HYDROLOGY K22/D3 APACHE ELEMENTARY SCHOOL

K22/D3

APACHE ELEMTARY SCHOOL

2 PLANS

RETURN WITH PLANS 11-24-78

920
-1-B-13200 PAWNEE N.C

STANDARD REQUIREMENTS FOR DRAINAGE PLANS

PURPOSE: The increasing volume of drainage plans submitted to this office makes it mandatory that such plans be standardized as much as possible in order to expedite reviews. This standardization is as much to the advantage of the developer and engineer as it is to the Hydrology Section which enforces the AMAFCA RES. 72-2. For parcels of land less than 20,000 sq. ft. in surface area no formal drainage report is required; the construction plans need only to include the standard form attached herein and the site drainage plan. Developers for larger parcels of land will have to submit a formal drainage report as specified in the Resolution.

RUNOFF PONDING: In most instances on site ponding is mandatory, with dispersal in the ground of the excess runoff arising from newly created impervious surfaces. The only exception allowed, is for those properties adjacent to a diversion channel which was designed for higher standard than 100 years frequency storm (existing conditions). For detailed computations of the runoff before and after development the assumed runoff coefficient recommende are C = 0.4 for undeveloped, landscaped or similar open areas and C = 0.9 for all other impervious surfaces, including areas in southwestern type landscaping with underlying polyethylene film and gravel covered parking areas where vehicular traffic will compact the soil and render it impervious. Due to the inadequacy of the existing drainage facilities in the valley area and to the limited capabilities of the City for providing relief, ponding requirements in the valley are higher than elsewhere.

COMPUTATION OF VOLUME OF RETENTION:

Valley Area $= 1.0 \times \frac{2.2''}{12''} \times \text{Area (ft.)} = 0.18 \times A$

East and West Mesa $= (0.9 - 0.4) \times \frac{2.4''}{12''} \times \text{Area (ft.)} = 0.1 \times A$

In order to facilitate the design of drainage facilities, a checklist that will be followed in the review process is listed below:

CHECK LIST

1 - Flooding potential - adjacent water courses

no Is property located in the flood plain? K-22-2 FHBM 21

If so, is the finished floor above the 100 yrs. flood level?

no Is property adjacent to a natural or artificial water course?

If so, what are the specific AMAFCA or City requirements?

NO Are drainage R.O.W or easements shown on, or in the proximity of property? If so, are there drainage problems?

2 - Relation of property to surroundings

yes Per topo map, does property intercept other drainage upstream?

If so, how is runoff conveyed across property?

May there be erosion associated with offsite runoff conveyance?

May erosion or siltation result from proposed construction activities?

Does development block drainage from adjacent property?

3 - Site grading

no Does site plan show contours before development (extending a minimum of 25 ft. beyond property lines)?

Does site plan show proposed grading with adequate swale definition to convey water to ponds?

Is all runoff conveyed to ponding areas before it overflows to public facilities?

Does the proposed grading plan indicate that under cutting or back-filling adjacent to property lines may require retention walls?

Is there continuity between proposed new contours and old contours offsite?

no Is elevation of property line at least 0.3 ft. above top of curb?

4 - Storm water retention

NO Is ponding volume adequate (supply detailed computation)?

NO Are ponds balanced with areas they drain (can area draining to each pond be easily identified and will actually water flow there)? The plot plan must outline each drainage area.

YES Can pond volume be computed and verified?

Are ponds practical, can they be built as shown?

5 - Safety

Do the drainage provisions constitute an attractive nuisance, or safety hazard?

If the pond depth is greater than 18",are safety provisions supplied? (Minimum 3.0 ft. high chain link fence or similar physical barrier of ponding areas are adjacent to public R.O.W.?)

In general, ponds of depth greater than 18" will not be accepted for both safety consideration and for long term effectiveness of the facilities. In those cases where limited space is available for ponding, the use of gravel pits under the parking areas is suggested. It must be pointed out that mainstream and effectiveness of these facilities is necessary and is the responsibility of the owner. Existing or planned City facilities (streets, channels, storm sewers) can accommodate the natural runoff volumes. Greater discharges would cause flooding downstream and need to be limited at the source.

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

CITY OF ALBUQUERQUE DRAINAGE REPORT

ZONE ATLAS NO.	NAME OF CONSTRUCTION	OBSERVER	DATE OBSERVED
K-22	Apartment Complex	William R. Reavis	3-27-79
ADDRESS: 9[illegible] Juanita N.E.			

Reason for Field Check: For the drainage inspection on the apartment complex.

FINDINGS AND CONCLUSION: There is two landing areas one on the north side of the property and the other one on the south side of the bldg. All bldg have the right direction the water from the parking lot goes to the street.

FOLLOW UP ACTION REQUIRED: No follow-up will be needed because this bldg is partial.

SKETCH:

William R. Reavis
OBSERVER

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2300
ENGINEERS & PHOTOogrammetrists

File

May 30, 1979

Mr. Bruno Conegliano
City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
JUL 02 1979
CITY ENGINEER

Re: Apache Elementary School — Media Center Addition

Dear Mr. Conegliano:

Enclosed herewith please find our application for a interim drainage permit for the media center addition to Apache Elementary Shcool.

As indicated on the application, a pond volume of 350.8 cubic feet is required to retain the excess rainwater volume generated by the addition of the building indicated on the enclosed plan. We propose that a pond be provided as indicated on the enclosed plan view to retain the excess water. Said pond will be of triangular configuration measuring 25 feet on each side when measured at the pond's bottom. This configuration will provide for 425 cubic feet of water, when filled to capacity, which is in excess of what is required. This excess will allow for some collection of silt and debris while still retaining the required volume.

If you have any questions or comments relevant to this matter, please feel free to contact me at any time.

Sincerely,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosures

CC/rv
Job No. 79-107

Submitted 6-29-79

INTERIM DRAINAGE PERMIT
FOR
SINGLE PARCELS UNDER

20,000 SQUARE FEET

Date received _____

Applicant's Name: Albuquerque Public Schools

Address: Bohannan–Huston, Inc. (Agent)

4125 Carlisle Blvd., N.E.

Telephone No.: 881-2000

Signature of Applicant: _____

LOCATION OF PARCEL TO BE DEVELOPED

Lot 22 Block 5

Subdivision Foothill Estates

Street address 12800 Copper Avenue

Current zoning classification R–1

CALCULATIONS FOR SIZING OF RETENTION POND

Area of parcel 3508 square feet

Volume of retention pond storage = 0.1 x Area = 0.1 x 3508 = 350.8 cub.ft

ATTACHMENTS

1. Copy of page K–22 of zoning atlas (color in parcel).

2. Print of drainage plan (show bench marks referenced to mean sea level, existing contours and proposed contours, spot elevations and dimensions to verify adequacy of ponds and swales, and to insure site storm drainage is properly conveyed to the retention area, proposed improvements, and nearest storm drainage facilities.)

3. Does any storm water from adjacent properties now or in the future enter this parcel

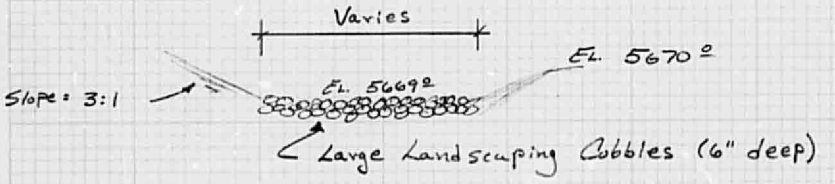
_____ yes X no If answer is "yes" attach an explanation of how off site flows will be handled.

Apache Elementary School
Media Center Addition

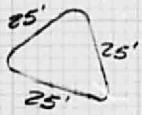
Parcel Area = 3508 Ft^2

Required Pond Volume = 350.8 Ft^3

Typical Pond Cross-Section



Pond Volume:

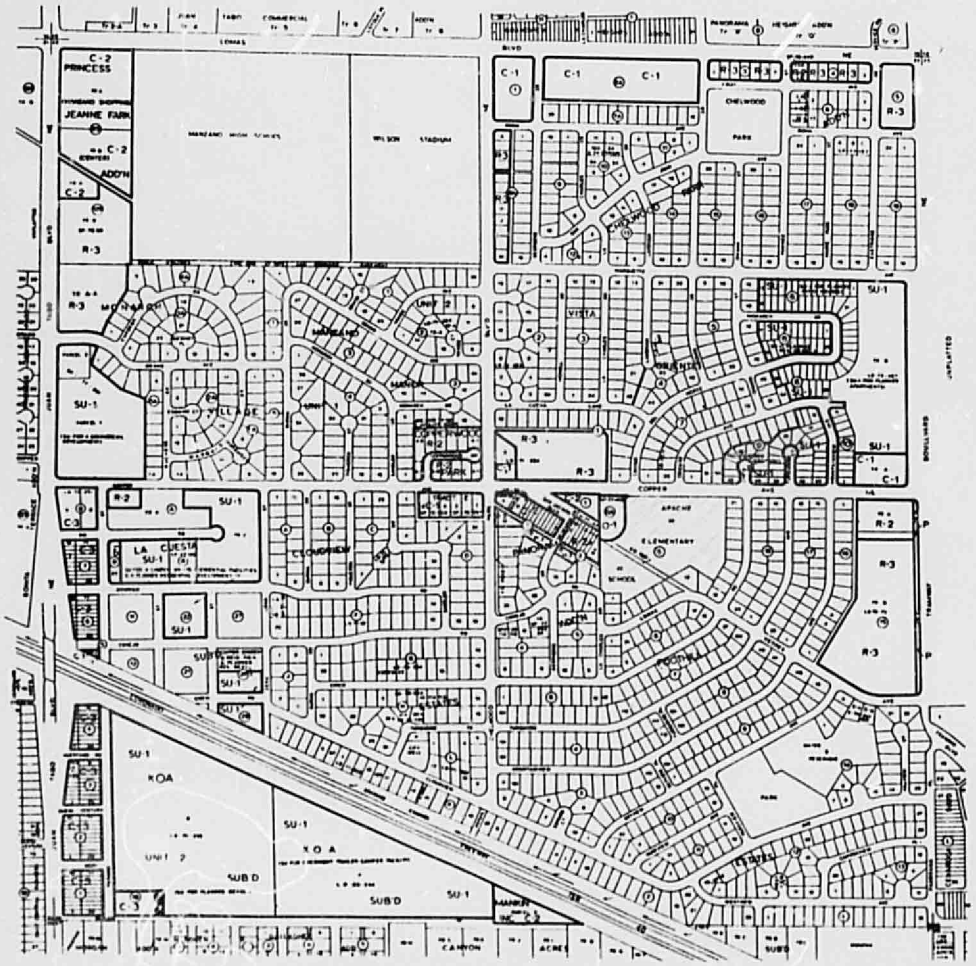


Base Area Perimiter Area

$V = [\frac{1}{2}(25 \times 25) + 75(1.5)] \times 1.0$ (max depth)

$= 425\ Ft^3$

PROJECT NAME ____ SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____



THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

Drainage
Apache

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
David Rusk

July 13, 1979

Mr. Michial Emery
Bohannan-Huston Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, N.M. 87107

Re: Apache Elementary School

Dear Mr. Emery:

In reference to the captioned project I am in agreement with the proposed solution. Please supply with the construction plans sufficient details for the proper construction of the proposed facilities and of the conveyance of the runoff to the pond.

Very truly yours,

Bruno Conegliano
Assistant City Engineer, Hydrology

BC/ms

cc: Richard Heller, City Engineer
E. H. Blumenthal, Jr. - APS
Fred Aguirre, Ass't. Hydrology Engineer
Richard Leonard, AMAFCA
Drainage file

AN EQUAL OPPORTUNITY EMPLOYER

10133

INFORMATION SHEET

PROJECT TITLE Apache Elem. School TYPE OF SUBMITTAL Grading & Drainage Plan

ZONE ATLAS PAGE NO. K-22 ~~K-3~~ CITY ADDRESS 12800 Copper NE

LEGAL DESCRIPTION? _____

ENGINEERING FIRM Tom Mann & Assoc. CONTACT Jeffrey G. Mortensen

ADDRESS 811 Dallas NE PHONE 255-5611

OWNER APS CONTACT Bill McMillin

ADDRESS _____ PHONE 242-5865

ARCHITECT Bland & Assoc CONTACT Carl Fullmer

ADDRESS _____ PHONE 294-1448

SURVEYOR Tom Mann CONTACT J.G. Mortensen

ADDRESS _____ PHONE _____

CONTRACTOR Not Known CONTACT _____

ADDRESS _____ PHONE _____

PRE-DESIGN MEETING:

✓ YES
___ NO
✓ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

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

RECEIVED NOV 0 1984 HYDROLOGY SECTION

DATE SUBMITTED: 01/30/84

BY: J.G. Mortensen

new report

10123

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. _____ DATE: 10/19/83

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: Apache Echo (K22)

ATTENDANCE: WHO	REPRESENTING
Fred J. Aguirre	
Jeff Mortensen	

FINDINGS:

1. Drainage Plan Required (Comprehensive)
2. Controlled discharge required because of erosion and positive flow v.s. immediately downstream of the school site.
3.

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

SIGNED: Fred Aguirre	SIGNED: Jeffrey G. Mortensen
TITLE:	TITLE: PROJECT ENGINEER
DATE: 10/19/83	DATE: 10-19-83

$Q_p = Q_{100} = 1.0$ cfs

$V_{100} = 1780$ cf

$V_1 = \frac{1}{2}(T_c)(Q_p) = 300$ cf

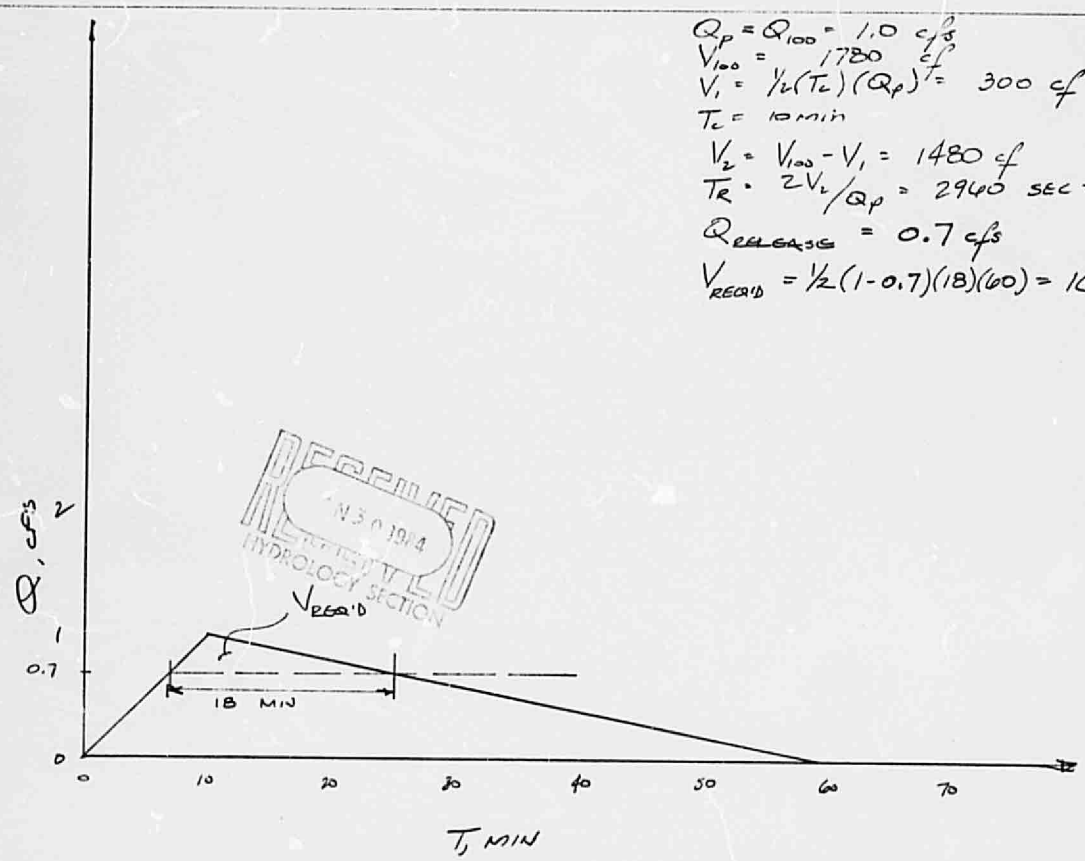
$T_c = 10$ min

$V_2 = V_{100} - V_1 = 1480$ cf

$T_R = 2V_2/Q_p = 2960$ sec $= 49$ min

$Q_{RELEASE} = 0.7$ cfs

$V_{REQ'D} = \frac{1}{2}(1-0.7)(18)(60) = 160$ cf ±



JAN 30 1984
HYDROLOGY SECTION

APACHE ELEM.

BASIN 1-B

1033
01/26/84
JGM

1/4

@ T = 18 MIN & Q = 7 cfs,
V = 3780 (NG.)
@ V = 4900 cf & Q = 6.8 cfs,
T = 24 MIN.

$Q_p = Q_{10} = 8.3$ cfs

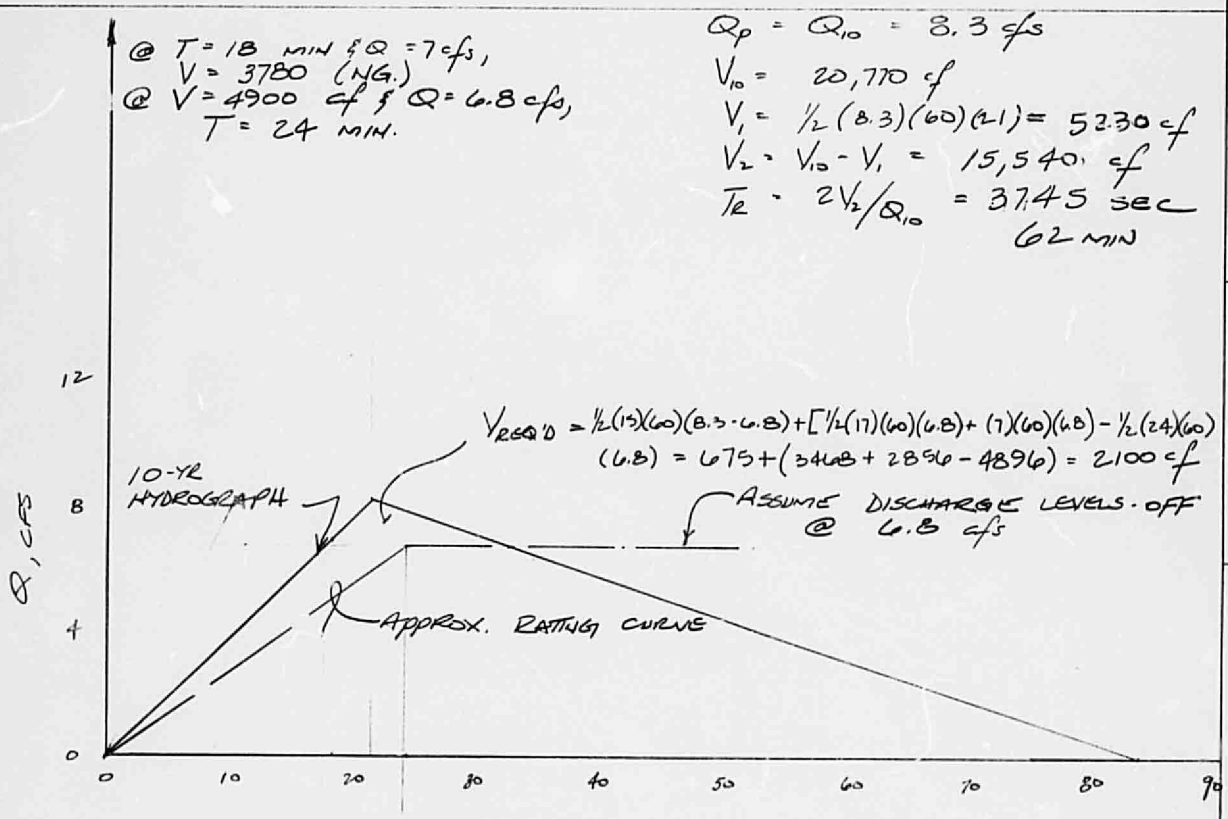
$V_{10} = 20{,}770$ cf

$V_1 = \frac{1}{2}(8.3)(60)(21) = 5230$ cf

$V_2 = V_{10} - V_1 = 15{,}540$ cf

$T_R = 2V_2/Q_{10} = 3745$ sec
62 MIN

$V_{REQ'D} = \frac{1}{2}(15)(60)(8.3-6.8) + [\frac{1}{2}(17)(60)(6.8) + (7)(60)(6.8) - \frac{1}{2}(24)(60)(6.8) = 675 + (3468 + 2856 - 4896) = 2100$ cf



BASIN 2

2/4

RATING OF SED. BASIN DISCHARGE

ELEV	VOL	Q, cfs
49.0	800	0
50.0	4900	6.8
50.50	7660	

@ ELEV 50.0 (6 openings)

$Q = CA\sqrt{2gh}$ = 1.13 cfs / opening

$C = 0.8$

$A = 6'' \times 6'' = 0.25$ sf

$g = 32.2$ ft/sec²

$h = 0.5'$

$Q_{50} = 6(1.13) = 6.8$ cfs

@ ELEV 50.50

$3(1.13) = 9.0$

PLUS $6 \times \left[0.25(0.8)\sqrt{2(32.2)(1)}\right] = 9.6$

$Q_T = 9 + 9.6 = 18.6$ cfs.

LONGEST PATH OF FLOW

= 1,145 LF

V=

$S_1 = \frac{8463 - 81}{160} = 0.0229$ $\qquad V_1 = 0.65$ ft/sec

$T_1 = \frac{160 \text{ ft}}{0.65 \text{ ft/sec}} = 246$ sec

$S_2 = \frac{81-79}{180'} = 0.0111$ $\qquad V_2 = 0.57$ ft/sec

$T_2 = \frac{180 \text{ ft}}{0.57 \text{ ft/sec}} = 315.8$ sec

$S_3 = \frac{2}{65} = 0.031$ $\qquad V_3 = 1.05$ ft/sec

$T_3 = \frac{65}{1.05 \text{ ft/sec}} = 61.9$ sec

$S_4 = \frac{77-76.59}{38'} = 0.01$ $\qquad V_4 = 0.57$ ft/sec

$T_4 = \frac{38}{0.57} = 66.7$ sec

$S_5 = \frac{76.59-74.8}{35} = 0.051$ $\qquad V_5 = 1.15$ ft/sec

$T_5 = \frac{35}{1.15} = 30.4$ sec

$S_6 = \frac{74.8-48.2}{605} = 0.044$ $\qquad V_6 = 1.15$ ft/sec

$T_6 = \frac{605}{1.15} = 526.1$ sec

$\Sigma T = 1247$ sec $\Rightarrow 20.78 \Rightarrow$ 21 min

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

February 20, 1984

Mr. Jeffrey Mortensen
Tom Mann & Associates
811 Dallas NE
Albuquerque, NM 87110

REF: GRADING AND DRAINAGE PLAN FOR THE IMPROVEMENTS TO APACHE ELEMENTARY SCHOOL (K22-D3) RECEIVED JANUARY 30, 1984

Dear Mr. Mortensen:

The above referenced plan, dated January 30, 1983, is approved.

Please attach a copy of this plan along with the appropriate, approved "Construction Within Public R/W" document to the construction set prior to issuance of the building permit.

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

Sincerely yours,

Billy J. Goolsby

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

BJG:mrk

File Copy

811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 • 505-265-5611

Tom Mann Associates, Inc.
Engineers

10132
June 27, 1983

K22-D3

Mr. Fred Aguirre, P.E.
Civil Engineer/Hydrology
City of Albuquerque
P.O. BOX 1293
Albuquerque, New Mexico 87103

RE: Apache School Drainage Concerns

Dear Fred:

As you may know, a meeting was held at the subject school site on June 24, 1983 concerning several drainage problems. Present at this meeting were Mr. Bernie Montoya from your office, Mr. Mike Jacques, Albuquerque Public Schools M & O, Mr. Tom Mann, Tom Mann & Associates, and myself. We observed the potential problem areas and discussed possible solutions to those problems. The following conclusions resulted from the meeting:

1. The storm of August, 1980 which created problems for several of the homeowners situated downstream from the school site was not solely the responsibility of APS. It is known that during that storm, water flowing within Copper Street was not confined to the street itself and, in fact, overflowed. The water which overflowed the street, combined with runoff generated by the school site, appears to have flowed in a southwesterly direction toward the downstream residential area. Although none of us had actually observed the storm, it is believed that these combined waters are what caused the alleged damage.

2. The sediment problem which occurred at the end of last summer was caused by a storm which occurred while a playground regrading and devegetation project was in progress. The contractor performing the work for APS had deposited a pile of debris composed of soil and weeds at the downhill side of the school site. Before the contractor collected this material and hauled it away, a rain storm occurred which washed that material into Conejo Street. This problem would not have occurred had it not been for the untimely occurrance of the storm.

3. It was acknowledged that an erosion problem to some degree does exist on the school site. This is due largely to the fact that the majority of the school site is composed of an unpaved sandy soil. APS has requested that Tom Mann & Associates prepare a plan to check the erosion from the site at the southwest corner of the site.

4. APS will regrade the berm at its westerly boundary to insure that runoff flowing from east to west will be intercepted by the berm and conveyed to the southwest corner of the site where the water will pass through the desilting structure and drop its sediment load prior to exiting the site.

5. Mr. Montoya intends to have a representative of your office monitor the performance of these proposed modifications to the subject school site. This will enable all concerned to judge the adequacy of the proposed improvements as well as insure that further problems do not occur.

If you have any questions or comments concerning this information, or if I can be of further service to you, please do not hesitate to call.

Sincerely,

TOM MANN & ASSOCIATES, INC.

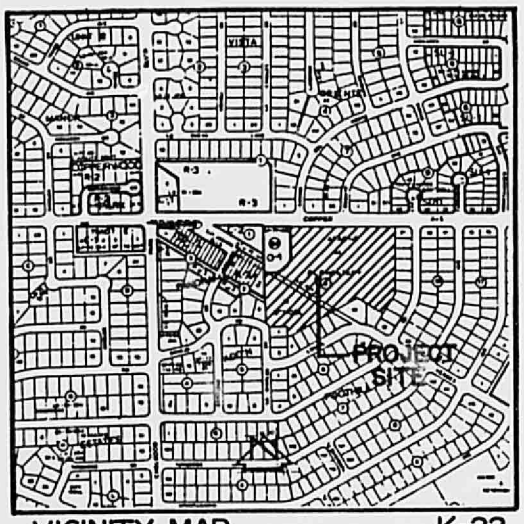
Jeffrey G. Mortensen, P.E.
Project Engineer

JGM:kf
cc: Mike Jacques

CITY OF ALBUQUERQUE

Jerry

DRAINAGE FACILITIES WITHIN CITY RIGHT·OF·WAY



VICINITY MAP K-22

SCALE: 1" = 800'

K22-D3

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS P. MANN, JR.
3992
LAND SURVEYOR

NOTICE TO CONTRACTOR

1. An excavation/construction permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
2. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with "Public Works Contract No. 84-1".
3. Two working days prior to any excavation, contractor must contact Line Locating Service, 765-1234, for location of existing utilities.
4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
5. Backfill compaction shall be according to ARTERIAL street use.

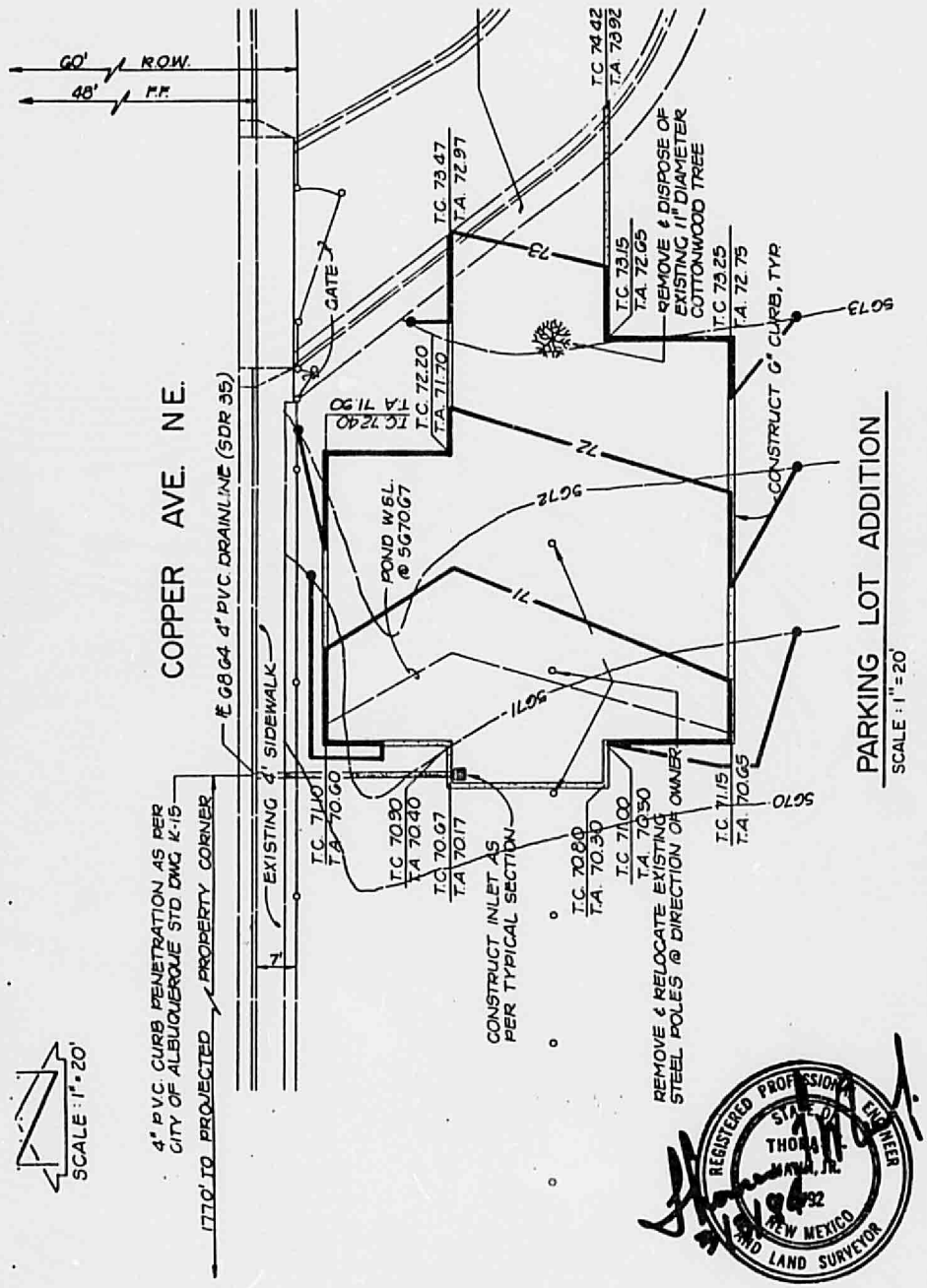
Universal Const D-41

APPROVALS	NAME	DATE	TITLE: CURB PENETRATION APACHE ELEMENTARY SCHOOL 12800 COPPER AVE. N.E.	
A.C.E./DESIGN	[illegible]	6 Nov 84		
INSPECTOR	[illegible]	9/28/84	PERMIT NO. 15168	MAP
A.C.E./FIELD	[illegible]	9/28/84	SHEET 1 OF 2	NO. K-22

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



APPROVALS	NAME	DATE	TITLE: CURB PENETRATION APACHE ELEMENTARY SCHOOL 12800 COPPER AVE. N.E.	
A.C.E. / DESIGN		6 Mar 87		
INSPECTOR		9/28/87	PERMIT NO. SHEET 2 OF 2	MAP NO. K-22
A.C.E. / FIELD				