

County of Bernalillo

State of New Mexico

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2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

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ORLANDO VIGIL, TREASURER

January 6, 1998

Phil Clark, P.E.
Clark Consulting Engineers
19 Ryan Road
Edgewood, New Mexico 87015

**RE: Grading and Drainage Plan for Mello Subdivision, Tract C, Lands of Kirby
(D32/D1) (PWD-97-162) Submitted for Preliminary Plat Approval, Engineer's
Stamp Dated 12/17/97.**

Dear Mr. Clark:

Based on the information provided in the submittal of December 30, 1997, the above referenced plan is approved for Preliminary Plat action.

The existing drainage easements for the arroyos must be included on the plat.

If you have any questions, please call me at 924-3982, or contact Brad Catanach at the County.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

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

c: Brad Catanach, Bernalillo County Public Works Division
File

DRAINAGE INFORMATION SHEET

ATTN: Susan Calongne
XREF: PWD # 97-162

PROJECT TITLE: Mello Subdivision ZONE ATLAS/DRNG. FILE #: D-32/D1
DRB #: To Be Issued EPC #: _____ WORK ORDER #: _____
LEGAL DESCRIPTION: TRACT 'C', LANDS OF KIRBY
CITY ADDRESS: OFF Solar Road / SR 44
ENGINEERING FIRM: Clark Consulting Eng'rs. CONTACT: Phil Clark
ADDRESS: 19 Ryan Road - Edgewood PHONE: 281-2444
OWNER: Frank Mello CONTACT: Frank
ADDRESS: P.O. Box 879, Sandia Park 87047 PHONE: 281-0156
ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: Alpha Surveying CONTACT: Gary Gritsko
ADDRESS: North 4th St. PHONE: 897-4865
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 plan/profile Road

PRE-DESIGN MEETING:

____ YES
☒ NO
____ COPY PROVIDED

RECEIVED
DEC 30 1997
HYDROLOGY SECTION

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 of Road
____ CERTIFICATE OF OCCUPANCY APPROVAL
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ S.A.D. DRAINAGE REPORT
____ DRAINAGE REQUIREMENTS
____ SUBDIVISION CERTIFICATION
____ OTHER _____ (SPECIFY)

DATE SUBMITTED: 9/14/97 thru County PWDBY: [Signature]

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY	INCREASE
San Pedro Creek <i>Sec 8</i> <i>Sec 1</i>	A	1,180	60	285	14.0	6,593.0	6,593.0	0.0
	B	1,380	76	270	11.1	6,597.1	6,597.1	0.0
	C	2,395	105	208	14.4	6,608.8	6,609.8	1.0
	D	2,905	82	281	10.6	6,624.7	6,625.1	0.4
	E	3,030	57	268	11.3	6,625.8	6,625.8	0.0
	F	3,145	57	248	12.0	6,629.4	6,629.5	0.1
	G	3,395	154	366	8.2	6,632.5	6,633.2	0.7
	H	3,515	165	366	8.2	6,633.2	6,634.1	0.9
	I	4,760	83	249	12.0	6,656.0	6,656.9	0.9
	J	5,650	155	344	8.7	6,675.4	6,676.1	0.7
	K	5,730	153	322	9.3	6,676.9	6,677.8	0.9
	L	6,330	120	290	10.3	6,677.8	6,678.1	0.3
	M	7,685	120	266	11.3	6,704.8	6,705.6	0.8
	N	9,035	68	243	12.3	6,734.8	6,735.0	0.2
	O	9,295	51	206	14.7	6,740.8	6,740.8	0.0
	P	10,185	60	252	11.9	6,763.2	6,764.2	1.0
	Q	11,130	83	204	14.7	6,787.2	6,787.3	0.1
	R	11,235	90	248	12.0	6,791.3	6,792.0	0.7
	S	11,365	90	210	14.2	6,793.8	6,794.8	1.0
	T	11,430	138	383	7.8	6,797.9	6,798.6	0.7
	U	11,490	63	267	11.4	6,797.9	6,798.2	0.3
	V	12,230	59	176	17.0	6,816.6	6,816.6	0.0
	W	13,600	52	240	12.5	6,855.1	6,855.1	0.0

1 Feet Above Confluence With Frost Arroyo

FEDERAL EMERGENCY MANAGEMENT AGENCY
BERNALILLO COUNTY, NM
AND INCORPORATED AREAS

FLOODWAY DATA

SAN PEDRO CREEK

T
A
B
E

Table 2. Summary of Discharges

Flooding Source and Location	Drainage Area (square miles)	Peak Discharges (cubic feet per second)			
		10-Year	50-Year	100-Year	500-Year
Arroyo de las Calabacillas	98.0	2,700	8,500	12,700	28,000
At confluence with Rio Grande					
Upstream of confluence with Black's Arroyo	85.1	2,460	7,800	11,900	26,200
At upstream study limit	71.9	2,300	7,200	11,000	24,500
Canada del Ojo					
At Interstate Highway 40	76.5	5,100	8,870	10,800	15,800
Cedro Canyon Arroyo					
At confluence with Tijeras Arroyo	18.9	1,830	3,730	5,420	10,840
Frost Arroyo					
At downstream study limit	24.8	3,520	6,480	8,740	17,500
Upstream of unnamed tributary	10.5	1,710	2,910	3,790	7,580
Rio Grande					
At downstream study limit	14,650	3,300	10,200	15,200	34,200
At upstream study limit	14,100	4,000	11,850	17,860	37,900
Rio Puerco					
At Interstate Highway 40	2,490	15,400	26,900	32,600	47,900
San Pedro Creek					
Within detailed study limit	7.24	1,040	2,140	2,990	5,980



Bernalillo County Public Works Division Case File Comments

Case Number PWD 97 162

Date Functional Area

22-Sep-97 DRAN

1. Please clarify the minimum finished floor elevations with respect to locations for Tracts C-2 and C-

5. *Identify bldg envelope*

2. The two-30 inch culverts in the San Pedro Creek are not adequate to pass the 10-year or 100-year storm. The water will overtop these culverts and impact the cul d sac. ~~Erosion protection may be necessary at the inlets and outlets.~~ *please address*

3. Is erosion protection necessary at the outfall of the three 96-inch culverts in the Armijo Arroyo. Are these culverts designed for the 10 or 100 year event. ? *hard ditch to end of cul de sac - how does it get thru rip rap?*

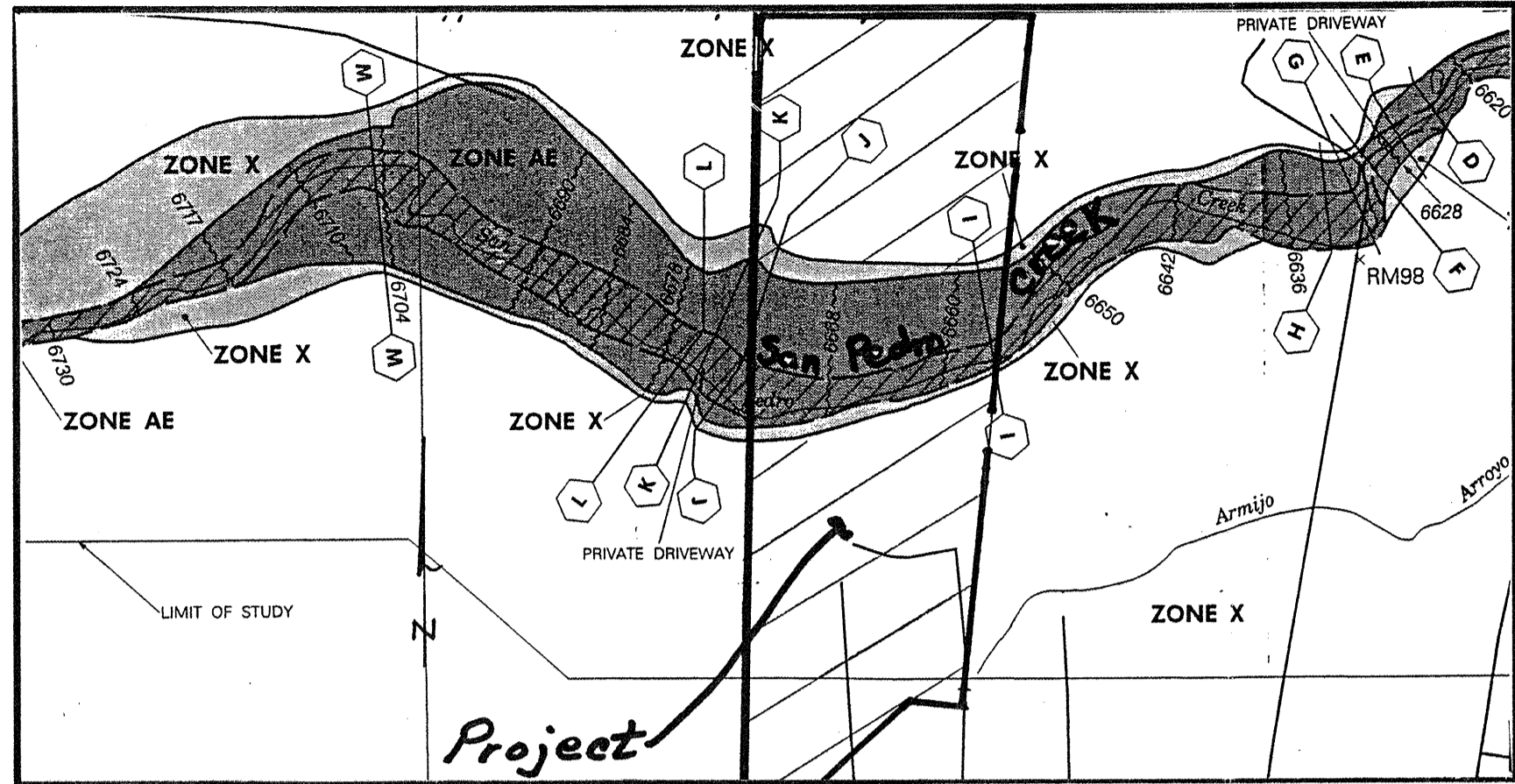
4. Was an AHYMO analysis completed for the Armijo Arroyo. ?

* 5. Please check with Dave Mitchell (Development Review, 848-1517) for the layout of the road as to compliance with County design standards. The owner may want the County to maintenance the road at a latter date.

6. The erosion setback analysis for the Armijo and San Pedro is a little bare. A brief discussion on the type of material and its erosion abilities to with-stand velocities in excess of 10 to 18 fps, historic flow patterns, movement of arroyos in last 10, 20, 30 years, etc. should be addressed.

* *(exist cul de sac bulb @ Subd. entrance?)*

* *PWD Comments - not drainage*



FEMA MAP, PANEL 35001-C-0187 @ 1"=500'

GRADING & DRAINAGE PLAN

THE PROPOSED 5 LOT, 38 ACRE SUBDIVISION IS LOCATED IN BERNALILLO COUNTY, NEW MEXICO, APPROXIMATELY 22 MILES NORTHEAST OF THE DOWNTOWN CORE OF THE CITY OF ALBUQUERQUE. THE GRADING AND DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH THE BERNALILLO COUNTY FLOOD HAZARD ORDINANCE, NO.88-46, AND STORM DRAINAGE, NO.96-5. THE PLAN IS REQUIRED IN ORDER TO FACILITATE THE OWNER'S REQUEST FOR SUBDIVISION PLAT APPROVAL. THE PROPOSED PLAN SHOWS:

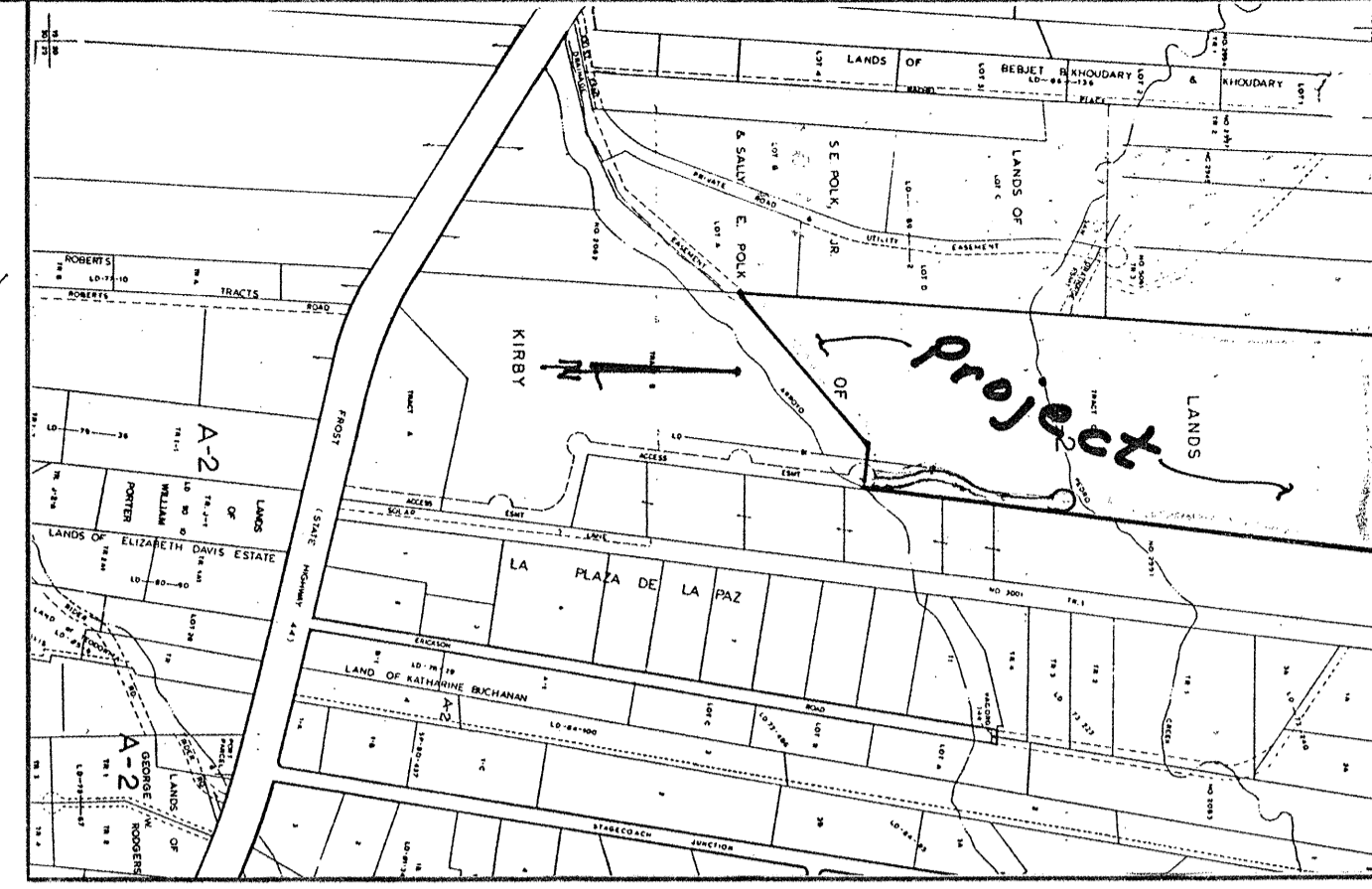
- 1.) EXISTING CONTOURS WITH EXISTING ELEVATIONS, RESIDENCE, AND, EXISTING DRAINAGE EASEMENTS.
- 2.) PROPOSED IMPROVEMENTS; UPGRADED PRIVATE, GRAVEL ROADWAY, DRAINAGE CULVERTS, EROSION CONTROL, AND NEW GRADE ELEVATIONS.
- 3.) CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS.
- 4.) QUANTIFICATION AND ACCEPTANCE OF UPSTREAM, OFF-SITE FLOWS WHICH CONTRIBUTE TO THE DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS.
- 5.) RESULTS OF FLOOD PLAIN ANALYSES OF THE TWO ARROYOS, BOTH THE ARMILLO AND SAN PEDRO CREEK.

THE PURPOSE OF THE PLAN IS TO ESTABLISH CRITERIA FOR CONTROLLING STORM RUN-OFF GENERATED BY THE PROPOSED IMPROVEMENTS, ESSENTIALLY ALLOWING HISTORIC OFF-SITE AREAS TO DRAIN THROUGH THE PROPERTY AFTER DEVELOPMENT. THE PLAN DETERMINES THE RUN-OFF RESULTING FROM THE 100-YEAR/6-HOUR DURATION STORMS FOR BOTH THE EXISTING AND DEVELOPED CONDITIONS.

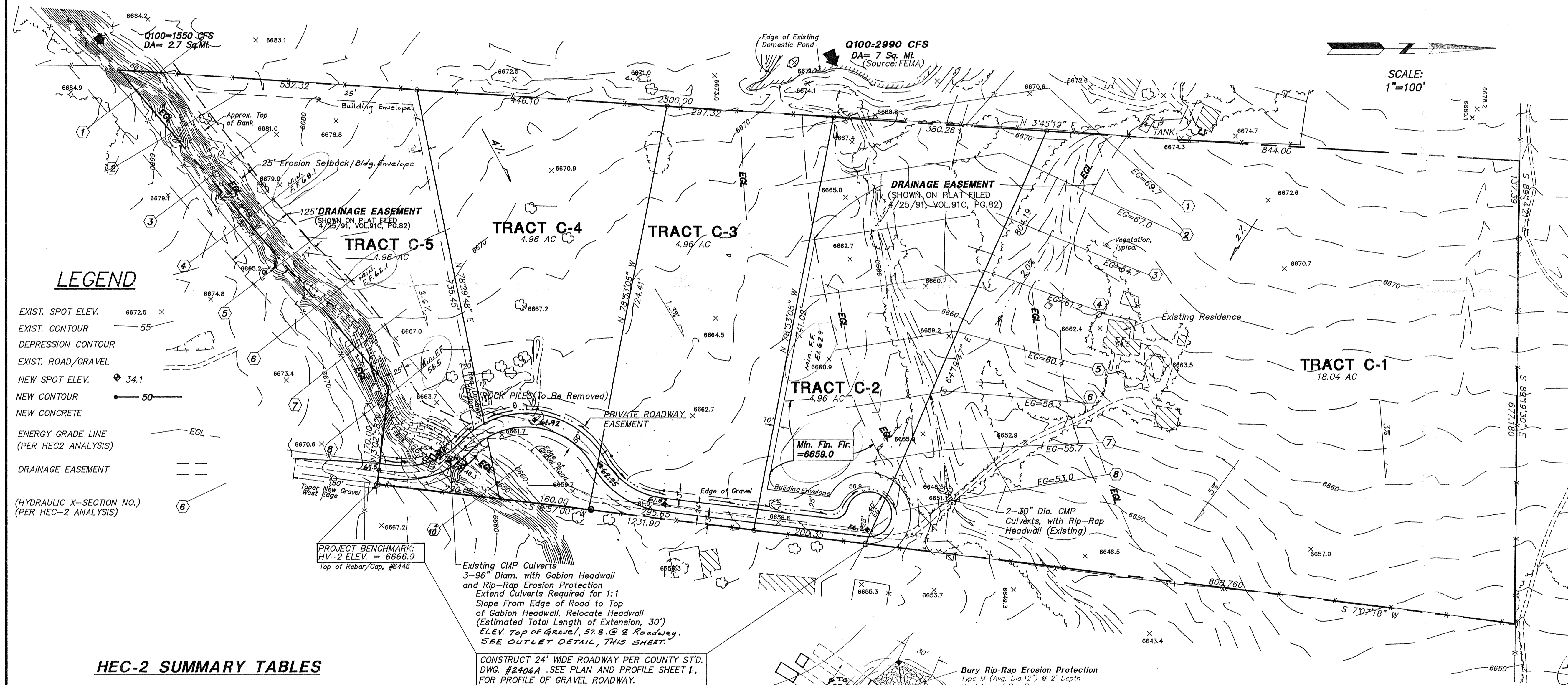
PRESENTLY, THE SITE IS BOUNDED ON THE EAST, WEST AND SOUTH BY DEVELOPED, PLATTED PROPERTY WHICH IS ZONED A-2. THE SAN PEDRO LAND GRANT ADJOINS ON THE NORTH AND IS UNDEVELOPED. A PRIVATE, GRAVEL ROADWAY PROVIDES ACCESS FROM STATE ROAD 44 AND IS PLATTED TO THE PROJECT SOUTHEAST CORNER. THE MAJORITY OF THE SITE SLOPES FROM WEST TO EAST AT APPROXIMATELY 3 TO 5% AND IS BISECTED BY TWO MAJOR ARROYOS, ARMILLO AND SAN PEDRO CREEK. SAN PEDRO CREEK IS A FEDERALLY DESIGNATED FLOOD HAZARD ZONE, AND ENTERS THE SITE AT APPROXIMATELY MID-POINT. THE ARMILLO ARROYO DRAINAGE FLOWS ENTER THE SITE AT THE SOUTHERN BOUNDARY. ALL FLOWS ARE QUANTIFIED WITHIN 'CALCULATIONS' AND THE PLAN.

HISTORICAL SITE RUN-OFF OUTFALL LOCATIONS WILL REMAIN UNCHANGED WITH RUN-OFF ALLOWED TO SHEET FLOW THEN EXIT THE PROPERTY VIA THE ARROYOS AS HAS HISTORICALLY. ACCESS TO EACH OF THE 5 PROPOSED LOTS WILL BE FROM A PROPOSED, PRIVATE, 24 FEET WIDE, GRAVEL ROADWAY, WHICH IS AN UP-GRADE TO AN EXISTING DRIVEWAY. AN EXISTING CULVERT SYSTEM IS IN-PLACE AT THE ARMILLO ARROYO CROSSING, AND WILL BE UPGRADED TO MEET PROPOSED ALIGNMENT NEEDS, AND CONSTRUCTED TO COUNTY STANDARDS. FREE DISCHARGE OF STORM RUN-OFF FROM THE SITE IS ACCEPTABLE SINCE THE PROJECT OUTFALLS DIRECTLY TO SAN PEDRO CREEK WHICH HAS ADEQUATE CAPACITY.

HYDROLOGIC PROCEDURES AND CALCULATIONS ARE IN ACCORDANCE WITH SECTION 22.2, HYDROLOGY, OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, REVISED JANUARY 1993, FOR THE CITY OF ALBUQUERQUE, NEW MEXICO, AND ADOPTED BY BERNALILLO COUNTY.



VICINITY MAP, ZONE D-32 @ 1"=739'



NOTES:

SEE SUPPLEMENTAL REPORT FOR CALCULATIONS AND ANALYSIS ON FILE WITH COUNTY PUBLIC WORKS DEPARTMENT: Includes of HEC2 Analysis, On-site/Off-site Hydrology, Erosion Setback Analysis, and Hydraulics

1. NO PERIMETER FENCING IS PROPOSED BY THIS PLAN. ANY FUTURE PERIMETER RAIL, BOARD OR MESH-TYPE FENCING SHALL BE FREE OF DEBRIS AND WEEDS, WITH THE BOTTOM RAIL/MESH SET A MINIMUM OF 6" ABOVE NATURAL GRADE, AND CONSTRUCTED OUTSIDE OF ANY DESIGNATED DRAINAGE EASEMENTS. FOOTINGS MAY BE SACRIFICIAL WITHIN THE DRAINAGE SETBACK ZONES.
2. THE PLAN SHOWS OFFSITE AREAS DRAINING THROUGH THE PROPERTY, AND MUST CONTINUE TO DO SO AFTER DEVELOPMENT.
3. DEVELOPMENT OF THIS PROPERTY MUST REMAIN IN SUBSTANTIAL COMPLIANCE WITH THIS PLAN. ANY CHANGES TO BLDG. PAD LOCATIONS, ELEVATIONS, GRADING SCHEME, LAND TREATMENT PERCENTAGES WOULD CONSTITUTE REQUIREMENT FOR RE-SUBMITTAL TO THE COUNTY PUBLIC WORKS DEPT.
4. PROJECT STRUCTURE SETBACK REQS: 25 FEET, FRONT AND REAR YARD; 10 FEET SIDEYARD
5. DRAINAGE/EROSION CONTROL REQUIRED SETBACK FOR STRUCTURES: TRACT C-1 AND C-2, DRAINAGE EASEMENT LIMITS TRACT C-5, 25 FEET MEASURED FROM EXISTING TOP OF BANK.
6. SEPTIC LOCATIONS WILL BE DETERMINED PENDING FINAL LOCATION OF PROPOSED INDIVIDUAL LOT WELL CONSTRUCTION. ALL SEPTIC SYS. SHALL COMPLY WITH COUNTY ENVIRONMENTAL HEALTH DEPT. REQS. AND SETBACKS TO PROPERTY LINES. NO SEPTIC SYSTEM SHALL BE LOCATED WITHIN EITHER DRAINAGE EASEMENT OR EROSION SETBACK AREAS, OR 100 FEET FROM FINAL LOCATION OF PROPOSED WELLS.

HEC-2 SUMMARY TABLES

SECTION	CHSBL	SD	FRCH	DSPTH	RV	VCH
1.000	69.56	73.28	1.40	7.56	3.72	15.48
2.000	64.35	69.92	1.83	4.75	5.97	18.95
3.000	64.11	68.85	1.01	7.31	2.44	12.52
4.000	63.53	67.11	1.35	6.03	3.58	15.13
5.000	58.49	64.09	1.90	4.49	5.60	18.99
6.000	57.88	63.11	1.24	5.88	3.23	14.43
7.000	58.74	59.32	1.47	5.34	3.88	15.78
8.000	56.86	57.47	1.21	6.36	2.41	12.98
9.300	48.95	53.31	2.00	2.55	4.35	16.78
9.900	50.03	51.92	1.13	3.63	1.88	11.01
10.400	51.75	53.59	1.01	5.75	1.84	10.87

OUTLET EROSION CONTROL DETAIL

I, PHILIP W. CLARK, A PROFESSIONAL ENGINEER LICENSED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE VISITED THE SITE SHOWN HEREON, AND THAT THE CONTOURS SHOWN REPRESENT THE EXISTING GROUND CONDITIONS, AND DO FURTHER CERTIFY THAT NO EARTHWORK OF ANY KIND, NOR ANY DISTURBANCE OF THE EXISTING GROUND HAS OCCURRED ON THIS SITE SINCE THE CONTOURS WERE DETERMINED.

PHILIP W. CLARK
NMPE #10285
REGISTERED PROFESSIONAL ENGINEER

PROJECT INFORMATION

LEGAL DESCRIPTION:
TRACT C, LANDS OF KIRBY WITHIN SECTION 20, T11N, R6E, NMPM, BERNALILLO COUNTY, NEW MEXICO

PROJECT BENCHMARK:
TOP OF REBAR AND CAP, SOUTHEAST CORNER OF PROJECT, MEAN SEA LEVEL ELEVATION = 6669.9

PROPERTY ADDRESSES:
SOLAR ROAD, SANDIA PARK, NM 87047

TOPOGRAPHIC SURVEY:
HORIZONTAL/VERTICAL CONTROL: ALPHA SURVEYING CO., 7/97
AERIAL SURVEY, MAPPING PROVIDED BY TOM R. MAHIN, ASSOC.

Clark Consulting Engineers 19 Ryan Road Edgewood, New Mexico 87015	
Tele: (505) 281-2444	Fax: (505) 281-2444
DATE: 12-17-97	REVISION: Added E.F. to rebar and cap location for outlet detail
LANDS OF KIRBY, TRACT C, WITHIN SECTION 20, T11N, R6E, NMPM.	
FRANK MELLO SUBDIVISION	
GRADING & DRAINAGE PLAN	
DESIGNED BY: PWC	DRAWN BY: CCE
CHECKED BY: PWC	DATE: 8/28/97
JOB NO: MELLO	SHEET No: 1 of 1