of LATTER-DAY SAINTS 認了 STAKE CENTE

ALBUQUERQUE WEST STAKI 4500 7-BAR LOOP ROAD N.W., ALBUQUERQUE, I

PROJECT FOR

THE CHURCH OF

JESUS CHRIST

OF LATTER-DAY SAINTS
PROJECT NAME

ALBUQUERQUE WEST STAKE CENTER

PROJECT ADDRESS

7-BAR LOOP ROAD N.W.
ALBUQUERQUE N.M. 87114

SHEET TITLE

SITE DEVELOPMENT PLAN
D.R.B.

REVISION

PERTY NUMBER S

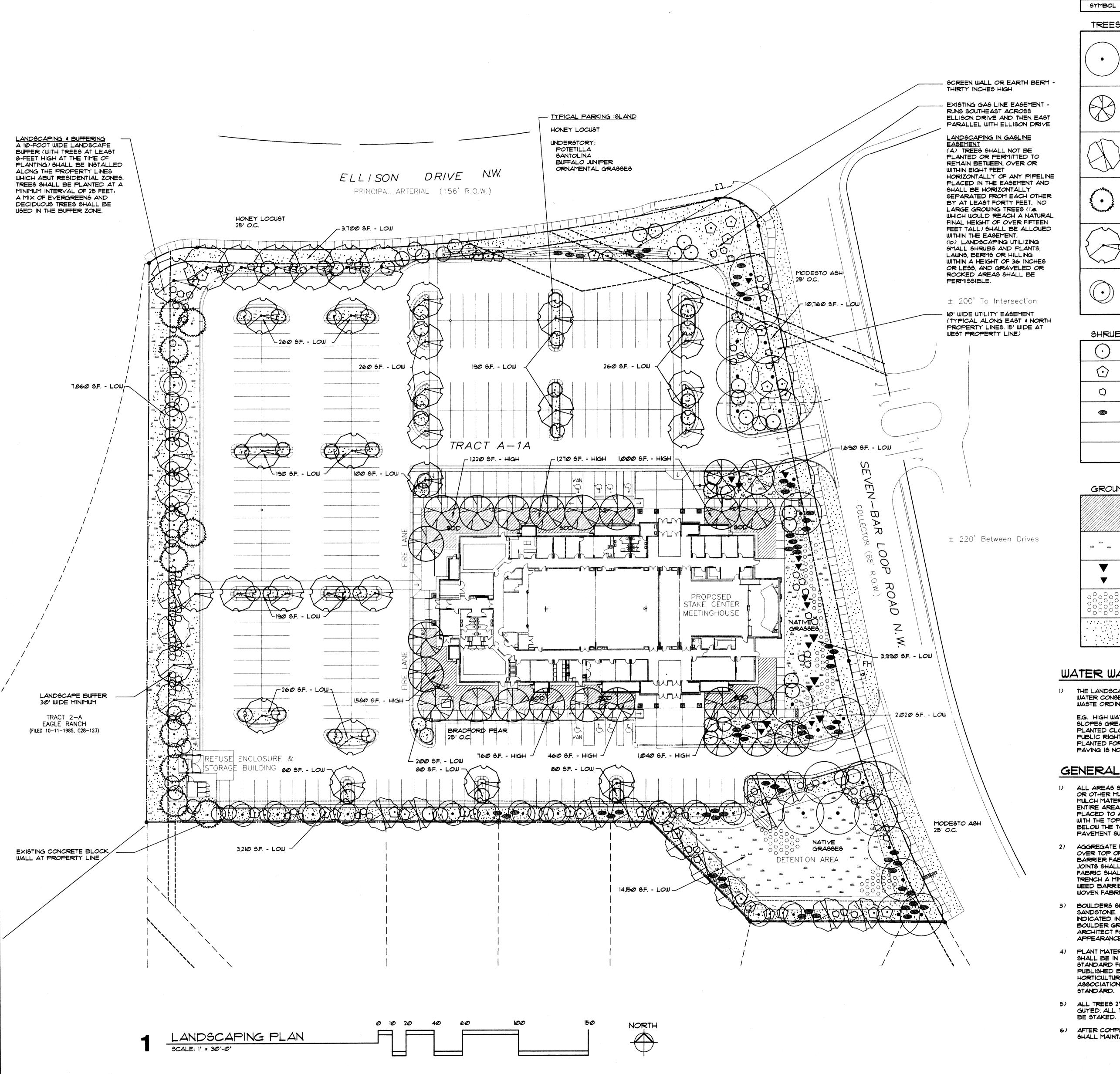
PROPERTY NUMBER
545-1949

DEVELOPMENT
NUMBER
LE98-346T

DATE
12-11-00

SHEET N

A-1



l	PLANTING LEGEND					
SYME	BOL D	ESCRIPTION .		SIZE		HEIGHT SPREAD

TREES			
	FRAXINUS VELUTINA 'Modesto' (MODESTO ASH)	2" CAL. B & B	50' HIGH 30' WIDE
	PYRUS CALLERYANA 'Bradford' (BRADFORD PEAR)	1 1/2" CAL. B & B	20'-30' H 10'-30' W
	FORESTIERA NEOMEXICANA (NEW MEXICO OLIVE) MULTI-TRUNKED	1 1/2" CAL. B & B	20'-30' H 10'-30' W
0	PINUS EDULIS (PINON PINE)	2" CAL. B & B	6'-25' H
	GLEDITSA TRICANTHOS 'Shademaster'	2" CAL. B 4 B	24' H 16' W
	ROBINA NEOMEXICANA (NEW MEXICO LOCUST)	1 1/2' CAL. B & B	15'-20' H

SHRUB	6	•	
0	JUNIPERUS SABINA 'Buffalo' (BUFFALO JUNIPER)	5 GALLON	1' HIGH 10' WIDE
\odot	CHRYSOTHAMNUS NAUSEOSUS	5 GALLON	2'-5' HIGH
٥	POTENTILLA FRUTICOSA 'Farreri' (POTENTILLA, CINQUEFOIL)	5 GALLON	1'-3' HIGH
	SANTOLINA CHAMAECYPARISSUS (SANTOLINA - LAVENDER COTTON)	1 GALLON	1'-2' HIGH

	GROUNE	O COVERS & HARD LANDSCAPING		
		A MIXTURE OF OLYMPIC OR FALCON TALL FESCUE AND BLUEGRASS	SOD	
,	лти пти птя	NATIVE GRASSES		
	V	BOULDER - LARGE SIZE (24" DIAM. MIN.) BOULDER - SMALL/MEDIUM SIZE (12"-18" DIAM.)		
0	0000	COBBLE RIP RAP	4"-6" DIAM.	
:		CRUSHED GRAVEL ADOBE BROWN	3/4" MINUS	

WATER WASTE STATEMENT

THE LANDSCAPE DESIGN SHALL COMPLY WITH THE WATER CONSERVATION LANDSCAPING AND WATER WASTE ORDINANCE.

E.G. HIGH WATER USE TURF SHALL NOT BE USED ON SLOPES GREATER THAN 4:1, AND NO TURF SHALL BE PLANTED CLOSER THAN EIGHT FEET TO THE CURB IN PUBLIC RIGHT OF WAY, ALL SLOPES MUST BE PLANTED FOR EROSION CONTROL (IMPERVIOUS PAVING IS NOT ALLOWED).

GENERAL NOTES

- ALL AREAS SPECIFIED TO HAVE AGGREGATE MULCH OR OTHER MULCH MATERIALS SHALL HAVE THE MULCH MATERIALS CONTINUOUS THROUGHOUT THE ENTIRE AREA. MULCH MATERIALS SHALL BE PLACED TO A MINIMUM DEPTH OF FOUR (4) INCHES WITH THE TOP OF THE MULCH APPROXIMATELY I' BELOW THE TOP OF ADJACENT CURBING OR PAVEMENT SURFACES.
- AGGREGATE MULCH MATERIALS SHALL BE PLACED OVER TOP OF A CONTILIOUS FIBERGLASS WEED BARRIER FABRIC. MINIMUM OVERLAP OF THE FABRIC JOINTS SHALL BE TWO (2) FEET. EDGES OF THE FABRIC SHALL BE SECURED BY PLACEMENT IN A TRENCH A MINIMUM OF SIX (6) INCHES DEEP. THE WEED BARRIER SHALL BE A DOWNTT PRO 5 (5 OZ.) WOVEN FABRIC OR PRE-BID APPROVED EQUAL.
- BOULDERS SHALL BE A NATIVE GRANITE OR SANDSTONE. BOULDER SIZE SHALL BE AS INDICATED IN THE PLANT MATERIAL LEGEND. INITIAL BOULDER GROUPINGS SHALL BE REVIEWED BY ARCHITECT FOR ACCEPTANCE AND AS STANDARD APPEARANCE FOR OTHER FOLLOWING LOCATIONS
- 4) PLANT MATERIAL QUALITY, SIZE, AND CONDITION SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK, 1980, AS PUBLISHED BY THE AMERICAN COMMITTEE ON HORTICULTURAL STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. AS A MINIMUM
- 5) ALL TREES 2' CALIPER AND LARGER SHALL BE GUYED. ALL TREES SMALLER THAN 2' CALIPER TO BE STAKED.
- 6) AFTER COMPLETION OF THE CONTRACT, OWNER SHALL MAINTAIN THE LANDSCAPING.

IRRIGATION NOTES

IRRIGATION SHALL BE BY FULLY AUTOMATIC
IRRIGATION SYSTEM DESIGNED WITH LOW FLOW AND
LOW WATER USE. IT SHALL BE SEPARATELY

NET LOT AREA

SITE AREA 214,200 SF. - 24,119 BLDG.

NET LOT AREA 190,080 SF. MINIMUM AMOUNT OF LANDSCAPING REQUIRED 190,090 S.F. × 0.15 = 28,512 S.F.

LOW WATER USE -SHRUBS & NATIVE GRASSES 51,140 SF. LANDSCAPE TOTAL 58,470 SF.

MINIMUM AMOUNT OF LANDSCAPING REQUIRED 58,470 = \$1 % > 15 % MIN. REQUIRED

PLANTING RESTRICTIONS APPROACH MAXIMUM AMOUNT OF SOD ALLOWED 7,330 = 13 % < 20 % MAX. ALLOWED \Box

PROJECT FOR THE CHURCH OF

JESUS CHRIST OF LATTER-DAY SAINTS PROJECT NAME

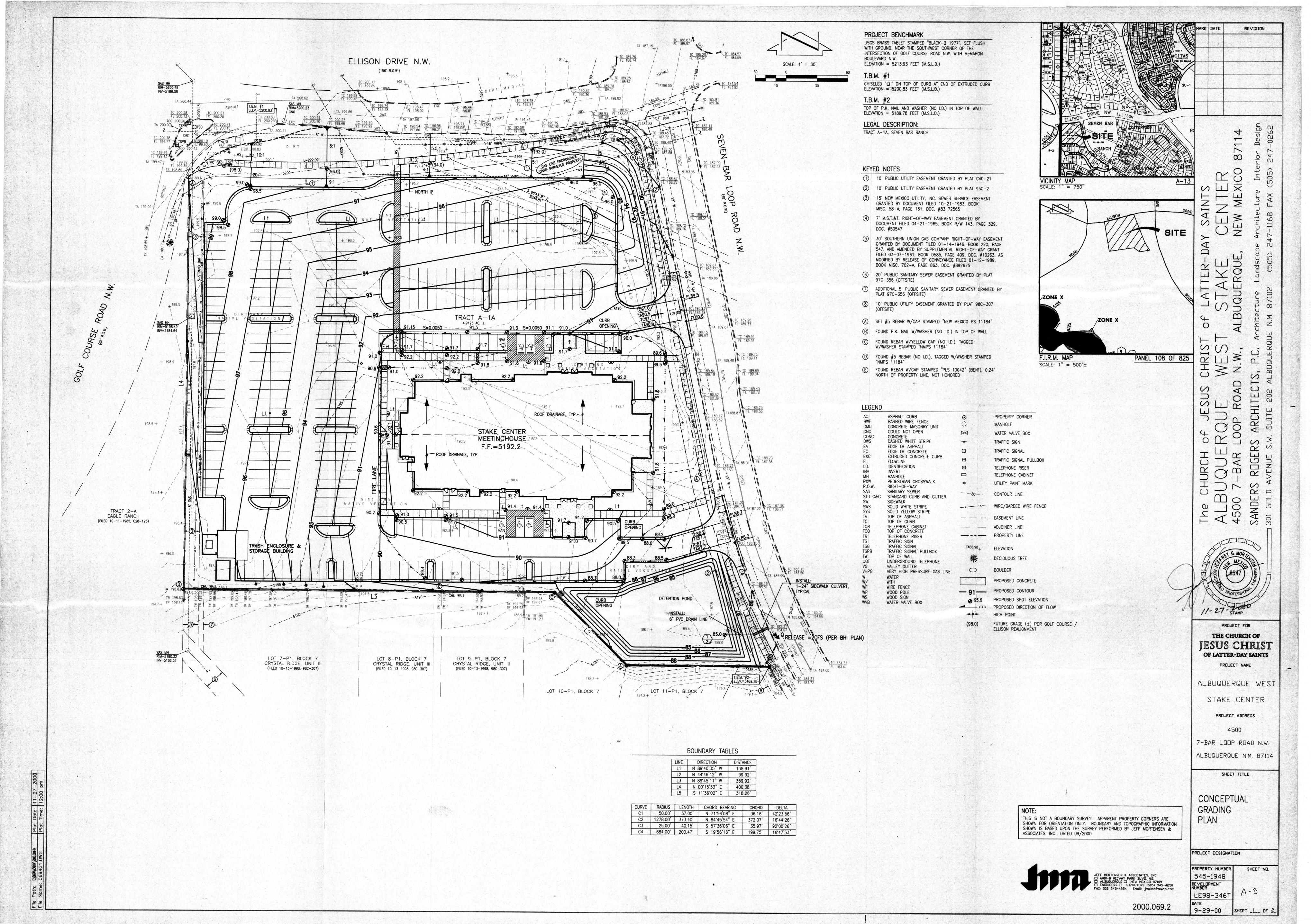
ALBUQUERQUE WEST STAKE CENTER

PROJECT ADDRESS

7-BAR LOOP ROAD N.W.

ALBUQUERQUE N.M. 8711

SHEET TITLE



DRAINAGE PLAN

I. EXECUTIVE SUMMARY AND INTRODUCTION:

THIS IS AN UNDEVELOPED SITE WITHIN AN INFILL AREA LOCATED AT THE SOUTHWEST CORNER OF GOLF COURSE ROAD NW AND ELLISON DRIVE NW ON THE WEST SIDE (NORTHWEST MESA). PROPOSED CONTSTRUCTION CONSISTS OF A NEW CHURCH WITH ASSOCIATED PARKING AND LANDSCAPING. SITE DRAINAGE IS PREDOMINATELY NORTHWEST TO SOUTHEAST. EXISTING MINOR OFFSITE FLOWS ENTER THE SITE FROM THE NORTH AND WEST FROM THE BORDERING PUBLIC RIGHT OF WAY. THESE FLOWS WILL BE ACCEPTED IN THE DEVELOPED CONDITION, BUT WILL BE PONDED ALONG WITH THE DEVELOPED FLOWS IN A DETENTION POND AT THE SOUTHEAST CORNER OF THE SITE. FLOWS WILL BE DISCHARGED FROM THE POND AT A CONTROLLED RATE OF 2.0 CFS THROUGH A DRAINPIPE AND A SIDEWALK DRAIN ONTO SEVEN BAR LOOP NW, WHICH DRAINS INTO BLACK DIVERSION CHANNEL. THIS SITE IS LIMITED TO A RATE OF 2.0 CFS BY A PREVIOUSLY APPROVED CONCEPTUAL DRAINAGE PLAN. THE DOWNSTREAM DISCHARGE CAPACITY WAS QUANTIFIED AT 66.3 CFS IN SEVEN BAR LOOP ROAD AT ITS INTERSECTION WITH BLACK DIVERSION CHANNEL AND BLACK DIVERSION CHANNEL WAS DETERMINED TO HAVE AN ACCEPTANCE CAPACITY OF 119 CFS AT THAT POINT, BY THAT PLAN. THIS PLAN SEEKS APPROVAL OF SITE DEVELOPMENT PLAN FOR BUILDING PERMIT.

II. PROJECT DESCRIPTION:

AS SHOWN BY CITY ZONE MAP A-13, THIS IS A SU-1 ZONED SITE LOCATED AT THE SOUTHEAST CORNER OF GOLF COURSE ROAD NW AND ELLISON DRIVE NW. AND THE LEGAL DESCRIPTION IS: TRACT A-1A, SEVEN BAR RANCH. AS SHOWN IN PANEL 108 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNALILLO COUNTY, NEW MEXICO, AND INCORPORATED AREAS, DATED SEPTEMBER 20, 1996, THIS SITE DOES NOT LIE WITHIN, NOR UPSTREAM OF A DESIGNATED FLOOD HAZARD ZONE.

III. BACKGROUND DOCUMENTS:

THE FOLLOWING IS A LIST OF PREVIOUSLY PREPARED DOCUMENTS FOR THIS SITE THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF THOSE PLANS AND DOCUMENTS WHICH ARE KNOWN TO THIS PREPARER.

- A. TOPOGRAPHIC SURVEY OF TRACT A-1A FOR SANDERS ROGERS ARCHITECTS, PC/THE CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS, PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. ALBUQUERQUE NEW MEXICO, DATED SEPTEMBER 2000. TOPOGRAPHIC AND BOUNDARY INFORMATION SHOWN HEREON HAS BEEN TAKEN FROM THIS SURVEY.
- B. CONCEPTUAL DRAINAGE PLAN (A13/D8) FOR PROPOSED PLATTING OF TRACTS A-1A, A-2B, AND A-2A SEVEN BAR RANCH. PREPARED BY BOHHANAN-HUSTON, INC (BHI) BEARING ENGINEER'S STAMP DATE OF 11-29-94.

IV. EXISTING CONDITIONS:

AT PRESENT, THE SITE IS UNDEVELOPED WITH NO ONSITE OR OFFSITE DRAINAGE FACILITIES. THE SITE IS BOUNDED ON THE EAST BY SEVEN BAR LOOP ROAD AND ON THE NORTH BY ELLISON DRIVE, BOTH OF WHICH ARE FULLY DEVELOPED PUBLIC ROADS. THE SITE IS BOUNDED ON THE WEST BY GOLF COURSE ROAD NW, WHICH DOES NOT HAVE CURB AND GUTTER, AND ON THE SOUTH BY A DEVELOPED RESIDENTIAL SUBDIVISION. THE SITE IS TOPOGRAPHICALLY LOWER THAN BOTH ELLISON AND GOLF COURSE ROADS, AND ONLY RECEIVES VERY MINOR OFFSITE SHEET FLOWS FROM THE BORDERING PUBLIC RIGHT-OF-WAY. THE SITE IS TOPOGRAPHICALLY HIGHER THAN THE SUBDIVISION, BUT ONSITE AND OFFSITE FLOWS ARE PREVENTED FROM ENTERING THE SUBDIVISION BY THE EXISTING CMU WALLS ALONG THE SOUTHERN BOUNDARY OF THE SITE. THE SITE DRAINS BY SHEET FLOW FROM NORTHWEST TO SOUTHEAST, AND BY CONCENTRATED FLOWS WEST TO EAST ALONG THE CMU WALL AND EXIT ONTO SEVEN BAR LOOP ROAD AT THE SOUTHEAS CORNER OF THE SITE, WHICH DRAINS TO BLACK DIVERSION CHANNEL. AT PRESENT THERE IS SUFFICIENT CAPACITY FOR THIS SITE AND TRACT 2-A, THE UNDEVELOPED SITE IMMEDIATELY TO THE EAST ACROSS SEVEN BAR LOOP ROAD. HOWEVER, THAT SITE IS ALSO IN THE PROCESS OF BEING DEVELOPED. THE PROPOSED DEVELOPMENT OF THIS SITE AT THIS TIME REQUIRES THE DECREASED RELEASE OF PEAK DISCHARGE FROM THIS SITE IN ACCORDANCE WITH PREVIOUSLY APPROVED PLANS.

V. DEVELOPED CONDITIONS:

THE PROPOSED DEVELOPMENT CONSISTS OF NEW BUILDING CONSTRUCTION WITH ASSOCIATED PAVED PARKING AND LANDSCAPING IMPROVEMENTS. THERE WILL NO CHANGE IN THE MANNER, PEAK RATE OF DISCHARGE OR VOLUME OF OFFSITE FLOWS ONSITE FLOWS WILL INCREASE, AS A RESULT OF DEVELOPMENT, BUT THE PROPOSED ONSITE DRAINAGE PATTERN WILL MIMIC HISTORIC PATTERNS. OFFSITE AND DEVELOPED ONSITE FLOWS WILL BE DIRECTED TO A DETENTION POND, SIZED TO HOLD THE 100-YEAR DESIGN STORM VOLUME, FOR THE CONTROLLED RELEASE OF FLOWS DISCHARGED FROM THIS SITE. THE PROPOSED POND, LOCATED AT SOUTHEAST CORNER OF THE SITE, WILL DRAIN THROUGH A DRAINPIPE AND A PROPOSED SIDEWALK DRAIN ONTO SEVEN BAR LOOP ROAD. MAINTENANCE OF THE POND, DRAINPIPE, AND SIDEWALK DRAIN WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE MAXIMUM WATER SURFACE LEVEL IN THE POND IS 5188.7 FEET. THE MAXIMUM ELEVATION AT THE POND IS 5189.0 FEET SO THE POND WIL HAVE A FREEBOARD OF 0.3 FEET. THE POND IS SIZED TO RECEIVE ALL DEVELOPED AND OFFSITE FLOWS AND DISCHARGE ALL RUNOFF THROUGH THE DRAIN PIPE. IN THE EVENT THE DRAINPIPE BECOMES CLOGGED, THE POND COULD OVERFILL, THEN THE OVERFLOW WILL REACH THE SOUTHERN PRIVATE ENTRANCE AND EXIT THE SITE THROUGH THE ENTRANCE AT A RATE OF 0.9 CFS UNTIL A NEW MAXIMUM WATER LEVEL OF 5188.5 FEET IS OBTAINED. ALL RUNOFF WILL REMAIN ON SITE UNTIL THE DRAINPIPE IS CLEAR AND CONTROLLED DISCHARGE CAN RESUME. IT IS THE INTENT OF THIS GRADING AND DRAINAGE PLAN THAT THE PEAK DISCHARGE RESULTING FROM THE PROPOSED IMPROVEMENTS NOT EXCEED 2.0 CFS.

VI. GRADING PLAN:

A GRADING PLAN HAS BEEN PREPARED IN SUPPORT OF THIS DRAINAGE SUBMITTAL THE GRADING PLAN SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, 5) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. THE GRADING PLAN APPEARS ON SHEET A3.

VII. CALCULATIONS:

THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2 DESIGN CRITERIA, DATED JANUARY, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS SHOWN BY THESE CALCULATIONS. THERE WILL BE A GROSS INCREASE IN THE PEAK RATE AND THE VOLUME OF RUNOFF GENERATED BY THIS SITE. AS FURTHER DEMONSTRATED BY HYDROGRAPH AND ORIFICE CALCULATIONS, THE PROPOSED DETENTION POND WILL RESTRICT THE PEAK RATE OF DISCHARGE FROM THIS SITE TO 2.0 CFS WHICH IS A NET DECREASE IN PEAK RATE OF DISCHARGE GENERATED BY THIS SITE.

VIII. CONCLUSION:

THE PROPOSED DEVELOPMENT OF THIS SITE IS CONSISTENT WITH THE REQUIREMENTS OF THE PREVIOUSLY APPROVED CONCEPTUAL DRAINAGE PLAN RESTRICTING THE PEAK RATE OF DISCHARGE FROM THIS PARCEL TO 2.0 CFS. THIS RESTRICTION IS ACCOMPLISHED BY CONTROLLED RELEASE FROM A PROPOSED ONSITE PRIVATE DETENTION POND; THAT IS SIZED TO HOLD THE 100-YEAR, 6-HOUR RAINFALL EVENT. THERE ARE NO PUBLIC INFRASTRUCTURE, DPM DESIGN VARIANCES, OR NEW EASEMENTS REQUIRED BY THIS PROJECT. SITE RUNOFF WILL CONTINUE TO DRAIN IN A MANNER CONSISTENT WITH EXISTING PATTERNS WITH A SIGNIFICANT DECREASE IN THE PEAK RATE OF DISCHARGE. THE DISCHARGE FROM THIS FACILITY WILL NOT HAVE AN ADVERSE IMPACT ON THE EXISTING CAPACITY IN SEVEN BAR LOOP ROAD, OR OTHER EXISTING OR PROPOSED DEVELOPMENTS SITUATED DOWNSTREAM.

<u>CALCULATIONS</u>

SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 1

2. $P_{6,100} = P_{360} = 2.20$ 3. TOTAL AREA $(A_T) = 214,000 \text{ SF}/4.91 \text{ AC}$

4. EXISTING LAND TREATMENT

TREATMENT AREA (SF/AC) 214,000/4.91 100

5. DEVELOPED LAND TREATMENT TREATMENT AREA (SF/AC) 53,660/1.23 25

EXISTING CONDITION

1. VOLUME

 $E_{W} = (E_{A}A_{A} + E_{B}A_{B} + E_{C}A_{C} + E_{D}A_{D})/A_{T}$

 $E_W = [(0.44)(4.91)]/4.91 = 0.44 \text{ IN}$

 $V_{100} = (E_W/12)A_T$ $V_{100} = (0.44/12)4.91 = 0.1800 \text{ AC FT} = 7,840 \text{ CF}$

160,340/3.68 75

2. PEAK DISCHARGE

DEVELOPED CONDITION

 $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$

 $Q_P = Q_{100} = (1.29)(4.91) = 6.3 \text{ CFS}$

VOLUME

 $E^{M} = (E^{A}A^{A} + E^{B}A^{B} + E^{C}A^{C} + E^{D}A^{D})/A^{L}$

 $E_W = [(0.67)(1.23)+(1.97)(3.68)]/4.91 = 1.64 \text{ IN}$

 $V_{100} = (E_W/12)A_T$

 $V_{100} = (1.64/12)4.91 = 0.6710 \text{ AC FT} = 29,230 \text{ CF}$

2. PEAK DISCHARGÉ

 $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$

 $Q_{p} = Q_{100} =$

 $Q_{100} = (2.03)(1.23)+(4.37)(3.68) = 18.6 \text{ cfs}$

3. POND VOLUME

AVERAGE END-AREA METHOD

ELEV (ft) AREA (sf) VOL (cf) Σ VOL (cf)

9,175 16,950 5,187 9,800 5,187.7

Vpond = 24,510 Vreq'd = 24,470

Vpond > Vreq'd

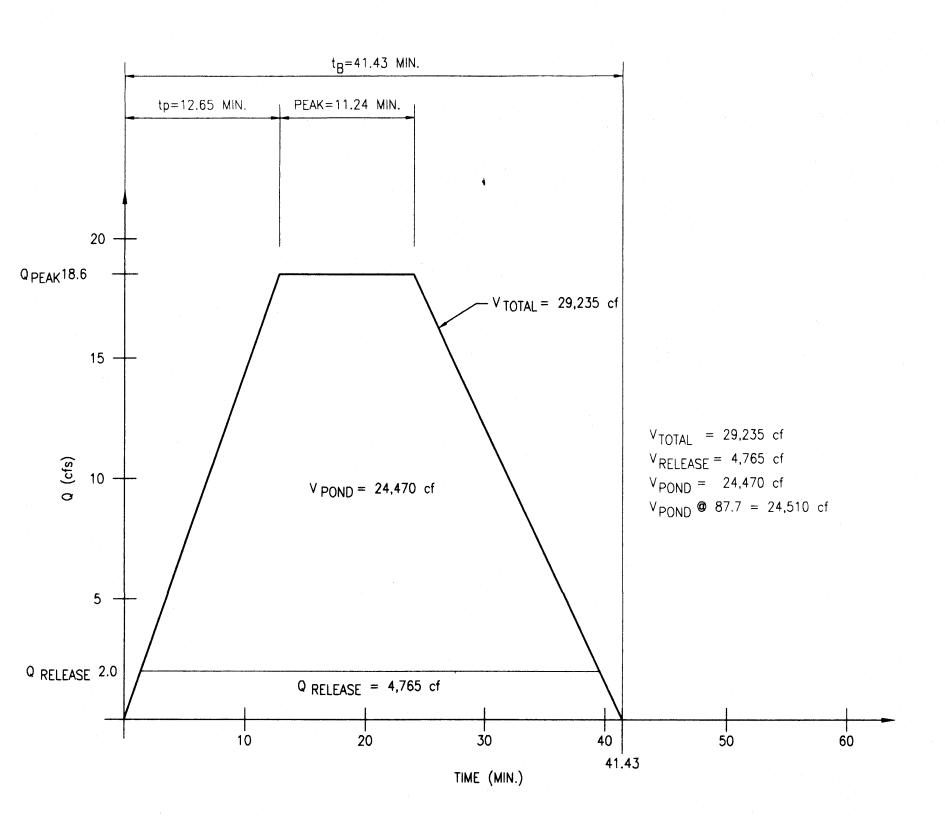
 V_{100} WATER SURFACE LEVEL = 5,187.7

V_{MAX} WATER SURFACE LEVEL = 5,187.7 FREE BOARD = 0.3

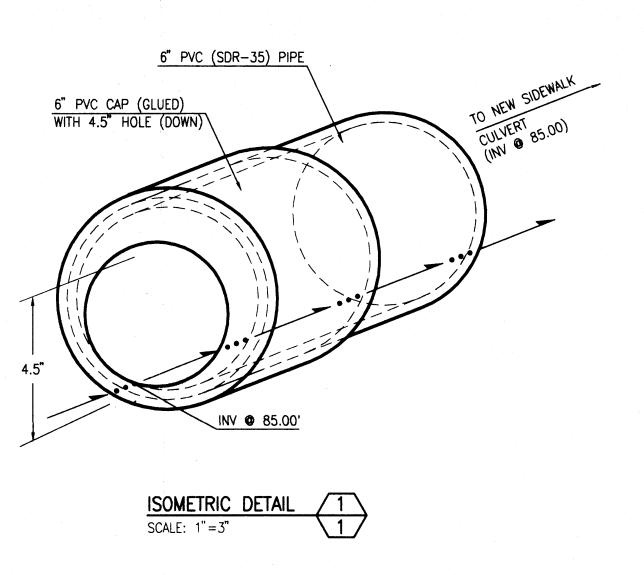
COMPARISON

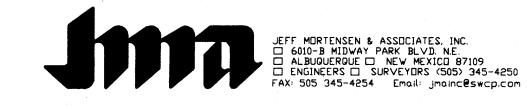
 $\Delta V_{100} = 29,230 - 7,840 = 21,390 \text{ CF (INCREASE)}$

 $\Delta Q_{100} = 6.3 - 2.0 = 4.3 \text{ cfs (DECREASE)}$



HYDROGRAPH HORIZONTAL SCALE: 1" = 8 MINUTES VERTICAL SCALE: 1" = 4 cfs





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REVISION

87

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ALBUQUERQUE WEST STAKE CENTER

PROJECT ADDRESS

4500 7-BAR LOOP ROAD N.W. ALBUQUERQUE N.M. 87114

SHEET TITLE

DRAINAGE PLAN AND CALCULATIONS

PROJECT DESIGNATION

545-1948 DEVELOPMENT NUMBER LE98-346T

9-29-00 SHEET _2_ DF

2000.069.2

