

920045

PROJECT TITLE: LA MESA CHURCH ZONE ATLAS/DRNG. FILE #: K19/D99

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT B, BLK 2, DEL NORTE SUBDIVISIONCITY ADDRESS: 7401 COPPER NEENGINEERING FIRM: JEFF MORTENSEN & ASSOC. CONTACT: JEFF MORTENSENADDRESS: 6010-B MIDWAY PARK BLVD NE PHONE: 345-4250OWNER: LA MESA PRES. CHURCH CONTACT: BOB ROBBIEADDRESS: 7401 COPPER NE PHONE: _____ARCHITECT: HOLMES - SAMBATINI CONTACT: CAMERONADDRESS: 202 CENTRAL SE PHONE: 247-3705SURVEYOR: JEFF MORTENSEN & ASSOC. CONTACT: JEFF MORTENSENADDRESS: 6010-B MIDWAY PARK BLVD NE PHONE: 345-4250CONTRACTOR: GERALD MARTIN CONTACT: FRED GORENADDRESS: _____ PHONE: 828-1144

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: 03/15/95BY: JEFFREY G. MORTENSEN



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 16, 1995

Jeff Mortensen
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

RE: REVISED ENGINEER CERTIFICATION FOR LA MESA CHURCH (K19-D99)
RECERTIFICATION STATEMENT DATED 3/14/95
SHEETS 1 & 2 OF 2 OF 2.

Dear Mr. Mortensen:

Based on the information provided on your March 15, 1995,
Engineer Certification for the above referenced site is
acceptable.

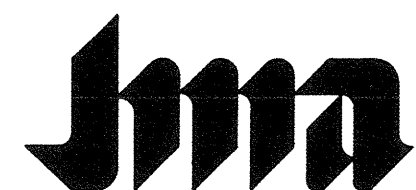
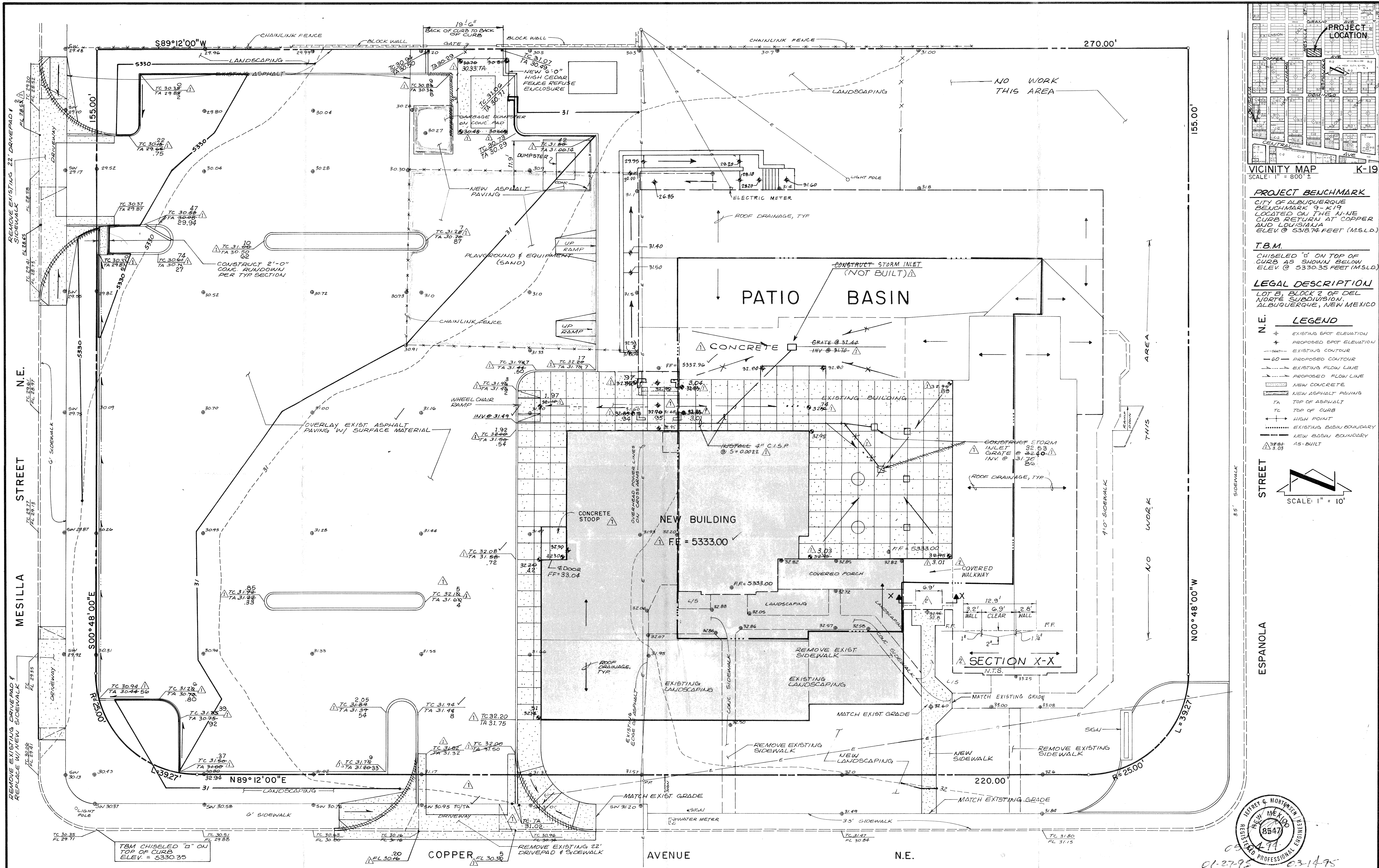
If I can be of further assistance, please feel free to contact me
at 768-2667.

Sincerely,

Bernie J. Montoya, CE
Engineering Associate

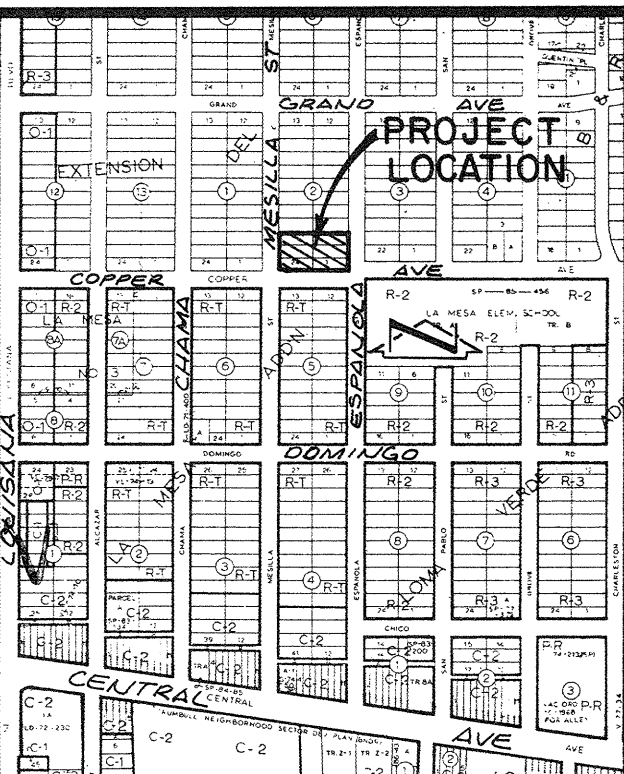
BJM/dl

c: Andrew Garcia
File



JEFF MORTENSEN & ASSOCIATES, INC.
 6010-B MIDWAY PARK BLVD. N.E.
 ALBUQUERQUE, NEW MEXICO 87109
 ENGINEERS & SURVEYORS (505)345-4250

GRADING & DRAINAGE PLAN
LA MESA PRESBYTERIAN CHURCH

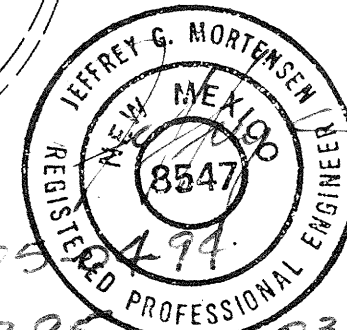
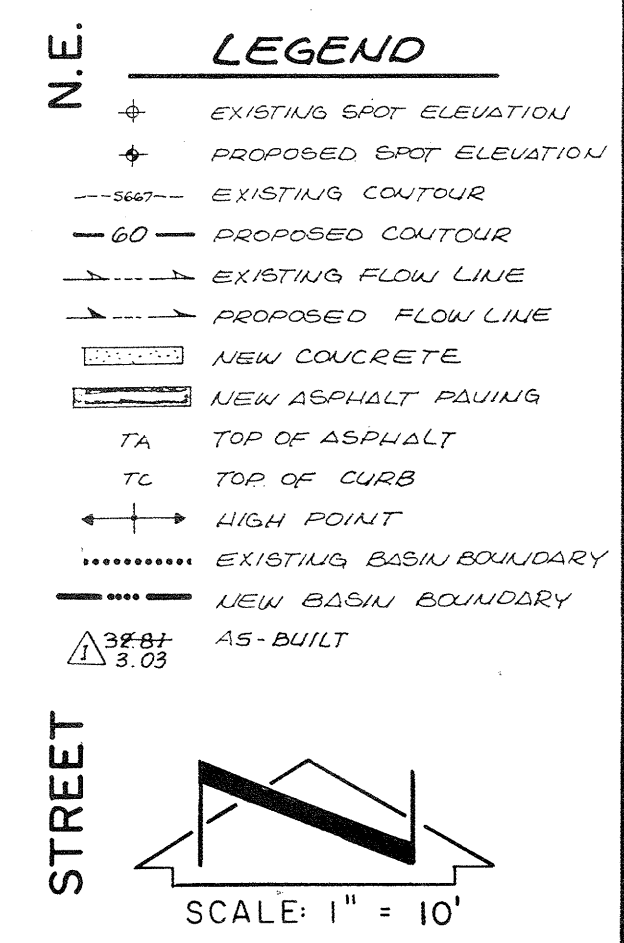


VICINITY MAP
 SCALE: 1" = 800'

PROJECT BENCHMARK
 CITY OF ALBUQUERQUE
 BENCHMARK 9-K-19
 LOCATED ON THE N-NE
 CURB RETURN AT COPPER
 AND LOUISIANA
 ELEV @ 5318.74 FEET (M.S.L.D.)

T.B.M.
 CHISELED "B" ON TOP OF
 CURB AS SHOWN BELOW
 ELEV @ 5330.35 FEET (M.S.L.D.)

LEGAL DESCRIPTION
 LOT 8, BLOCK 2 OF DEL
 NORTE SUBDIVISION,
 ALBUQUERQUE, NEW MEXICO



DRAINAGE PLAN

The following items concerning the La Mesa Presbyterian Church Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located at the northwest corner of the intersection of Copper Avenue N.E. and Espanola Street N.E. At present, the site lies is developed as an existing church facility. The surrounding area is also developed within a predominantly residential area. It could therefore be stated that this project is a modification to an existing site within an infill area.

As indicated by Panel 30 of 50 of the National Flood Insurance Program Flood Insurance Rate Maps for the City of Albuquerque, New Mexico, published October 14, 1983, this site does not lie within a designated flood hazard zone. The site does, however, lie adjacent to an AO (Depth 1) flood zone. Since the date of publication of the above referenced mapping, this flooding condition was improved by the construction of the Fairgrounds Storm Water Relief System, which is situated immediately downstream from the site. Because of this, the flood zone identified by the mapping is not relevant and does not adversely impact the development of this site.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed construction consists of the demolition of a portion of the existing building, the demolition of the some of the existing asphalt paving, the construction of a new building, the construction of new sidewalk, the construction of new landscaping areas, and overlaying portions of the existing asphalt parking lot. In general, the hydrologic character of the site will not be altered by the proposed development. Due to the fact that the existing parking lot will not be significantly altered, the drainage pattern for this site will remain essentially unchanged. At present, runoff drains from east to west into Mesilla Street N.E. Mesilla Street drains to the north. Runoff will be discharged via the two new private entrances to be constructed as part of the building permit. The majority of the runoff will discharge via the westerly entrance into Mesilla Street. Due to the fact that this is a modification to an existing site within an infill area, the proximity of the site to the Fairgrounds Storm Water Relief System, and the fact that the drainage pattern of the site will not be altered by the proposed construction, the free discharge of runoff from this site is appropriate.

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, the proposed development will have negligible impact on the discharge of runoff from this site.

It is recognized that despite the presence of downstream drainage improvements, the FEMA maps have not been revised or updated. Because of this, flood insurance may be required for this property.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 3
2. $P_{6,100} = P_{360} = 2.60$
3. Total Area (A_T) = 48,330 sf/1.11 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	15,010/0.345	31.1
C	33,320/0.765	68.9

5. Developed Land Treatment

Treatment	Area (sf/ac)	%
B	11,740/0.270	24.3
D	36,590/0.840	75.7

Existing Condition

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = ((0.92)(0.345) + (2.36)(0.765)) / 1.11 = 1.912 \text{ in.}$$

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

$$V_{100} = ((1.912 / 12)(1.11)) = 0.1769 \text{ ac.ft.}; 7,705 \text{ cf}$$

2. Peak Discharge

$$Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_P = Q_{100} = (2.60)(0.345) + (5.02)(0.765) = 4.74 \text{ cfs}$$

Developed Condition

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = ((0.92)(0.270) + (2.36)(0.840)) / 1.11 = 2.010$$

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

$$V_{100} = ((2.010 / 12)(1.11)) = 0.1859 \text{ ac.ft.}; 8,097 \text{ cf}$$

2. Peak Discharge

$$Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_P = Q_{100} = (2.60)(0.270) + (5.02)(0.840) = 4.92 \text{ cfs}$$

Comparison

1. $\Delta V_{100} = 8097 - 7705 = 392 \text{ cf (increase)}$
2. $\Delta Q_{100} = 4.92 - 4.74 = 0.18 \text{ cfs (increase)}$

Developed Land Treatment for the Patio Basin

$$A_T = 7,480 \text{ sf}/0.17 \text{ Ac.}$$

Treatment	Area (sf/ac)	%
B	0.760/0.02	11.8 0
D	6,720/0.15	89.2
	7,480/0.17	100

Developed Condition for the Patio Basin

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = ((0.92)(0.02) + 2.36(0.15)) / 0.17 = 2.36$$

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

$$V_{100} = ((2.36 / 12)(0.17)) = 0.031 \text{ ac.ft.} = 1350 \text{ cf}$$

2. Peak Discharge

$$Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_P = Q_{100} = 2.60(0.02) + 5.02(0.15) = 0.8 \text{ cfs}$$

Inlet Condition

$$Q = CA(2gh)^{0.5}$$

$$C = 0.6$$

$$A = 0.09 \text{ sf}$$

$$g = 32.2$$

$$h = 32.60 - 31.70 - 0.17 = 0.73$$

$$Q = 0.4 \text{ cfs (Per Inlet for Both Inlets)}$$

$$Q_T = 0.8 \text{ cfs} = Q_{100}$$

Pipe Capacity

Using Feild's Hydraulic Calculator for Gravity Flow in Pipes

$$\text{Let: } n = 0.013$$

$$s = 0.0022$$

$$d = 4 \text{ inches}$$

$$\text{Therefore: } Q = 0.1 \text{ cfs} < Q_{100}$$

Overflow

$$\text{Weir Equation}$$

$$Q = CLH^{1.5}$$

$$\text{Let: } C = 2.5$$

$$L = 7.17 \text{ ft.}$$

$$H = 32.85 - 32.70 = 0.15 \text{ ft.}$$

$$\text{Therefore: } Q = 1.0 \text{ cfs} > Q_{100}$$

1. West Entrance

$$\text{Let } C = 2.5$$

$$L = 7 \text{ ft.}$$

$$H = 0.05 \text{ ft.}$$

$$Q = 0.2 \text{ cfs}$$

2. South Entrance

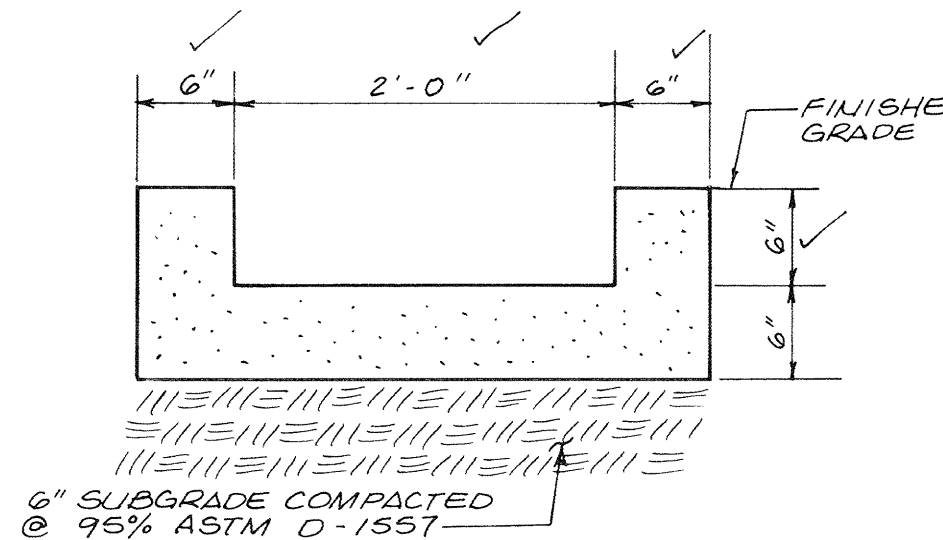
$$\text{Let } C = 2.5$$

$$L = 6.9 \text{ ft.}$$

$$H = 1.5" = 0.125 \text{ ft.}$$

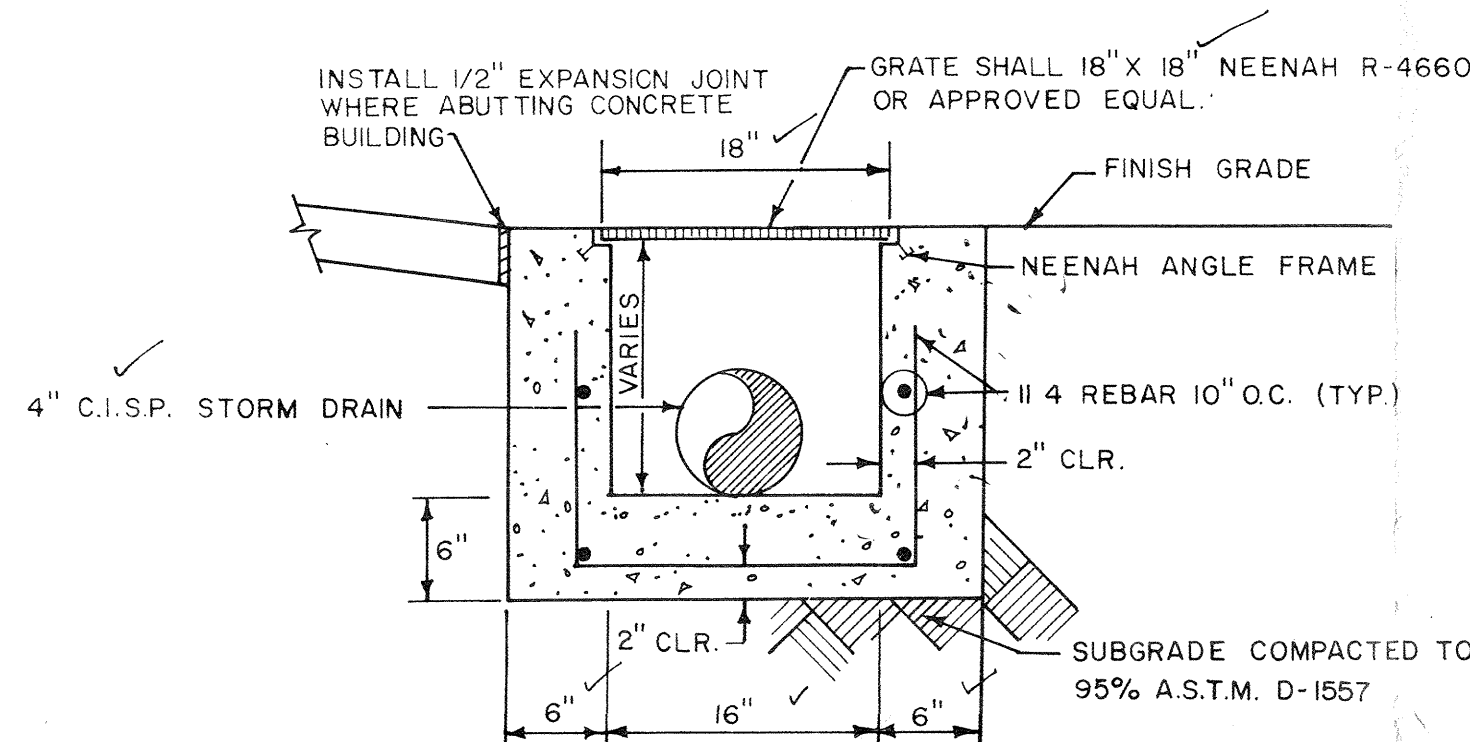
$$Q = 0.8 \text{ cfs}$$

$$\Sigma \text{ Overflow} = 0.2 + 0.8 = 1.0 \text{ cfs}$$



TYPICAL CONCRETE RUNDOWN SECTION

SCALE: 1" = 1'-0"



TYPICAL STORM INLET SECTION

SCALE: 1" = 1'-0"

DRAINAGE CERTIFICATION

As indicated by the as-built information shown on Sheet 1 of 2, the majority of the project has been constructed in substantial conformance with the approved Grading and Drainage Plan. Modifications have been made to the Patio Basin. These modifications consist of the following: 1) deletion of the landscaped area at the north end of the patio, 2) deletion of the storm inlet that was proposed within the deleted landscape area (the storm inlet was specified in this area in the event that excess irrigation water would accumulate adjacent to the building. Now that this area is concrete, the inlet is not needed), 3) the location of the storm inlet within the concrete portion of the patio was relocated to the north to be more centrally located, 4) the patio basin overflow was not constructed per the cross section illustrated by the approved plan grades. Because of this, all water accumulating in the patio basin will have to exit via the 4" pipe. This may result in some storm water entering the doorways which open into this patio area.

Based upon the information presented above, acceptance of this project for Temporary Certificate of Occupancy is hereby recommended. In order to address item #4, we recommend that the overflow be reconstructed, or the Owner acknowledge this condition in the form of a "Hold Harmless Agreement" naming both the engineer and the City of Albuquerque. Upon receipt of the "Hold Harmless Agreement", or recertification, the Permanent Certificate of Occupancy should be issued.

I, Jeffrey G. Mortensen, NMPE 8547, do hereby certify that as-built information shown hereon was obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief.

Jeffrey G. Mortensen, NMPE 8547

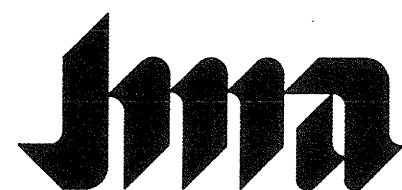
RECERTIFICATION

As indicated by the as-built information for the south entrance to the Patio Basin, and the additional calculations shown hereon, the Patio Basin has been constructed in a manner consistent with the intent of the approved Grading and Drainage Plan. The actual construction has deviated from the approved Plan, however, the provision of an additional overflow from the Patio Basin to the south allows for adequate capacity for overflow. It is based upon this additional information and associated analysis that issuance of a permanent Certificate of Occupancy is hereby recommended. A Hold Harmless Agreement is no longer recommended or believed to be necessary.

I, Jeffrey G. Mortensen, NMPE 8547, do hereby certify that the as-built information shown hereon was obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief.

Jeffrey G. Mortensen, NMPE 8547

Date



JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS & SURVEYORS (505)345-4250

GRADING & DRAINAGE PLAN

LA MESA PRESBYTERIAN CHURCH

DESIGNED BY	NO.	DATE	BY	REVISIONS	JOB NO.
J.G.M.	1	01/95	J.G.M.	AS-BUILT AND CERTIFY	920045
G.L.F.	2	03/95	J.G.M.	REVISE CALCULATIONS AND RECERTIFY	DATE
J.G.M.					02/94
					SHEET
					2 OF 2