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PLAN SHUT THREE
 ONCE ON LIGHT
 ONCE ON DARK

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RE 22 DATE 3/27/82 EDP

CITY OF ALBUQUERQUE

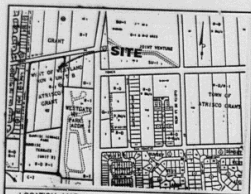
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 DIRECTOR

 Robert Duran

OFFICIAL SEAL
 Robert Duran
 Mayor

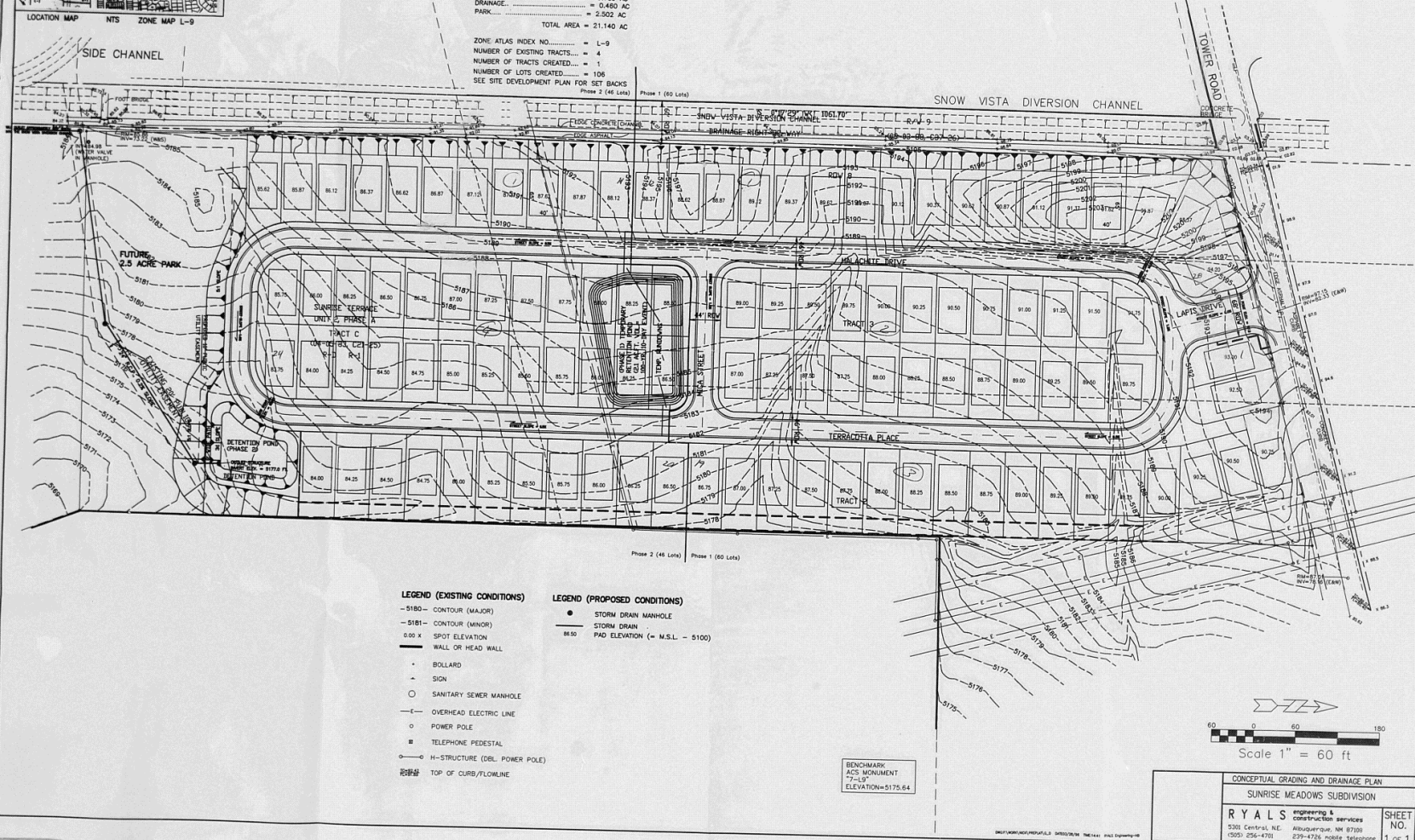


LOCATION MAP NTS ZONE MAP L-9

SITE DATA
 EPC CASE #
 LEGAL DESCRIPTION:
 WEST OF WETLAND ROW 4 UNIT 8, TRACT 3
 AND A PORTION OF TRACT 2 TOGETHER WITH
 SNOW VISTA DIVERSION CHANNEL R/W 8 AND
 TRACT C, UNIT 2-PHASE A, SUNRISE TERRACE
 EXISTING ZONING.....R-1, R-1
 PROPOSED ZONING.....R-1
 NET LOT AREA.....= 12,409 AC
 STREET ROW.....= 5,769 AC
 DRAINAGE.....= 2,480 AC
 PARK.....= 2,502 AC
 TOTAL AREA = 21,140 AC

ZONE ATLAS INDEX NO.....= L-9
 NUMBER OF EXISTING TRACTS.....= 4
 NUMBER OF TRACTS CREATED.....= 1
 NUMBER OF LOTS CREATED.....= 106
 SEE SITE DEVELOPMENT PLAN FOR SET BACKS

CONCEPTUAL GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS SUBDIVISION



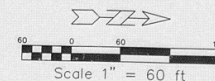
LEGEND (EXISTING CONDITIONS)

- 5180- CONTOUR (MAJOR)
- 5181- CONTOUR (MINOR)
- 0.00 X SPOT ELEVATION
- WALL OR HEAD WALL
- BOLLARD
- SIGN
- SANITARY SEWER MANHOLE
- OVERHEAD ELECTRIC LINE
- POWER POLE
- TELEPHONE PEDESTAL
- H-STRUCTURE (DBL. POWER POLE)
- TOP OF CURB/FLOWLINE

LEGEND (PROPOSED CONDITIONS)

- STORM DRAIN MANHOLE
- STORM DRAIN
- PAD ELEVATION (= M.S.L. - 5100)

BENCHMARK
 ACS MONUMENT
 7'-10"
 ELEVATION=5175.64



CONCEPTUAL GRADING AND DRAINAGE PLAN
 SUNRISE MEADOWS SUBDIVISION

RYALS engineering & construction services
 5301 Central NE
 Albuquerque, NM 87106
 (505) 256-4701 239-4726 mobile telephone

SHEET NO.
 1 OF 1

PLAN MUST BE
 ONCE ON FILE

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DATE: 3-27-2014 EXP

CITY OF ALBUQUERQUE

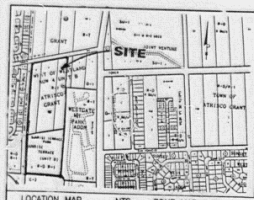
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Chas. J. Jolly, Jr.
 DIRECTOR

Robert D. Dwyer
 NOTARY PUBLIC
 OFFICIAL SEAL
 Robert D. Dwyer
 Notary Public
 State of New Mexico
 My Comm. Expires 12/31/2014

CITY OF ALBUQUERQUE



LOCATION MAP NTS ZONE MAP L-9

SIDE CHANNEL

SNOW VISTA DIVERSION CHANNEL

SNOW VISTA DIVERSION CHANNEL

SNOW VISTA DIVERSION CHANNEL

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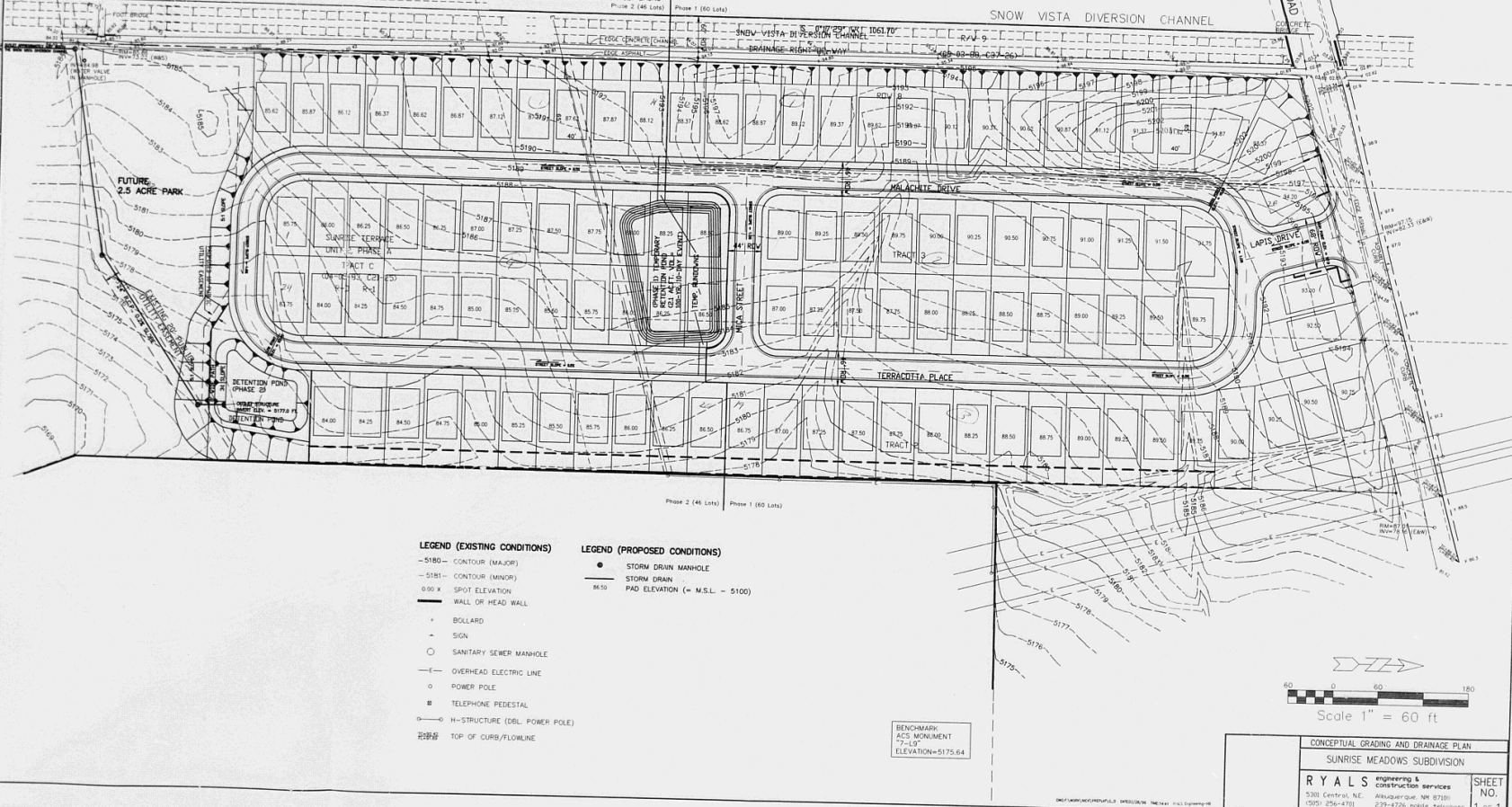
SNOW VISTA DIVERSION CHANNEL

SNOW VISTA DIVERSION CHANNEL

SNOW VISTA DIVERSION CHANNEL

SITE DATA
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LEGAL DESCRIPTION: WEST OF WESTLAND, ROW 4, UNIT B, TRACT 3 AND A PORTION OF TRACT 2 TOGETHER WITH SNOW VISTA DIVERSION CHANNEL, R/W # 8 AND TRACT C, UNIT 2-PHASE A, SUNRISE TERRACE EXISTING ZONING: R-T, R-D, R-1
PROPOSED ZONING: R-T
NET LOT AREA: 12,409 AC
STREET ROW: 5,769 AC
DRAINAGE: 0,460 AC
PARK: 2,502 AC
TOTAL AREA: 21,140 AC
ZONE ATLAS INDEX NO.: L-9
NUMBER OF EXISTING TRACTS: 4
NUMBER OF TRACTS CREATED: 1
NUMBER OF LOTS CREATED: 106
SEE SITE DEVELOPMENT PLAN FOR SET BACKS

CONCEPTUAL GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS SUBDIVISION



LEGEND (EXISTING CONDITIONS)
-5180- CONTOUR (MAJOR)
-5181- CONTOUR (MINOR)
0.00 X SPOT ELEVATION
WALL OR HEAD WALL
+ BOLLARD
+ SIGN
O SANITARY SEWER MANHOLE
- OVERHEAD ELECTRIC LINE
O POWER POLE
+ TELEPHONE PEDESTAL
H-STRUCTURE (DEL. POWER POLE)
R/W# TOP OF CURB/FLOWLINE

LEGEND (PROPOSED CONDITIONS)
● STORM DRAIN MANHOLE
● STORM DRAIN
PAD ELEVATION (= M.S.L. - 5100)

BENCHMARK
ACS MONUMENT
7-10'
ELEVATION=5175.64

Scale 1" = 60 ft

CONCEPTUAL GRADING AND DRAINAGE PLAN	
SUNRISE MEADOWS SUBDIVISION	
NOTARY PUBLIC	
RYALS engineering & construction services	SHEET NO. 1 of 1
5300 Central, N.E. Albuquerque, NM 87110	
(505) 256-4731	(505) 472-6126 mobile telephone

PLAN SHOT TWICE
ONCE ON LIGHT
ONCE ON DARK

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Chris J. Kelly, Director

Robert D. Ryan, Notary Public

Robert D. Ryan, Notary Public

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CITY OF ALBUQUERQUE

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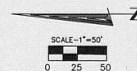
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SITE DATA
EPC CASE # .....
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AND A PORTION OF TRACT 2 TOGETHER WITH
SNOW VISTA DIVERSION CHANNEL R/W 8 AND
TRACT C, UNIT 2-PHASE A, SUNSHINE TERRACE
EXISTING ZONING.....R-T, R-D, R-1
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NET LOT AREA.....= 12.409 AC
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DRAINAGE.....= 0.480 AC
PARK.....= 2.502 AC
TOTAL AREA = 21.140 AC

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ZONE ATLAS INDEX NO..... = L-9
NUMBER OF EXISTING TRACTS... = 4
NUMBER OF TRACTS CREATED... = 1
NUMBER OF LOTS CREATED..... = 108
SEE SITE DEVELOPMENT PLAN FOR SET BACKS



NO.		Sheet		4 of 15	
PROJECT		DESIGN, UNIT I		DESIGN, UNIT I	
SUBJECT		REVISIONS		REVISIONS	
DATE		DATE		DATE	
DESIGNED BY		CHECKED BY		CHECKED BY	
DRAWN BY		DATE		DATE	
ENGINEER'S SEAL		SURVEY INFORMATION		AS BUILT INFORMATION	
FIELD NOTES		NO.		DATE	
BY		DATE		DATE	
REMARKS		REMARKS		REMARKS	
REVISIONS		REVISIONS		REVISIONS	
NO.		DATE		DATE	
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NO.		DATE		DATE	
BY		DATE		DATE	
REMARKS		REMARKS		REMARKS	

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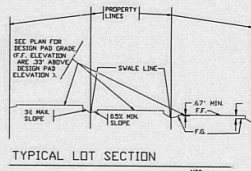
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[Signature]
DIRECTOR

Roberta Duran

 NOTARY PUBLIC
 OFFICIAL SEAL
 Roberta Duran
 NOTARY PUBLIC
 STATE OF ARIZONA
 My Comm. Expires 12/31/2012
Notary Seal



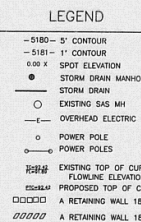
GENERAL NOTES

1. THE CONTRACTOR SHALL OBTAIN A SPECIAL INSURANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DEPARTMENT PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO COMPLY WITH EXISTING SPECIFICATIONS AND STANDARDS OF THE CITY OF BOSTON, MASSACHUSETTS, AND THE STATE OF MASSACHUSETTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND OBTAINING ALL NECESSARY PERMITS AND APPROVALS.
3. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE EXCAVATION. THE EXCAVATION SHALL BE PROTECTED AND REINFORCED TO PREVENT SLURRIES AND PREVENT THE RELEASE OF SEDIMENT INTO ADJACENT WATERS AND PREVENTED FROM MIXING WITH THE DETAIL ON THIS GRADING PLAN AT LOCATIONS SHOWN.
4. THE CONTRACTOR IS RESPONSIBLE FOR MONITORING TEMPORARY SEDIMENT BARRIERS AND REMEDIAL MEASURES BY THE CONTRACTING AGENCY TO PREVENT EROSION AND SEDIMENTATION.
5. TEMPORARY EXCAVATION CONTROL BARRIERS LOCATED ON SIDEWALKS SHALL REMAIN IN PLACE UNTIL THE CONSTRUCTION OF EACH SIDEWALK IS COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING:
 - a. THE TOLERANCES FOR GRADING SIDEWALKS SHALL CONFORM TO THE FOLLOWING:

PA SURFACES:	± 0.2"
PA SIDEWALKS:	± 0.1"
ALL OTHER AREAS:	± 0.3"
 - b. THERE ARE EXISTING WALKWAYS LOCATED TO THIS PROJECT. ANY WALKWAYS REMOVED BY THE CONTRACTING AGENCY SHALL BE REPLACED BY THE CONTRACTOR TO AN EQUAL OR BETTER CONDITION AT THE SAME LOCATION.

9. EARTH WORK OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS CONTAINED IN THE SOIL AND FOUNDATION INVESTIGATION REPORT PREPARED BY FCI CONSULTING ENGINEERS AND GEOLOGISTS DATED OCTOBER 14/91, 1990.

10. FOR ALL RETAINING WALLS GREATER THAN 12', A BUILDING PERMIT MUST BE OBTAINED FROM THE CITY OF ALBUQUERQUE.



APPROVED FOR ROUGH GRADING
(± 1 FT.)

CITY HYDROLOGY DATE

RYALS engineering & construction services
5301 Central, N.E. Albuquerque, NM 87108
(505) 256-4701 239-4725 mobile telephone

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT	
TITLE:	SUNRISE MEADOWS SUBDIVISION GRADING AND DRAINAGE

Design Review Committee	City Engineer Approval
City Project No. 545681	Zone Map 1

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
		FIELD NOTES		AS SET UP		CONTRACTOR	
		NO.	DATE	A 40 PRINY IN POWER POOL		DATE	
				LOCAL		DATE	
				STREET AND 450 SOUTH OF RYO CT.		DATE	
				ELEV = 5184.872		DATE	
				CORRECTION BY		DATE	
				MICRO-FILM INFORMATION		DATE	
				RECORDED BY		DATE	
				NO		DATE	

Robert Duran

 NOTARY PUBLIC
 OFFICIAL SEAL
 Robert Duran
 NOTARY PUBLIC
 STATE OF TEXAS
 02/02/02

SUNRISE MEADOWS SUBDIVISION, UNIT 1

ALBUQUERQUE, NEW MEXICO

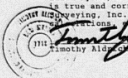
IMPROVEMENTS FOR GRADING, PAVING, AND UTILITIES

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.-3.	SUBDIVISION PLAT
4.-5.	MASTER GRADING PLAN
6.	COMPOSITE PAVING PLAN
7.	COMPOSITE UTILITY PLAN
PAVING PLAN AND PROFILES	
8.	MALACHITE DRIVE (STA 0+00 TO STA 8+68.00)
9.	MALACHITE DRIVE (STA 8+68.00 TO STA 15+02.83)
10.	TERRACOTTA PLACE (STA 0+00.00 TO STA 8+60.00)
11.	TERRACOTTA PLACE (STA 8+60.00 TO STA 15+10.46)
12.	LAPIS DRIVE (STA 0+00.0 TO STA 1+71.64)
13.	MICA STREET (STA 0+00.00 TO STA 2+68.52.00)
14.	TOWER ROAD (STA 0+00.00 TO STA 6+73.00)
UTILITY PLAN AND PROFILES	
14.	MALACHITE DRIVE (STA 0+00 TO STA 8+68.00)
15.	MALACHITE DRIVE (STA 8+68.00 TO STA 15+02.83)
16.	TERRACOTTA PLACE (STA 0+00.00 TO STA 8+60.00)
17.	TERRACOTTA PLACE (STA 8+60.00 TO STA 15+10.46)
18.	SNOW VISTA SAS AND STORM DRAIN OUTFALL

SURVEYOR'S CERTIFICATION

"I, Timothy Aldrich, a duly qualified Registered Professional Land Surveyor under the Laws of the State of New Mexico, do hereby certify that the 'as-built' information shown on these drawings was obtained from field construction and 'as-built' surveys performed by me, or under my supervision, that the 'as-built' information shown on these drawings was added by me, or under my supervision and that this 'as-built' information is true and correct to the best of my knowledge and belief." Aldrich Land Surveying, Inc., is not responsible for any of the design concepts, calculations, engineering and/or content of the record drawings.



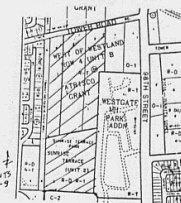
N.M.P.S. 7719

10-22-96

TRAFFIC CONTROL PLANS

T-1	TOWER ROAD TOPOGRAPHY AND SECTIONS
T-2	SIGNING AND CONSTRUCTION TRAFFIC CONTROL STANDARDS
T-3	TYPICAL TRAFFIC CONTROL & SIGNING EXAMPLES

DWG:\WORK\NICK\DRCT-1-SHT DATE:16/96 TIME:17:37 RYAL Engineering-HB



VICINITY MAP

GENERAL NOTES

- All work detailed on these plans to be performed under contract shall, except as otherwise stated or provided for herein, be constructed in accordance with the City of Albuquerque Standard Specifications for Public Works Construction 1986 Edition as amended with Update No. 6.
- Prior to construction, the Contractor shall excavate & 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 minimum delay.
- Two (2) working days prior to any excavation, Contractor must contact Line Locating Service @ 250 - 1990 for location of existing utilities.

- Warning - EXISTING UTILITY LINE LOCATIONS are shown in an approximate manner only, and such lines may exist where none are shown. The location of any such existing lines is based upon information provided by the utility company, the owner, or by others, and the information may be incomplete or may be obsolete by the time construction commences.

The engineer has undertaken no field verification of the location, depth, size, or type of existing underground utility lines, makes no representation pertaining thereto. The contractor shall inform itself of the location of any utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify, and preserve any and all existing utilities. The contractor shall comply with State statutes, municipal and local ordinances, rules and regulations pertaining to the location of these lines and facilities, in planning and conducting excavation, whether by calling or notifying the utilities, complying with "Blue Stakes" procedures, or otherwise.

- TRAFFIC CONTROL: Five (5) working days prior to beginning construction the contractor shall submit to the Construction Co-ordination Division a detailed construction schedule. Two (2) working days prior to construction the contractor shall obtain a barricading permit from the Construction Co-ordination Division. Contractor shall notify Barricade Engineer (788-2551) prior to occupying an intersection. See section 19 of the specifications. All street striping altered or destroyed shall be replaced by contractor to location and in kind as existing at no cost to the owner.

- The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
- The contractor is responsible for protecting and maintaining all existing monumentation controls. In the event of inadvertent destruction or alteration the contractor must immediately notify the City Chief Surveyor.

- Any work affecting an arterial roadway requires twenty-four hour completion.

RYAL Engineering & Construction Services
3901 Central, S.E.
Albuquerque, NM 87108
(505) 253-1234
238-4728 mobile telephone

REV	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE
ENGINEER'S STAMP & SIGNATURE							
		APPROVALS EBC: Chapman 7-25-96 Transportation 7-10-96 Water/Wastewater 7-10-96 Hydrology 7-10-96 Parks 7-10-96 Contr. Mgmt. 7-10-96 City Engineer 7-10-96		APPROVED FOR CONSTRUCTION John P. Bitt 7-15-96 Date			
CITY PROJECT NO. 545681		Sheet 1 of 18					

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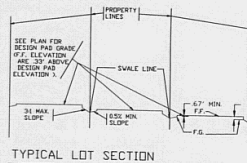
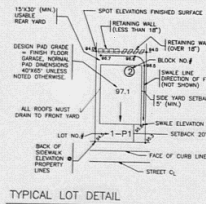
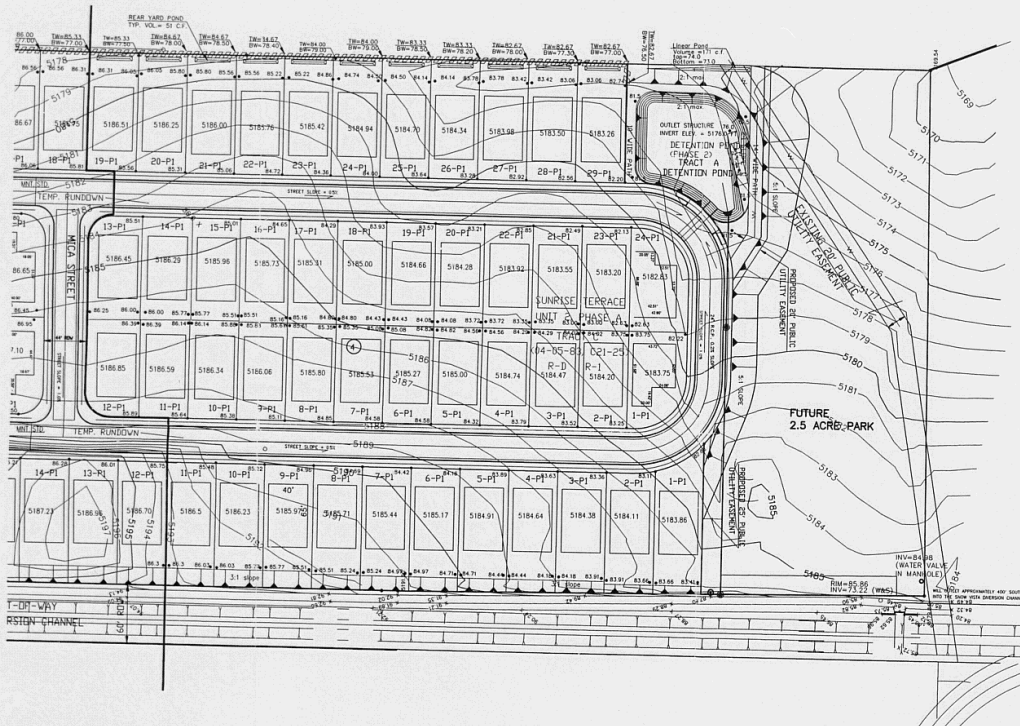
Re: 27 DATE 3-22-00 FOR E.P.

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Chris A. Kelly, Director

Robert Duran, Notary Public

CITY OF ALBUQUERQUE



GENERAL NOTES

- THE CONTRACTOR SHALL OBTAIN A SPECIAL PERFORMANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DEPARTMENT TO CONSTRUCT.
- THE CONTRACTOR IS TO COMPLY WITH ALL APPLICABLE ORDINANCES AS NOTED IN THE SOIL REPORT SUPPLIED BY THE OWNER.
- THE CONTRACTOR SHALL COMPLY TO ALL CITY, COUNTY, STATE AND FEDERAL LAWS, ORDINANCES, REGULATIONS AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR OBTAINING AND MAINTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THE PROJECT.
- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ENDS FROM THE CONSTRUCTION ARE ALLOWED TO REMAIN ON THE SITE. THE CONTRACTOR SHALL CONTROL SOIL FLOW AND PREVENT THE RELEASE OF SEDIMENT INTO ADJACENT STREETS AND NEIGHBORHOODS. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION AREA TO BE ACCORDANCE WITH THE DETAIL ON THIS DRAWING PLAN AT ALL TIMES.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TEMPORARY EROSION CONTROL MEASURES LOCATED ON INDIVIDUAL LOTS THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL MAINTAIN THESE MEASURES AFTER COMPLETION AND ACCEPTANCE OF CONSTRUCTION.
- TEMPORARY EROSION CONTROL MEASURES LOCATED ON INDIVIDUAL LOTS SHALL REMAIN IN PLACE UNTIL THE CONSTRUCTION OF EACH INDIVIDUAL BUILDING IS COMPLETED ON A LOT BY LOT BASIS.
- THE TOLERANCES FOR ROUGH GRADING SHALL COMPLY TO THE FOLLOWING:
 - FIN. SURFACE: $\pm 0.1'$
 - EROSION CONTROL: $\pm 0.5'$
 - ALL OTHER AREAS: $\pm 0.5'$
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES.



LEGAL DESCRIPTION:
TRACT A AND B SUNRISE MEADOWS UNIT II
TEMPORARY EROSION CONTROL MEASURES SHALL BE LOCATED TO THE WEST OF THE STREET AND 450 SOUTH OF RYND CT.
EROSION CONTROL BERM
TYPICAL SECTION THROUGH BERM N.T.S.

NOTES:
1. MAXIMUM CURVED HEIGHT OF DRIVEWAY SHALL BE 10' TO 12' TO MAINTAIN PROPER DRAINAGE AND FOR THE TOP OF THE DRIVEWAY SHALL BE APPROXIMATELY 1' TO 2' ABOVE THE FINISH GRADE.

SCALE: 1"=50'
0 25 50

LEGEND

- 5180- 5' CONTOUR
- 5181- 1' CONTOUR
- 0.00 x SPOT ELEVATION
- STORM DRAIN MANHOLE
- STORM DRAIN
- EXISTING SAS MH
- OVERHEAD ELECTRIC
- POWER POLE
- POWER POLE
- EXISTING TOP OF CURB AND FLOWLINE ELEVATIONS
- PROPOSED TOP OF CURB
- A RETAINING WALL 15' OR LESS
- A RETAINING WALL 15' OR MORE

APPROVED FOR ROUGH GRADING
(11 FT.)
CITY HYDROLOGIST DATE

RYALS
5301 Central N.E.
(505) 256-4701

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP
TITLE: SUNRISE MEADOWS SUBDIVISION, UNIT II
GRADING AND DRAINAGE PLAN

Design Review Committee City Engineer Approval

City Project No. 545681 Zone Map No. L-9 Sheet 5 of 18

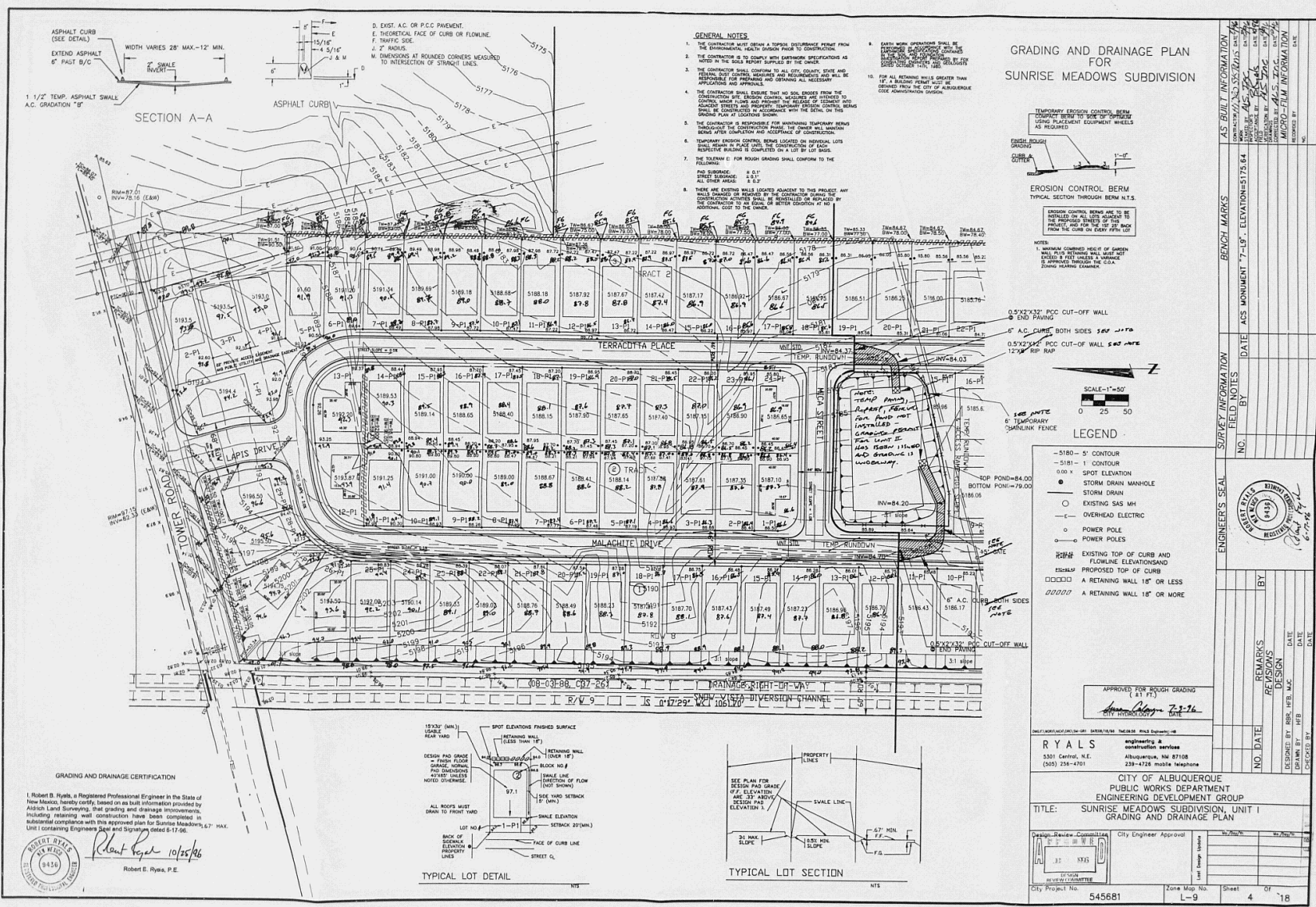
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99	8/10/82	99	8/10/82
100	8/10/82	100	8/10/82

PLAN SHOWN TWICE
ONCE ON LIGHT
ONCE ON DARK

CITY OF ALBUQUERQUE
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The photographic process used meets the Basic Microfilm Standards of the National Micrographic Association (NS115-1977)

NOTARY PUBLIC
Randy Dyer
OFFICIAL SEAL
Randy Dyer
Notary Public
State of New Mexico
My Comm. Expires 12/31/82



AS BUILT INFORMATION		BENCH MARKS	
NO.	DESCRIPTION	DATE	ACROSS MONUMENT
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SURVEY INFORMATION		ENGINEER'S SEAL	
NO.	TELEPHONE	BY	DATE
1	256-4701	RYALS	7-75
REVISIONS		DATE	
NO.	DATE	BY	REASON
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2	10-75	RYALS	REVISION
3	10-75	RYALS	REVISION
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19	10-75	RYALS	REVISION
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21	10-75	RYALS	REVISION
22	10-75	RYALS	REVISION

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DATE 3-7-75
CITY OF ALBUQUERQUE

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(ANSI Z39.18-1977)

Robert E. Ryals
DIRECTOR

Robert E. Ryals
OFFICIAL
Robert E. Ryals
10/25/76

OCT 28 1995

SITE DATA:

EPIC CASE # _____

LEGAL DESCRIPTION:
WEST OF WESTLAND, ROW 4, UNIT B, TRACT 1, A PORTION OF TRACT 2 TOGETHER WITH
SNOW WATA DIVERSION CHANNEL R/W & S, AND
TRACT 3, A PORTION OF TRACT 4, SURVUE TERRACE
EXISTING ZONING.....P-R-2, R-D, R-1

PROPOSED ZONING.....R-T

NET LOT AREA.....= 12,409 AC

STREET ROW.....= 3,769 AC

DRAINAGE.....= 0,460 AC

PARK.....= 2,502 AC

TOTAL AREA = 21,140 AC

ZONE ATLAS INDEX NO.....= L-9

NUMBER OF EXISTING TRACTS.....= 4

NUMBER OF TRACTS CREATED.....= 1

NUMBER OF LOTS CREATED.....= 108

SEE SITE DEVELOPMENT PLAN FOR SET BACKS

[illegible]

AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION	
--------------------	--

ENGINEER'S SEAL

[illegible]

UE
MENT
GRO
ON,
PLA

RYALS
5301 Central, N.E.
(505) 258-4701

engineering &
construction services
Albuquerque, NM 87105
259-4726 mobile fax

CITY OF ALBUQUERQUE	
PUBLIC WORKS DEPARTMENT	
ENGINEERING DEVELOPMENT GROUP	
TITLE:	SUNRISE MEADOWS SUBDIVISION, UNIT GRADING AND DRAINAGE PLAN

Design, Review, Construction City Engineer Approval

DESIGN

REVIEW COMMITTEE	
City Project No. 545681	Zone

CITY OF ALBUQUERQUE
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ORIGINAL DOCUMENT.

R# 27 DATE 3-27-02 OP EP

CITY OF ALBUQUERQUE

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The photographic process used meets the Basic Microfilm Standards of the National Micrographics Association (MS115-1977)

[Signature]
DIRECTOR

2

P. 2

Roberta Khan
NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
STATE OF NEW MEXICO
Roberta Duran

A12

CITY OF ALBUQUERQUE

C

SUNRISE MEADOWS SUBDIVISION, UNIT II

ALBUQUERQUE, NEW MEXICO

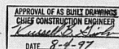
IMPROVEMENTS FOR GRADING, PAVING, AND UTILITIES

INDEX OF DRAWINGS

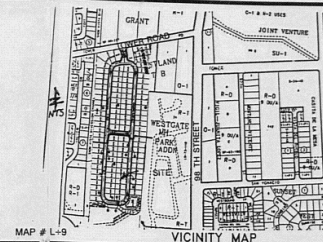
SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	SUBDIVISION PLAT
3.	GRADING PLAN
4.	COMPOSITE PAVING PLAN
5.	COMPOSITE UTILITY PLAN
PAVING PLAN AND PROFILES	
6.	MALACHITE DRIVE (STA 8+68 TO STA 15+02)
7.	TERRACOTTA PLACE (STA 8+60.00 TO STA 15+10.46)
UTILITY PLAN AND PROFILES	
8.	MALACHITE DRIVE (STA 8+68.00 TO STA 15+02.83)
9.	TERRACOTTA PLACE (STA 8+60.00 TO STA 15+10.46)
10.	SNOW VISTA CHANNEL STORM DRAIN
11.	POND DETAILS

I, Robert B. Ryals, a Registered Professional Engineer in the State of New Mexico do hereby certify that (based on as constructed information provided by Adkins Land Surveying) grading and drainage improvements have been completed in substantial compliance with the approved grading and drainage plan.

Robert B. Ryals
Robert B. Ryals, P.E.



DRB 96-41



GENERAL NOTES

- All work detailed on these plans to be performed under contract shall, except as otherwise stated or provided for herein, be constructed in accordance with the City of Albuquerque Standard Specifications for Public Works Construction 1988 Edition as amended with Update No. 6.
- Prior to construction, the Contractor shall excavate & 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 minimum delay.
- Two (2) working days prior to any excavation, Contractor must contact Line Locating Service @ 250 - 1990 for location of existing utilities.
- Warning - EXISTING UTILITY LINE LOCATIONS are shown in an approximate manner only, and such lines may exist where none are shown. The location of any such existing lines is based upon information provided by the utility company, the owner, or by others, and the information may be incomplete or may be obsolete by the time construction commences.

The engineer has undertaken no field verification of the location, depth, size, or type of existing underground utility lines, makes no representation pertaining thereto. The contractor shall inform itself of the location of any utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify, and preserve any and all existing utilities. The contractor shall comply with State statutes, municipal and local ordinances, rules and regulations pertaining to the location of these lines and facilities, in planning and conducting excavation, whether by calling or notifying the utilities, complying with "Blue Stakes" procedures, or otherwise.

- TRAFFIC CONTROL: Five (5) working days prior to beginning construction the contractor shall submit to the Construction Co-ordination Division a detailed construction schedule. Two (2) working days prior to construction the contractor shall obtain a barricading permit from the Construction Co-ordination Division. Contractor shall notify Barricade Engineer (768-2551) prior to occupying an intersection. See section 19 of the specifications.
- All street striping altered or destroyed shall be replaced with plastic reflectorized pavement marking by the contractor to the location as existing or as otherwise shown on these plans.
- The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
- The contractor is responsible for protecting and maintaining all existing monumentation controls. In the event of inadvertent destruction or alteration the contractor must immediately notify the City Chief Surveyor.
- Any work affecting an arterial roadway requires twenty-four completion.

RYAL Engineering & Construction Services
5301 Camino, N.E.
Albuquerque, NM 87108
(505) 254-4761
258-1718 Mobile Telephone

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE
ENGINEERS STAMP & SIGNATURE 							
APPROVALS 							
APPROVED FOR CONSTRUCTION 							
CITY PROJECT NO. 545682 Sheet 1 OF 11							

CITY OF ALBUQUERQUE
THIS MICROFILM IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

DATE: 3-27-98 BY: EDP

CITY OF ALBUQUERQUE
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The photographic process used meets the Basic Microfilm Standards of the National Microfilm Association (ANSI Z39.48-1997)
Chris H. Hays
DIRECTOR

Robert B. Ryals
NOTARY PUBLIC
OFFICIAL SEAL
Robert B. Ryals
Notary Public
New Mexico

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L9/D14

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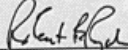
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**DRAINAGE REPORT
SUNRISE MEADOWS SUBDIVISION**

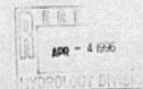
Prepared for AMERICAN SOUTHWEST HOMES LTD., CO.
By RYALS ENGINEERING AND CONSTRUCTION SERVICES CO.

Prepared by


ROBERT B. RYALS, P. E.

3-29-96

Date



25x10

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SUNRISE MEADOWS SUBDIVISION
DRAINAGE REPORT
MAP: L-9-2
MARCH 29, 1996

LEGAL DESCRIPTION

West of Westland, Row 4, Unit B, Tract 3 and a portion of Tract 2 together with Snow Vista Diversion right-of-way B and Tract C, Unit 2-Phase A, Sunrise Terrace.

FLOOD HAZARD

The site is on FEMA FIRM Panel 33 (October 14, 1983).

Tower Road at the north end of the project is in Zone AO (Depth 1). See discussion below on the Snow Vista Diversion Channel under PRESENT CONDITIONS. The rest of the project is in Zone C.

PRESENT CONDITIONS

The total area of the proposed subdivision site is 21.14 acres and it will be located on land that is presently undeveloped. The site lies between the Snow Vista Channel and 98th Street just south of Tower Road. The site varies in elevation from 5,174 ft. at its southeast corner to 5,202 ft. at its northwest corner. The surrounding area is almost entirely residential consisting mainly of single family homes interspersed with town homes, a mobile home park, and some commercial development.

A hydrologic analysis for existing conditions was conducted. Section 22.2 of the City of Albuquerque Design Process Manual (Jan. 93) was used to determine runoff quantities. The area is located in precipitation zone 1. Since the total drainage basin area is less than 40 acres, the simplified procedure in Part A of the DPM was applied. Exhibit No. 1 contains the input data and the results of the hydrologic calculations. In summary, the on-site, existing peak discharge rate from the 100-year, 6-hour storm event is 42.7 cfs. The corresponding runoff volume is 52,054 cu.ft. (1.195 ac.ft.).

SNOW VISTA DIVERSION CHANNEL

Since the FIRM was issued, a major flood control project, the Snow Vista Diversion Channel, was constructed just to the west of the proposed project. The diversion channel effectively cuts off most offsite flow into the project area. The offsite drainage

1

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area was reduced from approximately 84 acres to 4.6 acres. All drainage flow from the 4.6 acres is contained within the right-of-way of Tower Road. A Conditional Letter of Map Revision (CLOMR) will be filed with FEMA through the City/County Floodplain Administrator to remove this area from the Zone AO designation.

PROPOSED CONDITIONS AND HYDROLOGIC/HYDRAULIC ANALYSIS

ONSITE DRAINAGE

The site will be developed in two phases. Phase 1 will consist of the construction of 60 single family residences and a temporary retention pond on a total area of 11.17 acres. Phase 2 will consist of the construction of 46 single family residences and a permanent detention pond. Final total development will consist of 106 single family residences on 18.6 acres. 2.5 acres will be set aside on the south end of the site for the development of a future park by the City of Albuquerque. The housing density is 5.7 dwelling units per acre. Lots will vary in size from 5,000 sf. to 6,350 sf. The lots along the eastern boundary will have a 21' wide area that will contain backyard ponds. These ponds will contain only the runoff from the backyard and not from the roofs.

During phase 1, a temporary retention pond with a surface area of approximately 0.5 acre will be constructed. During phase 2, the temporary retention pond will be filled in and a permanent detention pond with a surface area of 0.46 acre will be provided at the southeast corner of the site. See below for more information on how the retention and detention ponds were sized.

Phase 1 - Retention Pond Sizing

During phase 1, a temporary retention pond will be constructed that will contain the entire runoff from the 100-year, 10-day storm event. The pond will not have an outlet. Section 22.2 of the DPM was used to determine runoff volume. The simplified procedure was applied. Exhibit No. 1 contains the input data and the results of the hydrologic calculations for phase 1. In summary, the total runoff volume for the 100-year, 10-day event is 88,979 cu.ft. (2.043 ac.ft.).

Pond Capacity Calc.
See Appendix

2

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Combined Phase 1 and Phase 2 - Detention Pond Sizing

A hydrologic analysis was conducted to determine the impact of the entire project. Section 22.2 of the DPM was used to determine runoff volume. The simplified procedure was applied. Exhibit No. 1 contains the input data and the results of the hydrologic calculations for the combined phases. In summary, the total peak discharge rate and runoff volume for the 100-year, 6-hour event are 61.8 cfs. and 93,713 cu. ft. (2.15 ac.ft.), respectively. The runoff per acre of land is 3.3 cfs.

All onsite drainage flow will eventually outflow into the Snow Vista Diversion Channel. It was assumed in this analysis that the maximum allowable discharge into the diversion channel is 1.3 cfs. per acre of land. For the 18.64 acre study area, the allowable discharge is 24.2 cfs. To attenuate the peak discharge of 3.3 cfs. per acre, a detention pond will be constructed. The detention pond will be located at the southeast corner of the site. All drainage flow will be conveyed overland to and routed through the pond. The pond will drain by gravity through an approximately 1,060 ft. Long reinforced concrete pipe on a minimum slope of 0.2 percent. In order to limit the peak outflow, a vertical orifice will be placed in the outlet structure.

A hydraulic analysis was conducted to determine the size of the detention pond and the diameter of the orifice. Depth-discharge relationships were developed for orifices of various sizes. The relationships were based on the orifice equation recommended in Section 22.3 of the D.P.M. A depth-discharge table for an 18" and 21" orifice is shown in Exhibit No. 2. The size of the detention pond was determined by utilizing the ROUTE RESERVOIR feature of the ANYMO computer program. The storage-discharge table was developed based on the depth-discharge table, a pond bottom elevation of 5177.0 ft., 2:1 side slopes, and available land area. It was determined that a 21" diameter orifice was the optimal size based on a 24-hour, 100-year event. The input data and summarized output information are contained in Exhibit No. 3.

It was then necessary to size the storm drain pipe from the pond outlet to the inlet at the Snow Vista Diversion Channel. A minimum pipe slope of 0.2 percent and pipe diameter of 24" were assumed. A hydraulic grade line (HGL) analysis was performed from the outlet to the orifice per the City of Albuquerque's D.P.M. The ten-year water surface elevation in the diversion channel was assumed to be the starting water surface elevation. In order to ensure that the pond's volume is not exceeded, the

3

25x

32x

0000 0000 06 18

HGL just downstream of the orifice should neither exceed the water surface elevation in the pond that produces the maximum allowable discharge of 24.2 cfs nor the maximum allowable water surface elevation of 5181.5 ft.

The conveyance capacity of a 24" diameter pipe was found to be restrictive. Several iterations were undertaken with pipes of various diameter to determine the optimal sizes and lengths. The final solution is shown in Exhibit 4.

The total volume of the pond will approximately 1.0 ac.ft. A 27" pipe will convey storm water from the pond. The pipe will extend to the southwest corner of the site. It will then head south in an easement parallel to the Snow Vista Diversion Channel. Approximately 400 feet south of the southwest property corner at about Snow Diversion Snow Vista Diversion Channel Sta. 65+00, its invert (5274 ft.) matches the invert of the diversion channel. At this point, the inlet to the diversion will be constructed.

Exhibit No. 5 contains the Grading and Drainage Plan.

OFFSITE DRAINAGE

As mentioned above, offsite drainage will be contained to the right-of-way of Tower Rd. and, thus, it will not impact the subdivision site directly. Improvements to the Tower Road right-of-way that are part of this project will ensure that the offsite runoff will stay within the right-of-way and not impact this project.

SUMMARY OF HYDROLOGY

1. **METHODOLOGY:** Albuquerque DPM method for 40 Acres or less (JAN.93).
2. **DESIGN STORM:** 100-Year, 6-Hour, Rain Zone 1 = 2.69" (TABLE A2)
3. **LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A5)**
 - TREATMENT A = NATURAL, Qp = 1.29
 - TREATMENT B = LANDSCAPING, Qp = 2.03
 - TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 2.87
 - TREATMENT D = IMPERMEABLE, Qp = 4.37

4

25x

32x

0000 0000 0619

4. SUMMARY OF RESULTS

	EXISTING	PROPOSED (Phase 1 & 2)	OFFSITE
TREATMENT A AC, %	0, 0	0, 0	N/A
TREATMENT B AC, %	12.9, 69	8.4, 45	
TREATMENT C AC, %	5.8, 31	0, 0	
TREATMENT D AC, %	0, 0	10.3, 55	
TOTAL AC, %	18.7, 100	18.7, 100	

Qpeak, CFS	42.7	61.8
VOLUME, 6-HOUR, CU FT	52,054	93,713
VOLUME, 6-HOUR, AC FT	1.195	2.544

25x10

32x10

0000 0000 0620

SUNRISE MEADOWS SUBDIVISION, CITY OF ALBUQUERQUE
HYDROLOGICAL CALCULATIONS

PER - 841 W-1
ALBUQUERQUE, N.M. (D-10) CRITERIA - SIMPLE PROCEEDING FOR -- 40 ACRES
PHASE 1 - PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM
VOLUME - VOLUME OF RUNOFF FROM 100-YEAR 6-HOUR STORM
TREAT CLASS A - UNDEVELOPED, B - LAWNS, C - IMPAVED ROADS, D - ROOFPAVEMENT SEE DRAIN 22.5.4

***** PROJECT INFO *****
SUNRISE MEADOWS
CITY OF ALBUQUERQUE
EXISTING AND PROPOSED CONDITIONS

RAIN AC 1 SEE DRAIN 22.2.2
100-YEAR PRECIPITATION (P) INCHES
1.00 4.00 24.00 10.00 10.00
1.87 2.20 2.80 3.10 3.47

01/20/96 01/27/96 EXISTING CONDITIONS										
TREAT	AREA	AREA	PHASE 1	PHASE 2	PHASE 3	VOLUME	VOLUME	VOLUME	VOLUME	TOTAL
CLASS	AC	AC	AC	AC	AC	AC	AC	AC	AC	PERCENT
A	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00
B	12.90	12.90	8.40	2.80	0.00	0.00	0.00	0.00	0.00	0.00
C	5.80	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	0.00	0.00	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	18.70	18.70	18.70	3.00	0.00	0.00	0.00	0.00	0.00	0.00

01/20/96 01/27/96 PROPOSED CONDITIONS - PHASE 1 AND PHASE 2 - BUILDING UNITS AND STREETS										
TREAT	AREA	AREA	PHASE 1	PHASE 2	PHASE 3	VOLUME	VOLUME	VOLUME	VOLUME	TOTAL
CLASS	AC	AC	AC	AC	AC	AC	AC	AC	AC	PERCENT
A	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00
B	12.90	12.90	8.40	2.80	0.00	0.00	0.00	0.00	0.00	0.00
C	5.80	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	0.00	0.00	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	18.70	18.70	18.70	3.00	0.00	0.00	0.00	0.00	0.00	0.00

01/20/96 01/27/96 PROPOSED CONDITIONS - PHASE 1 AND PHASE 2 - BUILDING UNITS AND STREETS										
TREAT	AREA	AREA	PHASE 1	PHASE 2	PHASE 3	VOLUME	VOLUME	VOLUME	VOLUME	TOTAL
CLASS	AC	AC	AC	AC	AC	AC	AC	AC	AC	PERCENT
A	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00
B	12.90	12.90	8.40	2.80	0.00	0.00	0.00	0.00	0.00	0.00
C	5.80	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D	0.00	0.00	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	18.70	18.70	18.70	3.00	0.00	0.00	0.00	0.00	0.00	0.00

Shore
draw
needed!

25x10

32x10

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ORIFICE EQUATION

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

Where:

Q = discharge in cfs.

C = discharge coefficient (0.60 for circular, sharp edged orifices)

A = area of the opening in sq. ft.

g = 32.2 ft/sec²

H = head in ft. (depth of flow as measured from the middle of the orifice)

HEAD (FT.)	DISCHARGE (CFB.) (18" DIAM.)	DISCHARGE (CFB.) (21" DIAM.)
0.13	3.01	4.09
0.25	4.25	5.79
0.63	6.73	9.16
0.75	7.37	10.03
1.13	9.02	12.28
1.25	9.51	12.95
1.63	10.85	14.76
1.75	11.26	15.32
2.13	12.40	16.68
2.25	12.76	17.37
2.63	13.79	18.76
2.75	14.11	19.21

25x10

32x10

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DETENTION POND SIZING

ATKINS PROGRAM (REVISED) - MAXIMA VERSION OF HYDRO - MARKE, 1993
 RUN DATE: 08/24/93
 USER: J. L. STALL, JR.
 PROJECT: 1.0000 INCHES PER HOUR
 INPUT FILE: 1.0000 INCHES PER HOUR

START 0.0000
 END 0.0000
 HYDROLOGICAL
 HYDROLOGICAL
 HYDROLOGICAL

PROPOSED CONDITIONS
 ZONE 1 (MAP # 1-1)
 ZONE 2 (MAP # 1-2)
 ZONE 3 (MAP # 1-3)
 ZONE 4 (MAP # 1-4)
 ZONE 5 (MAP # 1-5)
 ZONE 6 (MAP # 1-6)
 ZONE 7 (MAP # 1-7)
 ZONE 8 (MAP # 1-8)
 ZONE 9 (MAP # 1-9)
 ZONE 10 (MAP # 1-10)

COMPUTE RUN HYD
 ID=1 RFD=1 AREA=0.0000 SQ. FT.
 UNIT PEAK = 0.0000 CFS
 UNIT VOLUME = 0.0000 CU. FT.
 UNIT TIME = 0.0000 HOURS
 UNIT RATIO = 0.0000

UNIT PEAK = 0.0000 CFS
 UNIT VOLUME = 0.0000 CU. FT.
 UNIT TIME = 0.0000 HOURS
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UNIT PEAK = 0.0000 CFS
 UNIT VOLUME = 0.0000 CU. FT.
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UNIT PEAK = 0.0000 CFS
 UNIT VOLUME = 0.0000 CU. FT.
 UNIT TIME = 0.0000 HOURS
 UNIT RATIO = 0.0000

UNIT PEAK = 0.0000 CFS
 UNIT VOLUME = 0.0000 CU. FT.
 UNIT TIME = 0.0000 HOURS
 UNIT RATIO = 0.0000

25x10

32x10

0000 0000 0625

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunrise Meadows-Unit 1 ZONE ATLAS/DESG. FILE #: L-9/1014
 DRN #: 96-41 REC #: 2-96-72 WORK ORDER #:
 LEGAL DESCRIPTION: West of Killebrew Dr. Unit B, Tract 3 and a portion of
 CITY ADDRESS: Tract C, Unit 2-Phase A, Sunrise Terrace
 ENGINEERING FIRM: Ryals Engineering CONTACT: Robert Ryals
 ADDRESS: 5701 Central PHONE: 256-4741
 OWNER: American Southwest Homes CONTACT: Mark Bell
 ADDRESS: 9808 Menaul, Suite 6 PHONE: 254-9855
 ARCHITECT: 8711 2 CONTACT:
 ADDRESS: PHONE:
 SURVEYOR: CONTACT:
 ADDRESS: PHONE:
 CONTRACTOR: CONTACT:
 ADDRESS: PHONE:

TYPE OF SUBMITTAL:

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

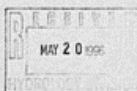
PRE-DESIGN MEETING:

☐ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAN APPROVAL
☐ PRELIMINARY PLAN APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLOC. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☒ FINAL PLAN APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ OTHER (SPECIFY)

DATE SUBMITTED

BY: R. Ryals 5/17/96

25x10

32x10

0000 0000 0626

RYALS engineering & construction services
 5301 Central Ave. NE • Suite 913 • Albuquerque, New Mexico 87108
 (505) 256-4701

May 15, 1996

City of Albuquerque
 Hydrology Division
 Susan M. Calogno
 City/County Floodplain Administrator
 One Civic Plaza
 Albuquerque, New Mexico 87102

RE: Sunrise Meadows Subdivision Units I & II- Grading and Drainage Plans

Dear Ms. Calogno:

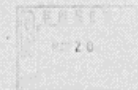
To receive final plat approval, I am resubmitting for your review the grading and drainage plan for Sunrise Meadows Subdivision Units I & II (now on two sheets). The following changes have been made to the plan since the approved plan dated March 29, 1996 was submitted.

1. A single retaining wall along the eastern boundary of the property has replaced the double retaining wall.
2. The entrance to the subdivision was moved to the east to comply with City of Albuquerque's clear-sight distance requirements.
3. The rundowns to the temporary retention pond are more clearly shown. Also, an access ramp to that pond has been added.

If you have further questions, please contact me at 256-4701.

Sincerely,

Robert B. Ryals
 Robert B. Ryals, P. E.



25x10

32x10

0000 0000 0627



April 23, 1996

Martin J. Chávez, Mayor

Bob Ryals, P.E.
5301 Central Ave. NE
Albuquerque, New Mexico 87108

RE: GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS UNITS I & II (L9D14),
SUBMITTED FOR PRELIMINARY PLAT APPROVAL AND GRADING PERMIT APPROVAL,
ENGINEER'S STAMP DATED 3/29/96.

Dear Mr. Ryals:

The concepts presented in the above referenced drainage report are acceptable for Units I & II. The above referenced grading and drainage plan is approved for Preliminary Plat action and for Grading permit release for Unit I only. As you are aware, a top-soil disturbance permit must be obtained before any grading may occur.

Please be advised that the temporary retention pond for Unit I must be located within a drainage easement, and a covenant must be in place to assure that this pond will be privately maintained. This must be identified on the final plat, unless construction of Unit II commences and the pond is relocated.

Prior to approval for Unit II, a resubmittal will be required. At that time either the study by AMAFCA will identify the release rate into the Snow Vista Channel from your subdivision, or the proposed detention pond will have to be sized as a temporary retention pond.

I may require additional information and details for Unit I prior to approval of your work order plans. If you should have any questions, please feel free to call me at 768-2666.

Sincerely,

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

c: Andrew Garcia, City Hydrology
Larry Caudill, Environmental Health

PDS

Good for You, Albuquerque!

25 x 10

32 x 10

0000 0000 0628

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunrise Meadows Unit I & II ZONE ATLAS/DRNG. FILE #: 17-6-9/214
DES #: 96-41 EFG #: _____ WORK ORDER #: _____
LEGAL DESCRIPTION: West of Westland Road 4, Unit I & II, Tract 27, Contained
CITY ADDRESS: Tract with Snow Vista Rd 87, 3 Tract C, Sunrise Meadows, 174 Ave
ENGINEERING FIRM: Ryals Eng CONTACT: Bob Ryals
ADDRESS: 5301 Central Ave NE PHONE: 256-4701
OWNER: American Southwest Homes CONTACT: _____
ADDRESS: 7004 Hamanul PHONE: _____
ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CONTRACTOR: _____ 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 MEETING:

- ☐ 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
☐ SECTION PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ SUBDIVISION CERTIFICATION
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4-24-96BY: Bob Ryals

APR - 4 1996

HYDROLOGY DIVISION

25 x 10

32 x 10

0000 0000 0629



Martin J. Chavez, Mayor

June 19, 1996

Bob Ryals, P.E.
5301 Central Ave. NE
Albuquerque, New Mexico 87108

RE: REVISED GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS UNIT I
(L&D 14). SUBMITTED FOR FINAL PLAT APPROVAL, ENGINEER'S STAMP DATED
5/16/96.

Dear Mr. Ryals:

Based on the information provided in the submittal of May 20, 1996 the above referenced
revised grading plan is approved for Final Plat action.

Please be advised that the Engineer's Certification must be in compliance with this approved
plan.

If you should have any questions, or if I may be of further assistance to you, please call me.

Sincerely,

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

c File

Good for You, Albuquerque

25x10

32x10

0000 0000 0630

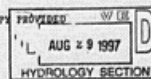
DRAINAGE INFORMATION SHEET

PROJECT TITLE: SUNRISE MEADOWS II ZONE ATLAS/DESG. FILE #: L4/D14
 DBS #: 96-41 EPC #: 59-652 WORK ORDER #: 59-652
 LEGAL DESCRIPTION: _____
 CITY ADDRESS: _____
 ENGINEERING FIRM: Ryals Engineering CONTACT: Bob Ryals
 ADDRESS: 5301 CENTRAL AVE. NE PHONE: 754-4781
 OWNER: AMERICAN SOUTHWEST HOMES CONTACT: NICK BELL
 ADDRESS: 416 GILMAN RD SE PHONE: 754-9655
 ARCHITECT: N/A CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: ALAN L. VANDERKAM CONTACT: 884-1990
 ADDRESS: _____ PHONE: _____
 CONTRACTOR: HYDROTECHNICAL, INC. CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:
☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION
☐ OTHER

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 APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☒ OTHER: Release of Financial Guarantees (SPECIFY)

PRE-DESIGN MEETING:
☐ YES
☐ NO
☐ COPIES PROVIDED ☒ W/ ☐ D



DATE SUBMITTED: 7/22/97

BY: Ryals Engineering

25x10

32x10

0000 0000 0631

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunrise Meadows Unit II ATLAS/DEMG. FILE #: 29/214
 DRD #: 96-41 EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: Tracts A & B Sunrise Meadows Unit II
 CITY ADDRESS: _____
 ENGINEERING FIRM: Rob Engineering CONTACT: Rob Rob
 ADDRESS: 5301 Central Ave NE PHONE: 254-4701
 OWNER: American Southwest Homes CONTACT: Mike Bell
 ADDRESS: 9104 Menard PHONE: 254-9655
 ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CONTRACTOR: _____ 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 MEETING:

____ 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 APPROVAL
 ____ S.A.D. DRAINAGE REPORT
 ____ DRAINAGE REQUIREMENTS
 ____ OTHER: _____ (SPECIFY)

DATE SUBMITTED: 8-14-96BY: Rob

25x10

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AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
 RUN DATE (MONDAY/YR) = 08/15/1996
 START TIME (HR:MIN:SEC) = 11:44:47 USER NO. = RYALS_NH.01
 INPUT FILE = sm24_3.hym

START 0.0 HRS 0

*S FILE: SM.HYM

*=====

* SUNRISE MEADOWS SUBDIVISION - HYDROLOGY

*=====

* PROPOSED CONDITIONS

* ZONE 1 (MAP # L-7)

RAINFALL TYPE=2 RAIN QUARTER=0.0

RAIN ONE=1.80 IN RAIN=2.19 IN

RAIN DAY=2.69 IN DT=0.033333 HRS

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 -

PEAK AT 1.40 HR

DT = 0.033333 HOURS END TIME = 19.966470 HOURS

0000	0013	0027	0041	0055	0070	0085
0100	0116	0132	0148	0165	0182	0200
0218	0237	0257	0277	0298	0319	0342
0365	0389	0414	0440	0467	0495	0525
0557	0590	0625	0678	0733	0793	0922
1209	1651	2285	3152	4290	5741	7548
9753	11750	12647	13368	14009	14592	15129
15628	16094	16531	16942	17330	17696	18043
18371	18683	18978	19259	19525	19784	19961
19992	19742	19789	19835	19879	19921	19961
20000	20038	20074	20110	20144	20177	20210
20241	20272	20302	20331	20360	20388	20415
20442	20468	20493	20519	20543	20567	20591
20615	20637	20660	20682	20704	20725	20747
20767	20788	20808	20828	20848	20867	20886
20905	20923	20942	20960	20978	20996	21013
21030	21047	21064	21081	21097	21114	21130
21146	21161	21177	21192	21208	21223	21238
21253	21267	21282	21296	21311	21325	21339
21353	21367	21380	21394	21407	21421	21434
21447	21460	21473	21485	21498	21511	21523
21536	21548	21560	21572	21584	21596	21608
21620	21632	21643	21655	21666	21677	21689
21700	21711	21722	21733	21744	21755	21766
21778	21787	21798	21808	21819	21829	21839
21850	21860	21870	21880	21890	21900	21914
21928	21942	21956	21970	21984	21998	22012

25x10

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0000 0000 0633

2 2026 2 2040 2 2054 2 2067 2 2081 2 2095 2 2109
 2 2122 2 2136 2 2149 2 2163 2 2177 2 2190 2 2203
 2 2217 2 2230 2 2244 2 2257 2 2270 2 2284 2 2297
 2 2310 2 2323 2 2337 2 2350 2 2363 2 2376 2 2389
 2 2402 2 2415 2 2429 2 2441 2 2454 2 2467 2 2480
 2 2492 2 2505 2 2518 2 2531 2 2544 2 2556 2 2569
 2 2582 2 2594 2 2607 2 2619 2 2632 2 2644 2 2657
 2 2669 2 2682 2 2694 2 2707 2 2719 2 2731 2 2744
 2 2756 2 2768 2 2781 2 2793 2 2805 2 2817 2 2829
 2 2841 2 2854 2 2866 2 2878 2 2890 2 2902 2 2914
 2 2926 2 2938 2 2950 2 2961 2 2973 2 2985 2 2997
 2 3009 2 3021 2 3032 2 3044 2 3056 2 3067 2 3079
 2 3091 2 3102 2 3114 2 3126 2 3137 2 3149 2 3160
 2 3172 2 3183 2 3195 2 3206 2 3217 2 3229 2 3240
 2 3252 2 3263 2 3274 2 3285 2 3297 2 3308 2 3319
 2 3330 2 3342 2 3353 2 3364 2 3375 2 3386 2 3397
 2 3408 2 3419 2 3430 2 3441 2 3452 2 3463 2 3474
 2 3485 2 3496 2 3507 2 3518 2 3529 2 3540 2 3550
 2 3561 2 3572 2 3583 2 3593 2 3604 2 3615 2 3626
 2 3636 2 3647 2 3658 2 3668 2 3679 2 3689 2 3700
 2 3710 2 3721 2 3732 2 3742 2 3752 2 3763 2 3773
 2 3784 2 3794 2 3805 2 3815 2 3825 2 3836 2 3846
 2 3856 2 3867 2 3877 2 3887 2 3897 2 3908 2 3918
 2 3928 2 3938 2 3948 2 3958 2 3969 2 3979 2 3989
 2 3999 2 4009 2 4019 2 4029 2 4039 2 4049 2 4059
 2 4069 2 4079 2 4089 2 4099 2 4109 2 4118 2 4128
 2 4138 2 4148 2 4158 2 4168 2 4177 2 4187 2 4197
 2 4207 2 4216 2 4226 2 4236 2 4246 2 4255 2 4265
 2 4275 2 4284 2 4294 2 4303 2 4313 2 4323 2 4332
 2 4342 2 4351 2 4361 2 4370 2 4380 2 4389 2 4399
 2 4408 2 4418 2 4427 2 4436 2 4446 2 4455 2 4465
 2 4474 2 4483 2 4493 2 4502 2 4511 2 4520 2 4530
 2 4539 2 4548 2 4557 2 4567 2 4576 2 4585 2 4594
 2 4603 2 4613 2 4622 2 4631 2 4640 2 4649 2 4658
 2 4667 2 4676 2 4685 2 4694 2 4703 2 4712 2 4721
 2 4730 2 4739 2 4748 2 4757 2 4766 2 4775 2 4784
 2 4793 2 4802 2 4811 2 4820 2 4828 2 4837 2 4846
 2 4855 2 4864 2 4873 2 4881 2 4890 2 4899 2 4908
 2 4916 2 4925 2 4934 2 4942 2 4951 2 4960 2 4968
 2 4977 2 4986 2 4994 2 5003 2 5012 2 5020 2 5029
 2 5037 2 5046 2 5054 2 5063 2 5072 2 5080 2 5089
 2 5097 2 5106 2 5114 2 5122 2 5131 2 5139 2 5148
 2 5156 2 5165 2 5173 2 5181 2 5190 2 5198 2 5206
 2 5215 2 5223 2 5231 2 5240 2 5248 2 5256 2 5265
 2 5273 2 5281 2 5289 2 5298 2 5306 2 5314 2 5322
 2 5331 2 5339 2 5347 2 5355 2 5363 2 5371 2 5379
 2 5388 2 5396 2 5404 2 5412 2 5420 2 5428 2 5436
 2 5444 2 5452 2 5460 2 5468 2 5476 2 5484 2 5492
 2 5500 2 5508 2 5516 2 5524 2 5532 2 5540 2 5548
 2 5556 2 5564 2 5572 2 5580 2 5588 2 5595 2 5603
 2 5611 2 5619 2 5627 2 5635 2 5642 2 5650 2 5658
 2 5666 2 5674 2 5681 2 5689 2 5697 2 5705 2 5712

25x10

32x10

0000 0000 0634

2 5720 2 5728 2 5736 2 5743 2 5751 2 5759 2 5766
 2 5774 2 5782 2 5789 2 5797 2 5805 2 5812 2 5820
 2 5827 2 5835 2 5843 2 5850 2 5858 2 5865 2 5873
 2 5880 2 5888 2 5895 2 5903 2 5910 2 5918 2 5925
 2 5933 2 5940 2 5948 2 5955 2 5963 2 5970 2 5978
 2 5985 2 5993 2 6000 2 6007 2 6015 2 6022 2 6030
 2 6037 2 6044 2 6052 2 6059 2 6066

COMPUTE NM HYD ID=1 HYD NO=1 AREA=0.0292 SQ MI
 PER A=0.00 PER B=45.0 PER C=0.0 PER D=55.0
 TP=1667 HR MASS RAIN=1

K = .090852HR TP = 166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N
 = 7.106420
 UNIT PEAK = 50.702 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.8900

AREA = .016060 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -
 DT = .033333

K = .163374HR TP = 166700HR K/TP RATIO = .980045 SHAPE CONSTANT, N
 = 3.603328
 UNIT PEAK = 25.838 CFS UNIT VOLUME = .9996 B = 327.79 P60 = 1.8900

AREA = .013140 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=10

OUTFLOW HYDROGRAPH REACH 1.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0	4.000	3	8.000	4	12.000	3
0.333	0	4.333	2	8.333	4	12.333	3
0.667	0	4.667	2	8.667	4	12.667	3
1.000	0	5.000	2	9.000	4	13.000	3
1.333	9.1	5.333	2	9.333	4	13.333	3
1.667	37.6	5.667	3	9.667	4	13.667	3
2.000	14.1	6.000	3	10.000	3	14.000	3
2.333	3.9	6.333	4	10.333	3	14.333	3
2.667	1.7	6.667	4	10.667	3	14.667	3

25x10

32x10

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2 3.000 .8 7.000 .4 11.000 .3 15.000 .3 19.000
 2 3.333 .5 7.333 .4 11.333 .3 15.333 .3 19.333
 2 3.667 .3 7.667 .4 11.667 .3 15.667 .3 19.666

RUNOFF VOLUME = 1.80525 INCHES = 2.4999 ACRE-Feet
 PEAK DISCHARGE RATE = 55.53 CFS AT 1.533 HOURS BASIN AREA = .0292
 SQ. MI.

PUNCH HYD ID=1

* 21" ORIFICE (new 2:1 slope)

ROUTE RESERVOIR ID=2 HYD=500 INFLOW ID=1 CODE=10
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)

0	0	76.0
4.09	0.1784	77.0
9.16	0.2783	77.5
12.28	0.3781	78.0
14.76	0.489	78.5
16.88	0.5999	79.0
18.76	0.722	79.5
20.47	0.8441	80.0
22.01	1.1084	81.0
23.52	1.2500	81.5

TIME INFLOW ELEV VOLUME OUTFLOW
 (HRS) (CFS) (FEET) (AC-FT) (CFS)

.00	.00	76.00	.000	.00
.33	.00	76.00	.000	.00
.67	.00	76.00	.000	.00
1.00	.00	76.00	.000	.00
1.33	9.05	76.19	.034	.77
1.67	37.56	76.87	.512	20.02
2.00	14.08	80.06	.861	20.57
2.33	3.87	78.89	.575	16.41
2.67	1.66	77.54	.287	9.44
3.00	.82	76.89	.159	3.65
3.33	.47	76.54	.097	2.22
3.67	.32	76.33	.059	1.39
4.00	.26	76.21	.037	.85
4.33	.23	76.14	.025	.56
4.67	.22	76.10	.018	.41

25X

32X

0000 0000 0636

5.00	.23	76.08	.014	.32
5.33	.25	76.07	.012	.28
5.67	.27	76.07	.012	.27
6.00	.29	76.07	.012	.28
6.33	.41	76.08	.014	.31
6.67	.42	76.09	.016	.36
7.00	.42	76.10	.017	.39
7.33	.41	76.10	.017	.40
7.67	.40	76.10	.017	.40
8.00	.39	76.10	.017	.40
8.33	.36	76.10	.017	.39
8.67	.36	76.09	.017	.39
9.00	.37	76.09	.017	.38
9.33	.36	76.09	.016	.37
9.67	.36	76.09	.016	.37
10.00	.35	76.09	.016	.36
10.33	.34	76.09	.015	.35
10.67	.34	76.08	.015	.35
11.00	.33	76.08	.015	.34
11.33	.33	76.08	.015	.33
11.67	.32	76.08	.014	.33
12.00	.32	76.08	.014	.32
12.33	.31	76.08	.014	.32
12.67	.30	76.08	.014	.31
13.00	.30	76.08	.013	.31
13.33	.30	76.07	.013	.30
13.67	.29	76.07	.013	.30
14.00	.29	76.07	.013	.29
14.33	.28	76.07	.013	.29
14.67	.28	76.07	.012	.29
15.00	.28	76.07	.012	.28
15.33	.27	76.07	.012	.28
15.67	.27	76.07	.012	.27
16.00	.26	76.07	.012	.27
16.33	.26	76.07	.012	.27
16.67	.26	76.06	.011	.26
17.00	.25	76.06	.011	.26
17.33	.25	76.06	.011	.26
17.67	.25	76.06	.011	.25
18.00	.24	76.06	.011	.25
18.33	.24	76.06	.011	.25
18.67	.24	76.06	.011	.24
19.00	.24	76.06	.011	.24
19.33	.23	76.06	.010	.24
19.67	.23	76.06	.010	.24

PEAK DISCHARGE = 20.864 CFS - PEAK OCCURS AT HOUR 1.83
 MAXIMUM WATER SURFACE ELEVATION = 80.236
 MAXIMUM STORAGE = 5117 AC-FT INCREMENTAL TIME = .033333HRS

PRINT HYD ID=2 CODE=10

OUTFLOW HYDROGRAPH RESERVOIR 500.00

25X

32X

0000 0000 0638

PARADISE MEADOWS UNIT II

WEIR CONDITION: $Q = CLH^{3/2}$

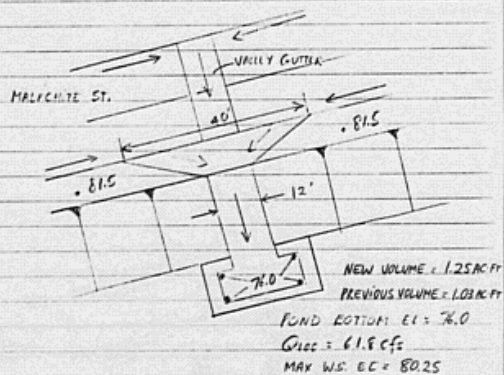
$Q_{top} = 61.8 \text{ cfs}$ $Q_{weir} = 56.5 \text{ cfs}$

AT TREATMENT ENTRANCE WEIR $L = 40'$

$56.5 \text{ cfs} = 2.65 (40')^{3/2}$
 $H = 0.66'$

WEIR $L = 12'$

$56.5 \text{ cfs} = 2.65 (12')^{3/2}$
 $H = 1.97'$



25x10

32x10

0000 0000 0639

HEC-2 WATER SURFACE PROFILES
 CORPS OF ENGINEERS

CENTER
 Version 4.6.2, May 1991
 SUITE D

95618-4687
 RUN DATE 14JUN95 TIME 05:04:01
 756-1104

U.S. ARMY
 HYDROLOGIC ENGINEERING
 609 SECOND STREET,
 DAVIS, CALIFORNIA
 (916)

X X XXXXXXXX XXXXX XXXXX
 X X X X X X X X
 X X X X X X X X
 XXXXXXXX XXXX X XXXXX XXXXX
 X X X X X X X
 X X X X X X X
 X X XXXXXXXX XXXXX XXXXXXXX

14JUN95 05:04:01

PAGE 1

THIS RUN EXECUTED 14JUN95

05:04:01
 HEC-2 WATER SURFACE PROFILES
 Version 4.6.2, May 1991

T1 SUNRISE MEADOW UNIT II
 T2 SUPERCRITICAL ANALYSIS
 T3 MELACHITE STATION

J1	CHECK	INQ	NNV	IDR	STRT	METRIC	HVNS	Q	WSEL	PQ
2.0	1.0	0.01				0.3				

J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC IBW CHNIM

25x10

32x10

0000 0000 0640

ITRACE

1.0 -1. -1.

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

43 1 2 26 25 4 3 68

NC 0.017 0.017 0.017
 QT 6.0 28.0 30.0 31.4 28.0 30.0 31.4
 X1 0.00 7.00 0.00 28.34 0.01 0.01 0.01
 GR 0.67 0.00 0.00 0.17 0.125 2.17 0.365 14.17 0.125
 26.17
 GR 0.00 28.17 0.67 28.34

1 14JUN95 05:04:01

PAGE 2

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL CLOSS
 L-BANK ELEV
 Q QLOB QCH GROB ALOB ACH AROB VOL TWA
 R-BANK ELEV
 TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
 SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID
 ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

*SECNO .000
 .000 .49 .49 .53 .30 .70 .20 .00 .00 .67
 28.0 .0 28.0 .0 0 7.7 .0 0 0 .67
 .00 .00 3.62 .00 .000 .017 .000 .000 .00 .04
 .010008 0. 0. 0. 0. 17 7 .00 28.25 28.30

1 14JUN95 05:04:01

PAGE 3

T1 SUNRISE MEADOW UNIT II
 T2 SUPERCRITICAL ANALYSIS
 T3 MELACHITE STATION

J1 ICHECK INQ NINV IDIR STRT METRIC HVINS Q WSEL FQ
 3.0 1.0 0.01 0.3

J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC ISW CHNM

25x

32x

0000 0000 0641

ITRACE

2.0 -1. -1.

1 14JUN95 05:04:01

PAGE 4

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL CLOSS
 L-BANK ELEV
 Q QLOB QCH GROB ALOB ACH AROB VOL TWA
 R-BANK ELEV
 TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
 SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID
 ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

*SECNO .000
 .000 .50 .50 .54 .30 .72 .21 .00 .00 .67
 30.0 .0 30.0 .0 0 8.1 .0 0 0 .67
 .00 .00 3.72 .00 .000 .017 .000 .000 .00 .04
 .010007 0. 0. 0. 0 17 7 .00 28.26 28.30

1 14JUN95 05:04:01

PAGE 5

T1 SUNRISE MEADOW UNIT II
 T2 SUPERCRITICAL ANALYSIS
 T3 MELACHITE STATION

J1 ICHECK INQ NINV IDIR STRT METRIC HVINS Q WSEL FQ
 4.0 1.0 0.01 0.3

J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC ISW CHNM
 ITRACE

3.0 -1. -1.

1 14JUN95 05:04:01

PAGE 6

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL CLOSS
 L-BANK ELEV
 Q QLOB QCH GROB ALOB ACH AROB VOL TWA

25x

32x

0000 0000 0642

R-BANK ELEV
TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID
ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

*SECNO .000
.000 .51 .51 .55 .30 .74 .22 .00 .00 .67
31.4 0 31.4 0 0 8.3 0 0 0 .67
.00 .00 3.79 .00 .000 .017 .000 .000 .00 .04
.010007 0. 0. 0. 0. 17 7 .00 28.26 28.30

1 14JUN95 05:04:01

PAGE 7

T1 SUNRISE MEADOW UNIT II
T2 SUPERCRITICAL ANALYSIS
T3 TERRA STATION

J1 ICHECK INQ NNW IDIR STRT METRIC HVINS Q WSEL FQ
5.0 1.0 0.005 0.3

J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC ISW CHNIM
ITRACE

4.0 -1. -1.

1 14JUN95 05:04:01

PAGE 8

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL OLOSS
L-BANK ELEV
Q QLOB QCH QROB ALOB ACH AROB VOL TWA
R-BANK ELEV
TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID
ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

*SECNO .000

0000 0000 0643

3720 CRITICAL DEPTH ASSUMED

.000 .53 .53 .53 .30 .69 .16 .00 .00 .67
28.0 0 28.0 0 0 8.7 0 0 0 .67
.00 .00 3.20 .00 .000 .017 .000 .000 .00 .04
.006689 0. 0. 0. 0. 17 7 .00 28.27 28.30

1 14JUN95 05:04:01

PAGE 9

T1 SUNRISE MEADOW UNIT II
T2 SUPERCRITICAL ANALYSIS
T3 TERRA STATION

J1 ICHECK INQ NNW IDIR STRT METRIC HVINS Q WSEL FQ
6.0 1.0 0.005 0.3

J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC ISW CHNIM
ITRACE

5.0 -1. -1.

1 14JUN95 05:04:01

PAGE 10

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL OLOSS
L-BANK ELEV
Q QLOB QCH QROB ALOB ACH AROB VOL TWA
R-BANK ELEV
TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID
ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

*SECNO .000

3720 CRITICAL DEPTH ASSUMED

.000 .54 .54 .54 .30 .71 .17 .00 .00 .67
30.0 0 30.0 0 0 9.2 0 0 0 .67
.00 .00 3.27 .00 .000 .017 .000 .000 .00 .03
.006544 0. 0. 0. 0. 17 7 .00 28.28 28.31

1 14JUN95 05:04:01

PAGE 11

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T1 SUNRISE MEADOW UNIT II
T2 SUPERCRITICAL ANALYSIS
T3 TERRA STATION

J1 ICHECK INQ HINV IDIR STRT METRIC HVINS Q WSEL FQ
7.0 1.0 0.005 0.3

J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC ISW CHNIM
ITRACE
15.0 -1. -1.

1 14JUN95 05:04:01 PAGE 12

SECNO DEPTH CWSEL CRWS WSELK EG HV HL CLOSS
L-BANK ELEV
Q QLOB QCH QROB ALOB ACH AROB VOL TWA
R-BANK ELEV
TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID
ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

*SECNO .000
3720 CRITICAL DEPTH ASSUMED
0.00 55 55 55 30 73 .17 .00 .00 .67
31.4 .0 31.4 .0 0 9.5 0 .0 0 .67
.00 .00 3.32 .00 .000 .017 .000 .000 .00 .03
.006442 0. 0. 0. 0 17 7 .00 28.28 28.31

1 14JUN95 05:04:01 PAGE 13

05:04:01
HEC-2 WATER SURFACE PROFILES

THIS RUN EXECUTED 14JUN95

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Version 4.6.2: May 1991

NOTE: ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MELACHITE STATION

SUMMARY PRINTOUT

Q	CWSEL	CRWS	VCH	AREA	TOPWID	EG	FRCH
28.000	.49	.53	3.62	7.75	28.25	.70	1.22
30.000	.50	.54	3.72	8.06	28.26	.72	1.23
31.400	.51	.55	3.79	8.29	28.26	.74	1.23
* 28.000	.53	.53	3.20	8.74	28.27	.69	1.02
* 30.000	.54	.54	3.27	9.17	28.28	.71	1.01
* 31.400	.55	.55	3.32	9.47	28.28	.73	1.01

1 14JUN95 05:04:01 PAGE 14

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 28.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 28.000 PROFILE= 5 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 28.000 PROFILE= 6 CRITICAL DEPTH ASSUMED

25x10

32x10

0000 0000 0646

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Sunrise Meadows Unit 1 ZONE ATLAS/DRNG. FILE #: 19/D14
 LEGAL DESCRIPTION: Sunrise Meadows Unit 1
 CITY ADDRESS: _____
 ENGINEERING FIRM: Ryals Engineering CONTACT: Robert Ryals
 ADDRESS: 5301 Central NE #913 PHONE: 256-4701
 OWNER: American Southwest Homes CONTACT: Nick Bell
 ADDRESS: 9004 Menaul #6 PHONE: 254-9655
 ARCHITECT: N/A CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: Aldrich Land Surveying CONTACT: Tim Aldrich
 ADDRESS: _____ PHONE: 884-1990
 CONTRACTOR: Hydro Systems, Inc. CONTACT: Lee Smith
 ADDRESS: _____ PHONE: 344-3840

PRE-DESIGN MEETING:

☐ YES DRB NO. 06-41
☐ NO EPC NO. _____
☐ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING AND DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:
☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☐ SITE DEVELOPMENT PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ ROUGH GRADING PERMIT APPROVAL
☐ GRADING/PAVING PERMIT APPROVAL

DATE SUBMITTED: 10-25-94
 BY: [Signature] OTHER: FINANCIAL (SPECIFY)
GUARANTEE RELEASE

OCT 28

HYDROLOGY DIVISION

25x10

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SUNRISE MEADOWS
LA/DH

ANAFCA STORM SEWER PERMIT

This permit is for connection of publicly maintained storm sewers and drainage rundowns to ANAFCA facilities. Privately maintained facilities require separate license agreement. The following information must be filled in, with this form and certificate of insurance returned to ANAFCA prior to construction.

ANAFCA Facility Name: SNOW VISTA CHANNEL
 Station #, L or R: 66+60 RIGHT
 100 Yr Flowrate: 7.9 cfs per sq. built

Connection Details:
 Size & Type: 30" RCP
 Peak Flow Rate: 28 cfs
 100yr 6hr Volume: N/A

Drainage Report Approved by ANAFCA? Y/N: YES

By: K.B. [Signature]
 Date: 10/96

Maintenance Details:

Reach in ANAFCA Right of Way to be Maintained by: CITY OF ALBUQUERQUE
 Concurrence by Agency: Shannon [Signature]
 Title: Superintendent Storm Drainage Met.
 Upstream Reach Maintained by: CITY OF ALBUQUERQUE
 Concurrence by Agency: Shannon [Signature]
 Title: Superintendent Storm Drainage Met.

Construction Plans Approved by ANAFCA? Y/N: YES

By: [Signature]
 Date: 11/8/96

Developer Name:

Contact: _____
 Phone # _____

Contractor Name:

Superintendent: _____
 Phone #s: Office _____
 Mobile _____

Attach Certificate of Insurance from Contractor, naming ANAFCA as additional insured for Comprehensive or Commercial General Liability Insurance for Bodily Injury and Property Damage, occurrence form, in the amount of a combined single limit of \$1,000,000 each occurrence. Certificate not required if work is by Public Agency forces.

Albuquerque
 Metropolitan
 Arroyo
 Flood
 Control
 Authority

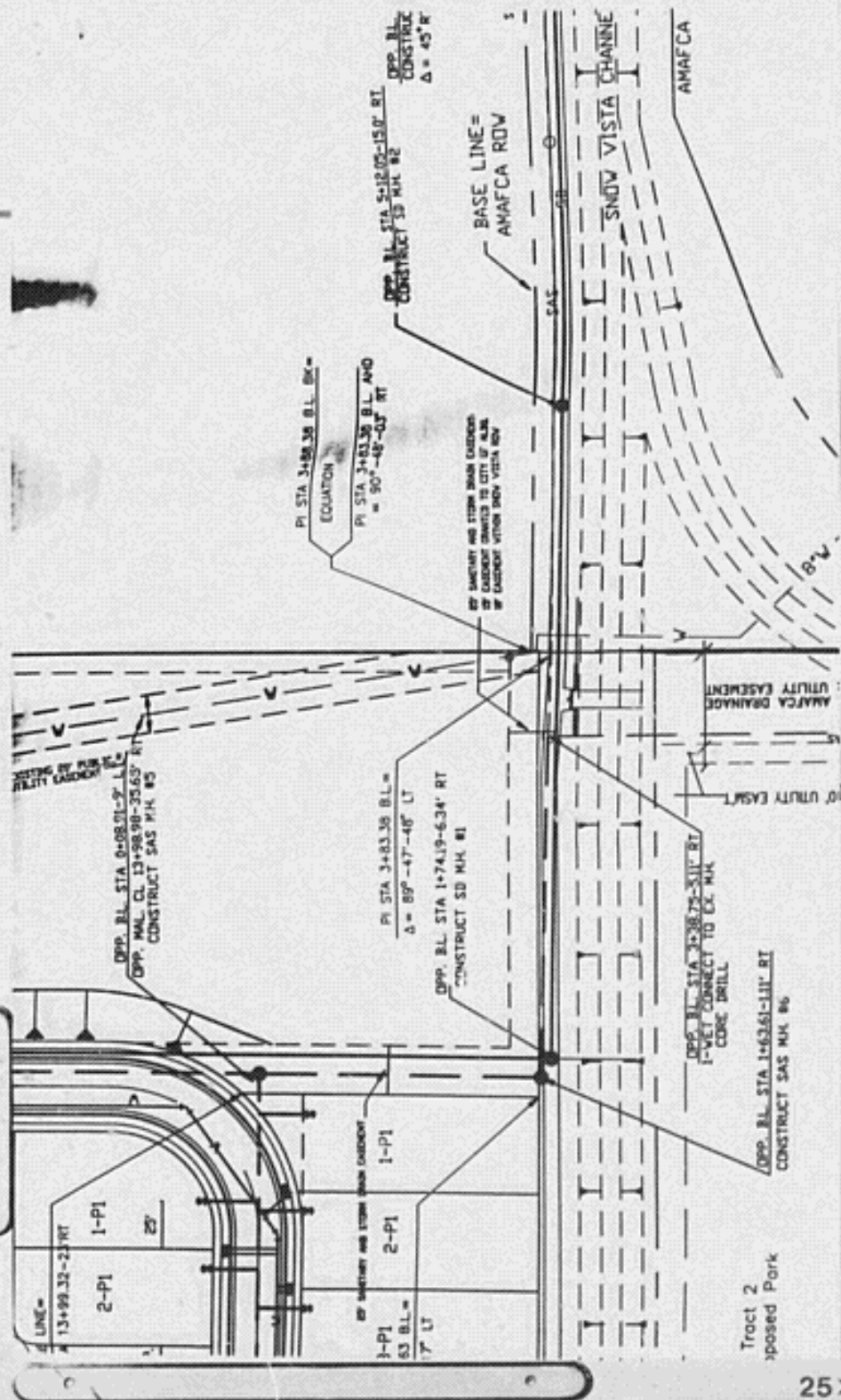
Storm Sewer Permit, June 1995

FORM PROJECT # 1 - ALBUQUERQUE N.H. 8101

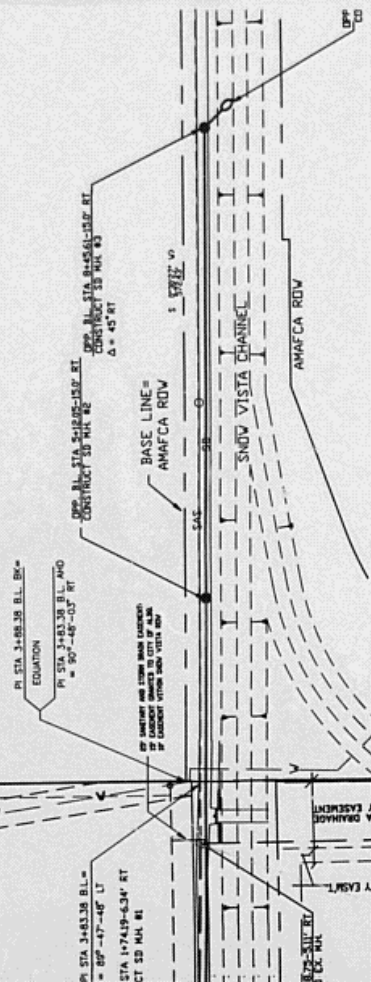
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TYPICAL SE



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November 7, 1996

RE: ENGINEER'S CERTIFICATION FOR SUNRISE MEADOWS UNIT I (L9/D14), ENGINEER'S
STAMP DATE 10/25/96.

Based on the information provided in the submittal of October 28, 1996, the above referenced plan is adequate to satisfy the requirement for Subdivision Certification.

The construction of the temporary pond shown in Unit I may be waived if the pond shown in Unit II has either been financially guaranteed or accepted through the Work Order process.

If you should have any questions, or if I may be of further assistance to you, please call me at 768-2666.

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

C. Terri Martin
File

Good for You. Albuquerque!

25x10

32x10

0000 0000 0651



August 29, 1997

Martin J. Chávez, Mayor

Bob Ryals, P.E.
5301 Central Ave. NE, Suite 913
Albuquerque, New Mexico 87108

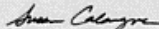
RE: Engineer's Certification for Sunrise Meadows Unit II, (L9/D14) Submitted for Release of Financial Guarantees, Engineer's Stamp Dated 7/27/97.

Dear Mr. Ryals:

The above referenced Engineer's Certification for Sunrise Meadows Unit II is adequate to satisfy the requirement for Grading and Drainage Certification for release of financial guarantees per the Infrastructure List signed on September 10, 1996.

If you should have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,


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

c: Terri Martin (Project No. 545682)
File

Good for You, Albuquerque!

25 x 10

32 x 10

0000 0000 0652



September 4, 1996

Martin J. Chávez, Mayor

Bob Ryals, P.E.
5301 Central Ave. NE
Albuquerque, New Mexico 87108

RE: GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS UNIT II (L9/D14), SUBMITTED FOR PRELIMINARY PLAT APPROVAL AND GRADING PERMIT APPROVAL, ENGINEER'S STAMP DATED 8/13/96.

Dear Mr. Ryals:

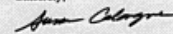
Based on the information provided in the submittal of August 14, 1996, the above referenced grading and drainage plan is approved for Preliminary Plat action and for Grading permit release.

As you are aware, a top-soil disturbance permit must be obtained before any grading may occur.

Please be advised that the Engineer's Certification of this approved plan will be required prior to release of the financial guarantees.

If you should have any questions, please do not hesitate to call me.

Sincerely,


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

c: Andrew Garcia, City Hydrology
Larry Caudill, Environmental Health
File

Good for You, Albuquerque!

25 x 10

32 x 10

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Martin J. Chávez, Mayor

June 19, 1996

Bob Ryals, P.E.
5301 Central Ave. NE
Albuquerque New Mexico 87108

RE: REVISED GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS UNIT I
(L9/D14), SUBMITTED FOR FINAL PLAT APPROVAL, ENGINEER'S STAMP DATED
5/16/96.

Dear Mr. Ryals:

Based on the information provided in the submittal of May 20, 1996 the above referenced
revised grading plan is approved for Final Plat action.

Please be advised that the Engineer's Certification must be in compliance with this approved
plan.

If you should have any questions, or if I may be of further assistance to you, please call me.

Sincerely,

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

Good for You. Albuquerque!

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: SUNRISE MEADOWS ZONE ATLAS/DRNG. FILE #: L9/D14
DES #: _____ ETC #: _____ WORK ORDER #: _____
LEGAL DESCRIPTION: West of Westland, ROW 4 Unit B, Lot 13 & 14 Parcel 1 & Parcel 2
CITY ADDRESS: Together with San Jose Division, Parcel ROW 8, and
TRACT C, Unit 2 PHASE A SUNRISE TERRACE
ENGINEERING FIRM: Ryals Engineering CONTACT: Bob Ryals
ADDRESS: 5301 Central Ave NE PHONE: 254-761
OWNER: American Southwest Homes CONTACT: Wick Bell
ADDRESS: 7004 Mesquite PHONE: 254-7655
ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
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 MEETING:

☐ 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 APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ OTHER (SPECIFY)

DATE SUBMITTED: 7-18-96BY: Bob Ryals

FEB 2 1996

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DRAINAGE REPORT
SUNRISE MEADOWS SUBDIVISION

Prepared for AMERICAN SOUTHWEST HOMES, LTD.

By RYALS ENGINEERING AND CONSTRUCTION SERVICES, CO.

Prepared by

Robert B. Ryals
ROBERT B. RYALS, P. E.



2-15-96

Date

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SUNRISE MEADOWS SUBDIVISION
DRAINAGE REPORT
FEBRUARY 19, 1996

MAP: L-9-Z

LEGAL DESCRIPTION

West of Westland, Row 4, Unit B, Tract 3 and a portion of Tract 2 together with Snow Vista Diversion right-of-way 8 and Tract C, Unit 2-Phase A, Sunrise Terrace.

FLOOD HAZARD

The site is on FEMA FIRM Panel 33 (October 14, 1983).

Tower Road at the north end of the project is in Zone AO (Depth 1). See discussion below on the Snow Vista Diversion Channel under PRESENT CONDITIONS. The rest of the project is in Zone C.

PRESENT CONDITIONS

The total area of the proposed subdivision is 21.14 acres and it will be located on land that is presently undeveloped. It lies between the Snow Vista Channel and 98th Street just south of Tower Road. The site varies in elevation from 5,174 ft. at its southeast corner to 5,202 ft. at its northwest corner. The surrounding area is almost entirely residential consisting mainly of single family homes interspersed with town homes, a mobile home park, and some commercial development.

A hydrologic analysis for existing conditions was conducted. Section 22.2 of the City of Albuquerque Design Process Manual (Jan. 93) was used to determine runoff quantities. The area is located in precipitation zone 1. Since the total drainage basin area is less than 40 acres, the simplified procedure in Part A of the DPM was applied. Exhibit No. 1 contains the input data and the results of the hydrologic calculations. In summary, the on-site, existing peak discharge rate from the 100-year, 6-hour storm event is 42.7 cfs. The corresponding runoff volume is 52,054 cu.ft. (1.195 ac.ft.).

Snow Vista Diversion Channel

Since the FIRM was issued, a major flood control project, the Snow Vista Diversion Channel, was constructed just to the west of the proposed project. The diversion channel effectively cuts off

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most offsite flow into the project area. The offsite drainage area was reduced from approximately 84 acres to 4.6 acres. All drainage flow from the 4.6 acres is contained within the right-of-way of Tower Road. A Conditional Letter of Map Revision (CLOMR) will be filed with FEMA through the City/County Floodplain Administrator to remove this area from the Zone AO designation.

PROPOSED CONDITIONS AND HYDROLOGIC/HYDRAULIC ANALYSIS

The site will be developed with 106 single family residences. The housing density is 5.7 dwelling units per acre. Lots will vary in size from 5,000 sq. ft. to 6,350 sq. ft. The lots along the eastern boundary will have a 21' wide area that will contain backyard ponds. These ponds will contain only the runoff from the backyard and not from the roofs. A detention pond with a surface area of 0.46 acre will also be provided. See below for more information on the detention pond. An area of 2.5 acres on the south end of the site will be set aside for a park to be constructed in the future. This park will not drain into the subdivision and, therefore, its area is not part of this analysis.

A hydrological study was conducted to determine the impacts of the proposed subdivision. Section 22.2 of the DPM was used to determine runoff quantities. The simplified procedure was applied. Exhibit No. 1 contains the input data and the results of the hydrologic calculations. In summary, the total peak discharge rate and runoff volume for the 6-hour, 100-year event are 61.8 cfs. and 93,713 cu.ft. (2.15 ac.ft.), respectively. The runoff per acre of land is 3.3 cfs.

All onsite drainage flow will eventually outflow into the Snow Vista Diversion Channel. It was assumed in this analysis that the maximum allowable discharge into the diversion channel is 1.3 cfs. per acre of land. For the 18.64 acre study area, the allowable discharge is 24.2 cfs. To attenuate the peak discharge of 3.3 cfs. per acre, a detention pond will be constructed. The detention pond will be located at the southeast corner of the site. All drainage flow will be conveyed overland and routed through the pond. The pond will drain by gravity through a 24" diameter pipe on a slope of 0.2 percent slope. In order to limit the peak outflow, a vertical orifice will be placed in the outlet structure.

A hydraulic analysis was conducted to determine the size of the detention pond and the diameter of the orifice. Depth-discharge

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relationships were developed for orifices of various sizes. The relationships were based on the orifice equation recommended in Section 22.3 of the D.P.M. A depth-discharge table for an 18" and 21" orifice is shown in Exhibit No. 2. The size of the detention pond was determined by utilizing the ROUTE RESERVOIR feature of the ARHYMO computer program. The storage-discharge table was developed based on the depth-discharge table, an invert elevation (5177.0 ft.), and available land area. It was determined that a 21" diameter orifice was the optimal size based on a 24-hour, 100-year event. A copy of the input and summary output are contained in Exhibit No. 3.

The total volume of the pond will be 0.973 ac.ft. A 24" pipe will convey storm water from the pond. The pipe will extend to the southwest corner of the site. It will then head south in an easement parallel to the Snow Vista Diversion Channel. Approximately 400 feet south of the southwest property corner, its invert matches the invert of the diversion channel. Here it will outlet into the diversion channel.

Exhibit No. 4 contains the Conceptual Grading and Drainage Plan.

SUMMARY OF HYDROLOGY

- METHODOLOGY:** Albuquerque DPM method for 40 Acres or less (JAN-93).
- DESIGN STORM:** 100-Year, 24-Hour, Rain Zone 1 = 2.69" (TABLE A2)
- LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A9)**
TREATMENT A = NATURAL, Qp = 1.29
TREATMENT B = LANDSCAPING, Qp = 2.03
TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 2.87
TREATMENT D = IMPERMEABLE, Qp = 4.37

SUMMARY OF RESULTS		EXISTING	PROPOSED	OFFSITE
				N/A
TREATMENT A	AC, %	0, 0	0, 0	
TREATMENT B	AC, %	12.9, 69	0.4, 45	
TREATMENT C	AC, %	5.8, 31	0, 0	
TREATMENT D	AC, %	0, 0	10.3, 55	
TOTAL	AC, %	18.7, 100	10.7, 100	
Qpeak, CFS		42.7	61.8	
VOLUME, 6-HOUR, CU FT		52,054	93,713	
VOLUME, 6-HOUR, AC FT		1.195	2.544	

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FILE - SM.WQ1

ALBUQUERQUE, NM, DPM (1/79) CRITERIA - SIMPLE PROCEDURE FOR <= 40 ACRES
 PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM
 VOL100 = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM
 TRTMT CLASS A-UNDISTURBED, B-LAWNS, C-UNPAVED ROADS, D-ROOFS, PAVEMENT. SEE DPM P 22-5

***** PROJECT INFO *****

SUN MEADOWS SUBDIVISION
 CITY OF ALBUQUERQUE
 EXISTING AND PROPOSED CONDITIONS

RAIN ZONE 1 SEE DPM P 22-2
 100-YEAR PRECIPITATION (P) DEPTHS, INCHES
 1 HR. 24 HR. 4 DAY 10 DAY
 1.87 2.20 2.66 3.12 3.67

02/16/96 01:19 PM EXISTING CONDITIONS												
TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 IN/AC	QF100-6 CFS/AC	CFS	AC-FT	AC-FT	VOL100 VOL100	VOL100 VOL100	TRTMT TRTMT	PERCENT PERCENT	
A	0.00	0.0000	0.44	1.29	0.000	0.000	0.000	0.000	0.000	0.000	0.00	
B	559982.00	12.8554	0.67	2.03	26.096	0.718	0.718	0.718	0.718	0.718	68.97	
C	251976.00	5.7846	0.99	2.87	16.602	0.477	0.477	0.477	0.477	0.477	31.03	
D	0.00	0.0000	1.97	4.37	0.000	0.000	0.000	0.000	0.000	0.000	0.00	
TOTAL	811958.00	18.6400			42.698	1.195	1.195	1.195	1.195	1.195	100.00	
					CU FT	52054	52054	52054	52054	52054		

02/16/96 01:19 PM PROPOSED CONDITIONS - DWELLING UNITS AND STREETS												
TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 IN/AC	QF100-6 CFS/AC	CFS	AC-FT	AC-FT	VOL100 VOL100	VOL100 VOL100	TRTMT TRTMT	PERCENT PERCENT	
A	0.00	0.0000	0.44	1.29	0.000	0.000	0.000	0.000	0.000	0.000	0.00	
B	365381.00	8.3880	0.67	2.03	17.025	0.468	0.468	0.468	0.468	0.468	45.00	
C	0.00	0.0000	0.99	2.87	0.000	0.000	0.000	0.000	0.000	0.000	0.00	
D	446577.00	10.2520	1.97	4.37	44.801	1.681	2.076	2.469	2.939	2.939	55.00	
TOTAL	811958.00	18.6400			61.829	2.151	2.544	2.937	3.407	3.407	100.00	
					CU FT	97713	110832	127951	148419			

EXHIBIT NO. 1

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ORIFICE EQUATION

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

Where:

Q = discharge in cfs.
 C = discharge coefficient (0.60 for circular, sharp edged orifices)
 A = area of the opening in sq ft.
 g = 32.2 ft/sec.²
 H = head in ft. (depth of flow as measured from the middle of the orifice)

HEAD (FT.)	DISCHARGE (CFS.) (18" DIAM.)	DISCHARGE (CFS.) (21" DIAM.)
0.13	3.01	4.09
0.25	4.25	5.79
0.63	6.73	9.16
0.75	7.37	10.03
1.13	9.02	12.28
1.25	9.51	12.95
1.63	10.85	14.76
1.75	11.26	15.32
2.13	12.40	16.88
2.25	12.76	17.37
2.63	13.79	18.76
2.75	14.11	19.21

EXHIBIT NO. 2

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ATINO PROGRAM (ATINO32) - ANALYTICAL VERSION OF ATINO - MAP 7A, 1982
 START TIME (HH:MM:SS) = 01/19/1986
 INPUT FILE = F:\WORK\ATINO\ATINO_3.DAT USER NO. = 00000001

START 0.0 HRS

FILE: 04.DAT

SURFACE MEASUREMENTS - HYDROLOGY

PROPOSED CONDITIONS

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COMPUTE RM BY

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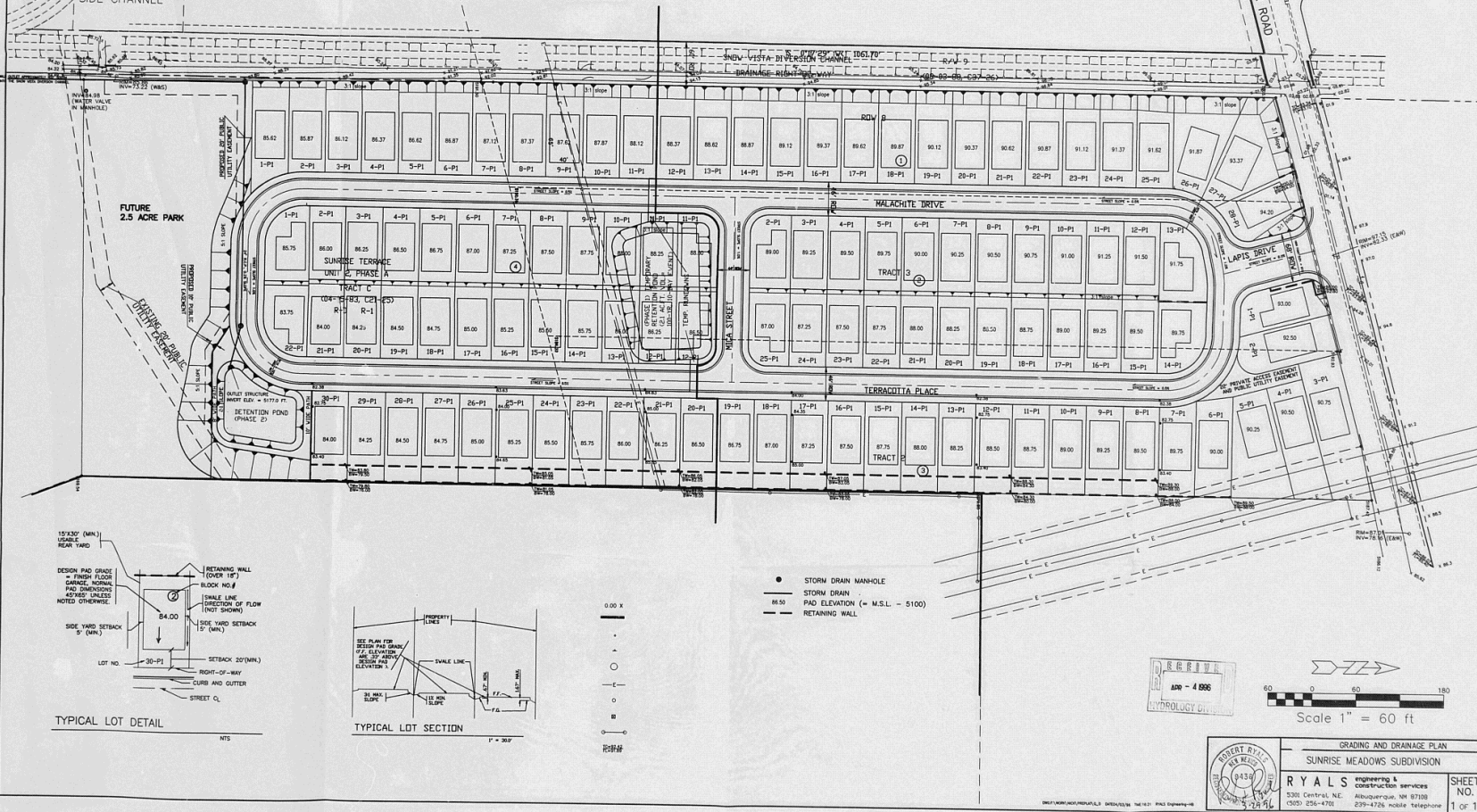


```

SITE DATA:
EPC CASE # .....
LEGAL DESCRIPTION:
WEST OF WESTLAND, ROW 4, UNIT B, TRACT 3
AND PORTION OF TRACT 4 TOGETHER WITH
SNOW MOUNTAIN DIVISION CHANCE R/R AND
TRACT 2 UNIT 2-PHASE A, A SURVEY TERRACE
EXISTING ZONING.....R-T, R-D, R-1
PROPOSED ZONING.....R-T
NET LOT AREA.....= 12,409 AC
STREET ROW.....= 5,769 AC
DRAINAGE.....= 0,460 AC
PARK.....= 2,502 AC
TOTAL AREA = 21,140 AC
ZONE ANALYSIS INDEX NO.....= L-9
NUMBER OF EXISTING TRACTS.....= 4
NUMBER OF TRACTS CREATED.....= 1
NUMBER OF LOTS CREATED.....= 106
SEE SITE DEVELOPMENT PLAN FOR SET BACKS

```

GRADING AND DRAINAGE PLAN
FOR
SUNRISE MEADOWS SUBDIVISION



PLAN SHOT TWICE

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

R# 27 DATE 3-27-02 OF EP

CITY OF ALBUQUERQUE

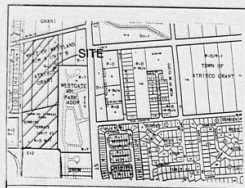
This microimage is certified to be a complete and accurate copy of the original as it appears in the files of the Public Works Department and was created in the normal course of business.

The photographic process used meets the Basic Microfilm Standards of the National Micrographics Association (MS115-1977)

Chas. J. Kelly
DIRECTOR

Roberta Duran
 NOTARY PUBLIC
 OFFICIAL SEAL
 Roberta Duran
 NOTARY PUBLIC
 STATE OF NEW MEXICO
Roberta Duran

CITY OF ALBUQUERQUE



SITE DATA
 EPC CASE #
 LEGAL DESCRIPTION:
 WEST OF WESTLAND, ROW 4, UNIT B, TRACT 3
 AND A PORTION OF TRACT 9, SOUTHERN WITH
 SNOW VISTA DIVERSION CHANNEL, R/W B AND
 TRACT C, UNIT 2-PHASE A, SUNRISE TERRACE
 EXISTING ZONING.....R-T, R-D, R-1
 PROPOSED ZONING.....R-T
 NET LOT AREA.....= 12,409 AC
 STREET ROW.....= 5,769 AC
 DRAINAGE.....= 0,480 AC
 PARK.....= 2,500 AC
 TOTAL AREA = 21,148 AC

ZONE ATLAS INDEX NO.....= L-9
 NUMBER OF EXISTING TRACTS.....= 4
 NUMBER OF TRACTS CREATED.....= 1
 NUMBER OF LOTS CREATED.....= 106
 SEE SITE DEVELOPMENT PLAN FOR SET BACKS

CONCEPTUAL GRADING AND DRAINAGE PLAN FOR SUNRISE MEADOWS SUBDIVISION



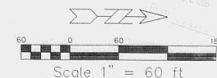
LEGEND (EXISTING CONDITIONS)

- 5180- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- 0.00 x SPOT ELEVATION
- WALL OR HEAD WALL
- BOLLARD
- SIGN
- SANITARY SEWER MANHOLE
- OVERHEAD ELECTRIC LINE
- POWER POLE
- TELEPHONE PEDESTAL
- H-STRUCTURE (DEL. POWER POLE)
- TOP OF CURB/FLOWLINE

LEGEND (PROPOSED CONDITIONS)

- STORM DRAIN MANHOLE
- 66.50 STORM DRAIN
- PAID ELEVATION

BENCHMARK
 ACS MONUMENT
 71.43
 ELEVATION=5175.64



	CONCEPTUAL GRADING AND DRAINAGE PLAN		SHEET NO. 3 OF 4
	SUNRISE MEADOWS SUBDIVISION		
	RYALS engineering & construction services		
	5330 Central, N.E. Albuquerque, NM 87109 (505) 256-4700 229-4700 mobile telephone		

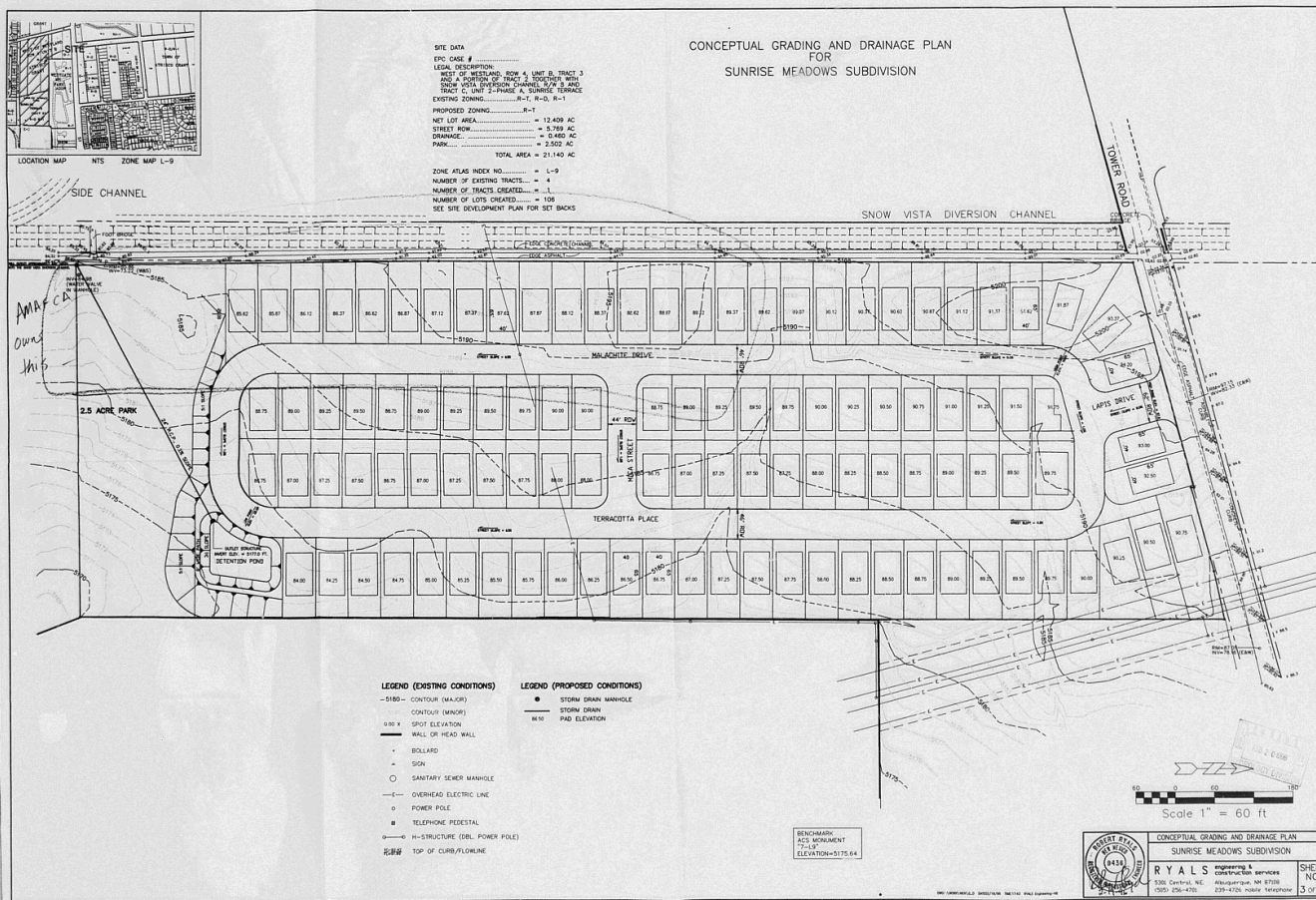
PLAN SHOT TWICE
 ONCE ON LIGHT
 ONCE ON DARK

CITY OF ALBUQUERQUE
 THIS MICROIMAGE IS THE BEST
 POSSIBLE REPRODUCTION RUN
 TO THE POOR QUALITY OF THE
 ORIGINAL DOCUMENT.

DATE 3-27-62 BY EDP

CITY OF ALBUQUERQUE
 This microimage is certified
 to be a complete and accurate
 copy of the original as it
 appears in the files of the
 Public Works Department
 and was created in the normal
 course of business.
 The photographic process used
 meets the Basic Microfilm
 Standards of the National
 Micrographics Association
 (ANSI Z39.18-1977)

Robert Ryals
 ROTARY PUBLIC
 NO. 1044



DATE: 3/2/04 EJP
CITY OF ALBUQUERQUE
This microfilm is certified to be a complete and accurate copy of the original as it appears in the files of the Public Works Department and was created in the normal course of business.
The photographic process used meets the ANSI standards of the National Microfilm Association (Z39.48-1997).
R. J. [Signature]
DIRECTOR

PLAN SETS INDEX
ONCE IN A WHILE
CITY OF ALBUQUERQUE
THIS MICROFILM IS THE BEST
POSTERIOR REPRODUCTION OF THE
TO THE PLAN QUALITY OF THE
ORIGINAL DOCUMENT.

PLANS/PLATS ON FILE
FILE DESC: L9/D14

PLANS/PLATS 11

CITY OF ALBUQUERQUE