CITY OF
Albuquerque
P.O. Box 1293 Albuquerque, NM 87103

June 17, 1996

Martin J. Chávez, Mayor

Joe Kelley, PE
Chavez-Grieves
5639 Jefferson NE
Albuquerque, NM 87109

RE: ENGINEER'S CERTIFICATION FOR SUNSET FARM WEST UNIT 1 (K-12/D22)
RECEIVED MAY 22,1996 FOR FINAL PLAT
ENGINEER'S STAMP DATED MAY 21, 1996

Dear Mr. Kelley:

Based on the information included in the submittal referenced above, City Hydrology accepts the Engineer's Certification for Final Plat.

It is City Hydrology's understanding that Unit 1 has been lowered .44' uniformly.

If I can be of further assistance, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer, Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 94-548
Richard Sanchez, 317 Sunset Rd SW, 87105

DRAINAGE INFORMATION

PROJECT TITLE: Sunset Farm West Subdivision ZONE ATLAS/DRNG. FILE #: K12/D22

DRB#: 94-548 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tracts 15b, 20a, 13b, MRGCD Map No. 39

CITY ADDRESS: 317 Sunset SW

ENGINEERING FIRM: Chavez-Grieves	CONTACT: Joe Kelley
ADDRESS: 5639 Jefferson NE	PHONE: 344-4080
OWNER: Richard R. Sanchez, et al.	CONTACT: Richard Sanchez
ADDRESS: 317 Sunset Rd. SW	PHONE: 839-4273
ARCHITECT: not applicable	CONTACT:
ADDRESS:	PHONE:
SURVEYOR: Albuquerque Surveying Co.	CONTACT: Vladimir Jirik
ADDRESS: 2119 Menaul Blvd, NE	PHONE: 884-2036
CONTRACTOR: not selected	CONTACT:
ADDRESS:	PHONE:

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

DATE SUBMITTED: MAY-21-96

BY: Joe Kelley, P.E.

CHECK TYPE OF APPROVAL SOUGHT:

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

RECEIVED
MAY 22

Q 96095307

PROJECT 5160
ADVISE WHEN KEVIN SIGNS DRAINAGE COVENANT

PRIVATE FACILITY DRAINAGE COVENANT

5356

This Drainage Covenant, between [state the name of the present real property owner exactly as shown on the real estate document conveying title to the present owner and state the legal status of the owner, for example, "single person," "husband and wife," "corporation of the State of _____," "partnership":] John D Sanchez, a single man & Richard R. Sanchez, a single man (Joint Tenants) ("Owner"), whose address is 317 Sunset SW, Albuquerque NM 87105, the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P. O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Owner signs this Covenant.

1. Recital. The Owner is the owner of the following described real property located at [give legal description, and street address:] Lots 1 through 19, Sunset Farm West Subdivision, Unit 1 ** More particularly described on Exhibit "B"

** Proposed Legal Description

in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the Owner is required to construct and maintain certain drainage facilities on the Property, and the parties wish to enter into this Covenant to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facility. The Owner shall construct the following "Drainage Facility" within the Property at the Owner's sole expense in accordance with the standards, plans and specifications approved by the City:

pursuant to Drainage File No K12/D22

The Drainage Facility is more particularly described in Exhibit A attached hereto and made a part hereof.

3. Maintenance of Drainage Facility. The Owner shall maintain the Drainage Facility at the Owner's sole cost in accordance with the approved Drainage Report and plans. See Exhibit "A-1".

4. Benefit to Property. The Owner acknowledges and understands that the Drainage Facility required herein to be constructed on the Owner's property is for the private benefit

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APPROVED AS TO FORM
LEGAL DEPT. 8/19/88

and protection of the Owner's property and that failure to maintain such facility could result in damage or loss to the Property.

5. Inspection of Drainage Facility. The City shall have no duty or obligation whatsoever to perform any inspection, maintenance or repair of the Drainage Facility, it being the duty of the Owner, its heirs, successors and assigns to construct and maintain the facility in accordance with approved plans and specifications.

6. Liability of City. The Owner understands and agrees that the City shall not be liable to the Owner, its heirs, successors or assigns, or to any third parties for any damages resulting from the Owner's failure to construct, maintain or repair the Drainage Facility.

7. Indemnification. The Owner owns and controls the Drainage Facility and shall not permit the Drainage Facility to constitute a hazard to the health or safety of the general public. The Owner agrees to indemnify, defend and hold harmless the City, its officials, agents and employees, from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of the Owner, its agents, representatives, contractors or subcontractors or arising from the failure of the Owner, its agents, representatives, contractors or subcontractors to perform any act or duty required of the Owner herein; provided, however, to the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the respective indemnitee, or the agents or employees of the respective indemnitee; or (2) the giving of or the failure to give direction or instructions by the respective indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

8. Assessment. Nothing in this Covenant shall be construed to relieve the Owner, its heirs, assigns and successors from an assessment against the Owner's Property for improvements to the Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

9. Binding on Owner's Property. The covenants and obligations of the Owner set forth herein shall be binding on the Owner, its heirs, assigns and successors and on the Owner's Property and constitute covenants running with the Owner's

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APPROVED AS TO FORM
LEGAL DEPT. 8/19/88

operty until released by the City. This Covenant can only be released by the City's Chief Administrative Officer with the concurrence of the City Engineer.

10. Entire Covenant. This Covenant contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

11. Changes to Covenant. Changes to this Covenant are not binding unless made in writing, signed by both parties.

12. Effective Date of Covenant. This Covenant shall be effective as of the date of signature of the Owner.

OWNER:

By: Richard R. Sanchez
Its: Owner
Dated: 8/26/96

STATE OF NM
COUNTY OF Bernalillo } ss

This
~~The foregoing~~ instrument was acknowledged before me on
26th day of August, 1996, by [name of person signing:]
Richard R. Sanchez [title or capacity, for instance, "President" or "Owner":] Owner of [name of the entity which owns the Property if other than the individual signing, for instance, the name of the corporation, partnership, or joint venture:] _____.

Notary Public

My Commission Expires:
9-11-2000

CITY OF ALBUQUERQUE:

~~Accepted:~~

By: _____
Title: _____
Dated: _____

[EXHIBIT A ATTACHED]

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APPROVED AS TO FORM
LEGAL DEPT. 8/19/88

Property until released by the City. This Covenant can only be released by the City's Chief Administrative Officer with the concurrence of the City Engineer.

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11. Changes to Covenant. Changes to this Covenant are not binding unless made in writing, signed by both parties.

12. Effective Date of Covenant. This Covenant shall be effective as of the date of signature of the Owner.

OWNER:

By: John D Sanchez
Its: Owner
Dated: 8-26-96

STATE OF NM
COUNTY OF Bernalillo } ss

This
26th ~~The foregoing~~ instrument was acknowledged before me on
day of August, 1996, by [name of person signing:]
John Sanchez, [title or capacity, for instance, "President" or "Owner":] Owner of [name of the entity which owns the Property if other than the individual signing, for instance, the name of the corporation, partnership, or joint venture:] _____.

Notary Public

My Commission Expires:
5-11-2000

CITY OF ALBUQUERQUE:

Accepted:

By: for City Engineer
Title:
Dated: 8-26-96

[EXHIBIT A ATTACHED]

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
1996 AUG 27 PM 2:28
BK-23535-
5322

88F

APPROVED AS TO FORM
LEGAL DEPT. 8/19/96

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

January 3, 1995

Joe P. Kelley, P.E.
Chavez-Grieves, Inc.
5639 Jefferson NE
Albuquerque, N.M. 87109

RE: DRAINAGE REPORT FOR SUNSET FARMS WEST UNIT 1 (K-12/D22)
RECEIVED DECEMBER 12, 1994 FOR FINAL PLAT & GRADING APPROVAL
ENGINEER'S STAMP DATED DEC 2, 1994

Dear Mr. Kelley,

Based on the information included in the submittal referenced above, City Hydrology accepts the Drainage Report and approves this project for Final Plat & Rough Grading Permit.

Engineer's Certification of grading & drainage, per DPM checklist, must be approved before the Financial Guaranty will be released.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 94-176
Roger Paul, County PWD

DRAINAGE INFORMATION

PROJECT TITLE: Sunset Farm West Subdivision ZONE ATLAS/DRNG. FILE #: K12/D22

DRB#: 94-~~548~~-176 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tracts 15b, 20a, 13b, MRGCD Map No. 39

CITY ADDRESS: 317 Sunset SW

ENGINEERING FIRM: Chavez-Grieves CONTACT: Joe Kelley

ADDRESS: 5639 Jefferson NE PHONE: 344-4080

OWNER: Richard R. Sanchez, et al. CONTACT: Richard Sanchez

ADDRESS: 317 Sunset Rd. SW PHONE: 839-4273

ARCHITECT: not applicable CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Albuquerque Surveying Co. CONTACT: Vladimir Jirik

ADDRESS: 2119 Menaul Blvd. NE PHONE: 884-2036

CONTRACTOR: not selected CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

_X_ DRAINAGE REPORT

_X_ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

_X_ GRADING PLAN

_X_ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

____ OTHER

PRE-DESIGN MEETING:

_X_ 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. PRMT. APPROVAL

____ SECTOR PLAN APPROVAL

_X_ FINAL PLAT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ BUILDING PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

_X_ GRADING PERMIT APPROVAL

_X_ PAVING PERMIT APPROVAL

____ S.A.D. DRAINAGE REPORT

____ DRAINAGE REQUIREMENTS

____ OTHER _____ (SPECIFY)

DATE SUBMITTED: December 9, 1994

BY: Joe Kelley, P.E.

RECEIVED

DEC 12 1994

GRADING AND DRAINAGE PLAN

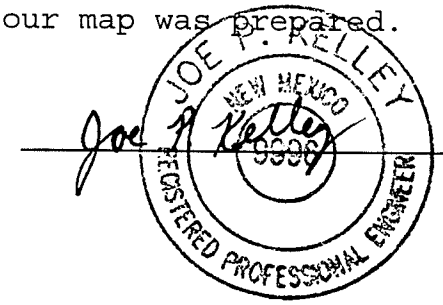
SUNSET FARM -- WEST SUBDIVISION

Units 1 and 2

December, 1994

ENGINEER'S STATEMENT

I certify that I am a Registered Professional Engineer in the State of New Mexico and that this report was prepared by me or under my supervision. I have personally inspected this land, and it appears that no grading, filling, or excavation has occurred thereon since the existing contour map was prepared.



Joe P. Kelley Dec. 2, 1994

LOCATION

This site is located near downtown Albuquerque on the west side of Sunset Road SW, south of Osage Avenue. It is comprised of two tracts of land divided by a Middle Rio Grande Conservancy District (MRGCD) ditch. Units One and Two are both located in Bernalillo County, but only Unit One is located within the Albuquerque City Limits.

LEGAL DESCRIPTION

Two existing parcels of property are on the west side of the MRGCD ditch in the City of Albuquerque. These parcels are Tracts 15B and 20A on MRGCD Map No. 39. They will be replatted into Sunset Farm -West, Unit One (19 lots). The existing parcels on the east side of the MRGCD ditch are Tracts 13B, 13C, and 13D on MRGCD Map No. 39 in Bernalillo County. These will be replatted into Sunset Farm - West, Unit Two (20 lots).

ZONING AND SURROUNDING DEVELOPMENT

Both units are zoned R-1, and will be residentially developed. The surrounding properties are also zoned R-1, and are residentially developed.

FLOOD HAZARD ZONES

As shown by Panel 3500020028 of the National Flood Insurance Rate Maps for the City of Albuquerque, dated October 14, 1983, the site is in a designated flood hazard zone B. Zone B designates "areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than 1 foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood."

Off-site to the south and to the west are two AH flood hazard zones. Zone AH designates "areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined." The zone to the west has a flood water elevation of 4947, while the

one on the south has a flood water elevation of 4946.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The site is in a low-lying area that has no storm drainage systems. In addition, no storm drainage systems have been planned in the area by either the County or the City, so the overall drainage scheme for the area may not change for a long time (if ever). Runoff from storm events in this area ponds in low-lying areas, and is dispersed by means of evaporation and infiltration.

The site has been developed primarily as irrigated farm land. Four houses and one storage shed exist on what will become Unit Two. Unit Two is very flat, and slopes slightly to the south at less than 1/2 percent. Unit One is also very flat, and slopes slightly to the southeast at less than 1/2 percent.

Two existing 24" culverts cross Sunset Road on the east side of Unit Two. These culverts permit the discharge of water across Sunset Road without overtopping the pavement. The bar ditches along Sunset Road are cut down below the level of the existing ground in Unit Two, and the contour map shows that they intrude slightly onto private property. However, the adjacent higher farmed surfaces of Unit Two are not used for the storage storm runoff.

Off-site runoff from Lots 28, 29, and 30 of the Juan B. Perea Addition (just north of Unit 2) drains across this site to lower ground east and south of Unit 2.

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

The Arenal Ditch, which is owned by the MRGCD, bisects the site. The ditch is higher than the adjacent farm land that it used to irrigate. Road and utility crossings of the ditch are proposed with this development, as well as the removal of a check structure and irrigation valve on the ditch. The MRGCD has given its verbal agreement to these items of work on the ditch, and license agreements are currently being processed by the MRGCD to legally allow the work to take place.

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

The proposed drainage pattern is similar to the existing pattern: total site retention. This is the most appropriate drainage pattern because: 1) This site is in a low-lying area that has historically been served by ponding; 2) This site is not served by any storm drainage systems, and there are no plans to construct any drainage systems; and 3) This site is not in a designated flood plain. In accordance with the pre-design conference on July 25, 1994 with Scott Davis of City Hydrology, total site retention is a viable option. In a pre-design conference on July 29, 1994 with Roger Paul (Molzen-Corbin and Associates), hydrology consultant for the County, it was agreed that the County also views total site retention as a viable option for this site.

Therefore, the site was designed to retain all storm runoff on-site, and to pond the water evenly across the site. The site will be totally self-contained by a flood wall that will be built around the site, one foot higher than the elevation of the ponded water. The house pads (dirt) will also be one foot higher than the elevation of the ponded water. The remainder of the house lots will be built flat so that the ponded water will spread out and pond equally across the site. The exception to this is the five lots on which existing structures are located. There will be no ponding on these lots, because they will remain more or less at existing grade.

The new roads will also be raised up so that the edge of the road is at the 100-year water surface elevation.

The new plat will identify a blanket drainage easement on each lot, requiring each lot owner to accept runoff from the entire subdivision. The plat will also require that the flood walls be maintained by the owner, and not be modified in any way. A requirement will also be made that no additional fill be imported on-site.

The flood wall adjacent to Sunset Road will be set back 9' from the tract boundary line. This is being done for two reasons:

1. One day Sunset Road may be widened from a 50' R.O.W. to a 68' R.O.W. If it ever happens, the 9' of private property closest to Sunset Road will become public R.O.W. So the flood wall will be built at this location so that it does not need

to be rebuilt in the future.

2. One of the two existing culverts crossing Sunset Road extends onto Unit 2 private property. By moving the flood wall back 9' the culvert can remain intact, and no reconstruction will be required to keep the end open. By keeping the end open and keeping the flood wall out of the Sunset bar ditch, the historic drainage pattern will not be impeded.

Off-site flows that historically discharged onto this site will continue to be accepted at their historical discharge point (the north side of Lot 14, Unit 2). An opening consisting of three CMU blocks on their side will be provided in the wall at this point. This opening will accept the 2.2 cfs off-site runoff without resulting in erosion. While the off-site flows used to be conveyed through the site and contribute to downstream ponding, they will now be captured and retained on-site. This is easier than attempting to convey these flows through or around the site, and the additional ponding volume is minor.

HYDROLOGY/HYDRAULICS

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual of the City of Albuquerque, January 1993. In addition, the site complies with the requirements of Bernalillo County Ordinance No. 90-6, the Storm Drainage Ordinance.

The computerized hydrologic model, AHYMO, was used to calculate storm volumes in accordance with Section 22.2. The 1-hour, 6-hour, and 24-hour precipitation depths were derived from figures C-1, C-2, and C-3 of Section 22.2. The 100-year, 10-day storm was used to determine the required ponding volume. This volume was computed from the output data provided by the AHYMO run, coupled with equations A-9 and C-9 of Section 22.2.

RELATED BERNALILLO COUNTY SUBMITTALS

On October 7, 1994, these submittals were made to Bernalillo County in accordance with the requirements of the Bernalillo County Subdivision Ordinance: Water Quality Plan, Water Supply Plan,

Liquid Waste Management Plan, Solid Waste Management Plan, Terrain Management Plan, Disclosure Statement.

BASIN RUNOFF SUMMARY

BASIN	Q_{360} (CFS)	V_{360} (AC-FT)	A_D (AC)	$V_{10\text{-DAY}}$ (AC-FT)	$V_{10\text{-DAY}}$ (CU-FT)	PONDING AREA (S.F)	POND DEPTH (FEET)
Unit 1	12.3	0.4352	2.05	0.66	28,749.60	68695	0.42
Unit 2	18.8	0.6303	2.34	0.89	38,768.40		
Off-Site	2.2	0.0682	0.16	0.09	3,920.40		
Unit 2 Plus Off-Site	21	0.6985	2.5	0.98	42,688.80	120287	0.35

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 11/02/1994
         START TIME (HR:MIN:SEC) = 10:23:10     USER NO.= CHVZ_GNM.I01
         INPUT FILE = AHYMO.IN

**********************************************************
*****  CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.  *****
**  AHYMO RUN FOR SUNSET FARM -- WEST SUBDIVISION    **
**                  UNITS 1 AND 2                    **
**********************************************************
**  FILENAME:  C:\SUNSET\AHYMO.IN/OUT
**  100-YEAR, 6-HOUR STORM
**  DATE:  NOVEMBER 2, 1994
**
START              0.00
RAINFALL           TYPE=1  RAIN QUARTER=0.0  RAIN ONE=1.93
                   RAIN SIX=2.27  RAIN DAY=2.64  DT=0.033333

              COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
              DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                 .0000   .0017   .0034   .0051   .0069   .0087   .0106
                 .0125   .0145   .0165   .0185   .0206   .0228   .0250
                 .0273   .0297   .0321   .0346   .0372   .0399   .0427
                 .0456   .0485   .0517   .0549   .0583   .0618   .0656
                 .0695   .0736   .0780   .0833   .0890   .0951   .1082
                 .1376   .1827   .2475   .3359   .4522   .6004   .7849
                1.0101  1.2184  1.3056  1.3792  1.4446  1.5042  1.5591
                1.6100  1.6576  1.7022  1.7441  1.7837  1.8211  1.8566
                1.8901  1.9219  1.9521  1.9807  2.0079  2.0142  2.0202
                2.0258  2.0312  2.0363  2.0412  2.0459  2.0504  2.0548
                2.0590  2.0631  2.0671  2.0709  2.0747  2.0783  2.0818
                2.0853  2.0886  2.0919  2.0951  2.0982  2.1013  2.1043
                2.1072  2.1101  2.1129  2.1157  2.1184  2.1210  2.1236
                2.1262  2.1287  2.1312  2.1337  2.1361  2.1385  2.1408
                2.1431  2.1454  2.1476  2.1498  2.1520  2.1541  2.1562
                2.1583  2.1604  2.1624  2.1645  2.1664  2.1684  2.1703
                2.1723  2.1742  2.1760  2.1779  2.1797  2.1816  2.1833
                2.1851  2.1869  2.1886  2.1904  2.1921  2.1938  2.1954
                2.1971  2.1987  2.2004  2.2020  2.2036  2.2052  2.2067
                2.2083  2.2099  2.2114  2.2129  2.2144  2.2159  2.2174
                2.2189  2.2203  2.2218  2.2232  2.2246  2.2260  2.2275
                2.2288  2.2302  2.2316  2.2330  2.2343  2.2357  2.2370
                2.2383  2.2396  2.2410  2.2423  2.2435  2.2448  2.2461
                2.2474  2.2486  2.2499  2.2511  2.2524  2.2536  2.2548
                2.2560  2.2572  2.2584  2.2596  2.2608  2.2620  2.2631
                2.2643  2.2654  2.2666  2.2677  2.2689  2.2700

**  COMPUTE RUNOFF FROM DEVELOPED BASINS.
*  COMPUTE WEST TRACT RUNOFF (UNIT 1, IN CITY).
COMPUTE NM HYD     ID=1  HYD=101  DA=.005083 SQ MI
                   %A=0  %B=18  %C=19  %D=63
                   TP=0.1333  RAINFALL=-1
```

```
   K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   12.643    CFS   UNIT VOLUME =    .9985       B =   526.28      P60 = 1.9300
   AREA =      .003202 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


   K =   .118501HR    TP =   .133300HR    K/TP RATIO =   .888979     SHAPE CONSTANT, N =  3.989901
   UNIT PEAK =   5.0015    CFS   UNIT VOLUME =    .9978       B =   354.50      P60 = 1.9300
   AREA =      .001881 SQ MI    IA =    .42297 INCHES    INF =   1.03432 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD          ID=1  CODE=1

                                PARTIAL HYDROGRAPH   101.00


   RUNOFF VOLUME =     1.60529 INCHES     =        .4352 ACRE-FEET
   PEAK DISCHARGE RATE =      12.35 CFS  AT   1.500 HOURS   BASIN AREA =   .0051 SQ. MI.



*  COMPUTE EAST TRACT RUNOFF (UNIT 2, IN COUNTY).
COMPUTE NM HYD      ID=1  HYD=102  DA=.008698 SQ MI
                    %A=0  %B=29  %C=29  %D=42
                    TP=0.1333  RAINFALL=-1

   K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   14.423    CFS   UNIT VOLUME =    .9985       B =   526.28      P60 = 1.9300
   AREA =      .003653 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


   K =   .118833HR    TP =   .133300HR    K/TP RATIO =   .891471     SHAPE CONSTANT, N =  3.977990
   UNIT PEAK =   13.386    CFS   UNIT VOLUME =    .9995       B =   353.70      P60 = 1.9300
   AREA =      .005045 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD          ID=1  CODE=1

                                PARTIAL HYDROGRAPH   102.00


   RUNOFF VOLUME =     1.35869 INCHES     =        .6303 ACRE-FEET
   PEAK DISCHARGE RATE =      18.81 CFS  AT   1.500 HOURS   BASIN AREA =   .0087 SQ. MI.



*  COMPUTE OFF-SITE BASIN RUNOFF INTO UNIT 2.
COMPUTE NM HYD      ID=1  HYD=103  DA=.001323 SQ MI
                    %A=0  %B=81  %C=0.0  %D=19
                    TP=0.1333  RAINFALL=-1

   K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   .99242    CFS   UNIT VOLUME =    .9881       B =   526.28      P60 = 1.9300
```

```
    AREA =      .000251 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


    K =   .131123HR    TP =   .133300HR    K/TP RATIO =   .983665     SHAPE CONSTANT, N =  3.589803
    UNIT PEAK =   2.6274    CFS   UNIT VOLUME =    .9952       B =   326.83      P60 = 1.9300
    AREA =      .001072 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD          ID=1  CODE=1

                                PARTIAL HYDROGRAPH   103.00


    RUNOFF VOLUME =      .96654 INCHES     =        .0682 ACRE-FEET
    PEAK DISCHARGE RATE =       2.21 CFS  AT   1.500 HOURS   BASIN AREA =   .0013 SQ. MI.



FINISH

    NORMAL PROGRAM FINISH         END TIME (HR:MIN:SEC) = 10:23:13
```

CHAVEZ • GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET N.E. • ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 344-4080 • FAX (505) 343-8759

SHEET NO. 1 OF
JOB SUNSET FARM - WEST SUBDIVISION
SUBJECT DRAINAGE CALCULATIONS
CLIENT RICHARD SANCHEZ
JOB NO.
BY JPK DATE 8/5/94

DETERMINATION OF LAND TREATMENT FACTORS

MAKE THESE ASSUMPTIONS ABOUT TYPICAL LOT DEVELOPMENT:

2500 SF OF ROOF AREA PER LOT.
ONE 24'x30' = 720 SF DRIVEWAY PER LOT
500 SF OF OTHER IMPERVIOUS SURFACES

3720 SF OF TREATMENT "D" PER LOT.

THE REST WILL BE ASSUMED AS 1/2 GRASS (TREATMENT "B") AND 1/2 GRAVEL ON PLASTIC (TREATMENT "C").

BASIN	#LOTS	"D" ON LOTS	"D" ON ROAD	"C"	"B"	TOTAL
A	19	70,680	18,050	26,483	26,482	141,695 SF
B	20	74,400	26,890	70,599	70,598	242,487 SF

DETERMINATION OF 10-DAY STORM VOLUME

USE EQN a-9 FROM DPM, § 22.2

$$V_{10\text{-DAY}} = V_{360} + A_D \cdot (P_{10\text{DAY}} - P_{360}) / 12"/Ft$$

($P_{360} \approx 2.27"$)

EQN C-9: $P_{10\text{-DAY}} = 10.0 - (24.9 / (P_{1440})^{1.4})$

$$= 10.0 - \frac{24.9}{(2.64)^{1.4}} = 3.60"$$

$$\therefore V_{10\text{-DAY}} = V_{360} + A_D \cdot (1.33 / 12)$$

($1.33/12 \approx .1108$)

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SHEET NO. 2 OF
JOB
SUBJECT
CLIENT
JOB NO.
BY DATE REVISED 11/23/99

DETERMINATION OF PONDING AREA

THE STORM VOLUME DIVIDED BY THE PONDING AREA WILL GIVE THE PONDING DEPTH. THE PONDING AREA IS THE AREA OF THE ENTIRE TRACT LESS THE AREA OF THE HOUSE PADS, THE ROADS, AND THE EXISTING BUILT-UP LOTS.

	UNIT 1	UNIT 2 (IN S.F.)
AREA OF ENTIRE TRACT	141,695	242,487
AREA OF HOUSE PADS	-54,600 [A]	-57,500
AREA OF ROADS	-18,400	-24,900
EXISTING BUILT-UP LOTS	- 0	-39800
REMAINING PONDING AREA	68,695	120,287

NOTES:

A. ASSUME MAXIMUM HOUSE SIZE = 2500SF. ADD AN ADDITIONAL 15% FOR THE PAD EXTENDING BEYOND THE EDGE OF THE HOUSE. THIS GIVES 2875 SF/LOT.
FOR UNIT 1: 19 LOTS × 2875 = 54,600SF

B. FOR UNIT 2: 20 LOTS × 2875 = 57,500SF

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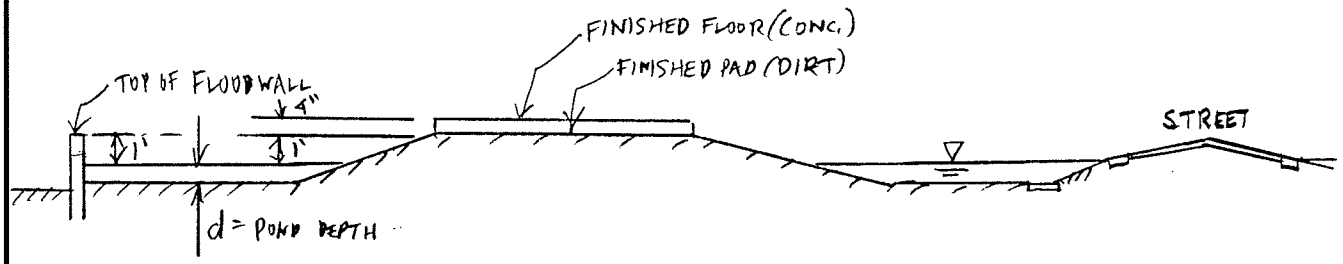
SHEET NO. 3 OF
JOB
SUBJECT
CLIENT
JOB NO.
BY
REVISED DATE 11/23/94

Typical Lot Elevation



	POND DEPTH REQUIRED
UNIT 1	0.42'
UNIT 2	0.35'

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CONSULTING ENGINEERS, INC.
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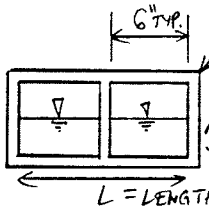
SHEET NO. _____ OF _____
JOB Sunset West – Unit 2
SUBJECT _____
CLIENT _____
JOB NO. 536-101-5194
BY Joe Kelley DATE 11/2/94

Design of Wall Opening

We want wall opening to consist of CMU blocks in the wall, turned sideways to create the opening. We want the flow rate through the opening at less than 3 fps so the flow won't be erosive. Use the weir equation to analyze the flow.



$Q = 2.2$ cfs

Weir equation: $Q = 3.0 L h^{3/2}$

1) Assume 1 block will work and determine h, then velocity:

$L = 6" + 6" = 12" = 1'$

$2.2 = 3.0(1)h^{3/2} \rightarrow h = 0.81'$ (too high, the weir height max. is 0.5')

2) Try 2 blocks:

$L = 2'$

$2.2 = (3.0)2h^{3/2} \rightarrow h = 0.51'$ too high.

3) Try 3 blocks:

$L = 3'$

$2.2 = 3.0(3)h^{3/2} \rightarrow h = 0.39'$

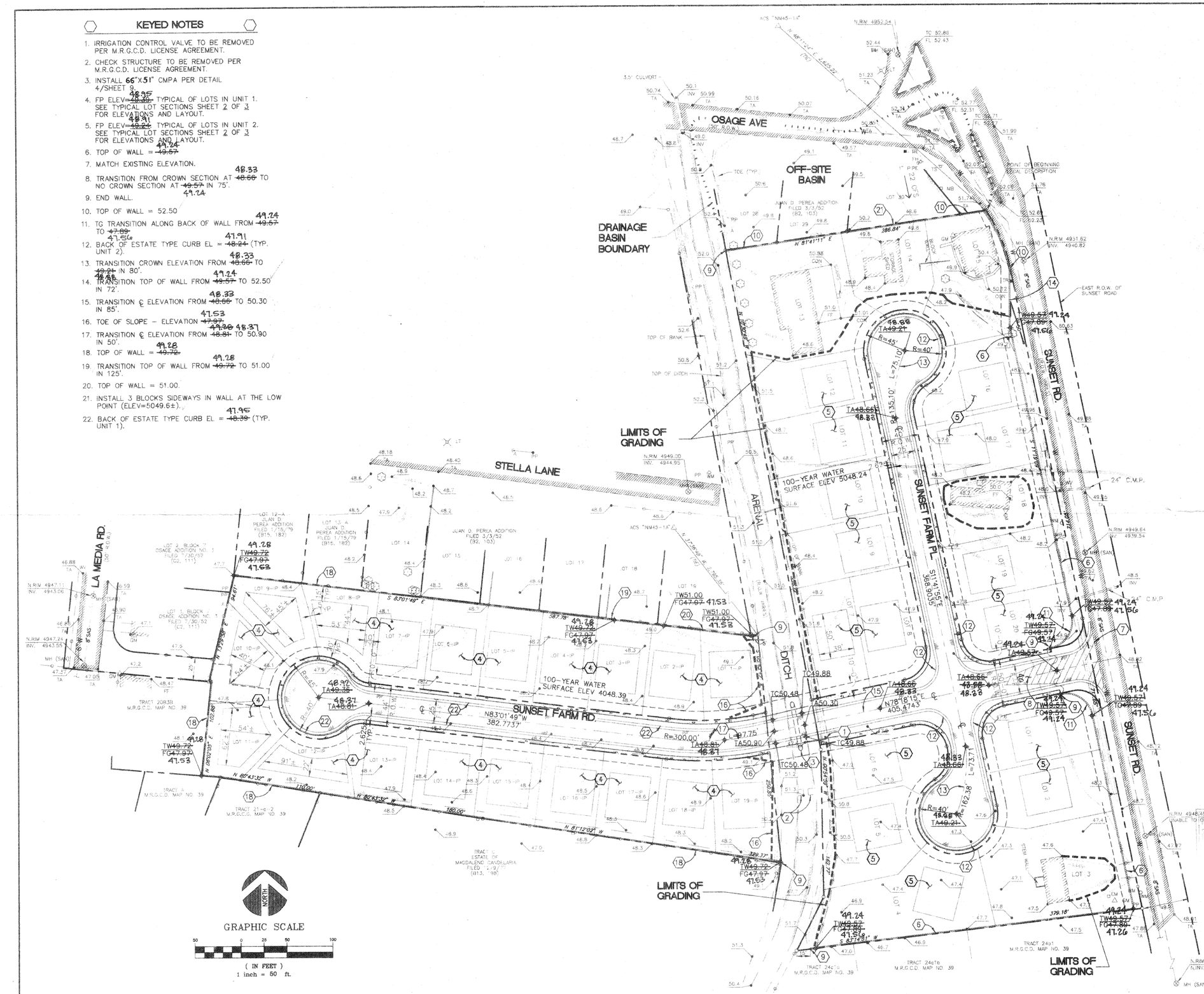
Check the velocity:

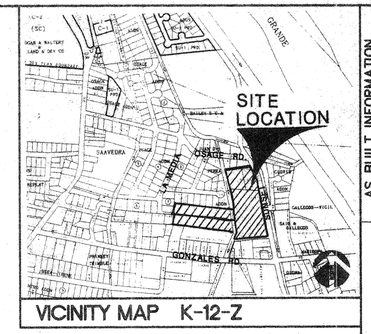
$V = Q/A = 2.2/(0.39' \times 3') = 1.9$ fps < 3.0 ✓ fine

Final design: 3 blocks turned sideways.

KEYED NOTES

1. IRRIGATION CONTROL VALVE TO BE REMOVED PER M.R.G.C.D. LICENSE AGREEMENT.
2. CHECK STRUCTURE TO BE REMOVED PER M.R.G.C.D. LICENSE AGREEMENT.
3. INSTALL **66"X51"** CMPA PER DETAIL 4/SHEET 9.
4. FP ELEV=~~48.39~~ 48.25 TYPICAL OF LOTS IN UNIT 1. SEE TYPICAL LOT SECTIONS SHEET 2 OF 3 FOR ELEVATIONS AND LAYOUT.
5. FP ELEV=~~48.24~~ 48.91 TYPICAL OF LOTS IN UNIT 2. SEE TYPICAL LOT SECTIONS SHEET 2 OF 3 FOR ELEVATIONS AND LAYOUT.
6. TOP OF WALL = ~~49.57~~ 49.24
7. MATCH EXISTING ELEVATION.
8. TRANSITION FROM CROWN SECTION AT ~~48.66~~ 48.33 TO NO CROWN SECTION AT ~~49.57~~ 49.24 IN 75'.
9. END WALL.
10. TOP OF WALL = 52.50
11. TG TRANSITION ALONG BACK OF WALL FROM ~~49.57~~ 49.24 TO ~~47.89~~ 47.56
12. BACK OF ESTATE TYPE CURB EL = ~~48.24~~ 47.91 (TYP. UNIT 2).
13. TRANSITION CROWN ELEVATION FROM ~~48.66~~ 48.33 TO ~~49.21~~ 48.88 IN 80'.
14. TRANSITION TOP OF WALL FROM ~~49.57~~ 49.24 TO 52.50 IN 72'.
15. TRANSITION ℄ ELEVATION FROM ~~48.66~~ 48.33 TO 50.30 IN 85'.
16. TOE OF SLOPE – ELEVATION ~~47.97~~ 47.53
17. TRANSITION ℄ ELEVATION FROM ~~48.81~~ ~~49.20~~ 48.37 TO 50.90 IN 50'.
18. TOP OF WALL = ~~49.72~~ 49.28
19. TRANSITION TOP OF WALL FROM ~~49.72~~ 49.28 TO 51.00 IN 125'.
20. TOP OF WALL = 51.00.
21. INSTALL 3 BLOCKS SIDEWAYS IN WALL AT THE LOW POINT (ELEV=5049.6±).
22. BACK OF ESTATE TYPE CURB EL = ~~48.39~~ 47.95 (TYP. UNIT 1).





VICINITY MAP K-12-Z

LEGAL DESCRIPTION

BEING THAT A CERTAIN PARCEL OF LAND SITUATED WITHIN THE TOWN OF ATRISCO WITH IN SECTION 24, BERNALILLO COUNTY, NEW MEXICO AND BEING IDENTIFIED AS TRACTS 20-A, 15-B, AND TRACTS 13-B, 13-C, 13-D, M.R.G.C.D. MAP #39. LAND ANNA SANCHEZ, ET AL, BERNALILLO COUNTY, NEW MEXICO, FILED IN THE OFFICE OF THE COUNTY CLERK, DECEMBER 24, 1986.

GENERAL NOTES

THE CALCULATIONS AND RATIONALE FOR THIS PLAN ARE CONTAINED UNDER SEPARATE COVER, AND ARE PART OF THIS PLAN.
ANY DEVIATION FROM THIS PLAN FOR THE DEVELOPMENT OF AN INDIVIDUAL LOT WILL REQUIRE AN INDIVIDUAL GRADING PLAN AND DRAINAGE PLAN BEFORE BUILDING PERMIT APPROVAL. CHANGES TO BUILDING PAD LOCATIONS, ELEVATIONS, GRADING SCHEMES, LAND TREATMENT PERCENTAGES, ETC., WOULD CONSTITUTE THE NECESSITY FOR AN INDIVIDUAL GRADING AND DRAINAGE PLAN.

I HEREBY CERTIFY THIS DRAINAGE PLAN IS IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED DRAINAGE PLAN.
SIGNED:
DATE: May 21, 1996

CHAVEZ • GRIEVES CONSULTING ENGINEERS, INC.
9639 JEFFERSON STREET N.E. • ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 344-4080 • FAX (505) 343-9259

APPROVED FOR ROUGH GRADING (± 1')

CITY ENGINEER DATE

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: SUNSET FARMS WEST SUBDIVISION
GRADING AND DRAINAGE PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair			Water		
Trans. Dev.		3-31-95	Wastewater		3/20/95
Hydrology		3-7-95	B.C.P.W.D.		5/10/95

DRAWING NO. 516090 | MAP NO. K-12-Z | SHEET 3 OF 9

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE
	SURVEY DATA PROVIDED	7-94
	ALBUQUERQUE SURVEY	
	NMPLS 10464	
	SURVEY DATE 7-94	

BENCH MARKS
BENCH MARK: ALUMINUM CAP STAMPED "ASC NM45-1A, 1984", LOCATED 2.7 MILES WEST OF DOWNTOWN ALBUQ. AT THE INTERSECTION OF CENTRAL AVE. AND COORS BLVD. IN THE S.E. QUAD. ELEV. = 5016.74

AS BUILT INFORMATION
CONTRACTOR SUNDANCE MECHANICAL
STAKED BY ALBA. SURVEYING DATE 12/95
INSPECTOR'S INITIALS BY CHAVEZ GRIEVES DATE 4/96
FIELD VERIFICATION BY CHAVEZ-GRIEVES DATE 2/27/96
CORRECTIONS BY CHAVEZ-GRIEVES DATE 5/6/96
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

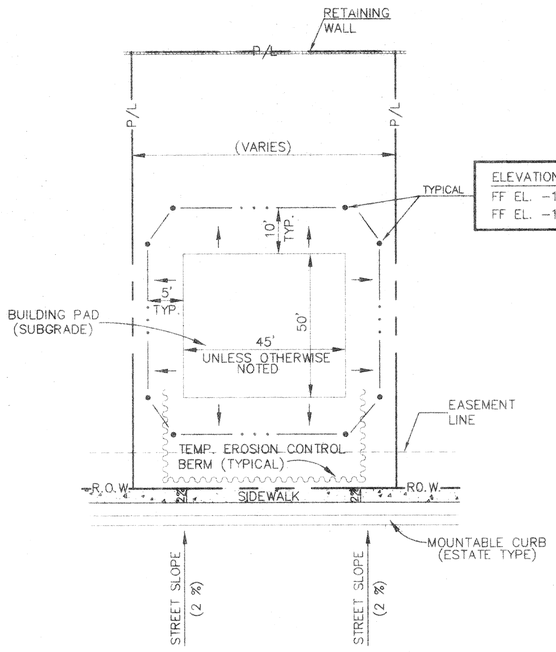
ENGINEERS SEAL
Jack Kelley Dec. 21, 1994

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED:	J. P. KELLEY		DATE: 01-95
DRAWN BY:	R. F. CASAUS		DATE: 01-95
CHECKED BY:	J. KELLEY		DATE: 01-95

JOB NO. 536-101-5194
DRAWING NAME: SW6 (07-19-94)
REV. 02-10-95

EROSION CONTROL PLAN

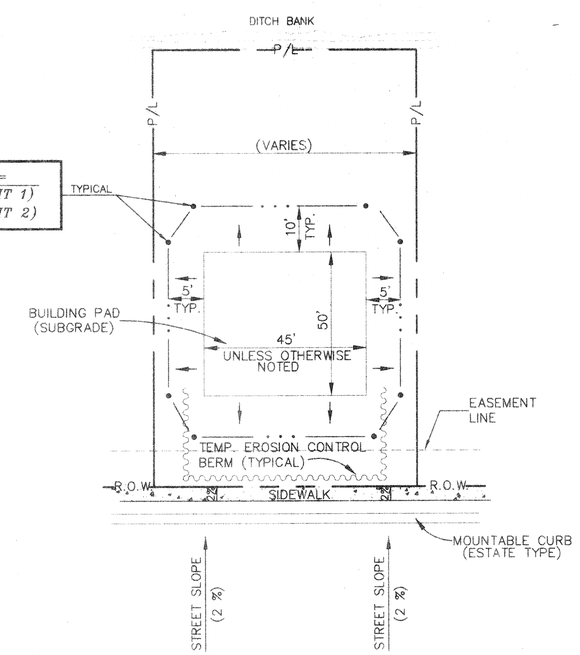
1. DURING ROUGH GRADING, THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO OTHER PROPERTY BY CONSTRUCTING TEMPORARY EROSION CONTROL BERMS ON THE SITE'S PERIMETER, AND BY WETTING THE SOIL PERIODICALLY TO KEEP THE DUST FROM BLOWING.
2. THE CONTRACTOR SHALL PROMPTLY REMOVE ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY TO KEEP IT FROM WASHING DOWN THE STREET.
3. THE CONTRACTOR SHALL OBTAIN A "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY OF ALBUQUERQUE ENVIRONMENTAL HEALTH DIVISION PRIOR TO BEGINNING CONSTRUCTION.
4. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL PREPARE AND OBTAIN ANY NECESSARY DUST OR EROSION CONTROL PERMITS FROM REGULATORY AGENCIES.
5. WATERING, AS REQUIRED FOR CONSTRUCTION AND DUST CONTROL, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO MEASUREMENT OR PAYMENT SHALL BE MADE THEREFOR. CONSTRUCTION AREAS SHALL BE WATERED FOR DUST CONTROL IN COMPLIANCE WITH GOVERNMENT ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER AS REQUIRED.
6. ANY AREAS DISTURBED BY CONSTRUCTION AND NOT COVERED BY LANDSCAPING OR BY AN IMPERVIOUS SURFACE SHALL BE REVEGETATED WITH RECLAMATION SEEDING.
7. SEEDING OF EXISTING DISTURBED AREAS SHALL BE DONE IN ACCORDANCE WITH C.O.A. STANDARD SPECIFICATION #1012, "NATIVE GRASS SEEDING".



ELEVATION TG (B) =
FF EL. -1.42' – *(UNIT 1)*
FF EL. -1.35' – *(UNIT 2)*

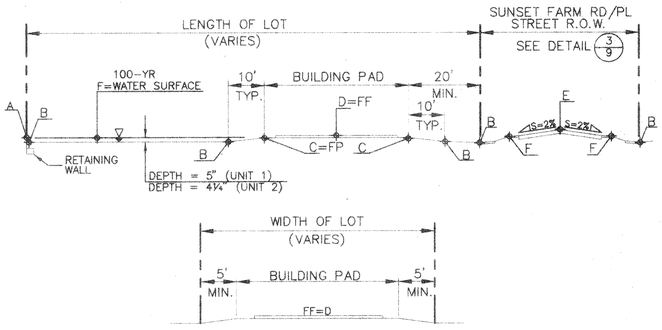
CASE I

DRAIN FROM STREET
W/ RETAINING WALL @ REAR
LOTS 2 – 18 *(UNIT 1)* LOTS 1 – 4 AND 13 – 20 *(UNIT 2)*



CASE II

DRAIN FROM STREET
NEAR "ARENAL DITCH" LOCATED ON SIDE OR REAR
LOTS 1, 19, *(UNIT 1)* LOTS 4 – 7 AND 9 – 12 *(UNIT 2)*



TYPICAL LOT SECTION

LOTS 2 – 18 *(UNIT 1)* LOTS 1 – 4 AND 13 – 20 *(UNIT 2)*

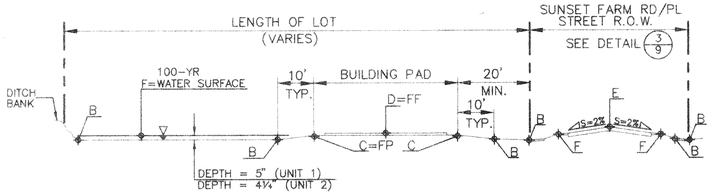
SUNSET FARM RD *(UNIT 1)*

LETTER	ELEV.
A	TW~~49.72~~49.78
B	FG~~47.97~~47.53
C	FP~~49.39~~48.96
D	FF~~49.72~~49.78
E	TA~~48.81~~48.37
F	TC~~48.39~~47.95

SUNSET FARM PL *(UNIT 2)*

LETTER	ELEV.
A	TW~~49.57~~49.24
B	FG~~47.89~~47.56
C	FP~~49.24~~48.91
D	FF~~49.57~~49.24
E	TA~~48.66~~48.33
F	TC~~48.24~~47.91

LOT ELEVATIONS



TYPICAL LOT SECTION NEAR "ARENAL DITCH"

LOTS 1, 19, *(UNIT 1)* – LOTS 4 – 7 AND 9 – 12 *(UNIT 2)*

NOTE:
SEE GRADING PLAN FOR LIMITS OF GRADING AND ELEVATIONS WHERE "ARENAL DITCH" RUNS ALONG SIDE OF PROPERTY.

AS BUILT INFORMATION
CONTRACTOR: SANDOVAL ENGINEERING
WORK STAKED BY: ARENAL SURVEY/ DATE 1-95
TESTING BY: CHAVES GRIEVES/ DATE 4-95
ACCEPTANCE BY: CHAVES GRIEVES/ DATE 4-95
FIELD VERIFICATION BY: CHAVEZ-GRIEVES/ DATE 2-96
DRAWINGS CORRECTED BY: CHAVEZ-GRIEVES/ DATE 5-96
MICRO-FILM INFORMATION
RECORDED BY: DATE
NO.

BENCH MARKS
BENCH MARK: ALUMINUM CAP STAMPED "ASC NM45-1A, 1984" LOCATED 2.7 MILES WEST OF DOWNTOWN ALBUQ. AT THE INTERSECTION OF CENTRAL AVE. AND COORS BLVD. IN THE S.E. QUAD. ELEV. = 5016.74

SURVEY INFORMATION
FIELD NOTES NO. / BY / DATE
SURVEY DATA PROVIDED 7-94
ALBUQUERQUE SURVEY
NMPLS 10464
SURVEY DATE 7-94

ENGINEERS SEAL
STATE OF NEW MEXICO 9396 REGISTERED PROFESSIONAL ENGINEER
May 22, 1996

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED: J. P. KELLEY	DATE: 01-95
		DRAWN BY: R. F. CASAUS	DATE: 01-95
		CHECKED BY: J. P. KELLEY	DATE: 01-95

I HEREBY CERTIFY THIS DRAINAGE PLAN IS IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED DRAINAGE PLAN.
SIGNED: Joe Kelly
DATE: May 24, 1996

RECEIVED MAY 22 1996

CHAVEZ · GRIEVES CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET N.E. • ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 344-4080 • FAX (505) 343-8256

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE:
SUNSET FARMS WEST SUBDIVISION
TYPICAL LOT SECTIONS/LAYOUTS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	B.G. Goolsby	3.31.95	Water		3/20/95
Trans. Dev.		3-27-95	Wastewater		
Hydrology		3-7-95	B.C.P.W.D		5/10/95

DRAWING NO.	MAP NO.	SHEET	OF
5160.90	K-12-Z	4	9

JOB NO.: 536-101-5194
FILE: SFW-04.DWG (07-29-94)
REV: (03-02-95)