## DRAINAGE REPORT

#### . EXECUTIVE SUMMARY AND INTRODUCTION

VENTURA STREET NE IS A MINOR ARTERIAL CITY OF ALBUQUERQUE PUBLIC STREET LOCATED IN THE RAPIDLY DEVELOPING NORTH ALBUQUERQUE ACRES AREA OF ALBUQUERQUE. THE STREET PAVING, DRAINAGE AND UTILITY IMPROVEMENTS HAVE BEEN DEVELOPED IN A "PIECEMEAL MANNER OVER THE PAST 10 YEARS IN CONJUNCTION WITH PRIVATE AND PUBLIC DEVELOPMENT AND IN ACCORDANCE WITH CITY EXTENSION POLICIES. INASMUCH, THE EXISTING IMPROVEMENTS ARE A COMBINATION OF TEMPORARY AND PERMANENT. THE TEMPORARY IMPROVEMENTS WERE REQUIRED BECAUSE SEVERAL FRONTING LOTS DID NOT PARTICIPATE IN DEVELOPMENT AND COULD NOT BE REQUIRED TO DEDICATE ADDITIONAL RIGHT-OF-WAY OR BE RESPONSIBLE FOR DEVELOPING THEIR FRONTAGE IMPROVEMENTS. THE TEMPORARY (INTERIM) IMPROVEMENTS WERE ALSO CONSTRUCTED TO FACILITATE PHASED DEVELOPMENT IN ADVANCE OF MASTER PLANNED NORTH DOMINGO BACA ARROYO (NDBA) PUBLIC STORM DRAINAGE IMPROVEMENTS IN THE VICINITY OF CARMEL AVENUE NE.

AMAFCA HAS AWARDED THE PROPOSED NDBA CARMEL AVENUE N.E. STORM DRAIN EXTENSION PROJECT WHICH SCHEDULED TO BEGIN CONSTRUCTION IN MID TO LATE DECEMBER, 2002. THIS PROJECT WILL BE CONSTRUCTED BY AMAFCA AS PART OF A COST SHARING AGREEMENT WITH HOECH REAL ESTATE CORPORATION (HREC). THIS PROPOSED PUBLIC NDBA STORM DRAIN IS SIZED FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THE CONTRIBUTING AREA, AND ITS CONSTRUCTION WILL ALLOW IMPLEMENTATION OF MASTER PLANNED DEVELOPMENT AND FACILITATE REMOVAL OF TEMPORARY DRAINAGE IMPROVEMENTS. WITH TWO EXCEPTIONS, HREC HAS MADE ARRANGEMENTS WITH THE OWNERS OF THE UNDEVELOPED AND PARTIALLY DEVELOPED PROPERTIES TO COMPLETE CONSTRUCTION OF VENTURA STREET PAVING AND STORM DRAINAGE IMPROVEMENTS IN ACCORDANCE WITH PREVIOUSLY APPROVED PLANS AND CITY DEVELOPMENT POLICIES. UNFORTUNATELY, THE LACK OF RIGHT-OF-WAY DEDICATION AND FINANCIAL PARTICIPATION BY THE TWO OUTSTANDING PROPERTIES WILL NECESSITATE SOME TEMPORARY (INTERIM) IMPROVEMENTS.

AS DESCRIBED IN THE FOLLOWING EXISTING CONDITIONS SECTION WHICH FOLLOWS, THERE ARE THREE SOURCES OF OFFSITE FLOWS IMPACTING THE SITE. THE STORM DRAIN IMPROVEMENTS PROPOSED HEREIN WILL ACCEPT AND CONVEY THE FIRST TWO SOURCES BY PROVIDING A DIRECT CONNECTION TO EXISTING VENTURA STREET STORM DRAINS TO THE NORTH AND SOUTH IN ACCORDANCE WITH SEVERAL PREVIOUSLY APPROVED PLANS. THE THIRD SOURCE OF OFFSITE FLOWS IS THE ARROYO FLOW ITSELF WHICH MUST BE INTERCEPTED UPSTREAM OF VENTURA STREET BY UPSTREAM DEVELOPMENT AS A PRE-REQUISITE OF THIS PROJECT.

A PORTION OF THE SITE LIES WITHIN A FLOOD HAZARD ZONE ASSOCIATED WITH THE NORTH DOMINGO BACA ARROYO (NDBA). THE PUBLIC STORM DRAIN CONSTRUCTION BY AMAFCA WITH ITS UPSTREAM INLET WILL REMOVE THE DESIGNATED FLOODING HAZARD. A CLOMR PREPARED BY THIS OFFICE IN SUPPORTING THE AMAFCA PROJECT WAS ENDORSED BY THE CITY AND COUNTY FLOODPLAIN ADMINISTRATORS, AND APPROVED BY FEMA 11/08/2002 (FEMA CASE # 02-06-2145R). CLOMR REPORT INCLUDED A DETAILED BASIN ANALYSIS OF THE UPSTREAM CONTRIBUTING AREAS AND DEMONSTRATED DOWNSTREAM CAPACITY FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF AS PROPOSED HEREIN. IT ALSO INCLUDED A PRELIMINARY PAVING AND STORM DRAIN DESIGN FOR THE VENTURA STREET IMPROVEMENTS PROPOSED HEREIN. THE POST-CONSTRUCTION LOMR WILL BE PREPARED BY THIS OFFICE UNDER CONTRACT TO AMAFCA UPON COMPLETION OF THE AMAFCA PROJECT.

THIS PROJECT WILL CONSTRUCT PERMANENT VENTURA STREET NE PAVING AND STORM DRAINAGE IMPROVEMENTS TO SUPPORT THE LA CUEVA TIERRA (CITY PROJECT # 5149), VENTURA VILLAGE (DRB # 1001463), AND DESERT RIDGE PLACE (CITY PROJECT # 6948, DRB # 1001543) SUBDIVISIONS. THIS PROJECT IS CONTINGENT UPON INTERCEPTION OF UPSTREAM OFFSITE FLOWS AND CONSTRUCTION OF THE AFOREMENTIONED AMAFCA PROJECT. THIS DRAINAGE REPORT IS SUBMITTED FOR WORK ORDER APPROVAL FOR VENTURA STREET IMPROVEMENTS AS SHOWN HEREIN.

### II. PROJECT DESCRIPTION:

AS SHOWN HEREON BY VICINITY MAP C-20, THE SITE IS LOCATED IN THE CITY OF ALBUQUERQUE PORTION OF NORTH ALBUQUERQUE ACRES ON VENTURA STREET NE BETWEEN PASEO DEL NORTE AND ROB'S PLACE NE. THE IMPROVEMENTS ARE PROPOSED WITHIN PUBLIC CITY OF ALBUQUERQUE VENTURA STREET RIGHT OF WAY. REFER TO SHEET 4 OF THIS SUBMITTAL FOR A RIGHT-OF-WAY PLAN.

AS SHOWN BY PANEL 141 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS, BERNALILLO COUNTY, NEW MEXICO, AND INCORPORATED AREAS, REVISED 04/02/2002, THE SITE IS IMPACTED BY A DESIGNATED FLOOD HAZARD ZONE (AO DEPTH 1) ASSOCIATED WITH THE MAIN CHANNEL OF THE NDBA. A CLOMR PREPARED BY THIS OFFICE ADDRESSING THE ELIMINATION OF THIS FLOODPLAIN IS UNDER FEMA REVIEW, AND A POST-CONSTRUCTION LOMR TO BE PREPARED AND SUBMITTED BY THIS OFFICE WILL OFFICIALLY ELIMINATE THIS FLOOD HAZARD ZONE UPON COMPLETION OF THE PROPOSED CARMEL AVENUE STORM DRAIN PROJECT BY AMAFCA.

#### III. BACKGROUND DOCUMENTS

THE FOLLOWING IS A LIST OF DOCUMENTS RELATED TO THE SITE AND SURROUNDING AREA. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF RELEVANT PLANS AND DOCUMENTS WHICH ARE KNOWN TO THE ENGINEER AT THE TIME OF PLAN PREPARATION.

- A. THE "NORTH AND SOUTH DOMINGO BACA ARROYO AND PASEO DEL NORTE CORRIDOR DRAINAGE MANAGEMENT PLAN" PREPARED FOR AMAFCA BY RESOURCE TECHNOLOGY, INC. (RTI) DATED DECEMBER, 1991. THIS PLAN HAS BEEN ADOPTED BY AMAFCA AS A GUIDELINE FOR DRAINAGE MANAGEMENT WITHIN THIS AREA WHICH INCLUDES THE NORTH DOMINGO BACA ARROYO (NDBA). AMAFCA RESOLUTION 1992-3 DATED JANUARY 03, 1992 FORMALLY ADOPTED THIS PLAN WHICH IDENTIFIES THE EXTENSION OF PERMANENT DRAINAGE IMPROVEMENTS WITHIN THE NDBA CORRIDOR, AND ESTABLISHED DEVELOPED DRAINAGE BASIN BOUNDARIES WITHIN THE PLAN AREAS. AS SHOWN BY FIGURE 5-6 OF THIS PLAN, THE VENTURA STREET STORM DRAINS ARE IDENTIFIED TO DRAIN TO FUTURE PERMANENT NDBA IMPROVEMENTS CONSTRUCTED WITHIN THE CARMEL RIGHT-OF-WAY AS PROPOSED HEREIN.
- B. VINEYARD ESTATES UNIT IV GRADING AND DRAINAGE PLAN PREPARED BY JEFF MORTENSEN AND ASSOCIATES, INC. (JMA) BATED 09/23/1994 (CITY HYDROLOGY FILE C20/D3C). THIS PLAN SUPPORTED THE CONSTRUCTION OF THE VINEYARD ESTATES, UNIT IV SUBDIVISION (CITY PROJECT # 3391.94) AND ESTABLISHED THE CONCEPT WHEREBY DEVELOPED VINEYARD IV RUNOFF DRAINS TO A TEMPORARY DETENTION POND ON AN INTERIM BASIS WITH FREE DISCHARGE ULTIMATELY PROGRAMMED TO FUTURE NORTH DOMINGO BACA AND VENTURA STREET N.E. STORM DRAIN IMPROVEMENTS, INCLUDING A 54" RCP STORM DRAIN IN VENTURA STREET. THE PROPOSED IMPROVEMENTS AND DRAINAGE CONCEPT
- ARE CONSISTENT WITH THOSE IDENTIFIED THEREIN. C. CONSTRUCTION PLANS AND GRADING AND DRAINAGE PLAN FOR LA CUEVA TIERRA SUBDIVISION PREPARED BY TIERRA WEST DEVELOPMENT MANAGEMENT SERVICES DATED 5/19/1995 (CITY PROJECT # 5149). THIS SUBDIVISION, LOCATED AT THE NORTHWEST CORNER OF CARMEL AND VENTURA, WAS RESPONSIBLE FOR PERMANENT VENTURA PAVING AND STORM DRAINAGE IMPROVEMENTS WHICH WERE FINANCIALLY GUARANTEED BUT NOT CONSTRUCTED. THE IMPROVEMENTS, WHICH INCLUDED EXTENSION OF THE 54" VENTURA STREET STORM DRAIN CONSTRUCTED BY VINEYARD IV (REF.B) WERE DEFERRED TO ALLOW FOR COORDINATION WITH THE ULTIMATE NDBA IMPROVEMENTS. HREC HAS A DEVELOPMENT AGREEMENT WITH THE DEVELOPERS OF LA CUEVA TIERRA WHEREBY HREC WILL CONSTRUCT THE VENTURA IMPROVEMENTS WITH MONEY OBTAINED BY CITY RELEASE OF THE LA CUEVA TIERRA GUARANTY. THIS TRANSFER OF OBLIGATIONS HAS BEEN MADE POSSIBLE BY HREC PLACING THE VENTURA IMPROVEMENTS ON THE INFRASTRUCTURE LIST FOR DESERT RIDGE PLACE, UNIT 1
- D. MASTER DRAINAGE PLAN ? NORTH ARROYO DE DOMINGO BACA, PREPARED BY JMA DATED 02/28/1996. THIS PLAN WAS SPECIFICALLY PREPARED FOR ALBUQUERQUE PUBLIC SCHOOLS (APS) TO SERVE AS A GUIDE IN IDENTIFYING PROPOSED IMPROVEMENTS TO THE NDB ARROYO BETWEEN THE UPPER AND LOWER NORTH DOMINGO BACA DAMS. THE PLAN ALSO PRESENTED ALIGNMENT, IMPROVEMENTS, OWNERSHIP, HYDROLOGY, PHASING AND PARTICIPATION WITH MORE CURRENT INFORMATION AND IN GREATER DETAIL THAN THE RTI PLAN (REFERENCE A). THE PROPOSED IMPROVEMENTS ARE CONSISTENT WITH THOSE IDENTIFIED IN THAT PLAN.
- DRAINAGE CALCULATIONS FOR FURR'S PASEO DEL NORTE DATED 12/11/1998 WITH ENGINEER'S CERTIFICATION DATED 9/27/1999 PREPARED BY MARK GOODWIN & ASSOCIATES (HYDROLOGY FILE C20/D16). THESE PLANS SUPPORTED THE EXISTING COMMERCIAL SHOPPING CENTER LOCATED ON THE EAST SIDE OF VENTURA STREET BETWEEN PASEO DEL NORTE AND HOLLY. THE FLOW RATES DISCHARGING TO VENTURA FROM THE VARIOUS PORTIONS OF THIS DEVELOPMENT WERE DERIVED FROM THIS FURR'S PLAN WHICH CONSTRUCTED A PORTION OF THE 42" RCP STORM DRAIN IN VENTURA STREET TO BE EXTENDED AS PROPOSED HEREIN. THIS PROJECT CONSTRUCTED ITS VENTURA STREET PERMANENT FRONTAGE IMPROVEMENTS UNDER CITY PROJECT # 601981.
- F. FINAL NORTH ALBUQUERQUE ACRES MASTER DRAINAGE PLAN PREPARED BY RTI FOR THE CITY OF ALBUQUERQUE DATED OCTOBER, 1998 AND HYDROLOGY REPORT FOR NORTH ALBUQUERQUE ACRES AND SANDIA HEIGHTS DRAINAGE STUDY PHASES I AND II PREPARED BY RTI FOR BERNALILLO COUNTY DATED NOVEMBER, 1998. THESE DRAINAGE MANAGEMENT PLANS SHARE A COMMON HYDROLOGIC AHYMO MODEL FOR THE NDB ARROYO BASIN WHICH WAS DEVELOPED BY MODIFYING THAT ORIGINALLY DEVELOPED BY RTI FOR AMAFCA IN THEIR 1991 REPORT (REFERENCE A). THESE REPORTS ARE CURRENT UPDATES TO THE ORIGINAL RTI PLAN AND THE PROPOSED IMPROVEMENTS AND DRAINAGE CONCEPT ARE CONSISTENT WITH THOSE IDENTIFIED THEREIN.
- G. GRADING AND DRAINAGE PLAN FOR DESERT RIDGE PLACE PREPARED BY JMA DATED 08/14/2002 (HYDROLOGY FILE C20/D34, DRB # 1001543). THIS DRB APPROVED PLAN WAS PREPARED IN SUPPORT OF THE PROPOSED RESIDENTIAL DEVELOPMENT BY HREC WEST OF VENTURA STREET. THE INFRASTRUCTURE LIST FOR THIS PROJECT INCLUDES VENTURA STREET PAVING AND STORM DRAINAGE IMPROVEMENTS WHICH ARE PROPOSED HEREIN AND THAT WILL BE CONSTRUCTED BY WORK ORDER.
- H. REQUEST FOR CONDITIONAL LETTER OF MAP REVISION (CLOMR) FOR THE NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION PREPARED BY JMA DATED 06/14/2002 AND APPROVED BY FEMA 11/08/2002 (FEMA CASE NUMBER 02-06-2145R). THIS CLOMR AND ASSOCIATED DRAINAGE REPORT WAS PREPARED TO SUPPORT THE PROPOSED COST SHARE PROJECT BY AMAFCA AND TO REMOVE THE ASSOCIATED FLOODPLAIN DESIGNATION FROM THE NDBA WEST OF A POINT MIDBLOCK BETWEEN HOLBROOK STREET AND EUBANK. IT SERVES AS A MASTER DRAINAGE PLAN FOR DEVELOPMENT IN THE NORTH DOMINGO BACA WATERSHED AND INCLUDES A PRELIMINARY DESIGN OF THE VENTURA STORM DRAIN AND PAVING IMPROVEMENTS AS PROPOSED HEREIN.
- PRELIMINARY GRADING AND DRAINAGE PLAN AND PRELIMINARY PLAT FOR VENTURA VILLAGE (DRB # 1001463) BY CLARK CONSULTING ENGINEERS. THIS PROJECT, LOCATED AT THE SOUTHEAST CORNER OF VENTURA STREET. AND CARMEL AVE, IS CURRENTLY IN THE CITY REVIEW. AND PLANNING PROCESS. IT IS FINANCIALLY RESPONSIBLE FOR CONSTRUCTING ITS VENTURA STREET FRONTAGE, INCLUDING THE PREVIOUSLY IDENTIFIED 42" RCP STORM DRAIN. IT WILL ALSO BE RESPONSIBLE FOR ADDRESSING UPSTREAM NDBA ARROYO FLOWS WHICH IS A PRE-REQUISITE FOR THIS VENTURA STREET PROJECT. HREC HAS A DEVELOPMENT AGREEMENT WITH THE DEVELOPER OF VENTURA VILLAGE WHEREBY HREC WILL CONSTRUCT THE REQUIRED VENTURA IMPROVEMENTS UNDER CITY WORK ORDER.
- . CONSTRUCTION PLANS FOR THE NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION PREPARED BY JMA DATED 10/07/2002 (CITY PROJECT NUMBER 693481). AMAFCA HAS AWARDED THIS PROJECT WITH CONSTRUCTION SCHEDULED TO BEGIN IN MID-DECEMBER, 2002. THIS CARMEL STORM DRAIN WILL BE THE DEVELOPED DRAINAGE OUTFALL FOR THE VENTURA STREET IMPROVEMENTS AND ITS CONSTRUCTION IS A PRE-REQUISITE FOR THIS VENTURA STREET PROJECT.
- THE PROPOSED EXTENSION OF EXISTING VENTURA STREET PUBLIC STORM DRAINS DRAINING DIRECTLY AND FREELY TO PERMANENT NORTH DOMINGO BACA ARROYO DRAINAGE IMPROVEMENTS AS PROPOSED AND DESCRIBED HEREIN IS CONSISTENT WITH AND IN ACCORDANCE WITH THE POLICIES AND REQUIREMENTS OF THE ABOVE LISTED DOCUMENTS, AND IS CONSISTENT WITH THE CONCEPTS PREVIOUSLY ESTABLISHED BY THE CITY AND AMAFCA FOR NORTH DOMINGO BACA ARROYO DEVELOPMENT.

## III. EXISTING CONDITIONS:

VENTURA STREET NE IS A PUBLIC CITY OF ALBUQUERQUE STREET WITH A COMBINATION OF PERMANENT AND TEMPORARY PAVING IMPROVEMENTS. THE SEGMENT OF PAVEMENT BETWEEN ROB'S PLACE NE AND HOLLY AVENUE NE IS TEMPORARY EXCEPT FOR THE EAST SIDE FURR'S FRONTAGE. OFFSITE FLOWS AT THE PEAK 100-YEAR RATE OF 453 CFS (HYD 921.99 BULKED FOR SEDIMENT) DRAIN TO A LOW POINT CONCENTRATING JUST SOUTH OF CARMEL AVENUE NE IN THE MAIN CHANNEL OF THE NDBA AND CROSS UNDER VENTURA STREET THROUGH 19 EXISTING CMAP CULVERTS WHICH CARRY THE MAIN CHANNEL OF THE NDBA.

THE ARROYO CURRENTLY RECEIVES THREE DISTINCT SOURCES OF RUNOFF AT VENTURA STREET:

- 1) TWO TEMPORARY PUBLIC 24" CMP STORM DRAINS DELIVER FLOWS WITH A PEAK 100-YEAR RATE OF 80.6 CFS (HYD 923.99 BULKED) FROM THE NORTH GENERATED BY VINEYARD ESTATES UNIT IV AND ROUTED THROUGH A TEMPORARY DETENTION POND. THESE FLOWS ALSO INCLUDE RUNOFF GENERATED BY BASINS UPSTREAM OF VINEYARD IV WHICH ARE ACCEPTED BY THE SUBDIVISION.
- 2) A 42" PUBLIC RCP STORM DRAIN DELIVERS FLOWS WITH A PEAK 100-YEAR RATE OF 20.9 CFS (HYD 921.23, BULKED) FROM THE SOUTH GENERATED BY THE FURR'S SHOPPING CENTER AND HOLLY AVENUE NE. THESE FLOWS ALSO INCLUDE RUNOFF GENERATED BY BASINS UPSTREAM OF HOLLY AVENUE NE. 3) THE ARROYO CARRIES FLOWS WITH A PEAK 100-YEAR RATE OF 372.7 CFS (HYD 921.25, BULKED) FROM THE UPPER NDBA DAM OUTFALL, FROM ADJACENT CONTRIBUTING BASINS, AND DISCHARGE FROM A TEMPORARY DETENTION POND LOCATED AT THE SOUTHEAST CORNER OF VINEYARD ESTATES, UNIT IV.

THE SUPPORTING AHYMO AND DETAILS OF THESE BASINS ARE MORE COMPLETELY IDENTIFIED AND DEFINED BY THE AFOREMENTIONED CLOMR (REFERENCE H). FROM VENTURA STREET, THE ARROYO CONTINUES WEST APPROXIMATELY 1500 FEET WHERE IT ENTERS A 96" PUBLIC RCP STORM DRAIN CONSTRUCTED BY AMAFCA IN 2001 WHICH IS SIZED FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THE UPSTREAM NORTH DOMINGO BACA WATERSHED.

#### IV. DEVELOPED CONDITIONS

THE PROPOSED IMPROVEMENTS INCLUDE THE IMPLEMENTATION OF PERMANENT VENTURA STREET STORM DRAIN EXTENSIONS BY EXTENDING EXISTING 42" AND 54" STORM DRAINS TO THE PROPOSED NDBA STORM DRAIN BEING CONSTRUCTED BY AMAFCA. THE EXISTING PUBLIC STORM DRAINS WERE CONSTRUCTED BY PREVIOUS PROJECTS (REFERENCES B AND E) AND WERE IDENTIFIED FOR FUTURE EXTENSION TO THE PERMANENT NDBA STORM DRAIN AS SHOWN HEREIN. INASMUCH, CONSTRUCTION OF THE VENTURA STREET IMPROVEMENTS IS CONTINGENT UPON PRIOR OR SIMULTANEOUS CONSTRUCTION OF THE NDBA MAIN BY AMAFCA UNDER CITY PROJECT # 693481, THE CONTRACT FOR WHICH WHICH HAS BEEN AWARDED. AMAFCA PLANS TO START CONSTRUCTION IN DECEMBER, 2002.

AS INDICATED IN THE PRECEDING EXISTING CONDITIONS SECTION, THERE ARE THREE SOURCES OF OFFSITE FLOWS IMPACTING THE SITE. THE ABOVE IDENTIFIED STORM DRAIN EXTENSIONS WILL ACCEPT AND CONVEY THE FIRST TWO (EXISTING STORM DRAIN) SOURCES BY PROVIDING A DIRECT CONNECTION TO THE DESIGNATED OUTFALL IN ACCORDANCE WITH SEVERAL APPROVED PLANS. THE THIRD FLOW SOURCE IS THE ARROYO (SURFACE FLOW) ITSELF. THESE FLOWS MUST BE INTERCEPTED BY UPSTREAM DEVELOPMENT AS A REQUIREMENT OF THIS PROJECT. THE VENTURA VILLAGE PROJECT IS CURRENTLY REQUIRED TO ACCEPT THESE FLOWS, HOWEVER, AS DEVELOPMENT CONTINUES UPSTREAM, THE COLLECTION POINT WILL ACCORDINGLY MOVE UPSTREAM AS WELL. IT IS THE INTENTION OF HREC TO DESIGN AND CONSTRUCT UPSTREAM DEVELOPMENTS EAST OF VENTURA VILLAGE TO THE CURRENT CITY/COUNTY LINE WHICH WILL MAKE PROVISIONS FOR ACCEPTING THE ARROYO FLOWS AND WILL SUPERCEDE THE VENTURA VILLAGE REQUIREMENT. REGARDLESS OF THE FLOW ACCEPTANCE LOCATION, A DRB APPROVED GRADING PLAN AND FINANCIAL GUARANTEES MUST BE IN PLACE FOR THE ARROYO FLOW COLLECTION PRIOR TO CONSTRUCTION OF THE VENTURA STREET IMPROVEMENTS AS PROPOSED HEREIN.

THIS PROJECT ALSO INCLUDES PERMANENT VENTURA STREET MINOR ARTERIAL PAVING IMPROVEMENTS THAT WILL BE CONSTRUCTED IN THE FRONTAGE OF THE LA CUEVA TIERRA, VENTURA VILLAGE, AND DESERT RIDGE PLACE SUBDIVISIONS. THE OWNERS OF LOT 32, BLOCK 18 AND LOT 17, BLOCK 9 ARE NOT PARTICIPATING IN THIS PROJECT, AND TEMPORARY IMPROVEMENTS WILL BE REQUIRED IN THEIR FRONTAGE WHICH DOES NOT CURRENTLY INCLUDE THE 13 FEET OF ADDITIONAL RIGHT-OF-WAY REQUIRED TO CONSTRUCT THE PERMANENT IMPROVEMENTS AT THIS TIME.

STORM INLETS WILL BE CONSTRUCTED WITHIN THE STREET TO SATISFY DPM MINOR ARTERIAL FREE DRIVING LANE CRITERIA. BECAUSE THE VENTURA VILLAGE DEVELOPMENT AND UPSTREAM CARMEL AVENUE STREET HYDRAULICS HAVE NOT BEEN ESTABLISHED AT THIS TIME, IT IS HEREBY DETERMINED FOR ANALYSIS PURPOSES THAT A MAXIMUM 100-YEAR FLOW OF 6.1 CFS MAY BYPASS THE LOWER BATTERY OF INLETS PROPOSED IN CARMEL BY THE VENTURA VILLAGE PROJECT. FLOWS IN EXCESS OF THAT AMOUNT WILL EXCEED THE FREE DRIVING LANE REQUIREMENTS FOR VENTURA STREET AND ARE NOT PERMITTED. A SUMP INLET IS REQUIRED IN THE FRONTAGE OF LOT 32, BLOCK 18 WHICH IS NOT PARTICIPATING IN THIS PROJECT. AS SHOWN BY THE DETAIL ON SHEET 3, FLOWS AT THIS SUMP WILL BE ACCEPTED BY A TEMPORARY INLET ON AN INTERIM BASIS. UPON DEVELOPMENT OF LOT 32, THE PERMANENT IMPROVEMENTS SHOWN ON SHEET 2 MUST BE CONSTRUCTED.

DOWNSTREAM PUBLIC DRAINAGE INFRASTRUCTURE SERVING THIS SITE (WINDOW K STORM DRAIN, CITY PROJECT # 660281, WAS RECENTLY CONSTRUCTED BY AMAFCA IN 2001 AS PART OF A PREVIOUS COST SHARING AGREEMENT WITH HREC AND THE CITY OF ALBUQUERQUE. THESE DOWNSTREAM IMPROVEMENTS WILL BE EXTENDED BY AMAFCA TO VENTURA STREET AND BEYOND AS PART OF THE CURRENT COST-SHARING AGREEMENT. A CLOMR, CURRENTLY UNDER FEMA REVIEW (REFERENCE H), WAS PREPARED BY THIS OFFICE TO SUPPORT THE PROPOSED AMAFCA PROJECT AND VENTURA STREET IMPROVEMENTS, AND TO SUPPORT ELIMINATION OF THE EXISTING FLOOD HAZARD ZONE IMPACTING THE SITE. A POST-CONSTRUCTION LOMR WILL BE PREPARED AND SUBMITTED BY THIS OFFICE UPON COMPLETION OF THE AMAFCA PROJECT. AS DEMONSTRATED BY THE CLOMR, THE EXISTING PUBLIC STORM DRAIN AND ITS PROPOSED EXTENSION WILL PROVIDE DOWNSTREAM CAPACITY FOR THE FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM VENTURA STREET NE VIA STORM DRAINS AND CONNECTIONS AS SHOWN ON THE IMPROVEMENTS PLAN ON SHEET 2 OF THIS SUBMITTAL.

## V. CALCULATIONS

PIPE SIZING AND STORM DRAIN HYDRAULICS WERE CALCULATED, PRESENTED AND PREVIOUSLY DEMONSTRATED BY THE APPROVED CLOMR PREPARED BY THIS OFFICE (REFERENCE H). AS DEMONSTRATED THEREIN, THE PROPOSED PUBLIC STORM DRAINS ARE SIZED FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE. VENTURA STREET BASIN CALCULATIONS, WHICH APPEAR ON SHEET 2, ANALYZE THE 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 GENERATED.

THE INFLOW/OUTFLOW CHARACTERISTICS OF THE EXISTING VINEYARD IV TEMPORARY DETENTION POND WERE MODELED USING THE ROUTE RESERVOIR COMMAND OF THE AHYMO97 PROGRAM WITH EXISTING POND DEPTH/VOLUME RELATIONSHIP TAKEN FROM THE AFOREMENTIONED CLOMR AND DISCHARGES USING CULVERT NOMOGRAPHS. AS DEMONSTRATED BY THE AHYMO MODEL, THE POST-PROJECT CONDITIONS WILL RESULT IN A MAXIMUM 100-YEAR STORAGE IN THE EXISTING POND OF 3.3 ACRE FEET AT A DEPTH OF 6.1 FEET. THE POND WILL DRAIN IN LESS THAN 96 HOURS AND DOES NOT REQUIRE FENCING.

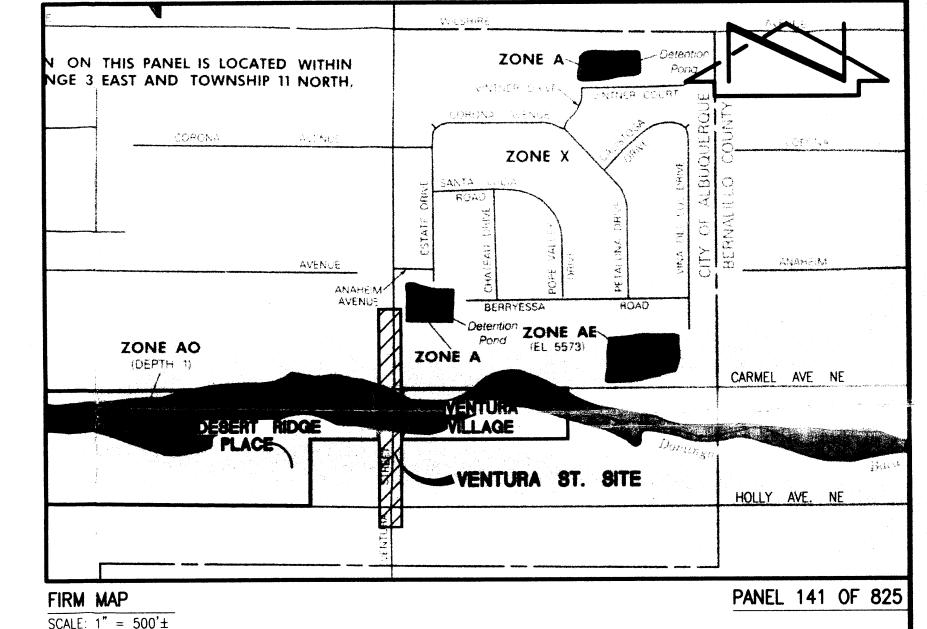
OPEN CHANNEL STREET HYDRAULIC CALCULATIONS WERE PERFORMED USING MANNING'S EQUATION SOLVED BY THE FLOWMASTER 6.0 PROGRAM BY HAESTAD METHODS. THE ASSUMED MANNING'S "n" VALUE WAS 0.017. AS DEMONSTRATED BY THE CALCULATIONS ON SHEET 2, THE STREETS AND INLETS ARE ALL SIZED TO SAFELY CONVEY THE 100-YEAR DESIGN STORM. THE STREET CAPACITIES WERE FURTHER ANALYZED TO ENSURE THAT A FREE DRIVING LANE WAS PROVIDED DURING THE 10-YEAR STORM IN ACCORDANCE WITH DPM REQUIREMENTS FOR AN ARTERIAL STREET.

SAG STORM INLET CALCULATIONS WERE PERFORMED USING THE FLOWMASTER 6.0 PROGRAM USING U.S.D.T. FHA METHODOLOGY FOR GRATE INLETS IN SAG CONDITIONS. THE GRATES WERE ASSUMED TO BE 50% CLOGGED. THE TYPE "A" AND TYPE "C" INLETS ON GRADE WERE ANALYZED USING D.P.M PLATES 22.3 D-5 AND 6. AS SHOWN BY THE STREET AND INLET ANALYSIS TABLE ON SHEET 2, THE INLETS AND STREET ARE SIZED TO PASS THE DEVELOPED CONDITIONS 100-YEAR STORM. BECAUSE THE DOWNSTREAM INLETS ARE LOCATED AT SAG CONDITIONS, THE SAG INLETS WERE DESIGNED TO CONVEY TWICE THE 100 YEAR FLOW.

# VI. CONCLUSIONS

- 1) THE PROPOSED DRAINAGE CONCEPT AND SITE IMPROVEMENTS ARE CONSISTENT WITH AND WILL IMPLEMENT THE RECOMMENDATIONS AND REQUIREMENTS OF DEVELOPMENT CRITERIA ESTABLISHED BY SEVERAL PREVIOUSLY APPROVED PLANS FOR THIS SITE AND NDBA DEVELOPMENT.
- 2) THE PROPOSED PUBLIC PAVING AND STORM DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED BY CITY WORK ORDER IN ACCORDANCE WITH
- THE CONCEPTS SET FORTH HEREIN.
- 3) ALL PUBLIC PAVING AND STORM DRAINAGE IMPROVEMENTS WILL BE OWNED, OPERATED AND MAINTAINED BY THE CITY OF ALBUQUERQUE. 4) DEVELOPED RUNOFF FROM THIS SITE WILL DRAIN FREELY TO PERMANENT PUBLIC NDBA STORM DRAINAGE IMPROVEMENTS SIZED FOR THIS DISCHARGE, A SEGMENT OF WHICH WAS RECENTLY CONSTRUCTED BY AMAFCA AND WHICH WILL BE EXTENDED BY AMAFCA AS PART OF A PROPOSED COST-SHARING AGREEMENT AND PREVIOUSLY REFERENCED HEREON.
- 5) THIS PROJECT IS CONTINGENT UPON CONSTRUCTION OF THE AMAFCA NDBA EXTENSION SCHEDULED TO COMMENCE IN DECEMBER, 2002, AND
- UPON AN APPROVED AND GUARANTEED UPSTREAM INTERCEPTION OF NDBA ARROYO FLOWS BY SEPARATE PROJECT 6) ALL PROPOSED PAVING AND STORM DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED WITHIN PUBLIC RIGHT-OF-WAY. NO ADDITIONAL
- EASEMENTS ARE REQUIRED FOR THIS PROJECT. 7) THERE ARE NO DPM DESIGN VARIANCES ANTICIPATED AT THIS TIME.
- 8) A SEPARATE DRAINAGE SUBMITTAL FOR CLOMR APPROVAL WAS ENDORSED BY THE CITY AND COUNTY FLOODPLAIN ADMINISTRATORS AND WAS APPROVED BY FEMA.
- 9) A POST-CONSTRUCTION LOMR WILL BE PREPARED BY THIS OFFICE.

# ALBUQUERQUE -DESERT RIDGE + PLACE VICINITY MAP $SCALE: '' = 750' \pm$



LEGAL DESCRIPTION VENTURA STREET N.E. (CITY OF ALBUQUERQUE PUBLIC STREET R.O.W.)

# PROJECT BENCHMARK (NGVD 1929)

ACS STATION "HEAVEN" (TIED PRIOR TO PASEO DEL NORTE ROADWAY CONSTRUCTION IN 1999) PREVIOUS ELEVATION = 5378.79 FEET (NGVD 1929)

THIS BENCHMARK HAS BEEN USED TO PROVIDE CONSISTENCY BETWEEN THIS SURVEY AND SURVEYS PREVIOUSLY CONDUCTED FOR RELATED NORTH DOMINGO BACA ARROYO PROJECTS AND THEREFORE REPRESENTS THE "PROJECT DATUM" FOR THIS

NOTE: THE ELEVATION FOR ACS STATION "5-C20", AN ACS 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 5-C20", EPOXIED TO THE TOP OF A STORM INLET, AT THE N.N.E. CURB RETURN IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF VENTURA STREET AND ANAHEIM AVENUE N.E., BASED UPON THE "PROJECT DATUM" 5552.84 FEET (NGVD 29). THE C.O.A. PUBLISHED ELEVATION L FOR "5-C20" IS 5552.71 FEET (NGVD 29) AND THEREFORE VARIES BY 0.13 FEET VERTICALLY FROM THE "PROJECT DATUM"

A #5 REBAR W/CAP STAMPED "CONTROL PT NMPS 11184" ! AT THE NORTHÉAST QUADRANT OF THE INTERSECTION OF VENTURA STREET AND CARMEL AVENUE N.E.. ELEVATION = 5544.89 FEET (NGVD 1929)

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COVER SHEET, VICINITY MAP, FIRM, INDEX OF DRAWINGS AND DRAINAGE REPORT

INDEX OF DRAWINGS

- 2. VENTURA STREET N.E. PAVING AND STORM DRAINAGE IMPROVEMENTS PLAN, CALCULATIONS AND BASIN MAP
- 3. SECTIONS AND DETAILS
- 4. BASELINE/R.O.W. PLAN

DRB PROJECT #1001543



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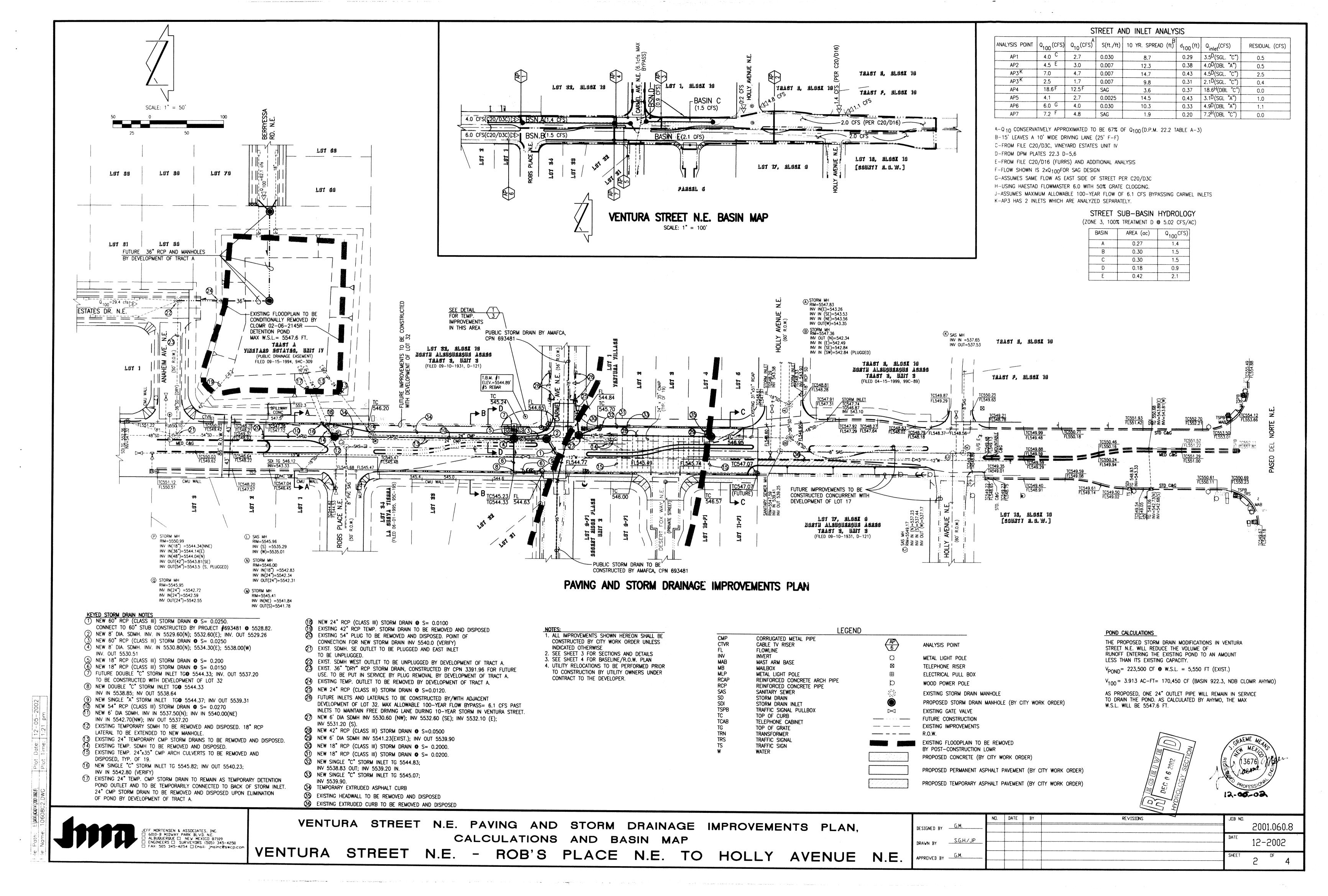
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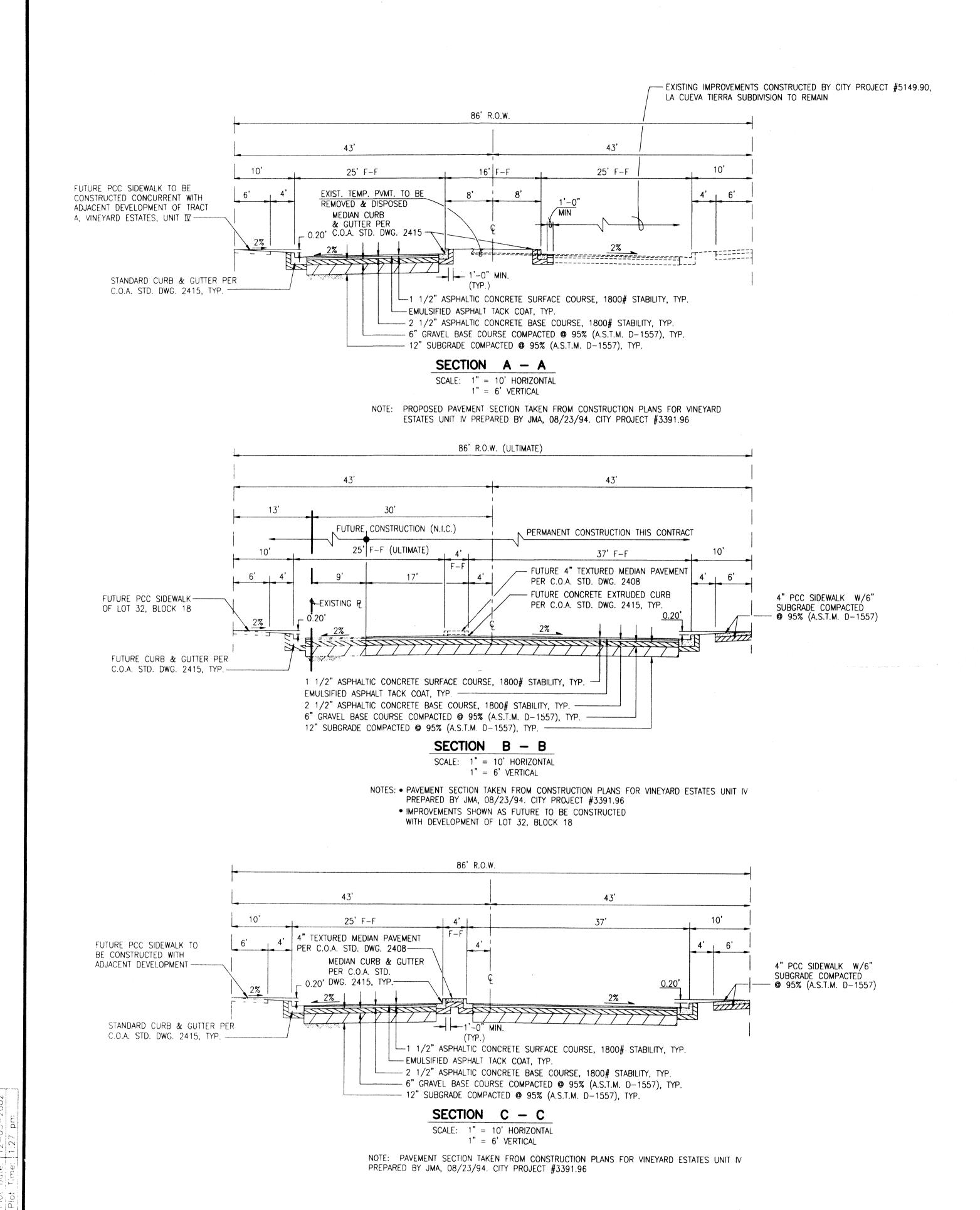
12-2002

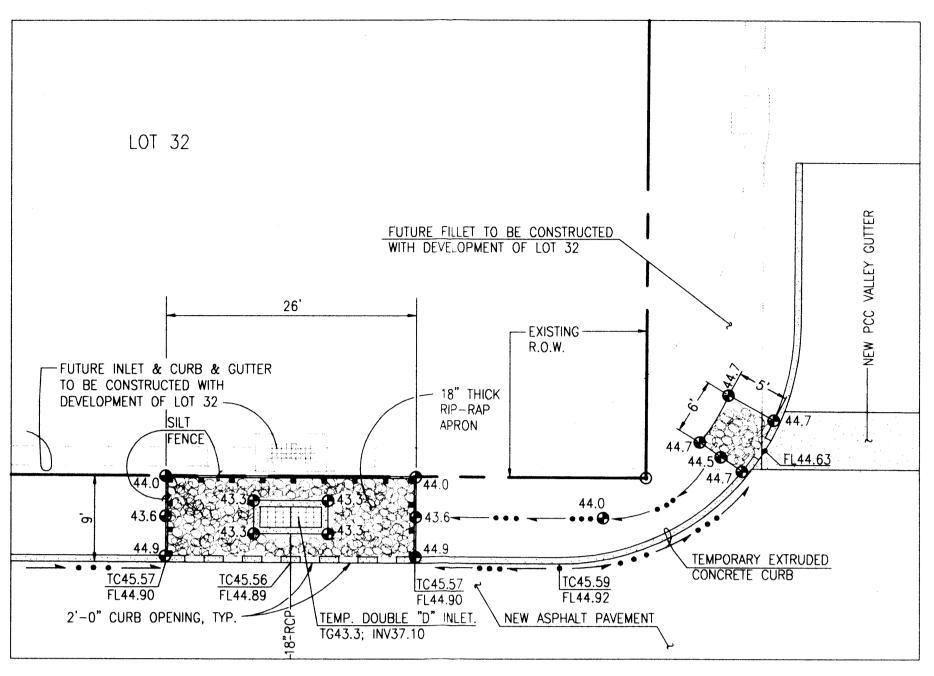
REVISIONS ND. DATE BY DESIGNED BY G.M. DRAWN BY APPROVED BY J.G.M.

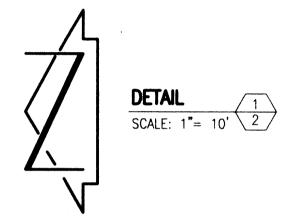


COVER SHEET, VICINITY MAP, FIRM, INDEX OF DRAWINGS AND DRAINAGE REPORT VENTURA STREET N.E. - ROB'S PLACE N.E. TO HOLLY AVENUE N.E.

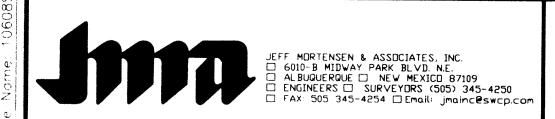








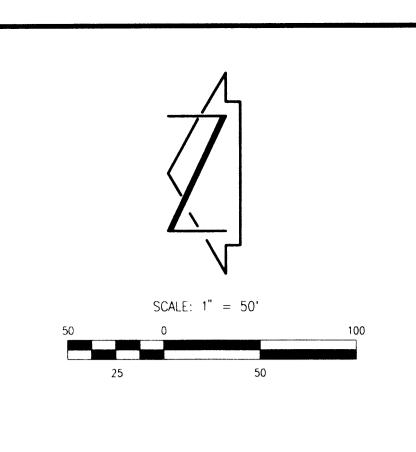
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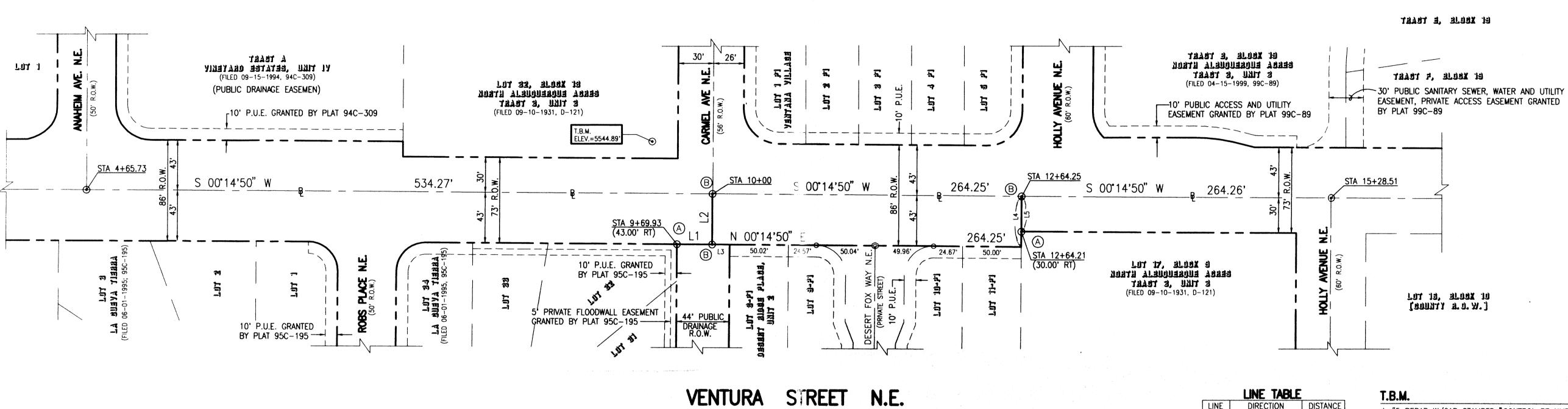


SECTIONS AND DETAILS

VENTURA STREET N.E. - ROB'S PLACE N.E. TO HOLLY AVENUE N.E.

NO. DATE BY REVISIONS DESIGNED BY G.M. 12-2002 DRAWN BY \_\_\_\_\_\_ APPROVED BY G.M.





T.B.M.

LINE TABLE DIRECTION DISTANCE S 00°14'50" W 30.00' S 89°39'36" W 43.00' L3 S 00°14'50" W 15.00'
L4 S 89°39'51" W 43.00'
L5 S 89°39'51" W 30.00

A #5 REBAR W/CAP STAMPED "CONTROL PT NMPS 11184" SET AT THE NORTHEAST QUADRANT OF THE INTERSECTION OF VENTURA STREET AND CARMEL AVENUE N.E. ELEVATION = 5544.89 FEET (NGVD 29)

- 1. THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN HEREON IS FROM "SUBDIVISION PLAT OF DESERT RIDGE PLACE, UNIT 1" BY JEFF MORTENSEN & ASSOCIATES, INC. FILED 11/04/2002, 2002C-355
- 2. CONSTRUCTION BASELINE SHOWN HEREON IS BASED UPON PLAT REFERENCED ABOVE AND SHALL BE USED FOR CONSTRUCTION PURPOSES ONLY.
- 3. RIGHT-OF-WAY, EASEMENTS, AND LOTTING DEPICTED FOR DESERT RIDGE PLACE, UNIT 2 AND VENTURA VILLAGE SHOWN HEREON ARE BASED UPON THE PRELIMINARY PLATS FOR THOSE PROJECTS. DRB PROJECT NUMBERS 1001543 AND 1001463, RESPECTIVELY.

# **KEYED NOTES:**

- A #5 REBAR WITH CAP STAMPED "NEW MEXICO PS 11184"
- (B) CALCULATED POSITION NO MONUMENT

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 2001.060.8 CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT

ENGINEERING DEVELOPMENT GROUP BASELINE/R.O.W. PLAN TITLE: VENTURA STREET N.E.

ROB'S PLACE N.E. TO HOLLY AVE. N.E. Design Review Committee City Engineer Approval

ELEVATIONS ARE IN NGVD 1929

City Project No.

DATE
DATE
DATE

NOTES NOTES ON SINA