City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 2, 1999

Jeff Mortensen, P.E.
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109

RE: Drainage Report and Grading and Drainage Plan for Vineyard Estates Unit IIIA (C20/D3D) Submitted for Preliminary and Final Plat Approval, Grading Permit, and Work Order Approval, Engineer's Stamp Dated 1/18/99.

Dear Mr. Mortensen:

Based on the information provided in the submittal of January 19, 1999, the above referenced plan is approved for Preliminary Plat action by the DRB.

The above referenced plan is also approved for Rough Grading. As you are aware, a top-soil disturbance permit must be obtained before any grading may occur on this site.

Prior to Final Plat sign-off, the SIA must be in place. The Grading and Drainage Certification is required prior to release of the Financial Guarantees for this Subdivision. The Certification must include the private rundown and outfall structure on Lot 19.

Please provide the additional information regarding the ultimate upstream basin for my files. Prior to DRC sign-off, the Agreement and Covenant must be in place for the detention pond.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

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

c: Don Hoech, Hoech Real Estate
File

RECEIVED
JUN 7 2000
HYDROLOGY SECTION

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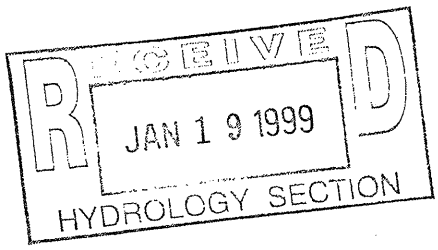
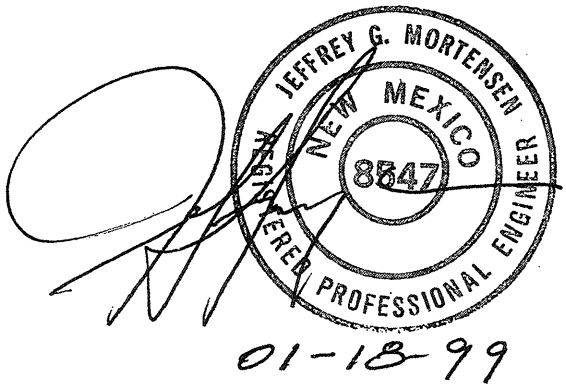
HYDROLOGY SECTION

VINEYARD ESTATES UNIT IIIA

DRAINAGE FILE C20-D3

January 15, 1999





PREPARED BY:

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. NE
ALBUQUERQUE, NEW MEXICO 87109

TABLE OF CONTENTS

APPENDICES

DRAINAGE REPORT

EXECUTIVE SUMMARY

THE PURPOSE OF THIS DRAINAGE REPORT IS TO OBTAIN ROUGH GRADING APPROVAL, PRELIMINARY AND FINAL PLAT APPROVAL, AS WELL AS WORK ORDER APPROVAL FOR THIS PROJECT.

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF A TWENTY-THREE (23) LOT SUBDIVISION LOCATED ON THE EAST SIDE OF MENDOCINO DRIVE NE BETWEEN CORONA AVENUE NE AND SIGNAL AVENUE NE. THERE WILL BE AN EXCHANGE OF CURRENTLY UNDEVELOPED LAND FOR AN AREA OF SINGLE FAMILY RESIDENTIAL HOMES WITH ASSOCIATED IMPROVEMENTS. CONSEQUENTLY, THE HYDROLOGY OF THE SITE WILL BE IMPACTED AS DEMONSTRATED IN THE DRAINAGE CALCULATIONS CONTAINED HEREIN, WITH AN INCREASE OF 8.3 CFS IN PEAK DISCHARGE. ONSITE FLOWS WILL BE DIRECTED NORTH TO SOUTH AND EAST TO WEST VIA THE PROPOSED CURB AND GUTTER TO BE LOCATED WITHIN VALLEJO PLACE NE. LOTS 17 AND 18 AT THE NW CORNER OF THE SITE WILL CROSS-LOT DRAIN INTO LOT 19 BEFORE EXITING THE SUBDIVISION VIA A CURB PENETRATION INTO MENDOCINO DRIVE NE. FLOWS EXITING THE SUBDIVISION WILL BE INTERCEPTED BY EXISTING AND PROPOSED CURB AND GUTTER WITHIN MENDOCINO DRIVE. THESE FLOWS WILL TRAVEL NORTH TO SOUTH UNTIL BEING INTERCEPTED BY A CONCRETE VALLEY GUTTER WHICH CROSSES MENDOCINO DRIVE NE, JUST NORTH OF IT'S INTERSECTION WITH CORONA AVENUE NE. THE GRADE OF THE EXISTING HALF-WIDTH OF THE CONCRETE VALLEY GUTTER IS SUCH THAT IT WILL NEED TO BE REMOVED AND REPLACED ACROSS THE FULL WIDTH OF MENDOCINO DRIVE NE. THE VALLEY GUTTER WILL CONVEY THE FLOWS INTO A CONCRETE RUNDOWN WHICH DISCHARGES INTO NAPA VALLEY ROAD NE AND IS ULTIMATELY ROUTED INTO THE EXISTING STORM DRAIN SYSTEM LOCATED THEREIN.

OFFSITE FLOWS WILL BE ACCEPTED NEAR THE NE CORNER OF THE SITE VIA TWO MINOR NATURAL ARROYOS, WHICH WILL BE COMBINED BEFORE FEEDING INTO A DETENTION POND. THE POND IS TO BE CONSTRUCTED WITHIN LOTS 13 AND 14 , WHICH ARE BOTH GRANTED AS A TEMPORARY PUBLIC DRAINAGE EASEMENT ON THE ACCOMPANYING PLAT FOR THE PROPOSED SUBDIVISION. THESE OFFSITE FLOWS WILL ULTIMATELY BE REDIRECTED TO THE LA CUEVA ARROYO LOCATED NORTH OF THE PROPOSED SITE, HENCE THE AFOREMENTIONED POND WILL BE CONSTRUCTED ON AN INTERIM BASIS. ALSO GRANTED WITHIN LOTS 13 AND 14 IS A 25 FOOT PUBLIC SANITARY SEWER AND PUBLIC WATERLINE EASEMENT. THIS EASEMENT ALLOWS FOR THE CONSTRUCTION OF WATER AND SAS UTILITIES FOR ADJACENT PROPERTIES NORTH AND EAST OF THE SITE. IN THE EVENT THAT THESE UTILITIES ARE REQUIRED, THE SAME DEVELOPMENT REQUIRING UTILITIES WILL REMEDY THE OFFSITE FLOW SITUATION. THUS, LOTS 13 AND 14 CAN BE RECLAIMED AND DEVELOPED. IF DEVELOPMENT OF UPSTREAM PROPERTIES REQUIRES A DRAINAGE OUTFALL, A 12 FOOT DRAINAGE EASEMENT WILL BE GRANTED IN THE

INTRODUCTION

A DRAINAGE INFORMATION SHEET IS INCLUDED WITH THIS SUBMITTAL. INFRASTRUCTURE IS ANTICIPATED FOR THIS PROJECT. HENCE AN INFRASTRUCTURE LIST INCLUDING: CURB & GUTTER, PAVING, SIDEWALK, SAS, AND WATER IS INCLUDED WITH THIS SUBMITTAL.

PLATTING FOR THIS PROJECT IS PROPOSED, THEREFORE A COPY OF THE PRELIMINARY AND FINAL PLATS ARE INCLUDED HEREIN.

REFERENCES

THE FOLLOWING IS A LIST OF PREVIOUSLY APPROVED DRAINAGE PLANS FOR THIS SITE AS WELL AS SURROUNDING SITES THAT EFFECT OR ARE EFFECTED BY THIS DEVELOPMENT. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF THOSE PLANS WHICH ARE KNOWN TO THE ENGINEER AT THE TIME OF PREPARATION.

1. VINEYARD ESTATES SUBDIVISION MASTER DRAINAGE PLAN (C20-D3), PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC.

   A. IDENTIFIES THE DEVELOPED DRAINAGE PATTERNS BY WHICH THE VINEYARD SUBDIVISIONS ARE TO BE GRADED.
   B. IDENTIFIES CERTAIN OFFSITE IMPROVEMENTS IN THE AREA.
   C. CALCULATES THE MAGNITUDE OF CERTAIN OFFSITE FLOWS IN THE AREA.
   D. QUANTIFIES DESIGN STREET FLOW FOR NAPA VALLEY ROAD NE AS 77.5 CFS, GREATER THAN THE 73 CFS PROPOSED IN THIS SUBMITTAL.

2. VINEYARD ESTATES III DRAINAGE PLAN (C20-D3), PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC.

   A. ILLUSTRATES EXTENSION OF VENTURA STORM DRAIN, BETWEEN WILSHIRE AVENUE NE AND CORONA AVENUE NE, BY WHICH RUNOFF FROM THE EAST IS CONVEYED SOUTH TO THE NORTH ARROYO DE DOMINGO BACA.
   B. CALCULATES RUNOFF FROM ADJACENT PORTIONS OF VINEYARD III TO BE 24.7 CFS, GREATER THAN THE ACTUAL 20.6 CFS CALCULATED WITH AS-BUILT DATA.
   C. ILLUSTRATES INLET DESIGN AT CONCRETE RUNDOWN WITHIN MENDOCINO DRIVE NE.

3. VINEYARD ESTATES IV DRAINAGE PLAN (C20-D3C), PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC.

4. CARRINGTON SUBDIVISION DRAINAGE PLAN (C20-D3B), PREPARED BY COMMUNITY SCIENCES CORPORATION

   A. CONFIRMS DRAINAGE BASIN AREA CONTRIBUTING RUNOFF TO SUBJECT AREA.
   B. PROVIDES PONDING CALCULATIONS FOR CONTRIBUTING OFFSITE BASIN

5. THE VINEYARD; SECTOR DEVELOPMENT PLAN

A. REQUIRES THAT NATURAL FLOWS BE INTERCEPTED AT VENTURA STREET NE AND CONVEYED TO THE NORTH ARROYO DE DOMINGO BACA

B. STATES THAT PROVISIONS BE MADE TO ACCOMMODATE UNDERGROUND STORM DRAINAGE LINES RUNNING BENEATH VENTURA STREET NE IN ORDER TO CONVEY FLOWS FROM SUBJECT AREA, SOUTH TO THE NORTH ARROYO DE DOMINGO BACA.

6. NORTH ALBUQUERQUE ACRES MASTER DRAINAGE PLAN, PREPARED BY RESOURCE TECHNOLOGY, INC.

A. ILLUSTRATES A PROPOSED 48 INCH STORM DRAIN TO DIVERT RUNOFF GENERATED BETWEEN WILSHIRE AVENUE NE AND SIGNAL AVENUE NE TO THE LA CUEVA ARROYO.

7. ALAMEDA EAST; LOCATION/ENVIRONMENTAL STUDY, PREPARED BY AVID ENGINEERING, INC.

A. DEFINES ALTERNATIVES FOR THE ALAMEDA BOULEVARD NE EXTENSION ALIGNMENT LOCATION. IN TURN DESCRIBES THE NECESSITY FOR IMPROVEMENTS TO THE LA CUEVA ARROYO TO BE BUILT IN CONJUNCTION WITH ANY OF THE ALTERNATIVES, INCLUDING CHANNELIZATION AND STORM DRAIN WHICH WOULD ACCEPT RUNOFF FROM PROPERTIES ADJACENT TO THE SUBJECT SITE.

8. NORTH ARROYO DE DOMINGO BACA MASTER DRAINAGE PLAN, PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC.

A. ILLUSTRATES THAT RUNOFF ORIGINATING EAST OF VENTURA STREET NE AND NORTH OF WILSHIRE AVENUE NE IS INTERCEPTED BY THE VENTURA STORM DRAIN AND CONVEYED TO THE NORTH ARROYO DE DOMINGO BACA.

PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP (C-20), THE SITE IS LOCATED ALONG THE EAST SIDE OF MENDOCINO DRIVE NE BETWEEN CORONA AVENUE NE AND SIGNAL AVENUE NE AND CONSISTS OF APPROXIMATELY 6.0 ACRES 0F CURRENTLY UNDEVELOPED LAND.

THE SITE IS CURRENTLY ZONED R-D. THE ZONE CHANGE AMENDMENT TO THE VINEYARD SECTOR DEVELOPMENT PLAN AND SITE PLAN FOR SUBDIVISION WAS SUBMITTED AND APPROVED WITH CONDITIONS BY THE E.P.C. (FILE NOS. Z-98-74 & SD-86-6-4).

THE CURRENT LEGAL DESCRIPTION IS LOTS 21 & 22 OF BLOCK 5, AND LOTS 11 & 12 OF BLOCK 6, AND LOTS 21 & 22, TRACT 3, UNIT 3, NORTH ALBUQUERQUE ACRES.

AS SHOWN BY PANEL 141 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS, BERNALILLO COUNTY, NEW MEXICO, AND INCORPORATED AREAS, DATED SEPTEMBER 20, 1996, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE.

THE PROPOSED IMPROVEMENTS INCLUDE THE CONSTRUCTION OF 23 SINGLE FAMILY RESIDENTIAL LOTS AS WELL AS THE ASSOCIATED INFRASTRUCTURE AND LANDSCAPING IMPROVEMENTS ASSOCIATED THEREWITH. ON AN INTERIM BASIS, TWO LOTS ARE TO BE UTILIZED AS A DETENTION POND FOR OFFSITE FLOWS ENTERING THE SITE. UPON DEVELOPMENT OF ADJACENT UPSTREAM PROPERTIES, THESE TWO LOTS WILL BE RECLAIMED AND DEVELOPED WITH THE GRANTING OF A 12 FOOT DRAINAGE EASEMENT AS AN OUTFALL FOR UPSTREAM RUNOFF. A 25 FOOT PUBLIC SANITARY SEWER AND PUBLIC WATERLINE EASEMENT HAS BEEN GRANTED ON THE ACCOMPANYING PLAT.

A SITE VISIT CONDUCTED BY THIS OFFICE CONFIRMED THAT TWO UPSTREAM AREAS CONTRIBUTE OFFSITE FLOWS WHICH ENTER ON THE EAST SIDE OF THE SUBJECT SITE. THESE UPSTREAM AREAS ARE DELINEATED AS BASINS O-1 AND 0-3 ON THE OFFSITE BASIN MAP AS PART OF THIS SUBMITTAL. CURRENTLY THESE FLOWS ARE DETAINED IN A POND DESIGNED AND CONSTRUCTED AS PART OF THE CARRINGTON SUBDIVISION, WEST OF THE SUBJECT SITE. THIS SUBMITTAL PROPOSES THAT THESE SAME OFFSITE FLOWS BE INTERCEPTED AND CONVEYED INTO AN INTERIM DETENTION POND, LOCATED WITHIN THE PROPOSED SUBDIVISION ON LOTS 13 AND 14, BEFORE BEING DISCHARGED AT A REGULATED RATE OF 10.5 CFS INTO VALLEJO PLACE NE. THE POND IS DESIGNED SO THAT IT WILL DISCHARGE VIA AN OPENING IN THE CURB AND GUTTER ON THE EAST SIDE OF VALLEJO PLACE NE. SIDEWALK CULVERTS ARE NOT PROPOSED AT THIS TIME, AS THE POND IS NECESSARY ONLY ON AN INTERIM BASIS. UPON RECLAIMING LOTS 13 AND 14 FOR DEVELOPMENT, THE CURB AND GUTTER AS WELL AS THE SIDEWALK WILL BE CONSTRUCTED ALONG THE FRONTAGE. ALSO UPON DEVELOPMENT OF LOTS 13 AND 14, A 12 FOOT DRAINAGE EASEMENT WILL BE GRANTED FOR THE CONSTRUCTION OF A CONCRETE RUNDOWN STRUCTURE TO CONVEY

OFFSITE FLOWS THROUGH THE SUBDIVISION AND ULTIMATELY TO THE EXISTING STORM DRAIN SYSTEM DOWNSTREAM. THE LOCATION OF THE DRIVEWAY FOR LOT 19, LOCATED ACROSS AND UPSTREAM FROM THE POND OUTLET IS SPECIFIED ON THE CONSTRUCTION PLANS. LOT 20, DIRECTLY ACROSS FROM THE POND OUTLET FACES MENDOCINO DRIVE NE AND HAS A CMU WALL FACING THE POND, THEREBY INSURING FLOWS EXITING THE POND ARE NOT SUSCEPTIBLE TO "RAMPING" UP DRIVEWAYS AND ONTO PRIVATE PROPERTIES. ONCE DISCHARGED FROM THE POND, THE FLOWS WILL EXIT THE SUBDIVISION VIA CONCENTRATED RUNOFF WITHIN THE PROPOSED CURB AND GUTTER.

THE UPSTREAM AREA WEST OF VENTURA STREET NE AND NORTH OF WILSHIRE AVENUE NE, WILL ULTIMATELY BE DEVELOPED IN A MANNER SUCH THAT FLOWS WILL BE DIRECTED TO THE LA CUEVA ARROYO LOCATED NORTH OF SIGNAL AVENUE NE. OFFSITE RUNOFF GENERATED EAST OF VENTURA STREET NE WILL BE CONVEYED SOUTH TO THE NORTH DOMINGO BACA ARROYO VIA EXISTING AND PROPOSED STORM DRAIN LOCATED WITHIN VENTURA STREET NE. OFFSITE FLOWS FROM THE AREA DIRECTLY EAST OF THE PROPOSED DEVELOPMENT, BETWEEN WILSHIRE AVENUE NE AND CORONA AVENUE NE WILL, IN BOTH THE DEVELOPED AND FUTURE SCENARIOS, BE DIRECTED IN A SOUTHERLY DIRECTION, TO CORONA AVENUE NE. THESE FLOWS WILL THEN BE CONVEYED, VIA EXISTING AND PROPOSED CURB AND GUTTER WITHIN CORONA AVENUE NE, IN A WESTERLY DIRECTION UNTIL SUCH TIME THAT THEY ARE INTERCEPTED BY MENDOCINO DRIVE NE AND DIRECTED TO THE AFOREMENTIONED CONCRETE RUNDOWN.

EXISTING CONDITIONS

CURRENTLY, THIS SITE IS UNDEVELOPED AND ALL RUNOFF GENERATED ONSITE DRAINS EAST TO WEST VIA SURFACE FLOWS. OFFSITE RUNOFF ENTERING THE SITE BEGINS EAST OF VENTURA STREET NE, PASSES THROUGH THE SUBJECT SITE AND JOINS ONSITE FLOWS IN A DETENTION POND LOCATED NORTH AND WEST OF THE PROPOSED DEVELOPMENT. BUILT AS PART OF THE CARRINGTON SUBDIVISION, THE POND IS LOCATED DIRECTLY WEST OF THE PROPOSED SUBDIVISION, THEREFORE OFFSITE FLOWS CURRENTLY PASS DIRECTLY THROUGH THE PROPOSED SUBDIVISION VIA TWO SMALL, NATURAL ARROYOS. THE FLOWS NOT CONVEYED TO THE POND, ENTER MENDOCINO DRIVE NE AND CONTINUE SOUTH TO THE ENTRANCE OF AN EXISTING CONCRETE RUNDOWN BETWEEN MENDOCINO DRIVE NE ON THE EAST, AND SONOMA VALLEY DRIVE NE ON THE WEST.

THE AREA EAST OF VENTURA STREET NE BETWEEN WILSHIRE AVENUE NE AND SIGNAL AVENUE NE, WHICH LIES WITHIN BERNALILLO COUNTY, IS DEVELOPING PER TYPICAL N.A.A. GUIDELINES. THE RUNOFF ORIGINATING IN THE AREA SOUTH OF WILSHIRE AVENUE NE AND EAST OF VENTURA STREET NE IS, AND WILL CONTINUE TO BE PICKED UP BY THE VENTURA STREET NE STORM DRAIN IMPROVEMENTS AND CONVEYED SOUTH TO THE NORTH DOMINGO BACA ARROYO. THE AREA EAST OF THE PROPOSED SUBDIVISION BETWEEN WILSHIRE AVENUE NE AND CORONA AVENUE NE CURRENTLY GENERATES FLOWS WHICH TRAVEL EAST TO WEST THROUGH THE PROPOSED SUBDIVISION VIA SEVERAL SMALL, NATURAL ARROYOS. THESE FLOWS EVENTUALLY END UP ENTERING THE RUNDOWN ON THE WEST SIDE OF MENDOCINO DRIVE NE. THE AREA EAST OF THE PROPOSED SUBDIVISION BETWEEN WILSHIRE AVENUE NE AND SIGNAL AVENUE NE GENERATES FLOWS WHICH ARE CONVEYED TO THE CARRINGTON POND.

THE CALCULATIONS FOR THE SIZING OF THE INTERIM DETENTION POND ASSUMED FULL DEVELOPMENT FOR THE OFFSITE BASIN EAST OF VENTURA STREET NE AND UNDEVELOPED FOR THE OFFSITE BASIN WEST OF VENTURA. THE ASSUMPTION IS BASED ON THE FACT THAT THE AREA EAST OF VENTURA STREET NE, AS STATED, LIES WITHIN BERNALILLO COUNTY AND IS PROGRAMMED TO ULTIMATELY BE PICKED UP BY THE STORM DRAIN IMPROVEMENTS PROPOSED WITHIN VENTURA STREET NE. THE ASSUMPTION BEHIND THE BASIN WEST OF VENTURA STREET NE, IS THAT UPON DEVELOPMENT, THE GENERATED RUNOFF IS PROGRAMMED FOR, AND WILL BE DIRECTED TO THE LA CUEVA ARROYO TO THE NORTH, AND SOUTH TO CORONA AVENUE NE, DEPENDANT UPON WHICH SIDE OF WILSHIRE AVENUE NE THEY LIE.

Basin O-1?

THE FLOWS WITHIN THE EXISTING HALF-WIDTHS OF CORONA AVENUE NE AND MENDOCINO DRIVE NE CURRENTLY FLOW EAST TO WEST AND NORTH TO SOUTH RESPECTIVELY IN THE SAME MANNER PROPOSED FOR THE FULL-WIDTHS OF THESE TWO RESIDENTIAL ROADWAYS. AFTER REACHING THE CONCRETE RUNDOWN LOCATED BETWEEN MENDOCINO DRIVE NE AND SONOMA VALLEY DRIVE NE, THE FLOWS ARE INTRODUCED TO THE CURB AND GUTTER WITHIN NAPA VALLEY ROAD NE AND TRAVEL IN A WESTERLY DIRECTION UNTIL THEY ARE

INTERCEPTED BY THE EXISTING STORM DRAIN SYSTEM LOCATED WITHIN NAPA VALLEY ROAD. THE FLOWS ARE THEN CONVEYED TO A DETENTION POND LOCATED DOWNSTREAM ON LANDS OWNED BY THE ALBUQUERQUE PUBLIC SCHOOLS. THIS POND WAS SIZED TO ACCEPT DEVELOPED RUNOFF FROM THE VARIOUS PHASES OF VINEYARD ESTATES. THE FLOWS ARE ULTIMATELY DISCHARGED TO THE EXISTING NORTH DOMINGO BACA ARROYO SOIL CEMENT CHANNEL IN PLACE BETWEEN BARSTOW STREET NE AND WYOMING BLVD NE.

DEVELOPED CONDITIONS

A. INTERIM

AS DESCRIBED ABOVE, THE PROPOSED IMPROVEMENTS CONSIST OF THE CONSTRUCTION OF 23 SINGLE FAMILY RESIDENTIAL LOTS, ASSOCIATED PUBLIC INFRASTRUCTURE AND LANDSCAPING IMPROVEMENTS ASSOCIATED THEREWITH. IN THE INTERIM CONDITION, FLOWS ORIGINATING EAST OF VENTURA STREET NE AND NORTH OF WILSHIRE AVENUE NE WILL CONTINUE TO CROSS VENTURA STREET NE. THIS WILL CONTINUE UNTIL SUCH TIME AS THE AFOREMENTIONED EXTENSION OF THE STORM DRAIN WITHIN VENTURA STREET NE TO SIGNAL AVENUE NE OCCURS. THE AREA EAST OF THE PROPOSED SUBDIVISION BETWEEN WILSHIRE AVENUE NE AND CORONA AVENUE NE HAS BEEN IDENTIFIED AS A FUTURE CHURCH WHOSE FLOWS HAVE BEEN PROGRAMMED TO ENTER CORONA AVENUE NE. MINOR EARTHWORK ON THE CHURCH SITE AS PART OF THIS PROJECT WILL ENSURE THAT THESE OFFSITE FLOWS WILL TRAVEL NORTH TO SOUTH AND INTO CORONA AVENUE NE VIA A SINGLE SIDEWALK CULVERT. APPROVAL OF THE ADJACENT PROPERTY OWNERS HAS BEEN GRANTED FOR OFFSITE GRADING. ONCE IN CORONA, THE RUNOFF WILL FLOW WEST UNTIL REACHING MENDOCINO DRIVE NE. UPON REACHING THIS POINT, THE RUNOFF WILL ENTER THE STORM INLETS AND CONCRETE RUNDOWN WHICH CONVEY FLOWS TO THE STORM DRAIN SYSTEM IN PLACE DOWNSTREAM WITHIN VINEYARD ESTATES UNIT I. THE INLETS AND CONCRETE RUNDOWN WERE BUILT AS PART OF THE FIRST PHASE OF VINEYARD ESTATES UNIT III. THIS RUNDOWN CONVEYS FLOWS BETWEEN MENDOCINO DRIVE NE AND THE INTERSECTION OF SONOMA VALLEY DRIVE NE AND NAPA VALLEY ROAD NE. THE ENTRANCE CONDITIONS FOR THE RUNDOWN INCLUDE TWO TYPE A INLETS, A DOUBLE D STORM INLET, FOUR-TWO FOOT SIDEWALK CULVERTS AS WELL AS THE CAPABILITY TO PASS FLOWS OVER THE SIDEWALK CULVERTS WITHOUT FLOODING ADJACENT PROPERTIES. THE AS-BUILT INLET CAPACITY CALCULATIONS ILLUSTRATE A CAPACITY OF **85.5 CFS** WITH THE WATER SURFACE BEING AT CURB HEIGHT, AND A CAPACITY OF **89.8 CFS** WITH THE WATER SURFACE ELEVATION AT 1 FOOT ABOVE FLOWLINE. WITH A CONTROLLED DISCHARGE FROM THE DETENTION POND OF 10.5 CFS, THE DEVELOPED RUNOFF OF THE PROPOSED SUBDIVISION, AS WELL AS EXISTING DEVELOPED FLOWS, THE COMBINED RUNOFF ENTERING THE SYSTEM OF INLETS IS 73.0 CFS, LESS THAN THE INLET CAPACITY. ONCE THROUGH THE CONCRETE RUNDOWN, THE FLOWS ARE INTRODUCED INTO NAPA VALLEY ROAD NE. PLATE 22.3 D-1 OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL ILLUSTRATES THAT WITH THE INTRODUCTION OF 73 CFS ONTO THE ROADWAY, THE DEPTH OF FLOW EQUALS 0.56 FEET, WELL BELOW THE CURB HEIGHT, WITH A VELOCITY OF 7.2 FPS. AS ESTABLISHED BY THE VINEYARD ESTATES SUBDIVISION MASTER DRAINAGE PLAN (C20-D3), THE DESIGN FLOW FOR NAPA VALLEY ROAD IS 77.5 CFS, WELL ABOVE THE DEVELOPED FLOWS ANTICIPATED FROM THIS DEVELOPMENT. EACH OF THE TWO TYPE A INLETS HAVE A CAPACITY OF 11 CFS WHILE EACH OF THE ASSOCIATED 18 INCH RCP HAS A FULL FLOW CAPACITY OF 18.2 CFS. AFTER THESE INLETS, THE RESIDUAL FLOW IS EQUAL TO 51.0 CFS WITH A DEPTH OF FLOW EQUAL TO 0.50 FEET. THE TWO DOUBLE C

INLETS EACH HAVE A CAPACITY OF 11 CFS WHILE EACH OF THE ASSOCIATED 24 INCH RCP HAVE A FULL FLOW CAPACITY OF 41 CFS. THE RESIDUAL FLOW WITHIN NAPA VALLEY ROAD NE AFTER THE STORM DRAIN INLETS IS EQUAL TO 29 CFS, WELL BELOW THE RESIDUAL DESIGN FLOW OF 40.3 AS ESTABLISHED IN THE VINEYARD ESTATES III SUBDIVISION DRAINAGE PLAN

ONCE IN THE STORM DRAIN, THE FLOWS ARE CONVEYED TO A DETENTION POND LOCATED ON LANDS OWNED BY ALBUQUERQUE PUBLIC SCHOOLS, LOCATED ON THE DESERT RIDGE MIDDLE SCHOOL CAMPUS ON BARSTOW STREET NE. FROM THIS POND, FLOWS ARE DISCHARGED AT A REGULATED RATE INTO A SOIL CEMENT CHANNEL RUNNING BETWEEN BARSTOW STREET NE AND WYOMING BOULEVARD NE.

THE AREA EAST OF THE PROPOSED SUBDIVISION BETWEEN WILSHIRE AVENUE NE AND SIGNAL AVENUE NE WILL REQUIRE A SMALL AMOUNT OF OFFSITE GRADING TO COMBINE TWO SMALL, NATURAL ARROYOS INTO A SINGLE FLOWPATH. OFFSITE GRADING APPROVAL HAS ALSO BEEN GRANTED BY THE OWNERS OF THIS UPSTREAM PROPERTY. ALL AREAS DISTURBED BY GRADING UPSTREAM OF THE SUBDIVISION WILL BE REVEGETATED PER C.O.A. SPECIFICATIONS. THE COMBINED FLOWS WILL THEN ENTER THE SITE VIA AN INTERIM DETENTION POND, LOCATED ON LOTS 13 AND 14 OF THE PROPOSED SUBDIVISION. THE NEED FOR PONDING IS INTERIM DUE TO THE FACT THAT, ONCE UPSTREAM PROPERTIES NORTH OF WILSHIRE AVENUE NE ARE DEVELOPED, THEIR RUNOFF WILL BE DIVERTED, AS PROGRAMMED, NORTH, TO THE LA CUEVA ARROYO, THUS ELIMINATING THE NEED FOR PONDING OF OFFSITE RUNOFF WITHIN THE PROPOSED SUBDIVISION. How?
SPECIAL ATTENTION WAS PAID TO INTERIM DETENTION POND'S OUTLET AND DISCHARGE, SO AS TO INSURE FLOWS EXITING THE POND WOULD NOT BE SUSCEPTIBLE TO RAMPING UP DRIVEPADS AND ONTO PRIVATE PROPERTIES. ACROSS VALLEJO PLACE NE FROM THE POND'S OUTLET WILL EXIST A CMU GARDEN WALL, AS LOT 20 WILL FACE MENDOCINO DRIVE NE. ADEQUATE BANK PROTECTION AT THE UPSTREAM END OF THE POND IN THE FORM OF DUMPED RIP-RAP WAS SPECIFIED IN AN EFFORT TO LESSEN THE EFFECTS OF EROSION AT THE POND ENTRANCE. THE CALCULATIONS DEMONSTRATE THAT THE POND HAS BEEN DESIGNED TO DRAIN IN 0.96 HOURS, WELL BELOW THE REQUIRED 96 HOURS. THE POND IS ALSO DESIGNED SUCH THAT THE DISCHARGE WILL BE REGULATED AT 10.5 CFS. THIS DISCHARGE WILL BE COMBINED WITH DEVELOPED RUNOFF FROM THE PROPOSED SITE AND WILL EXIT THE SUBDIVISION VIA SURFACE (STREET) FLOWS CONTAINED WITHIN THE CURB AND GUTTER. THESE FLOWS WILL THEN TRAVEL DOWNSTREAM UNTIL BEING INTERCEPTED BY THE AFOREMENTIONED STORM INLETS AND CONCRETE RUNDOWN WITHIN MENDOCINO DRIVE NE. ALL OF THE PROPOSED LOTS WITH THE EXCEPTION OF LOTS 17,18, AND 19 DRAIN FROM THE REAR YARD TO THE FRONT YARD AND INTO THE STREET FRONTING THE LOT. WITH REGARD TO LOTS 17 - 19 THE GRADES WERE SUCH THAT CROSS LOT DRAINAGE WAS REQUIRED TO CONVEY FLOWS FROM LOT 17 TO LOT 18, THROUGH A TRICKLE CHANNEL ALONG THE BACK OF THE LOTS, AND FINALLY INTO A DROP INLET AT THE SW CORNER OF LOT 19. THE INLET WILL DAYLIGHT THROUGH A CURB PENETRATION INTO MENDOCINO DRIVE NE. A 5-FOOT DRAINAGE EASEMENT RUNNING

NORTH AND SOUTH ALONG THE WEST END OF LOTS 18 AND 19 AS WELL AS A 5-FOOT DRAINAGE EASEMENT RUNNING EAST AND WEST FROM THE SW CORNER OF LOT 19 TO MENDOCINO DRIVE NE ARE GRANTED BY THE ACCOMPANYING PLAT. RETAINING WALLS ARE REQUIRED AT VARIOUS LOCATIONS AROUND THE PERIMETER OF THE PROPOSED SUBDIVISION.

developed flows to the front

B. FUTURE

IN THE ULTIMATE CONDITION, AREAS EAST OF VENTURA STREET NE AND NORTH OF WILSHIRE AVENUE NE, WHICH LIE WITHIN THE COUNTY OF BERNALILLO, WILL CONTINUE TO DEVELOP AT 1 DWELLING UNIT PER ACRE AS DESCRIBED IN THE TYPICAL N.A.A. GUIDELINES. DURING FUTURE DEVELOPMENT, THE 36 INCH RCP STORM DRAIN LOCATED WITHIN VENTURA STREET NE WILL BE EXTENDED BEYOND ITS CURRENT TERMINUS, MIDWAY BETWEEN CORONA AVENUE NE AND WILSHIRE AVENUE NE, NORTH TO SIGNAL AVENUE NE. THIS WILL ALLOW FOR RUNOFF ORIGINATING EAST OF VENTURA STREET NE TO BE INTERCEPTED AND DIRECTED SOUTH TO THE NORTH DOMINGO BACA ARROYO, WHICH WILL BE IMPROVED AS A SOIL CEMENT CHANNEL IN THE FUTURE. THE SCHEDULING OF THE STORM DRAIN IMPROVEMENTS IS UNKNOWN AT THIS TIME DUE TO VARIED OWNERSHIP OF LANDS IN THE IMMEDIATE AREA HOWEVER, THEY WILL OCCUR IN CONJUNCTION WITH THE PERMANENT PAVING OF VENTURA STREET NE AND/OR IN CONJUNCTION WITH THE DEVELOPMENT OF UPSTREAM BASINS AS DISCUSSED IN THE VINEYARD ESTATES MASTER DRAINAGE PLAN. THE AREA SOUTH OF WILSHIRE AVENUE NE AND EAST OF VENTURA DOES NOT, AND WILL NOT REPRESENT AN OFFSITE BASIN CONTRIBUTING RUNOFF TO THIS DEVELOPMENT. IN BOTH THE EXISTING AND ULTIMATE CONDITIONS, FLOWS FROM THIS AREA REACHING VENTURA STREET NE ARE DIVERTED SOUTH TO THE NORTH DOMINGO BACA ARROYO VIA EXISTING STORM DRAIN FACILITIES.

THE AREA EAST OF THE PROPOSED SUBDIVISION BETWEEN WILSHIRE AVENUE NE AND CORONA AVENUE NE HAS BEEN PROGRAMMED FOR, AND WILL BE GRADED SUCH THAT RUNOFF WILL FLOW SOUTH AND ENTER CORONA AVENUE NE. THE AREA LOCATED BETWEEN WILSHIRE AVENUE NE AND CORONA AVENUE NE, DIRECTLY EAST OF THE PROPOSED SUBDIVISION AND COMPRISED OF LOTS 13, 14 19 AND 20 HAS BEEN IDENTIFIED AS A FUTURE CHURCH SITE. FUTURE DEVELOPMENTS WILL ROUTE FLOWS FROM THIS AREA IN A SOUTHERLY DIRECTION INTO CORONA AVENUE NE. UNTIL THIS PROPERTY IS DEVELOPED IN THE FUTURE, THE ROUTING OF THESE FLOWS WILL BE ACCOMPLISHED WITH GRADING AND EARTHWORK AS SHOWN ON THE ACCOMPANYING GRADING PLAN.

THE AREA EAST OF THE PROPOSED SUBDIVISION BETWEEN WILSHIRE AVENUE NE AND SIGNAL AVENUE NE HAS BEEN PROGRAMMED FOR, AND WILL BE DEVELOPED SUCH, THAT RUNOFF WILL BE DISCHARGED NORTH TO THE LA CUEVA ARROYO, AS SET FORTH IN THE NORTH ALBUQUERQUE ACRES MASTER DRAINAGE PLAN PREPARED FOR THE CITY OF ALBUQUERQUE BY RESOURCE TECHNOLOGY, INC.

IN THE EVENT THAT THE SEQUENCING OF DEVELOPMENT IN THIS AREA SHOULD REQUIRE A POINT OF DISCHARGE FOR UPSTREAM RUNOFF, AN OUTFALL WILL BE PROVIDED BY THE PREVIOUSLY DISCUSSED 12 FOOT DRAINAGE EASEMENT BETWEEN THE EAST PROPERTY LINE AND VALLEJO PLACE NE LOCATED ON LOT 13. THIS EASEMENT WILL BE

GRANTED BY A PLATTING ACTION UPON VACATION OF THE INTERIM PUBLIC DRAINAGE EASEMENT COMPRISING ALL OF LOTS 13 AND 14. A 25 FOOT PUBLIC WATERLINE AND PUBLIC SANITARY SEWER EASEMENT FOR UPSTREAM DEVELOPMENT IS GRANTED BY THE ACCOMPANYING PLAT, HOWEVER, IT IS NOT PLANNED THAT THESE WILL BE BUILT AT THIS TIME. UPON THE NEED FOR UTILITIES TO BE BUILT WITHIN THIS EASEMENT, THE POND WILL NO LONGER BE REQUIRED DUE TO GENERATED RUNOFF BEING DIRECTED NORTH, TO THE LA CUEVA ARROYO BY THE SAME UPSTREAM DEVELOPMENT REQUIRING UTILITIES.

ONCE WITHIN THE DEVELOPMENT, THE PATH OF THE FLOWS WILL BE REDIRECTED NORTH TO SOUTH AND EAST TO WEST AND ULTIMATELY INTO THE EXISTING STORM DRAIN SYSTEM DOWNSTREAM IN NAPA VALLEY ROAD NE.

AFTER EXITING THE PROPOSED SUBDIVISION INTO MENDOCINO DRIVE NE, THE FLOWS WILL FOLLOW THE PATH ESTABLISHED BY EXISTING DEVELOPMENT. DEVELOPED ONSITE FLOWS WILL CONTINUE TO BE ROUTED VIA CURB AND GUTTER DOWN VALLEJO PLACE NE AND OUT OF VINEYARD UNIT IIIA. THE FLOWS WILL CONTINUE TO BE CONVEYED VIA CURB AND GUTTER UNTIL THEY ARE INTERCEPTED BY THE CONCRETE VALLEY GUTTER WITHIN MENDOCINO DRIVE NE, WHICH WILL DIRECT THE FLOWS ACROSS MENDOCINO DRIVE NE IN A WESTERLY DIRECTION AND INTO THE EXISTING STORM INLET AND CONCRETE RUNDOWN WHICH RUNS BETWEEN LOTS 35 AND 36 OF VINEYARD ESTATES UNIT III.

GRADING PLAN

THE GRADING PLAN SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1 FOOT 0 INCH INTERVALS AS TAKEN FROM THE TOPOGRAPHIC SURVEY PREPARED BY JEFF MORTENSEN AND ASSOCIATES, INC. ON JUNE 4, 1998, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1 FOOT 0 INCH 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. THE GRADING PLAN APPEARS ON SHEET 3 OF 14 THIS SUBMITTAL.

CALCULATIONS

THE CALCULATIONS CONTAINED HEREIN ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100YEAR, 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. TABLE A-5 (PERCENT TREATMENT D (IMPERVIOUS)) WAS UTILIZED TO DETERMINE PROPOSED LAND TREATMENTS UNDER THE ASSUMPTION OF 23 DU'S WITHIN A 6 ACRE PARCEL, RESULTING IN 3.8 DU'S PER ACRE. OTHER PERTINENT CALCULATIONS INCLUDED ARE THOSE FOR POND VOLUME, HYDROGRAPH AND DISCHARGE RATES PER SUBSECTION A-8; HYDROGRAPH FOR SMALL WATERSHEDS, PIPE CAPACITIES, R3EQUIRED TIME TO EMPTY THE POND, OVERFLOW SPILLWAY DIMENSIONS, AND EXIT CONDITIONS, EXISTING DRAINAGE STRUCTURE CALCULATIONS AND STREET CAPACITIES.

AS DEMONSTRATED BY THESE COMBINED CALCULATIONS, THE INCREASE IN RUNOFF GENERATED BY THE PROPOSED IMPROVEMENTS WILL BE HANDLED THROUGH THE USE OF AN APPROPRIATELY SIZED PONDING AREA AS WELL AS THROUGH THE USE OF EXISTING AND PROPOSED IMPROVEMENTS.

CONCLUSION

THIS PROPOSED GRADING AND DRAINAGE PLAN IS CONSISTENT WITH OTHERS IN THIS AREA AND HAS ADHERED TO REQUIREMENTS SET FORTH BY THE CITY OF ALBUQUERQUE HYDROLOGY DEPARTMENT AS WELL AS THOSE SET FORTH IN THE GOVERNING SECTOR PLAN. DEVELOPED RUNOFF WILL BE ROUTED VIA EXISTING AND PROPOSED IMPROVEMENTS WHICH HAVE BEEN DESIGNED TO ADEQUATELY HANDLE THESE FLOWS. THE IMPROVEMENTS PROVIDED BY DEVELOPMENT OF SURROUNDING AREAS IN THE FUTURE, SUCH AS STORM DRAINS AND CONCRETE CHANNELIZATION OF SURROUNDING ARROYOS, WILL FURTHER SERVE TO ENHANCE THE OBJECTIVES OF THIS DRAINAGE PLAN.

ALL OFFSITE FLOWS WILL BE HANDLED IN A MANNER CONSISTENT WITH PRESCRIBED REQUIREMENTS. THE ONLY ALTERATIONS TO HISTORIC FLOW PATHS ARE IN THE ROUTING OF RUNOFF THROUGH THE INTERIM DETENTION POND. THIS ALTERATION WILL ULTIMATELY BE REMEDIED BY DEVELOPMENT OF UPSTREAM PROPERTIES.

SURFACE FLOW WITHIN NAPA VALLEY ROAD

(Utilizing Manning's Equation)

	LOCATION	SLOPE (ft./ft.)	COEFF.(n)	FLOW AREA (sf)	WETTED PERIM. (ft.)	Q(CFS)	FLOW DEPTH (ft.) IN STREET
(1)	BEFORE STORM DRAIN INLETS	0.0335	0.017	10.1	32.98	73.0	0.55
(2)	AFTER 2-SINGLE 'A' INLETS	0.0335	0.017	8.1	32.85	73.0-22.0 = 51.0	0.49
(3)	AFTER 2-DOUBLE 'C' INLETS	0.0335	0.017	5.8	32.70	51.0-22.0 = 29.0	0.42

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 20, 1999

Jeff Mortensen, P.E.
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109

RE: Drainage Report and Grading and Drainage Plan for Vineyard Estates Unit IIIA (C20/D3D) Submitted for Final Plat Approval, Engineer's Stamp Dated 3/8/99.

Dear Mr. Mortensen:

Based on the information provided in the submittal of March 25, 1999, the above referenced plan is approved for Final Plat sign-off.

The Grading and Drainage Certification of the plan that was approved at DRB is required prior to release of the Subdivision Improvements Agreement and Financial Guarantees for this subdivision. Since the grades provided on the above referenced plan did not significantly change, DRB approval is not required for this revised plan, and this plan must be certified when grading is complete.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

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

c: Don Hoech, Hoech Real Estate
File

City of Albuquerque

November 22, 1999

Jeff Mortensen, P.E.
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109

RE: Grading and Drainage Certification Plan for Vineyard Estates Unit IIIA (C20/D3D) Submitted for Release of Financial Guarantees, Engineer's Certification Stamp Dated 11/4/99.

Dear Mr. Mortensen:

Based on the information provided, the above referenced plan is adequate to satisfy the Grading and Drainage certification requirement per the Infrastructure List dated February 2, 1999 for the release of financial guarantees.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

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

c: Terri Martin, City Project No. 960309
Don Hoech, Hoech Real Estate Corporation
File

I. BASIN EX-1 CALCULATIONS

SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 3

2. $P_{6,100} = P_{360} = 2.60$ IN.

3. TOTAL AREA (A_T) = 257,800 SF/5.90 AC

4. EXISTING LAND TREATMENT

$\%\ D = 7*[(N*N)+(5*N)]^{(1/2)} = 37\ \%$ (WHERE N = 3.3)

TREATMENT	AREA (SF/AC)	%
B	162,410/3.72	63
D	95,390/2.18	37

5. DEVELOPED LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
B	162,410/3.72	63
D	95,390/2.18	37

EXISTING CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.92)(3.72)+(2.36)(2.18)]/5.90 = 1.45$ IN.

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

$V_{100} = (1.45/12)5.90 = 0.7139$ AC.FT.; 31,100 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (2.60)(3.72)+(5.02)(2.18) = 20.6$ CFS

DEVELOPED CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.92)(3.72)+(2.36)(2.18)]/5.90 = 1.45$ IN.

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

$V_{100} = (1.45/12)5.90 = 0.7139$ AC.FT.; 31,100 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (2.60)(3.72)+(5.02)(2.18) = 20.6$ CFS

II. BASIN V-3 CALCULATIONS

SITE CHARACTERISTICS

1. TOTAL AREA (A_T) = 261,360 sf/6.0 AC

2. EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
A	209,090/4.80	80
C	52,270/1.20	20

3. DEVELOPED LAND TREATMENT

$\%\ D = 7*[(N*N)+(5*N)]^{(1/2)} = 40\ \%$ (WHERE N = 3.8)

TREATMENT	AREA (SF/AC)	%
B	156,820/3.60	60
D	104,540/2.40	40

EXISTING CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.66)(4.80)+(1.29)(1.20)]/6.0 = 0.79$ IN.

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

$V_{100} = (0.79/12)6.0 = 0.3930$ AC.FT.; 17,120 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100}=(1.87)(4.80)+(3.45)(1.20) = 13.1$ CFS

DEVELOPED CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.92)(3.60)+(2.36)(2.40)]/6.0 = 1.50$ IN.

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

$V_{100} = (1.50/12)6.0 = 0.7480$ AC.FT.; 32,580 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100}=(2.60)(3.60)+(5.02)(2.40) = 21.4$ CFS

4. VALLEJO DRIVE: V * d = 4.52 FPS * 0.37 FT = 1.71 < 6.0

COMPARISON

1. $\Delta V_{100} = 32,580 - 17,120 = 15,460$ CF; 0.3550 AC.FT. (INCREASE)

2. $\Delta Q_{100} = 21.4 - 13.1 = 8.3$ CFS (INCREASE)

III. BASIN 0-1 CALCULATIONS

SITE CHARACTERISTICS

1. TOTAL AREA (A_T) = 352,870 SF/8.10 AC

2. EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
A	317,580/7.29	90
C	35,290/0.81	10

3. DEVELOPED LAND TREATMENT

(STANDARD N.A.A. DEVELOPMENT SCENARIO)

TREATMENT	AREA (SF/AC)	%
A	151,730/3.48	43
B	70,570/1.62	20
C	70,570/1.62	20
D	60,000/1.38	17

EXISTING CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.66)(7.29)+(1.29)(0.81)]/8.10 = 0.72$ IN.

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

$V_{100} = (0.72/12)8.10 = 0.4880$ AC.FT.; 21,260 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100}=(1.87)(7.29)+(3.45)(0.81) = 16.4$ CFS

$Q_{10-YEAR} = (0.58)(7.29)+(2.00)(0.81) = 5.8$ CFS

DEVELOPED CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.66)(3.48)+(0.92)(1.62)+(1.29)(1.62)+(2.36)(1.38)]/8.10 = 1.13$ IN.

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

$V_{100} = (1.13/12)8.10 = 0.7612$ AC.FT.; 33,160 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (1.87)(3.48)+(2.60)(1.62)+(3.45)(1.62)+(5.02)(1.38) = 23.2$ CFS

IV. BASIN 0-2 CALCULATIONS

SITE CHARACTERISTICS

1. TOTAL AREA (A_T) = 255,140 SF/5.86 AC

2. EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
A	229,630/5.27	90
C	25,510/0.59	10

3. DEVELOPED LAND TREATMENT

(USING AVERAGE TREATMENTS OF SURROUNDING AREAS)

TREATMENT	AREA (SF/AC)	%
B	160,740/3.69	63
D	94,400/2.17	37

EXISTING CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.66)(5.27)+(1.29)(0.59)]/5.86 = 0.72$ IN.

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

$V_{100} = (0.72/12)5.86 = 0.3533$ AC.FT.; 15,390 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (1.87)(5.27)+(3.45)(0.59) = 11.9$ CFS

DEVELOPED CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.92)(3.69)+(2.36)(2.17)]/5.86 = 1.45$ IN.

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

$V_{100} = (1.45/12)5.86 = 0.7097$ AC.FT.; 30,910 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (2.60)(3.69)+(5.02)(2.17) = 20.5$ CFS

V. BASIN 0-3 CALCULATIONS

SITE CHARACTERISTICS

1. TOTAL AREA (A_T) = 400,120 SF/9.19 AC

2. EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
A	268,080/6.16	67
B	48,010/1.10	12
C	48,010/1.10	12
D	36,020/0.83	09

3. DEVELOPED LAND TREATMENT
(UTILIZING TYPICAL N.A.A. TREATMENTS)

TREATMENT	AREA (SF/AC)	%
A	172,050/3.95	43
B	80,020/1.84	20
C	80,020/1.84	20
D	68,030/1.56	17

EXISTING CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.66)(6.16)+(0.92)(1.10)+(1.29)(1.10)+(2.36)(0.83)]/9.19 = 0.92$ IN.

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

$V_{100} = (0.92/12)9.19 = 0.7046$ AC.FT.; 30,690 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (1.87)(6.16)+(2.60)(1.10)+(3.45)(1.10)+(5.02)(0.83) = 22.3$ CFS

DEVELOPED CONDITION

1. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.66)(3.95)+(0.92)(1.84)+(1.29)(1.84)+(2.36)(1.56)]/9.19 = 1.13$ IN.

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

$V_{100} = (1.13/12)9.19 = 0.8629$ AC.FT.; 37,590 CF

2. PEAK DISCHARGE

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

$Q_P = Q_{100} = (1.87)(3.95)+(2.60)(1.84)+(3.45)(1.84)+(5.02)(1.56) = 26.3$ CFS

$Q_{10-YEAR} = (0.58)(3.95)+(1.19)(1.84)+(2.00)(1.84)+(3.39)(1.56) = 13.4$ CFS

VI. EXISTING DRAINAGE STRUCTURE CALCULATIONS

A. INLET CAPACITY; MENDOCINO DRIVE NE

@ DEPTH = 0.67'

$Q = CLH^{3/2}$

1. SIDEWALK CULVERTS (X 4)

$Q_{CULVERT} = 4[2.61*2.0*0.67^{1.5}]$

$= 11.6$ CFS

2. DOUBLE 'D' INLET (X 2)

$Q = CA_{EFF}(2gh)^{0.5}$

$Q_D = 2[0.6*4.56(2*32.2*0.79)^{0.5}]$

$= 39.0$ CFS

3. TYPE 'A' INLETS

$Q_A = 2[0.6*4.56(2*32.2*0.63)^{0.5}$

$= 34.9$ CFS

4. OVERFLOW OVER CULVERTS (WEIR)

$Q_W = 2.52 * 9 * 0.33^{1.5} = 4.3$ CFS

TOTAL INLET CAPACITY Σ = 89.8 CFS

⚠5 5. REQUIRED CAPACITY (@ DEPTH = 0.67')

$Q_{REQUIRED}$ = O-2+EX-1+V-3+POND DISCHARGE

= 20.5 + 20.6 + 21.4 + 10.5 = 73 CFS

INLET CAPACITY > $Q_{REQUIRED}$

⚠ 89.8 CFS > 73 CFS (WITH OVERFLOW)
89.5 CFS > 73 CFS (WITHOUT OVERFLOW)

VII. A. STREET CAPACITY (NAPA VALLEY)

POND DISCHARGE = 10.5 CFS

$Q_{100} = 62.5 + 10.5$ CFS = 73 CFS

$Y_{ND} = 0.56'$

INLET CAPACITY (NAPA VALLEY)

(FROM DPM PLATE(S) 22.3 D-5 & D-6)

TYPE 'A' 11 CFS (X 2) = 22 CFS

(WITH 73 CFS)

TYPE 'C' DOUBLE = 11 CFS (X 2) = 22 CFS

(WITH 51 CFS)

RESIDUAL STREET FLOW (AFTER INLETS)
$Q_{RESIDUAL}$ = 29 CFS

⚠5 B. NAPA VALLEY STORM DRAIN PIPE CAPACITY

USING FEILD'S CALCULATOR FOR GRAVITY FLOW IN PIPES

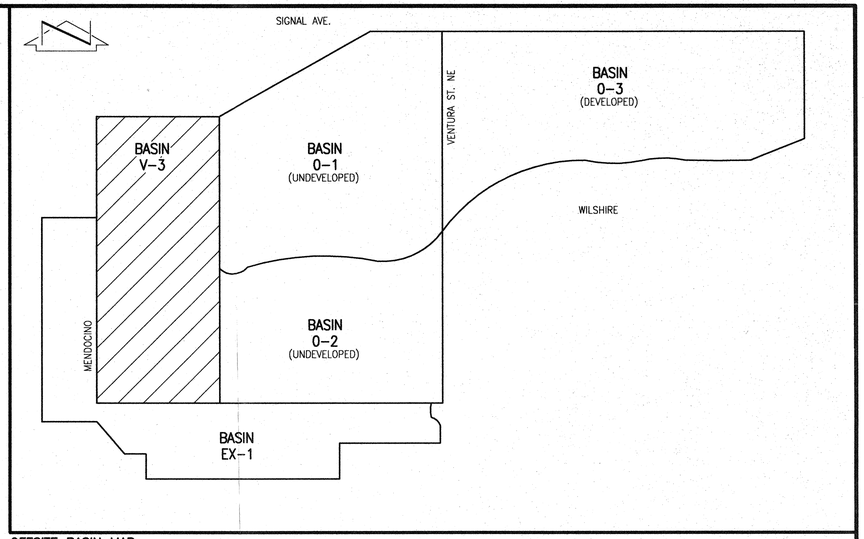
LIMITING STORMDRAIN SIZE = 42" ϕ PIPE
LET: S = 0.0290 FT/FT
n = 0.013
Q = 171.3 CFS > $Q_{REQUIRED}$

VIII. SURFACE FLOW WITHIN NAPA VALLEY ROAD

USING MANNING'S EQUATION $Q = 1.486/n\ AR^{2/3}S^{1/2}$

LET: S = 0.0335
n = 0.016 (ASPHALT)
A = 10.1 SF
P = 32.98 FT
⚠5 Q = 74 CFS > 73 CFS

IX. POND VOLUME CALCULATIONS
(SEE SHEET 5)



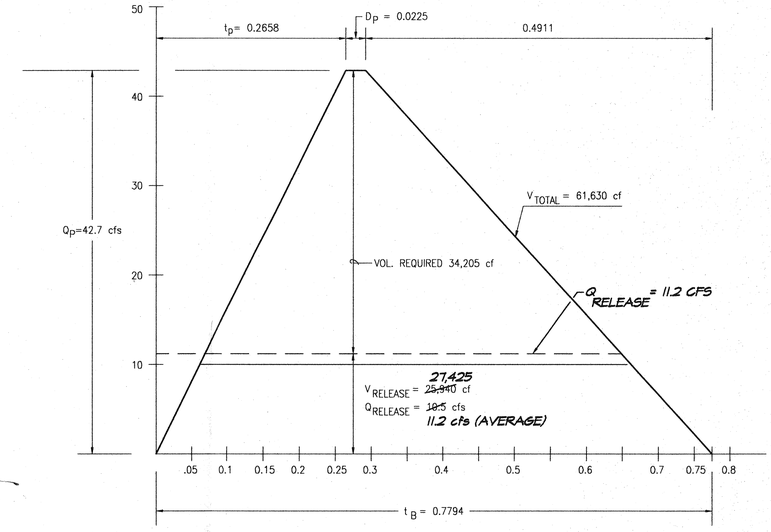
OFFSITE BASIN MAP
SCALE: 1" = 200'

⚠5 CERTIFICATION

THE AS-BUILT INFORMATION SHOWN HEREON WAS OBTAINED BY ME OR UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

JEFFREY G. MORTENSEN, N.M.P.E. 8547 — DATE 11-04-99

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER



⚠5 UNIT HYDROGRAPH

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

12-10-98
01-18-99
03-08-99

File Path: F:\JMA\2001\960301\
File Name: 960301DP2.DWG
Plot Date: 11-03-1999
Plot Time: 1:45 pm

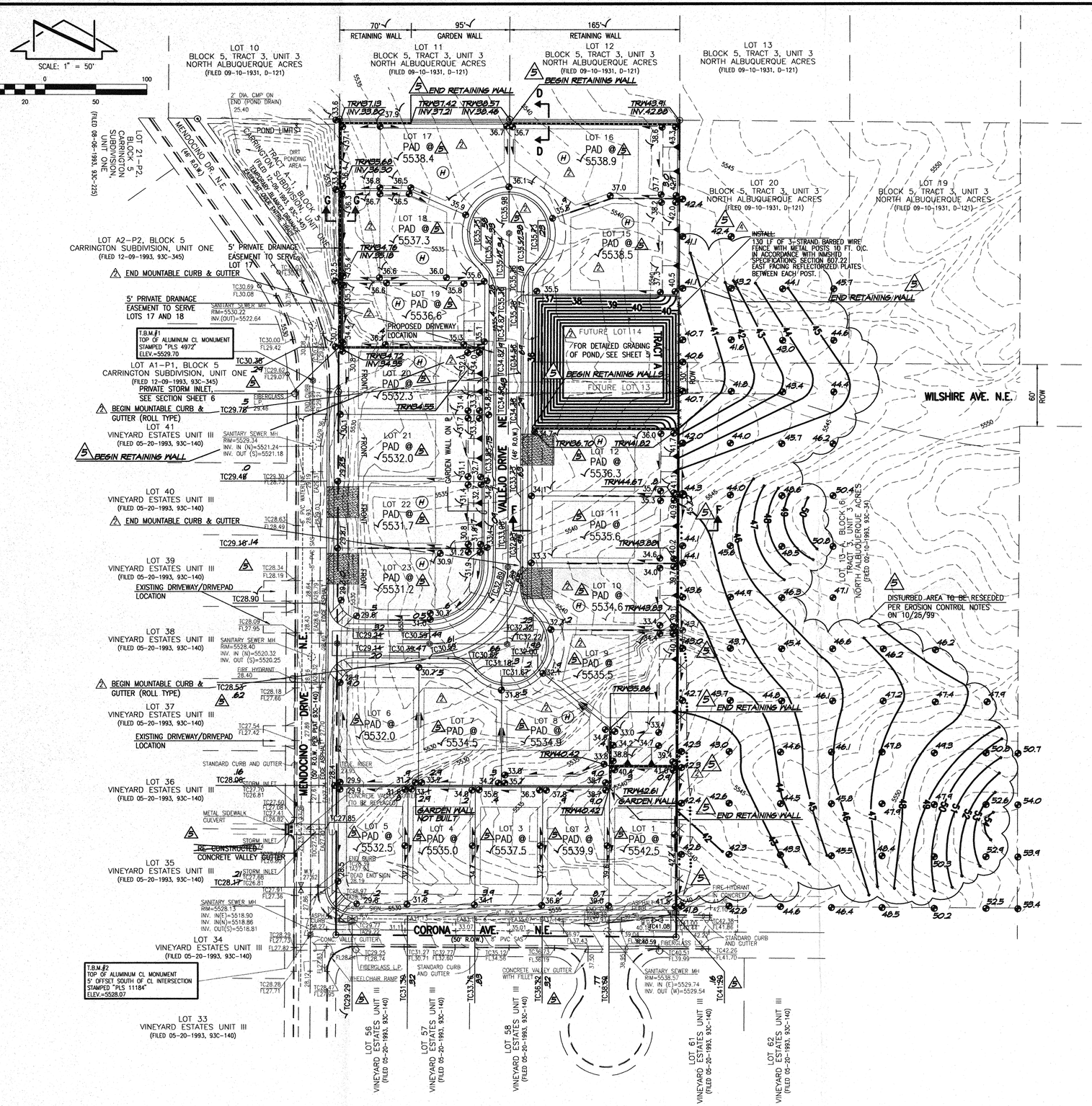
JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. NE.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250

OFFSITE BASIN MAP, UNIT HYDROGRAPH, DRAINAGE CALCULATIONS
VINEYARD ESTATES, UNIT III A

DESIGNED BY J.A.P.
DRAWN BY J.Y.R.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
⚠1	01/99	J.A.P.	TEXT AND CALCULATION CORRECTIONS.
⚠4	03/99	J.A.P.	REVISE SHEEET NO. ; FORMERLY SHEET 4.
⚠5	10/99	MDS	AS-BUILT HYDROGRAPH, DRAINAGE CERTIFICATION

JOB NO. ⚠5 960309 ~~960301~~
DATE ~~10-1999~~ 12-1998
SHEET 23 OF 67



EROSION CONTROL MEASURES:

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 RE-SEEDED ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

PROJECT BENCHMARK

A.C.S. BM 3-C20; AN ALUMINUM DISK ON A STEEL POST SET IN CONCRETE AT THE SOUTHWEST CORNER OF THE INTERSECTION OF VENTURA AND SIGNAL.
ELEVATION = 5569.89 FEET (M.S.L.D.)
(NOT PUBLISHED; DATA OBTAINED FROM CITY SURVEYING SECTION, PUBLIC WORKS DEPARTMENT)

T.B.M.

T.B.M.#1
TOP OF ALUMINUM CENTERLINE MONUMENT WITHIN MENDOCINO DRIVE N.E. JUST WEST OF PROPOSED LOT 20
ELEVATION = 5529.70 FEET (M.S.L.D.)

T.B.M.#2
TOP OF ALUMINUM CENTERLINE MONUMENT 5' OFFSET SOUTH OF THE CENTERLINE INTERSECTION OF CORONA AVE. AND MENDOCINO DRIVE.
ELEVATION = 5528.07 FEET (M.S.L.D.)

LEGEND

TC	TOP OF CURB
FL	FLOWLINE
TA	TOP OF ASPHALT
EA	EDGE OF ASPHALT
MH	MANHOLE
INV.	INVERT
TG	TOP OF GRATE
L.P.	LIGHT POLE
W.V.	WATER VALVE
TELE.	TELEPHONE
- - - - - -	EXISTING CONTOUR
32.90 +	EXISTING SPOT ELEVATION
------W--------	EXISTING WATERLINE
------SAS-------	EXISTING SANITARY SEWER LINE

NOTES:

1. THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. TOPOGRAPHIC INFORMATION SHOWN HEREON IS FROM A TOPOGRAPHIC SURVEY PERFORMED BY JEFF MORTENSEN AND ASSOCIATES, INC. DATED 08-98.
2. THE REVISED GRADES SHOWN HEREON DO NOT VARY BY MORE THAN 1.5' FROM THOSE APPROVED ON FEBRUARY 2, 1999 FOR THE PLAN DATED JANUARY 18, 1999.

AS-BUILT LEGEND

TC29.38/.14	AS-BUILT ELEVATION
30.7	AS-BUILT = AS-DESIGNED ELEVATION
42.7	AS-BUILT ROUGH GRADING ELEVATION
TRM35.91	AS-BUILT TOP OF RETAINING WALL ELEVATION
(H)	HOUSE
	GARDEN WALL (AS-BUILT)
	AS-BUILT DRIVEPAD
	AS-BUILT FLOWLINE

5

CERTIFICATION

THE AS-BUILT INFORMATION SHOWN HEREON WAS OBTAINED BY ME OR UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

JEFFREY G. MORTENSEN, N.M.P.E. 8547 — 12-04-99 DATE

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

OFFSITE GRADING APPROVAL

3 ORIGINAL SIGNED BY HOWARD WICKE ON 01/11/99

OWNER / AGENT FOR: DATE
LOT 20; BLOCK 5; TRACT 3; UNIT 3
NORTH ALBUQUERQUE ACRES

OFFSITE GRADING APPROVAL

3 ORIGINAL SIGNED BY RUSSELL ANDERSON ON 01/11/99

OWNER / AGENT FOR: DATE
LOT 13-A; BLOCK 6; TRACT 3; UNIT 3
NORTH ALBUQUERQUE ACRES

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER 3

03-08-99 12-10-98 01-18-99

PLATE 1

APPROVED FOR ROUGH GRADING

ORIGINAL SIGNED BY SUE COLONGNE ON 02/02/99

CITY HYDROLOGY DATE

JEFF MORTENSEN & ASSOCIATES, INC.
☐ 8019-B MIDWAY PARK BLVD. N.E.
☐ ALBUQUERQUE ☐ NEW MEXICO 87109
☐ ENGINEERS ☐ SURVEYORS (505) 345-4250

GRADING PLAN
VINEYARD ESTATES, UNIT A III

DESIGNED BY J.A.P.
DRAWN BY D.L.M./J.Y.R.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
5	10-99	MDS	AS-BUILT & CERTIFY
1	01/99	J.A.P.	CORRECTIONS SHEETS 3 & 4.
2	02/99	J.A.P.	MINOR GRADE REVISIONS DUE TO INCOPORATION OF OF MOUNTABLE CURB & GUTTER.
3	02/99	J.A.P.	SUPPLEMENTAL INFORMATION FOR FINAL PLAT APPROVAL.
4	02/99	J.A.P.	ADD FENCE; FORMERLY SHEET 1.

JOB NO. 960309 ~~960301~~
DATE 10-1999 ~~12-1998~~
SHEET 4 OF 7

File Path: P:\MM\960301\ | Plot Date: 11-03-1999
File Name: 960301GP.DWG | Plot Time: 3:55 pm