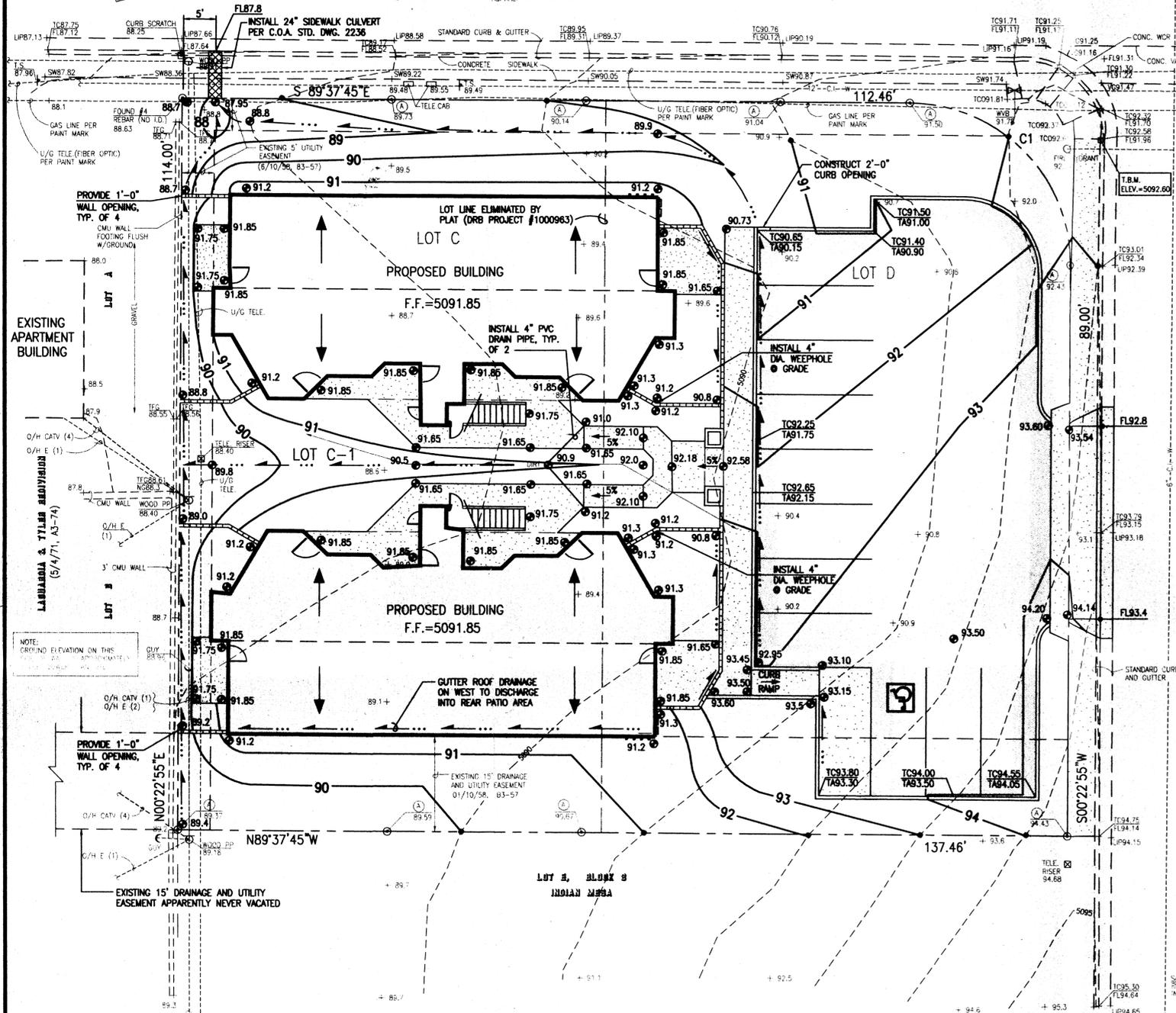


RECEIVED MAR 01 2001 HYDROLOGY SECTION

COMANCHE ROAD N.E.
(EASTBOUND)
(105' R.O.W.)
ASPHALT



PROJECT BENCHMARK
A STANDARD ACS BRASS TABLE STAMPED "7-G17", SET IN TOP OF THE MEDIAN CURB 63.4'± NORTH OF THE INTERSECTION OF COMANCHE ROAD N.E. AND CARLISLE BLVD. N.E. ELEVATION = 5122.99 FEET (M.S.L.D.).
T.B.M.
A CHISELED "I" IN THE TOP BACK OF CURB LOCATED AT THE SSW RETURN AT THE N.E. CORNER OF THE SITE. ELEVATION = 5092.60 FEET (M.S.L.D.).

LEGAL DESCRIPTION
LOT C-1, BLOCK 8, INDIAN MESA (DRB PROJECT # 1000963)

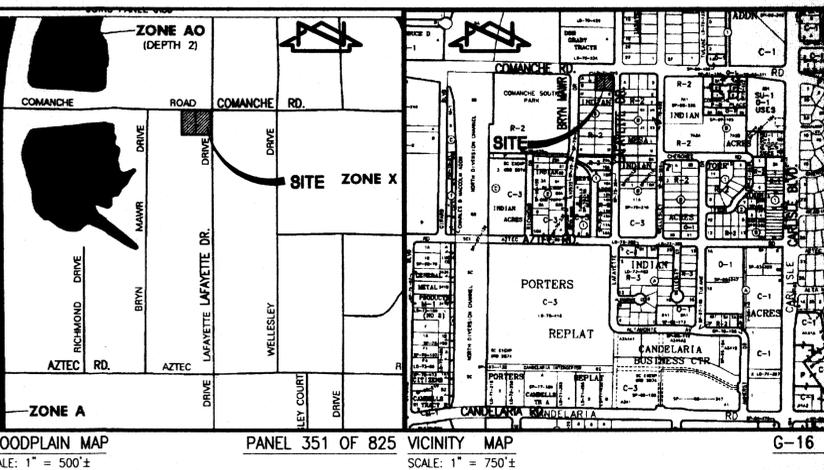
INTRODUCTION AND EXECUTIVE SUMMARY
THIS PROJECT, LOCATED IN THE LOWER NORTHEAST HEIGHTS AND EAST OF THE NORTH DIVERSION CHANNEL (NDC), REPRESENTS DEVELOPMENT OF AN INFILL SITE WITHIN AN EXISTING MIXED USE AREA. THE DRAINAGE CONCEPT WILL BE THE CONTINUED FREE DISCHARGE OF RUNOFF TO THE FRONTING CITY STREET, COMANCHE ROAD NE. FROM THIS POINT, DEVELOPED RUNOFF FLOWS WEST WITHIN THE STREET TO AN EXISTING FLOOD HAZARD ZONE KNOWN AS COMANCHE SOUTH PARK AND THUNDERBIRD LITTLE LEAGUE. COMANCHE SOUTH PARK IS A PUBLIC POND INTERCONNECTED VIA A 36" STORM DRAIN WITH THE COMANCHE DETENTION POND ON THE NORTH SIDE OF COMANCHE NE.

PROJECT DESCRIPTION
AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF COMANCHE ROAD NE AND LAFAYETTE DRIVE NE. AS SHOWN BY PANEL 351 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED FOR BERNALILLO COUNTY, NEW MEXICO, SEPTEMBER 20, 1996, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE (ZONE A). AS STATED ABOVE, THIS PROJECT DRAINS TO A DESIGNATED FLOOD HAZARD ZONE WITHIN A PUBLIC POND. FURTHERMORE, THE SITE LIES AT THE BOTTOM OF THE RESPECTIVE WATERSHED MAKING DETENTION UNDESIRABLE.

BACKGROUND DOCUMENTS
REVIEW OF HYDROLOGY DEVELOPMENT DIVISION RECORDS INDICATES NO PREVIOUSLY SUBMITTED AND/OR APPROVED DRAINAGE SUBMITTALS FOR THIS SITE.
DRB PROJECT #1000963 COMBINED TWO EXISTING RESIDENTIAL LOTS TO FORM THE PROJECT SITE. REVIEW OF THE PREVIOUS PLAT FOR THE SITE FILED 01/10/58 REVEALS A 15' DRAINAGE AND UTILITY EASEMENT ALONG THE SOUTH SIDE OF THE PROPERTY. THE EASEMENT IS NON-SPECIFIC TO BEING PUBLIC OR PRIVATE AND DOES NOT SPECIFY PURPOSE OR BENEFICIARY. FURTHERMORE, THE PROPERTY THAT LIES IMMEDIATELY TO THE WEST WAS REPLATED IN 1971. THE 1971 PLAT WAS SILENT TO THE PRESENCE OF THE DRAINAGE AND UTILITY EASEMENT WITH NO APPARENT VACATION. THE REFERENCED EASEMENT DOES NOT APPEAR TO HAVE ANY CURRENT PURPOSE AND HAS BEEN PHYSICALLY BLOCKED BY DOWNSTREAM DEVELOPMENT. REGARDLESS, NO SIGNIFICANT IMPROVEMENTS ARE PROPOSED WITHIN THIS EASEMENT.

EXISTING CONDITIONS
AT PRESENT, THE SITE SLOPES FROM SOUTHWEST TO NORTHEAST AND DRAINS INTO COMANCHE ROAD NE. FROM THIS POINT, THE RUNOFF FLOWS TO THE LITTLE LEAGUE FIELDS DESCRIBED ABOVE. ASSUMING THAT THE REMAINING UNDEVELOPED LOTS SOUTH OF THE SITE DRAIN TO THE NORTH, OFFSITE FLOWS POTENTIALLY ENTER THE SITE FROM THE SOUTH. REVIEW OF THE OVERLAPPING TOPOGRAPHY ON THE GRADING PLAN SUGGESTS THAT THE LOT TO THE SOUTH DRAINS DUE WEST AND THEREFORE DOES NOT CONTRIBUTE OFFSITE FLOWS.

DEVELOPED CONDITIONS
THE PROPOSED CONSTRUCTION CONSISTS OF TWO APARTMENT BUILDINGS ALONG WITH RELATED PAVING AND LANDSCAPING. THE DEVELOPED RUNOFF WILL BE DISCHARGED TO THE SOUTH SIDE OF COMANCHE VIA A 24" SIDEWALK CULVERT. FROM THIS POINT, RUNOFF WILL FOLLOW THE FLOW PATH DESCRIBED ABOVE. IN RECOGNITION OF POTENTIAL OFFSITE FLOWS FROM THE SOUTH, THE ELEVATION OF THE SOUTHWEST CORNER OF THE SITE HAS BEEN MAINTAINED AT A GRADE EQUIVALENT WITH EXISTING SO AS NOT TO BLOCK POTENTIAL OFFSITE FLOWS.



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VI. GRADING PLAN
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, AND 5.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. AS SHOWN BY THIS PLAN, THE SITE WILL BE DEVELOPED AS A SMALL APARTMENT PROJECT DRAINING TO COMANCHE ROAD NE. THIS PLAN FURTHER ILLUSTRATES THE DRAINAGE PATTERNS DESCRIBED ABOVE.

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 MINOR INCREASE IN RUNOFF ASSOCIATED WITH THE PROPOSED CONSTRUCTION.

VIII. CONCLUSION
THE CONTINUED FREE DISCHARGE OF RUNOFF FROM THIS SITE TO COMANCHE NE IS APPROPRIATE DUE TO FOLLOWING FACTORS:
1. DEVELOPMENT OF INFILL SITE WITHIN AN INFILL AREA
2. MINOR INCREASE IN DEVELOPED RUNOFF
3. PROXIMITY TO DOWNSTREAM PUBLIC DRAINAGE FACILITIES AND IMPLIED DOWNSTREAM CAPACITY (COMANCHE DETENTION POND LIFT STATION)
4. NO ADVERSE IMPACT ON EXISTING DOWNSTREAM FLOOD ZONES
5. CONSISTENT WITH EXISTING DRAINAGE PATTERNS WITHIN THE SURROUNDING AREA FOR ALREADY DEVELOPED SITES THAT FREELY DISCHARGE RUNOFF TO THE SAME OUTFALL POINT

IX. CALCULATIONS
SITE CHARACTERISTICS
1. PRECIPITATION ZONE = 2
2. $P_{6,100} = P_{360} = 2.35$ IN.
3. TOTAL AREA (A_T) = 15,540 SF; 0.3568 AC
4. EXISTING LAND TREATMENT
TREATMENT AREA (SF/AC) %
A 15,540/0.3568 100
5. DEVELOPED LAND TREATMENT
TREATMENT AREA (SF/AC) %
B 6,390/0.1467 41.1
D 9,150/0.2101 58.9
6. EXISTING CONDITION
A. VOLUME
 $E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_w = [(0.53)(0.3567)] / 0.3567 = 0.53$ IN.
 $V_{100} = (E_w / 12) A_T$
 $V_{100} = (0.53 / 12) (0.3567) = 0.0442$ AC.FT.; 1,920 CF
B. PEAK DISCHARGE
 $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$
 $Q_p = Q_{100} = (1.56)(0.3567) = 0.6$ CFS
7. DEVELOPED CONDITION
A. VOLUME
 $E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_w = [(0.78)(0.1466) + (2.12)(0.2101)] / 0.3567 = 1.57$ IN.
 $V_{100} = (E_w / 12) A_T$
 $V_{100} = (1.57 / 12) (0.3567) = 0.0467$ AC.FT.; 2,030 CF
B. PEAK DISCHARGE
 $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$
 $Q_p = Q_{100} = (2.28)(0.1466) + (4.70)(0.2101) = 1.3$ CFS
8. COMPARISON
 $\Delta V_{100} = 2,030 - 1,920 = 110$ CF (INCREASE)
 $\Delta Q_{100} = 1.30 - 0.60 = 0.7$ CFS (INCREASE)

- CONSTRUCTION NOTES:**
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
 - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL AND VERTICAL LOCATION OF ALL UTILITIES AND 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.
 - 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.
 - ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
 - IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND

- EROSION CONTROL MEASURES:**
- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
 - 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.
 - THE CONTRACTOR SHALL SECURE TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING CONSTRUCTION.
 - AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
 - BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
 - MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
 - THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

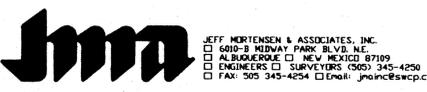
CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CH.BRG.	CH.LENGTH
CI	25.00'	39.27'	90°00'40"	25.00'	N44°37'25"W	35.36'

LEGEND

C.I.	CAST IRON	WOOD PP	WOOD POWER POLE
EA	EDGE OF ASPHALT	WVB	WATER VALVE BOX
FL	FLOWLINE	+ 90.9	EXISTING SPOT ELEVATION
NG	NATURAL GRADE		EXISTING CONTOUR
O/H CATV (2)	OVERHEAD CABLE TELEVISION (NO. OF LINES)		PROPOSED FRAME AND STUCCO WALL
O/H E (2)	OVERHEAD ELECTRIC (NO. OF LINES)		PROPOSED CONTOUR
SAS	SANITARY SEWER LINE		PROPOSED ELEVATION
T.S.	TRAFFIC SIGN		PROPOSED ASPHALT
TA	TOP OF ASPHALT		PROPOSED CONCRETE
TC	TOP OF CURB		PROPOSED DIRECTION OF FLOW
TELE. CAB	TELEPHONE CABINET		
TELE. RISER	TELEPHONE RISER		
TFC	TOP OF FOOTING		
U/G TELE	UNDERGROUND TELEPHONE LINE		
VCP	VITRIFIED CLAY PIPE		
VG	VALLEY GUTTER		
W	WATER LINE		
WCR	WHEELCHAIR RAMP		

Plot Path: \\jma\work\2001\1001\1001.dwg Plot Date: 03-01-2001 Plot Time: 09:55 am



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ENGINEERS & SURVEYORS (REG) 345-4250
FAX: 505 345-4254 Email: jma@jma.com

GRADING AND DRAINAGE PLAN
LA FONTINA APARTMENTS

APPROVALS	NAME	DATE	DESIGNED BY	NO.	DATE	BY	REVISIONS	JOB NO.
HYDROLOGY	J.G.M.		J.G.M.					2001.004.1
SIDEWALK INSPECTOR	S.G.H.		S.G.H.					DATE 02-2001
STORM DRAIN MAINTENANCE	J.G.M.		J.G.M.					SHEET 1 OF 1

