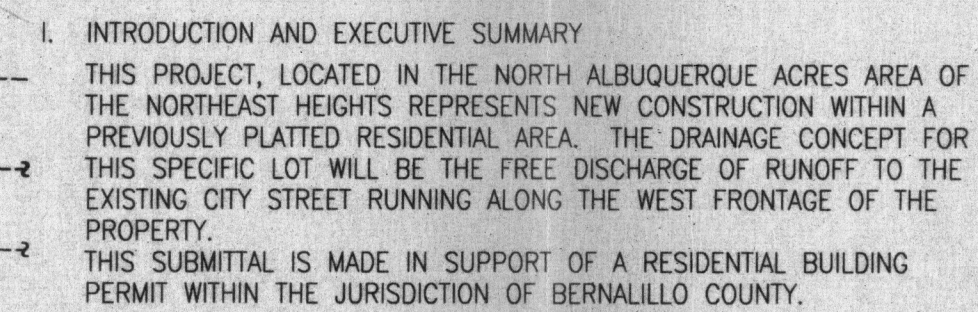
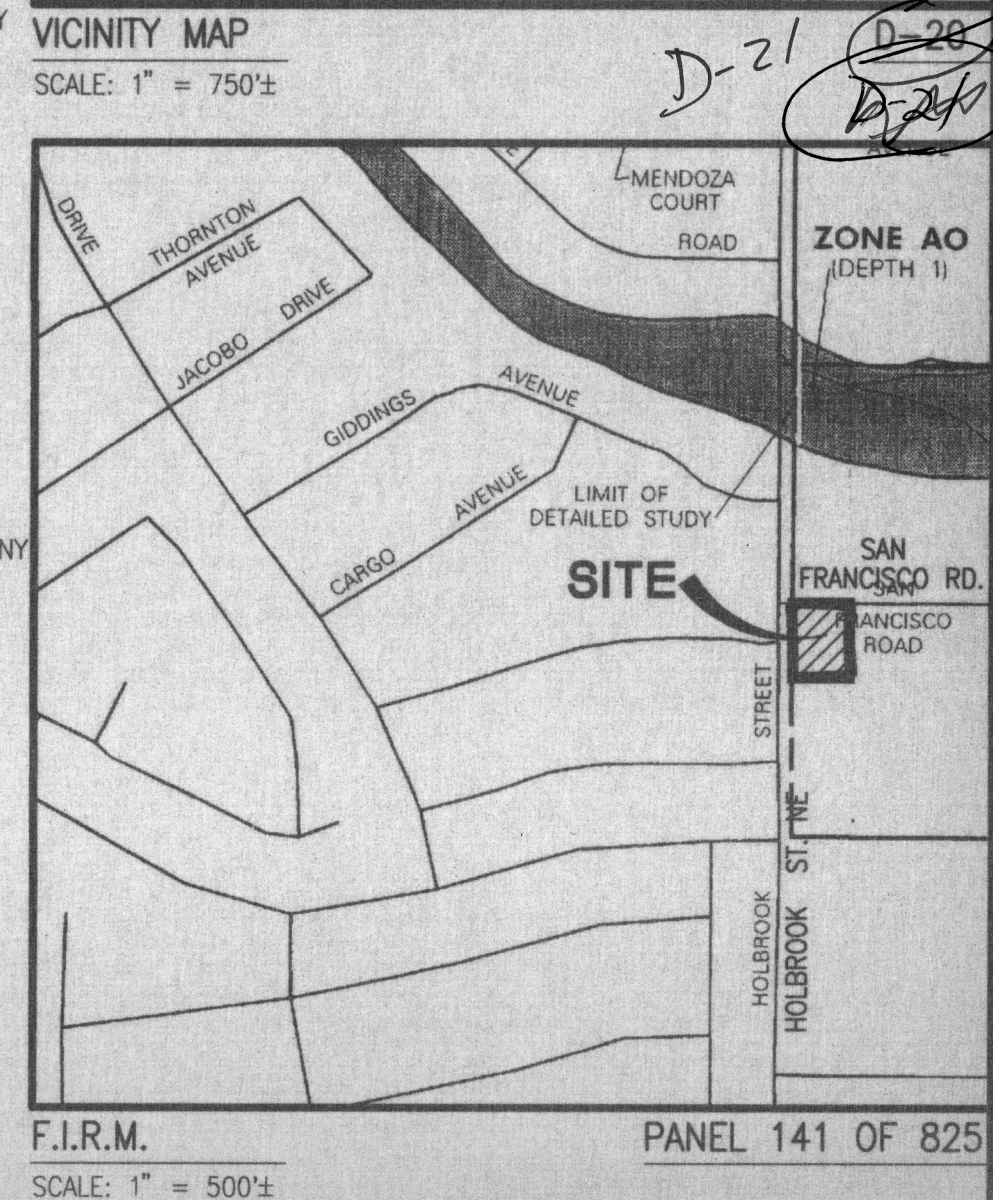


PROJECT BENCHMARK
AN ACS 1 3/4" ALUMINUM DISK, STAMPED "ACS BM. 5-D20", EPOXYED TO TOP OF CONCRETE CURB, LOCATED AT THE SSW QUADRANT OF HOLBROOK STREET N.E. AND SAN BERNARDINO AVENUE N.E.
ELEVATION = 5642.68 FEET (NGVD 29)
T.B.M.
A NAIL IN THE NORTH FACE OF THE CMU WALL APPROXIMATELY 1 FOOT ABOVE THE GROUND NEAR THE SOUTHWEST PROPERTY CORNER.
ELEVATION = 5644.28 FEET (NGVD 29)
LEGAL DESCRIPTION
LOT 16, BLOCK 12, NORTH ALBUQUERQUE ACRES, TRACT 3, UNIT 2, BERNALILLO COUNTY, NEW MEXICO

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. 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.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.
4. ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE REVEGETATED ACCORDING TO C.O.G. SECTION 101 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CALL NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE BERNALILLO COUNTY STANDARDS AND PROCEDURES.



II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF SAN FRANCISCO NE AND HOLBROOK STREET NE. THE CURRENT LEGAL DESCRIPTION IS AS SHOWN BY BLOCK 12, TRACT 3, UNIT 2, NORTH ALBUQUERQUE ACRES. AS LOT 16, TRACT 11, OF 126 ACRES OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, SEPTEMBER 20, 1996, THIS SITE DOES NOT LIE WITHIN NOR UPSTREAM FROM A DESIGNATED FLOOD HAZARD ZONE (ZONE A).

III. BACKGROUND DOCUMENTS & RESEARCH

1. REVIEW AND RESEARCH OF BERNALILLO COUNTY RECORDS INDICATES THAT THIS SITE LIES JUST DOWNSTREAM OF PWD# 10065 (LOT 14) PREPARED BY DOUGLAS F. WOLF, NMPE12341, DATED 5-21-01. THAT PLAN IDENTIFIED A DISCHARGE OF 2.5 CFS FROM THAT SITE TO THE WEST TOWARD LOT 16. THIS 2.5 CFS REPRESENTS AN OFFSITE FLOW.

2. ~~PRE-DESIGN CONFERENCE WITH CITY HYDROLOGY ON JANUARY 03, 2002, ALLOWING FOR THE LOWERING AND/OR REMOVAL OF THE EXISTING BERM ALONG THE WEST PROPERTY LINE OF THE SITE TO FACILITATE THE DRAINAGE OF THE SITE INTO THE HOLBROOK STREET NE RIGHT-OF-WAY. THIS WILL REQUIRE A DRAINAGE SUBMITTAL TO THE CITY IN ORDER TO OBTAIN AN EXCAVATION PERMIT FROM THE CITY.~~

W. EXISTING CONDITIONS

THE TOPOGRAPHIC DATA PRESENTED HERewith DEMONSTRATES THE EXISTING CONDITIONS OF THE SITE. THE MOST NOTABLE FEATURES OF THE SITE ARE A BERM PREVIOUSLY GRADED BY OTHERS AT THE WEST PROPERTY LINE AND A NATURALLY OCCURRING DIP IN THE GRADE OF THE EAST PROPERTY LINE INTRODUCING MINOR OFFSITE FLOWS. AT PRESENT, NO CONSTRUCTION HAS TAKEN PLACE. THE SITE CURRENTLY SLOWS DOWN EAST TO WEST. IN THE EXCEPTION OF THE OFFSITE FLOWS IDENTIFIED BY PWD# 10065 AND ANTICIPATED DEVELOPED FLOWS FROM LOT 15, NO OTHER OFFSITE FLOWS ARE EXPECTED TO IMPACT THIS SITE; LOT 14 CUTS-OFF ANY RUNOFF GENERATED UPSTREAM OF THAT POINT AND DIVERTS THAT RUNOFF SOUTH AWAY FROM THIS SITE. THE SITE SITS TOPOGRAPHICALLY HIGHER THAN HOLBROOK STREET NE AND THEREFORE THE SAND GRADE AS SAN FRANCISCO NE. REVIEW OF THE SURVEY DATA REVEALS THAT CITY WATER AND SANITARY SEWER ARE AVAILABLE TO THIS SITE.

V. DEVELOPED CONDITIONS

THE PROPOSED CONSTRUCTION CONSISTS OF A SINGLE FAMILY RESIDENCE AND ASSOCIATED SITE IMPROVEMENTS. OFFSITE FLOWLINE WILL BE LOCATED AT LEAST PROPERTY LINE AND ASSOCIATED BY GRADED FLOWLINE TOWARD THE SOUTHWEST CORNER OF THE SITE WHERE THOSE FLOWLINE WILL BE INTRODUCED INTO THE EXISTING BARDITCH ALONG THE EAST EDGE OF HOLBROOK STREET NW. FROM THIS POINT, THE RUNOFF WILL FLOW SOUTH WITHIN THE HOLBROOK STREET RIGHT-OF-WAY TO EXISTING STORM DRAIN ENTERING THE STORM DRAIN INLET AND ASSOCIATED STORM DRAIN PIPING DISCHARGING TO THE PINO ARROYO, AN IMPROVED PUBLIC DRAINAGE FACILITY REPRESENTING THE OUTFALL FOR THIS SITE. THE COLLECTION SYSTEM WAS BUILT AS PART OF THE QUINTESSENCE DEVELOPMENT AND WAS SIZED FOR A FULLY DEVELOPED WATERSHED. CONSEQUENTLY, THE FRESH CHARGED DEVELOPED RUNOFF FROM THIS SINGLE FAMILY RESIDENTIAL PROPERTY IS ACCEPTABLE TO THE CITY, THE FACILITY OF THE STORMWATER.

VI. GRADING PLAN

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 SITE WILL BE DEVELOPED IN A MANNER CONSISTENT WITH THE GUIDELINES FOR A TYPICAL NORTH ALBUQUERQUE ACRES SUBDIVISION LOT. IT SHOULD BE NOTED, HOWEVER, THAT BECAUSE THIS IS A CORNER LOT, IT HAS LESS AREA AVAILABLE FOR DEVELOPMENT THAN A STANDARD MID-BLOCK LOT.

11. CALCULATIONS

THE CALCULATIONS THAT APPEAR HEREON ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR A 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 MINOR INCREASE IN RUNOFF ASSOCIATED WITH THE PROPOSED IMPROVEMENTS. THE PROPOSED DEVELOPMENT IS IN KEEPING WITH THE PEAK DISCHARGE AND VOLUME OF RUNOFF GENERATED BY THE TRADITIONAL MIX OF LAND USES. PRESENTS OF 17% IMPERVIOUS, 20% B, AND 43% A FOR A STANDARD NORTH ALBUQUERQUE ACRES, 1-ACRE LOT.

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS CONTAINED HEREIN:

1. THE PROPOSED DEVELOPMENT DOES NOT LIE WITHIN NOR ADVERSELY IMPACT A FEMA DESIGNATED FLOOD HAZARD ZONE.
2. OFFSITE FLOWS WILL BE ACCEPTED AND CONVEYED THROUGH THE SITE.
3. THE PROPOSED DEVELOPMENT IS IN KEEPING WITH THE PEAK DISCHARGE AND VOLUME OF RUNOFF GENERATED BY THE TRADITIONAL MIX OF LAND TREATMENTS OF 17 % D, 20 % C, 20 % B, AND 43 % A FOR A STANDARD NORTH ALBUQUERQUE ACRES 1- ACRE LOT.
4. THE SITE WILL BE SERVED BY CITY WATER AND SANITARY SEWER; PRIVATE ONSITE LIQUID WASTE DISPOSAL AND DOMESTIC WATER WARE ARE NOT PROPOSED.
5. THE FREE DISCHARGE OF RUNOFF FROM THIS SITE TO THE HOLBROOK STREET IS APPROPRIATE; PONDING IS NOT WARRANTED.

I, JEFFREY G. MORTENSEN, NMPE 8547, DO HEREBY CERTIFY THAT I PERSONALLY VISITED THE SUBJECT SITE ON DECEMBER 18, 2001. AT THAT TIME THERE WAS NO EVIDENCE OF RECENT SITE GRADING OR ONSITE CONSTRUCTION ACTIVITY. THE CONTOUR OF THE LAND APPEARED CONSISTENT WITH THE OVERALL DRAINAGE PATTERN AND TOPOGRAPHY AS SHOWN HEREON.

JEFFREY G. MORTENSEN, NMPE 854



02-12-
DATE
2002

I. PRECIPITATION ZONE = 3
II. $P_{360} = 2.60$ IN
III. TOTAL AREA (A_T) = 31,620 SF/0.73 AC

IV. EXISTING LAND TREATMENT			
TREATMENT AREA	(SF/AC)		%
A	29,320/0.67		93
C	2,300/0.05		07
V. DEVELOPED LAND TREATMENT			
A. ONSITE			
TREATMENT AREA	(SF/AC)		%
A	6,500/0.15		21
B	17,100/0.39		54
C	2,000/0.05		06
D	6,020/0.14		19
B. OFFSITE (LOT 15) 38,600 SF/0.89 AC			
USING TYPICAL NORTH ALBU. ACRES TREATMENT PERCENTAGES			
TREATMENT AREA	(SF/AC)		%
A	16,600/0.38		43
B	7,720/0.18		20
C	7,720/0.18		20
D	6,560/0.15		17

VI. EXISTING CONDITION

- $$E_W = (E_{A_A} + E_{B_B} + E_{C_C} + E_{D_D})/A_T$$
- $$E_W = 0.66(0.67) + 1.29(0.05)/0.73 = 0.69 \text{ IN}$$
- $$V_{100,6-\text{HR}} = (E_W/12)A_T$$
- $$V_{100,6-\text{HR}} = (0.69/12)0.73 = 0.0422 \text{ AC-FT} = 1,840 \text{ CF}$$

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

$$Q_P = Q_{100} = 1.87(0.67) + 3.45(0.05) = 1.4 \text{ CFS}$$

VIII. DEVELOPED CONDITION

- A. ONSITE
1. VOLUME
- $$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
- $$E_W = 0.66(0.15) + 0.92(0.39) + 1.29(0.05) + 2.36(0.14) / 0.73 = 1.17 \text{ IN}$$
- $$V_{100,6-HR} = (E_W / 12) A_T$$
- $$V_{100,6-HR} = (1.17 / 12) 0.73 = 0.0711 \text{ AC-FT} = 3,100 \text{ CF}$$

2. PEAK DISCHARGE

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

$$Q_P = Q_{1,00} = 1.87(0.15) + 2.60(0.39) + 3.45(0.05) + 5.02(0.14) = 2.2 \text{ CFS}$$

OFFSITE

1. VOLUME (LOT 15, TYPICAL LOT)

$$E_W = (E_{A^A} + E_{B^B} + E_{C^C} + E_{D^D}) / A_T$$

$$E_W = 0.66(0.38) + 0.92(0.18) + 1.29(0.18) + 2.36(0.15) / 0.89 = 1.13 \text{ IN}$$

$$V_{100,6-HR} = (E_W / 12) A_T$$

$$V_{100,6-HR} = (1.13 / 12) 0.89 = 0.0835 \text{ AC-FT} = 3,640 \text{ CF}$$

2. PEAK DISCHARGE (LOT 15, TYPICAL LOT)

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

$$Q_P = Q_{PA} = 1.87(0.38) + 2.60(0.18) + 3.45(0.18) + 5.02(0.15) = 2.6 \text{ CFS}$$

3 TOTAL OFFSITE FLOWRATE

$$Q_{\text{OFFSITE}} = Q_{P, \text{LOT 15}} + Q_{P, \text{LOT 14}}$$

WHERE $Q_{P, \text{LOT 14}} = 2.5 \text{ CFS (PER PWD\# 10065)}$

$$Q_{\text{OFFICE}} = 2.6 + 2.5 = 5.1 \text{ CFS}$$

COMPARISON

A. ONSITE DEVELOPED VERSUS EXISTING

- A. UNSITE DEVELOPED VERSUS EXISTING
1. VOLUME
$$\Delta V_{100,6-HR} = 3,100 - 1,840 = 1,260 \text{ CF (INCREASE)}$$
 2. PEAK DISCHARGE
$$\Delta Q_{100} = 2.2 - 1.4 = 0.8 \text{ CFS (INCREASE)}$$
- B. COMPARE TO TYPICAL NORTH ALBUQ. ACRES LOT
1. VOLUME
$$V_{100,6-HR} = 3,100 \text{ CF} < V_{100,6-HR, LOT 15} = 3,640$$
 2. PEAK DISCHARGE
$$Q_{100} = 2.2 \text{ CFS} < Q_{100, LOT 15} = 2.6 \text{ CFS}$$

JEFF MORTENSEN & ASSOCIATES, INC.
☐ 6010-B MIDWAY PARK BLVD. N.E.
☐ ALBUQUERQUE ☐ NEW MEXICO 87109
☐ ENGINEERS ☐ SURVEYORS (505) 345-4250
☐ FAX: 505 345-4254 ☐ Email: jmainc@swcp.com

RECEIVED
FEB 13 2002
HYDROLOGY SECTION

GRADING AND DRAINAGE PLAN
NADINE GARCIA RESIDENCE
LOT 16, BLOCK 12, NORTH
ALBUQUERQUE ACRES, TRACT 3, UNIT 2

DESIGNED BY J.G.M.
DRAWN BY J.L.P.
APPROVED BY J.G.M.

[illegible]

JOB NO.	2001.080.
DATE	02-2002
SHEET	1 OF 1