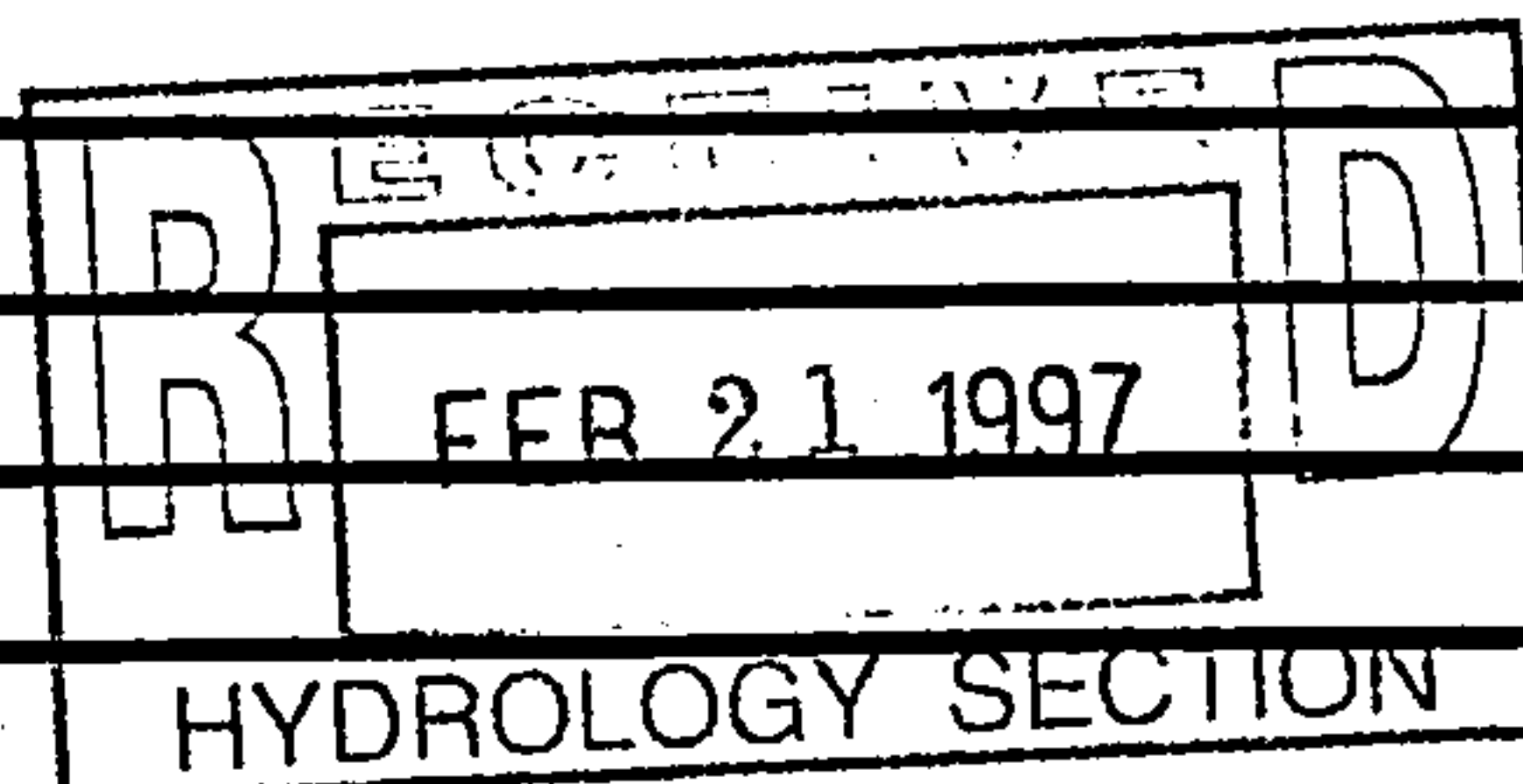
☒ For your use

☐ As requested

☐ For review and comment

☐ Other _____

REMARKS _____



COPY TO _____

SIGNED: Reina Flores

If enclosures are not as noted, kindly notify us at once.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Kit Carson Master Plan ZONE ATLAS/DRNG.FILE #: M-12/D7
PWD-96-63

DRB #: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tract 198A 1B MRGCO MAP #43

CITY ADDRESS: 1920 Byron Avenue

ENGINEERING FIRM: Leedshill-Herkenhoff, Inc. CONTACT: Clint Dodge P.E.

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

OWNER: Albuquerque Public Schools CONTACT: Gerry Brown

ADDRESS: 915 Oak SE, Alb., NM 87106 PHONE: (505) 242-5864

ARCHITECT: Leedshill-Herkenhoff, Inc. CONTACT: David Klein

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

SURVEYOR: Wilson & Company CONTACT: Bill Brewster/Dan Aguirre

ADDRESS: 4775 Indian School Rd., NE PHONE: (505) 254-4000

Albuquerque, NM 87110

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☒ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETINGS:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S.DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY APPROVAL
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 2/19/97

BY: Clint Dodge



Susan's Copy

County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

BOARD OF COUNTY COMMISSIONERS

ALBERT "AL" VALDEZ, CHAIRMAN
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BARBARA J. SEWARD, MEMBER
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DISTRICT 5
JUAN R. VIGIL, COUNTY MANAGER

DAVID K. ANDERSON, ASSESSOR
JUDY D. WOODWARD, CLERK
THOMAS J. MESCALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
H. R. FINE, TREASURER

Date: 11-OCT-96

Subject: Resubmittal

Case No.: PWD-96-27

Zone Map No.: M-12

Street Address: 1920 BYRON SW

Legal Description: TR 198-A-1-B MRGCD 43 KIT CARSON ELEMENTARY

Name of Applicant: Leedshill-Herkenhoff

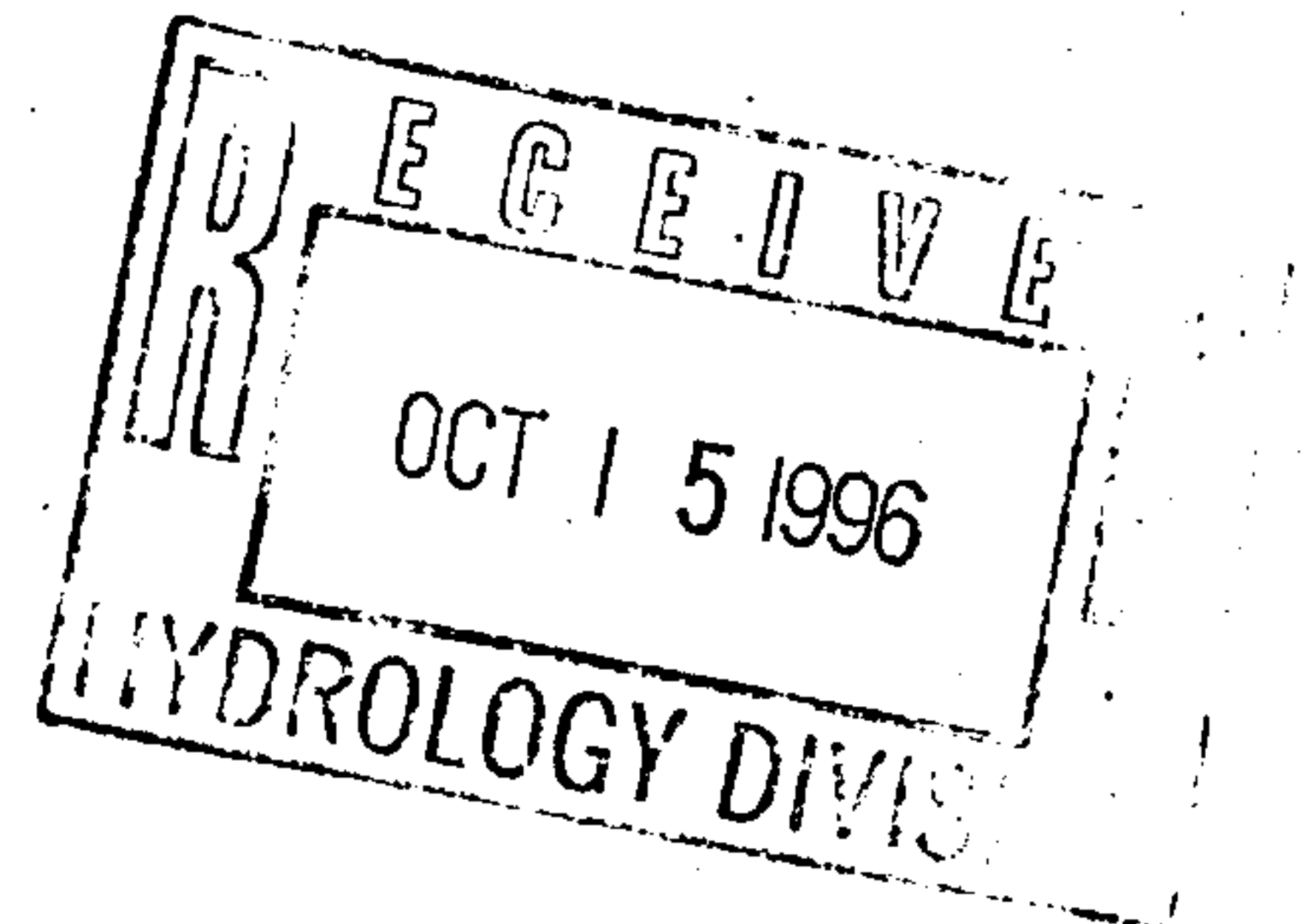
Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS** for review and comment of submittal and resubmittals, and **ONE WEEK** for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR



COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete pages one and two of this application for review of your case. Submit THREE blueines of plat, drawings, or information with case submittals and THREE blueines of plat, drawings, or information along with the original mylar for final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

OWNER SURVEYOR AGENT
☒ ENGINEER ☐ DRAINAGE ENGINEER

b. Date of this application: 18-APR-96

c. Signature of applicant:

(print) _____ (sign) _____

d. OWNER: Albuquerque Public Schools
915 Oak SE
Albuquerque, NM 87106

PHONE: 242-5865

e. AGENT: Leedshill-Herkenhoff Inc
500 Copper Ave NN PO Box 1217
Albuquerque, NM 87103

PHONE: 505-247-0294

f. OTHER(specify): Leedshill-Herkenhoff Inc PHONE: 505-247-0294
500 Copper Ave NN PO Box 1217
Albuquerque, NM 87103

2. TYPE OF SUBMITTAL (check one):

REPLAT
LAND DIVISION (MINOR SUBDIVISION)
MAJOR SUBDIVISION
CONSTRUCTION DRAWINGS
☒ GRADING/DRAINAGE PLAN
AS-CONSTRUCTED GRADING/DRAINAGE PLAN
VARIANCE REQUEST
TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
INFRASTRUCTURE LIST/DESIGN REVIEW FEE
OTHER (specify): _____

County of Bernalillo

Floodplain

Your: ☒ submittal of drainage information
☒ resubmittal of drainage information

is: ☒ approved.
☒ approved with comments/conditions.
☐ disapproved.
☐ deferred to County Floodplain Administrator

TO BE FILLED OUT BY
COUNTY PUBLIC WORKS
DEPARTMENT ONLY

Case review comments are:

☒ attached.
☐ not attached.
☐ not attached. See remarks below.

Resubmittal is:

☒ not required.
☐ required. When resubmitting, please use Resubmittal Form.

Please submit:

☐ grading/drainage plan with revisions.
☒ as-constructed grading/drainage plan.
☐ other: _____

It is required that:

☐ Bernalillo County Public Works Department inspect improvements prior to final sign-off of plat.
☐ Bernalillo County Public Works Department signature line be placed on plat.

Remarks: _____

E. Law, Jr. 10/10/96

* See attached memo for
AMAFCA Concurrence

Molzen-Corbin & Assoc., for
County Surface Water Hydrologist
Bernalillo County Public Works Department

cc: ☐ Sandia Heights Homeowners Association
☒ Owner: *A.P.C.*
☒ Agent: *Heedshill - Herbenhoff, Inc.*
☒ Case File: *PWD-96-27*
☒ AMAFCA
☒ Susan Calongne, County Floodplain Administrator, COA
☒ Molzen-Corbin & Associates
☐ Other: _____

GENEIVA MEEKER, CHAIR
DANIEL W. COOK, VICE-CHAIR
RONALD D. BROWN, SECRETARY-TREASURER
MICHAEL MURPHY, ASST. SECRETARY-TREASURER
TIM EICHENBERG, DIRECTOR

LARRY A. BLAIR
EXECUTIVE ENGINEER

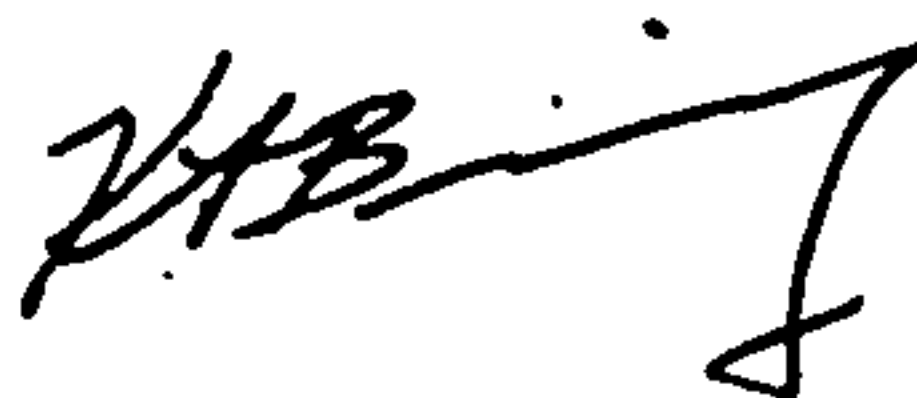


**Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority**

2600 PROSPECT N.E. - ALBUQUERQUE, N. M. 87107
TELEPHONE (505) 884-2215

July 30, 1996

TO: Roger Paul, P.E.
Bernalillo County Public Works Department

FR: Kurt Browning, P.E. 
AMAFCA

For grading and drainage submittals that are located in the floodplain, it is not necessary for AMAFCA to sign the County approval/disapproval form. AMAFCA's comments are coordinated with the City/County Floodplain Administrator and are included in the written response.

You may include this memo with the signature sheet as needed, for the closing of floodplain cases.

End

BERNALILLO COUNTY PUBLIC WORKS DEPARTMENT
CASE FILE COMMENTS

CASE NO: PWD-96-27

ZONE MAP NO.: M-12

REFERENCE CASES:

PWD-96-63

STREET ADDRESS: 1920 BYRON SW

LEGAL DESCRIPTION: TR 198-A-1-B MRGCD 43 KIT CARSON ELEMENTARY

COMMENTS OF:

22-FEB-96 DRAN: A portion of this property appears to be within a designated 100 year flood plain as shown on the National Flood Insurance Program's Flood Insurance Rate Map. Defer approval to the County Floodplain Administrator.

18-APR-96 DRAN: The Floodplain Administrator has completed review of this case and comments are as follows:

1. Based on the information provided on the grading and drainage plan, with engineer's seal dated 04-11-96, this plan appears to meet the requirements established for this area and is therefore acceptable.
 2. Development of this property must conform to this plan.
Any proposed changes will require a revision to the plan prior to initiating the proposed change.
 3. An "As-Constructed" grading and drainage plan, with engineer's certification that the constructed improvements are in substantial compliance with this plan, will be required prior to County Building and Zoning issuing an occupancy permit.
- *** Inspection required, applicant required to obtain permits from G.J. Foster at Bernalillo County Public Works Department.
Phone (505) 848 - 1523



County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

May 13, 1996

BOARD OF COUNTY COMMISSIONERS

ALBERT "AL" VALDEZ, CHAIRMAN
DISTRICT 2

KEN SANCHEZ, VICE CHAIR
DISTRICT 1

EUGENE M. GILBERT, MEMBER
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H. R. FINE, TREASURER

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN
(M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, AND GRADING
AND DRAINAGE PLAN FOR PHASE I (M12/D7) (PWD-96-63) SUBMITTED FOR
GRADING AND BUILDING PERMIT APPROVAL, ENGINEER'S STAMP DATED 4/11/96.

Dear Mr. Blaine:

Based on the information provided in the submittal of April 23, 1996, the above referenced Master Plan is approved. The Grading and Drainage Plan for Phase I is also approved for Grading Permit and Building Permit release.

Please be advised that prior to Certificate of Occupancy release for Phase I, the Engineer's Certification must be submitted to and approved by my office.

If you should have any questions, please call me at 768-2666.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

Susan M. Calongne, P.E.

City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File



RECEIVED

MAR 29 1996

County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

LEEDSHILL - HERKENHOFF, INC.
ALBUQUERQUE

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March 25, 1996

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

COPY

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN
(M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, ENGINEER'S
STAMP DATED 2/9/96.

Dear Mr. Blaine:

This letter consists of a compilation of my comments along with those of Bernalillo County Public Works. Prior to approval of the above referenced Master plan, please address the following comments:

1. Will the proposed grading properly convey the on-site flows to the ponds? Please show a cross-section and capacity calculations for the swale on the east side of the property that is used to divert the flows to the ponds.
2. Each pond shall have a designated private drainage/access easement or drainage covenant that assures the public sector the right to maintain the facility if required by emergency or non-maintenance by the property owner.
3. It appears that the proposed ponds do not have a spillway. County Ordinance 90-6 states that all retention facilities shall have a designated overflow spillway. The overflow spillway should as a minimum be capable of safely discharging the runoff entering the facility from a 100-year design storm. Please address.
4. Please provide a comparison of the runoff volumes for existing and proposed conditions. Proposed ponding should be able to accommodate the existing floodplain volume plus the volume generated due to development of the site. The report states that the area of the existing floodplain is 5.52 acres. Is this the total floodplain area on this site only? Using the existing topography, what is the volume when this floodplain is at elevation 4936? This is the volume that must be ponded along with the developed runoff.

March 25, 1996

- † 5. Does the retention pond to the north of the property have the capacity to retain the volume from a 100-year, 10-day storm? If this pond overflows, will runoff impact the school site?
6. Please identify the sizes of the leveling culverts that are proposed between the ponds.
7. Since this report is to be used as the master plan, the phasing should be clear on the drawing. Please note on the plan which facilities are to be constructed with each phase, such as, the proposed parking lot is to be constructed with Phase 2. With which phases are the proposed retention ponds and playing field improvements to be built?

If you should have any questions regarding these comments, please feel free to call me at 768-2666 or Roger Paul at Bernalillo County Public Works Division.

Sincerely,



Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File

**KIT CARSON
ELEMENTARY SCHOOL**

**MASTER DRAINAGE AND
GRADING PLAN**

Prepared for

**Albuquerque Public Schools
New Mexico**

April 1996

APR 23 1996

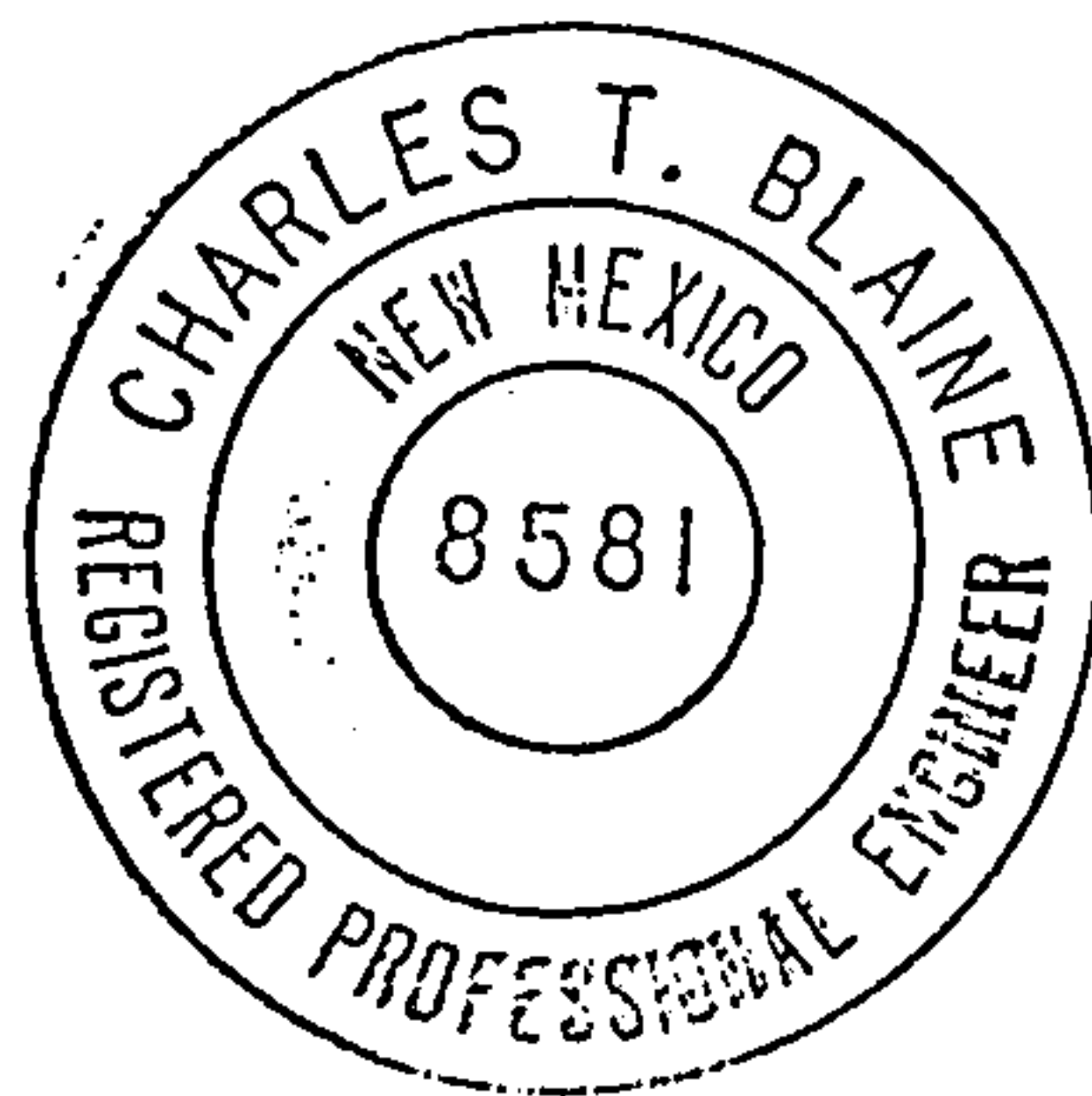


LEEDSHILL-HERKENHOFF, INC.

Copper Square, 500 Copper Avenue, NW
P.O. Box 1217 - Phone (505) 247-0294
Albuquerque, New Mexico 87103

LH 95023.12

I, Charles T. Blaine, Registered Professional Engineer No. 8581, hereby certify that these documents were prepared by me, or directly under my supervision, and are true and correct to the best of my knowledge and belief.



Charles T. Blaine
Registered Professional Engineer
No. 8581

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PURPOSE/SCOPE

The purpose of this project was to create a Master Drainage Plan for the Kit Carson Elementary School. The site is located at 1920 Byron Avenue. The location of the site is between two Middle Rio Grande Facilities (MRGCD), the Armijo Drain is to the west and the Beckham Lateral is to the east. To the north of the site is Arenal Road and to the south is Byron Avenue. The site can be found on Zone Atlas Map M-12-Z. (See Exhibit 1, Appendix)

EXISTING CONDITIONS

A. SITE

Kit Carson Elementary School is located south of the city limits of Albuquerque, in what is considered the South Valley, in Bernalillo County. It is located north of Byron Avenue, south of Arenal Road and west of Citation Street. The site can be found on Zone Atlas Map M-12-Z.

The site is approximately 13.78 acres and is located between two MRGCD facilities. The Armijo Drain is to the west and the Beckham Lateral is to the east. Approximately 9.1 acres of the total is open soil. The remaining portion is 1.5 acres of grass and 3.2 acres of impervious material, consisting of building roofs and paving. There is a pond directly north of the site that was constructed as part of the Arenal Road, Goff Road, and Isleta Boulevard Intersection upgrade.

According to the Bernalillo County Soil Survey from the 1977 Edition of the United States Department of Agriculture, Soil Conservation Service, the soils are of types Vinton loamy sand and Anapra silty clay loam. (See Exhibit 2, Appendix.) Both of these soil types are listed as "deep, well drained soils that formed in the recent alluvium on flood plains of the Rio Grande." Permeability is moderate to moderately rapid at depth in both of these soil types.

B. ACCESS

Access to the site is from the south, along Byron Avenue. From this road there are two entrances. One of these is a drive circle drop off, the other is the entrance for the parking lots along the west edge of the site. These parking lots are separated by a fence. The north lot is the faculty lot and the south is a drop off lot for the Kindergarten parents. The north faculty parking lot has approximately 80 parking spaces. LH conducted a site visit during the time staff and students were arriving one morning. This lot appeared to be of adequate size, but the Kindergarten parent drop off lot (approximately 10 spaces), was congested and not of adequate size. There is also another drop off for the elementary school off of Valdora Road. This road dead-ends at the northeast corner of the site and there is a pedestrian bridge across the Beckham Lateral for the children to get to the school. This is also where the buses drop off the children, the buses also serve Ernie Pyle Middle School, which is on the eastern adjacent lot.

C. DRAINAGE

Existing drainage calculations were completed in accordance with the guidelines and criteria set forth by the City of Albuquerque in the Development Process Manual (DPM), Bernalillo County in the Bernalillo County Drainage Ordinance 90-6 (BCDO 90-6), and the FEMA Flood Plain Administrator.

The site is essentially isolated hydrologically. There are 6"-8" high berms located along the southern property line; and there are the MRGCD ditches along the eastern and western edges. There is a naturally occurring drainage divide located along the north property line as well. This means that off site runoff does not contribute to on site drainage conditions. The general slope of the site is approximately 0.4% from north to south. On the southern part of the site, there is the aforementioned drop off circle for the parents to drive around and drop off their children. This circle is compacted soil and gravel and has an 18" reinforced concrete pipe running underneath it that is used for drainage.

Currently, there is a low spot on site that acts as a collection point for runoff. This area is on the southern portion of the site, in the undeveloped area inside the drop off circle. This "pond" is less than 0.10 acre in size. There is an 18" concrete pipe that goes under the drive circle to another "pond" on the northwest corner. This low point is much less than 0.10 acre in size. The runoff on site is contained in a low lying area that serves as a retention pond. The pond is considered a minor facility, which is defined as containing less than 2.0 ac-ft, by the BCDO 90-6. A design storm of 100 year - 10 day was used to calculate existing runoff volumes. For this design storm only the impervious areas were taken into account. It was assumed that the precipitation occurs over a long period, thus infiltration takes place in non-impervious areas. The volume obtained with these calculations was $V_{10 \text{ day}} = 1.77 \text{ ac-ft}$. The runoff was also calculated using the 100 year - 6 hour design storm. This calculation lends itself to an easier comparison of existing and proposed conditions. The peak flow of runoff was calculated as $Q_{6 \text{ hour}} = 43.14 \text{ cfs}$.

Off site, to the south, the drainage flow continues south, away from this site. Off site, to the north the runoff flow is toward the pond just north of the site. This pond is also a retention pond (no outfall), thus it retains the runoff until the water has infiltrated the soils or evaporated.

A portion of the southern half of the site is located in a flood plain, as indicated on the FEMA Flood Insurance Rate Map, Community Panel Number 350002 0034 C, effective date October 14, 1983. (See Exhibit 3, Appendix.) The flood zone is labeled as AH, which is an "area of 100-year shallow flooding, where depths are between 1 and 3 feet." The base flood elevation for this area is listed as 4936 feet. The total acreage of this flood zone is 5.5 acres. There are 4.6 acres of this zone on the site, and 1.5 acres of this zone will be affected by buildings.

D. UTILITIES

Utilities exist on site for power, water, gas and sanitary sewer. Current loadings on the sanitary sewer and water systems have been calculated. The sanitary sewer lines are shown to run down Byron Avenue, parallel to the south edge of the site, and along Valdora Avenue, which ends near the north east corner of the site. According to the Zone Atlas Map M-12 for the City Sewer Lines, these are all 8" VCP lines. Sanitary sewer line loading has been calculated, based on City DPM Guidelines, to have a peak flow rate of $Q = 0.065 \text{ cfs}$ (30 gpm.)

Water lines run up from Byron Avenue, along the west edge of the site and then across the north edge of the site to Valdora Avenue. These lines are shown on the City Zone Atlas Map M-12 to be 6" AC lines. There are four fire hydrants along this line, three of which are within 500 linear feet of the existing building. Each of the four hydrants is assumed to have a demand of 500 gpm, and the school itself an average flow demand of 10 gpm. This converts to a demand of approximately 4.5 cfs. The site is within the OW Pressure Zone for the City of Albuquerque water system. Because the facility is not being designed for more population, only to permanently house the existing population, the utilities will be able to handle the new facilities.

PHASE ONE

A. SITE

The Multi-Purpose building that is being built as part of Phase One is approximately 4200 square feet. The building is out of the flood zone, but the finished floor elevation will be near the finished floor elevation of the existing building, thus fill will need to be added. The finished floor elevation of the existing building is 2 feet above the base flood elevation. The change in impervious area will be from 3.5 acres existing to 3.7 acres for Phase One. This includes paving that may be added in this phase to make a walkway between the existing building and the proposed Multi-Purpose Facility.

B. ACCESS

Site access will change with the addition of the new pedestrian bridge and the removal of the existing pedestrian bridges in this Phase.

C. DRAINAGE

The grading and drainage for this phase will only be to ensure that the runoff continues to travel the same as it has in the past, toward the southwestern part of the site. Because the site conditions are not changing dramatically, (less than 8700 square feet, or 0.2 acres), the DPM and BCDO 90-6 do not require that the Master Drainage Plan be completed at this point. Thus it will be postponed until a later construction phase. Minor hydraulic calculations associated with the proposed pedestrian bridge will be required by MRGCD to ensure negligible effects to their facility.

D. UTILITIES

Phase One utilities will consist of connecting all utilities to the Multi-Purpose Facility. It may be necessary to relocate a 2" gas line, as As-Built drawings indicate this gas line to be located near the planned footprint of the Multi-Purpose Facility.

PHASE TWO

A. SITE

The improvements as part of Phase Two of the site include most of the major changes that will take place. The existing building will receive an extension of 18,100 square feet, and the playing fields south of the building will be moved to the southern most portion of the site and landscaped with turf and irrigation. The temporary buildings east of the existing building will be moved to the west side, and a new 106 space parking lot will be placed in the northeast corner of the site. Most of the northern half of the site will then be impervious. (9.1 acres total impervious as compared to 3.5 acres impervious for existing conditions.) However, adding turf to the playing fields partially offsets the hydrologic impacts of this construction. (1.5 acres of turf for existing conditions as compared to 3.7 acres of turf for proposed conditions.) The retention ponds will be provided during this phase as part of the playing field construction. (See attached Grading Plan.)

B. ACCESS

In this Phase, the vehicular crossing of the Beckham Lateral is proposed. Calculations and a License Application will need to be submitted to MRGCD for approval.

C. DRAINAGE

Because of the improvements in this phase, the Master Drainage Plan will be implemented during Phase Two. The runoff from this site is historically to the south, as mentioned previously.

Two alternatives were examined for this phase of the Master Drainage Plan. The first alternative was to examine using the drainage pond owned by Bernalillo County just north of the site. For this alternative, the northern portion of the site would have been drained north toward the pond. This pond is undersized, according to Bob Fogelson of the County, because it was designed under different criteria. LH has obtained a partial copy of the Drainage Report for the design of this pond from Easterling & Associates. This report shows the design of the pond to be based on two things, the theoretical lateral percolation of the soils and the Hydraulic Grade Line of the storm line system from the intersection of Isleta, Arenal and Goff. Changing the inflow to the pond would need to include the cost of changing the storm line, and/or the cost of purchasing additional land. The elevations of this pond are higher than the school site and using it for the school site drainage would entail putting in an underground pipe and running the risk of back flow onto the school site during heavy rains. For these reasons, this alternative was not recommended for site drainage.

The second alternative continues the historical drainage pattern to the south and includes the construction of two retention ponds near the lowest spots of the site. These ponds will have the capacity to hold the runoff volume from the improved site and the volume that is being displaced in the flood zone. These volumes are $V_{10 \text{ day}} = 2.90 \text{ ac-ft}$ and $V_{\text{displaced}} = 0.38 \text{ ac-ft}$, respectively. The total area of the ponds will be approximately 44,400 square feet, or approximately one (1) acre. The playing field will also act as a retention pond, and will be sized to retain approximately 0.77 ac-ft of runoff volume. The storage size will be approximately 3.02 ac-ft. This size does not require the approval of the State Engineer's Office. The State Engineer's Office requires that the Design Engineer obtain their approval for retention ponds with a capacity over 10 ac-ft.

The runoff will flow over land to the ponds and on the eastern edge of the site there will be a drainage swale to carry the water from the new parking lot to the ponds. A small portion (less than 0.20 ac-ft) of the runoff will be directed to the new planters and sand playground areas being constructed. (See attached Grading Plan.)

Safety and aesthetics have been taken into consideration in the design of these ponds. They are shallow and have shallow slopes to allow landscaping. Trees and/or shrubs can be planted along with the usual grasses and native vegetation. The sides of these ponds will have a 1:5 side slope, and they are three (3) feet deep. This size allows for one (1) foot of freeboard in the small pond and 0.5 foot of freeboard in the large pond. The shallow design will also ensure that the children playing in the area will not be able to hide from playground supervisors, or be endangered when there is water in the pond. The landscaping will also provide a scenic entrance to the school.

The two ponds will be connected with an underground culvert to help equalize the storage. The ponds were sized using the volume of a 100 year - 10 day storm. The runoff volume from the 100 year - 6 hour design storm is $V_{6 \text{ hr}} = 1.78 \text{ ac-ft}$. The peak flow of runoff was calculated as $Q_{6 \text{ hour}} = 50.08 \text{ cfs}$ for the improved site, compared to 43.14 cfs for the existing conditions.

D. UTILITIES

Utilities for the building additions will be connected to existing lines. Because the improvements to the site are only to replace the temporary buildings with permanent classrooms, the facility is not expanding its utility usage. For this reason, the existing systems will be adequate for the improvements. Unused lines will be capped and abandoned in place.

PHASE THREE

A. SITE

All improvements necessary should be in place for this Phase, as they were designed for Final Phase conditions. The final building addition will be approximately 9400 square feet, this will be the addition that replaces the last of the temporary buildings.

B. DRAINAGE

The drainage improvements for Phase Two are designed to retain the runoff for the final Phase Design. This limits the drainage construction to one Phase and to localized grading for the building additions.

C. UTILITIES

Utilities for this Phase will only entail connection of the rest of the building addition to the applicable systems.

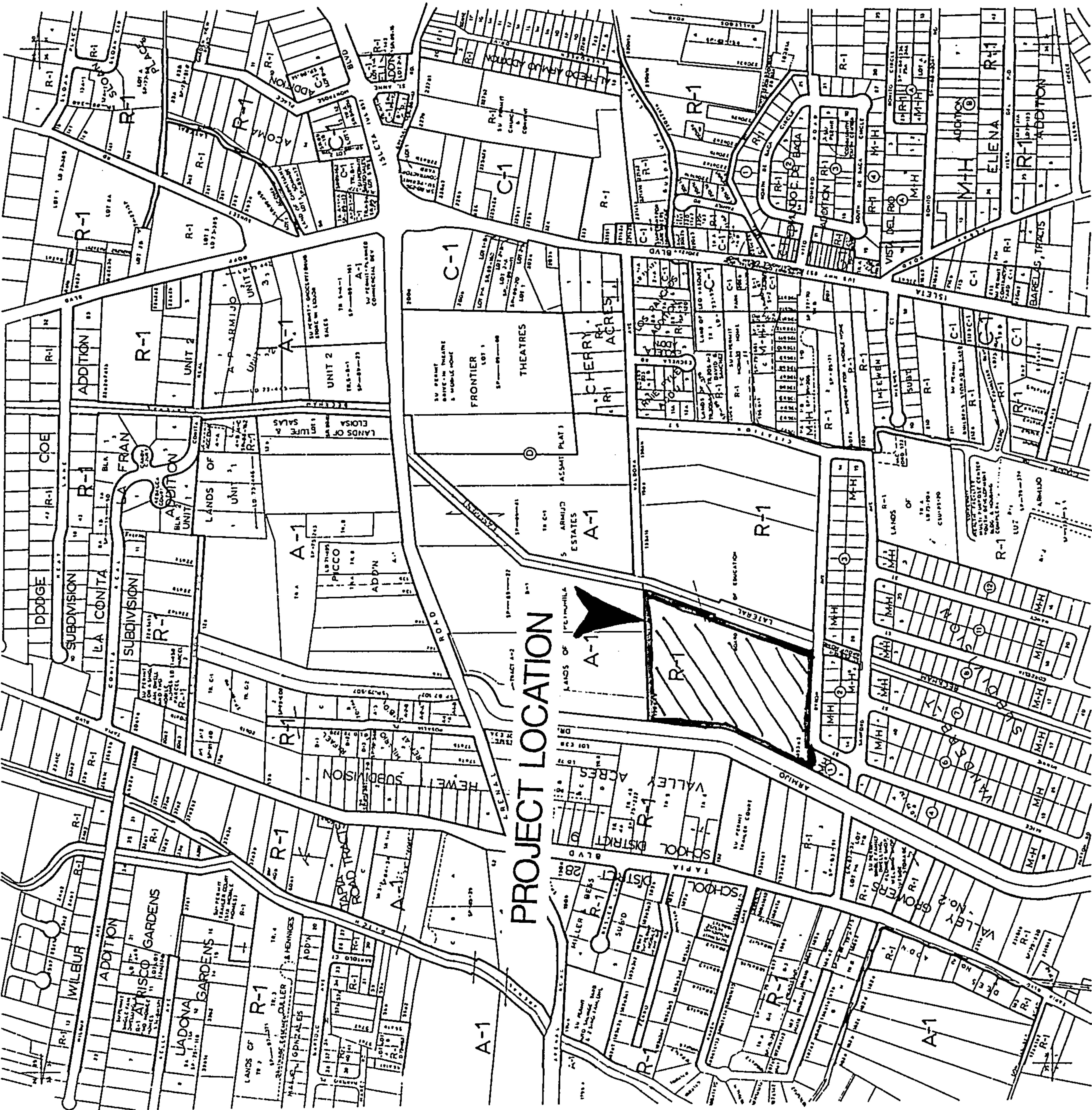


EXHIBIT 1

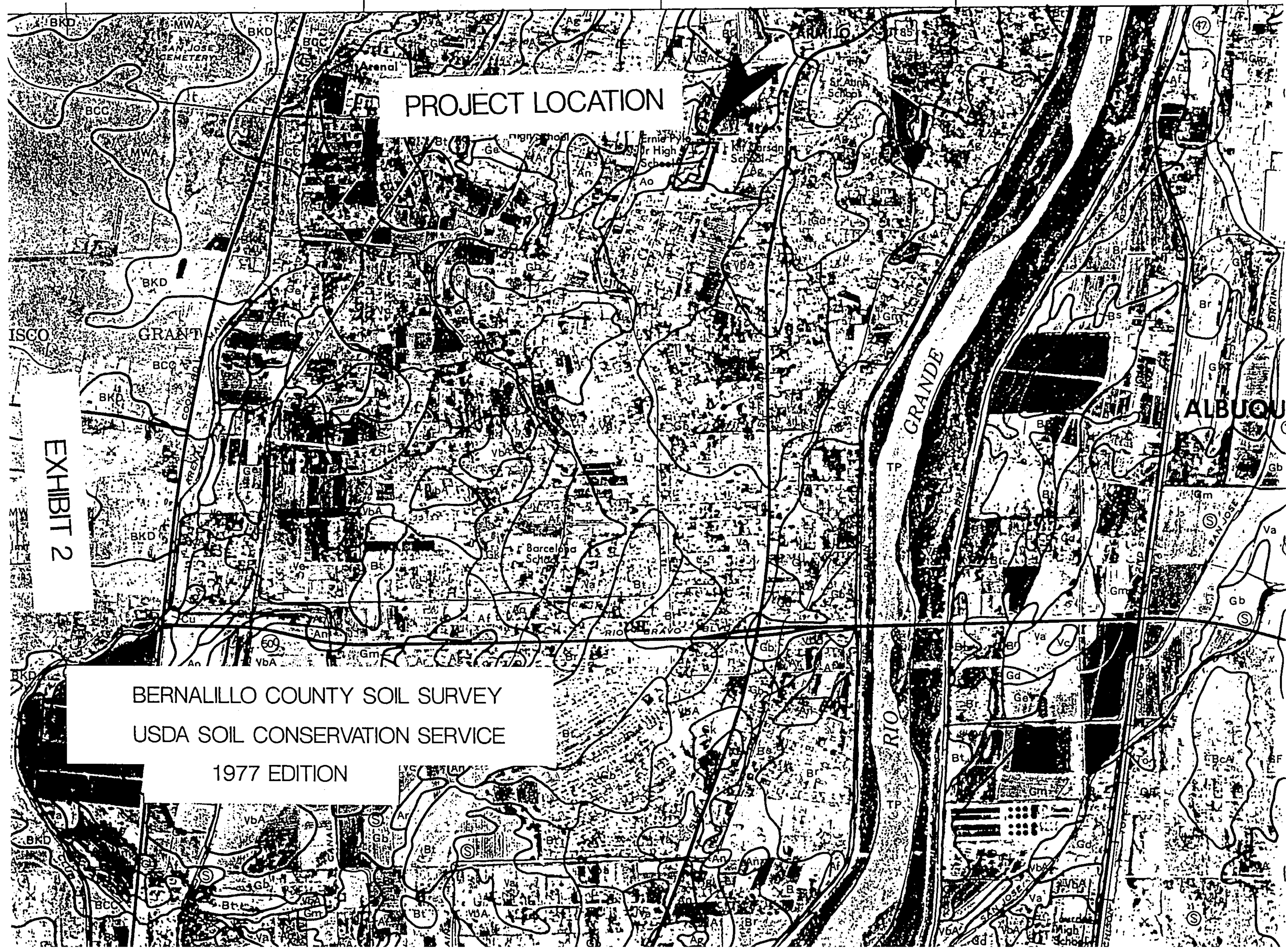


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M-12-Z





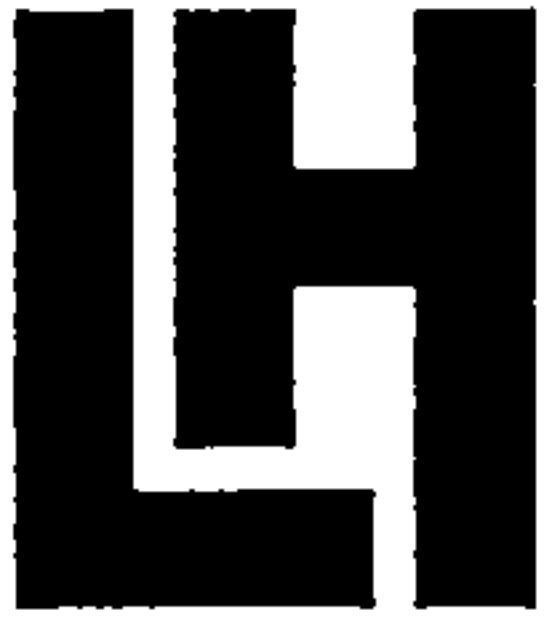
FEMA FLOOD INSURANCE RATE MAP

COMMUNITY PANEL NUMBER

350002 0034 C

EFFECTIVE DATE OCTOBER 14, 1983

EXHIBIT 3



LEEDSHILL-HERKENHOFF, INC.

Albuquerque - Santa Fe

MEETING NOTES

MASTER PLAN MEETING

KIT CARSON ELEMENTARY SCHOOL MULTI-PURPOSE FACILITY & MASTER PLAN

September 26, 1995 10:30 am

The following is the understanding of items discussed and decisions reached during this meeting. It will be assumed that the understanding is correct unless notice is brought to the attention of the LH Project Manager within one week following receipt of these notes.

A. GENERAL DISCUSSION

The meeting took place at Bernalillo County Public Works Department. Karen Jacobsen of LH and Roger Paul of Molzen-Corbin were in attendance. The following items were discussed at the meeting.

1. A presentation of the preliminary Master Plan was made by LH. The drawings included Preliminary Site Development Plan, proposed improvements to the Existing School Building. The following comments pertain to these drawings.
2. The county, along with Susan Cologne and AMAFCA will be reviewing the Master Drainage and Grading Plan. For day to day questions and help in preparing what the County requires, LH was sent to Rick Lozano of Molzen-Corbin.
3. When asked, Roger Paul indicated that the suggestion of draining part or all of the site into the pond to the North of the site would be possible, if we could get permission from the owner. He did not know who that might be, and was not aware of any project along Arenal Road. It was suggested LH contact Bob Foglesong to see what light he might be able to shed on land ownership and pond size and capacity.
4. LH then went to Molzen-Corbin to meet with Rick Lozano. It was specified that LH follow the Bernalillo County Drainage Ordinance 90-6 and City of Albuquerque Development Process Manual, Section 22.2 for submittal guidelines. The County would prefer to see the submittal all on 24 x 36 sheets including a Statement of Inspection and the report, all stamped and signed.

Meeting adjourned at 9:00 a.m.

Prepared By: Karen M. Jacobsen Date: 26 September 1995

End of Meeting Notes

B. ACTIONS REQUIRED

1. LH will contact the County Clerk's Office to obtain a copy of the Drainage Ordinance.
2. LH will contact Bob Foglesong regarding the pond North of the site.
3. LH will do the Master Drainage Report and make sure it is all encompassing, and submit 4 copies to the County.

CALCULATIONS



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEMENTARY SCHOOL

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 7

DATE:

3 OCT 95

1.0 PURPOSE

TO QUANTIFY EXISTING AND PROPOSED DRAINAGE / RUNOFF FOR THE KIT CARSON ELEMENTARY SCHOOL AND DETERMINE POND SIZE NEEDED.

AND TO DETERMINE THE VOLUME NEEDED (IF ANY) FOR THE FLOOD ZONE DISPLACEMENT.

2.0 DESIGN BASIS / ASSUMPTIONS

USING THE DEVELOPMENT PROCESS MANUAL, 10 DAY VOLUMES FOR EXISTING AND PROPOSED CONDITIONS WILL BE DETERMINED. AREAS WERE TAKEN OFF THE AUTOCAD DRAWING OF THE SITE.

THE RUNOFF COEFFICIENT WILL BE COMPOUND AND DETERMINED WITH THESE AREAS.

3.0 PREFERENCES.

CITY OF ALBUQUERQUE - DEVELOPMENT PROCESS MANUAL SECTION. 22.2 (DPM)

BERNALILLO COUNTY DRAINAGE ORDINANCE 90-6, 1990
NOAA ATLAS 2 PRECIPITATION-FREQUENCY FOR N.M.

4.0 PROCEDURE

USING THE DEVELOPMENT PROCESS MANUAL, THE DESIGN STORM WILL BE 100 YR - 10 DAY.

LAND TREATMENT IS TAKEN FROM AUTOCAD DRAWING.

WEIGHTED E IS CALCULATED

V_{360} & V_{10DAY} ARE DETERMINED.



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEM SCHOOL

SHEET NUMBER

2 OF 7

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

DATE:

16 OCT 95

5.0 CONCLUSIONS

THE 100 YR 10DAY STORM GIVES A VOLUME

$V_{10DAY} = 2.90$ FOR PROPOSED CONDITIONS.

THIS IS THE VOLUME THE RETENTION
POND WILL NEED TO CONTAIN.

TO RETAIN THIS VOLUME, THE PLAYING
FIELD WILL ALSO NEED TO BE UTILIZED
AS A RETENTION POND.



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PRECIPITATION ZONES.EXISTING CONDITIONS

BERNALILLO COUNTY HAS BEEN DIVIDED INTO FOUR (4) PRECIPITATION ZONES. KIT CARSON ELEMENTARY SCHOOL IS WEST OF THE RIO GRANDE, SO ACCORDING TO TABLE A-1 OF THE DPM, IT IS IN PRECIPITATION ZONE 1.

LAND TREATMENT

FROM AUTOCAD DRAWING OF THE SITE.

ENTIRE SITE = 13.78 ACRES

TREATMENT B = 1.56 ACRES
TURF

TREATMENT C = 8.93 ACRES
SOIL

TREATMENT D = 3.29 ACRES
IMPERVIOUS

WEIGHTED E, EXCESS PRECIPITATION, ZONE ONE (1)

TABLE A-8 (DPM) (SEE ATTACHED SHEET 7)

$E_B = 0.67$, $E_C = 0.99$, $E_D = 1.97$

$$\text{WEIGHTED } E_w = \left[(1.56 \times 0.67) + (8.93(0.99)) + (3.29(1.97)) \right] / 13.78$$

$$E_w = \underline{\underline{1.19}}$$



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11/01/95

$$V_{10DAY} = V_{360} + A_D (P_{10DAY} - P_{360}) / 12$$

FROM DPM 22.2
(EQ a-9)

$$V_{360} = E_W * A_T / 12$$

WHERE

DPM
(EQ a-6) E_W = WEIGHTED EXCESS PRECIP. A_T = TOTAL AREA A_D = IMPERVIOUS AREA

$$V_{360} = 1.19 * 13.78 / 12$$

$$V_{360} = 1.37 \text{ ac-ft.}$$

FROM DPM TABLE A-2

$$P_{10DAY} = 3.67 \text{ in}$$

$$P_{360} = 2.20 \text{ in}$$

$$V_{10DAY} = 1.37 + 3.29 (3.67 - 2.20) / 12$$

$$\underline{V_{10DAY} = 1.77 \text{ ac-ft. EXISTING CONDITIONS}}$$



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KIT CARSON ELEMENTARY SCHOOL

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PROPOSED CONDITIONSLAND TREATMENT

FROM AUTOCAD DRAWING OF PROPOSED IMPROVEMENTS.

ENTIRE SITE = 13.78 ACRES

TREATMENT B = 2.72 ACRES
TURFTREATMENT C = 0.94 ACRES
SOILTREATMENT D = 9.12 ACRES
IMPERVIOUSWEIGHTED E_w EXCESS PRECIPITATION, ZONE 1
TABLE A-8 (DPM) $E_B = 0.67$, $E_C = 0.99$, $E_D = 1.97$ WEIGHTED $E_w = [(E_B * A_{C_B}) + (E_C * A_{C_C}) + (E_D * A_{C_D})] / A_{C_T}$ $E_w = (0.67 * 2.72) + (0.99 * 0.94) + (1.97 * 9.12) / 13.78$ $E_w = 1.55$ CALCULATE VOLUME OF RUNOFF FROM SITE $V_{10DAY} = (V_{360} + A_{C_D}) (P_{10DAY} - P_{360}) / 12 \text{ in/ft}$ FROM NOAA ATLAS 2
DPM

FROM DPM TABLE A-2 (ZONE 1)

 $P_{360} = 2.20 \text{ in}$, $P_{10DAY} = 3.67 \text{ in}$

WHERE

 A_{C_D} = IMPERVIOUS
ACERAGE A_{C_T} = TOTAL ACERAGE V_{360} = VOLUME (6 HR) $V_{360} = (E_w * A_{C_T}) / 12 \text{ in/ft}$ $V_{360} = (1.55 * 13.78) / 12 = \underline{\underline{1.78 \text{ AC. FT}}} = V_{360}$



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BECAUSE THE POND MAY HOLD WATER FOR LONGER THAN 6 HRS, THE LONGER DURATION STORM IS USED. (10 DAY)
ACCORDING TO THE DPM, THE ADDITIONAL VOLUME WILL BE BASED ON RUNOFF FROM THE IMPERVIOUS AREAS ONLY.

$$V_{10DAY} = V_{360} + A_D (P_{10DAY} - P_{360}) / 12 \text{ IN-FT}$$

$$V_{10DAY} = 11.78 + 9.12 * (3.67 - 2.20) / 12$$

$$\underline{V_{10DAY} = 2.90 \text{ ac-ft.}}$$

Excess precipitation, E, by zone and treatment is summarized in TABLE A-8.

(NOTE: In this table and several tables which follow, corresponding values for 2- and 10-year storms are shown in brackets below each 100-year value)

TABLE A-8. EXCESS PRECIPITATION, E (INCHES) - 6 HOUR STORM				
Zone	Treatment			
	A	B	C	D
1	0.44 [0.00, 0.08]	0.67 [0.01, 0.22]	0.99 [0.12, 0.44]	1.97 [0.72, 1.24]
2	0.53 [0.00, 0.13]	0.78 [0.02, 0.28]	1.13 [0.15, 0.52]	2.12 [0.79, 1.34]
3	0.66 [0.00, 0.19]	0.92 [0.06, 0.36]	1.29 [0.20, 0.62]	2.36 [0.89, 1.50]
4	0.80 [0.02, 0.28]	1.08 [0.11, 0.46]	1.46 [0.27, 0.73]	2.64 [1.01, 1.69]



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DATE:

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USING RATIONAL METHOD AND COA DPM
SECTION 22.2 - CALCULATE RUNOFF
PEAK FLOWS FOR EXISTING & PROPOSED
CONDITIONS, W/ 100YR-6HR STORM.

EXISTING CONDITIONSLAND TREATMENT

$$A_B = 1.56 \text{ ACRES}$$

$$A_C = 8.93 \text{ ACRES}$$

$$A_D = 3.29 \text{ ACRES}$$

TABLE A-10 DPM
PEAK INTENSITY

ZONE 1

100YR

$$I = 4.70 \text{ in/hr}$$

TABLE A-11 DPM
COEFFICIENT C

$$C_B = 0.43$$

$$C_C = 0.61$$

$$C_D = 0.93$$

RATIONAL METHOD

$$Q = CIA$$

$$Q_{100YR} = (4.70) \left[(0.43)(1.56) + (8.93)(0.61) + (3.29)(0.93) \right]$$

$$\underline{Q_{100YR} = 43.14 \text{ CFS}}$$

EXISTING CONDITIONS

PROPOSED CONDITIONS (ONLY LAND TREATMENT CHANGES)

$$A_B = 3.72 \text{ ACRES} \quad A_C = 0.94 \text{ ACRES} \quad A_D = 9.12 \text{ ACRES}$$

$$Q = CIA$$

$$Q_{100YR} = (4.70) \left[(0.43)(3.72) + (0.94)(0.61) + (9.12)(0.93) \right]$$

$$\underline{Q_{100YR} = 50.08 \text{ CFS}} \quad \text{PROPOSED CONDITIONS}$$



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DISPLACED VOLUME
KIT CARSON ELEM. SCHOOL

SHEET NUMBER

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95023.12

DATE:

4 Oct 95

(AREAS TAKEN FROM AUTOCAD DWG.)

TO CALCULATE VOLUME DISPLACED IN FLOOD ZONE

TOTAL FLOOD AREA = 240309.84 SF = 5.52 ACRES

EXISTING $V_{360} = 1.37$ AC. FT.AVG. FLOOD DEPTH = V_{360} / AREA DEPTH = $1.37 / 5.52 = 0.25$ FT

TO CALCULATE VOLUME DISPLACED

 $V_{\text{DISP}} = \text{AVG. FLOOD DEPTH} \times \text{DISPLACED AREA}$ $V_{\text{DISP}} = 0.25 \text{ FT} \times 1.52 \text{ ACRES} = 0.38 \text{ ACRE} \cdot \text{FT.}$

BECAUSE THIS VOLUME IS SO SMALL, THE

100YR-6HR STORM VOLUME CALCULATED FOR PROPOSED

IMPROVED CONDITIONS, WILL BE USED FOR DESIGN.



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VOLUME CALCS.
(PONDS)

JOB NUMBER

95023.12

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5 Oct 95

CALCULATING VOLUME OF RETENTION PONDS
ON SITE. AVERAGE END AREA WILL BE USED.

FORMULA:

$$V_{\text{total}} = \left(\frac{A_0 + A_1}{2} \right) D + \left(\frac{A_1 + A_2}{2} \right) D + \dots + \left(\frac{A_{N-1} + A_N}{2} \right) D$$

WHERE $A_0, 1, 2$ ARE AREAS AT CONSISTANT INTERVAL
DEPTHS IN S.F.

D = DEPTH BETWEEN AREAS IN FEET

V = VOLUME IN CUBIC FEET.

AREAS TAKEN FROM AUTOCAD DESIGN DWG.

$$A_0 = 15660.12 \text{ S.F.} + 744.14 \text{ SF} = 16404.26 \text{ SF.}$$

$$A_1 = 21157.29 \text{ SF.}$$

$$A_2 = 25935.77 \text{ SF.}$$

$$D = 1 \text{ FOOT.}$$

$$A_3 = 28384.01 \text{ SF}$$

$$D = 0.5 \text{ FT}$$

$$\left(\frac{A_0 + A_1}{2} \right) (D) = 18780.78 \text{ CF}$$

$$\left(\frac{A_2 + A_3}{2} \right) 0.5 = 27159.89$$

$$\left(\frac{A_1 + A_2}{2} \right) (D) = 23546.53 \text{ CF}$$

$$\text{TOTAL} = 18780.78 + 23546.53 + 27159.89 = 69,487.2 \text{ SF}$$

DIVIDE BY 43560.1 SF/AC TO GET AC·FT.

$$\frac{69,487.2}{43560.1} = 1.60 \text{ AC·FT OF STORAGE.}$$

THIS IS THE VOLUME OF THE LARGER POND.



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THE SMALLER POND VOLUME IS OBTAINED USING
THE SAME METHOD.

$$A_D = 9970.72 \text{ SF}$$

$$D = 1 \text{ FOOT}$$

$$A_1 = 14133.61 \text{ SF}$$

$$A_2 = 18471.18 \text{ SF}$$

$$V = 12052.17 \text{ CF} + 16302.39 \text{ CF} = 28354.56 \text{ CF}$$

$$V = 28354.56 / 43560 = \underline{0.65 \text{ AC-FT}}$$

SO, TOTAL VOLUME OF THE RETENTION
PONDS EQUALS

$$V_T = 1.60 \text{ AC-FT} + 0.65 \text{ AC-FT} = 2.25 \text{ AC-FT}$$

2.90 AC-FT OF STORAGE IS ACTUALLY NEEDED
THE PLAYING FIELD AND PLANTERS WILL BE
USED TO MAKE UP THE DIFFERENCE.

PLAYING FIELD VOLUME:

$$150' \times 300' \times 0.75' = \frac{33,750 \text{ CF}}{43560.00 \text{ SF/AC}}$$

$$= 0.77 \text{ AC-FT}$$

$$\underline{\underline{\text{TOTAL} = 2.25 + 0.77 = 3.02 \text{ AC-FT} = \text{PROVIDED VOLUME}}}$$

THIS ALLOWS 1' OF FREEBOARD ON THE SMALLER POND
AND 0.5' OF FREE BOARD ON THE LARGER.



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NAME OF PROJECT LAND TREATMENT

KIT CARSON ELEM. SCHOOL

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FROM ACAD. DWG. EXISTING CONDITIONS

ENTIRE AREA

$$600439.20 \text{ SF} = 13.78 \text{ acres}$$

GRASS AREA

$$68127.14 \text{ SF} = 1.56 \text{ acres}$$

IMPERVIOUS AREA

$$77306.08 - 68127.14 = 9178.94 \text{ SF}$$

$$40326.21$$

$$34134.72$$

$$59663.21$$

$$\text{TOTAL } 143303.08 \text{ SF}$$

$$= 3.29 \text{ acres}$$

DIRT AREA = ENTIRE AREA - GRASS - IMPERVIOUS

$$\text{DIRT AREA} = 13.78 - 1.56 - 3.29$$

$$= 8.93 \text{ acres}$$

PROPOSED CONDITIONS

$$\begin{aligned} \text{TURF} &= 30944.99 + 120285.79 + 5466.30 \\ &+ 5479.60 = 162,176.68 \text{ SF} = 3.72 \text{ ACRES} \end{aligned}$$

$$\begin{aligned} \text{DIRT} &= 7632.09 + 6373.93 + 4228.61 + 3(7500.00) = 40734.63 \text{ SF} \\ &= 0.94 \text{ ACRES} \end{aligned}$$

$$\text{IMPERVIOUS} = 13.78 - 3.72 - 0.94 = 9.12 \text{ ACRES.}$$



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NAME OF PROJECT

KIT CARSON

SEWER

DESIGN

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5 Oct 05

CALCULATION OF SANITARY SEWER CAPACITY NEEDED.

FROM JOHN JARRARD:

STUDENT POPULATION = 600

FACULTY POPULATION = 50

THE TOTAL FOR THIS DESIGN

WILL BE 700 PEOPLE, TO BE CONSERVATIVE.

USING 20 gal/day/capita as a design flow

TAKEN FROM TABLE 7.14 (see attached sheet 2)

FROM

"STANDARD HANDBOOK OF ENVIRONMENTAL ENGINEERING"
BY ROBERT A. CORBITT.PEAK FLOW CALCULATIONS FOR OPERATING (8 HRS)
TIME

$$20 \frac{\text{GAL}}{\text{DAY} \cdot \text{PERSON}} \times \frac{1 \text{ DAY}}{1440 \text{ MIN}} \times 700 \text{ PEOPLE}$$

$$Q = 29.17 \text{ GAL/MIN.} \times \frac{1 \text{ CF}}{7.48 \text{ GAL}} \times \frac{1 \text{ MIN}}{60 \text{ SEC}} = \underline{\underline{0.065 \text{ CFS}}}$$

TABLE 7.14 Quantities of Sewage Flow (23)

Type of establishment	Liters per person per day	Gallons per person per day
Small dwellings and cottages with seasonal occupancy	190	50
Single-family dwellings	285	75
Multiple-family dwellings (apartments)	227	60
Rooming houses	150	40
Boarding houses	190	50
Additional kitchen wastes for nonresident boarders	38	10
Hotels without private baths	190	50
Hotels with private baths (2 persons per room)	227	60
Restaurants (toilet and kitchen wastes per patron)	26-38	7-10
Restaurants (kitchen wastes per meal served)	9-11	2½-3
Additional for bars and cocktail lounges	8	2
Tourist camps or trailer parks with central bathhouse	132	35
Tourist courts or mobile home parks with individual bath units	190	50
Resort camps (night and day) with limited plumbing	190	50
Luxury camps	380-570	100-150
Work or construction camps (semipermanent)	190	50
Day camps (no meals served)	57	15
Day schools without cafeterias, gymnasiums, or showers	57	15
Day schools with cafeterias, but no gymnasiums or showers	75	20
Day schools with cafeterias, gyms, and showers	95	25
Boarding schools	285-380	75-100
Day workers at schools and offices (per shift)	57	15
Hospitals	570-945+	150-250+
Institutions other than hospitals	285-475	75-125
Factories (gallons per person per shift, exclusive of industrial wastes)	57-132	15-35
Picnic parks (toilet wastes only, per picknicker)	19	5
Picnic parks with bathhouses, showers, and flush toilets	38	10
Swimming pools and bathhouses	38	10
Luxury residences and estates	380-570	100-150
Country clubs (per resident member)	380	100
Country clubs (per nonresident member present)	95	25
Motels (per bed space)	150	40
Motels with bath, toilet, and kitchen wastes	190	50
Drive-in theaters (per car space)	19	5
Movie theaters (per auditorium seat)	19	5
Airports (per passenger)	11-19	3-5
Self-service laundries (per wash, i.e., per customer)	190	50
Stores (per toilet room)	1500	400
Service stations (per vehicle served)	38	10

SHEET 2 OF 2



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CALCULATION OF WATER FLOW EXISTING CONDITIONS

FROM BERGINGTON:

RULE OF THUMB -

EACH FIRE HYDRANT NEEDS 500 gpm

FROM

"STANDARD HANDBOOK OF ENVIRONMENTAL
ENGINEERING" BY ROBERT A. CORBITT
(SEE ATTACHED SHEET 2)

PEAK FLOW = 20 gal/day · PUPIL

USING 700 pupils & FACULTY

$$700 \text{ p} \times 20 \frac{\text{gal}}{\text{day} \cdot \text{PERSON}} = 14,000 \frac{\text{gpd}}{1440 \frac{\text{min}}{\text{day}}} = 9.72 \text{ gpm}$$

ADD IN FIRE FLOWS

$$500 \times 4 \text{ HYDRANTS} = 2000 \text{ gpm}$$

$$2000 \text{ gpm} + 9.72 \text{ gpm} = 2009.72 \text{ gpm}$$

$$2009.72 \frac{\text{gal}}{\text{min}} \times \frac{1 \text{ CF}}{7.48 \text{ gal}} \times \frac{1 \text{ min}}{60 \text{ sec}} = 4.48 \text{ CFS}$$

TABLE 5.2 Typical Water Demand Levels (Continued)

Type of Establishments	Gal/day (m ³ /day)
Restaurants with toilet facilities (per patron)	7-10 (0.03-0.04)
Without toilet facilities (per patron)	2 (0.01-0.0)
With bars and cocktail lounge (additional quantity per patron)	2 (0.01)
Schools:	75-100 (0.28-0.38)
Boarding (per pupil)	25 (0.01)
Day with cafeteria, gymnasiums, and showers (per pupil)	20 (0.08)
Day with cafeteria but no gymnasiums or showers (per pupil)	15 (0.06)
Day without cafeteria, gymnasiums, or showers (per pupil)	10 (0.04)
Service stations (per vehicle)	400 (1.51)
Stores (per toilet room)	10 (0.04)
Swimming pools (per swimmer)	
Theaters:	5 (0.02)
Drive-in (per car space)	5 (0.02)
Movie (per auditorium seat)	
Workers:	50 (0.19)
Construction (per person per shift)	15 (0.06)
Day (school or offices per person per shift)	

m³) per capita per day difference is accounted for by delivery losses, fire protection, street washing, city and park maintenance, and other similar items. Most central systems have the capacity to deliver 150 gal (0.57 m³) per capita per day, but this amount includes some water for manufacturing, which is accounted for in manufacturing water use. In a typical rural household (noncentral) domestic use averages about 44 gal (0.25 m³) inside.

The following discusses variation in peak demand and special uses, such as lawn sprinkling and fire protection.

Peak Demands. The rate of water use for an individual water system will vary directly with domestic activity in the home or with an operational farm program. Usage rates are generally highest in the home near mealtimes, during midmorning laundry periods, and shortly before bedtime. During the intervening daytime hours and at night, water use may be virtually nil. Thus, the total amount of water used by a household may be distributed over only a few hours of the day, during which the actual use is much greater than the average rate determined from Table 5.2.

Simultaneous operation of several plumbing fixtures will determine the maximum peak rate of water delivery for the home water system. For example, a shower, an automatic dishwasher, a lawn sprinkler, and a flush valve toilet all operated at the same time would probably produce a near-critical peak. It is true that not all of these facilities are usually operated together; but if they exist on the same system, there is always a possibility that a critical combination may result, and for design purposes this method of calculation is sound. Table 5.3 summarizes the rate of flow which would be expected for certain household and farm fixtures(2).

Lawn Sprinkling. The amount of water required for lawn sprinkling depends upon the size of the lawn, type of sprinkling equipment, climate, soil, and water



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SMALL "POND" AREAS - EXISTING SITE COND.

INSIDE DRIVE CIRCLE 3246.8551 SF
= 0.07 ACRES

①

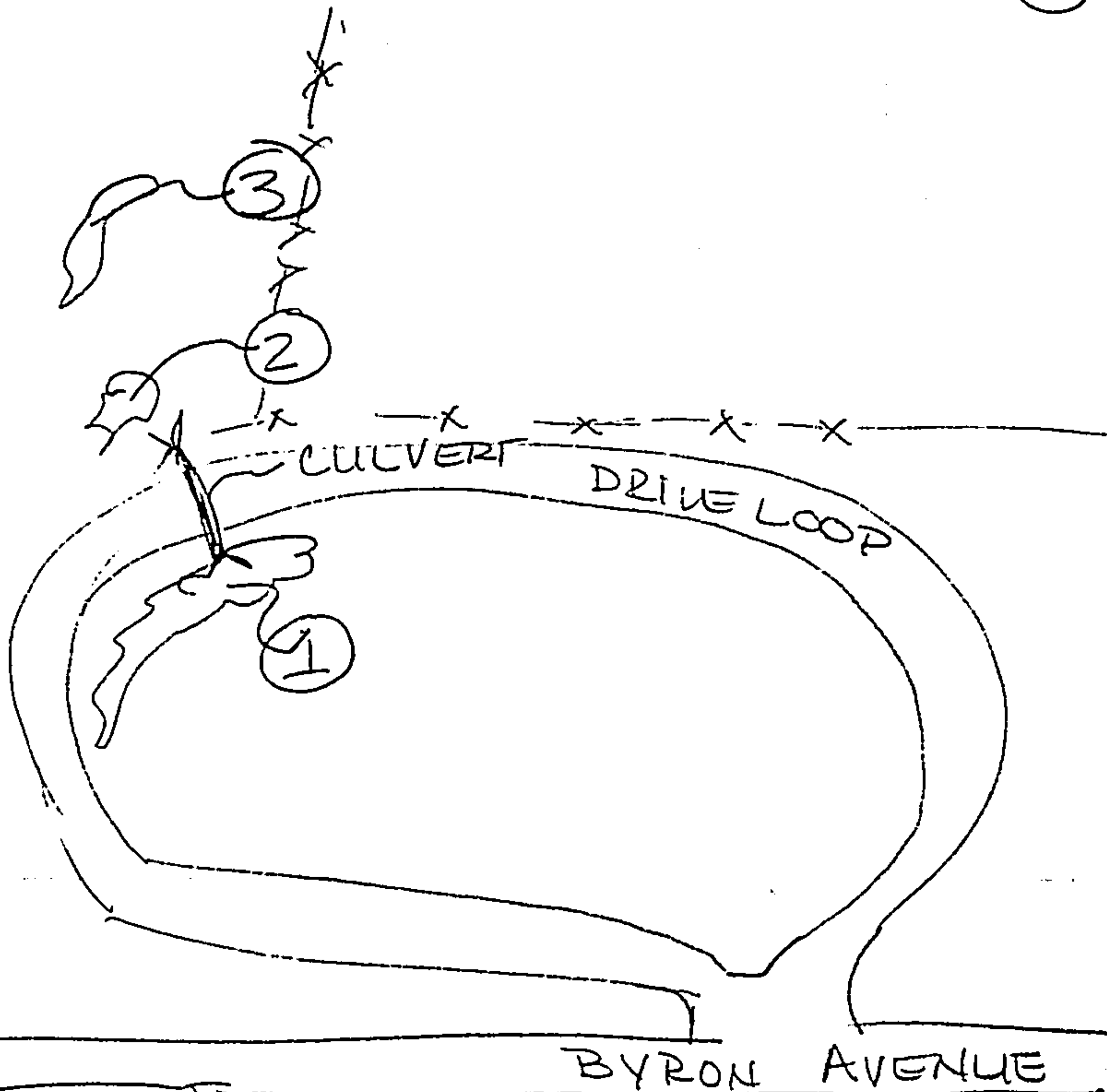
AREAS TAKEN FROM AUTOCAD DRAWING OF SITETWO SMALL "PONDS" CONNECTED BY
CULVERT TO OTHER.

585.6574 SF. = 0.013 ACRES

②

444.4473 SF = 0.010 ACRES

③

SKETCH OF SITE TO SHOW "POND" LOCATIONS
NTS



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AREAS TAKEN FROM AUTOCAD DRAWING
AREA OF FLOOD ZONE $240309,8364 \text{ SF} = 5.5 \text{ AC}$ AREA OF FZ ACTUALLY ^{CONTRIBUTING} ~~TO~~ SITE $201365.6478 \text{ SF} = 4.6 \text{ AC}$

AREA AFFECTED BY NEW BUILDING

 $66344.4151 \text{ SF} = 1.5 \text{ AC}$

AREA OF PHASE TWO MAIN BUILDING ADDITION

 $A = 18100.7649 \text{ SF}$

MULTI PURPOSE BUILDING 4215.9290

PHASE III ADDITION.

 $A = 9436.6262 \text{ SF}$



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NAME OF PROJECT

KIT CARSON MASTER PLAN

SHEET NUMBER

1 OF 4

COMPUTED BY:

K.T.

CHECKED BY:

B.

JOB NUMBER

95023.12

DATE:

4 APRIL 96

1.0 PURPOSE

TO CALCULATE CAPACITY OF THE DRAINAGE
SWALE FOR KIT CARSON ELEMENTARY SCHOOL'S
MASTER GRADING & DRAINAGE PLAN.

2.0 DESIGN BASIS / ASSUMPTIONS

MANNING'S EQUATION FOR OPEN CHANNEL
FLOW IS USED.

ASSUMPTION: CHANNEL WILL BE NATURAL
CLEAN & FAIRLY STRAIGHT, AND EARTH
LINED, THUS MANNING'S $n = 0.030$

3.0 REFERENCES.

CITY OF ALBUQUERQUE - DEVELOPMENT PROCESS
MANUAL (DPM)

"FUNDAMENTALS OF FLUID MECHANICS"
MUNSON, YOUNG, OKIISHI

4.0 PROCEDURE

CROSS SECTION(S) OF THE CHANNEL DRAWN.

CALCULATIONS COMPLETED USING MANNING'S EQ.

CONCLUSIONS DRAWN, ADJUSTMENTS MADE
AS NECESSARY.



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NAME OF PROJECT

KIT CARSON MASTER PLAN

COMPUTED BY:

KJ

CHECKED BY:

B

JOB NUMBER

95023.12

SHEET NUMBER

2 OF 4

DATE:

4 APRIL 96

5.0 CONCLUSIONS

THE DRAINAGE SWALE HAS THE CAPACITY TO CONTAIN THE RUNOFF FROM THE ENTIRE SITE. THE SITE GRADING IS DESIGNED TO SPLIT FLOWS BETWEEN PONDS, THUS THE SWALE DESIGN IS MORE THAN ADEQUATE.

RUNOFF CALCULATIONS

→ $Q = 50.08$ cfs PROPOSED CONDITIONS

$Q = 43.14$ cfs EXISTING CONDITIONS

CAPACITY CALCULATIONS

→ $Q_{V''} = 52.9$ cfs "V" CROSS SECTION

$Q = 132.5$ cfs TRAPEZOIDAL CROSS SECTION.



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON MASTER PLAN

SHEET NUMBER

3 OF 4

COMPUTED BY:

KJ

CHECKED BY:

JB

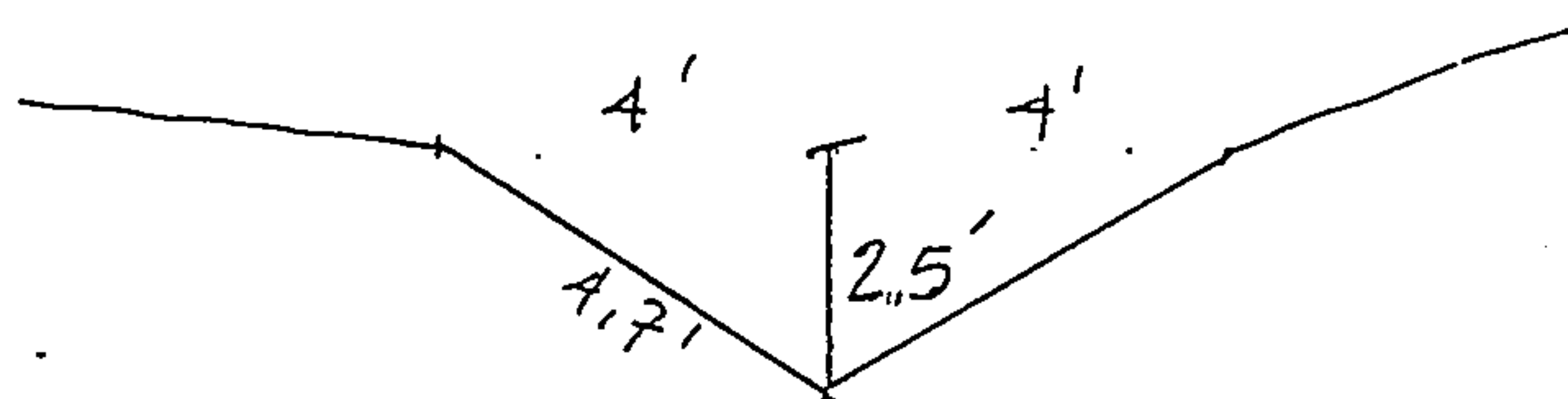
JOB NUMBER

95023.12

DATE:

4 APRIL 96

THE NORTH END OF THE SWALE IS A SIDEWALK CULVERT UNDER THE CONCRETE WALKWAY TO AND FROM THE PEDESTRIAN BRIDGE. AS IT GOES SOUTH IT BECOMES A SWALE AND NEXT TO THE SAND PLAY AREA. IT WILL HAVE A "V" CROSS-SECTION. FURTHER SOUTH THE SWALE WILL WIDEN AND HAVE A TRAPEZOIDAL SHAPE. AT THE WALKWAY AROUND THE PLAYING FIELD THERE WILL BE ANOTHER SIDE WALK CULVERT. THE WEST "BANK" OF THE BELKHAM LATERAL IS STEEP ENOUGH TO FORM A NATURAL ROUTE TOWARD THE PONDS FOR THE SWALE AND THE RUNOFF IT CARRIES.

"V" CROSS SECTION

$$A = 4 \times 2.5 = 10 \text{ sf}$$

$$P = 4.7 + 4.7 = 9.4 \text{ ft}$$

$$R = A/P = 1.1$$

$$S = 0.01$$

$$Q = \frac{1.49}{0.03} (10) (1.1)^{2/3} (0.01)^{1/2}$$

$$Q = 52.9 \text{ cfs}$$

$$V = \frac{Q}{A} = \frac{52.9}{10} = 5.3 \text{ fps}$$

USING MANNING'S EQ.

 $n = 0.03$ for NATURAL CHANNEL

SLOPE = 0.01 ft/ft

$$Q = \frac{1.49}{n} (A) R^{2/3} S^{1/2}$$



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KIT CARSON MASTER PLAN

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4 OF 4

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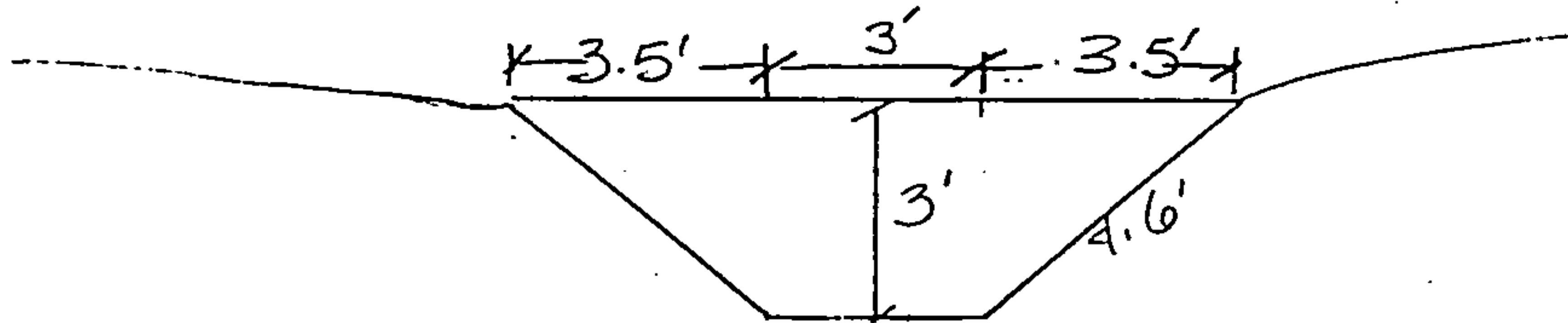
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DATE:

4 APRIL 96

FOR THE TRAPEZOIDAL SECTION:



$$A = (3 \times 3) + (3.5 \times 3) = 19.5 \text{ sf}$$

$$n = 0.03$$

$$P = (4.6 \times 2) + 3 = 12.2 \text{ ft}$$

$$R = 1.6$$

$$S = 0.01$$

$$Q = \frac{1.49}{0.03} (19.5) (1.6)^{2/3} (0.01)^{1/2}$$

$$Q = 132.5 \text{ cfs}$$

$$V = \frac{Q}{A} = \frac{132.5 \text{ cfs}}{19.5 \text{ sf}} = 6.8 \text{ fps}$$

FROM THE ORIGINAL CALCULATIONS

$$Q = 50.08 \text{ cfs} \quad \text{PROPOSED CONDITIONS}$$

$$Q = 42.14 \text{ cfs} \quad \text{EXISTING CONDITIONS}$$

THUS, THE "V" SECTION OF THE SWALE, WHICH CONTROLS, WILL BE ABLE TO CONTAIN RUNOFF FROM THE ENTIRE SITE. THE DESIGN IS SUCH THAT IT ISN'T NECESSARY.

THESE CALCULATIONS PROVE THE SWALE MORE THAN ADEQUATE TO CONTAIN RUNOFF.

KIT CARSON ELEMENTARY SCHOOL

**MASTER DRAINAGE AND GRADING
PLAN**

Prepared for

**Albuquerque Public Schools
New Mexico**

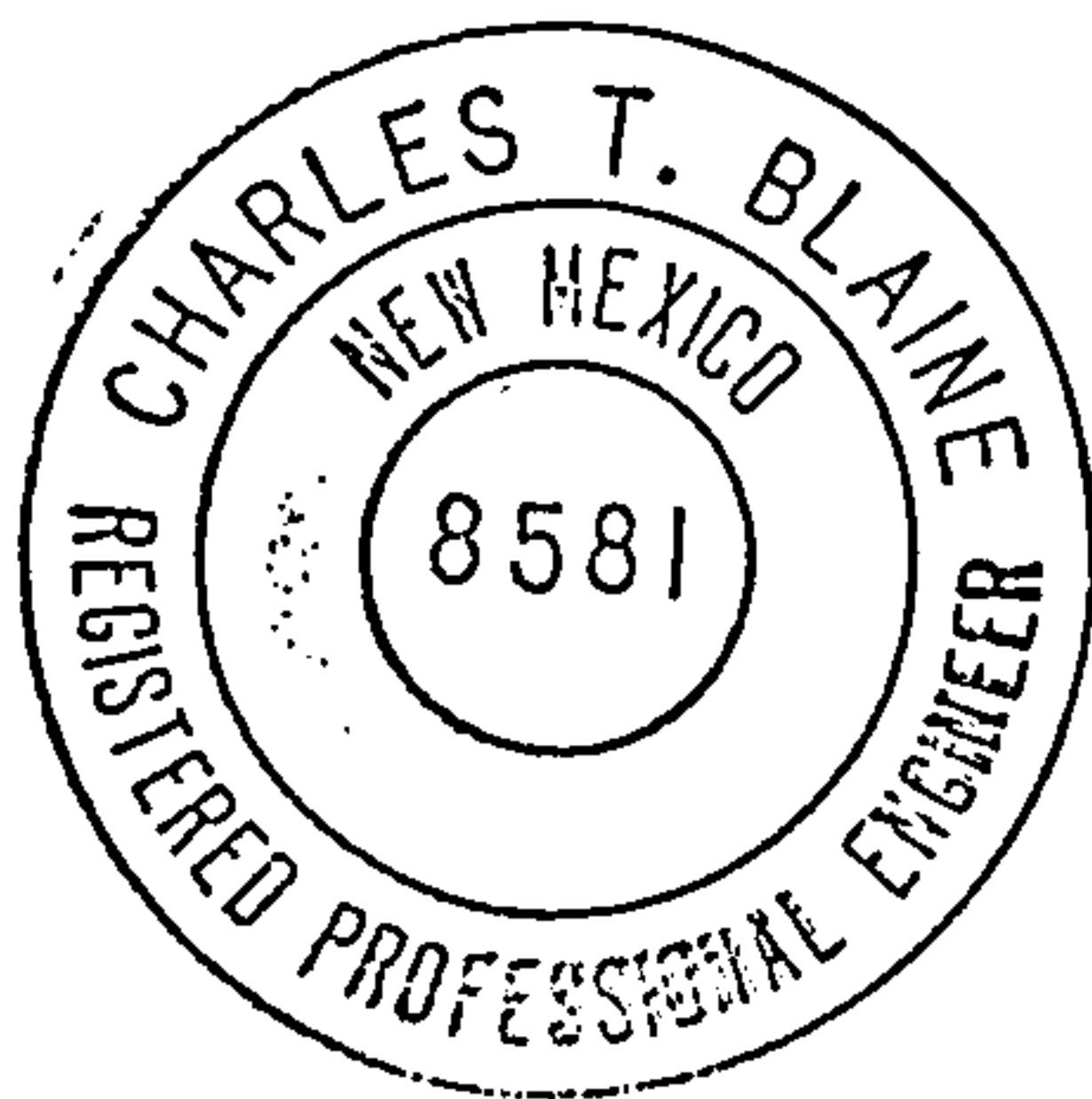
February 1996

LEEDSHILL-HERKENHOFF, INC.

Copper Square, 500 Copper Avenue, NW
P.O. Box 1217 - Phone (505) 247-0294
Albuquerque, New Mexico 87103

LH 95023.12

I, Charles T. Blaine, Registered Professional Engineer No. 8581, hereby certify that these documents were prepared by me, or directly under my supervision, and are true and correct to the best of my knowledge and belief.



Charles T. Blaine
Registered Professional Engineer
No. 8581

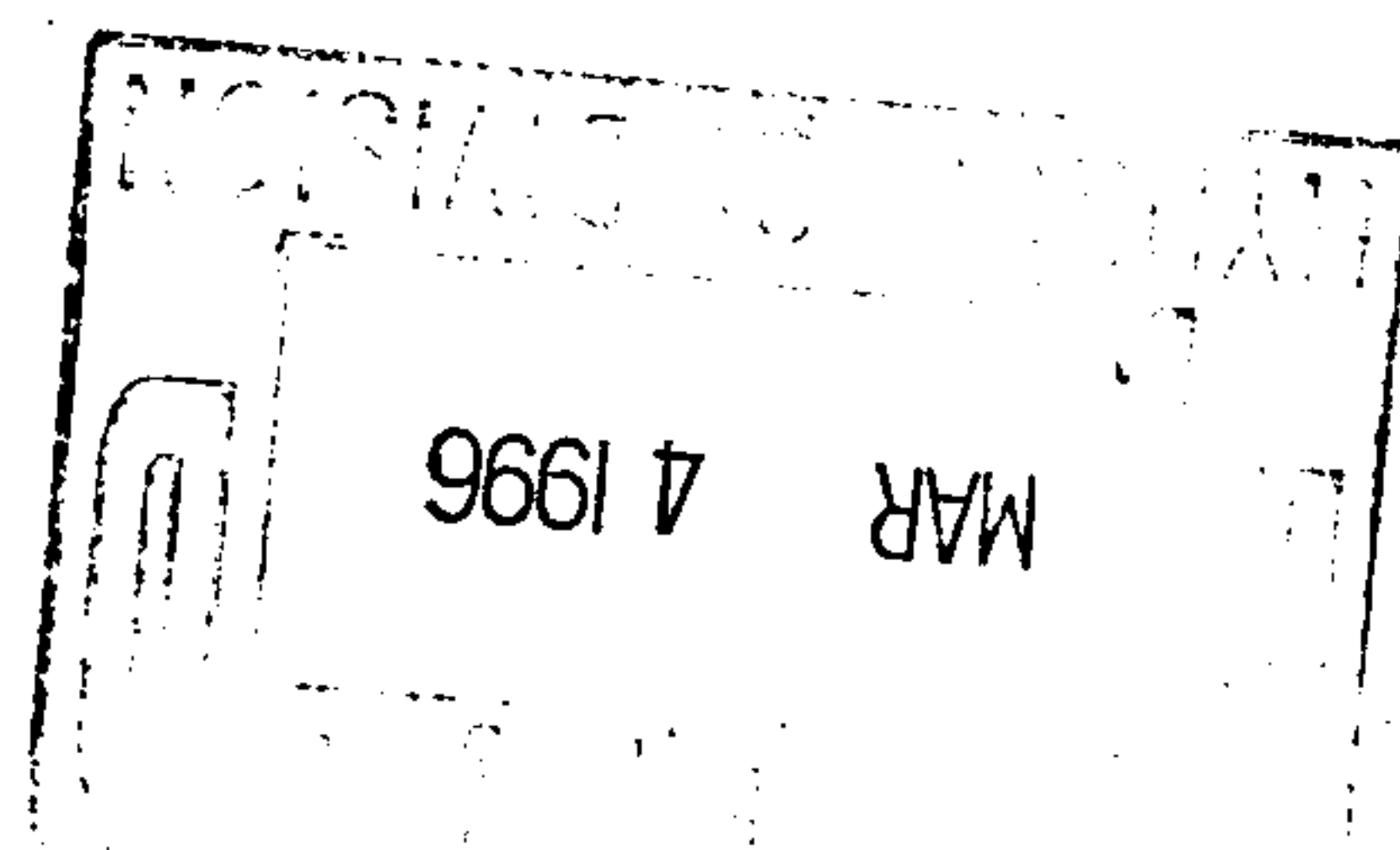


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PURPOSE/SCOPE

The purpose of this project was to create a Master Drainage Plan for the Kit Carson Elementary School. The site is located at 1920 Byron Avenue. The location of the site is between two Middle Rio Grande Facilities (MRGCD), the Armijo Drain is to the west and the Beckham Lateral is to the east. To the north of the site is Arenal Road and to the south is Byron Avenue. The site can be found on Zone Atlas Map M-12-Z. (See Exhibit 1, Appendix)

EXISTING CONDITIONS

A. SITE

Kit Carson Elementary School is located south of the city limits of Albuquerque, in what is considered the South Valley, in Bernalillo County. It is located north of Byron Avenue, south of Arenal Road and west of Citation Street. The site can be found on Zone Atlas Map M-12-Z.

The site is approximately 13.78 acres and is located between two MRGCD facilities. The Armijo Drain is to the west and the Beckham Lateral is to the east. Approximately 9.1 acres of the total is open soil. The remaining portion is 1.5 acres of grass and 3.2 acres of impervious material, consisting of building roofs and paving. There is a pond directly north of the site that was constructed as part of the Arenal Road, Goff Road, and Isleta Boulevard Intersection upgrade.

According to the Bernalillo County Soil Survey from the 1977 Edition of the United States Department of Agriculture, Soil Conservation Service, the soils are of types Vinton loamy sand and Anapra silty clay loam. (See Exhibit 2, Appendix.) Both of these soil types are listed as "deep, well drained soils that formed in the recent alluvium on flood plains of the Rio Grande." Permeability is moderate to moderately rapid at depth in both of these soil types.

B. ACCESS

Access to the site is from the south, along Byron Avenue. From this road there are two entrances. One of these is a drive circle drop off, the other is the entrance for the parking lots along the west edge of the site. These parking lots are separated by a fence. The north lot is the faculty lot and the south is a drop off lot for the Kindergarten parents. The north faculty parking lot has approximately 80 parking spaces. LH conducted a site visit during the time staff and students were arriving one morning. This lot appeared to be of adequate size, but the Kindergarten parent drop off lot (approximately 10 spaces), was congested and not of adequate size. There is also another drop off for the elementary school off of Valdora Road. This road dead-ends at the northeast corner of the site and there is a pedestrian bridge across the Beckham Lateral for the children to get to the school. This is also where the buses drop off the children, the buses also serve Ernie Pyle Middle School, which is on the eastern adjacent lot.

C. DRAINAGE

Existing drainage calculations were completed in accordance with the guidelines and criteria set forth by the City of Albuquerque in the Development Process Manual (DPM), Bernalillo County in the Bernalillo County Drainage Ordinance 90-6 (BCDO 90-6), and the FEMA Flood Plain Administrator.

The site is essentially isolated hydrologically. There are 6"-8" high berms located along the southern property line; and there are the MRGCD ditches along the eastern and western edges. There is a naturally occurring drainage divide located along the north property line as well. This means that off site runoff does not contribute to on site drainage conditions. The general slope of the site is approximately 0.4% from north to south. On the southern part of the site, there is the aforementioned drop off circle for the parents to drive around and drop off their children. This circle is compacted soil and gravel and has an 18" reinforced concrete pipe running underneath it that is used for drainage.

Currently, there is a low spot on site that acts as a collection point for runoff. This area is on the southern portion of the site, in the undeveloped area inside the drop off circle. This "pond" is less than 0.10 acre in size. There is an 18" concrete pipe that goes under the drive circle to another "pond" on the northwest corner. This low point is much less than 0.10 acre in size. The runoff on site is contained in a low lying area that serves as a retention pond. The pond is considered a minor facility, which is defined as containing less than 2.0 ac-ft, by the BCDO 90-6. A design storm of 100 year - 10 day was used to calculate existing runoff volumes. For this design storm only the impervious areas were taken into account. It was assumed that the precipitation occurs over a long period, thus infiltration takes place in non-impervious areas. The volume obtained with these calculations was $V_{10 \text{ day}} = 1.77 \text{ ac-ft}$. The runoff was also calculated using the 100 year - 6 hour design storm. This calculation lends itself to an easier comparison of existing and proposed conditions. The peak flow of runoff was calculated as $Q_{6 \text{ hour}} = 43.14 \text{ cfs}$.

Off site, to the south, the drainage flow continues south, away from this site. Off site, to the north the runoff flow is toward the pond just north of the site. This pond is also a retention pond (no outfall), thus it retains the runoff until the water has infiltrated the soils or evaporated.

A portion of the southern half of the site is located in a flood plain, as indicated on the FEMA Flood Insurance Rate Map, Community Panel Number 350002 0034 C, effective date October 14, 1983. (See Exhibit 3, Appendix.) The flood zone is labeled as AH, which is an "area of 100-year shallow flooding, where depths are between 1 and 3 feet." The base flood elevation for this area is listed as 4936 feet. The total acreage of this flood zone is 5.5 acres. There are 4.6 acres of this zone on the site, and 1.5 acres of this zone will be affected by buildings.

D. UTILITIES

Utilities exist on site for power, water, gas and sanitary sewer. Current loadings on the sanitary sewer and water systems have been calculated. The sanitary sewer lines are shown to run down Byron Avenue, parallel to the south edge of the site, and along Valdora Avenue, which ends near the north east corner of the site. According to the Zone Atlas Map M-12 for the City Sewer Lines, these are all 8" VCP lines. Sanitary sewer line loading has been calculated, based on City DPM Guidelines, to have a peak flow rate of $Q = 0.065 \text{ cfs}$ (30 gpm.)

Water lines run up from Byron Avenue, along the west edge of the site and then across the north edge of the site to Valdora Avenue. These lines are shown on the City Zone Atlas Map M-12 to be 6" AC lines. There are four fire hydrants along this line, three of which are within 500 linear feet of the existing building. Each of the four hydrants is assumed to have a demand of 500 gpm, and the school itself an average flow demand of 10 gpm. This converts to a demand of approximately 4.5 cfs. The site is within the OW Pressure Zone for the City of Albuquerque water system. Because the facility is not being designed for more population, only to permanently house the existing population, the utilities will be able to handle the new facilities.

PHASE ONE

A. SITE

The Multi-Purpose building that is being built as part of Phase One is approximately 4200 square feet. The building is out of the flood zone, but the finished floor elevation will be near the finished floor elevation of the existing building, thus fill will need to be added. The finished floor elevation of the existing building is 2 feet above the base flood elevation. The change in impervious area will be from 3.5 acres existing to 3.7 acres for Phase One. This includes paving that may be added in this phase to make a walkway between the existing building and the proposed Multi-Purpose Facility.

B. ACCESS

Site access will change with the addition of the new pedestrian bridge and the removal of the existing pedestrian bridges in this Phase.

C. DRAINAGE

The grading and drainage for this phase will only be to ensure that the runoff continues to travel the same as it has in the past, toward the southwestern part of the site. Because the site conditions are not changing dramatically, (less than 8700 square feet, or 0.2 acres), the DPM and BCDO 90-6 do not require that the Master Drainage Plan be completed at this point. Thus it will be postponed until a later construction phase. Minor hydraulic calculations associated with the proposed pedestrian bridge will be required by MRGCD to ensure negligible effects to their facility.

D. UTILITIES

Phase One utilities will consist of connecting all utilities to the Multi-Purpose Facility. It may be necessary to relocate a 2" gas line, as As-Built drawings indicate this gas line to be located near the planned footprint of the Multi-Purpose Facility.

PHASE TWO

A. SITE

The improvements as part of Phase Two of the site include most of the major changes that will take place. The existing building will receive an extension of 18,100 square feet, and the playing fields south of the building will be moved to the southern most portion of the site and landscaped with turf and irrigation. The temporary buildings east of the existing building will be moved to the west side, and a new 106 space parking lot will be placed in the northeast corner of the site. Most of the northern half of the site will then be impervious. (9.1 acres total impervious as compared to 3.5 acres impervious for existing conditions.) However, adding turf to the playing fields partially offsets the hydrologic impacts of this construction. (1.5 acres of turf for existing conditions as compared to 3.7 acres of turf for proposed conditions.) The retention ponds will be provided during this phase as part of the playing field construction. (See attached Grading Plan.)

B. ACCESS

In this Phase, the vehicular crossing of the Beckham Lateral is proposed. Calculations and a License Application will need to be submitted to MRGCD for approval.

C. DRAINAGE

Because of the improvements in this phase, the Master Drainage Plan will be implemented during Phase Two. The runoff from this site is historically to the south, as mentioned previously.

Two alternatives were examined for this phase of the Master Drainage Plan. The first alternative was to examine using the drainage pond owned by Bernalillo County just north of the site. For this alternative, the northern portion of the site would have been drained north toward the pond. This pond is undersized, according to Bob Fogelson of the County, because it was designed under different criteria. LH has obtained a partial copy of the Drainage Report for the design of this pond from Easterling & Associates. This report shows the design of the pond to be based on two things, the theoretical lateral percolation of the soils and the Hydraulic Grade Line of the storm line system from the intersection of Isleta, Arenal and Goff. Changing the inflow to the pond would need to include the cost of changing the storm line, and/or the cost of purchasing additional land. The elevations of this pond are higher than the school site and using it for the school site drainage would entail putting in an underground pipe and running the risk of back flow onto the school site during heavy rains. For these reasons, this alternative was not recommended for site drainage.

The second alternative continues the historical drainage pattern to the south and includes the construction of two retention ponds near the lowest spots of the site. These ponds will have the capacity to hold the runoff volume from the improved site and the volume that is being displaced in the flood zone. These volumes are $V_{10 \text{ day}} = 2.90$ ac-ft and $V_{\text{displaced}} = 0.38$ ac-ft, respectively. The total area of the ponds will be approximately 44,400 square feet, or approximately one (1) acre. The playing field will also act as a retention pond, and will be sized to retain approximately 0.77 ac-ft of runoff volume. The storage size will be approximately 3.02 ac-ft. This size does not require the approval of the State Engineer's Office. The State Engineer's Office requires that the Design Engineer obtain their approval for retention ponds with a capacity over 10 ac-ft.

The runoff will flow over land to the ponds and on the eastern edge of the site there will be a drainage swale to carry the water from the new parking lot to the ponds. A small portion (less than 0.20 ac-ft) of the runoff will be directed to the new planters and sand playground areas being constructed. (See attached Grading Plan.)

Safety and aesthetics have been taken into consideration in the design of these ponds. They are shallow and have shallow slopes to allow landscaping. Trees and/or shrubs can be planted along with the usual grasses and native vegetation. The sides of these ponds will have a 1:5 side slope, and they are three (3) feet deep. This size allows for one (1) foot of freeboard in the small pond and 0.5 foot of freeboard in the large pond. The shallow design will also ensure that the children playing in the area will not be able to hide from playground supervisors, or be endangered when there is water in the pond. The landscaping will also provide a scenic entrance to the school.

The two ponds will be connected with an underground culvert to help equalize the storage. The ponds were sized using the volume of a 100 year - 10 day storm. The runoff volume from the 100 year - 6 hour design storm is $V_{6 \text{ hr}} = 1.78$ ac-ft. The peak flow of runoff was calculated as $Q_{6 \text{ hour}} = 50.08$ cfs for the improved site, compared to 43.14 cfs for the existing conditions.

D. UTILITIES

Utilities for the building additions will be connected to existing lines. Because the improvements to the site are only to replace the temporary buildings with permanent classrooms, the facility is not expanding its utility usage. For this reason, the existing systems will be adequate for the improvements. Unused lines will be capped and abandoned in place.

PHASE THREE

A. SITE

All improvements necessary should be in place for this Phase, as they were designed for Final Phase conditions. The final building addition will be approximately 9400 square feet, this will be the addition that replaces the last of the temporary buildings.

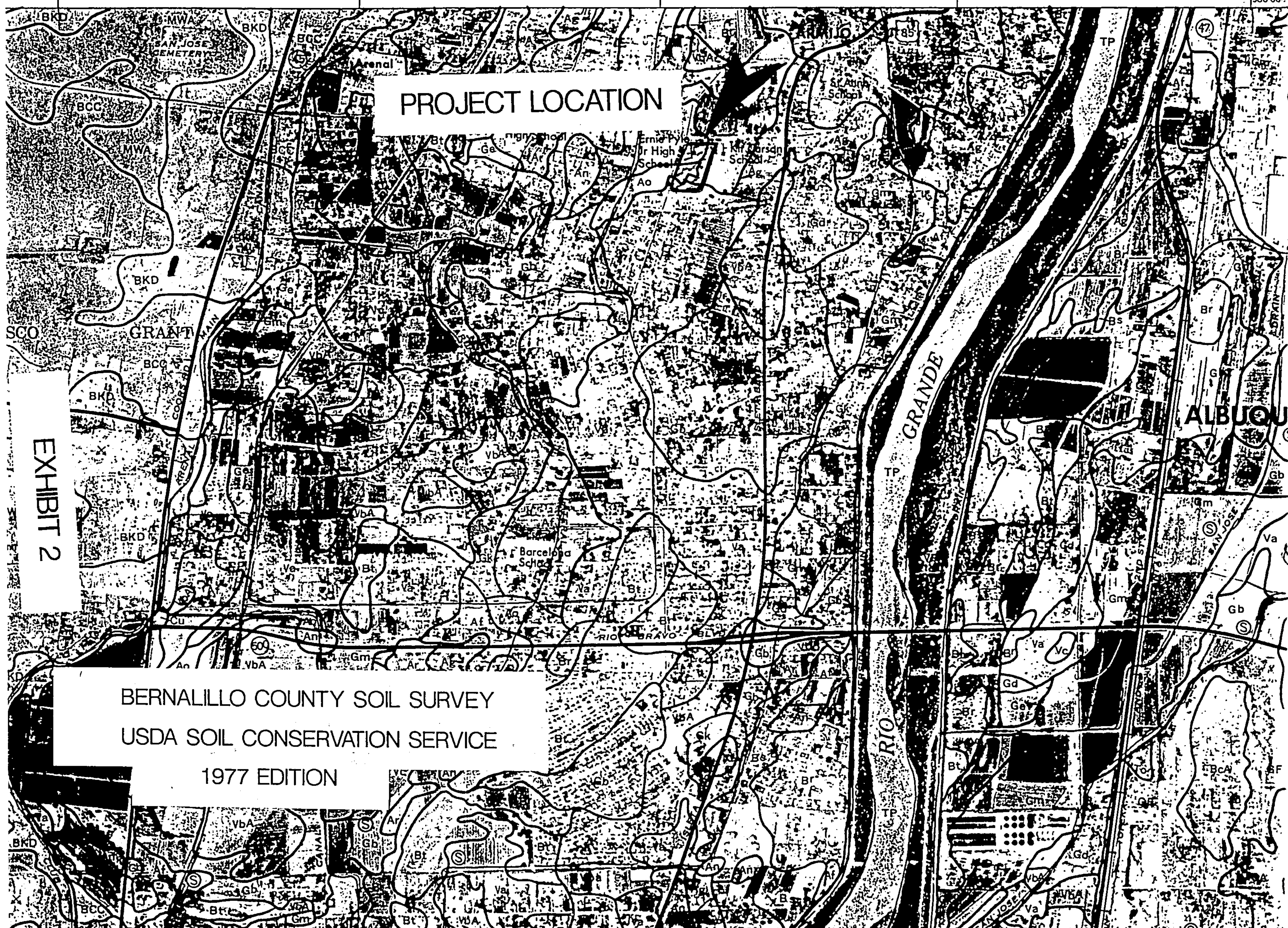
B. DRAINAGE

The drainage improvements for Phase Two are designed to retain the runoff for the final Phase Design. This limits the drainage construction to one Phase and to localized grading for the building additions.

C. UTILITIES

Utilities for this Phase will only entail connection of the rest of the building addition to the applicable systems.

APPENDIX





FEMA FLOOD INSURANCE RATE MAP

COMMUNITY PANEL NUMBER

350002 0034 C

EFFECTIVE DATE OCTOBER 14, 1983

EXHIBIT 3



LEEDSHILL-HERKENHOFF, INC.

Albuquerque - Santa Fe

MEETING NOTES

MASTER PLAN MEETING

KIT CARSON ELEMENTARY SCHOOL MULTI-PURPOSE FACILITY & MASTER PLAN

September 26, 1995 10:30 am

The following is the understanding of items discussed and decisions reached during this meeting. It will be assumed that the understanding is correct unless notice is brought to the attention of the LH Project Manager within one week following receipt of these notes.

A. GENERAL DISCUSSION

The meeting took place at Bernalillo County Public Works Department. Karen Jacobsen of LH and Roger Paul of Molzen-Corbin were in attendance. The following items were discussed at the meeting.

1. A presentation of the preliminary Master Plan was made by LH. The drawings included Preliminary Site Development Plan, proposed improvements to the Existing School Building. The following comments pertain to these drawings.
2. The county, along with Susan Cologne and AMAFCA will be reviewing the Master Drainage and Grading Plan. For day to day questions and help in preparing what the County requires, LH was sent to Rick Lozano of Molzen-Corbin.
3. When asked, Roger Paul indicated that the suggestion of draining part or all of the site into the pond to the North of the site would be possible, if we could get permission from the owner. He did not know who that might be, and was not aware of any project along Arenal Road. It was suggested LH contact Bob Foglesong to see what light he might be able to shed on land ownership and pond size and capacity.
4. LH then went to Molzen-Corbin to meet with Rick Lozano. It was specified that LH follow the Bernalillo County Drainage Ordinance 90-6 and City of Albuquerque Development Process Manual, Section 22.2 for submittal guidelines. The County would prefer to see the submittal all on 24 x 36 sheets including a Statement of Inspection and the report, all stamped and signed.

Meeting adjourned at 9:00 a.m.

Prepared By: Karen M. Jacobsen Date: 26 September 1995

End of Meeting Notes

B. ACTIONS REQUIRED

1. LH will contact the County Clerk's Office to obtain a copy of the Drainage Ordinance.
2. LH will contact Bob Foglesong regarding the pond North of the site.
3. LH will do the Master Drainage Report and make sure it is all encompassing, and submit 4 copies to the County.

CALCULATIONS



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEMENTARY SCHOOL

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 7

DATE:

30 OCT 95

1.0 PURPOSE

TO QUANTIFY EXISTING AND PROPOSED DRAINAGE / RUNOFF FOR THE KIT CARSON ELEMENTARY SCHOOL AND DETERMINE POND SIZE NEEDED.

AND TO DETERMINE THE VOLUME NEEDED (IF ANY) FOR THE FLOOD ZONE DISPLACEMENT.

2.0 DESIGN BASIS / ASSUMPTIONS

USING THE DEVELOPMENT PROCESS MANUAL, 10 DAY VOLUMES FOR EXISTING AND PROPOSED CONDITIONS WILL BE DETERMINED. AREAS WERE TAKEN OFF THE AUTOCAD DRAWING OF THE SITE.

THE RUNOFF COEFFICIENT WILL BE COMPOUND AND DETERMINED WITH THESE AREAS.

3.0 REFERENCES.

CITY OF ALBUQUERQUE - DEVELOPMENT PROCESS MANUAL SECTION. 22.2 (DPM)

BERNALILLO COUNTY DRAINAGE ORDINANCE 90-6, 1990
NOAA ATLAS 2 PRECIPITATION FREQUENCY FOR N.M.

4.0 PROCEDURE

USING THE DEVELOPMENT PROCESS MANUAL, THE DESIGN STORM WILL BE 100 YR - 10 DAY.

LAND TREATMENT IS TAKEN FROM AUTOCAD DRAWING.

WEIGHTED E IS CALCULATED

$\#_{360}$ & $\#_{10DAY}$ ARE DETERMINED.



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEM SCHOOL

COMPUTED BY:

KT

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

2 OF 7

DATE:

16 OCT 95

5.0 CONCLUSIONS

THE 100 YR 10 DAY STORM GIVES A VOLUME

$$V_{10DAY} = 2.90 \text{ FOR PROPOSED CONDITIONS.}$$

THIS IS THE VOLUME THE RETENTION POND WILL NEED TO CONTAIN.

TO RETAIN THIS VOLUME, THE PLAYING FIELD WILL ALSO NEED TO BE UTILIZED AS A RETENTION POND.



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9502312

SHEET NUMBER

3 OF 7

DATE:

30 Oct 95

PRECIPITATION ZONES.EXISTING - CONDITIONS

BERNALILLO COUNTY HAS BEEN DIVIDED INTO FOUR (4) PRECIPITATION ZONES. KIT CARSON ELEMENTARY SCHOOL IS WEST OF THE RIO GRANDE, SO ACCORDING TO TABLE A-1 OF THE DPM, IT IS IN PRECIPITATION ZONE 1.

LAND TREATMENT

FROM AUTOCAD DRAWING OF THE SITE.

ENTIRE SITE = 13.78 ACRES

TREATMENT B = 1.56 ACRES
TURFTREATMENT C = 8.93 ACRES
SOILTREATMENT D = 3.29 ACRES
IMPERVIOUS

WEIGHTED E, EXCESS PRECIPITATION, ZONE ONE (1)

TABLE A-8 (DPM) (SEE ATTACHED SHEET 7)

 $E_B = 0.07$, $E_C = 0.99$, $E_D = 1.97$

$$\text{WEIGHTED } E_w = \frac{[(1.56 \times 0.07) + (8.93(0.99)) + (3.29(1.97))]}{13.78}$$
$$E_w = \underline{\underline{1.19}}$$



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4 OF 7

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11/08/95

$$V_{10DAY} = V_{360} + A_D (P_{10DAY} - P_{360}) / 12$$

FROM DPM 22.2
(EQ a-9)

$$V_{360} = E_W * A_T / 12$$

WHERE

DPM
(EQ a-6) E_W = WEIGHTED EXCESS PRECIP. A_T = TOTAL AREA A_D = IMPERVIOUS AREA

$$V_{360} = 1.19 * 13.78 / 12$$

$$V_{360} = 1.37 \text{ ac-ft.}$$

FROM DPM TABLE A-2

$$P_{10DAY} = 3.67 \text{ in}$$

$$P_{360} = 2.20 \text{ in}$$

$$V_{10DAY} = 1.37 + 3.29 (3.67 - 2.20) / 12$$

$$\underline{V_{10DAY} = 1.77 \text{ ac-ft. EXISTING CONDITIONS}}$$



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95023.12

SHEET NUMBER

5 OF 7

DATE:

30 Oct 95

PROPOSED CONDITIONSLAND TREATMENT

FROM AUTOCAD DRAWING OF PROPOSED IMPROVEMENTS.

ENTIRE SITE = 13.78 ACRES

TREATMENT B = 3.72 ACRES
TURFTREATMENT C = 0.94 ACRES
SOILTREATMENT D = 9.12 ACRES
IMPERVIOUSWEIGHTED E_w EXCESS PRECIPITATION, ZONE 1
TABLE A-8 (DPM) $E_B = 0.67$, $E_C = 0.99$, $E_D = 1.97$ WEIGHTED $E_w = [(E_B \times A_{CB}) + (E_C \times A_{CC}) + (E_D \times A_{CD})] / A_{CT}$ $E_w = (0.67 \times 3.72) + (0.99 \times 0.94) + (1.97 \times 9.12) / 13.78$ $E_w = 1.55$ CALCULATE VOLUME OF RUNOFF FROM SITE $V_{10DAY} = (V_{360} + A_{CD})(P_{10DAY} - P_{360}) / 12 \text{ in/ft}$ FROM NOAA ATLAS 2
DPM

FROM DPM TABLE A-2 (ZONE 1)

 $P_{360} = 2.20 \text{ in}$, $P_{10DAY} = 3.67 \text{ in}$.

WHERE

 A_{CD} = IMPERVIOUS
ACERAGE A_{CT} = TOTAL ACERAGE V_{360} = VOLUME (6 HR) $V_{360} = (E_w \times A_{CT}) / 12 \text{ in/ft}$ $V_{360} = (1.55 \times 13.78) / 12 = \underline{\underline{1.78 \text{ AC. FT}}} = V_{360}$



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DATE

3 Oct 95

BECAUSE THE POND MAY HOLD WATER FOR LONGER THAN 6 HRS, THE LONGER DURATION STORM IS USED. (10 DAY)
ACCORDING TO THE DPM, THE ADDITIONAL VOLUME WILL BE BASED ON RUNOFF FROM THE IMPERVIOUS AREAS ONLY.

$$V_{10 \text{ DAY}} = V_{360} + A_D (P_{10 \text{ DAY}} - P_{360}) / 12 \text{ IN-FT}$$

$$V_{10 \text{ DAY}} = (1.78 + 9.12 * (3.67 - 2.20)) / 12$$

$$\underline{V_{10 \text{ DAY}} = 2.90 \text{ ac-ft.}}$$

What is $\Delta V_{10 \text{ day}}$?

Excess precipitation, E, by zone and treatment is summarized in TABLE A-8.

(NOTE: In this table and several tables which follow, corresponding values for 2- and 10-year storms are shown in brackets below each 100-year value)

TABLE A-8. EXCESS PRECIPITATION, E (INCHES) - 6 HOUR STORM				
Zone	Treatment			
	A	B	C	D
1	0.44 [0.00, 0.08]	0.67 [0.01, 0.22]	0.99 [0.12, 0.44]	1.97 [0.72, 1.24]
2	0.53 [0.00, 0.13]	0.78 [0.02, 0.28]	1.13 [0.15, 0.52]	2.12 [0.79, 1.34]
3	0.66 [0.00, 0.19]	0.92 [0.06, 0.36]	1.29 [0.20, 0.62]	2.36 [0.89, 1.50]
4	0.80 [0.02, 0.28]	1.08 [0.11, 0.46]	1.46 [0.27, 0.73]	2.64 [1.01, 1.69]



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe

ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 1

DATE:

12 Oct 95

USING RATIONAL METHOD AND COA DPM
SECTION 22.2 - CALCULATE RUNOFF
PEAK FLOWS FOR EXISTING & PROPOSED
CONDITIONS, W/ 100 YR-6HR STORM.

EXISTING CONDITIONSLAND TREATMENT

$$A_B = 1.56 \text{ ACRES}$$

$$A_C = 8.93 \text{ ACRES}$$

$$A_D = 3.29 \text{ ACRES}$$

TABLE A-10 DPM
PEAK INTENSITY

ZONE 1

100 YR

$$I = 4.70 \text{ IN/HR}$$

TABLE A-11 DPM
COEFFICIENT, C

$$C_B = 0.43$$

$$C_C = 0.61$$

$$C_D = 0.93$$

RATIONAL METHOD

$$Q = CIA$$

$$Q_{100 \text{ YR}} = (4.70) \left[(0.43)(1.56) + (8.93)(0.61) + (3.29)(0.93) \right]$$

$$\underline{Q_{100 \text{ YR}} = 43.14 \text{ CFS}} \quad \text{EXISTING CONDITIONS}$$

PROPOSED CONDITIONS (ONLY LAND TREATMENT CHANGES)

$$A_B = 3.72 \text{ ACRES} \quad A_C = 0.94 \text{ ACRES} \quad A_D = 9.12 \text{ ACRES}$$

$$Q = CIA$$

$$Q_{100 \text{ YR}} = (4.70) \left[(0.43)(3.72) + (0.94)(0.61) + (9.12)(0.93) \right]$$

$$\underline{Q_{100 \text{ YR}} = 50.08 \text{ CFS}} \quad \text{PROPOSED CONDITIONS}$$



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

DISPLACED VOLUME
KIT CARSON ELEM. SCHOOL

SHEET NUMBER

1 OF 1

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

DATE:

40 Oct 95

(AREAS TAKEN FROM AUTOCAD DWG.)

TO CALCULATE VOLUME DISPLACED IN FLOODZONE

TOTAL FLOOD AREA = 240309.84 SF = 5.52 ACRES

EXISTING V_{360} = 1.37 AC. FT. - this is the calculated volume for the entire siteAVG. FLOOD DEPTH = V_{360} / AREA DEPTH = $1.37 / 5.52 = 0.25 \text{ FT.}$

TO CALCULATE VOLUME DISPLACED

 $V_{\text{DISP}} = \text{AVG. FLOOD DEPTH} * \text{DISPLACED AREA}$ $V_{\text{DISP}} = 0.25 \text{ FT} * 1.52 \text{ ACRES} = 0.38 \text{ ACRE} \cdot \text{FT.}$

BECAUSE THIS VOLUME IS SO SMALL, THE
100YR-6HR STORM VOLUME CALCULATED FOR PROPOSED
IMPROVED CONDITIONS, WILL BE USED FOR DESIGN.

what is the actual volume
under the floodplain - based on
actual topo?



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NAME OF PROJECT

KIT CARSON

COMPUTED BY:

KJ

CHECKED BY:

VOLUME CALCS.
(PONDS)

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 2

DATE:

5 Oct 95

CALCULATING VOLUME OF RETENTION PONDS
ON SITE. AVERAGE END AREA WILL BE USED.

FORMULA:

$$V_a = \left(\frac{A_0 + A_1}{2} \right) D + \left(\frac{A_1 + A_2}{2} \right) D + \dots + \left(\frac{A_{N-1} + A_N}{2} \right) D$$

WHERE

 $A_0, 1, 2$ ARE AREAS AT CONSISTANT INTERVAL
DEPTHS IN S.F. D = DEPTH BETWEEN AREAS IN FEET V = VOLUME IN CUBIC FEET.

AREAS TAKEN FROM AUTOCAD DESIGN DWG.

$$A_0 = 15660.12 \text{ S.F.} + 744.14 \text{ SF} = 16404.26 \text{ SF.}$$

$$A_1 = 21157.29 \text{ SF.}$$

$$A_2 = 25935.77 \text{ SF.}$$

$$D = 1 \text{ FOOT}$$

$$A_3 = 28384.01 \text{ SF}$$

$$D = 0.5 \text{ FT}$$

$$\left(\frac{A_0 + A_1}{2} \right) (D) = 18780.78 \text{ CF}$$

$$\left(\frac{A_2 + A_3}{2} \right) 0.5 = 27159.89$$

$$\left(\frac{A_1 + A_2}{2} \right) (D) = 23546.53 \text{ CF}$$

$$\text{TOTAL} = 18780.78 + 23546.53 + 27159.89 = 69,487.2 \text{ SF}$$

DIVIDE BY 43560.1 SF/AC TO GET AC, FT.

$$\frac{69,487.2}{43560.1} = 1.60 \text{ AC} \cdot \text{FT OF STORAGE.}$$

THIS IS THE VOLUME OF THE LARGER POND.



LEEDSHILL · HERKENHOFF, INC.

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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

2 OF 2

DATE

5 OCT 95

THE SMALLER POND VOLUME IS OBTAINED USING
THE SAME METHOD.

$$A_0 = 9970.72 \text{ SF}$$

$$D = 1 \text{ FOOT}$$

$$A_1 = 14133.61 \text{ SF}$$

$$A_2 = 18471.18 \text{ SF}$$

$$V = 12052.17 \text{ CF} + 16302.39 \text{ CF} = 28354.56 \text{ CF}$$

$$V = 28354.56 / 43560 \dots = \underline{\underline{0.65 \text{ AC} \cdot \text{FT}}}$$

SO, TOTAL VOLUME OF THE RETENTION
PONDS EQUALS

$$V_T = 1.60 \text{ AC} \cdot \text{FT} + 0.65 \text{ AC} \cdot \text{FT} = \underline{\underline{2.25 \text{ AC} \cdot \text{FT}}}$$

2.90 ACFT OF STORAGE IS ACTUALLY NEEDED
THE PLAYING FIELD AND PLANTERS WILL BE
USED TO MAKE UP THE DIFFERENCE.

PLAYING FIELD VOLUME:

$$150' \times 300' \times 0.75' = \frac{33,750 \text{ CF}}{43560.00 \text{ SF/AC}}$$

$$= \underline{\underline{0.77 \text{ AC} \cdot \text{FT}}}$$

$$\underline{\underline{\text{TOTAL} = 2.25 + 0.77 = 3.02 \text{ AC} \cdot \text{FT} = \text{PROVIDED VOLUME}}}$$

THIS ALLOWS 1' OF FREEBOARD ON THE SMALLER POND
AND 0.5' OF FREE BOARD ON THE LARGER.



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT LAND TREATMENT

KIT CARSON ELEM. SCHOOL

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 1

DATE:

30 OCT 95

FROM ACAD. DWG. EXISTING CONDITIONS

ENTIRE AREA

$$600439.20 \text{ SF} = 13.78 \text{ acres}$$

GRASS AREA

$$68127.14 \text{ SF} = 1.56 \text{ acres}$$

IMPERVIOUS AREA

$$77306.08 - 68127.14 = 9178.94 \text{ SF}$$

$$40326.21$$

$$34134.72$$

$$59663.21$$

$$\begin{array}{r} \text{TOTAL} \quad 143303.08 \text{ SF} \\ = 3.29 \text{ acres} \end{array}$$

DIRT AREA = ENTIRE AREA - GRASS - IMPERVIOUS

$$\text{DIRT AREA} = 13.78 - 1.56 - 3.29$$

$$= 8.93 \text{ acres}$$

PROPOSED CONDITIONS

$$\begin{array}{l} \text{TURF: } 30944.99 + 120285.79 + 5466.30 \\ + 5479.60 = 162,176.68 \text{ SF} = 3.72 \text{ ACRES} \end{array}$$

$$\begin{array}{l} \text{DIRT} = 7632.09 + 6373.93 + 4228.61 + 3(7500.00) = 40734.63 \text{ SF} \\ = 0.94 \text{ ACRES} \end{array}$$

$$\text{IMPERVIOUS} = 13.78 - 3.72 - 0.94 = 9.12 \text{ ACRES.}$$



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON

SEWER
DESIGN

SHEET NUMBER

1 OF 2

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

DATE:

5 Oct 05

CALCULATION OF SANITARY SEWER CAPACITY NEEDED.

FROM JOHN JARRARD:

STUDENT POPULATION = 600

FACULTY POPULATION = 50

THE TOTAL FOR THIS DESIGN

WILL BE 700 PEOPLE, TO BE CONSERVATIVE.

USING 20 gal/day/capita as a design flow

TAKEN FROM TABLE 7.14 (see attached sheet 2)

FROM

"STANDARD HANDBOOK OF ENVIRONMENTAL ENGINEERING"
BY ROBERT A. CORBITT.PEAK FLOW CALCULATIONS FOR OPERATING (8 HRS)
TIME

$$20 \frac{\text{GAL}}{\text{DAY} \cdot \text{PERSON}} \times \frac{1 \text{ DAY}}{480 \text{ MIN}} \times 700 \text{ PEOPLE}$$

$$Q = 29.17 \text{ GAL/MIN.} \times \frac{1 \text{ CF}}{7.48 \text{ GAL}} \times \frac{1 \text{ MIN.}}{60 \text{ SEC}} = \underline{\underline{0.065 \text{ CFS}}}$$

TABLE 7.14 Quantities of Sewage Flow (23)

Type of establishment	Liters per person per day	Gallons per person per day
Small dwellings and cottages with seasonal occupancy	190	50
Single-family dwellings	285	75
Multiple-family dwellings (apartments)	227	60
Rooming houses	150	40
Boarding houses	190	50
Additional kitchen wastes for nonresident boarders	38	10
Hotels without private baths	190	50
Hotels with private baths (2 persons per room)	227	60
Restaurants (toilet and kitchen wastes per patron)	26-38	7-10
Restaurants (kitchen wastes per meal served)	9-11	2½-3
Additional for bars and cocktail lounges	8	2
Tourist camps or trailer parks with central bathhouse	132	35
Tourist courts or mobile home parks with individual bath units	190	50
Resort camps (night and day) with limited plumbing	190	50
Luxury camps	380-570	100-150
Work or construction camps (semipermanent)	190	50
Day camps (no meals served)	57	15
Day schools without cafeterias, gymnasiums, or showers	57	15
Day schools with cafeterias, but no gymnasiums or showers	75	20
Day schools with cafeterias, gyms, and showers	95	25
Boarding schools	285-380	75-100
Day workers at schools and offices (per shift)	57	15
Hospitals	570-945+	150-250+
Institutions other than hospitals	285-475	75-125
Factories (gallons per person per shift, exclusive of industrial wastes)	57-132	15-35
Picnic parks (toilet wastes only, per picknicker)	19	5
Picnic parks with bathhouses, showers, and flush toilets	38	10
Swimming pools and bathhouses	38	10
Luxury residences and estates	380-570	100-150
Country clubs (per resident member)	380	100
Country clubs (per nonresident member present)	95	25
Motels (per bed space)	150	40
Motels with bath, toilet, and kitchen wastes	190	50
Drive-in theaters (per car space)	19	5
Movie theaters (per auditorium seat)	19	5
Airports (per passenger)	11-19	3-5
Self-service laundries (per wash, i.e., per customer)	190	50
Stores (per toilet room)	1500	400
Service stations (per vehicle served)	38	10



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEM.

WATER

SHEET NUMBER

1 OF 2

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95013.12

DATE:

9 OCT 95

CALCULATION OF WATER FLOW
EXISTING CONDITIONS

FROM BERGHOFF:

RULE OF THUMB -

EACH FIRE HYDRANT NEEDS 500 gpm

FROM

"STANDARD HANDBOOK OF ENVIRONMENTAL
ENGINEERING" BY ROBERT A. CORBITT
(SEE ATTACHED SHEET 2)

PEAK FLOW = 20 gal/day • PUPIL

USING 700 pupils & FACULTY

$$700 \text{ p} \times 20 \frac{\text{gal}}{\text{day} \cdot \text{PERSON}} = 14,000 \frac{\text{gpd}}{1440 \frac{\text{min}}{\text{day}}} = 9.72 \text{ gpm}$$

ADD IN FIRE FLOWS

$$500 \times 4 \text{ HYDRANTS} = 2000 \text{ gpm}$$

$$2000 \text{ gpm} + 9.72 \text{ gpm} = 2009.72 \text{ gpm}$$

$$2009.72 \frac{\text{gal}}{\text{min}} \times \frac{1 \text{ CF}}{7.48 \text{ gal}} \times \frac{1 \text{ min}}{60 \text{ sec}} = 4.48 \text{ CFS}$$

TABLE 5.2 Typical Water Demand Levels (Continued)

Type of Establishments	Gal/day (m ³ /day)
Restaurants with toilet facilities (per patron)	7-10 (0.03-0.04)
Without toilet facilities (per patron)	2 (0.01-0.0)
With bars and cocktail lounge (additional quantity per patron)	2 (0.01)
Schools:	
Boarding (per pupil)	75-100 (0.28-0.38)
Day with cafeteria, gymnasiums, and showers (per pupil)	25 (0.01)
Day with cafeteria but no gymnasiums or showers (per pupil)	20 (0.08)
Day without cafeteria, gymnasiums, or showers (per pupil)	15 (0.06)
Service stations (per vehicle)	10 (0.04)
Stores (per toilet room)	400 (1.51)
Swimming pools (per swimmer)	10 (0.04)
Theaters:	
Drive-in (per car space)	5 (0.02)
Movie (per auditorium seat)	5 (0.02)
Workers:	
Construction (per person per shift)	50 (0.19)
Day (school or offices per person per shift)	15 (0.06)

m³) per capita per day difference is accounted for by delivery losses, fire protection, street washing, city and park maintenance, and other similar items. Most central systems have the capacity to deliver 150 gal (0.57 m³) per capita per day, but this amount includes some water for manufacturing, which is accounted for in manufacturing water use. In a typical rural household (noncentral) domestic use averages about 44 gal (0.25 m³) inside.

The following discusses variation in peak demand and special uses, such as lawn sprinkling and fire protection.

Peak Demands. The rate of water use for an individual water system will vary directly with domestic activity in the home or with an operational farm program. Usage rates are generally highest in the home near mealtimes, during midmorning laundry periods, and shortly before bedtime. During the intervening daytime hours and at night, water use may be virtually nil. Thus, the total amount of water used by a household may be distributed over only a few hours of the day, during which the actual use is much greater than the average rate determined from Table 5.2.

Simultaneous operation of several plumbing fixtures will determine the maximum peak rate of water delivery for the home water system. For example, a shower, an automatic dishwasher, a lawn sprinkler, and a flush valve toilet all operated at the same time would probably produce a near-critical peak. It is true that not all of these facilities are usually operated together; but if they exist on the same system, there is always a possibility that a critical combination may result, and for design purposes this method of calculation is sound. Table 5.3 summarizes the rate of flow which would be expected for certain household and farm fixtures(2).

Lawn Sprinkling. The amount of water required for lawn sprinkling depends upon the size of the lawn, type of sprinkling equipment, climate, soil, and water



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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEM. SCHOOL

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 1

DATE:

9 OCT 95

SMALL "POND" AREAS - EXISTING SITE COND.

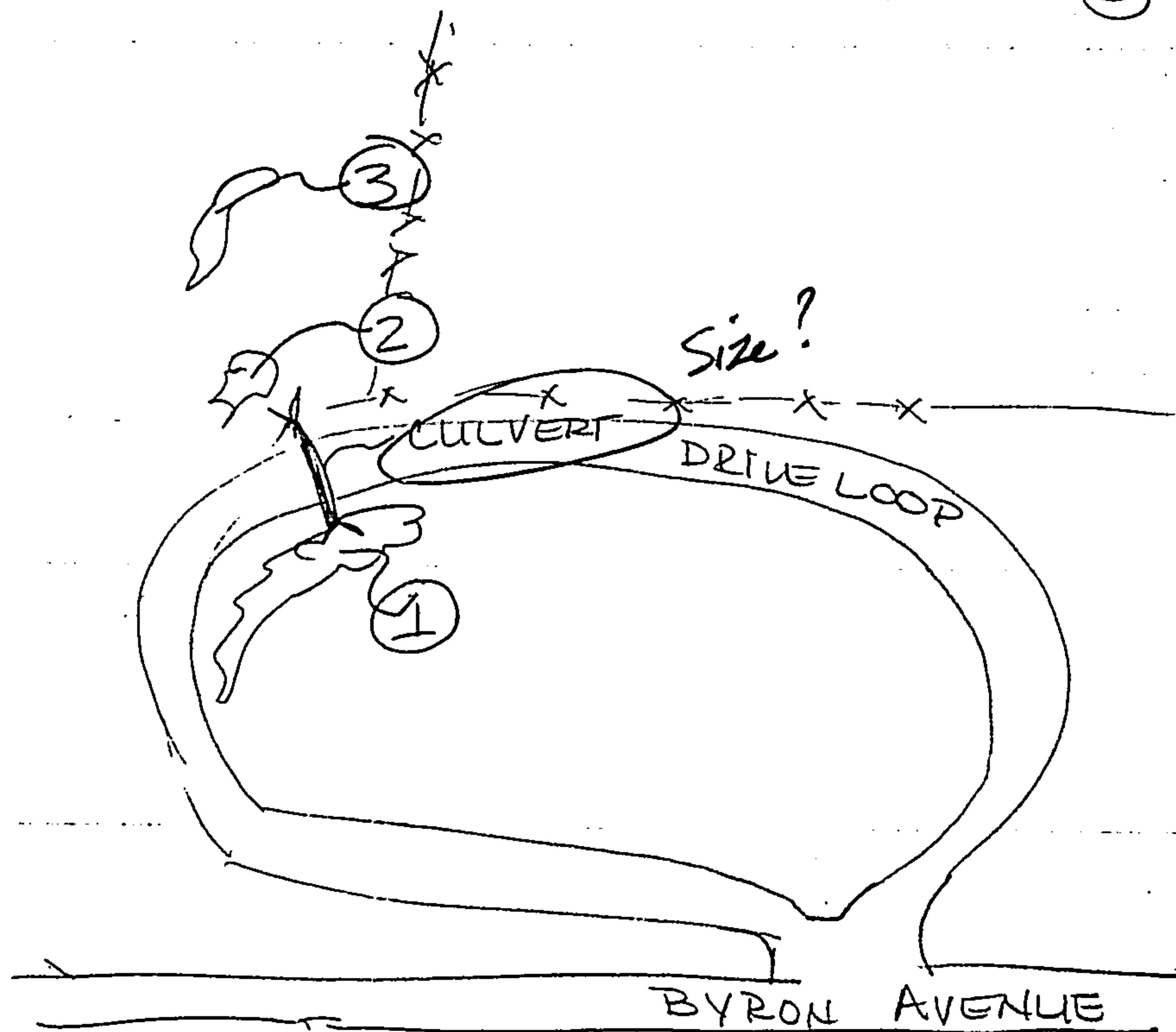
INSIDE DRIVE CIRCLE 3246.8551 SF
= 0.07 ACRES

①

AREAS TAKEN FROM AUTO CAD DRAWING OF SITETWO SMALL "PONDS" CONNECTED BY
CULVERT TO OTHER.

585.6574 SF. = 0.013 ACRES ②

444.4473 SF = 0.010 ACRES ③

SKETCH OF SITE TO SHOW "POND" LOCATIONS
NTS

cast

1. Is the engineer confident that the proposed grading will properly convey the onsite flows to the ponds? Please show a cross-section and supporting calculation of the swale on the ~~west~~ side of the property that is used to ~~the flows to~~ divert the flows to the ponds.
2. Each pond shall have a designated private drainage/access easement or drainage covenant that assures the public sector the right to maintain the facility if required by emergency or non-maintenance by the property owner.
3. It appears that the proposed ponds do not have a spillway. County Ordinance 90-6 states that all retention facilities shall have a designated overflow spillway. The overflow spillway should as a minimum be capable of safely discharging the runoff entering the facility from a 100 year design storm. Please address.
4. Is the engineer confident that the retention pond to the north of the property has the capacity to retain the volume from a 100 year - 10 day storm. Please address. *If this overflows does it impact site?*
6. ~~It appears that development is proposed in the lot east of the subject site.~~ Is this development part of the project? Please address.

6. Comparison of before & after vol. - $fp \text{ before proposed} = fp \text{ vol} + \text{devel. vol}$

7. What is size of leveling culvert? between ponds

→ Master plan

8. please note on plan that proposed parking lot is in phase 2 (prop. retention ponds & playing field)



LEEDSHILL · HERKENHOFF, INC.

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ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON ELEM. SCHOOL

COMPUTED BY:

KJ

CHECKED BY:

JOB NUMBER

95023.12

SHEET NUMBER

1 OF 1

DATE:

10 OCT 95

AREAS TAKEN FROM AUTOCAD DRAWING
AREA OF FLOOD ZONE

$240309,8364 \text{ SF} = 5.5 \text{ AC}$

AREA OF FZ ACTUALLY ^{CONTRIBUTING} ~~ON~~ SITE

$201365.6478 \text{ SF} = 4.6 \text{ AC}$

AREA AFFECTED BY NEW BUILDING

$66344.4151 \text{ SF} = 1.5 \text{ AC}$

AREA OF PHASE TWO MAIN BUILDING ADDITION

$A = 18100.7649 \text{ SF}$

MULTI PURPOSE BUILDING 4215.9290

PHASE III ADDITION.

$A = 9436.6262 \text{ SF}$



County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

BOARD OF COUNTY COMMISSIONERS

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THOMAS J. MESCALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
H. R. FINE, TREASURER

Date: 28-MAR-96

Subject: Submittal

Case No.: PWD-96-27

Zone Map No.: M-12

Street Address: 1920 BYRON SW

Legal Description: TR 198-A-1-B MRGCD 43

Name of Applicant: Leedshill-Herkenhoff

Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS** for **review and comment of submittal and resubmittals**, and **ONE WEEK** for **final review and plat sign-off**. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR

COUNTY OF BERNALILLO
APPLICATION FOR CASE REVIEW

Please complete pages one and two of this application for review of your case. Submit THREE blueines of plat, drawings, or information with case submittals and THREE blueines of plat, drawings, or information along with the original mylar for final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

____ OWNER _____ SURVEYOR _____ AGENT
____X____ ENGINEER _____ DRAINAGE ENGINEER

b. Date of this application: 22-FEB-96

c. Signature of applicant:

(print) _____ (sign) _____

d. OWNER: Albuquerque Public Schools
915 Oak SE
Albuquerque, NM 87106

PHONE: 242-5865

e. AGENT: Leedshill-Herkenhoff Inc
500 Copper Ave NN PO Box 1217
Albuquerque, NM 87103

PHONE: 505-247-0294

f. OTHER(specify): Leedshill-Herkenhoff Inc PHONE: 505-247-0294
500 Copper Ave NN PO Box 1217
Albuquerque, NM 87103

2. TYPE OF SUBMITTAL (check one):

____ REPLAT
____ LAND DIVISION (MINOR SUBDIVISION)
____ MAJOR SUBDIVISION
____ CONSTRUCTION DRAWINGS
____X____ GRADING/DRAINAGE PLAN
____ AS-CONSTRUCTED GRADING/DRAINAGE PLAN
____ VARIANCE REQUEST
____ TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
____ INFRASTRUCTURE LIST/DESIGN REVIEW FEE
____ OTHER (specify): _____

Your: ☒ submittal of drainage information
☐ resubmittal of drainage information

is: ☐ approved.
☐ approved with comments/conditions.
☐ disapproved.
☒ deferred to County Floodplain Administrator

TO BE FILLED OUT BY COUNTY PUBLIC WORKS DEPARTMENT ONLY
--

Case review comments are:

☒ attached.
☐ not attached.
☐ not attached. See remarks below.

Resubmittal is:

☐ not required.
☒ required. When resubmitting, please use Resubmittal Form.

Please submit:

☒ grading/drainage plan with revisions.
☐ as-constructed grading/drainage plan.
☐ other: _____

It is required that:

☐ Bernalillo County Public Works Department inspect improvements prior to final sign-off of plat.
☐ Bernalillo County Public Works Department signature line be placed on plat.

Remarks: _____

Tom Blaine, PE 3/27/96

Molzen-Corbin & Assoc., for
 County Surface Water Hydrologist
 Bernalillo County Public Works Department

cc: ☐ Sandia Heights Homeowners Association
☒ Owner: *APS Dept. of Facilities, Planning & Construction*
☒ Agent: *Tom Blaine*
☒ Case File: *PWD-96-27*
☒ Susan Calongne, County Floodplain Administrator, COA
☒ Molzen-Corbin & Associates
☐ Other: _____

BERNALILLO COUNTY PUBLIC WORKS DEPARTMENT
CASE FILE COMMENTS

CASE NO: PWD-96-35

ZONE MAP NO.: D-22

REFERENCE CASES:

STREET ADDRESS: SAN BERNARDINO AVE NE

LEGAL DESCRIPTION: LT 22 & 23 BLK 4 TR 2 UNIT 2 NORTH ALBUQ ACRES

COMMENTS OF:

15-MAR-96 DRAN: A portion of this property appears to be within a designated 100 year flood plain as shown on the National Flood Insurance Program's Flood Insurance Rate Map. Defer approval to the County Floodplain Administrator.

Rm

3/28/96



County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

May 13, 1996

BOARD OF COUNTY COMMISSIONERS

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JOE BOWDICH, SHERIFF

H. R. FINE, TREASURER

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN (M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, AND GRADING AND DRAINAGE PLAN FOR PHASE I (M12/D7) (PWD-96-63) SUBMITTED FOR GRADING AND BUILDING PERMIT APPROVAL, ENGINEER'S STAMP DATED 4/11/96.

Dear Mr. Blaine:

Based on the information provided in the submittal of April 23, 1996, the above referenced Master Plan is approved. The Grading and Drainage Plan for Phase I is also approved for Grading Permit and Building Permit release.

Please be advised that prior to Certificate of Occupancy release for Phase I, the Engineer's Certification must be submitted to and approved by my office.

If you should have any questions, please call me at 768-2666.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

Susan M. Calongne, P.E.

City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools

File



RECEIVED

MAR 29 1996

BOARD OF COUNTY COMMISSIONERS

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KEN SANCHEZ, VICE CHAIR
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DISTRICT 4

LES HOUSTON, MEMBER
DISTRICT 5

JUAN R. VIGIL, COUNTY MANAGER

County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

LEEDSHILL, HERKENHOFF, INC.
ALBUQUERQUE

DAVID K. ANDERSON, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESCALL, PROBATE JUDGE

JOE BOWDICH, SHERIFF

H. R. FINE, TREASURER

March 25, 1996

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

COPY

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN
(M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, ENGINEER'S
STAMP DATED 2/9/96.

Dear Mr. Blaine:

This letter consists of a compilation of my comments along with those of Bernalillo County Public Works. Prior to approval of the above referenced Master plan, please address the following comments:

1. Will the proposed grading properly convey the on-site flows to the ponds? Please show a cross-section and capacity calculations for the swale on the east side of the property that is used to divert the flows to the ponds.
2. Each pond shall have a designated private drainage/access easement or drainage covenant that assures the public sector the right to maintain the facility if required by emergency or non-maintenance by the property owner.
3. It appears that the proposed ponds do not have a spillway. County Ordinance 90-6 states that all retention facilities shall have a designated overflow spillway. The overflow spillway should as a minimum be capable of safely discharging the runoff entering the facility from a 100-year design storm. Please address.
4. Please provide a comparison of the runoff volumes for existing and proposed conditions. Proposed ponding should be able to accommodate the existing floodplain volume plus the volume generated due to development of the site. The report states that the area of the existing floodplain is 5.52 acres. Is this the total floodplain area on this site only? Using the existing topography, what is the volume when this floodplain is at elevation 4936? This is the volume that must be ponded along with the developed runoff.

March 25, 1996

- † 5. Does the retention pond to the north of the property have the capacity to retain the volume from a 100-year, 10-day storm? If this pond overflows, will runoff impact the school site?
6. Please identify the sizes of the leveling culverts that are proposed between the ponds.
7. Since this report is to be used as the master plan, the phasing should be clear on the drawing. Please note on the plan which facilities are to be constructed with each phase, such as, the proposed parking lot is to be constructed with Phase 2. With which phases are the proposed retention ponds and playing field improvements to be built?

If you should have any questions regarding these comments, please feel free to call me at 768-2666 or Roger Paul at Bernalillo County Public Works Division.

Sincerely,



Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Roger Paul, Bernalillo County Public Works Division
Gerry Brown, Albuquerque Public Schools
File

Master plan - old PWD #

DRAINAGE INFORMATION SHEET

PWD-96-63

PROJECT TITLE: Kit Carson - Phase I ZONE ATLAS/DRNG.FILE #: M-12 / D7

DRB #: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tract 198A 1B MRGCD MAP #43

CITY ADDRESS: 1920 Byron Avenue

ENGINEERING FIRM: Leedshill-Herkenhoff, Inc. CONTACT: Tom Blaine, P.E.

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

OWNER: Albuquerque Public Schools CONTACT: Gerry Brown

ADDRESS: 915 Oak SE, Alb., NM 87106 PHONE: (505) 242-5864

ARCHITECT: Leedshill-Herkenhoff, Inc. CONTACT: John Jarrard

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

SURVEYOR: Wilson & Company CONTACT: Bill Brewster

ADDRESS: 4775 Indian School Rd., NE PHONE: (505) 254-4000

Albuquerque, NM 87110

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☒ GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER

PRE-DESIGN MEETINGS:

- ☒ YES
☐ NO
☒ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☐ S.DEV. PLAN FOR SUB'D. APPROVAL
☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
☐ PAVING PERMIT
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: April 1996

BY: Tom Blaine

CASE #

PWD - 96 - 63

M-12, T. 198A 1B MRGCD MAP #43

DRAN-_____

Original F.P.A.
4-19-96 4-19-96

DRE - X

INSP - X

PLAN - X

Susan

DUE DATE

10 - May - 96

13155

2000



BOARD OF COUNTY COMMISSIONERS

PATRICK J. BACA, CHAIRMAN
DISTRICT 1JACQUELYN SCHAEFER, VICE CHAIR
DISTRICT 2ALBERT "AL" VALDEZ, MEMBER
DISTRICT 3EUGENE M. GILBERT, MEMBER
DISTRICT 3BARBARA J. SEWARD, MEMBER
DISTRICT 4

JUAN R. VIGIL, COUNTY MANAGER

County of Bernalillo

State of New Mexico

2400 BROADWAY S.E.

ALBUQUERQUE, NEW MEXICO 87102

ADMINISTRATION (505) 768-4000

COMMISSION (505) 768-4217

MARK J. CARRILLO, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESSALL, PROBATE JUDGE

RAY GALLAGHER, SHERIFF

H. R. FINE, TREASURER

INCOMPLETE APPLICATIONS WILL BE RETURNED BUT WILL NOT BE REVIEWEDDate: 2/9/96

Submittal

Subject: Resubmittal

Final Sign-off

Case No.: PWP-96-2763

Phase I

Zone Map No.: M-12Street Address: 1920 Byron Avenue SW, Albuquerque, NM 87105Legal Description: Tract 198A 1B MRGCD MAP #43Name of Applicant: Leedshill-Herkenhoff, Inc.

Dear Applicant:

Bernalillo County Public Works Department will require TWO WEEKS for review and comment of submittal and resubmittals, and ONE WEEK for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 1-25-91 MJG

COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete the following application for review of your case. Submit THREE blueines of plat, drawings, or information with case submittals and THREE blueines of plat, drawings, or information with final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is (check one):

OWNER SURVEYOR AGENT
☒ ENGINEER ☒ DRAINAGE ENGINEER

b. Date of this application: 2/9/96

c. Signature of applicant:

(print) Tom Blaine, P.E.

(sign)

Tom Blaine

d. OWNER: Albuquerque Public Schools PHONE: (505) 242-5865

Department of Facilities, Planning and Construction
ADDRESS: 915 Oak, SE, Albuquerque, NM

ZIP CODE: 87106

e. AGENT: Gerry Brown PHONE: (505) 242-5865

ADDRESS: 915 Oak, SE, Albuquerque, NM

ZIP CODE: 87106

f. OTHER (specify): _____ PHONE: _____

ADDRESS: _____

ZIP CODE: _____

2. TYPE OF SUBMITTAL (check one):

REPLAT
LAND DIVISION (MINOR SUBDIVISION)
MAJOR SUBDIVISION
CONSTRUCTION DRAWINGS
☒ GRADING/DRAINAGE PLAN Phase I
AS-CONSTRUCTED GRADING/DRAINAGE PLAN
VARIANCE REQUEST
TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
INFRASTRUCTURE LIST/DESIGN REVIEW FEE
OTHER (specify): _____



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON PHASE ONE

COMPUTED BY:

KMS

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

1 OF 3

DATE:

20 MAR 06

1.0 PURPOSE:

TO CALCULATE FLOW OFF OF ROOF DRAIN
AND SIZE "POND".

2.0 DESIGN BASIS / ASSUMPTIONS

USING CITY OF ALBUQUERQUE DEVELOPMENT
PROCESS MANUAL, VOLUMES WILL BE
CALCULATED. AREA OF THE ROOF IS TAKEN
FROM AN AUTOCAD DRAWING.

3.0 REFERENCES

CITY OF ALBUQUERQUE DEVELOPMENT PROCESS
MANUAL - SECTION 22.2 (DPM)

4.0 PROCEDURE

DPM DESIGN STORM WILL BE 100yr-10day.

"LAND TREATMENT" IS IMPERVIOUS.

AREA TAKEN FROM AUTOCAD DRAWING.

V_{360} & V_{10day} ARE DETERMINED.

5.0 CONCLUSIONS

THE "POND" MUST CONTAIN 0.18 ic-ft.

THIS IS SMALL ENOUGH THAT THERE WILL BE
NO NEED TO CONTACT THE STATE ENGINEER
ABOUT RETAINING WATER.



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON PHASE ONE

SHEET NUMBER

2 OF 3

COMPUTED BY:

KIMJ

CHECKED BY:

JOB NUMBER

95023.11

DATE:

20 MAR 96

PRECIPITATION ZONE

KIT CARSON ELEMENTARY SCHOOL IS WEST OF THE RIO GRANDE. ACCORDING TO THE DPM, TABLE A-1, IT IS IN PRECIPITATION ZONE 1.

"LAND TREATMENT"

ENTIRE ROOF AREA IS IMPERVIOUS, TREATMENT D.

$$\text{AREA} = 5275.8 \text{ SF} = 0.12 \text{ ACRES}$$

OTHER CONTRIBUTING AREA:

TO BE CONSERVATIVE, AREA ASSUMED TO BE IMPERVIOUS, TREATMENT D.

$$\text{AREA} = 22320.7 \text{ SF} = 0.51 \text{ ACRES}$$

$$\text{TOTAL TREATMENT D} = .63 \text{ ACRES.}$$

EXCESS PRECIPITATION

TABLE A-8, DPM, EXCESS PRECIPITATION, E (INCHES)

6 HOUR STORM, 100 YR, ZONE 1

$$E_D = 1.97$$

FROM DPM TABLE A-2

$$P_{10 \text{ DAY}} = 3.67 \text{ IN}$$

$$P_{360} = 2.20 \text{ IN}$$



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON PHASE ONE

COMPUTED BY:

KMJ

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

3 OF 3

DATE:

20 MAR 96

$$V_{10DAY} = V_{360} + A_D * (P_{10DAY} - P_{360}) / 12$$

DPM
(EQ a-9)

$$V_{360} = E * A_T / 12$$

DPM
(EQ a-6)

$$V_{360} = 1.97 * 0.63 / 12 = 0.10 \text{ ac-ft}$$

$$V_{10DAY} = 0.10 + 0.63 * \frac{(3.67 - 2.20)}{12}$$

$$\underline{\underline{V_{10DAY} = 0.18 \text{ ac-ft.}}}$$

THIS IS THE VOLUME THAT MUST BE CONTAINED
IN THE POND.



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON- PHASE ONE

SHEET NUMBER

1 OF 1

COMPUTED BY:

KMJ

CHECKED BY:

JOB NUMBER

95023.11

DATE:

2/26/96

AREAS TAKEN FROM AUTOCAD DWG.

INCREASED IMPERVIOUS AREA

AREA KC PHASE ONE PAVEMENT = 31391.1 SF

SUBTRACT AREA OF EXISTING (MOVED) TEMP. BLDG. = 1757. + 1009.1
= 2766.1 SF $31391.1 - 2766.1 = 28625 \text{ SF} = 0.66 \text{ ACRE.}$ EXISTING CONDITIONS

ENTIRE SITE = 13.78 ACRES

TREATMENT B = 1.56 ACRES
TURFTREATMENT C = 8.93 ACRES
SOILTREATMENT D = 3.29 ACRES
IMPERVIOUSPROPOSED CONDITIONS

ENTIRE SITE = 13.78 ACRES

TREATMENT B = 1.56 ACRES
TURFTREATMENT C = 8.27 ACRES
SOILTREATMENT D = 3.95 ACRES
IMPERVIOUS



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON - PHASE ONE

COMPUTED BY:

KMJ

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

1 OF 3

DATE:

2/26/96

1.0 PURPOSE

TO QUANTIFY EXISTING AND PROPOSED DRAINAGE/RUNOFF FOR THE KIT CARSON ELEMENTARY SCHOOL.

2.0 DESIGN BASIS/ ASSUMPTIONS

USING THE CITY OF ALBUQUERQUE, DEVELOPMENT PROCESS MANUAL, (HERE AFTER REFERED TO AS DPM) 10 YR AND 100 YR, 6 HOUR STORMS WILL BE USED. AREAS ARE TAKEN OFF OF THE AUTOCAD DRAWING OF THE SITE.

3.0 REFERENCES

CITY OF ALBUQUERQUE, DEVELOPMENT PROCESS MANUAL, SECTION 22.2 (DPM)

BERNALILLO COUNTY DRAINAGE ORDINANCE 906, 1990

4.0 PROCEDURE

USING THE DPM, THE DESIGN STORM WILL BE 10 YR & 100 YR, 6 HOUR STORMS. THE BASIN IS UNDER 40 ACRES, SO THE RATIONAL METHOD WILL BE FOLLOWED.

5.0 CONCLUSION

THERE IS A NEGLIGIBLE INCREASE IN PEAK RUNOFF OF LESS THAN 1 cfs FOR BOTH THE 100 YR & 10 YR STORM.

BECAUSE STORM WATER IS RETAINED ON SITE IN EXISTING PONDS, THIS EXTRA RUNOFF SHOULD NOT HAVE A LARGE IMPACT. EXISTING DRAINAGE PATTERNS ARE MAINTAINED.



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON - PHASE ONE

COMPUTED BY:

KMJ

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

2 OF 3

DATE:

2/26/96

EXISTING CONDITIONS - PRECIPITATION ZONE

BERNALILLO COUNTY HAS BEEN DIVIDED INTO FOUR (4) PRECIPITATION ZONES. KIT CARSON ELEMENTARY SCHOOL IS WEST OF THE RIO GRANDE, SO ACCORDING TO TABLE A-1 OF SECTION 22.2 OF THE DPM, IT IS IN PRECIPITATION ZONE 1.

LAND TREATMENT, AREA

TREATMENT B, TURF = 1.56 ACRES

TREATMENT C, SOIL = 8.93 ACRES

TREATMENT D, IMPERVIOUS = 3.29 ACRES

TOTAL = 13.78 ACRES.

PEAK INTENSITY, I DPM TABLE A-10

ZONE 1, 100 YR = 4.70 IN/HR

10 YR = 3.14 IN/HR

RATIONAL METHOD COEFFICIENT, C DPM TABLE A-11.ZONE 1 100 YR $\Rightarrow C_B = 0.43$, $C_C = 0.61$, $C_D = 0.93$ 10 YR $\Rightarrow C_B = 0.24$, $C_C = 0.47$, $C_D = 0.92$ PEAK RUNOFF CALCULATION

$$Q_{100} = (0.43)(4.70)(1.56) + (0.61)(4.70)(8.93) + (0.93)(4.70)(3.29)$$

$$\underline{Q_{100} = 43.14 \text{ cfs}}$$

$$Q_{10} = (0.24)(3.14)(1.56) + (0.47)(3.14)(8.93) + (0.92)(3.14)(3.29)$$

$$\underline{Q_{10} = 23.86 \text{ cfs}}$$



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

KIT CARSON - PHASE ONE

COMPUTED BY:

KMT

CHECKED BY:

JOB NUMBER

95023.11

SHEET NUMBER

3 OF 3

DATE:

2/26/96

PROPOSED CONDITIONS

ALL THE NUMBERS FROM THE DPM STAY THE SAME. THE LAND TREATMENT IS WHAT WILL CHANGE FOR PROPOSED CONDITIONS.

LAND TREATMENT, AREA

TREATMENT B, TURF = 1.56 ACRES

TREATMENT C, SOIL = 8.27 ACRES

TREATMENT D, IMPERVIOUS = 3.95 ACRES

PEAK RUNOFF CALCULATION

$$Q_{100} = (0.43)(4.70)(1.56) + (0.61)(4.70)(8.27) + (0.93)(4.70)(3.95)$$

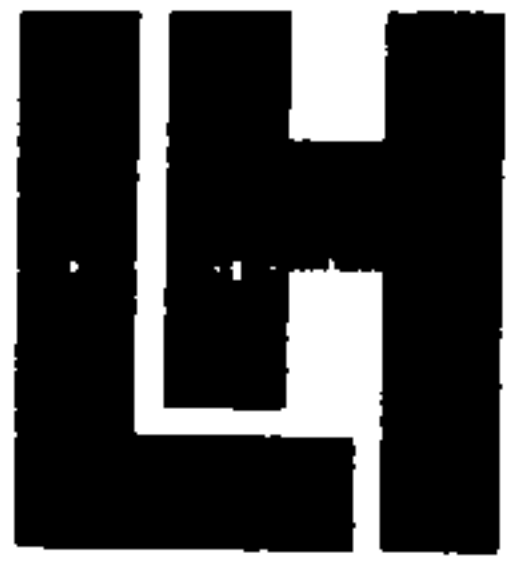
$$\underline{Q_{100} = 44.13 \text{ cfs}}$$

$$Q_{10} = (0.24)(3.14)(1.56) + (0.47)(3.14)(8.27) + (0.92)(3.14)(3.95)$$

$$\underline{Q_{10} = 24.79 \text{ cfs}}$$

DRAINAGE TABLE

	EXISTING CONDITIONS	PROPOSED CONDITIONS
Q_{100}	43.14 cfs	44.13 cfs
Q_{10}	23.86 cfs	24.79 cfs



LEEDSHILL-HERKENHOFF, INC.

500 Copper Avenue N.W.

P. O. Box 1217

Albuquerque, New Mexico 87103

(505) 247-0294

422-95023.11-96

April 11, 1996

Roger Paul, P.E.
Bernalillo County Public Works Department
2400 Broadway Boulevard, S.E.
Albuquerque, New Mexico 87102

**RE: PHASE ONE GRADING AND DRAINAGE PLAN FOR KIT CARSON ELEMEN-
TARY SCHOOL (M12/D7)**

Leedshill-Herkenhoff, Inc. (LH) has prepared this letter report for the above referenced project site. In accordance with our Pre-Design Conference on September 26, 1995, we are providing the items which need to be submitted to the County for approval of the site grading and drainage permit and for building permit approval by the City.

Included with this letter you will find the Drainage Information Sheet, Kit Carson Elementary School Grading and Drainage Plan, and the drainage calculations performed in accordance with Section 22.2 of the Development Process Manual for the City of Albuquerque. A Drainage Covenant will be provided when Final Approval is sought.

As discussed the drainage plan for Phase I of the Kit Carson Elementary School was coordinated through Albuquerque Public School (APS). Survey information was obtained from Wilson & Co. via APS. This project will not alter the existing site with respect to peak runoff amounts, drainage patterns or flow direction.

Runoff volume calculations were performed to the drainage sub-area encompassing the project location for the proposed improvements (attached). These calculations were used to size the pond next to the proposed Gymnasium.

Because the site is currently isolated hydrologically, as noted in the Master Drainage Plan, the runoff is to be retained onsite. The pond that fulfills this purpose has been designed to retain 0.2 ac.-ft. Phase I Design is not located in the 100-year floodplain as indicated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), Community Panel 350002 0034C, as dated October 14, 1983 (copy attached).



LEEDSHILL - HERKENHOFF, INC.

Roger Paul, P.E.

April 11, 1996

Page 2

LH requests your approval for a grading permit for the above referenced site, and trusts that the information provided meets your needs. If you have any questions please call me or Tom Blaine at 247-0294.

A handwritten signature in cursive script that reads "Tom Blaine".

TOM BLAINE, P.E.

Project Engineer

A handwritten signature in cursive script that reads "Karen M. Menne'-Jacobsen".

KAREN M. MENNE'-JACOBSEN

Engineer Intern

jh



LEEDSHILL-HERKENHOFF, INC.

500 Copper Avenue N.W.

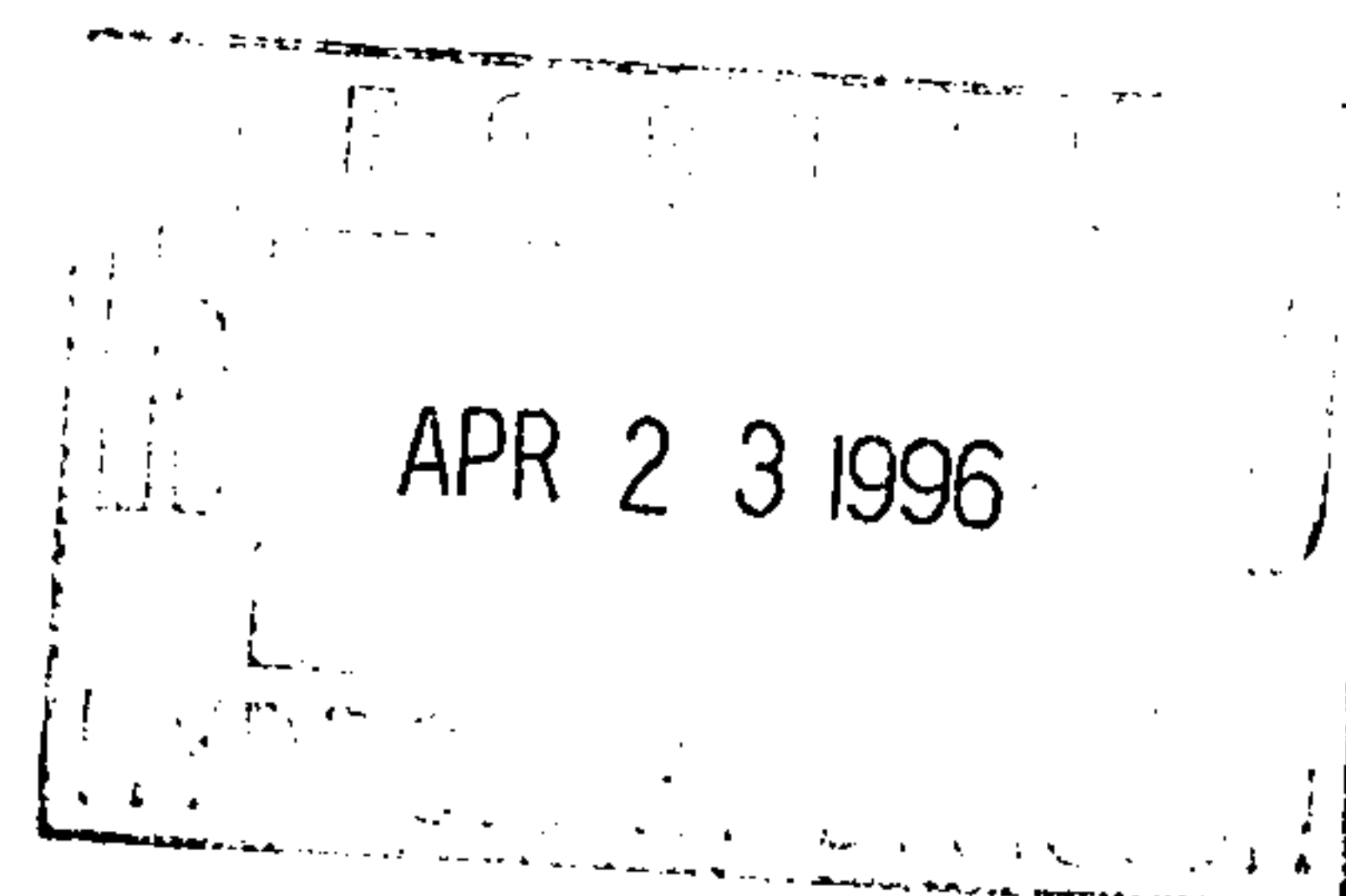
P. O. Box 1217

Albuquerque, New Mexico 87103

(505) 247-0294

418-95023.12-96

April 11, 1996



Roger Paul, P.E.

Bernalillo County Public Works Department

2400 Broadway Boulevard, S.E.

Albuquerque, New Mexico 87102

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN (M12/D7) (PWD-96-27)

Leedshill-Herkenhoff, Inc. (LH) has prepared this letter to address comments from the City/County Floodplain Administrator. A copy of that letter is provided for your reference.

1. The proposed grading is intended to convey the runoff to the ponds either directly with surface flow or indirectly through the swale located on the eastern edge of the property. The swale is designed to have a maximum capacity of 52.9 cfs at its smallest cross section. (Please see the drawings and calculations attached.) At its larger cross section closer to the ponds, the swale is designed with a maximum capacity of more than 100 cfs. The proposed conditions for this site will develop a runoff of 50 cfs during the design storm. Therefore the swale will have all the capacity necessary for the proposed improvements. If the swale is blocked, the grading is such that flow is toward the ponds and the runoff would surface flow to the ponds.
2. Drainage covenant form will be provided during the approval process for each Phase, when necessary.
3. "Spillway" provided in the form of overflow to the playing field. Please read answer to comment #4.
4. The existing flood plain has 4.6 acres on this site. One and one half (1.5) acres of this zone are affected by proposed buildings and paving. Ponding was provided for displaced volumes from the proposed building construction, as per the directions from Susan Calongne during our pre-design meeting of September 25, 1995. In the event of the design storm being exceeded, the entire playing field will flood. The elevations for this field have been lowered to accommodate more overflow than existing conditions, and the ponds added to retain the displaced volume of the proposed construction.
5. The retention pond north of the property has the capacity to retain the volume from a 100-year, 10-day storm. This information was obtained from Easterling and Associates. Their report states "These curves show that if the banks were sealed



Roger Paul, P.E.

April 11, 1996

Page 2

watertight, the pond would still hold the 100-year, 10-day event with about 0.75 ft of freeboard."

The northern edge of the property is a naturally occurring drainage divide, so even if that pond overflows with an event exceeding the design storm, the water will not travel to the Kit Carson Elementary School property.

6. The leveling culverts between the ponds on the School property shall be 12" diameter CMP, of varying lengths.
7. This Master Plan is conceptual, and proposed Phasing may not take place on a specific date. The building phasing is for monetary reasons, and the Drainage Phasing was meant to coincide with the building construction. In Phase One the Multi-Purpose Facility is to be constructed along with the new Pedestrian Crossing of the Beckham Lateral. Partial asphalt and concrete paving will also be built, as walkways for the new construction. The grading and drainage plan for this phase is to provide enough ponding for the new facility and paving. This Phase has no proposed construction in the Flood Zone.

In Phase Two the majority of the addition to the Main Building and permanent concrete will be built. Most asphalt of Phase One will be removed. Because this Phase is the largest in terms of construction, the concepts introduced in the Master Grading and Drainage Plan will take place at this stage. The large retention ponds and drainage swale will be constructed as well as the grading for the playing field and the new parking areas. These have been sized for the ultimate building plan of Phase Three.

Phase Three construction will consist of the last addition to the Main Building. All grading and drainage should be completed in Phase Two, and will accommodate the proposed improvements for Phase Three.

LH requests your approval of the Conceptual Master Grading and Drainage Plan for the above referenced site, and trusts that the information provided meets your needs. Please feel free to call either Tom Blaine or myself at 247-0294 with any questions you may have.

TOM BLAINE, P.E.
Project Engineer

KAREN M. MENNE'-JACOBSEN
Engineer Intern

jh
enc.

CASE #

FP

PWD



46



27

M-12, T. 198A, 1B MRBCD MAP# 43

DRAN-_____

Original F.P.A.

DRE - X

4-19-96 4-19-96

INSP - X

PLAN - X

DUE DATE

10

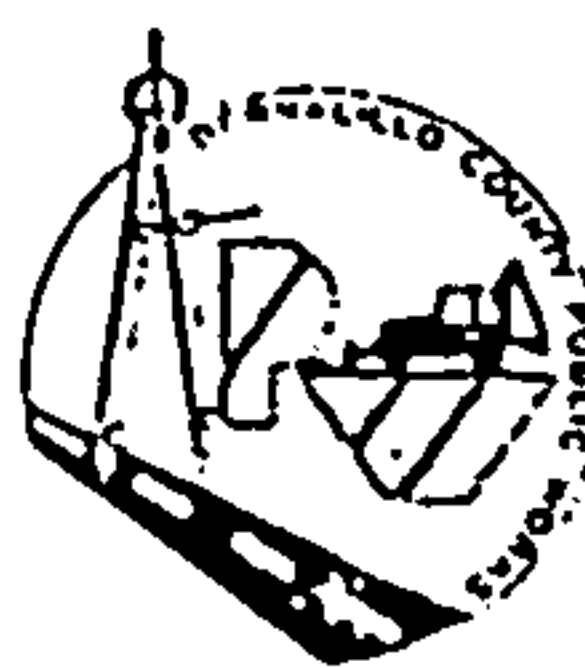


May



96

BERNALILLO COUNTY



PWD SUBMITTAL

Use for all PWD applications EXCEPT Street Excavation

☐ NEW SUBMITTAL

☒ RESUBMITTAL

☐ FINAL SIGNOFF

TODAY'S DATE:

CASE NO: PWD-96-27

OWNER

OWNER Albuquerque Public Schools	PHONE (505) 242-5864
MAILING ADDRESS 915 Oak SE	CITY Alb ZIP 87106

AGENT

AGENT / CONTRACTOR Leedshill-Herkenhoff, Inc.	PHONE (505) 247-0294		
MAILING ADDRESS P.O. Box 1217	CITY Alb ZIP 87103		
STATE LICENSE NO.	EXP DATE	VOLUME	CLASS
ARCHITECT/ENGINEER Tom Blaine, P.E.	LICENSE NO. 8581	PHONE (505) 247-0294	

SITE INFORMATION

SITE ADDRESS / DIRECTIONS 1920 Byron Avenue, Albuquerque	ZONE ATLAS NO.: M-12-Z
Kit Carson Elementary School	
LEGAL DESCRIPTION Tract 198A 1 B MRGCD Map #43	
	LOT SIZE:
EXISTING BUILDING(S) AND USE: Main Building - Classrooms	PROPOSED BUILDING(S): Gymnasium and Classrooms
UPC #	

TYPE OF SUBMITTAL

- | | |
|---|--|
| ☐ REPLAT | ☐ TRAFFIC IMPACT ANALYSIS / TRAFFIC STUDY |
| ☐ MINOR SUBDIVISION | ☐ INFRASTRUCTURE LIST / DESIGN REVIEW |
| ☐ MAJOR SUBDIVISION | ☐ SPECIAL USE PERMIT |
| ☐ CONSTRUCTION DRAWINGS | ☐ BARRICADING PERMIT |
| ☒ GRADING & DRAINAGE PLAN | ☐ BUILDING PERMIT |
| ☐ AS-CONSTRUCTED GRADING & DRAINAGE PLAN | ☐ INSPECTION |
| ☐ VARIANCE REQUEST | ☐ OTHER (Specify): |
| ☐ LAND DIVISION | |

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings, shall not be interpreted to be a permit for, or an approval of any variance or violation of any of the provisions of any COUNTY or STATE codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized COUNTY representative or COUNTY inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any COUNTY or STATE codes, ordinances, standards, or policies.

APR 23 1996

☐ Owner ☒ Agent ☐ Contractor

Signature

Tom Blaine

Date

4-12-96

COUNTY

BERNALILLO COUNTY USE ONLY	
C/R's:	TOTAL FEE:
	Receipt No.:
	Received By:



County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

BOARD OF COUNTY COMMISSIONERS

ALBERT "AL" VALDEZ, CHAIRMAN
DISTRICT 2
KEN SANCHEZ, VICE CHAIR
DISTRICT 1
EUGENE M. GILBERT, MEMBER
DISTRICT 3
BARBARA J. SEWARD, MEMBER
DISTRICT 4
LES HOUSTON, MEMBER
DISTRICT 5
JUAN R. VIGIL, COUNTY MANAGER

DAVID K. ANDERSON, ASSESSOR
JUDY D. WOODWARD, CLERK
THOMAS J. MESSALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
H. R. FINE, TREASURER

RECEIVED

APR 02 1996

LEEDSHILL-HERKENHOFF, INC.
ALBUQUERQUE

Date: 28-MAR-96

Subject: Submittal

Case No.: PWD-96-27

Zone Map No.: M-12

Street Address: 1920 BYRON SW

Legal Description: TR 198-A-1-B MRGCD 43

Name of Applicant: Leedshill-Herkenhoff

Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS** for review and comment of submittal and resubmittals, and **ONE WEEK** for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR

COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete pages one and two of this application for review of your case. Submit THREE blueines of plat, drawings, or information with case submittals and THREE blueines of plat, drawings, or information along with the original mylar for final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

____ OWNER _____ SURVEYOR _____ AGENT
____X____ ENGINEER _____ DRAINAGE ENGINEER

b. Date of this application: 22-FEB-96

c. Signature of applicant:

(print) _____ (sign) _____

d. OWNER: Albuquerque Public Schools PHONE: 242-5865
915 Oak SE
Albuquerque, NM 87106

e. AGENT: Leedshill-Herkenhoff Inc PHONE: 505-247-0294
500 Copper Ave NN PO Box 1217
Albuquerque, NM 87103

f. OTHER(specify): Leedshill-Herkenhoff Inc PHONE: 505-247-0294
500 Copper Ave NN PO Box 1217
Albuquerque, NM 87103

2. TYPE OF SUBMITTAL (check one):

____ REPLAT
____ LAND DIVISION (MINOR SUBDIVISION)
____ MAJOR SUBDIVISION
____ CONSTRUCTION DRAWINGS
____X____ GRADING/DRAINAGE PLAN
____ AS-CONSTRUCTED GRADING/DRAINAGE PLAN
____ VARIANCE REQUEST
____ TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
____ INFRASTRUCTURE LIST/DESIGN REVIEW FEE
____ OTHER (specify): _____

County of Bernalillo

Your: ☒ submittal of drainage information
☐ resubmittal of drainage information

is: ☐ approved.
☐ approved with comments/conditions.
☐ disapproved.
☒ deferred to County Floodplain Administrator

TO BE FILLED OUT BY
COUNTY PUBLIC WORKS
DEPARTMENT ONLY

Case review comments are:

☒ attached.
☐ not attached.
☐ not attached. See remarks below.

Resubmittal is:

☐ not required.
☒ required. When resubmitting, please use Resubmittal Form.

Please submit:

☒ grading/drainage plan with revisions.
☐ as-constructed grading/drainage plan.
☐ other: _____

It is required that:

☐ Bernalillo County Public Works Department inspect improvements prior to final sign-off of plat.
☐ Bernalillo County Public Works Department signature line be placed on plat.

Remarks: _____

Tom Blaine, PE 3/27/96

Molzen-Corbin & Assoc., for
County Surface Water Hydrologist
Bernalillo County Public Works Department

cc: ☐ Sandia Heights Homeowners Association
☒ Owner: APS Dept. of Facilities, Planning & Construction
☒ Agent: Tom Blaine
☒ Case File: PWD-96-27
☒ Susan Calongne, County Floodplain Administrator, COA
☒ Molzen-Corbin & Associates
☐ Other: _____

DRAINAGE INFORMATION SHEET

PWP 96-27

PROJECT TITLE: Kit Carson Master Plan ZONE ATLAS/DRNG.FILE #: M-12 / 107

DRB #: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tract 198A 1B MRGCD MAP #43

CITY ADDRESS: 1920 Byron Avenue

ENGINEERING FIRM: Leedshill-Herkenhoff, Inc. CONTACT: Tom Blaine, P.E.

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

OWNER: Albuquerque Public Schools CONTACT: Gerry Brown

ADDRESS: 915 Oak SE, Alb., NM 87106 PHONE: (505) 242-5864

ARCHITECT: Leedshill-Herkenhoff, Inc. CONTACT: John Jarrard

ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294

SURVEYOR: Wilson & Company CONTACT: Bill Brewster

ADDRESS: 4775 Indian School Rd., NE PHONE: (505) 254-4000

Albuquerque, NM 87110

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☒ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETINGS:

- ☒ YES
- ☐ NO
- ☒ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S.DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY APPROVAL
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS

☒ OTHER Master Grading & Drainage Plan (SPECIFY)

DATE SUBMITTED: April 1996

BY: Tom Blaine



County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

BOARD OF COUNTY COMMISSIONERS

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DISTRICT 2

KEN SANCHEZ, VICE CHAIR
DISTRICT 1

EUGENE M. GILBERT, MEMBER
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BARBARA J. SEWARD, MEMBER
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JUAN R. VIGIL, COUNTY MANAGER

DAVID K. ANDERSON, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESCALL, PROBATE JUDGE

JOE BOWDICH, SHERIFF

H. R. FINE, TREASURER

March 25, 1996

Tom Blaine, P.E.
Leedshill-Herkenhoff, Inc.
P.O. Box 1217
Albuquerque, New Mexico 87103

RE: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR KIT CARSON MASTER PLAN
(M12/D7) (PWD-96-27) SUBMITTED FOR MASTER PLAN APPROVAL, ENGINEER'S
STAMP DATED 2/9/96.

Dear Mr. Blaine:

This letter consists of a compilation of my comments along with those of Bernalillo County Public Works. Prior to approval of the above referenced Master plan, please address the following comments:

1. Will the proposed grading properly convey the on-site flows to the ponds? Please show a cross-section and capacity calculations for the swale on the east side of the property that is used to divert the flows to the ponds.
2. Each pond shall have a designated private drainage/access easement or drainage covenant that assures the public sector the right to maintain the facility if required by emergency or non-maintenance by the property owner.
3. It appears that the proposed ponds do not have a spillway. County Ordinance 90-6 states that all retention facilities shall have a designated overflow spillway. The overflow spillway should as a minimum be capable of safely discharging the runoff entering the facility from a 100-year design storm. Please address.
4. Please provide a comparison of the runoff volumes for existing and proposed conditions. Proposed ponding should be able to accommodate the existing floodplain volume plus the volume generated due to development of the site. The report states that the area of the existing floodplain is 5.52 acres. Is this the total floodplain area on this site only? Using the existing topography, what is the volume when this floodplain is at elevation 4936? This is the volume that must be ponded along with the developed runoff.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Kit Carson Master Plan ZONE ATLAS/DRNG.FILE #: M-12/107
DRB #: N/A EPC #: N/A WORK ORDER #: N/A
LEGAL DESCRIPTION: Tract 198A 1B MRGCO MAP #43
CITY ADDRESS: 1920 Byron Avenue
ENGINEERING FIRM: Leedshill-Herkenhoff, Inc. CONTACT: Tom Blaine, P.E.
ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294
OWNER: Albuquerque Public Schools CONTACT: Gerry Brown
ADDRESS: 915 Oak SE, Alb., NM 87106 PHONE: (505) 242-5864
ARCHITECT: Leedshill-Herkenhoff, Inc. CONTACT: John Jarrard
ADDRESS: P.O. Box 1217, Alb., NM 87103 PHONE: (505) 247-0294
SURVEYOR: Wilson & Company CONTACT: Bill Brewster
ADDRESS: 4775 Indian School Rd., NE PHONE: (505) 254-4000
Albuquerque, NM 87110
CONTRACTOR: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☒ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER

PRE-DESIGN MEETINGS:

- ☒ YES
☐ NO
☒ COPY PROVIDED

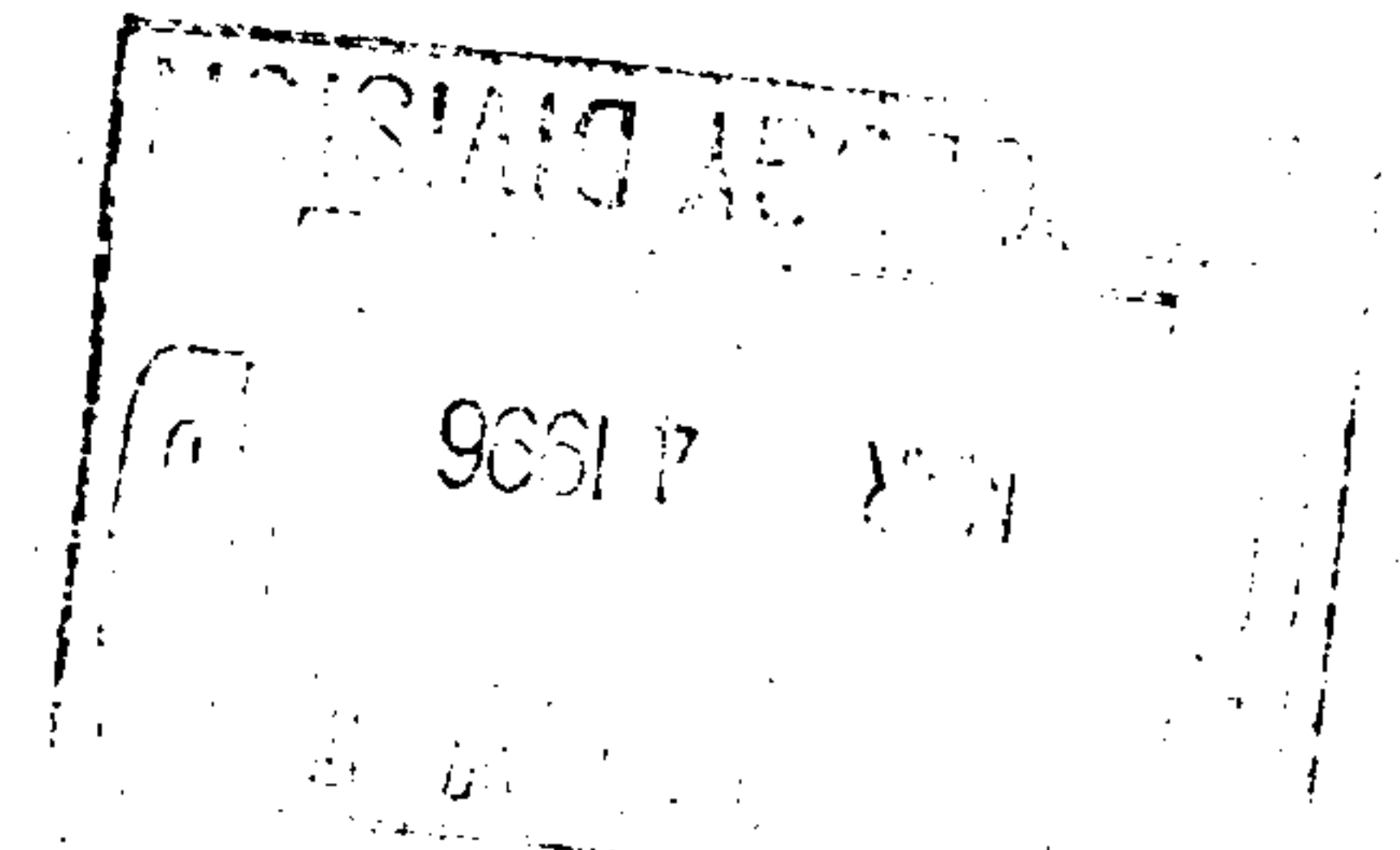
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☐ S.DEV. PLAN FOR SUB'D. APPROVAL
☐ S.DEV. PLAN FOR BLDG. PERMIT APPROVAL
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☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS

☒ OTHER Master Grading & Drainage Plan (SPECIFY)

DATE SUBMITTED: FEB 1996

BY: Tom Blaine



X 2701 Miles Road Southeast, Albuquerque, NM 87106
505-242-5700

☐ 205 West Boutz Number 4, Suite Number 5, P.O. Box 1360, Las Cruces, NM 88004
505-525-2397

TO City/County Building
5th and Marquette, Room 301
(505) 768-2650

DATE	Feb. 26, 1996	JOB NO.
ATTENTION	Floodplain Administration	
RE:	Drainage Reviews	

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

[illegible]

☐ For approval ☒ For your use ☐ As requested ☐ For review and comment

☐ Other _____

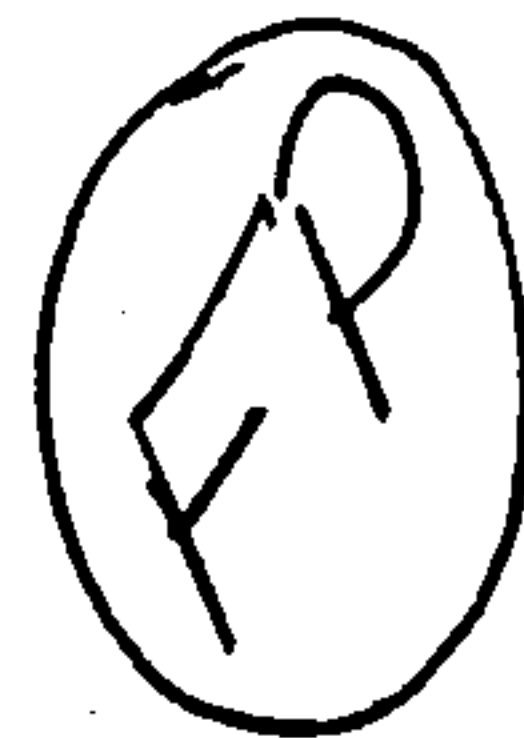
REMARKS.

COPY TO

SIGNED

If enclosures are not as noted, kindly notify us at once.

CASE #



Two - AL - 27

M-12, T. 198A 1B MRBCD MAP# 43

DRAN-_____

DRE - A

INSP - A

PLAN - A

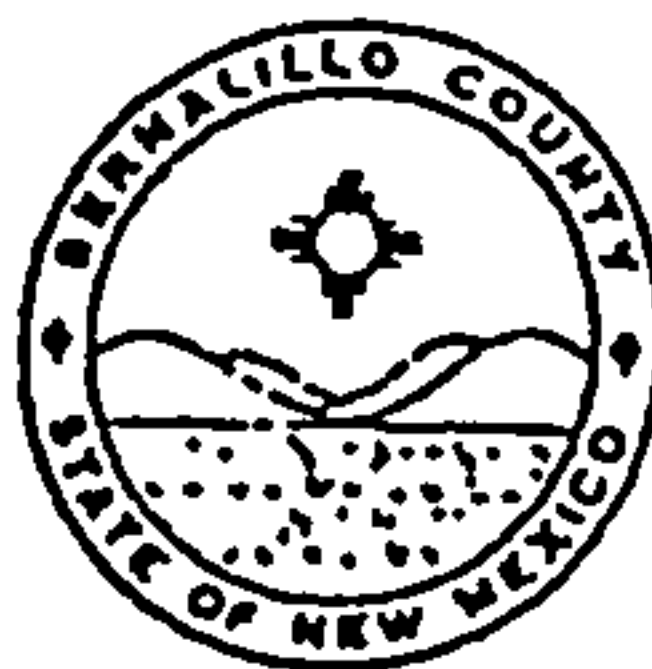
Original F.P.A.

2-26-96 2-26-96

DUE DATE

15 - MAR - 96

MAR 1 1996



BOARD OF COUNTY COMMISSIONERS

PATRICK J. BACA, CHAIRMAN
DISTRICT 1

JACQUELYN SCHAEFER, VICE CHAIR
DISTRICT 2

ALBERT "AL" VALDEZ, MEMBER
DISTRICT 3

EUGENE M. GILBERT, MEMBER
DISTRICT 3

BARBARA J. SEWARD, MEMBER
DISTRICT 4

JUAN R. VIGIL, COUNTY MANAGER

County of Bernalillo

State of New Mexico

2400 BROADWAY S.E.

ALBUQUERQUE, NEW MEXICO 87102

ADMINISTRATION (505) 768-4000

COMMISSION (505) 768-4217

MARK J. CARRILLO, ASSESSOR

JUDY D. WOODWARD, CLERK

THOMAS J. MESSALL, PROBATE JUDGE

RAY GALLAGHER, SHERIFF

H. R. FINE, TREASURER

INCOMPLETE APPLICATIONS WILL BE RETURNED BUT WILL NOT BE REVIEWED

Date: 2/9/96

Subject: Submittal X
Resubmittal
Final Sign-off

Case No.: PWD 46-27

Zone Map No.: M-12

Street Address: 1920 Byron Avenue SW, Albuquerque, NM 87105

Legal Description: Tract 198A 1B MRGCD MAP #43

Name of Applicant: Leedshill-Herkenhoff, Inc.

Dear Applicant:

Bernalillo County Public Works Department will require TWO WEEKS for review and comment of submittal and resubmittals, and ONE WEEK for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

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REV 1-25-91 MJG

96617 MAR 4 1996

COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete the following application for review of your case. Submit THREE blueines of plat, drawings, or information with case submittals and THREE blueines of plat, drawings, or information with final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

OWNER SURVEYOR AGENT
☒ ENGINEER ☒ DRAINAGE ENGINEER

b. Date of this application: 2/9/96

c. Signature of applicant:

(print) Tom Blaine, P.E. (sign)

d. OWNER: Albuquerque Public Schools PHONE: (505) 242-5865

Department of Facilities, Planning and Construction
ADDRESS: 915 Oak, SE, Albuquerque, NM

ZIP CODE: 87106

e. AGENT: Gerry Brown PHONE: (505) 242-5865

ADDRESS: 915 Oak, SE, Albuquerque, NM

ZIP CODE: 87106

f. OTHER(specify): PHONE:

ADDRESS:

ZIP CODE:

2. TYPE OF SUBMITTAL (check one):

REPLAT
LAND DIVISION (MINOR SUBDIVISION)
MAJOR SUBDIVISION
CONSTRUCTION DRAWINGS
☒ GRADING/DRAINAGE PLAN
AS-CONSTRUCTED GRADING/DRAINAGE PLAN
VARIANCE REQUEST
TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
INFRASTRUCTURE LIST/DESIGN REVIEW FEE
OTHER (specify):



LEEDSHILL - HERKENHOFF, INC.
Copper Square
P.O. Box 1217
Albuquerque, New Mexico 87103

LETTER OF TRANSMITTAL

PROJECT: KIT CARSON MASTER PLAN
(name, address)

LEEDSHILL - HERKENHOFF, INC.
PROJECT NO: 95023-12

TO: COUNTY PWD
BROADWAY BLVD.
ALBUQUERQUE, NM

DATE: 22 FEB 96

ATTN: ROGER PAUL, 848-1515

If enclosures are not as noted, please
inform us immediately.

If checked below, please:
() Acknowledge receipt of enclosures.
() Return enclosures to us.

WE TRANSMIT:

☒ herewith () under separate cover via _____
() in accordance with your request _____

FOR YOUR:

() approval () distribution to parties
☒ review & comment () record
() use _____

THE FOLLOWING:

☒ Drawings () Shop Drawings
() Specifications () Estimates
() Contract Documents _____
() Change Orders _____

COPIES	DATE	REV.NO.	DESCRIPTION	ACTION CODE
<u>4</u>	<u>2/1996</u>		<u>KIT CARSON MASTER DRAINAGE PLAN</u>	

ACTION CODE A. Action indicated on item transmitted
B. No action required
C. For signature and return to this office

D. For signature and forwarding as noted below under REMARKS
E. See REMARKS below

REMARKS Please call if you have questions.
Thank you

COPIES TO: _____ (with enclosures)

_____	☐
_____	☐
_____	☐
_____	☐
_____	☐
_____	☐
_____	☐

BY: Karen M. Jacobson