

DRAINAGE INFORMATION

LOCATION & DESCRIPTION

THE PROPOSED SITE IS 0.902 ACRES LOCATED ON THE NORTH SIDE OF OAKLAND AVENUE THREE (3) LOTS WEST OF WYOMING BOULEVARD AS SEEN ON THE ATTACHED VICINITY MAP. THE SITE IS CURRENTLY UNDEVELOPED WITH A TEMPORARY DRAINAGE SWALE ALONG THE WEST SIDE OF THE PROPERTY. THIS DRAINAGE SWALE WAS CREATED AS PART OF THE DESERT LANE SUBDIVISION (TO THE NORTH) TO DIVERT ITS OFFSITE DRAINAGE SOUTH TO OAKLAND AVENUE. A TYPICAL ONE ACRE NORTH ALBUQUERQUE ACRES LOT IS ALREADY DEVELOPED TO THE WEST, AND UNDEVELOPED PROPERTY LIES TO THE EAST. THE PROPOSED DEVELOPMENT WILL BE FIVE (5) SINGLE FAMILY RESIDENTIAL LOTS ON A CUL-DE-SAC.

FLOODPLAIN STATUS

THIS PROJECT, AS SHOWN ON FEMA'S FLOOD INSURANCE RATE MAP 35001C0137 D, DATED SEPTEMBER 20, 1996 IS NOT WITHIN ANY DESIGNATED 100-YEAR FLOODPLAIN. AN EXHIBIT WITH THE SITE SHOWN ON THE FIRM PANEL IS INCLUDED ON THIS SHEET.

METHODOLOGY

THE HYDROLOGY FOR THIS PROJECT WAS ANALYZED USING THE QUICK CALCULATIONS OF THE JUNE 1997 RELEASE OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, SECTION 22.2. TABLES WITHIN THIS SECTION WAS USED TO ESTABLISH THE 6-HOUR PRECIPITATION, EXCESS PRECIPITATION, AND PEAK DISCHARGE.

PRECIPITATION

THE 100-YR 6-HR DURATION STORM WAS USED AS THE DESIGN STORM FOR THIS ANALYSIS. THIS SITE IS WITHIN ZONE 3 AS IDENTIFIED IN THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, SECTION 22.2. TABLES WITHIN THIS SECTION WAS USED TO ESTABLISH THE 6-HOUR PRECIPITATION, EXCESS PRECIPITATION, AND PEAK DISCHARGE.

EXISTING DRAINAGE

A PORTION OF EXHIBIT 3 FROM THE DRAINAGE REPORT FOR "DESERT LANE SUBDIVISION" PREPARED BY MARK GOODWIN AND ASSOCIATES AND APPROVED BY THE CITY OF ALBUQUERQUE HYDROLOGY DEPARTMENT ON AUGUST 27, 2002 IS INCLUDED ON THIS SHEET. THIS EXHIBIT SHOWS THREE (3) DRAINAGE BASINS. "BASIN 101" IS AN OFFSITE BASIN ADJACENT TO OAKLAND AVENUE AND EAST OF THIS SITE. IT DRAINS THROUGH A MINOR DEPRESSION THROUGH THIS LOT JUST NORTH OF OAKLAND AVENUE. THE 100-YEAR HYDROLOGIC CALCULATIONS BELOW DEMONSTRATE THAT THIS BASIN CURRENTLY CONTRIBUTES 1.09 CFS TO THE SITE AND IF IT IS DEVELOPED AS A TYPICAL NORTH ALBUQUERQUE ACRES LOT IT WILL CONTRIBUTE 1.68 CFS. SIMILARLY "BASIN 102" CONTRIBUTES RUNOFF TO THE NORTHEAST CORNER OF THE LOT AND HAS BEEN DIVERTED TO OAKLAND AVENUE VIA THE TEMPORARY SWALE DESCRIBED ABOVE IN "LOCATION AND DESCRIPTION." THIS BASIN CONTRIBUTED 1.14 CFS UNDER CURRENT CONDITIONS AND WILL CONTRIBUTE 1.75 CFS IF DEVELOPED AS THE TYPICAL ONE DWELLING UNIT PER ACRE. "BASIN 103" IS THIS DEVELOPMENT'S DISCHARGES ENTIRELY TO OAKLAND AVENUE DUE TO THE DIVERSION SWALE. IT CONTRIBUTES 3.93 CFS UNDER CURRENT CONDITIONS AND WILL CONTRIBUTE 3.70 CFS IF DEVELOPED. THERE IS ALSO AN EXISTING BAR DITCH, EAST OF THE SITE, ON THE NORTH SIDE OF OAKLAND AVENUE, THAT CONVEYS THE STREET RUNOFF FROM THE INTERSECTION OF WYOMING BOULEVARD TO THE WEST. THIS MINOR FLOW HAS NOT BEEN CALCULATED SINCE IT IS CONTAINED WITHIN THE OAKLAND AVENUE RIGHT-OF-WAY.

DEVELOPED CONDITION

THIS SITE WILL BE DEVELOPED WITH A STABILIZED SIDE-YARD SWALE TO CONVEY THE RUNOFF FROM "BASIN 102" TO THE CUL-DE-SAC. A SECOND SIDE-YARD SWALE WILL CONVEY THE RUNOFF FROM "BASIN 101" TO OAKLAND AVENUE. A SINGLE STREET INTERCEPTING ALL OF THE SITE RUNOFF AND "BASIN 102" WILL FREE DISCHARGE INTO OAKLAND AVENUE. DUE TO DEVELOPING THE NORTH HALF-WIDTH STREET SECTION ADJACENT TO THIS PROPERTY, THE BAR DITCH WILL BE TERMINATED ACROSS THIS DEVELOPMENT'S FRONTAGE. A CUTOFF WALL WILL BE CONSTRUCTED AT THE EAST PROPERTY LINE TO PROTECT THE PAVEMENT FROM UNDERCUTTING AND WILL PROVIDE A TRANSITION FROM THE BAR DITCH TO THE CURB AND GUTTER STREET SECTION. THE 2.01 CFS INCREASE, FOR THE 100-YEAR PEAK RUNOFF, DUE TO THIS DEVELOPMENT IS INSIGNIFICANT AND WILL HAVE MINIMAL IMPACT ON DOWNSTREAM FACILITIES BY DEVELOPING THE STREET IN THIS MANNER.

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT				WEIGHTED E (in)	V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(10 day) (acre-ft)	V(10 day) (cu-ft)	Q (cfs)
		A (%)	B (%)	C (%)	D (%)						
EXISTING CONDITIONS											
101	0.5850	100.00	0.00	0.00	0.00	0.66	0.03	1,402	0.03	1,402	1.09
102	0.6120	100.00	0.00	0.00	0.00	0.66	0.03	1,466	0.03	1,466	1.14
103	0.9020	100.00	0.00	0.00	0.00	0.66	0.05	2,161	0.05	2,161	1.69
TOTAL	2.0990						0.12	5,029	0.12	5,029	3.93
PROPOSED CONDITIONS											
101	0.5850	43.00	20.00	20.00	17.00	1.13	0.05	2,393	0.07	3,224	1.68
102	0.6120	43.00	20.00	20.00	17.00	1.13	0.08	2,504	0.08	3,372	1.75
103	0.9020	0.00	23.00	23.00	54.00	1.78	0.13	5,837	0.23	9,904	3.70
TOTAL	2.0990						0.25	10,734	0.38	16,500	7.13
EXCESS PRECIP. 0.66 0.92 1.29 2.36 E (in)											
PEAK DISCHARGE 1.87 2.6 3.45 5.02 Qn (cfs)											
WEIGHTED E (in) = (E ₁)(%A) + (E ₂)(%B) + (E ₃)(%C) + (E ₄)(%D)											
V _{6hr} (acre-ft) = (WEIGHTED E)(AREA)/12											
V _{10day} (acre-ft) = V _{6hr} + (A ₀)(P _{10day} - P _{6hr})/12											
Q (cfs) = (Q _{6hr})(A ₀) + (Q ₁₀)(A ₀) + (Q ₂₄)(A ₀) + (Q ₄₈)(A ₀)											
ZONE = 3											
P _{6hr} (in.) = 2.60											
P _{24hr} (in.) = 3.10											
P _{10day} (in.) = 4.90											

DRAINAGE CERTIFICATION

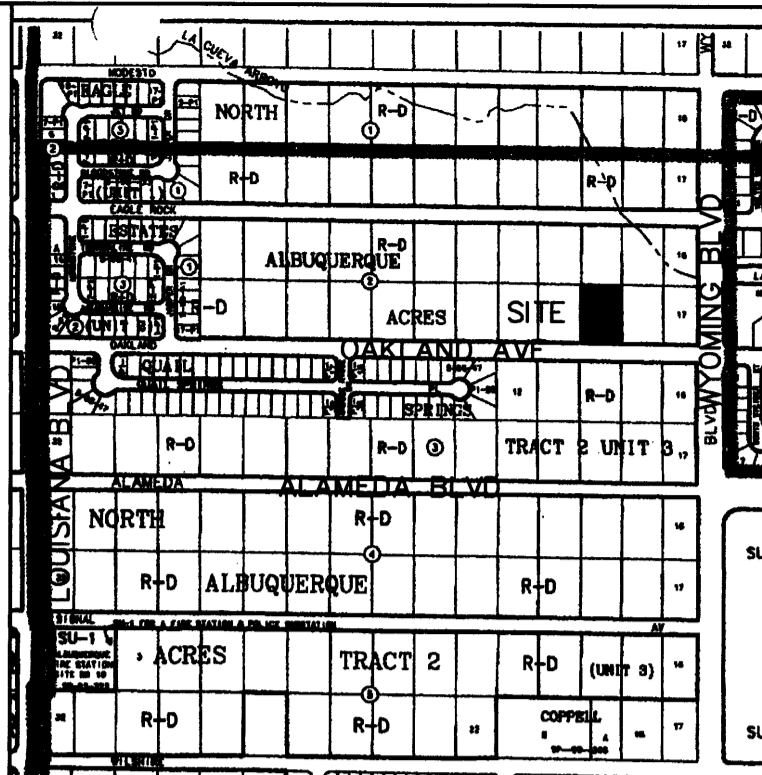
I, Larry D. Read, NMPE 10998, of the firm Larry Read & Associates, Inc., hereby certify that this project has been graded and will drain in substantial compliance with and in accordance with the design intent of the approved plan dated 2/5/03. The record information edited onto the original design document has been obtained by Will Plotner Jr., NMPS 14271, of the firm Cartesian Survey. I further certify that I have personally visited the project site on 10/1/2004 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for RELEASE OF FINANCIAL QUARANTEE.

Exceptions: The gravel swale on the north end of the east side has not been constructed since the developer of this subdivision has secured the land to the east and a proposed Grading and Drainage Plan (Kumal Subdivision) is in for Preliminary Plot and Grading and Drainage review. Construction of Kumal Subdivision will remove the need for this swale.

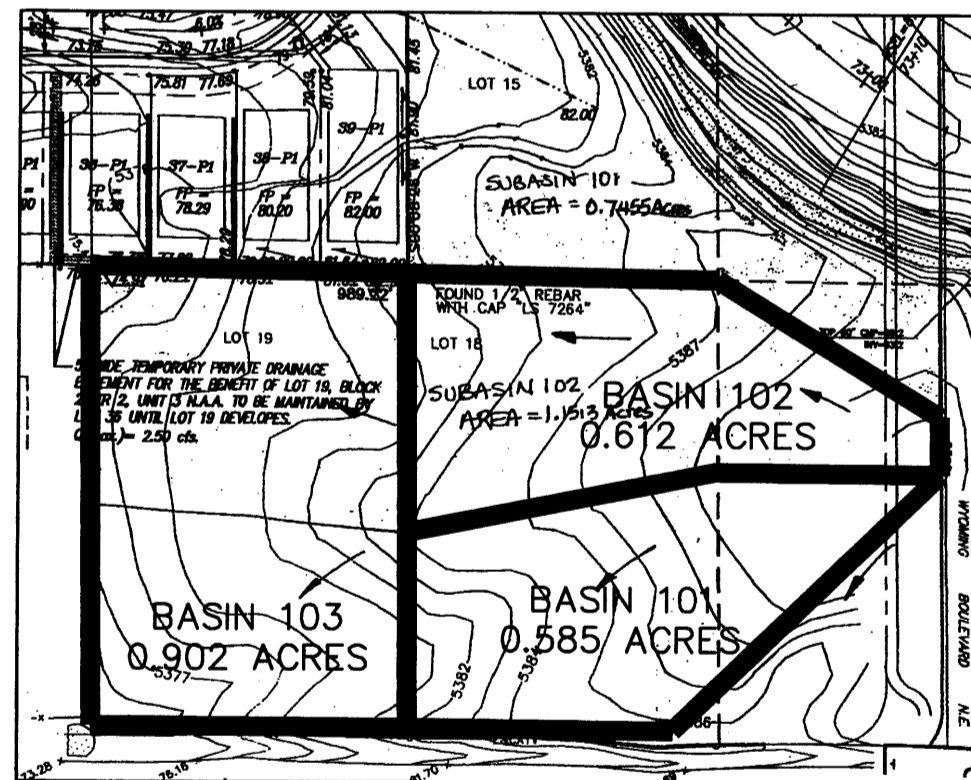
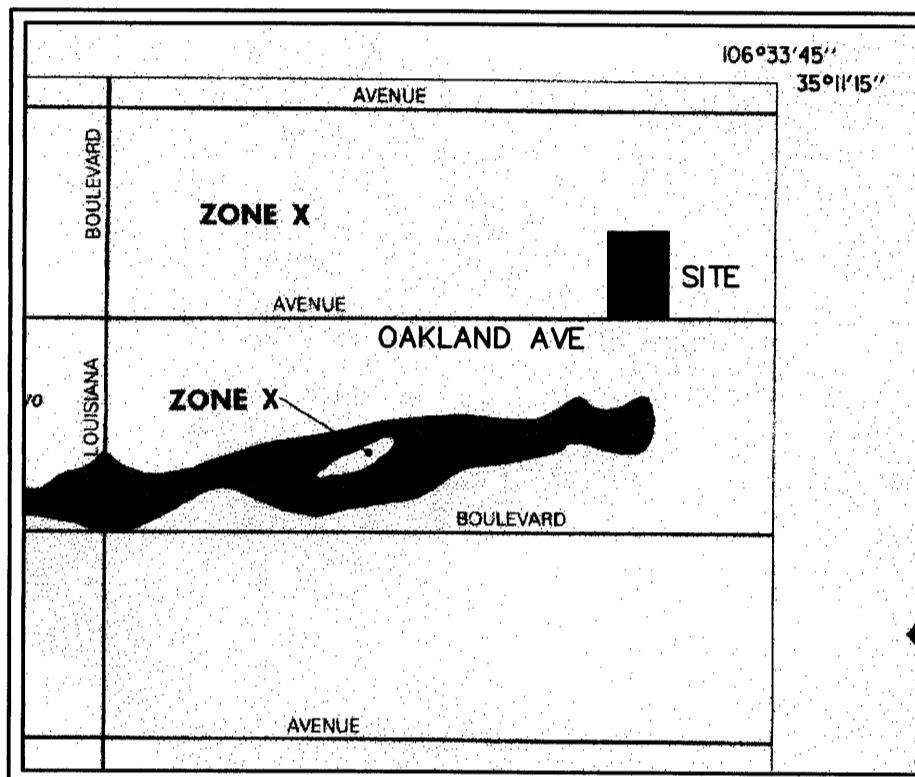
The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the Grading and Drainage aspects of this project. Those relying on this record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

TCC 73.50
FG 73.60 73.21 VERIFIED SPOT ELEVATION

FG 71.30 EARTH SPOT ELEVATION MATCHES DESIGN



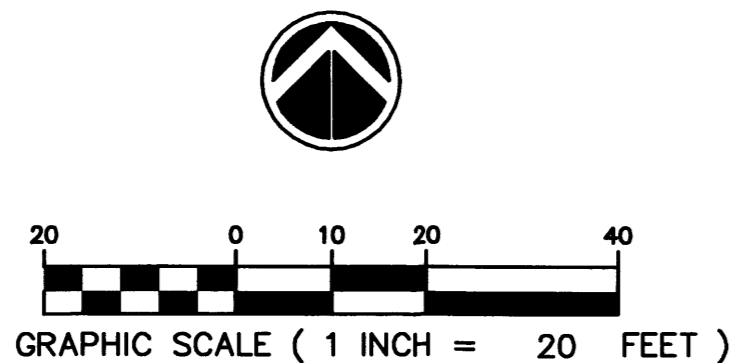
LEGAL DESCRIPTION



BASIN MAP (1" = 100')

LARRY READ & ASSOCIATES, Inc.
Civil Engineers
4800-C Juan Tabo Blvd. NE
Albuquerque, New Mexico 87111
(505) 237-8421

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP	
TITLE: ABIS SUBDIVISION GRADING AND DRAINAGE PLAN	
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL
DATE	MO./DAY/YR.
PROJECT NO.	MAP NO.
7153.81	C-19
SHEET	3 9



DRAINAGE INFORMATION

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FLOODPLAIN STATUS

THIS PROJECT, AS SHOWN ON FEMA'S FLOOD INSURANCE RATE MAP 35001C0137 D, DATED SEPTEMBER 20, 1996 IS NOT WITHIN ANY DESIGNATED 100-YEAR FLOODPLAIN. AN EXHIBIT WITH THE SITE SHOWN ON THE FIRM PANEL IS INCLUDED ON THIS SHEET.

METHODOLOGY

THE HYDROLOGY FOR THIS PROJECT WAS ANALYZED USING THE QUICK CALCULATIONS OF THE JUNE 1997 RELEASE OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, SECTION 22.2.

PRECIPITATION

THE 100-YR 6-HR DURATION STORM WAS USED AS THE DESIGN STORM FOR THIS ANALYSIS. THIS SITE IS WITHIN ZONE 3 AS IDENTIFIED IN THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, SECTION 22.2. TABLES WITHIN THIS SECTION WAS USED TO ESTABLISH THE 6-HOUR PRECIPITATION, EXCESS PRECIPITATION, AND PEAK DISCHARGE.

EXISTING DRAINAGE

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DEVELOPED CONDITION

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100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT				WEIGHTED E (in)	V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(10 day) (acre-ft)	V(10 day) (cu-ft)	Q (cfs)
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EXISTING CONDITIONS											
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102	0.6120	100.00	0.00	0.00	0.00	0.68	0.03	1,466	0.03	1,466	1.14
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TOTAL	2.0990						0.25	10,734	0.38	16,500	7.13
EXCESS PRECIP.											
		0.66	0.92	1.29	2.36	E (in)					
PEAK DISCHARGE		1.87	2.6	3.45	5.02	Qn (cfs)					
WEIGHTED E (in) = (Ea)(%A) + (Eb)(%B) + (Ec)(%C) + (Ed)(%D)							ZONE = 3				
V6hr (acre-ft) = (WEIGHTED E)(AREA)/12							P6hr (in.) = 2.80				
V10day (acre-ft) = V6hr * (Ao)(P10day - P6hr)/12							P24hr (in.) = 3.10				
Q (cfs) = (Qn)(Aa) + (Qn)(Ab) + (Qn)(Ac) + (Qn)(Ad)							P10day (in.) = 4.90				

TEMPORARY DRAINAGE CERTIFICATION

I, Larry D. Read, NMPE 10998, of the firm Larry Read & Associates, Inc., hereby certify that this project has been graded and will drain in substantial compliance with and in accordance with the design intent of the approved plan dated 2/5/03. The record information edited into the original design document has been obtained by Will Plotter Jr., NMPS 14271, of the firm Cartesian Survey, I further certify that I have personally visited the project site on 10/1/2004 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for Certificate of Occupancy.

Exceptions: The gravel swale on the north end of the east side has not been constructed since the developer of this subdivision has secured the land to the east and a proposed Grading and Drainage Plan (Kumall Subdivision) is in for Preliminary Plat and Grading and Drainage review. Construction of Kumall Subdivision will remove the need for this swale.

The developer elected to construct a short retaining wall (design by others) on both the east and west sides of Abis Court near the entrance to provide flatter yards for the two corner houses.

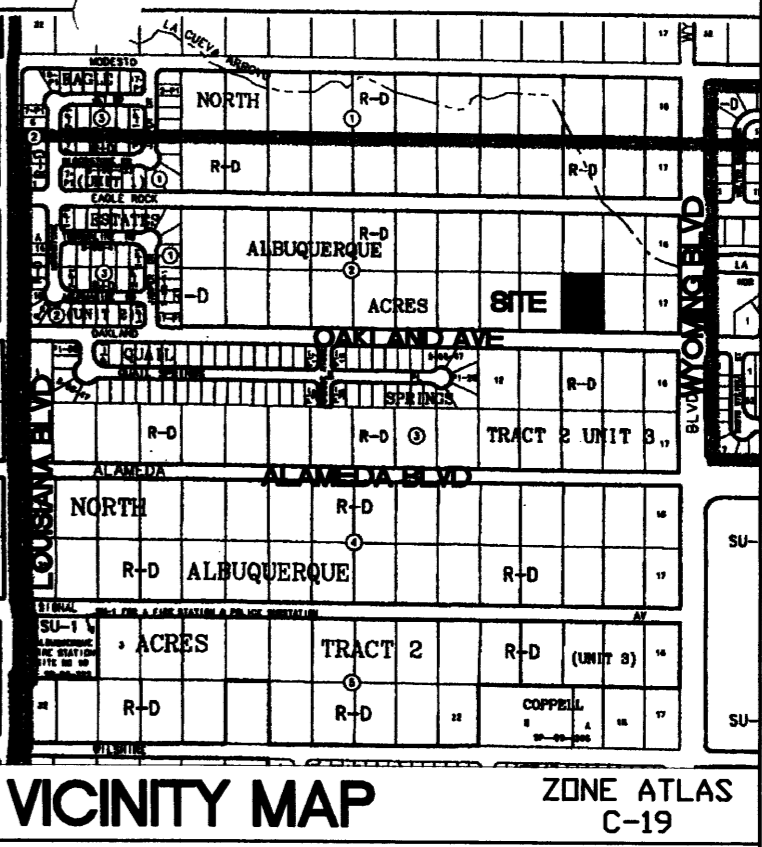
Construction of houses on these lots will disturb the grading outside the footprint. Therefore, the builder will need to reestablish the swales and yard grading to provide positive drainage when the houses are complete.

The sidewalk along the east side of Abis Court has been constructed correctly but the wheelchair ramp has not been constructed. This must be corrected before I request a permanent drainage certification.

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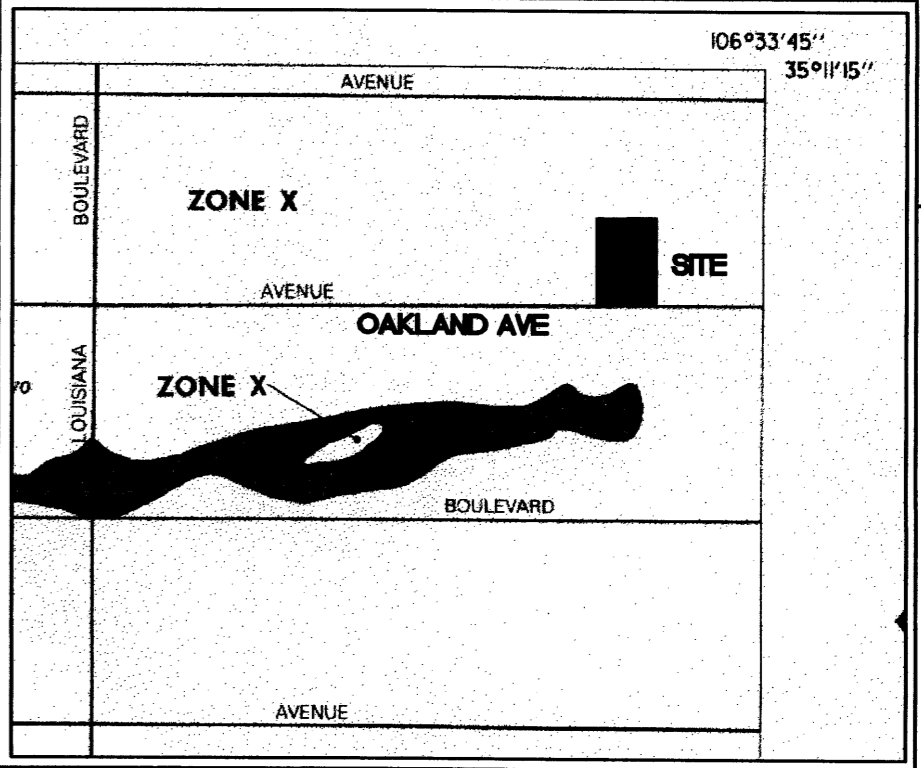
VERIFIED SPOT ELEVATION

EARTH SPOT ELEVATION MATCHES DESIGN



LEGAL DESCRIPTION

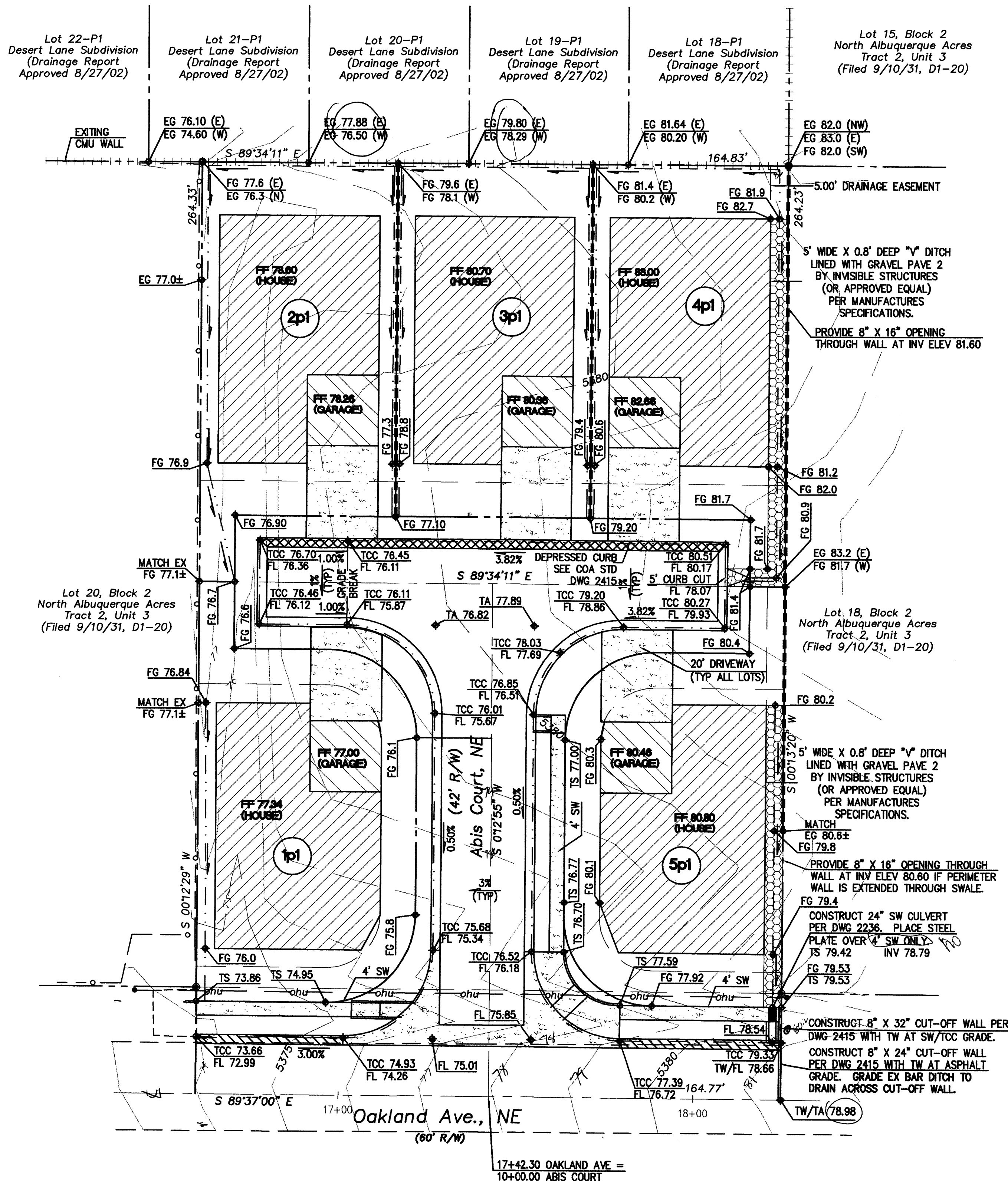
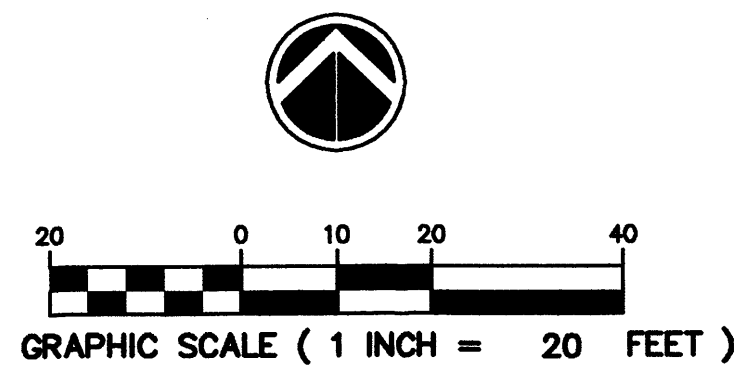
LOT 19, BLOCK 2, TRACT 2, UNIT 3, NORTH ALBUQUERQUE ACRES, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON SEPTEMBER 10, 1931, IN PLAT BOOK D1, PAGE 20.



BASIN MAP (1" = 100')

LARRY READ & ASSOCIATES, Inc.
Civil Engineers
4800-C Juan Tabo Blvd. NE
Albuquerque, New Mexico 87111
(505) 237-8421

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP	
TITLE: ABIS SUBDIVISION GRADING AND DRAINAGE PLAN	
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL
PROJECT NO. 7153.81	MAP NO. C-19
SHEET 3 9	



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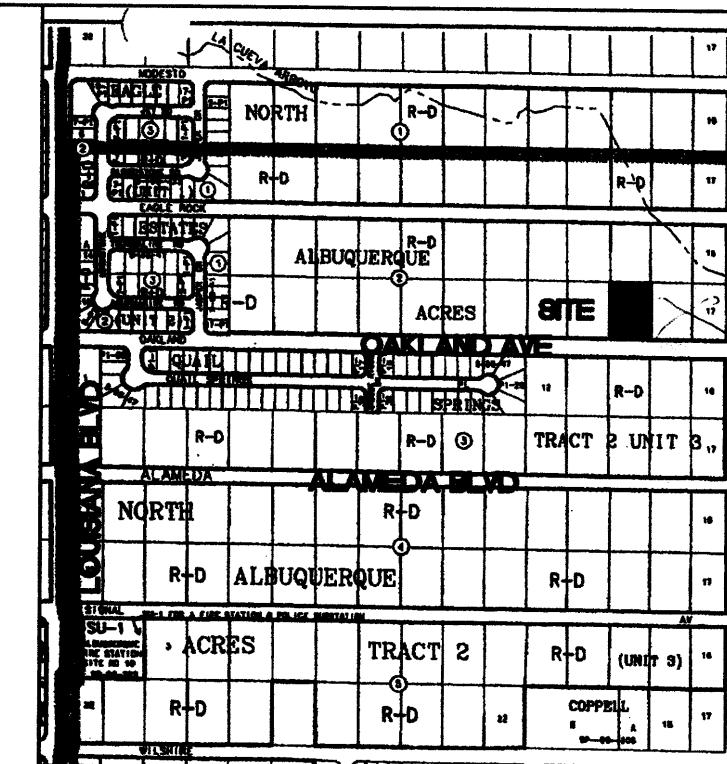
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EXCESS PRECIP. 0.66 0.92 1.29 2.36 E (in)											
PEAK DISCHARGE 1.87 2.6 3.45 5.02 Qm (cfs)											
WEIGHTED E (in) = (Ea)(%A) + (Eb)(%B) + (Ec)(%C) + (Ed)(%D)											
$V_{6hr} \text{ (acre-ft)} = (\text{WEIGHTED E})(\text{AREA})/12$											
$V_{10day} \text{ (acre-ft)} = V_{6hr} + (Aa)(P_{10day} - P_{6hr})/12$											
$Q \text{ (cfs)} = (Qm)(Aa) + (Qb)(Ab) + (Qc)(Ac) + (Qd)(Ad)$											
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$P_{6hr} \text{ (in.)} = 2.60$											
$P_{10day} \text{ (in.)} = 3.10$											
$P_{1day} \text{ (in.)} = 4.90$											

MAXIMUM FLOW IN YARD SWALE

MANNING'S EQUATION FOR UNIFORM FLOW IN TRAPEZOIDAL CHANNELS

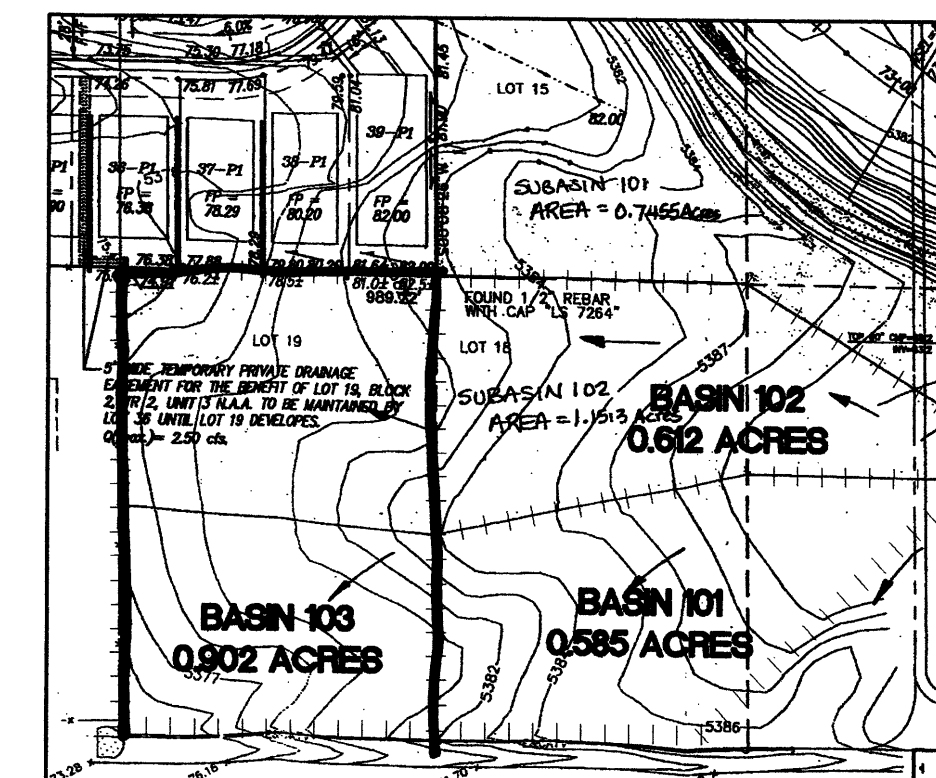
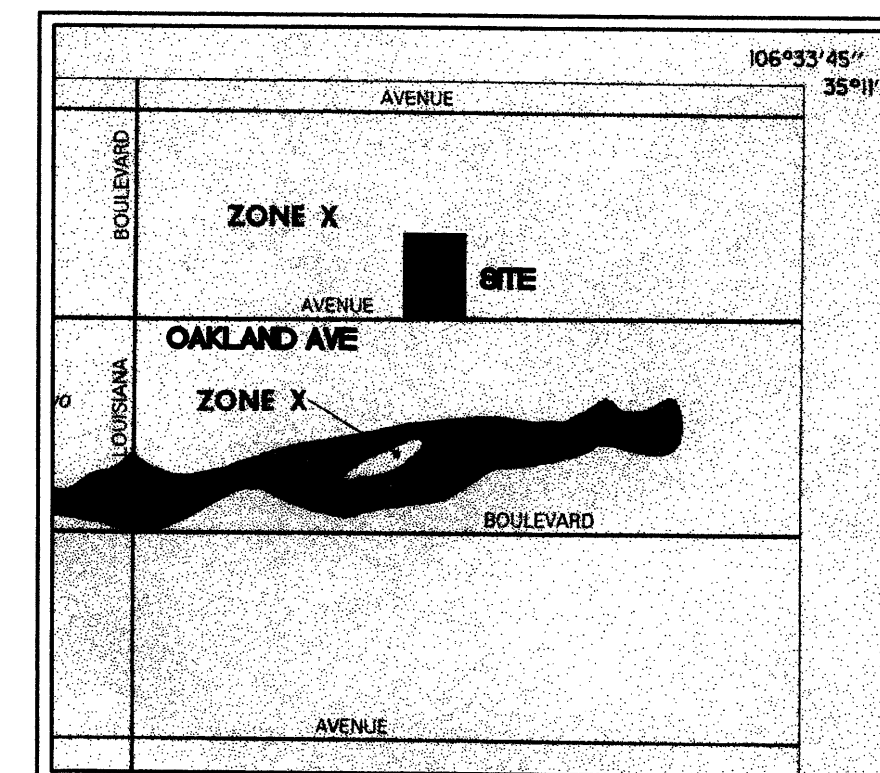
INPUT	DEPTH (FT):	0.54
	MANNING'S "n" VALUE:	0.030
	BED SLOPE (FT/FT):	0.0100
	BOTTOM WIDTH (FT):	0.00
	SIDE SLOPE #1 (HORIZ:VERT):	3.00
	SIDE SLOPE #2 (HORIZ:VERT):	3.00
	CROWN-NEG. FOR INVERTED (FT):	0.00

OUTPUT	FLOW RATE (CFS):	1.75
	CROSS SECT. AREA (SF):	0.87
	TOP WIDTH (FT):	3.24
	WETTED PERIMETER (FT):	3.42
	HYDRAULIC RADIUS (FT):	0.26
	VELOCITY (FPS):	2.00
	FROUDE NUMBER:	0.68
	ENERGY GRADE:	0.60



LOT 19, BLOCK 2, TRACT 2, UNIT 3, NORTH ALBUQUERQUE ACRES, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON SEPTEMBER 10, 1931, IN PLAT BOOK D1, PAGE 20.

LEGAL DESCRIPTION



BASIN MAP (1" = 100')

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(505) 237-8421
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CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP	
TITLE:	ABIS SUBDIVISION GRADING AND DRAINAGE PLAN
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL
PROJECT NO.	MAP NO. C-19
SHEET	3 9

