CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

June 15, 2016

Ron E. Hensley, P.E.
THE Group
300 Branding Iron Road S.E.
Rio Rancho, NM, 87124

RE: Holly Subdivision
Grading and Drainage Plan
Engineer's Stamp Date 6-6-16 (C19D040)

Dear Mr. Hensley:

Based upon the information provided in your submittal received 6/6/2016, the above referenced Grading & Drainage Plan is approved with the condition that an approval on the submitted ESC Plan is secured.

An ESC Grading Permit will need to be submitted to the City's Stormwater Quality Engineer prior to any grading on the site.

Prior to Pad Certification and/or Release of Financial Guarantee approval, Engineering Certification per the DPM will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Holly Subdivision Building Permit #: _____ City Drainage #: _____

DRB#: 1010576 EPC#: _____ Work Order#: _____

Legal Description: _____

City Address: _____

Engineering Firm: THE Group Contact: Ron Hensley

Address: 300 Branding Iron Rd. SE, Rio Rancho, NM 87124

Phone#: 505-410-1622 Fax#: _____ E-mail: _____

Owner: Nazish LLC Contact: Shakeel Rizvi

Address: 8504 Waterford Pl. N.E., Albuquerque, NM, 87122

Phone#: 505-315-6563 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Other Contact: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

XXXX HYDROLOGY/ DRAINAGE

_____ TRAFFIC/ TRANSPORTATION

_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

_____ ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN

XXXX GRADING PLAN

_____ DRAINAGE MASTER PLAN

_____ DRAINAGE REPORT

_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)

_____ TRAFFIC IMPACT STUDY (TIS)

_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: X Yes _____ No

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY

_____ PRELIMINARY PLAT APPROVAL

_____ SITE PLAN FOR SUB'D APPROVAL

_____ SITE PLAN FOR BLDG. PERMIT APPROVAL

_____ FINAL PLAT APPROVAL

_____ SIA/ RELEASE OF FINANCIAL GUARANTEE

_____ FOUNDATION PERMIT APPROVAL

XXXX GRADING PERMIT APPROVAL

_____ SO-19 APPROVAL

_____ PAVING PERMIT APPROVAL

_____ GRADING/ PAD CERTIFICATION

_____ WORK ORDER APPROVAL

_____ CLOMR/LOMR

_____ PRE-DESIGN MEETING

_____ OTHER (SPECIFY) _____

DATE SUBMITTED: June 6, 2016 By: Ron Hensley

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

The HENSLEY ENGINEERING GROUP

June 6, 2016

Abiel Carrillo
Planning - Hydrology
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Holly Subdivision – Grading and Drainage Plan for Grading Permit

We are requesting a review of the attached information in support of the Grading Permit of Holly Subdivision and the construction of Holly Ave. The comments of 5/4/2016 have been addressed with the following:

1. *We understand that Parks and Rec and Transportation Development have removed the requirement for a North-South pedestrian path along the west edge of the site; the final plan is expected to have that facility removed*.
   The pedestrian access has been removed.

2. *We understand that there is an arrangement regarding the necessary grading into the adjacent site to the north to construct Holly Ave. Please forward the communication with AMAFCA which is anticipated to show that there is permission to grade within their property and the maintenance responsibilities*.
   The communications are attached.

3. *An Erosion and Sediment Control Plan needs to be approved by the City's Stormwater Quality Engineer.*
   The ESC has been submitted.

4. *Please provide excerpts (or a copy if it is available) of the Drainage Masterplan that is referenced regarding the available capacity in the outlet storm drain. The City does not have a copy in our file.*
   The available plans are attached.

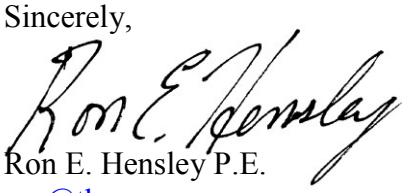
5. *Provide a hydraulic capacity calculation for the mountable curbed streets.*
   The curb has been modified to standard curb where necessary to increase capacity.

6. *Provide erosion control (or clean the area if some erosion control exists under sediment) at the entrance to the 24" end section. Since the elevation of the CMU wall opening is set exactly at the same elevation as the opening in the curb, minor field discrepancies in the wall opening elevation can permanently route much of the flow through the first flush pond.*
   Erosion control has been addressed on the plan with restoration or placement of rip-rap.

7. *It is assumed that there will be a solid wall between the Church property to the East and this subdivision that will prevent offsite flows, since cross lot drainage easements are not included in the plat. Provide scour protection or grading that prevents erosion at the bottom of the wall.*
   Existing grading and drainage improvements along with the vegetation of the adjacent site currently prevent flows from entering the lots and provide adequate erosion control.

Please contact me at 410-1622 or via email if you have any questions or comments.

Sincerely,



Ron E. Hensley P.E.
ron@thegroup.cc

GENERAL NOTES:

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER THIS CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREIN, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION, UPDATE NO 8.

2. THE EROSION PROTECTION SPECIFIED ON THIS PLAN IS THE MINIMUM RECOMMENDED. THE OWNER IS ENCOURAGED TO INCORPORATE EROSION RESISTANT LANDSCAPING ON AREAS WHERE EROSION MAY OCCUR SUCH AS SLOPES AND SWALES. THE OWNER IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL FEATURES NECESSARY TO PRESERVE THE DESIGN INTENT OF THE GRADING PLAN.

3. THE DRAINAGE INFRASTRUCTURE SHOWN ON THIS PLAN IS THE RESPONSIBLITY OF THE PROPERTY OWNER.

4. ALL DISTURBED AREAS OUTSIDE THE BUILDING PAD MUST BE RESEEDED OR LANDSCAPED

5. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, (260-1990) FOR LOCATION OF EXISTING UTILITIES.

6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS AND EXISTING PAVEMENT. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR SURVEYOR SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM OF DELAY.

NOTES

THE ENGINEER HAS UNDERTAKEN LIMITED FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFORE. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY 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. THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES IN PLANNING AND CONDUCTING EXCAVATION, WHETHER BY CALLING OR NOTIFYING THE UTILITIES, COMPLYING WITH "BLUE STAKES" PROCEDURES, OR OTHERWISE.

THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.

EROSION CONTROL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

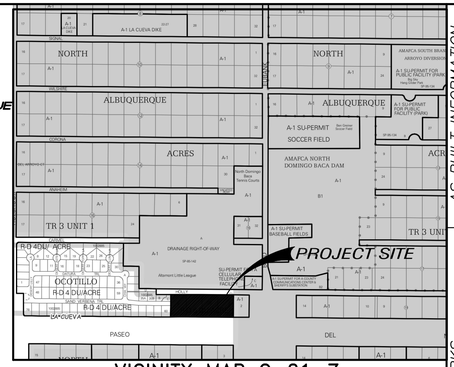
LEGAL DESCRIPTION

HOLLY SUBDIVISION

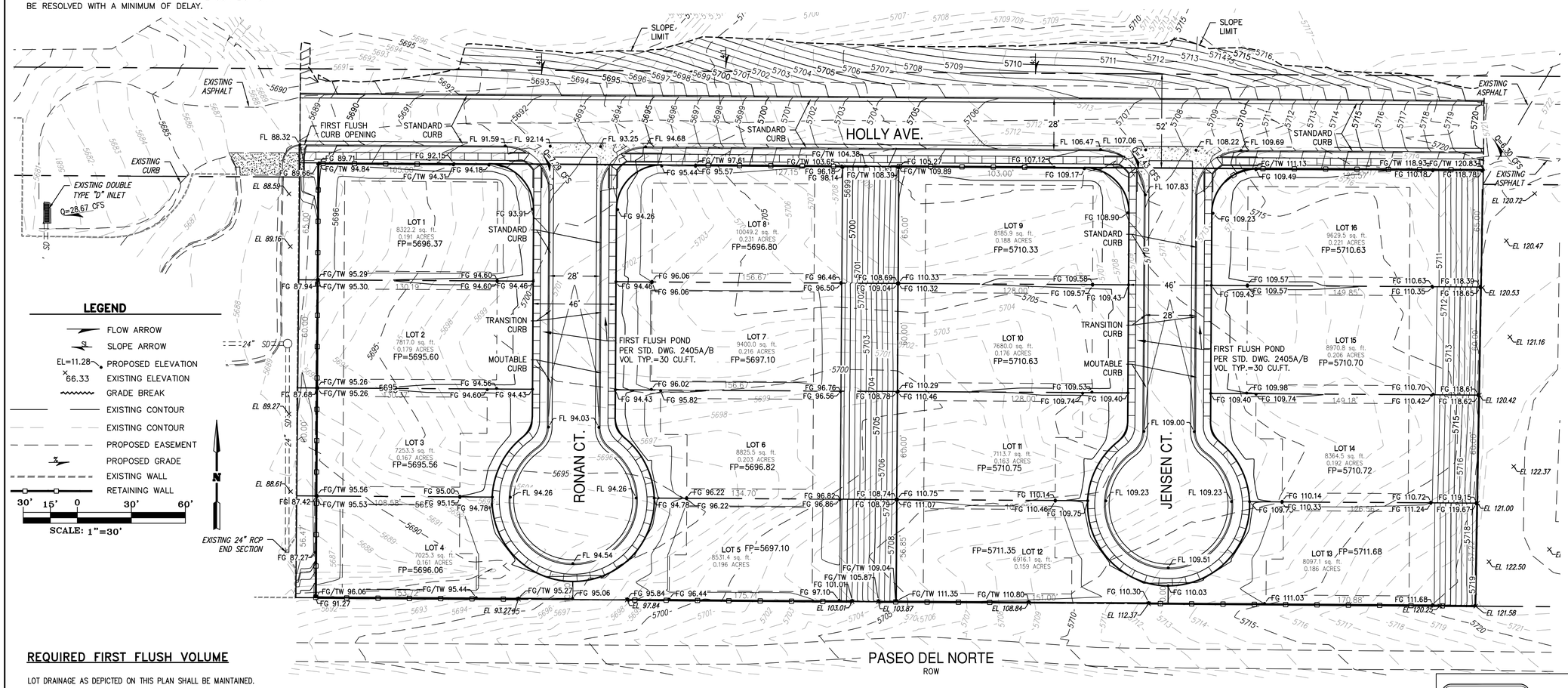
(BEING A REPLAT OF LOTS 3-6, BLOCK 20, TRACT 3 UNIT 1)

WITHIN NORTH ALBUQUERQUE ACRES

IN PROJECTED SECTION 17, TOWNSHIP 11 NORTH, RANGE 4 EAST ELENA GALLEGOS LAND GRANT NEW MEXICO PRINCIPAL MERIDIAN CITY OF ALBUQUERQUE BERNALILLO COUNTY, NEW MEXICO



VICINITY MAP C-21-Z

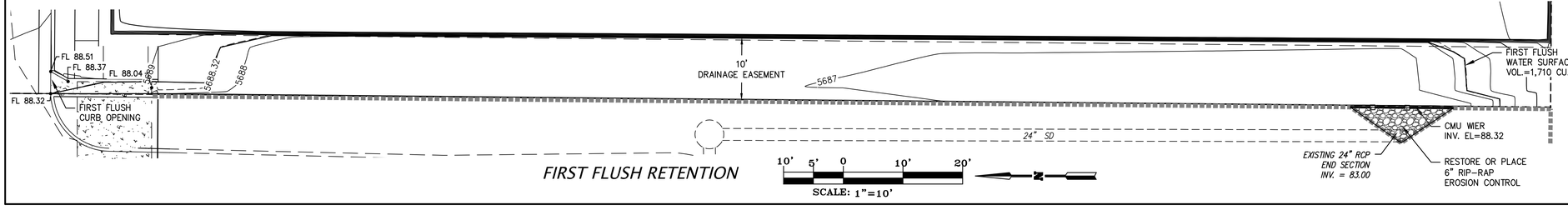


REQUIRED FIRST FLUSH VOLUME

LOT DRAINAGE AS DEPICTED ON THIS PLAN SHALL BE MAINTAINED.

REQUIRED VOLUME = 4500*6+4250*2+3550+3240+3950*3+3610*3 * (0.44-0.10)/12 = 1,729 CU.FT.

VOLUME PROVIDED = 1,850 + 30*16 = 2,330 CU.FT.



FIRST FLUSH RETENTION

BENCH MARKS

AS BUILT INFORMATION

"ACS BM 4_C21" THE STATION IS LOCATED 152.3 FEET EAST ON THE SOUTH TOP OF THE NORTH DOMINGO BACA DAM. THE STATION MARK IS A CITY OF ALBUQUERQUE SURVEY CONTROL 3 1/4 INCH ALUMINUM DISC RIVETED TO A PIPE SET IN CONCRETE 0.3 FEET ABOVE GROUND AND IS STAMPED "4-C21 1995".
X=1558519.443 Y=1520129.889 (NAD 83)
ELEV=5763.55 (NAVD 1988)

CONTRACTOR
WORK STARTED BY DATE
WORK ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

SURVEY INFORMATION

FIELD NOTES

NO. BY DATE

ENGINEER'S SEAL

E. HENSLEY NEW MEXICO 14850 REGISTERED PROFESSIONAL ENGINEER

NO. DATE REMARKS BY

REVISIONS
DESIGN

DESIGNED BY REH DATE MAR. 2016
DRAWN BY REH DATE APR. 2016
CHECKED BY REH DATE JUNE 2016

THE group
THE HENSLEY ENGINEERING GROUP
300 BRANDING IRON RD. SE RIO
RANCHO, NEW MEXICO 87124
Phone:(505) 410-1622

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

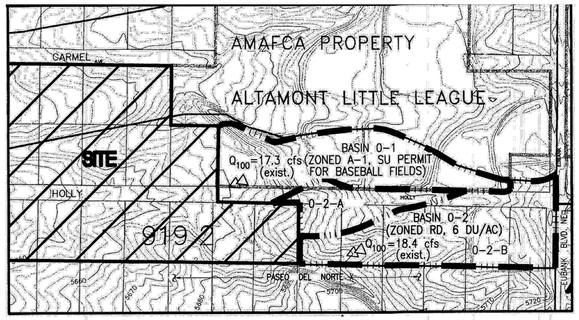
HOLLY SUBDIVISION
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	Mo./DAY/YR.	Mo./DAY/YR.

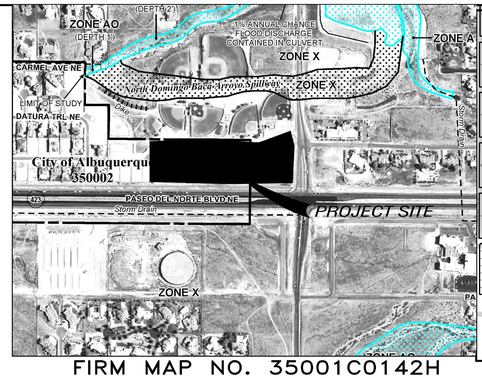
CITY PROJECT No.

ZONE MAP NO. C-21-Z

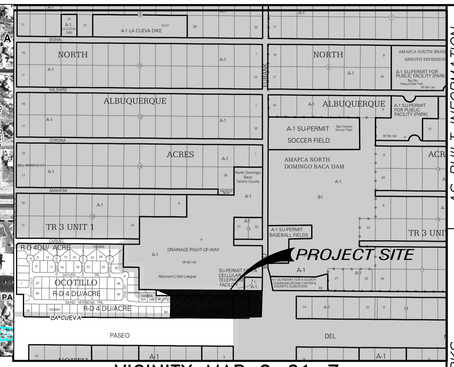
SHEET 1 OF 2



EXISTING BASIN MAP



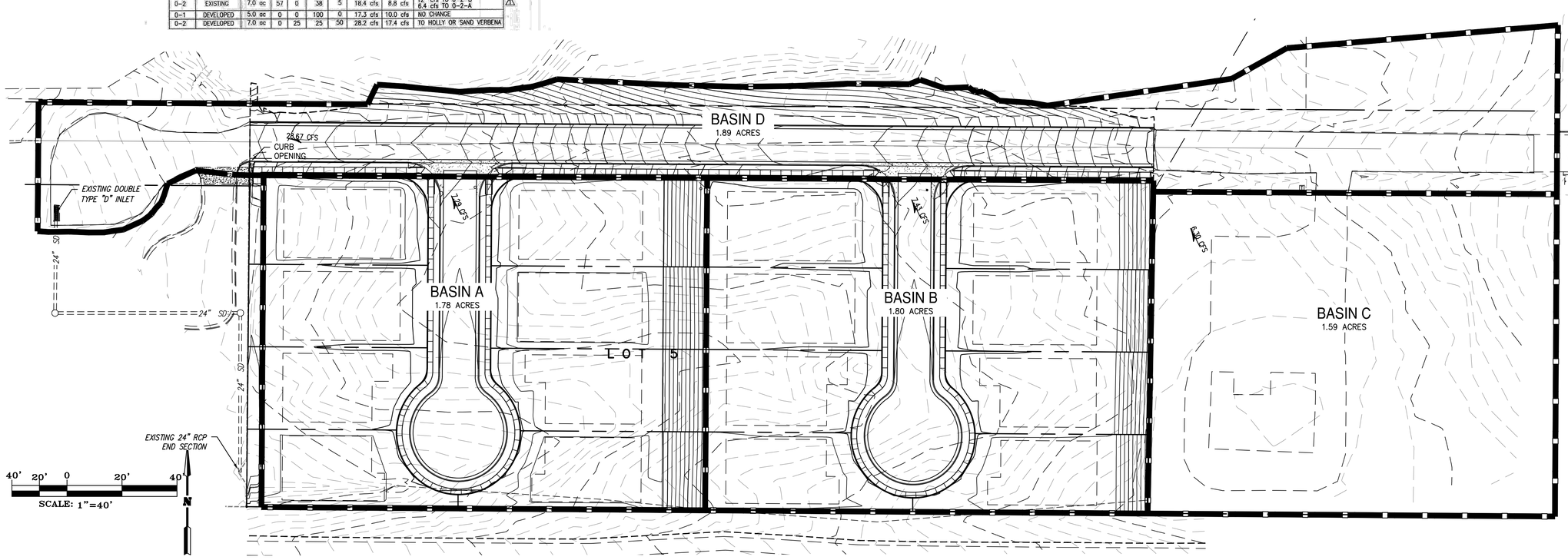
FIRM MAP NO. 35001C0142H



VICINITY MAP C-21-Z

OFFSITE BASIN CALCULATIONS (ZONE 3)

BASIN	CONDITION	AREA	%A	%B	%C	%D	Q_{100}	Q_{10}	COMMENT
O-1	EXISTING	5.0 oc	0	0	100	0	17.3 cfs	10.0 cfs	TO EASEMENT IN OCOTILLO
O-2	EXISTING	7.0 oc	57	0	38	5	18.4 cfs	8.8 cfs	12 cfs TO O-2-B 6.4 cfs TO O-2-A
O-1	DEVELOPED	5.0 oc	0	0	100	0	17.3 cfs	10.0 cfs	NO CHANGE
O-2	DEVELOPED	7.0 oc	0	25	25	50	28.2 cfs	17.4 cfs	TO HOLLY OR SAND VERBENA



DRAINAGE INFORMATION

LOCATION & DESCRIPTION

THE PROPOSED SITE IS 4.00 ACRES LOCATED ON THE SOUTH SIDE OF HOLLY AVENUE WEST OF EUBANK BLVD. AS SEEN ON THE VICINITY MAP. THE SITE IS UNDEVELOPED. THE ADJACENT PROPERTIES TO THE WEST ARE DEVELOPED HIGHER DENSITY WALLED COMMUNITIES. THE PROPOSED DEVELOPMENT WILL BE SIXTEEN (16) SINGLE FAMILY RESIDENTIAL LOTS ON A CUL-DE-SAC.

FLOODPLAIN STATUS

THIS PROJECT, AS SHOWN ON FEMA'S FLOOD INSURANCE RATE MAP 35001C0142H, DATED APRIL 2, 2002 IS NOT WITHIN A 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 AHYMO SOFTWARE.

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.

EXISTING DRAINAGE

THE EXISTING FLOW CONDITIONS ARE DEPICTED IN THE EXISTING BASIN MAP. THIS MAP IS AN EXCERPT FROM THE EXISTING OCOTILLO SUBDIVISION DRAINAGE PLAN (DRB PROJ. #100285) BY JEFF MORTENSEN & ASSOCIATES INC. DATED 12/16/2003. AS SHOWN, THE HISTORIC DRAINAGE FROM THE SITE DISCHARGE TO A 24" PIPE OPENING AT THE SOUTHWEST CORNER OF THE SITE. IN ADDITION, THE CONSTRUCTION OF OCOTILLO SUBDIVISION INCLUDED THE INSTALLATION OF AN INLET IN THE CUL DE SAC OF HOLLY AVE. TO CAPTURE FLOWS NOT DIRECTED TO THE PIPE OPENING. THE DESIGN OF THE STORM DRAIN HAS INCLUDED THE ACCOMMODATION OF DEVELOPED FLOWS FROM UPSTREAM RUNOFF AT 28.2 CFS AND A CAPACITY OF 34.4 CFS.

DEVELOPED CONDITION

THIS SITE WILL BE DEVELOPED WITH A TWO STREETS INTERCEPTING ALL OF THE SITE RUNOFF. THE RUNOFF WILL FREE DISCHARGE INTO HOLLY AVENUE. HOLLY AVENUE WILL CONVEY FLOW ALONG THE CURB TO THE EXISTING INLET LOCATED IN THE CUL DE SAC OF HOLLY AVENUE. THE 0.47 CFS INCREASE, FOR THE 100-YEAR PEAK RUNOFF, DUE TO THIS DEVELOPMENT IS INSIGNIFICANT AND WILL HAVE MINIMAL IMPACT ON DOWNSTREAM FACILITIES.

THE "FIRST FLUSH" WILL BE PRIMARILY RETAINED IN THE PEDESTRIAN / DRAINAGE EASEMENT ALONG THE WESTERN BOUNDARY OF THE SITE.

CONCLUSION

THE RUNOFF FROM THE SITE IS WITHIN THE DESIGN CAPACITY OF THE DOWNSTREAM FACILITIES AND IN COMPLIANCE WITH CITY REQUIREMENTS.

HYDROLOGIC DATA – PROPOSED

BASINS	AREA (acres)	LAND TREATMENT PERCENTAGES BY TYPE				YIELD (cfs/ac)	Q^{100} (cfs)	V^{100-24} (acft)
		A	B	C	D			
BASIN A	1.78	0	21	33	52	4.10	7.29	0.309
BASIN B	1.80	0	20	22	58	4.14	7.43	0.317
BASIN C	1.59	0	25	25	50	3.97	6.30	0.261
BASIN D	1.89	0	15	33	52	4.06	7.65	0.316
TOTAL	5.46	0	20	26	54	4.07	28.67	1.203

AS BUILT INFORMATION

CONTRACTOR
WORK STARTED BY DATE
WORK COMPLETED BY DATE
ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

MICRO-FILM INFORMATION

RECORDED BY DATE
NO.

BENCH MARKS

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SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

RON E. HENSLEY NEW MEXICO 15850 REGISTERED PROFESSIONAL ENGINEER
6/6/16

NO.	DATE	REMARKS	BY	
		REVISIONS		
		DESIGN		DATE MAR. 2016
				DATE APR. 2016
				DATE JUNE 2016

DESIGNED BY REH
DRAWN BY REH
CHECKED BY REH

THE group
THE HENSLEY ENGINEERING GROUP
300 BRANDING IRON RD. SE RIO
RANCHO, NEW MEXICO 87124
Phone:(505) 410-1622

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

HOLLY SUBDIVISION
DRAINAGE INFORMATION

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	Mo./DAY/YR.	Mo./DAY/YR.

CITY PROJECT No.

ZONE MAP NO. C-21-Z

SHEET 2 OF 2

DRAINAGE REPORT

I. EXECUTIVE SUMMARY

A. THE OCOTILLO SUBDIVISION IS A PROPOSED GATED (PRIVATE) SINGLE FAMILY RESIDENTIAL COMMUNITY TO BE CONSTRUCTED BY HOECH REAL ESTATE CORPORATION (HREC) WITHIN THE LA CUEVA SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES.
B. A PORTION OF THE SITE LIES WITHIN A FLOOD HAZARD ZONE ASSOCIATED WITH THE NORTH DOMINGO BACA ARROYO (NDBA).
C. AMAFCA HAS RECENTLY COMPLETED CONSTRUCTION OF PERMANENT NDBA/CARMEL AVENUE PUBLIC STORM DRAIN IMPROVEMENTS AS PART OF A COST SHARING AGREEMENT WITH HREC. THIS PROJECT CUT OFF THE NDBA ARROYO FLOWS PREVIOUSLY IMPACTING THE SITE, AND PROVIDES THE DEVELOPED STORM DRAINAGE OUTFALL FOR THE FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE. AT THIS TIME, THE AS-CONSTRUCTED INFORMATION WAS BEING COLLECTED TO SUPPORT AS-CONSTRUCTED DRAWING PREPARATION AND PROJECT CLOSEOUT AND APPROVAL.
D. THE VINEYARD COURT ESTATES SUBDIVISION, A SEPARATE PROJECT BY HREC CURRENTLY UNDER CONSTRUCTION TO THE WEST OF OCOTILLO, WILL CONSTRUCT DOWNSTREAM PERMANENT STORM DRAINAGE FACILITIES IN HOLBROOK STREET NE THAT WILL SERVE AS THE OUTFALL FOR THIS PROJECT, DELIVERING FLOWS TO THE NDBA CARMEL IMPROVEMENTS CONSTRUCTED BY AMAFCA. THE HOLBROOK STORM DRAIN IS SIZED FOR FULLY DEVELOPED UPSTREAM CONDITIONS IN ACCORDANCE WITH THE COA AND BERNALILLO COUNTY NORTH ALBUQUERQUE ACRE MASTER PLANS, AS INCREASED BY THE JMA CLOMR REPORT TO REFLECT A ZONE CHANGE NOT ACCOUNTED FOR IN THE MASTER PLANS.
E. DEVELOPED SITE RUNOFF WILL BE DIRECTED TO PROPOSED INTERNAL STREETS WITH STORM DRAINS OUTFALLING TO THE PROPOSED PUBLIC HOLBROOK STREET STORM DRAIN BEING CONSTRUCTED BY HREC AS PART OF THE VINEYARD COURT ESTATES PROJECT.
F. THE PUBLIC NDBA/CARMEL STORM DRAIN EXTENSION BY AMAFCA WITH ITS APPURTENANCES AND UPSTREAM INLET EFFECTIVELY REMOVES THE DESIGNATED FLOODING HAZARD AND ALLOWS DEVELOPMENT AS PROPOSED HEREIN. AN APPROVED CLOMR WAS PREPARED BY THIS OFFICE SUPPORTING ELIMINATION OF THE UNDERLYING FLOOD HAZARD ZONE AS PART OF THE AFOREMENTIONED AMAFCA COST SHARING AGREEMENT THAT ALSO INCLUDES FINANCIAL RESPONSIBILITY FOR THE POST-CONSTRUCTION LOMR REQUEST THAT WILL BE PREPARED AND SUBMITTED BY THIS OFFICE FOLLOWING CONSTRUCTION OF THE AS-CONSTRUCTED INFORMATION.
G. OFFSITE FLOWS FROM TWO SOURCES IMPACT THE SITE FROM THE EAST AT HOLLY AVENUE NE. THEY WILL BE ACCEPTED BY THIS PROJECT.
H. A TEMPORARY PUBLIC DETENTION POND IS LOCATED ON THIS SITE. APPROVAL AND CONSTRUCTION OF THIS PROJECT AND THE AMAFCA NDBA/CARMEL PROJECT WILL ELIMINATE THE TEMPORARY PONDING REQUIREMENT AND ALLOW RELEASE OF THE TEMPORARY NON-RECORDED PUBLIC EASEMENT.

II. INTRODUCTION

PROPOSED LOTS 1 THROUGH 78 WILL BE SINGLE FAMILY DETACHED RESIDENTIAL HOMES CONSTRUCTED ON INDIVIDUALLY PLATTED LOTS WITHIN A GATED COMMUNITY WITH PRIVATE STREETS. THE DEVELOPER IS HOECH REAL ESTATE CORPORATION (HREC). EXCEPT FOR AN EXISTING TEMPORARY PUBLIC DETENTION POND LOCATED AT THE NORTHWESTERN END OF THE SITE, THE SITE IS UNDEVELOPED. CARMEL AVE NE, HOLLY AVE NE AND HOLBROOK STREET NE ARE THE ADJACENT PUBLIC STREETS FOR WHICH THIS PROJECT WILL BE RESPONSIBLE FOR HALF WIDTH PERMANENT PUBLIC IMPROVEMENTS. THE CARMEL STORM DRAIN HAS ALREADY BEEN CONSTRUCTED BY AMAFCA, AND THE HOLBROOK STORM DRAIN WILL BE CONSTRUCTED THIS WINTER BY HREC TO SUPPORT THE VINEYARD COURT ESTATES SUBDIVISION, CPN 718781. THERE ARE TWO PROPOSED INTERNAL STORM DRAIN SYSTEMS, A PUBLIC ONE IN SAND VERBENA TRAIL NE WHICH RECEIVES A COMBINATION OF SITE (PRIVATE) RUNOFF AND OFFSITE PUBLIC FLOWS, AND A PRIVATE SYSTEM IN DATURA TRAIL NE AND DESERT LILY LANE NE THAT ONLY RECEIVES SITE RUNOFF. BOTH OF THESE ONSITE SYSTEMS WILL COMBINE AT THE SITE ENTRY, AND CONNECT TO THE HOLBROOK STORM DRAIN TO BE CONSTRUCTED BY HREC FOR VINEYARD COURT ESTATES

A SMALL PUBLIC DRAINAGE CHANNEL WILL BE CONSTRUCTED TO PERMANENTLY ACCEPT OFFSITE FLOWS FROM THE AMAFCA PROPERTY TO THE EAST OF THE SITE AND NORTH OF HOLLY CURRENTLY BEING USED BY BERNALILLO COUNTY AS LITTLE LEAGUE BASEBALL FIELDS. FLOWS FROM HOLLY AVENUE NE AND THE PROPERTIES SOUTH OF IT WILL DRAIN TO A TEMPORARY STORM DRAIN CONNECTION THAT WILL TEMPORARILY INTERCEPT THESE FLOWS UNTIL THE LANDS EAST OF OCOTILLO ARE DEVELOPED. BECAUSE THERE ARE SEVERAL DEVELOPMENT SCENARIOS FOR THE PROPERTIES TO THE EAST, THIS PROJECT WILL CONSTRUCT TEMPORARY HOLLY PAVING AND STORM DRAINAGE IMPROVEMENTS, AND FINANCIALLY GUARANTY (PROCEDURE B MODIFIED NON WORK ORDER) THE PERMANENT IMPROVEMENTS THAT MAY BE SUBJECT TO CHANGE WITH FUTURE DEVELOPMENT.

THE RESPONSIBILITY AND FUNDING FOR THE CARMEL AVENUE STORM DRAIN EXTENSION AND POST-CONSTRUCTION LOMR ARE INCLUDED IN THE EXECUTED COST-SHARING AGREEMENT FOR THE AMAFCA PROJECT WHICH WAS RECENTLY CONSTRUCTED BY AMAFCA. THE APPROVED CLOMR DRAINAGE REPORT FOR THAT PROJECT SUPPORTED THE CARMEL STORM DRAIN EXTENSION, THE HOLBROOK STREET STORM DRAIN, THE ELIMINATION OF THE UNDERLYING FLOODPLAIN, AND DEMONSTRATED DOWNSTREAM CAPACITY FOR THIS PROJECT. A DRAFT INFRASTRUCTURE LIST IS SUBMITTED WITH THIS REPORT. THIS SUBMITTAL IS MADE IN SUPPORT OF THE FOLLOWING APPROVALS:

1) DRB PRELIMINARY AND FINAL PLAT APPROVALS
2) THE VACATION OF THE REMAINING PORTIONS OF HOLLY AVENUE NE WITHIN THE PROJECT LIMITS
3) RELEASE OF THE TEMPORARY PUBLIC DRAINAGE EASEMENT FOR THE EXISTING DETENTION POND
4) DRC APPROVAL FOR THE FORTHCOMING INFRASTRUCTURE PLANS
5) ROUGH GRADING APPROVAL

III. PROJECT DESCRIPTION:

AS SHOWN ON SHEET 1 BY VICINITY MAP C-21, THE SITE IS LOCATED IN THE NORTH ALBUQUERQUE ACRES AREA OF ALBUQUERQUE. THE SITE IS LOCATED EAST OF HOLBROOK ST. N.E. BETWEEN CARMEL AVE. N.E. AND PASEO DEL NORTE, AND LIES WITHIN THE LIMITS OF THE LA CUEVA SECTOR PLAN AREA. THE EXISTING LEGAL DESCRIPTION IS LOTS 10-24, BLOCK 18, AND LOTS 7-15 AND A PORTION OF LOT 16, BLOCK 20, TRACT 3, UNIT 1, NORTH ALBUQUERQUE ACRES. THE SITE IS ZONED RD-4 DU/AC BY THE LA CUEVA SECTOR DEVELOPMENT PLAN. AS INDICATED BY A LETTER DATED 07/02/2002 TO HREC FROM VICTOR CHAVEZ, DIRECTOR, CITY OF ALBUQUERQUE PLANNING DEPARTMENT, THIS PROJECT, WHICH INCLUDES LOW DENSITY RESIDENTIAL HOUSING ON LOTS GREATER THAN 5000 SF, IS CONSISTENT WITH THE EXISTING ZONING AND SECTOR PLAN AND DOES NOT REQUIRE EPC REVIEW OR A SITE PLAN SUBMITTAL. AS SHOWN BY PANELS 141 AND 142 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 BRANCH OF THE NORTH DOMINGO BACA ARROYO. THE CLOMR SUPPORTING THIS PROJECT AND THE CARMEL/NDBA AMAFCA PROJECT ADDRESSED THE ELIMINATION OF THIS FLOODPLAIN AND WAS APPROVED BY FEMA. A POST-CONSTRUCTION LOMR WILL BE PREPARED AND SUBMITTED BY THIS OFFICE UNDER CONTRACT TO AMAFCA TO OFFICIALLY ELIMINATE THIS FLOOD HAZARD ZONE UPON COMPLETION OF THE AS CONSTRUCTED DRAWINGS FOR THE AMAFCA PROJECT.

IV. 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 IDENTIFIED 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 SUBJECT AREA IS IDENTIFIED TO DEVELOP RESIDENTIALLY AND TO DRAIN TO FUTURE PERMANENT NDBA IMPROVEMENTS CONSTRUCTED WITHIN THE CARMEL CORRIDOR. THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THIS CONCEPT.

B. 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.

C. 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 REPRESENT MORE CURRENT UPDATES TO THE ORIGINAL RTI PLAN AND THE PROPOSED IMPROVEMENTS AND DRAINAGE CONCEPTS PRESENTED FOR THE OCOTILLO SUBDIVISION ARE CONSISTENT WITH THOSE IDENTIFIED THEREIN.

D. 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 NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION 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. THE PROPOSED IMPROVEMENTS ARE CONSISTENT WITH THOSE IDENTIFIED IN THAT PLAN.

E. CONSTRUCTION PLANS FOR THE NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION PREPARED BY JMA DATED 10/07/2002 (CITY PROJECT NUMBER 693481). CONSTRUCTION OF THIS PROJECT BY AMAFCA WAS COMPLETE AT THE TIME THIS REPORT WAS PREPARED, AND THE COLLECTION OF AS-CONSTRUCTED DATA WAS IN PROGRESS. THIS CARMEL STORM DRAIN IS THE DEVELOPED DRAINAGE OUTFALL FOR THE PROPOSED PROJECT VIA THE HOLBROOK STREET STORM DRAIN TO BE CONSTRUCTED BY HREC FOR VINEYARD COURT ESTATES (CPN 718781).

F. DRAINAGE REPORT FOR "VINEYARD COURT ESTATES" BY JEFF MORTENSEN & ASSOCIATES, INC, DATED 08/21/2003, HYDROLOGY FILE C20/D45. THIS APPROVED PLAN FOR WHICH GRADING IS CURRENTLY IN PROGRESS, SUPPORTS THE CONSTRUCTION BY HREC OF A 48 LOT RESIDENTIAL SUBDIVISION LOCATED TO THE WEST OF OCOTILLO. THE VINEYARD COURT ESTATES PROJECT WILL CONSTRUCT THE HOLBROOK PAVING AND STORM DRAINAGE IMPROVEMENTS ALONG THE FRONTAGE OF OCOTILLO. TO ADDRESS INTERIM OFFSITE NDBA ARROYO FLOWS IMPACTING HOLBROOK, THE VINEYARD COURT ESTATES PROJECT CONSTRUCTED A TEMPORARY DETENTION POND ON THE NORTHWESTERN END OF OCOTILLO, THE REQUIREMENT FOR WHICH CAN BE ELIMINATED UPON APPROVAL AND COMMENCEMENT OF GRADING FOR THIS PROPOSED PROJECT.

THE PROPOSED CONSTRUCTION OF RESIDENTIAL SINGLE FAMILY HOMES DRAINING DIRECTLY AND FREELY TO PERMANENT NORTH DOMINGO BACA ARROYO DRAINAGE IMPROVEMENTS VIA STORM DRAINS IN THE HOLLY CORRIDOR AND IN HOLBROOK STREET NE 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, COUNTY AND AMAFCA FOR NORTH DOMINGO BACA ARROYO DEVELOPMENT.

DRAINAGE REPORT (CONT)

V. EXISTING CONDITIONS:

EXCEPT FOR AN EXISTING TEMPORARY PUBLIC DETENTION POND LOCATED AT THE NORTHWESTERN END OF THE SITE, THE SITE IS UNDEVELOPED. CARMEL AVENUE NE TO THE NORTH CONTAINS A RECENTLY CONSTRUCTED 54" RCP STORM DRAIN, LIES ABOVE THE SITE AND IS AN UNPAVED PUBLIC STREET. HOLLY AVENUE NE LOCATED WITHIN THE SITE IS AN UNDEVELOPED PUBLIC STREET. HOLBROOK STREET NE TO THE WEST IS A PUBLIC STREET THAT IS PAVED, BUT LACKS ANY STORM DRAIN OR CURB AND GUTTER. PASEO DEL NORTE TO THE SOUTH IS A FULLY DEVELOPED PUBLIC STREET WITH ITS OWN STORM DRAINAGE FACILITIES. OFFSITE FLOWS IN THE AMOUNT OF 17.3 CFS (BASIN O-1, 100-YEAR STORM) GENERATED BY UPSTREAM AMAFCA PROPERTY IMPACT THE SITE AT THE EAST END AT HOLLY AVENUE NE. OFFSITE FLOWS IN THE AMOUNT OF 18.4 CFS (BASIN O-2, 100-YEAR STORM) GENERATED BY UNDEVELOPED UPSTREAM PROPERTIES IMPACT THE SOUTHEAST CORNER OF THE SITE. THE SITE GENERALLY DRAINS FROM EAST TO WEST, WITH ONSITE FLOWS NORTH OF THE EXISTING HOLLY ROW CONCENTRATING IN THE MAIN CHANNEL OF THE NDBA WITHIN THE SITE, AND ONSITE FLOWS SOUTH OF HOLLY, INCLUDING BOTH OFFSITE BASINS, DRAINING TO THREE EXISTING 36" CULVERTS CROSSING UNDER HOLBROOK. THE PROPERTY ACROSS THE STREET TO THE WEST IS UNDER CONSTRUCTION AS A SINGLE FAMILY RESIDENTIAL SUBDIVISION (VINEYARD COURT ESTATES, REF. F).

VI. DEVELOPED CONDITIONS

THE PROPOSED IMPROVEMENTS CONSIST OF A 78 HOME SINGLE FAMILY GATED RESIDENTIAL SUBDIVISION WITH PRIVATE STREETS. DEVELOPED RUNOFF FROM ALL DEVELOPED LOTS WILL DRAIN TO THE INTERNAL PUBLIC STREETS IN ACCORDANCE WITH THE GRADING PLAN ON SHEET 2 VIA STREET FLOW. THE REAR YARDS OF THE DOWNHILL LOTS WILL RETAIN THEIR RUNOFF AND NO DEVELOPED RUNOFF WILL BE DIRECTED TO THE REAR YARDS. WHERE REAR YARDS BACK UP TO EACH OTHER BETWEEN CUL-DE-SACS, TERRACED RETAINING WALLS WILL BE CONSTRUCTED.

PERMANENT CARMEL PAVING IMPROVEMENTS (HALF-WIDTH, SOUTH SIDE) WILL BE CONSTRUCTED IN THE PROJECT FRONTAGE. NEW STORM INLETS WILL ALSO BE CONSTRUCTED ON THE SOUTH SIDE. PERMANENT HOLBROOK PAVING AND STORM DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED BY HREC FOR THE VINEYARD COURT ESTATES PROJECT, CPN 718781. AS DEMONSTRATED BY THE CLOMR (REF D) SUPPORTING THE COST-SHARING PROJECT AND THIS DEVELOPMENT, THE CARMEL STORM DRAIN EXTENSION PROVIDES DOWNSTREAM CAPACITY FOR THE FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE IN THE DEVELOPED CONDITION AS PRESENTED HEREIN.

THERE ARE TWO PROPOSED INTERNAL STORM DRAIN SYSTEMS, A PUBLIC ONE IN SAND VERBENA TRAIL NE WHICH RECEIVES A COMBINATION OF SITE RUNOFF AND OFFSITE PUBLIC FLOWS, AND A PRIVATE SYSTEM IN DATURA TRAIL NE AND DESERT LILY LANE NE THAT ONLY RECEIVES SITE (PRIVATE) RUNOFF. THESE ONSITE SYSTEMS WILL COMBINE AT THE SITE ENTRY, AND CONNECT TO THE HOLBROOK STORM DRAIN TO BE CONSTRUCTED BY HREC FOR VINEYARD COURT ESTATES BY CPN 718781.

A SMALL PUBLIC DRAINAGE CHANNEL WILL BE CONSTRUCTED BETWEEN LOTS 33 AND 34 TO PERMANENTLY ACCEPT OFFSITE FLOWS IN THE AMOUNT OF 17.3 CFS FROM THE AMAFCA PROPERTY TO THE EAST AND NORTH OF HOLLY CURRENTLY BEING USED BY BERNALILLO COUNTY AS LITTLE LEAGUE BASEBALL FIELDS (BASIN O-1). IN ADDITION TO THESE FLOWS, THIS CHANNEL WILL TEMPORARILY RECEIVE 2.0 CFS FROM PROPOSED LOT 35 (SUB-BASIN A-1) UNTIL SUCH TIME AS LOT 35 IS DEVELOPED AND SUBSEQUENTLY GRADED TO DRAIN TO SAND VERBENA TRAIL NE. THE CHANNEL IS THEREFORE SIZED FOR 19.3 CFS. RUNOFF IN THIS CHANNEL WILL BE ACCEPTED BY A DOUBLE D STORM INLET WITH ANY EMERGENCY OVERFLOW OVERTOPPING THE SIDEWALK TO CHIA WAY NE.

OFFSITE FLOWS FROM HOLLY AVENUE NE AND THE PRIVATELY OWNED UNDEVELOPED PROPERTIES SOUTH OF IT (BASIN O-2) WILL DRAIN TO HOLLY AND A TEMPORARY STORM DRAIN CONNECTION AND TEMPORARY PUBLIC TURNAROUND THAT WILL TEMPORARILY INTERCEPT THESE FLOWS UNTIL THE LANDS EAST OF OCOTILLO ARE DEVELOPED. PLEASE REFER TO THE FUTURE CONDITIONS SECTION THAT FOLLOWS FOR JUSTIFICATION OF THE TEMPORARY CONDITION. ALTHOUGH THE INLETS AT THE TURNAROUND ARE SIZED FOR THE EXISTING FLOWS, THE STORM DRAIN WITHIN THE SUBDIVISION IS SIZED TO ACCEPT FULLY DEVELOPED RUNOFF FROM HOLLY AND ITS FRONTING LOTS. ~~OFFSITE GRADING ON EXISTING LOT 5 WITH THE PROPERTY OWNER'S PERMISSION WILL BE REQUIRED TO DIRECT THESE FLOWS TO THE HOLLY ROW.~~ BECAUSE THERE ARE ALTERNATE DEVELOPMENT SCENARIOS FOR THE HOLLY ROW AND THE PROPERTIES TO THE EAST, THIS PROJECT WILL CONSTRUCT TEMPORARY HOLLY PAVING AND STORM DRAINAGE IMPROVEMENTS, AND FINANCIALLY GUARANTY (PROCEDURE B MODIFIED NON WORK ORDER) THE PERMANENT IMPROVEMENTS THAT MAY BE SUBJECT TO CHANGE WITH FUTURE DEVELOPMENT. BY PROVIDING THE GUARANTY FOR THE PERMANENT SOLUTION, THE DRB WILL HAVE THE OPPORTUNITY TO REVIEW THE PROJECT CONDITIONS AND THE NEED FOR PERMANENT IMPROVEMENTS. △1

DUE TO THE POSSIBLE FUTURE DEVELOPMENT SCENARIOS INVOLVING ITS RECONFIGURATION, PROPOSED LOT 35 WILL NOT BE PROVIDED WITH A TYPICAL HOUSE PAD. A CUSTOM SPLIT LEVEL HOME MAY BE POSSIBLE ON THE LOT AS PROPOSED HEREIN, PROVIDED THAT A COMPETENT DESIGN PROFESSIONAL ESTABLISH PAD GRADES. THE CURRENT PLANS FOR THIS LOT INCLUDE WAITING FOR A FUTURE HOLLY VACATION AND RECONFIGURING IT AT THAT TIME.

A FEMA APPROVED CLOMR WAS PREPARED BY THIS OFFICE TO SUPPORT THIS PROJECT, THE RECENTLY CONSTRUCTED AMAFCA PROJECT, 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 AS-CONSTRUCTED DRAWINGS FOR THE AMAFCA PROJECT. FLOOD INSURANCE MAY BE REQUIRED FOR ANY BUILDINGS CONSTRUCTED WITHIN THE FLOODPLAIN PRIOR TO FEMA APPROVAL OF THE LOMR.

VII. FUTURE CONDITIONS

THE OWNER OF EXISTING LOTS 5 AND 6, BLOCK 20 TO THE EAST HAS BEEN WORKING ON AN AGREEMENT WITH AMAFCA TO VACATE REMAINING PORTIONS OF HOLLY FRONTING THE AMAFCA PROPERTY AND EXISTING LOTS 3-6, BLOCK 20. UNDER ONE OF THE CONTEMPLATED SUBSEQUENT DEVELOPMENT SCENARIOS, THEY WOULD DEVELOP RESIDENTIAL LOTS SIMILAR TO OCOTILLO, AND EXTEND SAND VERBENA TRAIL AND THE PUBLIC WATER AND SANITARY SEWER IMPROVEMENTS CONTAINED THEREIN TO THE EAST. IN ANTICIPATION OF THIS FUTURE CONSTRUCTION, THE SAND VERBENA STORM DRAIN IS SIZED FOR THIS DEVELOPED RUNOFF (DEVELOPED BASIN O-2, 28.2 CFS). THE POTENTIAL VACATION OF HOLLY AND EXTENSION OF SAND VERBENA UNDER THIS SCENARIO WOULD REQUIRE CONSTRUCTION OF NEW STORM INLETS IN SAND VERBENA TO INTRODUCE FLOWS INTO THE SYSTEM, AND WOULD ALSO REQUIRE VACATION OF AND POSSIBLE UPSTREAM RELOCATION OF THE TEMPORARY TURNAROUND WHICH WOULD NO LONGER BE REQUIRED. A HOLLY VACATION COULD ALSO ALLOW DEVELOPMENT OF RESIDENTIAL LOTS FACING SAND VERBENA ON WHAT IS SHOWN AS PROPOSED LOT 35 AND PARCELS B AND C. VACATION OF HOLLY ROW FRONTING LOT 35 WOULD REQUIRE EXTENSION OF THE PROPOSED 6' PUBLIC DRAINAGE CHANNEL BETWEEN LOTS 33 AND 34 TO THE NORTH TO THE AMAFCA PROPERTY TO CONTINUE TO ACCEPT ITS RUNOFF.

ALTHOUGH THE AFOREMENTIONED HOLLY VACATION HAS BEEN CONTEMPLATED, THERE ARE NO ASSURANCES THAT IT WILL OCCUR, LEAVING THE POTENTIAL FOR "NORMAL" UPSTREAM HOLLY DEVELOPMENT REQUIRING EXTENSION OF WATER, SANITARY SEWER, AND PAVING IMPROVEMENTS UP HOLLY. THE OCOTILLO DEVELOPMENT MUST THEREFORE PLAN FOR AND PROVIDE A SOLUTION FOR "NORMAL" UPSTREAM DEVELOPMENT AND WILL THEREFORE FINANCIALLY GUARANTY BUT NOT CONSTRUCT (PROCEDURE B MODIFIED NON WORK ORDER) THE PERMANENT IMPROVEMENTS THAT WOULD NORMALLY BE REQUIRED (HALF WIDTH PAVING, STORM DRAIN SIZED FOR DEVELOPED CONDITIONS, WATER AND SANITARY SEWER). THIS PROJECT WILL CONSTRUCT TEMPORARY HOLLY PAVING AND STORM DRAINAGE IMPROVEMENTS THAT WILL ACCEPT EXISTING CONDITIONS DRAINAGE, AND PROVIDE A PUBLIC TURNAROUND WHILE STILL ALLOWING THE "VACATION" SCENARIO TO OCCUR WITH MINIMAL DISRUPTION AND RECONSTRUCTION. BY PROVIDING THE GUARANTY FOR THE PERMANENT SOLUTION, THE DRB WILL HAVE THE OPPORTUNITY TO REVIEW THE PROJECT CONDITIONS AND THE NEED FOR PERMANENT IMPROVEMENTS THAT MAY BE SUBJECT TO CHANGE DEPENDING ON THE MANNER OF FUTURE DEVELOPMENT.

VIII. GRADING PLAN

THE GRADING PLAN ON SHEET 2 OF THIS SUBMITTAL SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS AS TAKEN FROM THE MARCH 2003 TOPOGRAPHIC SURVEY PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC., 2) PROPOSED GRADES AND DRAINAGE TRENDS INDICATED BY SPOT ELEVATIONS, HOUSE PAD ELEVATIONS, AND FLOWLINES, 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, 5) THE EXISTING FLOODPLAIN LIMITS, AND 6) THE LIMIT AND CHARACTER OF EXISTING AND PROPOSED OFFSITE PUBLIC STORM DRAINAGE IMPROVEMENTS.

IX. CALCULATIONS

THE CALCULATIONS, WHICH ARE SUMMARIZED ON SHEET 5, ANALYZE AND EVALUATE THE DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED FOR THIS SITE AND OFFSITE BASINS WAS TAKE FROM THE CLOMR DRAINAGE REPORT (REF. D) WHICH WAS DETERMINED USING AHYMO97 IN ACCORDANCE WITH 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. AS WAS PREVIOUSLY DEMONSTRATED BY THE APPROVED CLOMR, THE PROPOSED CARMEL AVENUE AND HOLBROOK STREET PUBLIC STORM DRAINS ARE SIZED FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE.

OPEN CHANNEL STORM DRAIN AND 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 0.13 FOR REINFORCED CONCRETE PIPE (RCP) AND 0.017 FOR STREETS. AS DEMONSTRATED BY THE CALCULATIONS ON SHEET 5, THE STORM DRAINS AND STREETS ARE ALL SIZED TO SAFELY CONVEY THE 100-YEAR DESIGN STORM. THE STREET CAPACITIES WERE FURTHER ANALYZED TO ENSURE THAT A HYDRAULIC JUMP WOULD BE CONTAINED WITH THE DEDICATED STREET RIGHT-OF-WAY OR EASEMENT. BECAUSE IT IS EXTREMELY DIFFICULT TO PERFORM HYDRAULIC JUMP CALCULATIONS FOR IRREGULAR SECTIONS SUCH AS STREETS, THE APPROXIMATE HYDRAULIC JUMP DEPTH WAS CONSERVATIVELY ASSUMED TO BE 75% OF THE ENERGY GRADE LINE CALCULATED BY THE FLOWMASTER PROGRAM. THIS RATIO WAS DETERMINED BY ANALYZING THE RELATIONSHIP BETWEEN SEQUENT DEPTH AND THE ENERGY GRADE LINE FOR AN EQUIVALENT RECTANGULAR CHANNEL AT FLOW RATES AND SLOPES SIMILAR TO THOSE OBSERVED HEREIN.

X. CONCLUSIONS

A. THE PROPOSED SITE IMPROVEMENTS AND DRAINAGE CONCEPT ARE CONSISTENT WITH THE DEVELOPMENT CRITERIA ESTABLISHED BY PREVIOUSLY APPROVED PLANS FOR THIS SITE AND NDBA DEVELOPMENT.

B. DEVELOPED RUNOFF FROM THIS SITE WILL DRAIN FREELY TO PERMANENT PUBLIC NDBA IMPROVEMENTS SIZED FOR THIS DISCHARGE AND WHICH WAS CONSTRUCTED BY AMAFCA AS PART OF A PROPOSED COST-SHARING AGREEMENT.
C. A SEPARATE DRAINAGE SUBMITTAL FOR CLOMR APPROVAL SUPPORTING THE AMAFCA PROJECT AND THIS PROJECT WAS APPROVED BY FEMA
D. A POST-CONSTRUCTION LOMR SUBMITTAL SUPPORTING THE AMAFCA PROJECT WILL BE PREPARED BY THIS OFFICE UPON COMPLETION OF THE AS-CONSTRUCTED DRAWINGS FOR THE AMAFCAPROJECT. THIS LOMR WILL ELIMINATE THE UNDERLYING FLOODPLAIN.
E. THIS PROJECT WILL CONSTRUCT A TEMPORARY STORM DRAIN INLET AND PAVED TURNAROUND TO ACCEPT OFFSITE FLOWS FROM HOLLY TO THE EAST.
F. DEPENDING ON FUTURE DEVELOPMENT SCENARIOS AND FUTURE HOLLY VACATION ACTIONS, THE OFFSITE HOLLY FLOWS MAY BE RELOCATED TO SAND VERBENA TRAIL (IF HOLLY IS VACATED), OR WILL CONTINUE TO DRAIN TO THE EXISTING HOLLY ROW (IF HOLLY IS NOT VACATED). TEMPORARY IMPROVEMENTS WILL BE CONSTRUCTED AT THIS TIME, WITH THE PERMANENT HOLLY IMPROVEMENTS GUARANTEED BY THIS DEVELOPMENT. IF THE DRB DETERMINES THAT THE PERMANENT IMPROVEMENTS BECOME NECESSARY IN THE FUTURE, THEY SHALL BE CONSTRUCTED AND THE GUARANTEE RELEASED. IF FUTURE DEVELOPMENT ELIMINATES THEIR NEED, THE GUARANTY CAN BE RELEASED.
G. APPROVAL OF THIS PROJECT WILL ELIMINATE THE REQUIREMENT FOR THE EXISTING TEMPORARY RETENTION POND LOCATED ON THE SITE.
H. ALL NEW RIGHT OF WAY AND ONSITE/FRONTING PUBLIC INFRASTRUCTURE IMPROVEMENTS REQUIRED BY THIS PROPOSAL WILL BE IDENTIFIED ON THE INFRASTRUCTURE LIST ASSOCIATED WITH THE DRB ACTIONS SUBMITTED TO SUPPORT THIS PROJECT. ALTHOUGH THE HOLBROOK PAVING AND STORM DRAIN IMPROVEMENTS WILL BE BUILT BY SEPARATE PROJECT (CPN 718781), THEY WILL BE GUARANTEED BY THIS PROJECT.
I. THERE ARE NO DPM DESIGN VARIANCES REQUESTED AT THIS TIME.
J. THE PUBLIC DRAINAGE CHANNEL BETWEEN LOTS 33 AND 34, THE CARMEL AND HOLBROOK PAVING IMPROVEMENTS, AND THE STORM DRAINS IN HOLBROOK, CARMEL AND SAND VERBENA TRAIL WILL BE OWNED, OPERATED AND MAINTAINED BY THE CITY OF ALBUQUERQUE. THE INTERNAL STREETS AND THE STORM DRAINS IN DESERT LILY AND DATURA TRAIL WILL BE PRIVATELY OWNED, OPERATED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

VICINITY MAP
SCALE: 1" = 750'±

C-21

F.I.R.M.
SCALE: 1" = 500'±

PANELS 141 AND 142 OF 825

KEYED NOTES

① HOLLY AVENUE N.E. VACATED BY 03DRB-01355
② SOUTH 4' OF HOLLY AVENUE N.E. VACATED BY 03DRB-01355
③ SOUTH 8' OF HOLLY AVENUE N.E. VACATED BY 03DRB-01355
④ SOUTH 8' OF CARMEL AVENUE N.E. VACATED BY 03DRB-01355
⑤ PUBLIC VEHICULAR ACCESS EASEMENT GRANTED BY DOCUMENT FILED 11/18/02 BK A45, PAGE 600, DOC. #2002151009 VACATED BY 03DRB-01356
⑥ THE NONSPECIFIC EASEMENTS AND/OR RIGHT-OF-WAYS FOR ROAD AND/OR PIPELINE PURPOSES (WATER, GAS OR SEWAGE), TELEPHONE AND ELECTRICAL ENERGY AFFECTING THE PROPERTIES PLATTED HEREON, GRANTED BY THE THE DOCUMENT RECORDED IN BOOK 132, PAGE 249, BOOK 132, PAGE 270, BOOK 124, PAGE 343, BOOK 124, PAGE 451 AND BOOK 124, PAGE 134 VACATED BY 03DRB-01356, ALSO BOOK 124, PAGE 468 TO BE VACATED BY 03DRB-_______
⑦ REMAINING PORTION HOLLY AVENUE N.E. TO BE VACATED BY 03DRB-_______
⑧ PRIVATE ACCESS, PRIVATE STORM DRAINAGE, AND CITY OF ALBUQUERQUE PUBLIC WATER AND PUBLIC SANITARY SEWER EASEMENTS. MAINTENANCE OF THE PRIVATE EASEMENTS SHALL BE THE RESPONSIBILITY OF THE OCOTILLO SUBDIVISION HOMEOWNERS ASSOCIATION.
⑨ PRIVATE ACCESS, AND CITY OF ALBUQUERQUE PUBLIC STORM DRAINAGE, PUBLIC WATER AND PUBLIC SANITARY SEWER EASEMENTS. MAINTENANCE OF THE PRIVATE EASEMENT SHALL BE THE RESPONSIBILITY OF THE OCOTILLO SUBDIVISION HOMEOWNERS ASSOCIATION.
⑩ CITY OF ALBUQUERQUE PUBLIC STORM DRAINAGE EASEMENT.
⑪ 10' PUBLIC UTILITY EASEMENT.
⑫ CITY OF ALBUQUERQUE PUBLIC WATER LINE EASEMENT.
⑬ 25' CITY OF ALBUQUERQUE PUBLIC STORM DRAINAGE EASEMENT.
⑭ TEMPORARY PUBLIC VEHICULAR EASEMENT GRANTED UNTIL SUCH TIME THAT HOLLY AVENUE N.E. IS VACATED AND/OR RELOCATED TO THE EAST OF PROPOSED OCOTILLO SUBDIVISION VIA THE STANDARD VACATION AND PLATTING PROCESS OF THE DEVELOMENT REVIEW BOARD OF THE CITY OF ALBUQUERQUE.
⑮ TEMPORARY PUBLIC DRAINAGE EASEMENT GRANTED TO CONVEY PUBLIC RUNOFF TO THE PUBLIC STORM DRAINAGE SYSTEM WITHIN PARCEL A UNTIL SUCH TIME THAT HOLLY AVENUE NE IS VACATED AND/OR RELOCATED TO THE EAST OF PROPOSED OCOTILLO SUBDIVISION VIA THE STANDARD VACATION AND PLATTING PROCESS OF THE DEVELOPMENT REVIEW BOARD OF THE CITY OF ALBUQUERQUE.
⑯ PARCEL C IS GRANTED AS A PRIVATE ACCESS EASEMENT SERVING OCOTILLO SUBDIVISION, AND A CITY OF ALBUQUERQUE PUBLIC WATER AND PUBLIC SANITARY SEWER EASEMENT. FUTURE VACATION OF HOLLY AVENUE N.E., ADJACENT TO PROPOSED PARCELS B AND C SHALL ALSO REQUIRE VACATION AND/OR REALIGNMENT OF THESE EASEMENTS TO A LOCATION EAST OF OCOTILLO SUBDIVISION. MAINTENANCE OF THE PRIVATE EASEMENT SHALL BE THE RESPONSIBILITY OF THE SUBDIVISION HOMEOWNERS ASSOCIATION.
⑰ PRIVATE LANDSCAPING EASEMENT GRANTED TO SERVE THE OCOTILLO SUBDIVISION HOMEOWNERS ASSOCIATION. MAINTENANCE OF THE PRIVATE EASEMENT SHALL BE THE RESPONSIBILITY OF THE OCOTILLO SUBDIVISION HOMEOWNERS ASSOCIATION.
⑱ ADDITIONAL 4' FOR HOLBROOK STREET N.E.

LEGAL DESCRIPTION

LOTS 10-24 BLOCK 18 AND LOTS 7-15 AND A PORTION OF LOT 16 BLOCK 20, NORTH ALBUQUERQUE ACRES, TRACT 3, UNIT 1

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 PROJECT.

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" IS 5552.84 FEET (NGVD 29). THE C.O.A. PUBLISHED ELEVATION FOR "5-C20" IS 5552.71 FEET (NGVD 29) AND THEREFORE VARIES BY 0.13 FEET VERTICALLY FROM THE "PROJECT DATUM".

T.B.M.

A #5 REBAR WITH CAP STAMPED "CONTROL PT NMPS 11184"
SET ON TOP OF THE SPILLWAY BERM APPROX. 60'
N.E. OF THE N.E. CORNER OF LOT 24, BLOCK 18.
ELEVATION = 5686.33 FEET (NGVD 1929)

INDEX OF DRAWINGS

J. GRAEME MEANS
13676
11/20/2003
12/16/2003

DRB PROJECT #1002885

File Path: [illegible]
File Name: 20503CV.DWG
Plot Date: 12-16-2003
Plot Time: 3:10 pm

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

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

OCOTILLO SUBDIVISION

DESIGNED BY G.M.
DRAWN BY J.L.P.
APPROVED BY G.M.

NO.	DATE	BY	REVISIONS
△	12/16/03	G.M.	ELIMINATE OFFSITE GRADING

JOB NO. 2002.050.3
DATE 11-2003
SHEET 1 OF 5

PARCEL 9-4-A

WALL OPENING NOT REQUIRED. EMERGENCY OVERFLOW IS TO NORTH ACROSS COMMON AREA SPILL @ 32.12

CERTIFICATION LEGEND

- 44.1 — AS-CONSTRUCTED FLOWLINE
- (H) — HOME (EXISTING OR UNDER CONSTRUCTION)
- RECORD ELEVATION = DESIGN ELEVATION
- 43.6 — RECORD ELEVATION PER WORK ORDER AS-BUILTS
- +38.4 — RECORD ELEVATION PER GROUND SURVEY DATED 6/04/2005
- +38.6 — CORRECTED ELEVATION PER GROUND SURVEY DATED 7/25/2005
- 39.6 — FLOWLINE HIGH POINT CORRECTED BY CONTRACTOR AND VISUALLY VERIFIED BY ENGINEER (APPLIES TO LOTS 8, 28 & 45)

NOTES:

1. SEE SHEETS 3 AND 4 FOR SECTIONS AND DETAILS
2. SEE SHEET 5 FOR BASIN MAP, INLET AND STORM DRAIN INFORMATION
3. THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN HEREON FOR ORIENTATION PURPOSES ONLY. TOPOGRAPHIC DATA IS FROM A MARCH, 2003 SURVEY CONDUCTED BY THIS OFFICE.
4. SEE SHEET 1 FOR KEYED EASEMENT AND VACATION NOTES.
5. GRADING SOUTH OF SITE IN NMSHTD ROW WILL REQUIRE THEIR APPROVAL.

LEGEND

- NEW PAVEMENT
- TEMP PAVEMENT
- NEW CONCRETE
- SDMH
- FLOWLINE
- SPOT ELEVATION
- DIRECTION OF FLOW
- MOUNTABLE CURB AND GUTTER
- RETAINING WALL
- YARD/GARDEN WALL (18" MAX. RETENTION)

DRB PROJECT # 1002885

Plot Date: 08-04-2005	Plot Time: 07:39 am
File Path:	File Name: 2050802R3.DWG

JEFF MORTENSEN & ASSOCIATES, INC.
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FAX: 505 345-4254 EMail: jmainc@swcp.com

APPROVED FOR ROUGH GRADING

ORIGINAL SIGNED BY
BRAD BINGHAM 12/18/03

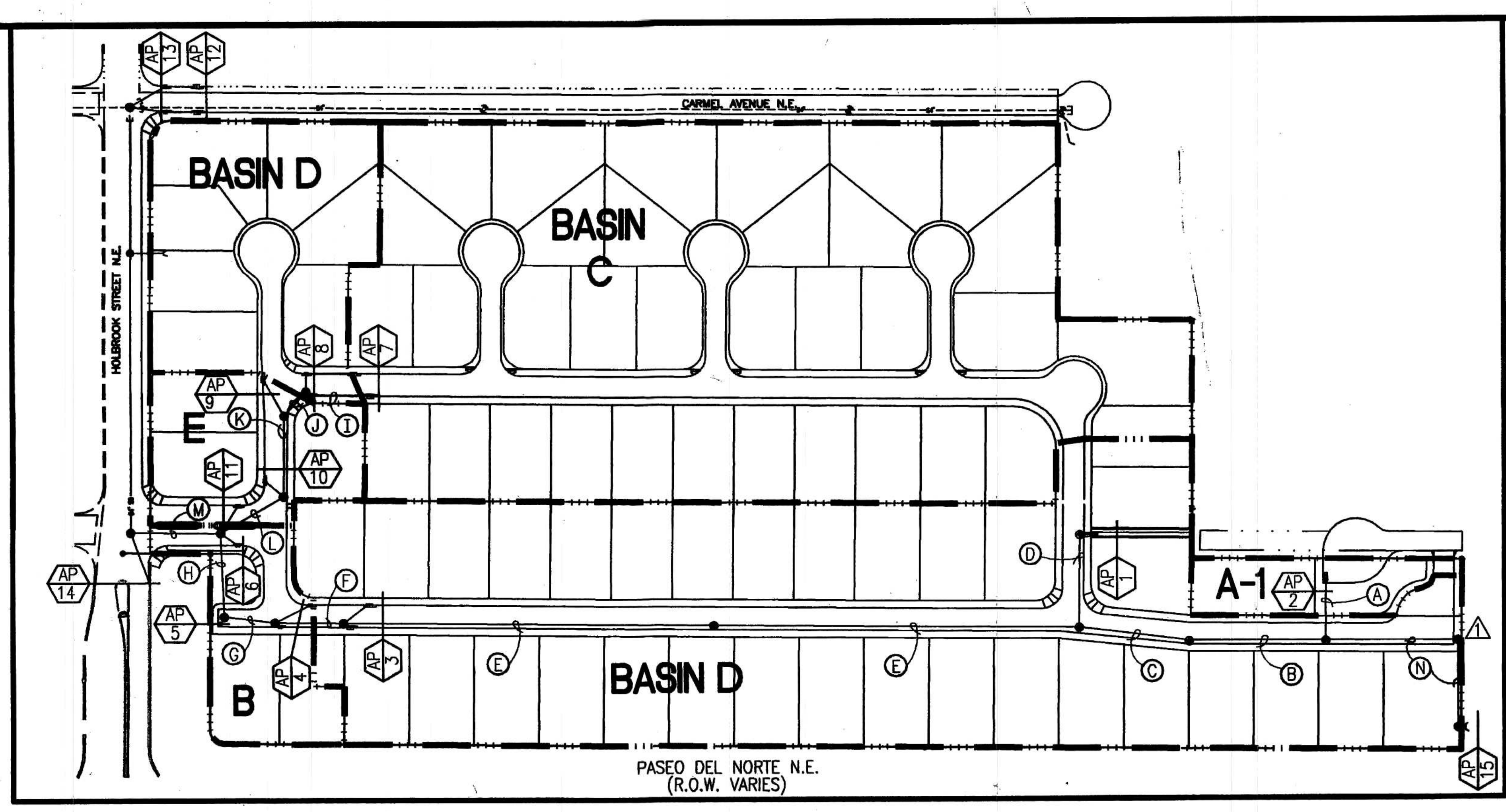
CITY HYDROLOGY

GRADING PLAN
OCOTILLO SUBDIVISION

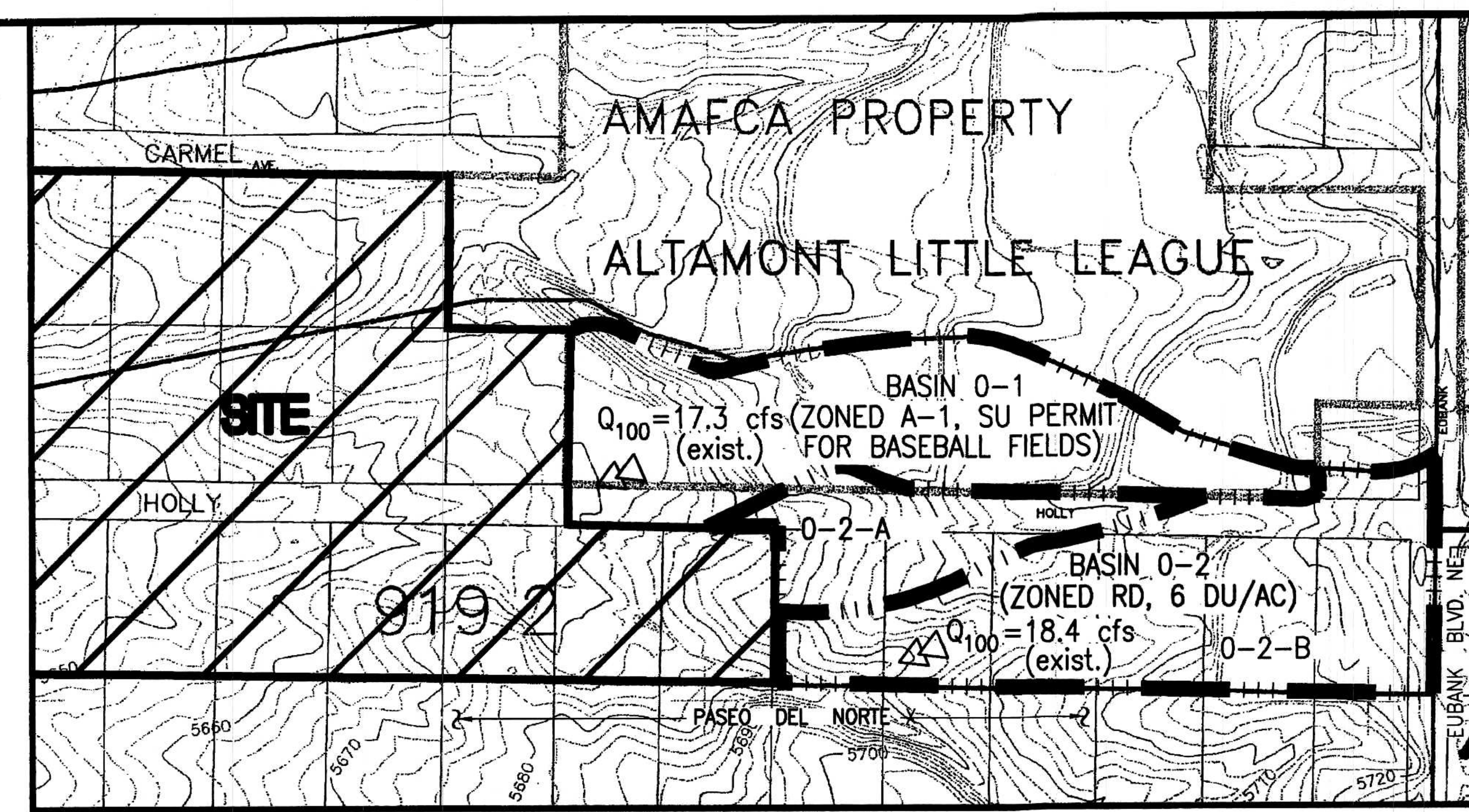
DESIGNED BY	G.M.
DRAWN BY	S.G.H./J.L.P.
APPROVED BY	G.M.

NO.	DATE	BY	REVISIONS
1	12/18/03	G.M.	ACCEPT OFFSITE FLOWS ON LOT 60; ADD STORM DRAIN, ADD NMSHTD GRADING NOTE
2	08/05	G.M.	ENGINEER'S CERTIFICATION

JOB NO.	2002.050.2E
DATE	11-2003
SHEET	2 OF 5



BASIN AND KEY MAP
SCALE: 1" = 150'±



OFFSITE BASIN MAP
SCALE: 1" = 200'±

OFFISTE BASIN CALCULATIONS (ZONE 3)

BASIN	CONDITION	AREA	%A	%B	%C	%D	Q_{100}	Q_{10}	COMMENT
0-1	EXISTING	5.0 ac	0	0	100	0	17.3 cfs	10.0 cfs	TO EASEMENT IN OCOTILLO
0-2	EXISTING	7.0 ac	57	0	38	5	18.4 cfs	8.8 cfs	12 cfs TO 0-2-B 6.4 cfs TO 0-2-A
0-1	DEVELOPED	5.0 ac	0	0	100	0	17.3 cfs	10.0 cfs	NO CHANGE
0-2	DEVELOPED	7.0 ac	0	25	25	50	28.2 cfs	17.4 cfs	TO HOLLY OR SAND VERBENA

ONSITE BASIN CALCULATIONS (ZONE 3)

BASIN	AREA	%A	%B	%C	%D	Q_{100}	COMMENT
ENTIRE SITE	23.2 ac	0	25	25	50	93.3 cfs	OVERALL
A	9.6 ac	0	25	25	50	38.6 cfs	TO SAND VERBENA
(A-1)	0.5 ac	0	25	25	50	2.0 cfs	TO EASEMENT TEMP.; ULT. TO SAND VERBENA
B	9.7 ac	0	25	25	50	39.0 cfs	TO DATURA
C	0.9 ac	0	25	25	50	3.6 cfs	TO SAND VERBENA
D	2.0 ac	0	25	25	50	8.0 cfs	TO DESERT LILY
E	1.0 ac	0	25	25	50	4.0 cfs	TO DESERT LILY

STREET AND STORM INLET HYDRAULICS

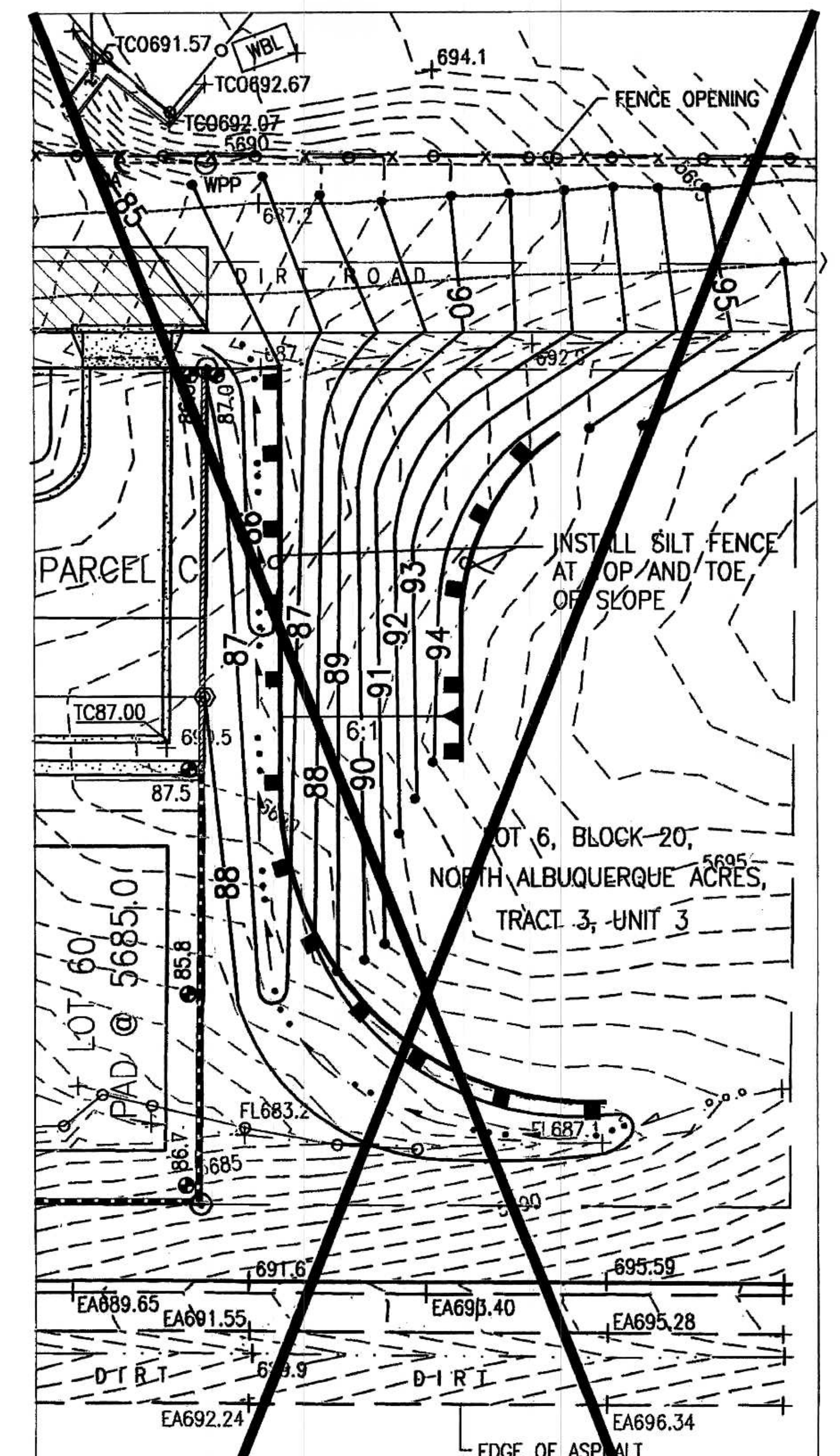
ANALYSIS POINT	Q_{100}(cfs)	S(ft/ft)	d(ft)	V_{100}(fps)	Fr_{100}	E(ft)	Dseq(ft)[B]	Qinlet (cfs)	RESIDUAL (cfs)	INLET TYPE	COMMENT
AP-1	19.3[A]	0.0100	0.82	N/A	N/A	N/A	N/A	19.3	0	DOUBLE 'D' (SUMP)	OVERFLOW TO CHIA
AP-2	18.4	0.0500	0.64	N/A	N/A	N/A	N/A	18.4	0	TRIPLE 'D' (SUMP	OVERFLOW TO HOLLY
AP-3	38.6	0.0305	0.46	5.76	2.08	0.97	0.73	18.0	20.6	2-SINGLE "A"	BYPASS TO AP-4
AP-4	20.6	0.0305	0.38	4.49	1.96	0.69	0.52	11.2	9.4	2-SINGLE "C"	1/2 RESIDUAL TO AP-6
AP-5	8.3	0.0230	0.52	N/A	N/A	N/A	N/A	8.3	0	SINGLE 'D' (SUMP)	EMERGENCY OVERFLOW TO WEST
AP-6	4.7	0.0100	0.33	2.18	1.08	0.40	0.36	2.6	2.1	1-SINGLE "C"	BYPASS TO HOLBROOK
AP-7	39.0	0.0200	0.49	5.09	1.72	0.89	0.67	18.0	21.0	2-SINGLE "A"	BYPASS TO AP-8
AP-8	18.0	0.0200	0.39	3.75	1.60	0.61	0.46	11.8	6.2	2-SINGLE "C"	BYPASS TO AP-9
AP-9	14.2	0.0100	0.46	2.92	1.16	0.59	0.44	6.5	7.7	1-SINGLE "A"	BYPASS TO AP-10
AP-10	11.7	0.0100	0.43	2.79	1.15	0.55	0.050	7.3	4.4	1-DOUBLE "C"	BYPASS TO AP-11
AP-11	4.4	0.0100	0.32	2.14	1.08	0.39	0.36	2.5	1.9	1-SINGLE "C"	BYPASS TO HOLBROOK
AP-12	21.5	0.0500	0.36	5.32	2.46	0.80	0.60	13.0	7.5	2-SINGLE "A"	BYPASS TO AP-13
AP-13	7.5	0.0500	0.27	4.14	2.31	0.53	0.40	4.8	2.7	2-SINGLE "A"	BYPASS TO HOLBROOK
AP-14	8.5	0.0070	0.37	2.04	0.93	0.44	0.37	8.5	8.5	1-SINGLE "A"	FREE DRIVING LANE PROVIDED
AP-15	12.0	N/A	N/A	N/A	N/A	N/A	N/A	12.0	0	24" RCP END SECTION	INLET CONDITION WITH HW/D=1.0

A – INCLUDES OFFSITE BASIN 0-1 AND SUB-BASIN A-1
B – SEQUENT DEPTH ASSUMED TO BE 0.75 (E) BASED ON EQUIVALENT RECTANGULAR CHANNEL

STORM DRAIN TABLE (RCP, n=0.013)

SD LEG	Q_{100}(cfs)	SIZE (in)	SLOPE (ft/ft)	CAPACITY (cfs)	D_{100}(ft)
A	28.2	24	0.020	34.4	1.46
B	28.2	24	0.020	34.4	1.46
C	28.2	24	0.020	34.4	1.46
D	19.3	18	0.032	20.2	1.27
E	47.5	30	0.030	76.4	1.50
F	65.5	30	0.030	76.4	1.89
G	76.7	30	0.032	78.9	2.17
H	85.0	36	0.015	87.9	2.59
I	18.0	24	0.015	29.8	1.17
J	29.8	24	0.015	29.8	1.88
K	36.3	30	0.010	44.1	1.83
L	43.6	30	0.010	44.1	2.24
M	133.7	48	0.010	154.5	3.05
N	12.0	24	0.010	23.3	1.04

DELETED–OFFSITE GRADING NOT REQUIRED

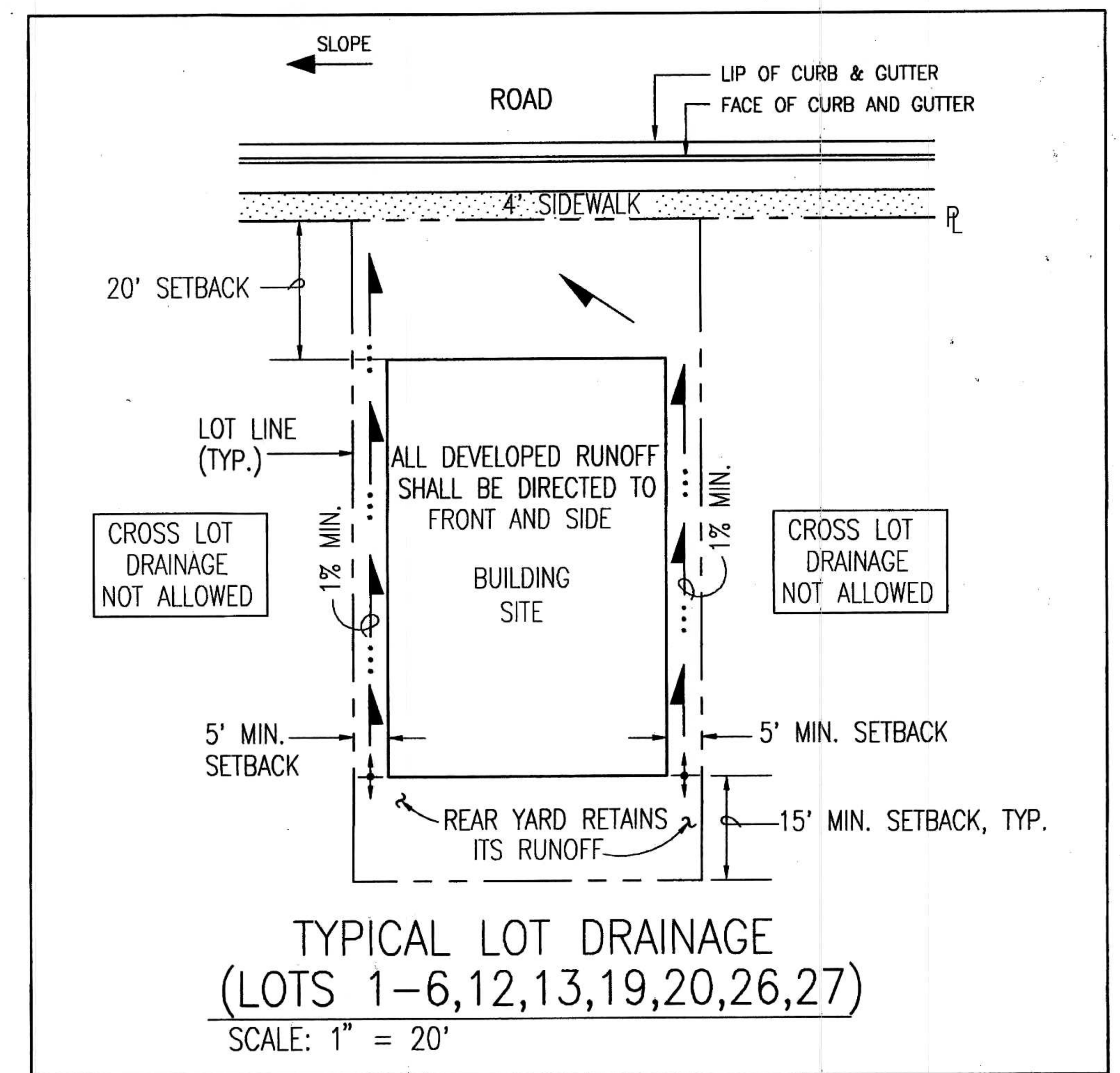


OFFSITE GRADING DETAIL
SCALE: 1" = 50'

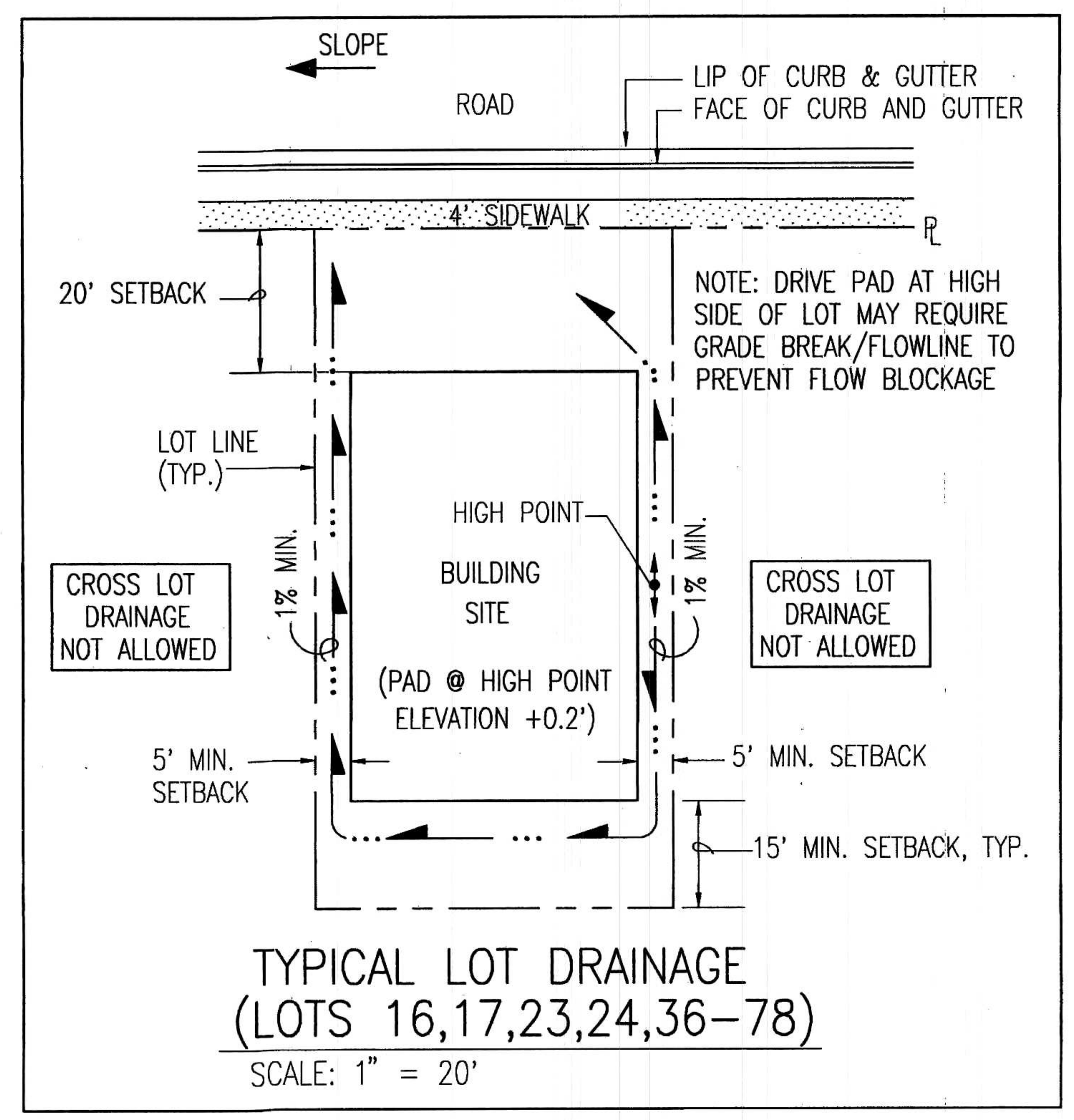
NOTE: GRADING REQUIRED TO DIRECT EXISTING OFFSITE FLOWS TO THEIR DESIGN OUTFALL IN HOLLY. DEVELOPED FLOWS SHALL EITHER DRAIN TO AN IMPROVED HOLLY OR AN EXTENSION OF SAND VERBENA TRAIL

PERMISSION FOR OFFSITE GRADING

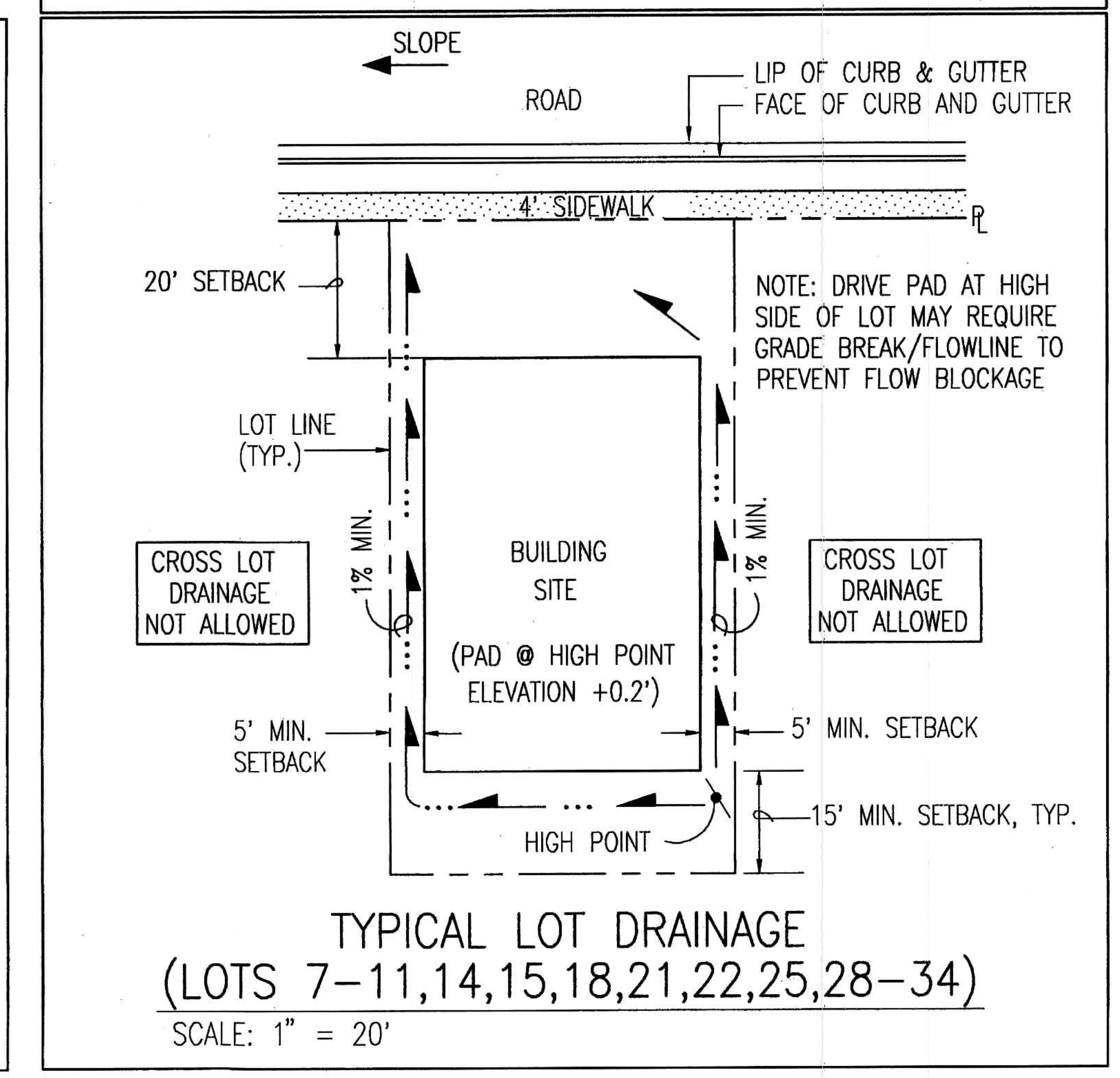
OWNER: LOT 6, BLOCK 20 DATE



TYPICAL LOT DRAINAGE
(LOTS 1-6,12,13,19,20,26,27)
SCALE: 1" = 20'



TYPICAL LOT DRAINAGE
(LOTS 16,17,23,24,36-78)
SCALE: 1" = 20'



TYPICAL LOT DRAINAGE
(LOTS 7-11,14,15,18,21,22,25,28-34)
SCALE: 1" = 20'

J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER
11/20/2003
12/16/2003

DRB PROJECT # 1002885

DESIGNED BY	G.M.
DRAWN BY	S.G.H.
APPROVED BY	G.M.

NO.	DATE	BY	REVISIONS
1	12/16/03	G.M.	DELETE OFFSITE GRADING, DIVIDE OFFSITE BASIN 0-2 INTO 2 SUB-BASINS, ADD STORM DRAIN HYDRAULICS, APP AP-15

JOB NO. 2002.050.3
DATE 11-2003
SHEET 5 OF 5

JEFF MORTENSEN & ASSOCIATES, INC.
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BASIN AND KEY MAP: HYDROLOGY AND STREET HYDRAULIC CALCULATIONS, TYPICAL LOT DRAINAGE DETAILS

OCOTILLO SUBDIVISION

File Path: E:\JMA\OCOTILLO\2002050\3 | Plot Date: 12-16-2003
File Name: 20503LD.DWG | Plot Time: 3:20 pm