Weston Solutions, Inc.
3840 Commons Ave., NE
Albuquerque, New Mexico 87109
505-883-6520 Fax 505-837-6595
www.westonsolutions.com

24 August 2011

City of Albuquerque
Development Division
600 2nd St NW
Albuquerque, New Mexico 87102
Attn: Curtis Cherne PE CFM

RE: 11-06-2877P Response to FEMA Comments Dated 07/20/11

Dear Mr. Cherne:

Please find attached Weston Solutions' responses to the above mentioned comments. Our responses are formatted such that each comment is addressed in order, by number, and referenced to the FEMA 07/20/11 letter. Our responses may also refer to various attachments.

Please feel free to contact Elvidio or me with any questions or concerns.

Very truly yours,
Weston Solutions, Inc.

Richard Waters CFM
505.837.6522
Richard.Waters@WestonSolutions.com

Elvidio Diniz PE, D.WRE
505.837.6579
Elvidio.Diniz@WestonSolutions.com

Response to FEMA Comments Dated 07/20/2011

LOMR Request 11-06-2877P

Comment 1: MT-2 Form 3 Section E is not required because:

a) This is not a permanent levee and does not require certification as a levee.

b) This is a temporary diversion berm to allow flood flows to enter a concrete lined channel with adequate capacity and freeboard.

c) This berm is constructed to levee criteria, but is located on private platted lots and street ROW, with a temporary O&M easement to the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). When the concrete channel is extended to the southeast, the berm will be removed and the underlying lots will be developed. Attachment A1 is the Rich Court Subdivision plat; this subdivision is located on the west side of the future concrete channel and north of the future, relocated Alameda Blvd. The berm, in relation to the subdivision and the relocated Alameda Blvd., is shown in Attachment A2; an enlarged scale version of the pertinent area is provided as Attachment A3; and the berm overlaid on Rich Court subdivision is provided as Attachment A4, which is the Ultimate Grading Plan Exhibit, Rich Court, which also shows the future extension of the concrete channel for the La Cueva Arroyo, and elimination of the future need for this berm (although a new berm may be required further upstream, to the east, at the next terminus of the concrete channel). Attachment A4 also shows the platted lots within the Rich Court subdivision which are affected by the berm, hence Phase 2 of the Rich Court subdivision. Also, please see Attachment A5-Alameda Blvd NE Paving Improvements Plan and Profile for Rich Court/Hope Plaza. Alameda Blvd will be further relocated to the south when it is improved to four lanes in the future.

Comment 2: Please see Attachment B, which is Appendix D, Figure 3 (Workmap) from our March 2011 submittal in paper, .pdf, and CAD formats.

Comment 3a: The structure at Barstow St is a temporary foot traffic bridge built above the base flood water surface and freeboard. It was not modeled because it has no impact on the channel structure, nor on the base flood flows in the channel. Please see Attachment C, which is the Barstow Street Bridge Photos. The future Barstow St. and Alameda Blvd crossings will also be built above the top of, and independent from, the concrete channel and will not affect the model results.

Comment 3b: The existing arroyo channel consists of a dominant (main) channel, a secondary significant channel, and multiple minor tertiary channels. The dominant channel is not always the same channel at all cross sections, and avulsions during flood flows constantly change the dominant and secondary channels. Therefore, modeling this system as a fixed-bed stream was not appropriate.

Weston's solution to this phenomenon was to treat the entire cross section as the channel using the horizontal roughness variation to account for sand-bed channels, rocky or vegetated overbanks (which are not representative of floodplains with a gentle cross slope), and a series of tertiary channels which may convey water by either bifurcation or spills out of an adjacent channel. Changing the bank station locations will not change hydraulic conveyance or friction losses between cross sections. The only downside to this approach is that overbank lengths are not identified separately in the model. However, the cross sections are so closely spaced that these differential losses will be minor when compared to the computational error limits of this one-dimensional analysis.

Comment 3c: The Mannings' n values remain consistent throughout the cross section because there are no differentiations in vegetation density/type, or soil composition that warrant a change.

Comment 3d: Weston has checked the specified cross sections and found no discrepancies.

Comment 4: Please see Attachment D which is a copy of the structural calculations.

Comment 5: For the as-built profile with the base flood water surface and corresponding freeboard for the berm north of Alameda Blvd, please see Attachment E which is Sheet 2 of 3 from the Plans for Modification of La Cueva Channel Berm North of Alameda Blvd. The floodplain extent of the base flood does not reach the berm extending to the south from Alameda Blvd and connecting to the berm built prior to 1980, as shown on Attachment B, which is Appendix D, Figure 3 (Workmap) from our March 2011 submittal.

Comment 6: As stated in Comment 1, this is a diversion berm. Under the existing conditions base flood, there are 3 feet of freeboard on the berm, which meets Federal and local criteria. A 404 permit was obtained from the U.S. Army Corps of Engineers to address environmental issues.

Comment 7: Please see Attachment F, which is the AMAFCA Plan of Operations and Maintenance.

Comment 8: Weston is including the Existing Conditions model (no concrete channel and no berm) and the Post-project model (with the concrete channel and the berm). Please see Attachment G, which is the HEC-RAS Models.

Comment 9: An interior drainage system is not needed and has not been designed. The land to the west of the berm has been developed. That development drains away from the berm and La Cueva channel as shown on Attachment H, which is the Grading Plan for Rich Court. The ultimate grading for this location, after the berm is removed, is shown on Attachment A5.

Comment 10: Weston provided no verification for berm opening closure devices because this berm has no openings. Please see Attachment B, which is Appendix D, Figure 3 (Workmap) from our March 2011 submittal.

Comment 11: Please see Note 2 and Typical Section on Attachment I, which is Sheet 8R of 11 of Construction Plans for La Cueva Arroyo Channel Improvements for riprap protection specifications. Please note that La Cueva Arroyo is an ephemeral stream with no wind (limited fetch) or ice loadings (not probable). Minor waves generated by storm surges and some floating debris may be expected. Peak flows are not sustained and duration is less than 15 minutes for existing watershed conditions.

Comment 12: Please see Attachment D which is a copy of the structural calculations. Seepage is not a consideration because this is a normally dry (ephemeral) stream, and there will be no sustained water flow in the arroyo. The base flood duration is less than 24 hours and water against the berm will be less than 6 hours.

Comment 13: AMAFCA inspects the berm regularly. Also, the berm was constructed in 2006, and the top was raised one to two feet this year. The as-built survey was also conducted this year. So, any initial settlement has already occurred. If any further settlement were to occur, AMAFCA would rebuild the berm with moisture conditioning to 95% plus compaction, in accordance with the original construction specifications.

Comment 14: Please see Attachment J, which is the AMAFCA Inspection Report for La Cueva Channel, dated 22 October, 2010.

ATTACHMENT A

A1: PLAT OF LOTS 7 THROUGH 9, HIGH COURT SUBDIVISION

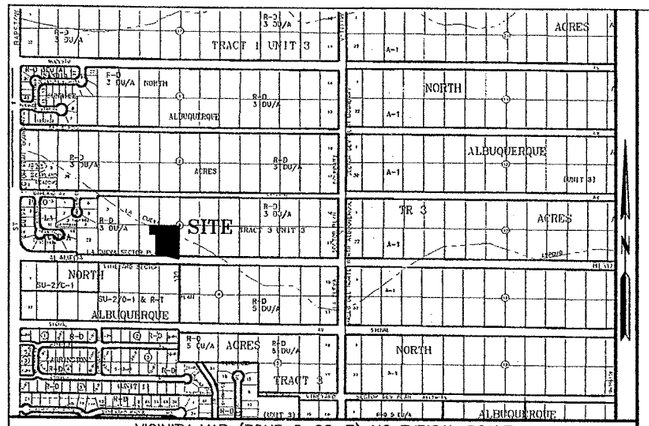
A2: ALAMEDA BLVD NE PLAN AND PROFILE FOR ALAMEDA BLVD/LA CUEVA ARROYO REALIGNMENT STUDY

A3: ENLARGED PORTION OF ATTACHMENT A2 WITH BERM OVERLAY

A4: ULTIMATE GRADING PLAN EXHIBIT FOR RICH COURT SUBDIVISION WITH BERM OVERLAY

A5: ALAMEDA BLVD NE PAVING IMPROVEMENTS PLAN AND PROFILE FOR RICH COURT/HOPE PLAZA

ATTACHMENT A1



VICINITY MAP (ZONE C-20-Z) NO TYPICAL SCALE

THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE TRACT A OF RICH COURT SUBDIVISION INTO LOTS 7, 8 AND 9 ~~AND TRACT A~~ OF RICH COURT SUBDIVISION AND TO GRANT EASEMENTS PURSUANT THERETO.

PROPERTY DESCRIPTION

ALL OF TRACT LETTERED "A" AS SHOWN AND DESIGNATED ON THE PLAT OF LOTS 1-6 AND TRACT A, RICH COURT AS THE SAME IS FILED IN THE RECORDS OF BERNALILLO COUNTY, NEW MEXICO, ON MAY 7, 2007, IN BOOK 2007C AT PAGE 111.

CONSENT AND DEDICATION STATEMENT

THE UNDERSIGNED DOES HEREBY STATE AND CONFIRM THAT I AM THE OWNER AND PROPRIETOR OF THE LANDS SHOWN HEREON AND THAT I POSSESS COMPLETE AND INDEFEASIBLE TITLE THERETO, IN FEE SIMPLE, AND I DO FURTHER STATE THAT THE SUBDIVISION SHOWN HEREON IS OF MY FREE WILL AND CONSENT IN ACCORDANCE WITH MY EXPRESSED WISHES AND DESIRES AND DO HEREBY GRANT ALL PRIVATE ACCESS AND PUBLIC UTILITY EASEMENTS SHOWN INCLUDING THE RIGHT TO CONSTRUCT, OPERATE, INSPECT AND MAINTAIN FACILITIES THEREIN; AND ALL PUBLIC UTILITY EASEMENTS SHOWN HEREON FOR THE COMMON AND JOINT USE OF GAS, ELECTRICAL POWER AND COMMUNICATION SERVICES FOR BURIED DISTRIBUTION LINES, CONDUITS AND PIPES FOR UNDERGROUND UTILITIES WHERE SHOWN OR INDICATED, AND INCLUDING THE RIGHT OF INGRESS AND EGRESS FOR CONSTRUCTION AND MAINTENANCE, AND THE RIGHT TO TRIM INTERFERING TREES AND SHRUBS; IN WITNESS THEREOF I HEREBY AFFIX MY HAND.

ROBERT B. KEERAN, PRESIDENT OF LLAVE DEVELOPMENT, INCORPORATED

ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 19 DAY OF June, 2007, BY ROBERT B. KEERAN, PRESIDENT OF LLAVE DEVELOPMENT, INCORPORATED, A NEW MEXICO CORPORATION.

NOTARY PUBLIC

MY COMMISSION EXPIRES

OFFICIAL SEAL
Anita L. McSorley
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 9-13-07

NOTES:

1) BEARINGS SHOWN ARE NEW MEXICO COORDINATE SYSTEM, CENTRAL ZONE (NAD27), GRID BEARINGS AND ARE REFERENCED TO THE LINE FROM ALBUQUERQUE CONTROL SURVEY CONTROL STATION "7-C19" TO STATION "3-C20." DISTANCES SHOWN ARE GROUND.
2) EXCEPT AS SHOWN, NO OTHER EASEMENTS OR RIGHTS OF WAY ARE CREATED BY THIS PLAT. ALL EASEMENTS OF RECORD ARE SHOWN.
3) FIELD DATA AND RECORD DATA ARE EQUIVALENT.
4) CITY OF ALBUQUERQUE WATER AND SEWER SERVICE IS CURRENTLY AVAILABLE TO THE SUBJECT PROPERTY.
5) THIS PROPERTY IS CURRENTLY ZONED R-D 3 DU/A.
6) A PORTION OF THIS SUBDIVISION IS LOCATED WITHIN A 100-YEAR FLOOD PLAIN AS SHOWN ON THE NATIONAL FLOOD INSURANCE PROGRAM "FLOOD INSURANCE RATE MAP". A LETTER OF MAP REVISION (LOMR) WILL BE REQUESTED FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) TO REMOVE THE EXISTING FLOOD PLAIN. UNTIL THE LOMR IS ISSUED BY FEMA, PROPERTY OWNERS MAY BE REQUIRED TO PURCHASE FLOOD INSURANCE.
7) ALL OPEN SPACE REQUIREMENTS SHALL BE MET ON THE LOT WITH THE DWELLING PER THE PROVISIONS OF SECTION 14-16-3-8 (A) (1).
8) ALL DOCUMENTS OF RECORD USED IN THE PREPARATION OF THIS PLAT ARE CITED HEREON.
~~9) THE OWNER(S) OF LOT 9 AND TRACT A-1, BEING THE BENEFICIARIES OF PRIVATE ACCESS EASEMENTS CREATED HEREON, SHALL ASSUME ALL MAINTENANCE RESPONSIBILITIES FOR ANY ROADWAY IMPROVEMENTS CONSTRUCTED THEREIN.~~

SUBDIVISION DATA

1) CASE No._____
2) ZONE ATLAS INDEX No. C-20
3) GROSS SUBDIVISION AREA: 1.0376 ACRE
4) TOTAL NUMBER OF LOTS CREATED: 3 LOTS ~~1 TRACT~~
5) DRB PROJECT No. 1003674
6) TOTAL MILEAGE OF FULL WIDTH STREETS CREATED: 0.00
7) TALOS LOG No. 2006243550

UTILITY NOTE:

PUBLIC UTILITY EASEMENTS SHOWN ARE TEN FEET (10') WIDE AND ARE GRANTED FOR THE JOINT AND COMMON USE OF:
A) PNM ELECTRIC SERVICES FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF UNDERGROUND ELECTRICAL LINES, TRANSFORMERS, POLES AND ANY OTHER EQUIPMENT, FIXTURES, STRUCTURES AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE ELECTRIC SERVICE.
B) PNM GAS SERVICES FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS SERVICE.
C) QWEST COMMUNICATIONS FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF ALL BURIED COMMUNICATION LINES AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES, INCLUDING, BUT NOT LIMITED TO, ABOVE GROUND PEDESTALS AND CLOSURES.
D) COMCAST CABLE FOR THE INSTALLATION, MAINTENANCE AND SERVICE OF SUCH UNDERGROUND LINES, CABLE AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE TV SERVICE.

No property within the area of requested final action plat shall at any time be subject to deed restriction, covenant or building agreement prohibiting solar collectors from being installed on buildings or erected on the lots or parcels within the area of proposed plat. The foregoing requirement shall be a condition to approval of this plat or site development plan for subdivision. (Section 14-14-4-7(B))

EASEMENT DEDICATION LANGUAGE FOR PLAT

Dedication to the ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY, Grantee, its successors and assigns, of lands, rights of way, and easements designated herein as "Flood Plain Easement" or "Drainage Easement" is with the full and free consent and in accordance with the desire of the undersigned owner, Grantor. This dedication is for drainage, flood control, conveyance and storage of storm water, and the construction, operation, maintenance, reconstruction or replacement of, and access to, such facilities, and for subordinate recreational use and access on such facilities, Except by the written approval of Grantee, no fence, wall, building or other obstruction may be placed or maintained on any property dedicated to Grantee hereby, and there shall be no alteration of the grades or contours in such property. This dedication shall not obligate Grantee to maintain natural arroyos, drainage channels or other facilities that do not meet the standards of the Grantee for design and construction, nor shall this granting require the protection of property lying outside of the area dedicated. Grantee shall only maintain property and/or improvements that it specifically agrees, in writing, to maintain. Absent a written maintenance agreement, such responsibility shall remain with the Grantor, its successors and assigns. Landscaping or maintenance work by the Grantor within the property hereby dedicated shall not alter the present flowline, capacity or permeability of the present flood way area except in an emergency. If emergency work is performed, Grantor shall notify Grantee as soon as practical thereafter. Grantee will then determine if the emergency work can remain or must be removed or modified. Safe locations for structures built on lands adjacent to the property dedicated hereby may be substantially outside of the area described. Grantor covenants and warrants that it is the owner in fee simple of the property and that it has a good and lawful right to dedicate the right of way or easement interests described herein. Any portion of any land, right of way or easements granted herein shall revert to the Grantor, its successors or assigns, as and to the extent said portion is declared unnecessary for flood control or drainage by the Board of Directors of the Albuquerque Metropolitan Arroyo Flood Control Authority. Any reversion shall be conveyed by quitclaim deed. Vacation approval consistent with the City of Albuquerque or Bernalillo County Subdivision Ordinances will also be required.

Signature of Owner(s) of Record — Date 9/11/07

DOC# 2007131747
09/13/2007 02:41 PM Page: 1 of 2
PLAT R:$12.00 B: 2007C P: 0260 R. Toulouse, Bernalillo County

PLAT OF
LOTS 7 THROUGH 9 ~~AND TRACT A~~
RICH COURT SUBDIVISION
SITUATE WITHIN
PROJECTED SECTION 17
T.11N., R.4E., N.M.P.M.
ELENA GALLEGOS LAND GRANT
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
JUNE 2007

APPROVALS as specified by the City of Albuquerque Subdivision Ordinance:
PROJECT NO. 1003674 APPLICATION NO. 07DRB-10015

DRB CHAIRPERSON, PLANNING DEPARTMENT — DATE 9/13/07
CITY ENGINEER — DATE 9/13/07
TRAFFIC ENGINEERING, TRANSPORTATION DIVISION — DATE 9-5-07
~~UTILITIES DEVELOPMENT~~ ABCWUA — DATE 9/6/07
PARKS AND RECREATION DEPARTMENT — DATE 9/6/07
A.M.A.F.C.A. — DATE 9-11-07
CITY SURVEYOR, CITY OF ALBUQUERQUE — DATE 6-19-07

UTILITY APPROVALS
PNM GAS & ELECTRIC SERVICES COMPANY — DATE 9-7-07
QWEST COMMUNICATIONS — DATE 9/7/07
COMCAST CABLE — DATE 9.7.07

THIS IS TO CERTIFY THAT TAXES ARE CURRENT AND PAID ON UPC # 102006112338720308
PROPERTY OWNER OF RECORD: LLAVE CONSTRUCTION INC.
BERNALILLO COUNTY TREASURER'S OFFICE: 9.13.07

SURVEYOR'S CERTIFICATION

I, PHILIP W. TURNER, A PROFESSIONAL SURVEYOR REGISTERED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME, OR UNDER MY DIRECT SUPERVISION, FROM THE RETURNS OF AN ACTUAL SURVEY PERFORMED ON THE GROUND IN NOVEMBER, 2003, THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT IT SATISFIES THE MINIMUM STANDARDS FOR LAND SURVEYING AS DETERMINED BY THE NEW MEXICO BOARD OF LICENSURE FOR PROFESSIONAL ENGINEERS AND SURVEYORS AND THAT IT MEETS THE REQUIREMENTS FOR PLATTING AND MONUMENTATION OF THE CITY OF ALBUQUERQUE SUBDIVISION ORDINANCE.

PHILIP W. TURNER — N.M.P.S. 10204 — DATE 6-18-2007

PHILIP W. TURNER NEW MEXICO No. 10204 REGISTERED PROFESSIONAL SURVEYOR

PLAT AND SURVEY BY:
TERRAMETRICS
OF NEW MEXICO
4175 MONTGOMERY BLVD., NE
ALBUQUERQUE, NEW MEXICO 87109
PHONE: (505) 881-2903

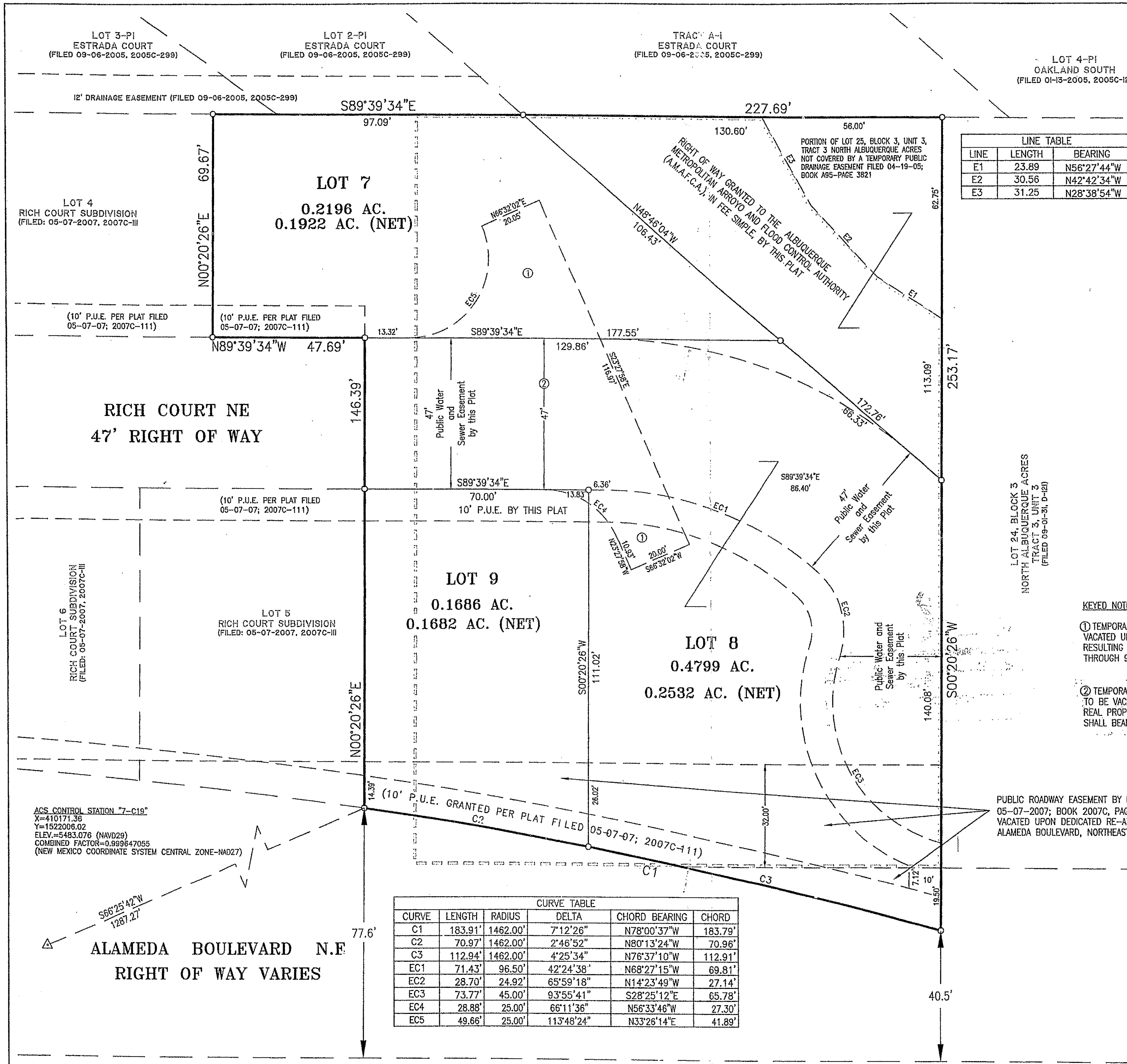
ATTACHMENT A1

PLAT OF LOTS 7 THROUGH 9 RICH COURT SUBDIVISION

SITUATE WITHIN

PROJECTED SECTION 17
T.11N., R.4E., N.M.P.M.
ELENA GALLEGOS LAND GRANT
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO

JUNE 2007



LINE TABLE		
LINE	LENGTH	BEARING
E1	23.89	N56°27'44"W
E2	30.56	N42°42'34"W
E3	31.25	N28°38'54"W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD
C1	183.91'	1462.00'	7°12'26"	N78°00'37"W	183.79'
C2	70.97'	1462.00'	2°46'52"	N80°13'24"W	70.96'
C3	112.94'	1462.00'	4°25'34"	N76°37'10"W	112.91'
EC1	71.43'	96.50'	42°24'38"	N68°27'15"W	69.81'
EC2	28.70'	24.92'	65°59'18"	N14°23'49"W	27.14'
EC3	73.77'	45.00'	93°55'41"	S28°25'12"E	65.78'
EC4	28.88'	25.00'	66°11'36"	N56°33'46"W	27.30'
EC5	49.66'	25.00'	113°48'24"	N33°26'14"E	41.89'

LEGEND

- ○ SET #5 REBAR WITH CAP "PWT 10204"
- ● FOUND SURVEY MONUMENT AS DESCRIBED
- P.U.E. PUBLIC UTILITY EASEMENT
- △ C.O.A. MONUMENT (CENTERLINE & ACS)
- LIMITS OF A TEMPORARY PUBLIC DRAINAGE EASEMENT FILED 04-19-05; BOOK A95-PAGE 3821

KEYED NOTES

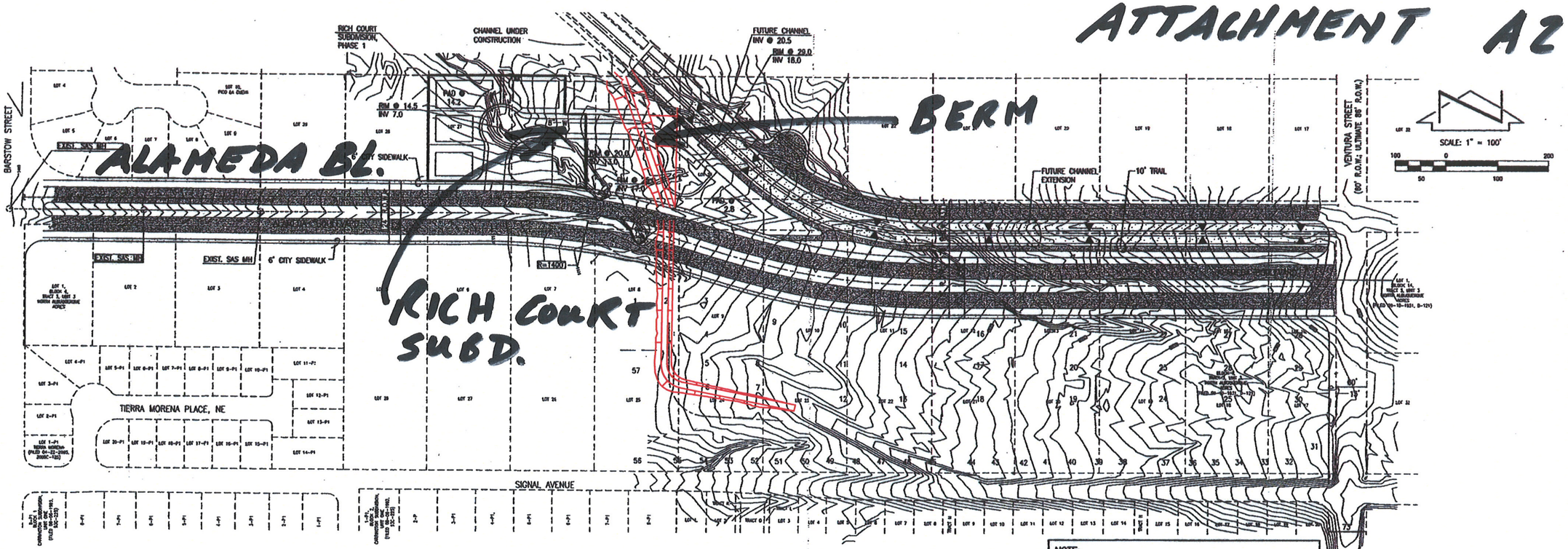
① TEMPORARY EMERGENCY VEHICLE PRIVATE ACCESS EASEMENT, BY THIS PLAT, TO BE VACATED UPON THE DEVELOPMENT OF THE EXTENSION OF RICH COURT, NORTHEAST, RESULTING IN A PERMANENT EMERGENCY VEHICLE TURNAROUND. THE OWNERS OF LOTS 1 THROUGH 9 SHALL BEAR THE RESPONSIBILITY FOR MAINTENANCE AND UPKEEP.

② TEMPORARY 47' PRIVATE ACCESS EASEMENT, BY THIS PLAT, TO BENEFIT LOTS 8 & 9 TO BE VACATED UPON DEDICATION TO THE CITY OF ALBUQUERQUE OF THE UNDERLYING REAL PROPERTY AS PERMANENT RIGHT OF WAY. THE OWNERS OF THE LOTS 8 & 9 SHALL BEAR THE RESPONSIBILITY FOR MAINTENANCE AND UPKEEP.

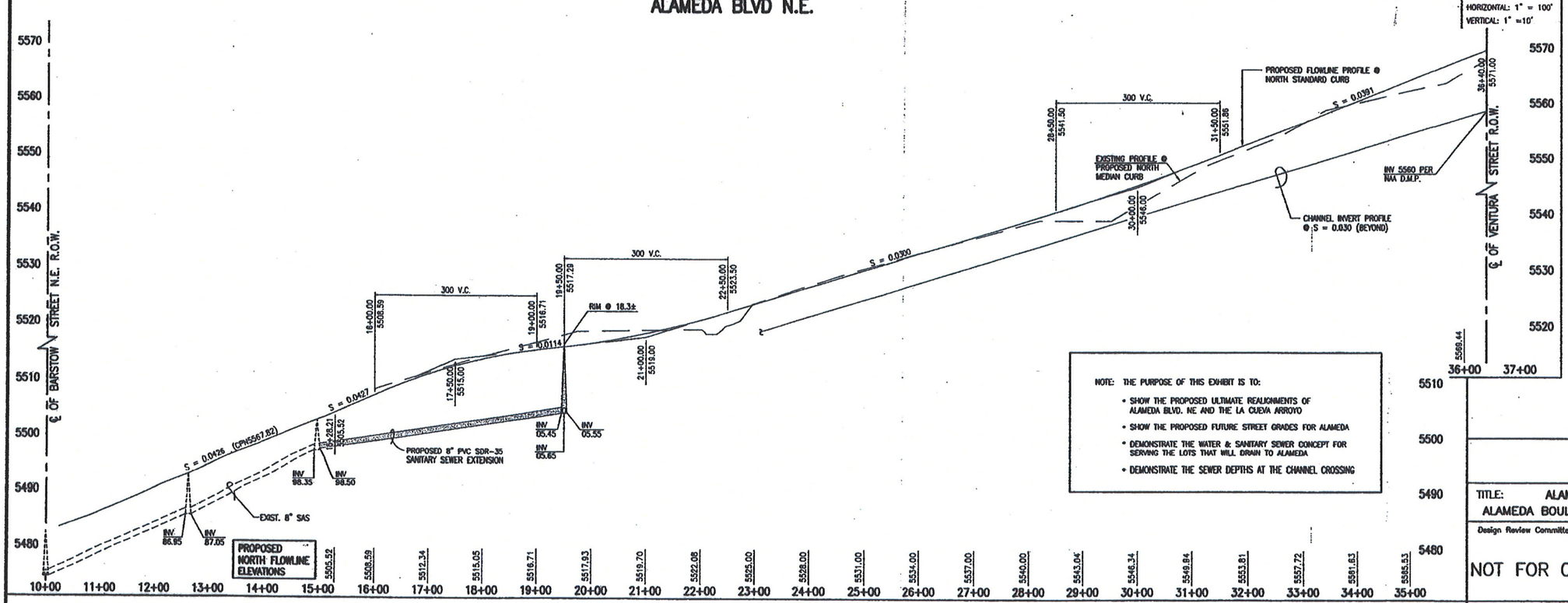
DOC# 2007131747
09/13/2007 02:41 PM Page: 2 of 2
PLAT R:$12.00 B: 2007C P: 0260 M. Toulouse, Bernalillo County

PLAT AND SURVEY BY:
TERRAMETRICS OF NEW MEXICO
4175 MONTGOMERY BLVD., NE
ALBUQUERQUE, NEW MEXICO 87109
PHONE: (505) 881-2903

ATTACHMENT A2



ALAMEDA BLVD N.E.



NOTE:
THIS IS NOT A BOUNDARY SURVEY. EXISTING LOTTING IS REPRESENTED FROM RECORD PLATTING AND IS SHOWN FOR ORIENTATION PURPOSES ONLY. EXISTING TOPOGRAPHY IS FROM CPN 757781, LA CUEVA CHANNEL. PROPOSED LOTTING IS CONCEPTUAL AND REPRESENTS A POSSIBLE DEVELOPMENT SCENARIO.

SCALE:
HORIZONTAL: 1" = 100'
VERTICAL: 1" =10'

NOTE: THE PURPOSE OF THIS EXHIBIT IS TO:

- SHOW THE PROPOSED ULTIMATE REALIGNMENTS OF ALAMEDA BLVD. NE AND THE LA CUEVA ARROYO
- SHOW THE PROPOSED FUTURE STREET GRADES FOR ALAMEDA
- DEMONSTRATE THE WATER & SANITARY SEWER CONCEPT FOR SERVING THE LOTS THAT WILL DRAIN TO ALAMEDA
- DEMONSTRATE THE SEWER DEPTHS AT THE CHANNEL CROSSING

AS BUILT INFORMATION
CONTRACTOR — DATE
DRAWN BY — DATE
DESIGNED BY — DATE
FIELD SURVEYED BY — DATE
CHECKED BY — DATE
MICRO-FILM INFORMATION — DATE
RECORDED BY

BENCH MARKS
N/A

SURVEY INFORMATION
FIELD NOTES
NO. | DATE | BY
N/A

ENGINEER'S SEAL
NOT FOR CONSTRUCTION 4/30/07

NO.	DATE	REMARKS	BY
		Revisions	
Designed By		DECISION	G.M./JDS
Drawn By		Date 05-2006	J.L.P.
Checked By		Date 05-2006	G.M.
		Date 06-2005	

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: ALAMEDA BLVD NE PLAN AND PROFILE
ALAMEDA BOULEVARD/LA CUEVA ARROYO ALIGNMENT STUDY

Design Review Committee | City Engineer Approval | Last Design Update

NOT FOR CONSTRUCTION

City Project No. | Zone Map No. | Sheet | Of

ATTACHMENT A3

SUBDIVISION, PHASE 1

CHANNEL UNDER CONSTRUCTION

FUTURE CHANNEL

INV @ 20.5

RIM @ 29.0

INV 18.0

PAD @ 14.2

RIM @ 14.5

INV 7.0

LOT 28

LOT 27

8" W

LOT 26

6' CITY SIDEWALK

RICH COURT SUBD.

RIM @ 20.0

INV 13.0

LOT 25

RIM @ 25.0

INV 17.0

LOT 24

LOT 23

LOT 22

PAD @ 2.8

ROW

ALAMEDA BLVD.

R=1400'

LOT 5

LOT 6

LOT 7

LOT 8

1

2

3

LOT 9

4

9

LOT 10

10

LOT 11

15

5

11

14

57

6

7

12

LOT 28

LOT 27

LOT 26

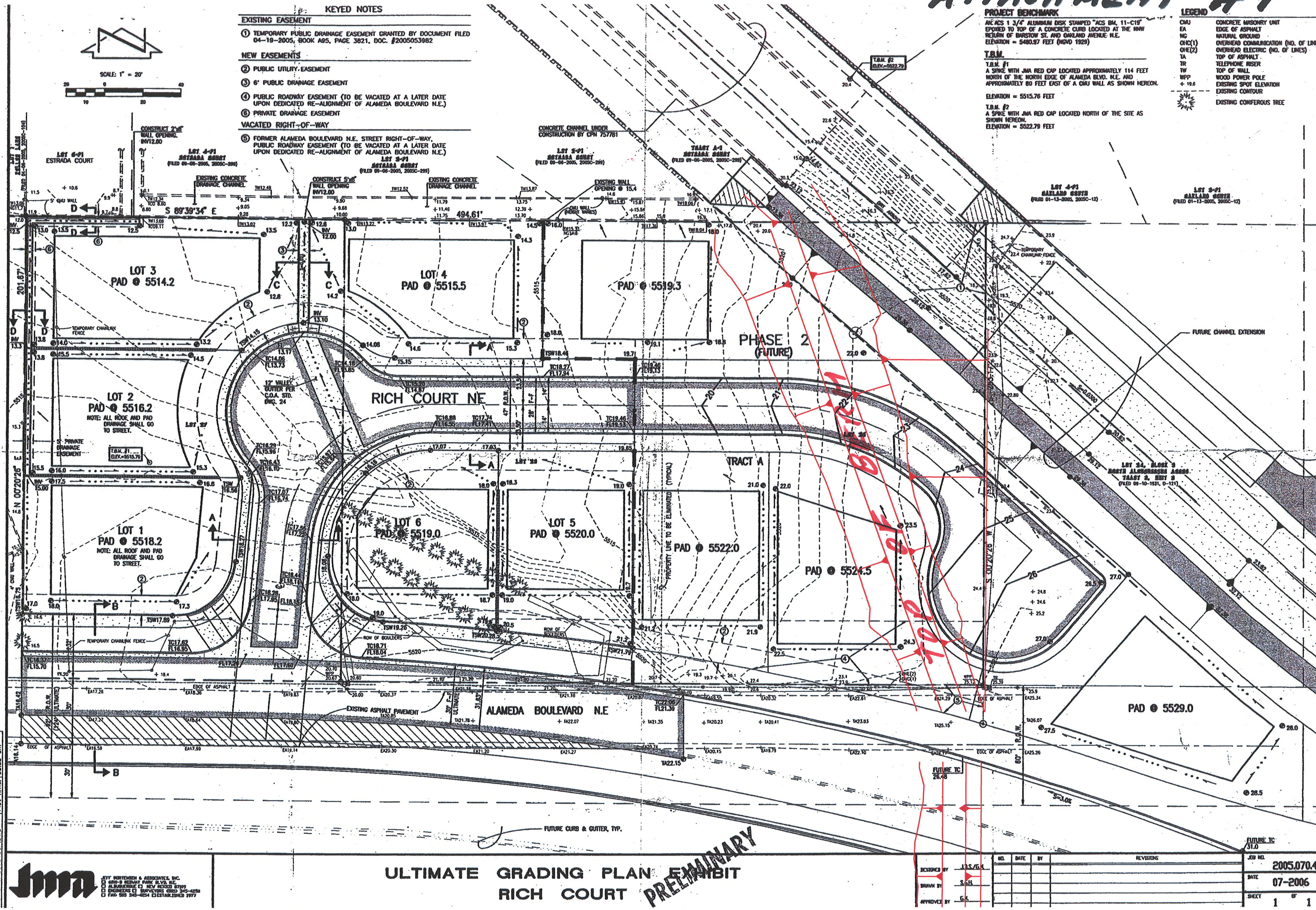
LOT 25

LOT 24

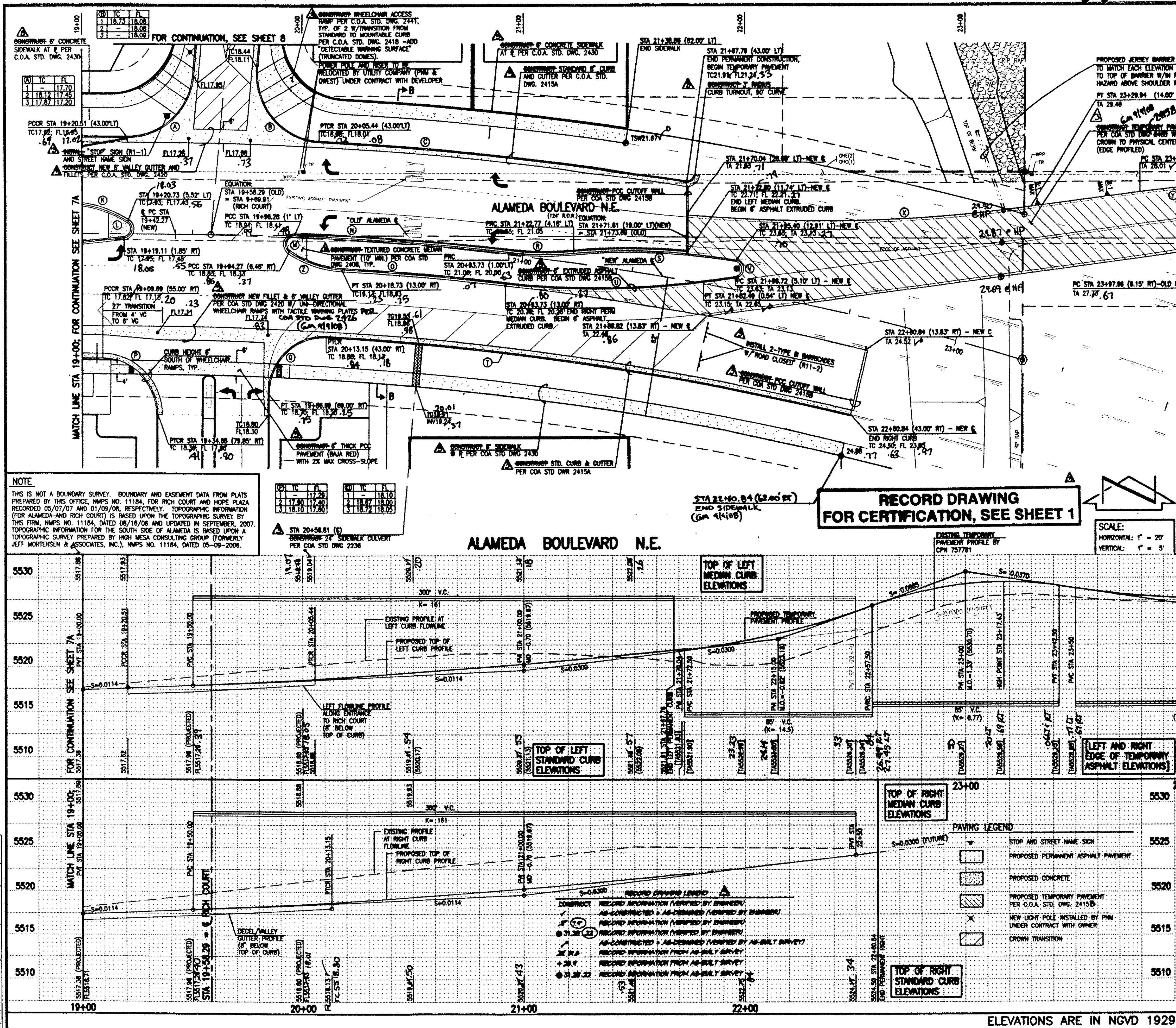
LOT 23

LOT 22

ATTACHMENT #4



ATTACHMENT A5



NOTE

THIS IS NOT A BOUNDARY SURVEY. BOUNDARY AND EASEMENT DATA FROM PLATS PREPARED BY THIS OFFICE, NMPS NO. 11184, FOR RICH COURT AND HOPE PLAZA RECORDED 05/07/07 AND 01/09/08, RESPECTIVELY. TOPOGRAPHIC INFORMATION (FOR ALAMEDA AND RICH COURT) IS BASED UPON THE TOPOGRAPHIC SURVEY BY THIS FIRM, NMPS NO. 11184, DATED 08/16/06 AND UPDATED IN SEPTEMBER, 2007. TOPOGRAPHIC INFORMATION FOR THE SOUTH SIDE OF ALAMEDA IS BASED UPON A TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC.), NMPS NO. 11184, DATED 05-09-2006.

CURB CURVE DATA

CURVE	RADIUS	ARC	DELTA	CHD. BRG.	CHD.LENGTH
A	30.00'	44.51'	85°00'00"	N47°50'26"E	40.54'
[illegible]	30.00'	48.39'	92°24'53"	N40°52'01"W	43.31'
[illegible]	1443.00'	167.31'	06°38'35"	S83°45'09"E	167.21'
[illegible]	50.00'	28.00'	32°05'10"	S73°57'25"E	27.64'
[illegible]	4.00'	9.87'	141°24'25"	S12°47'23"W	7.55'
[illegible]	4.00'	10.47'	149°58'44"	N17°34'42"E	7.73'
[illegible]	1401.00'	97.52'	03°59'17"	S85°27'18"E	97.50'
[illegible]	1387.00'	74.30'	03°04'10"	S84°58'44"E	74.30'
[illegible]	25.00'	39.12'	89°39'34"	S44°48'47"E	35.25'
[illegible]	25.00'	40.51'	92°49'50"	N46°49'34"E	36.22
[illegible]	150.00'	29.31'	11°11'47"	N89°03'33"W	29.27'
[illegible]	300.00'	73.77'	14°05'20"	S87°38'47"E	73.58'
[illegible]	1357.00'	240.08'	10°08'13"	S81°41'25"E	239.77'
[illegible]	370.00'	89.60'	13°52'30"	S89°38'50"W	89.38'
[illegible]	4.00'	11.40'	163°16'41"	S01°04'14"W	7.91'
[illegible]	486.00'	52.23'	06°09'26"	N85°47'18"E	52.20'
[illegible]	736.00'	156.60'	12°11'29"	S88°48'19"W	156.31'
Y	514.00'	69.46'	07°44'35"	N86°34'52"E	69.41'
Z	50.00'	25.43'	29°08'09"	N71°57'45"E	25.15'

HIGH MESA Consulting Group
FORMERLY JEFF MORTENSEN AND ASSOCIATES, INC.
4010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com

2005.070.Y9

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: ALAMEDA BOULEVARD N.E. STA 19+00 TO STA 24+50
PAVING IMPROVEMENTS PLAN AND PROFILE
RICH COURT / HOPE PLAZA

APPROVED OCT 03 2008 DESIGN REVIEW COMMITTEE

APPROVED OCT 09 2008 CITY ENGINEER

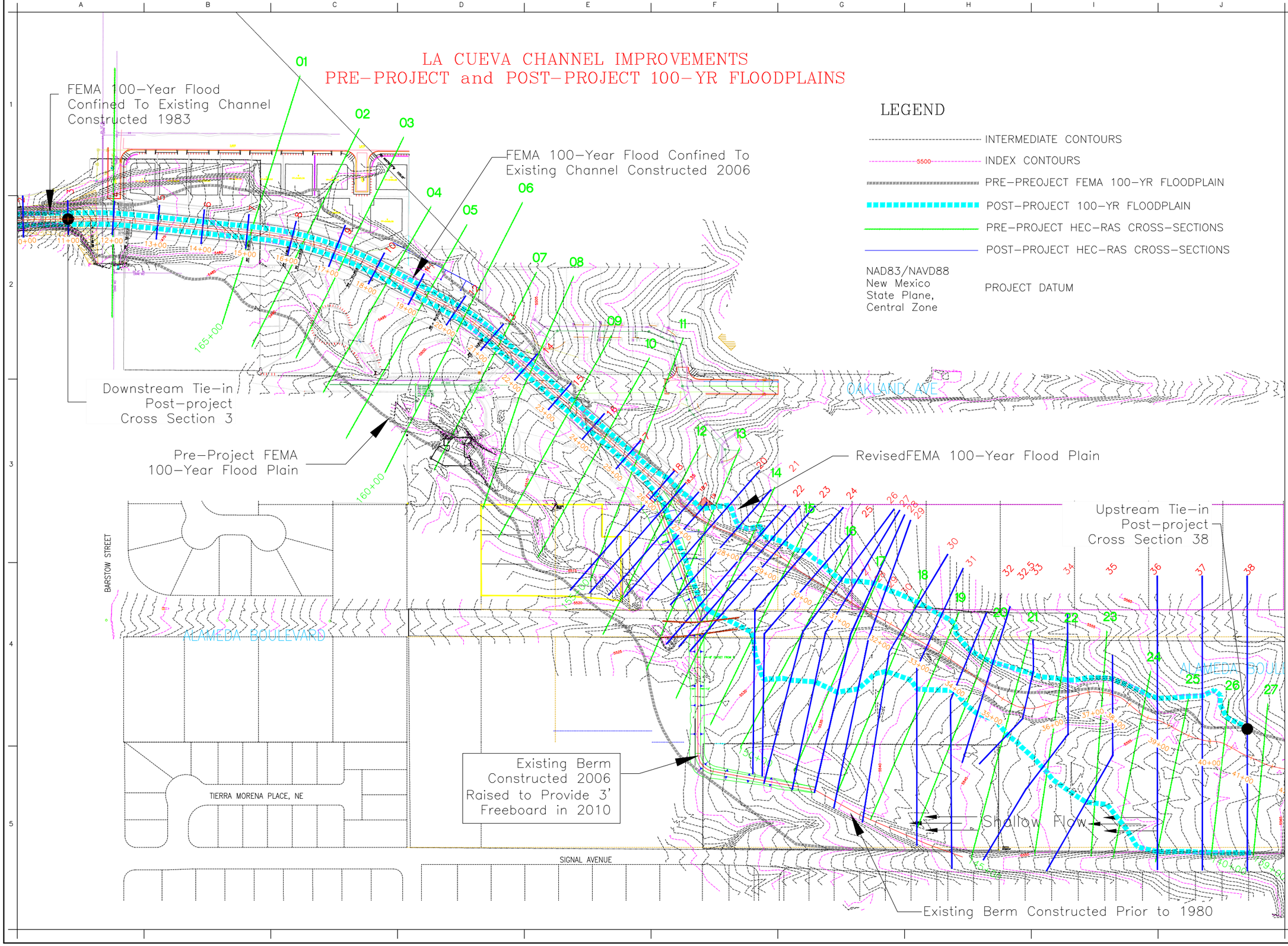
City Project No. 751983 | Zone Map No. C-20 | Sheet 7B of 15

ATTACHMENT B

APPENDIX D, FIGURE 3 (WORKMAP)

EXCERPTED FROM MARCH 2011 SUBMITTAL

LA CUEVA CHANNEL IMPROVEMENTS
PRE-PROJECT and POST-PROJECT 100-YR FLOODPLAINS



LEGEND

- INTERMEDIATE CONTOURS
- INDEX CONTOURS (5500)
- PRE-PREOJECT FEMA 100-YR FLOODPLAIN
- POST-PROJECT 100-YR FLOODPLAIN
- PRE-PROJECT HEC-RAS CROSS-SECTIONS
- POST-PROJECT HEC-RAS CROSS-SECTIONS

NAD83/NAVD88
New Mexico
State Plane,
Central Zone

PROJECT DATUM

0 100' 200'

APPENDIX D WORKMAP

CROSS SECTION LAYOUT AND FPE

ELVIDIO V. DINIZ
NEW MEXICO
7111
LICENSED PROFESSIONAL ENGINEER

REVISIONS

NO.	KEY	DATE	DESCRIPTION

DESIGNED BY: EVD
DRAWN BY: RW
REVIEWED BY: EVD
DATE: FEBRUARY 2011

BENCH MARK

ZONE MAP NO. C-20

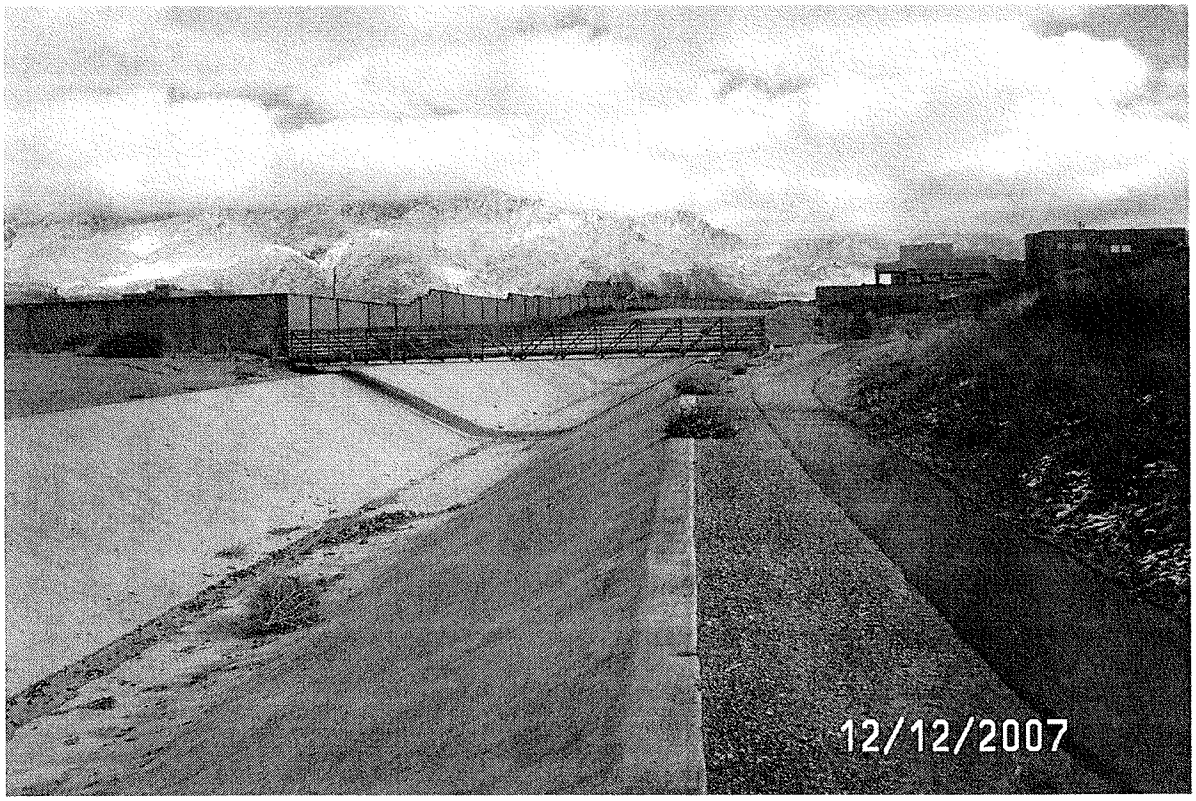
PROJECT NO. 05-060

SHEET TOTAL

ATTACHMENT C

BARSTOW STREET BRIDGE PHOTOS

ATTACHMENT C- PHOTOS OF TEMPORARY BRIDGE ACROSS LA CUEVA CHANNEL



ATTACHMENT D

STRUCTURAL CALCULATIONS

LA CUEVA ARROYO CHANNEL - BERM STABILITY CALCULATION

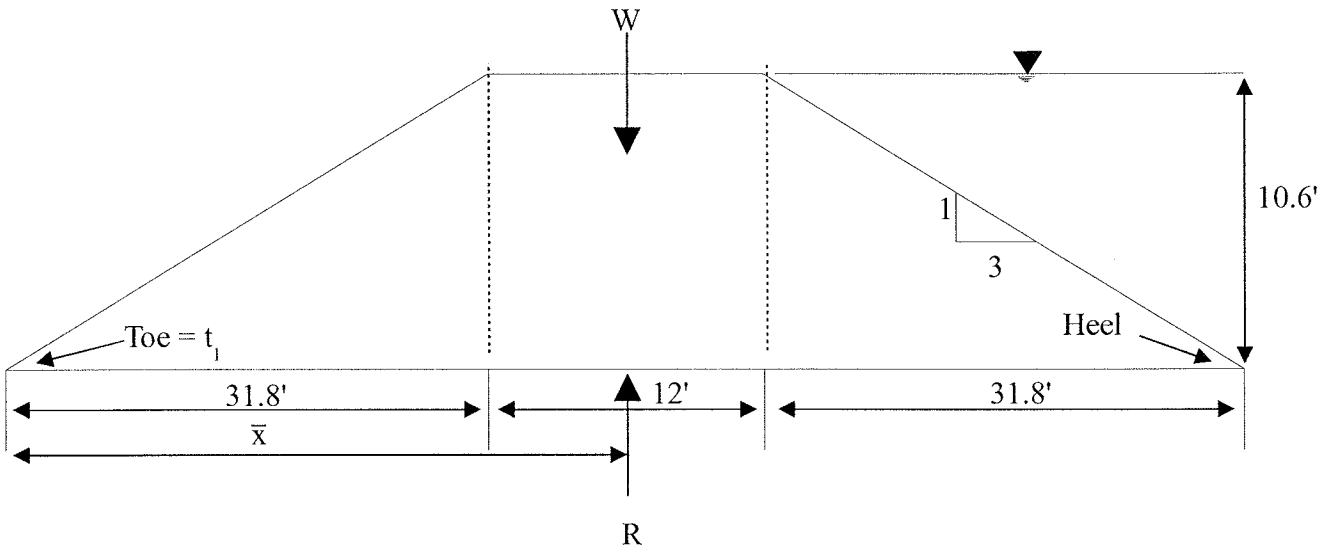


Figure 1. La Cueva Berm Typical Section (not to scale)

NOTE: The following computations do not include the top 3 feet of the berm (freeboard height).

Earthen Berm Stability

The specific wt. of the 90% compacted earth used to build the berm is 130 lb/cuft

Channel Empty Condition

Wt. of the Berm = W = $130 \times \left(\frac{10.6 \times 31.8}{2} + 10.6 \times 12 + \frac{10.6 \times 31.8}{2}\right) = 60356.40$ lb/ft

Which acts at the center of the berm, $\bar{x} = 37.80$ ft from the toe t_1

Eccentricity e = 0

The reaction R will be equal and opposite to W.

and normal stresses at the extreme fibers are

$$\sigma = \frac{P}{A} \pm \frac{Mc}{I} = \left(\frac{60356.40}{75.6 \times 1} \pm \frac{60356.40 \times 37.80}{1 \times 75.6^3/12}\right) \times \frac{1}{144}$$

so σ = 5.98 psi at the heel and 5.10 psi at the toe.

Attachment D

Channel Full Condition

Hydrostatic pressure on a unit width

Specific Weight of Water = 62.5 lb/cuft

$H_h = (1/2) \times 62.5 \times (10.6)^2 = 3511.25$ lb

$H_v = 62.5 \times (10.6/2) = 331.25$ lb

Since the storm duration is less than 48 hrs and the peak flow in the channel will last less than 2 hrs, we assume that only the section of the berm temporarily under water (31.8' on the channel side) will be saturated and will exert uplift pressure.

$$\text{Uplift Pressure } U = \frac{62.5 \times (10.6+0)}{2} \times (31.8 \times 1) = 10533.75 \text{ lb}$$

$$\text{Sum of Overturning Moments} = 3511.25 \times \frac{10.6}{3} + 10533.75 \times (31.8+12+21.2) = 697100.17 \text{ ft-lb}$$

The weight of the Berm W and vertical component H_v creates a righting moment.

$60356.40 \times 37.8 + 331.25\ (31.8+12+21.2) = 2303003.17$ ft-lb

$$\text{Factor of Safety}_{\text{overturning}} = \frac{2303003.17}{697100.17} = \mathbf{3.30}$$

$$\text{Shear Stress } \tau = \frac{H_h}{75.6 \times 144} = 0.32 \text{ psi}$$

Frictional force $F_f = \mu\ (W + H_v - U)$

Assuming coefficient of static friction, $\mu = 0.30$ we get

$F_f = 0.30 \times (60356.40 + 331.25 - 10533.75) = 15046.17$ lb

$$\text{Factor of Safety}_{\text{sliding}} = \frac{F_f}{H_h} = \frac{15046.17}{3511.25} = \mathbf{4.28}$$

Based on the above calculations we can see that the berm is stable.

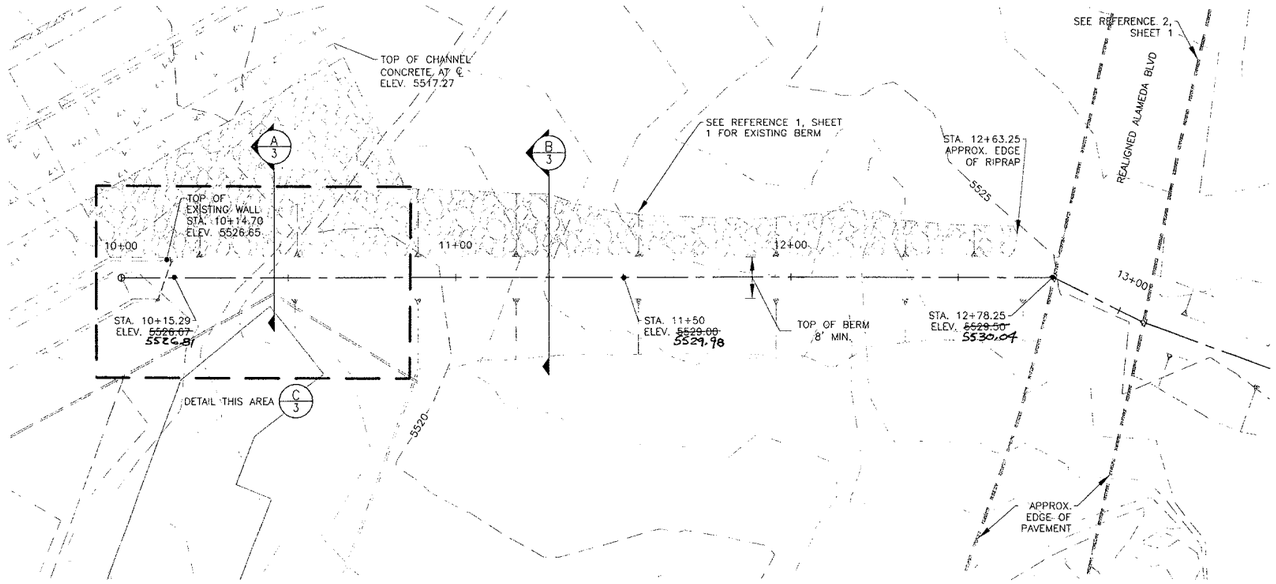
Reference: Ray K. Linsley and Joseph B. Franzini, "Water Resources Engineering" McGraw-Hill, New York, 1965, Pages 180-182.

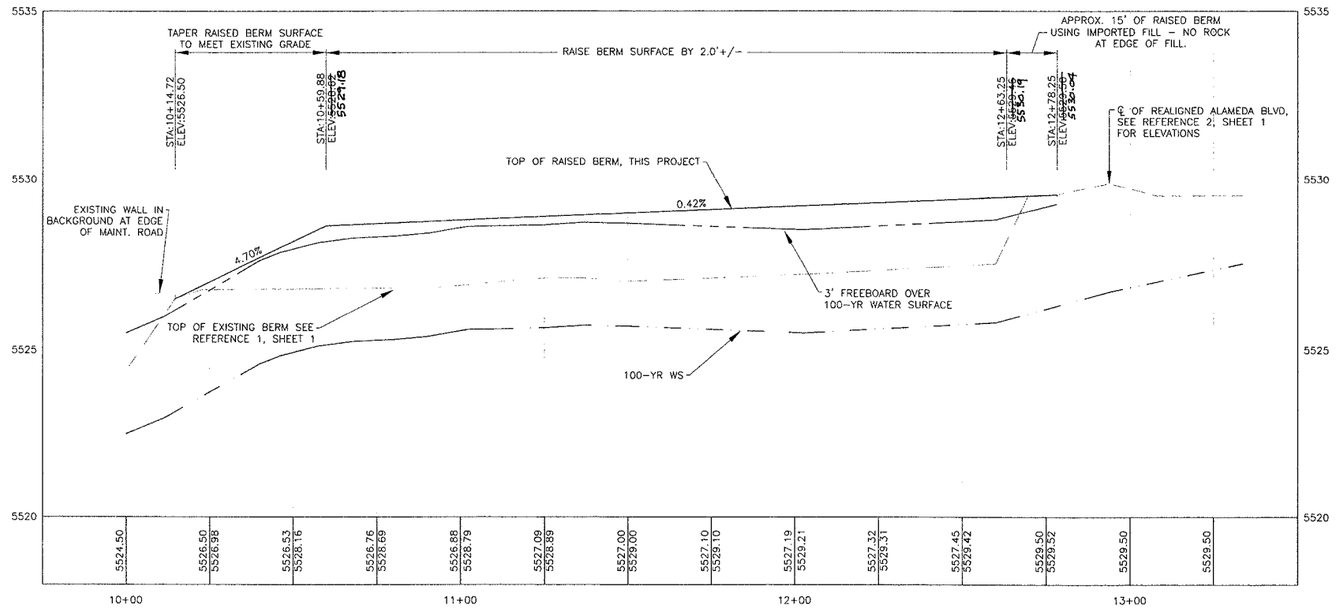
ATTACHMENT E

SHEET 2 OF 3 PLANS FOR MODIFICATION OF LA CUEVA CHANNEL BERM

NORTH OF ALAMEDA BLVD

ATTACHMENT E





SURVEYOR'S AS-BUILT CERTIFICATE

I hereby certify that the as-built data I have shown hereon is the product of an original survey performed on the ground and that it is true and correct to the best of my knowledge and belief.

Philip W. Turner NMPS 10204 — DATE 2/8/11

GENERAL NOTES

1 FOR DESIGN SPECIFICATIONS AND GENERAL NOTES, SEE DRAWINGS AND SPECIFICATIONS REFERENCED ON SHEET 1.

LEGEND

- 5535 — INDEX CONTOUR
- INTERMEDIATE CONTOUR
- RIPRAP
- EXISTING EARTHEN BERM
- CONCRETE CHANNEL REFERENCE 1

WESTON SOLUTIONS

BERM MODIFICATION PLAN AND PROFILE

0 20' 40' HORIZONTAL
0 2' 4' VERTICAL

ELVIDIO V. DINE NEW MEXICO 9111 REGISTERED PROFESSIONAL ENGINEER

REVISIONS

NO.	KEY	DATE	DESCRIPTION

DESIGNED BY: EVD
DRAWN BY: CP
REVIEWED BY: EVD
DATE: NOVEMBER 2010

BENCH MARK

ZONE MAP NO. C-20

LA CUEVA CHANNEL LOMR

PROJECT NO. WESTON 14580.001.002

SHEET 2 TOTAL 3

ATTACHMENT F

AMAFCA PLAN FOR OPERATION AND MAINTENANCE OF LA CUEVA CHANNEL

Albuquerque Metropolitan Arroyo Flood Control Authority

PROJECT OPERATIONS

Plan No.5
January 2011

1. **Definitions:**

   A. **Operations**
   Within the context of "Operations, Maintenance, and Inspection," Operations is defined as the functioning of a flood control facility during or immediately after a storm. It includes the opening/closing of gates, valves, and outlet works (if the facility has them), and may also involve emergency measures, if necessary, to ensure proper functioning of the facility.

   B. **Emergency Operations**
   See Emergency Operations Plan for Flood Emergencies No. 6, dated January 2010.

2. **General:** During rainstorms, AMAFCA personnel, as needed or directed, will observe and monitor flood control facilities to ensure their proper operation.

3. **Specific Instructions:**

   A. As weather conditions dictate, AMAFCA personnel will travel to affected areas or flood control facilities, with radio-equipped vehicles and/or cell phones. This procedure will be in effect during both on and off duty hours.

   B. AMAFCA employees will not attempt rescue in channels.

   C. Through communications, facilities affected will be identified, and closely monitored for proper operation and safety. Additional AMAFCA forces will be called out, as required.

   D. Photographs will be taken, where possible.

   E. Flow or detention dam depths and times will be recorded by AMAFCA or USGS.

   F. Notes of project operation characteristics will be made, particularly where unusual conditions may be noted.

   G. If necessary, assist police and rescue forces in opening gates, giving location instructions, etc.

H. Following storms, project OMI folders will be updated with information gathered during the operation and any remedial actions immediately planned and executed.

I. After a facility has experienced flows from stormwater, at the first opportunity, a detailed inspection will be made by an AMAFCA engineer. Use of checklist is recommended.

J. Ensure equipment is fueled and ready for operation when needed.

4. **Preparatory Instructions:**

A. Before each flood season, the following will be accomplished:

1. Keep digital cameras charged (Maintenance Superintendent, Field Engineer, Drainage Engineer, Storm Water Quality Engineer and Development Review Engineer).

2. Ensure vehicles, radios, lights, etc., are in good condition (Maintenance Superintendent).

3. Repaint, as needed, depth gauges (Maintenance Superintendent).

4. Ensure all gates, valves, outlet works function properly, and keep wheels and cranks property stored (Maintenance Superintendent, Field Engineer).

5. Keep cameras, flashlights, spray paint, and other equipment available in vehicles (Maintenance Superintendent, Field Engineer, Drainage Engineer).

B. During the flood season, the following applies:

1. Vacations and absences will be limited and carefully scheduled. (All, especially field personnel).

2. A daily assessment of storm potential will be made, and plans for response discussed (Executive Engineer, Field Engineer, Maintenance Superintendent, Drainage Engineer).

3. Maintenance Superintendent and will take home a radio-equipped AMAFCA vehicle.

4. Continuous inspections of AMAFCA flood control facilities will be made. Secondary, incidental inspections may be made of facilities owner/operated by others to ensure complementary safe operation.

Adopted: Date:

Jerry M. Lovato, P.E.
Executive Engineer

Albuquerque Metropolitan Arroyo Flood Control Authority

PROJECT MAINTENANCE

Plan No.5
January 2011

1. **Definition**: Maintenance is defined as all measures taken to ensure that each facility will operate as intended by design, and includes repairs, improvements, and all measures taken to assure that public welfare and safety are protected.

2. **General:**

Maintenance and repairs will be accomplished by the most expeditious and cost-effective means. Both the AMAFCA maintenance crew and private contractors may be used.

A. Priority of effort will be:

1. Correction of problems which could lead to failure and subsequent loss of life or major property damage (e.g., concrete channel repairs, sediment plugs and other blockages of outlets and channels).

2. Installation or repair of features to protect public safety (e.g., guardrails, traffic barriers, reflectors, delineators).

3. Repairs which are necessary to prevent deterioration to a condition which could lead to failure (e.g., serious erosion, gabion repairs).

4. Routine work to maintain stormwater capacity (e.g., annual and periodic sediment, vegetation, and trash removal).

5. Routine maintenance (e.g., normal erosion, replacement of riprap, concrete joint repairs).

6. Minor/esthetic maintenance (e.g., minor sediment removal, trash and debris removal, access control and graffiti).

3. **Guidelines for allocation of effort:**

A. AMAFCA maintenance crew:

1. Emergencies.

2. Safety - installation of new safety features; maintenance and upgrade of existing

features.

3. Inspection.

4. Concrete repair, except large jobs,

5. Jobs for which AMAFCA maintenance crew has experience, (e.g., sediment removal in sensitive locations (Alameda Outlet Structure, North Diversion Channel),

6. Routine and repetitive tasks.

7. Short duration jobs defined as four weeks or less in duration typically requiring fifty percent of the AMAFCA maintenance crew and equipment or less.

B. Contractors:

1. Production jobs, (e.g., larger earthmoving or sediment removal),

2. Specialized tasks for which AMAFCA lacks in-house expertise and/or equipment,

3. Appropriate backlog tasks which cannot be scheduled in a timely manner by the AMAFCA Maintenance Superintendent.

4. Manual and Mechanical Trash and Debris removal, including cleaning of water quality features.

C. Other:

1. Contractors and others may remove sediment from AMAFCA facilities, in accordance with Resolution 1991-10 Disposal of Sediment and Excess Earth.

4. Administration and Records:

A. The Field Engineer and Maintenance Superintendent will develop annual and quarterly maintenance (including safety) schedules.

B. Insofar as possible, records of maintenance work (written, photographic, costs) will be kept in each project Operation, Maintenance and Inspection (OMI) folder.

C. Field Engineer and Maintenance Superintendent will brief Executive Engineer periodically, but not less than quarterly, on accomplishments, schedule, safety, and other matters of interest.

Adopted: _____ Date: _____

Jerry M. Lovato, P.E.
Executive Engineer

References:

1) AMAFCA Resolution 1991-10 Disposal of Sediment and Excess Earth

Albuquerque Metropolitan Arroyo Flood Control Authority

PROJECT INSPECTIONS

Plan No.5
January 2011

1. **Definitions:**

A. Inspection: Examination of an AMAFCA facility to ensure its proper operation and to identify needed maintenance and repairs.

2. **Procedures**

A. Intervals:

1. A detailed formal inspection of each AMAFCA facility shall be made once every year. This inspection will include walking the facility. This inspection will be accomplished by a qualified inspector using a check list (See Inspection Guides and Checklist file). This shall include a written record to the Operations, Maintenance and Inspection (OMI) file. Certain facilities (e.g., North and South Diversion Channels) require more frequent inspections. Dams will be inspected in accordance with the Operations and Maintenance Manual for each dam.

2. An inspection will be conducted after each major storm event which affects a flood control facility, with the primary objective being to identify immediate measures needed to restore the facility's ability to function as designed. An inspection will be conducted after any seismic event.

3. An informal drive through inspection of each facility will be conducted, normally in the fall. The formal checklist is not required, but written record may be made. In the event something of concern is found a formal inspection will be done.

4. Principal spillway conduits at Dams will be inspected via remote camera every five years. Conduits will be visually inspected during each formal inspection from the ends with lights. Physical inspection will be done if needed, in accordance with confined space entry procedures.

5. Formal Dam inspections will be performed by a New Mexico Licensed Professional Engineer. A New Mexico Licensed Professional Engineer will also be present during the New Mexico Office of the State Engineer, Dam Safety Bureau, inspections. Typically formal dam inspections will be by the Field Engineer but

inspections could be by other AMAFCA or consulting engineers.

6. Dam crests will be surveyed for settlement every five years. Mylar drawings will be updated with the elevation information, with copies furnished to the New Mexico State Engineer Office, Dam Safety Bureau

7. Records:

1. Formal checklists will be completed, reviewed by the Executive Engineer, and filed in the project Operations, maintenance and inspection (OMI) folder.

2. The list of required Maintenance/Repairs will be duplicated, including pictures, and given to the Maintenance Superintendent, to serve as a work directive. Once maintenance is complete, a record of the date completed will be filed in the OMI folder

3. Results of informal inspections will be reported by informal notes, and in periodic briefings to the Executive Engineer.

4. The Field Engineer is responsible for developing inspection schedules.

5. Progress on inspections will be reported periodically, but not less than semi-annually to the Executive Engineer.

6. As a matter of professional courtesy, and when convenient, AMAFCA personnel will inspect drainage facilities owned by other public agencies, and advise them of problems.

Adopted: Date:

Jerry M. Lovato, P.E.
Executive Engineer

Albuquerque Metropolitan Arroyo Flood Control Authority

Emergency Operations Plan for Flood Emergencies

Plan No. 7
January 2011

I **Purpose:**

This plan provides a framework for action in the event of a major flood emergency.

II **Mission**:

A. Operate AMAFCA projects to minimize loss of life and property damage.

B. Restore damaged flood control facilities to operation as soon as possible.

C. Assist other agencies as needed.

III **Procedures**:

A. During rainstorms, AMAFCA personnel, as needed or directed, will observe and monitor flood control facilities to ensure their proper operation. Any AMAFCA personnel have the authority to request additional assistance from AMAFCA staff and to implement this Emergency Operations Plan as needed. Initiation of this plan may also be at the request of other agencies.

IV **Specific Instructions:**

A. **Executive Engineer**

1. Direct AMAFCA activities.

2. Coordinate activities with other agencies.

3. Request State and Federal assistance.

4. Execute and administer contracts for emergency work.

5. Call for Emergency Board Meeting, if needed.

B. **Field Engineer**

1. Keep Executive Engineer informed

2. Direct field activities

3. Inspect or cause to be inspected all affected AMAFCA facilities.

4. Provide Maintenance Superintendent with priorities and technical guidance.

5. Recommend emergency actions to Executive Engineer. If Executive Engineer is not available, take action.

6. As time permits, inspect impacted flood control facilities managed by other agencies.

7. Coordinate with other agencies under FEMA Incident Command System, when appropriate.

C. **Drainage Engineer**

1. Keep Executive Engineer informed

2. Establish and organize AMAFCA office as an Emergency Operations Center

3. Retrieve as built drawings, inundation maps, and technical reports as necessary to assist and relay information to field forces.

4. Recommend emergency actions to Field Engineer and Executive Engineer. If they are not available, take action.

5. Contact volunteer rainfall observers, USGS and National Weather Service for event information. Relay such to others.

6. Assist in inspection of affected facilities.

D. **Development Review Engineer**

1. Keep Executive Engineer informed

2. Assist in inspection of affected facilities.

3. Provide Maintenance Superintendent with priorities and technical guidance.

4. As time permits, inspect impacted flood control facilities managed by other agencies.

5. Arrange for aerial photographic coverage of flooding and flood damage.

E. **Real Estate Manager**

1. Report to City of Albuquerque Emergency Operations Center as AMAFCA's representative. EOC is in Basement of Police Building.

2. Act as liaison and communications link between AMAFCA and other agencies.

3. Assist Executive Engineer as directed.

F. **Maintenance Superintendent**

1. Call in necessary crew members to respond.

2. Deploy crew members and equipment to ensure that affected AMAFCA dams, channels and other projects are inspected as soon as possible.

3. Assemble crew members and equipment at projects of concern.

4. Advise Field Engineer where problems might exist.

5. Maintain communication with AMAFCA office.

6. Assess need for outside support, and take action if necessary.

7. Coordinate with other agencies under FEMA Incident Command System, when appropriate.

G. **Maintenance Crew**

1. Report to office. If delayed, phone in.

2. Activate radios, warm up equipment and trucks, load equipment on transport vehicles.

3. Follow instructions of Maintenance Superintendent or Field Engineer.

H. **Business Manager**

1. Manage AMAFCA office as an Emergency Operations Center

2. Maintain radio and telephone contact with Executive Engineer and field personnel.

3. Keep AMAFCA Board of Directors informed. As directed by Executive Engineer, poll Board to authorize emergency purchases, contacts and other activities.

4. Provide information to press.

5. Assist Executive Engineer in preparing and executing emergency contracts.

I. **Executive Secretary**

1. Operate communication equipment

2. Provide support to Emergency Operations Center

3. Keep records of communications and actions. Use speaker phone and tape recorder, if necessary.

V. **Communications and Control**

A. AMAFCA

1. Office Telephone (505) 884-2215
2. Home and mobile telephones attached
3. Radio High Band: Receive 453.625 MHz
   Transmit 458.625 MHZ
4. AMAFCA Fax (505) 884-0214

B. Field and mobile units to maintain radio or periodic telephone contact with AMAFCA office.

C. All personnel advise Executive Engineer and Field Engineer of severe flooding, predicted severe flooding, or other severe circumstances.

D. Normal chain of command applies.

Adopted: _____ Date: _____

Jerry M. Lovato, P.E.
Executive Engineer

EMERGENCY NUMBERS	
John Kelly	344-4353
Mobile	362-1270
John Aragon	281-4811
Mobile	328-2782
Denise Cook	401-0994
Chris Cordova	331-9668
Kevin Daggett	872-0572
Mobile	362-7342
Herman Gabaldon	242-4373
Mobile	620-9936
Sal Hernandez	864-0200
Mobile	480-9259
Loren Hines	237-9623
Mobile	362-1271
Irene Jeffries	237-3630
Mobile	270-8692
Jerry Lovato	452-1905
Mobile	362-0020
Lynn Mazur	298-2893
Mobile	362-1273
James Moya	877-7598
Mobile	362-2355
John Nix	896-6992
Mobile	401-9476
Ron Ralston	867-5713
Mobile	463-6015

Mark Ramirez	896-0033
Mobile	220-3363
Manny Romero	385-0123
Kevin Troutman	814-9913
Larry Trujillo	877-8337
Mobile	362-1268
Brandon Trujillo	249-8526
Pat Trujillo	829-4135
Mobile	228-6012
Kurt Wagener	899-0495
Mobile	362-1272
Pam Woodruff	363-5051

Alarm Research		243-4444
Office 243-0578	Maint.	243-0641
Bern.Co. Zoning		314-0350
Bern. Co. Fire Dept		468-1310
Bern. Co. PWD		848-1559
Tom Zdunek		Cell 934-5400
Bern. Co. Sheriff		768-4160
COA Arroyo Maint.		291-6214
COA Fire Dept.		833-7390
MRGCD		247-0234
MRGCD Joe Brem		249-5780
APD		911 or 242-2677
SSCAFCA		892-5266
ABCWA Emergency		857-8250

ATTACHMENT G

HEC-RAS MODELS

(Separate Zip File)

ATTACHMENT H

GRADING PLAN FOR RICH COURT

ATTACHMENT H

KEYED NOTES

EXISTING EASEMENT

① TEMPORARY PUBLIC DRAINAGE EASEMENT GRANTED BY DOCUMENT FILED 04-19-2005, BOOK A95, PAGE 3821, DOC. #2005053982

NEW EASEMENTS

② PUBLIC UTILITY EASEMENT

③ 6' PUBLIC DRAINAGE EASEMENT

④ PUBLIC ROADWAY EASEMENT (TO BE VACATED AT A LATER DATE UPON DEDICATED RE-ALIGNMENT OF ALAMEDA BOULEVARD N.E.)

⑥ PRIVATE DRAINAGE EASEMENT

VACATED RIGHT-OF-WAY

⑤ FORMER ALAMEDA BOULEVARD N.E. STREET RIGHT-OF-WAY, PUBLIC ROADWAY EASEMENT (TO BE VACATED AT A LATER DATE UPON DEDICATED RE-ALIGNMENT OF ALAMEDA BOULEVARD N.E.)

SCALE: 1" = 20'

PROJECT BENCHMARK

AN ACS 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 11-C19" EPOXIED TO TOP OF A CONCRETE CURB LOCATED AT THE NNW RETURN OF BARSTOW ST. AND OAKLAND AVENUE N.E.
ELEVATION = 5480.97 FEET (NGVD 1929)

T.B.M.

T.B.M. #1
A SPIKE WITH JMA RED CAP LOCATED APPROXIMATELY 114 FEET NORTH OF THE NORTH EDGE OF ALAMEDA BLVD. N.E. AND APPROXIMATELY 80 FEET EAST OF A CMU WALL AS SHOWN HEREON.

ELEVATION = 5515.76 FEET

T.B.M. #2
A SPIKE WITH JMA RED CAP LOCATED NORTH OF THE SITE AS SHOWN HEREON.
ELEVATION = 5522.79 FEET

LEGEND

CMU	CONCRETE MASONRY UNIT
EA	EDGE OF ASPHALT
NG	NATURAL GROUND
OHC(1)	OVERHEAD COMMUNICATION (NO. OF LINES)
OHE(2)	OVERHEAD ELECTRIC (NO. OF LINES)
TA	TOP OF ASPHALT
TR	TELEPHONE RISER
TW	TOP OF WALL
WPP	WOOD POWER POLE
+ 19.6	EXISTING SPOT ELEVATION
	EXISTING CONTOUR
	EXISTING CONIFEROUS TREE
	PROPOSED ASPHALT PAVEMENT
	PROPOSED CONCRETE
	PROPOSED TEMPORARY PAVEMENT
	PERIMETER WALL
	RIP-RAP (BY CPN 757781)

THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN HEREON FOR ORIENTATION PURPOSES ONLY. BOUNDARY AND TOPOGRAPHIC DATA SHOWN HEREON IS FROM A SURVEY DATED 5/09/06 BY THIS OFFICE, NMPS 11184. PROPOSED LOTS AND EASEMENTS ARE FROM THE PRELIMINARY PLAT PREPARED BY THIS OFFICE, NMPS 11184.

J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER
7/25/2006

File Path: E:\WORK\2005\JMA
File Name: 507G4GR.DWG
Plot Date: 07-24-2006
Plot Time: 4:29 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 ESTABLISHED 1977

APPROVED FOR ROUGH GRADING
CITY HYDROLOGY — DATE

GRADING PLAN
RICH COURT

DESIGNED BY J.D.S./G.M.
DRAWN BY S.G.H.
APPROVED BY G.M.

NO.	DATE	BY	REVISIONS

JOB NO. 2005.070.4
DATE 07-2006
SHEET 2 OF 4

ATTACHMENT I

SHEET 8R OF 11 CONSTRUCTION PLANS FOR

LA CUEVA ARROYO CHANNEL IMPROVEMENTS

ATTACHMENT I

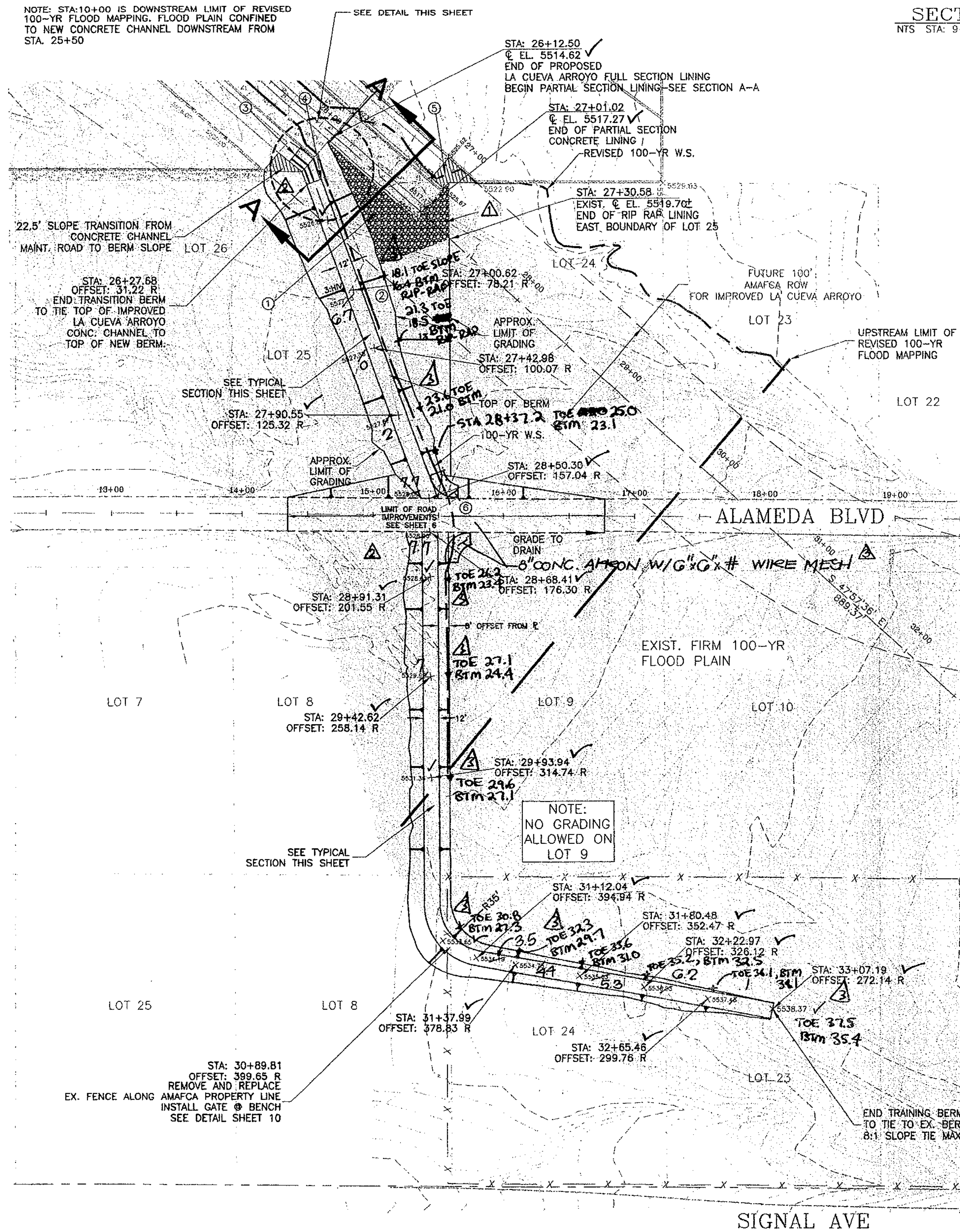
RECORD DRAWING

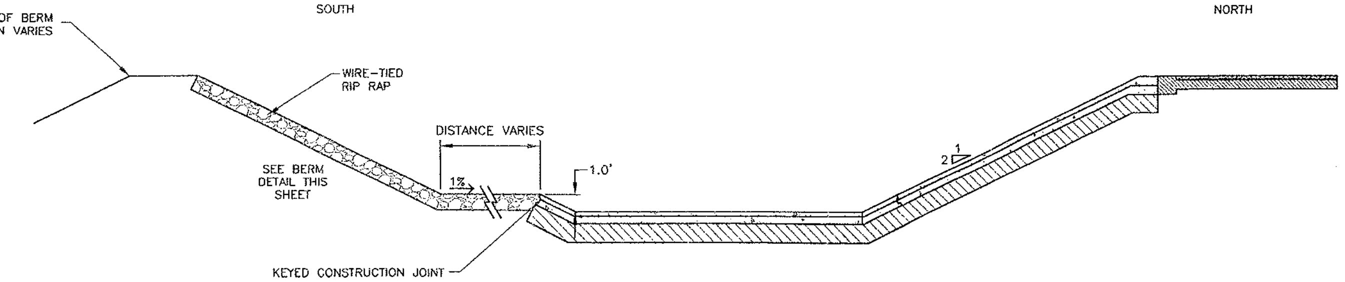
FOR CERTIFICATION, SEE SHEET 1

GRAPHIC SCALE

SCALE: 1"=50'

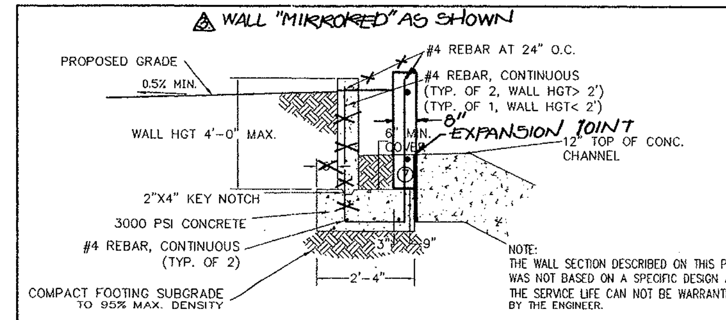
NOTE: STA:10+00 IS DOWNSTREAM LIMIT OF REVISED 100-YR FLOOD MAPPING. FLOOD PLAIN CONFINED TO NEW CONCRETE CHANNEL DOWNSTREAM FROM STA. 25+50





SECTION A-A

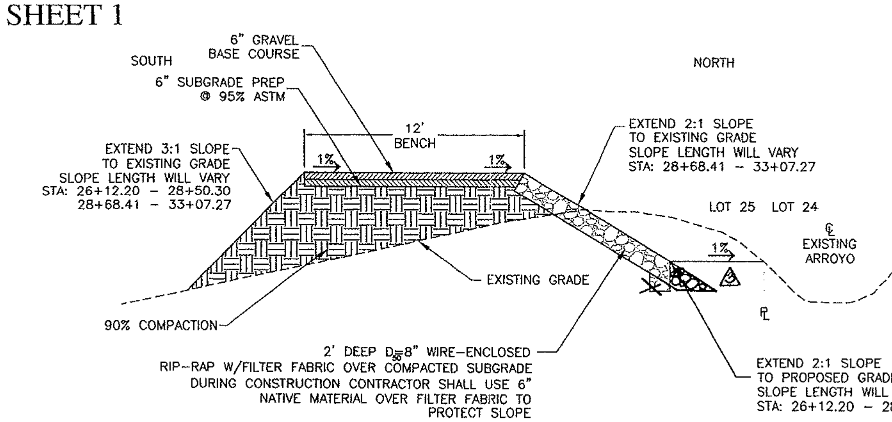
NTS STA: 9+61.45 - 10+51.08



REINF. CONC RETAINING WALL

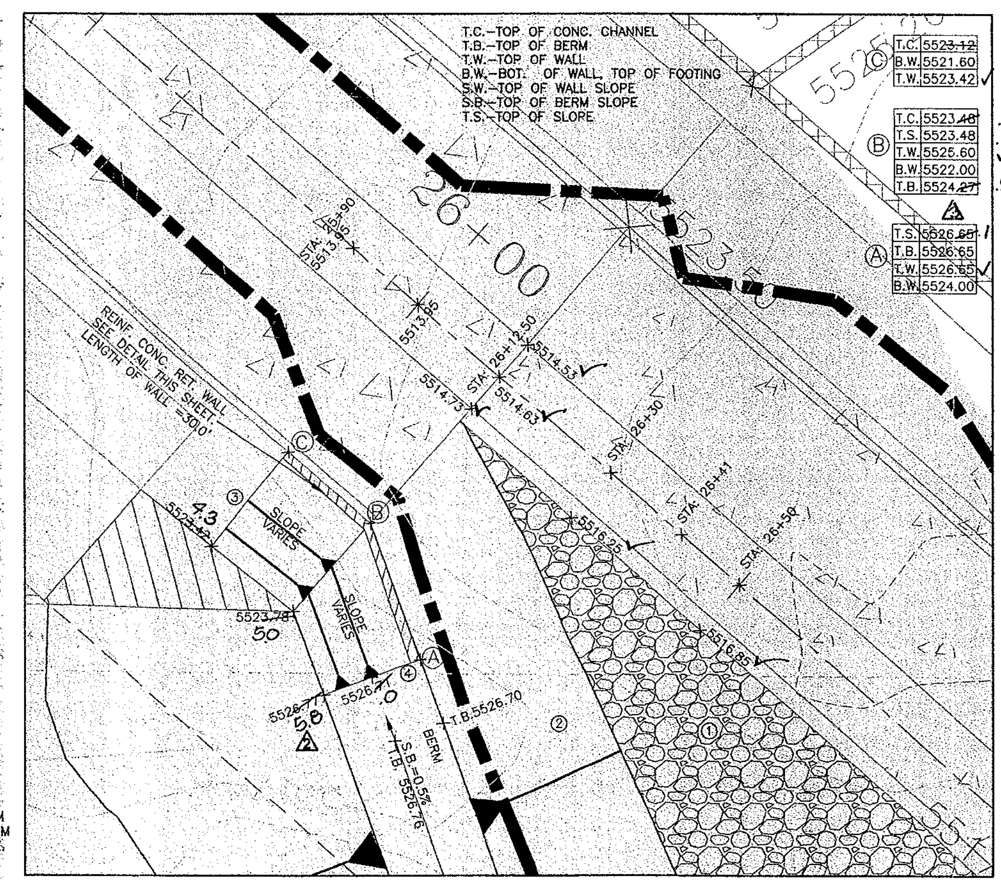
HEIGHT 4' OR LESS NTS

1. WIRE-TIED RIP RAP LINING OF LEFT SIDE OF BOTTOM SEE SPECS ON TYPICAL BERM SECTION THIS SHEET
2. WIRE-TIED RIP RAP LINING OF BERM SIDE NOT SHOWN FOR CLARITY. SEE SECTION A-A THIS SHEET
3. STA: 26+00 OFFSET: 24 R BEGIN TEMP. TRANSITION TO TOP OF BERM. BEGIN TEMP. RET. WALL TOP OF WALL EL. 5523.42
4. STA: 26+27.68 OFFSET: 31.22 R END RET. WALL. TOP OF WALL EL. 5526.65
5. STA: 26+90 OFFSET: 30 L BEGIN TRANSITION FROM MAINT. ROAD TO EXIST. GROUND @ P
6. EXISTING P.P. TO BE RELOCATED BY OTHERS
7. PLACE ½" FELT AGAINST CURED CONC. CHANNEL TOP



TYPICAL BERM SECTION

NTS



T.C.	5523.12
B.W.	5521.60
T.W.	5523.42

T.C.	5523.48
T.S.	5523.48
T.W.	5525.60
B.W.	5522.00
T.B.	5524.27

T.S.	5526.65
T.B.	5526.65
T.W.	5526.65
B.W.	5524.00

CHANNEL ENTRANCE DETAIL

SCALE: 1"=10'

LEGEND

- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- FLOW ARROW
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- CENTERLINE
- POST-PROJECT 100-YR WATER SURFACE
- EXISTING 100-YR FLOODPLAIN

Resource Technology, Inc.

Rio Grande Engineering 1606 CENTRAL AVENUE SE SUITE 201 ALBUQUERQUE, NM 87106 (505) 872-0999

AS BUILT INFORMATION: CONTRACTOR Moore & Cowart; WORK STARTED BY Cartesian DATE 09/07; INSPECTOR'S ACCEPTANCE BY HMCG DATE 09/07; FIELD VERIFICATION BY Cartesian DATE 09/07; DRAWINGS CORRECTED BY HMCG DATE 09/07

MICRO-FILM INFORMATION: RECORDED BY / DATE / NO.

BENCH MARKS: ACS MONUMENT "7-L9"; CENTRAL STATION DATA; NM STATE PLANE COORDINATES; Central Zone; X = 352,978.14; Y = 1,478,346.71-NAD 1927; G-G = 0.99967727; DELTA ALPHA = -0°16'56"; EL. = 5175.735-NGVD 1929

SURVEY INFORMATION: FIELD NOTES — NO. / BY Cartesian / DATE 09/07

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
	09/07	RECORD DRAWING	G.M.
	6/28/06	ADD RIP-RAP AT INLET	EVD
	10/12/06	REV. RET. WALL @ INLET & ALAMEDA SHOULDER GRADING AT BERM	EVD

REVISIONS — DESIGN

DESIGNED BY: EVD, KP DATE: 6/19/06
DRAWN BY: RAO DATE: 6/19/06
DRAWN NAME: 2441-CHANNEL-LAYOUT-9-17-04X.DWG JOB NO.: 2441
CHECKED BY: EVD DATE: 6/19/06

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: **LA CUEVA ARROYO** *BERM GRADING AND DETAILS*

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
757781	C-20-Z	8R	11

2006.041.1

ATTACHMENT J

AMAFCA INSPECTION REPORT FOR LA CUEVA CHANNEL

AMAFCA CHANNEL INSPECTION REPORT

Project: La Cueva Arroyo Barstow to Alameda

Date: 10/22/10

File #: 554000000

1. INSTRUCTIONS:
   A. Review previous inspection reports for problem areas.
   B. Review as-built plans.
   C. Equipment needed: hand level, tape measure, flashlight, rock pick, 6' heavy chain, gloves, stout wire (to check riprap depth)
   D. Complete all spaces. If not inspected, so state. If not applicable, state N/A.
   E. Use "other" for unlisted features.
   F. Complete Required Maintenance/Repair Section.
   G. Continue any remarks on the back of sheet, if needed.
2. PROJECT CONDITION
   A. General – Will project operate as intended during a heavy storm? Yes ✓ No _____
      If in doubt, please explain _____

   B. Concrete Channel
      1. Heaving or Settling No
      2. Undermining No
      3. Cracking Normal
      4. Hollow sound Not checked
      5. Joints: General Condition Good

      Joint filler material (type, condition, location) N/A

      Spalling No

      Arching No

      Other _____
      6. Weep holes or drains N/A

7. Erosion along edge of channel No

8. Transition sections (change in geometry)
   General alignment Good
   Joint condition Good
   Other
9. Rescue ladders None
10. Sedimentation No
11. Debris No

C. Riprap Channels (includes gabion-lined or wire enclosed riprap) (Berm)
1. Heaving or settling No
2. Undermining No
3. Depth (more needed?) Good
4. Condition of rock Good
5. Condition of wire Good
6. Condition of tie wires Good
7. Condition of filter material Not checked
8. Sediment No
9. Edge erosion No
10. Sloughing or sliding of riprap No
11. Rodent burrows / piping channels None seen

D. Earth Channels
1. Heaving, settling or sloughing of banks Good
2. Significant erosion
3. Bank cutting
4. Channel (head) cutting
5. Sedimentation
6. Vegetation
7. Debris
8. Sloughing or sliding
9. Rodent burrows

E. Conduits

1. General condition (cracking, alignment, deterioration, etc.) Good
2. Inlet condition Good
3. Scouring (inlet and outlet) No
4. Condition of joints Good
5. Sedimentation No
6. Debris No
7. Trash, rocks No

F. Other Features

1. Rundowns Good
2. Inlets Good, clean pipe
3. Bridges /Crossing Structures
   - General conditions Good
   - Conditions of joints / interface with channel N/A
   - Conditions of piers, abutments, etc. Good
4. Flap gates N/A
5. Control gates N/A
6. Drop Structures / Grade Control Structures
   - Type (gabion, concrete, etc.) N/A
   - General condition
   - Undermining / Piping
   - Settling
   - Movement or tipping
   - Erosion
   - Condition of filter material
   - Rodent holes
   - Trash / Debris

G. Project Safety

1. Guard Rail Good

2. Delineators N/A
3. Fence and Gates Good
4. Warning Signs Good
5. Barriers / Barricades Good
6. Manhole Covers Good

H. Right of Way

1. Unauthorized use of project lands No
2. Property signs:
   Missing No
   Damaged No
3. Monuments None seen
4. Maintenance Roads Good
5. Encroachments
   No

L 7

Facility La Cueva Arroyo Barstow to Alameda Date 10/22/10

Required Maintenance / Repair 554+100 000

Urgent: None

Routine:

1) - clean end of culvert, little more rip rap, pull elm & desert willows

see below - KW call Bob Keeran about dead tree ?

3) - pick up mattress south of Alameda

see below - KW call Bob Keeran - fill hole from rem. tree?

5) - Remove all SW PPP BMP's - silt fence

2) ok - Bob Keeran says it was not him but other crew. Need to finish removing dead tree and fill holes

Items completed

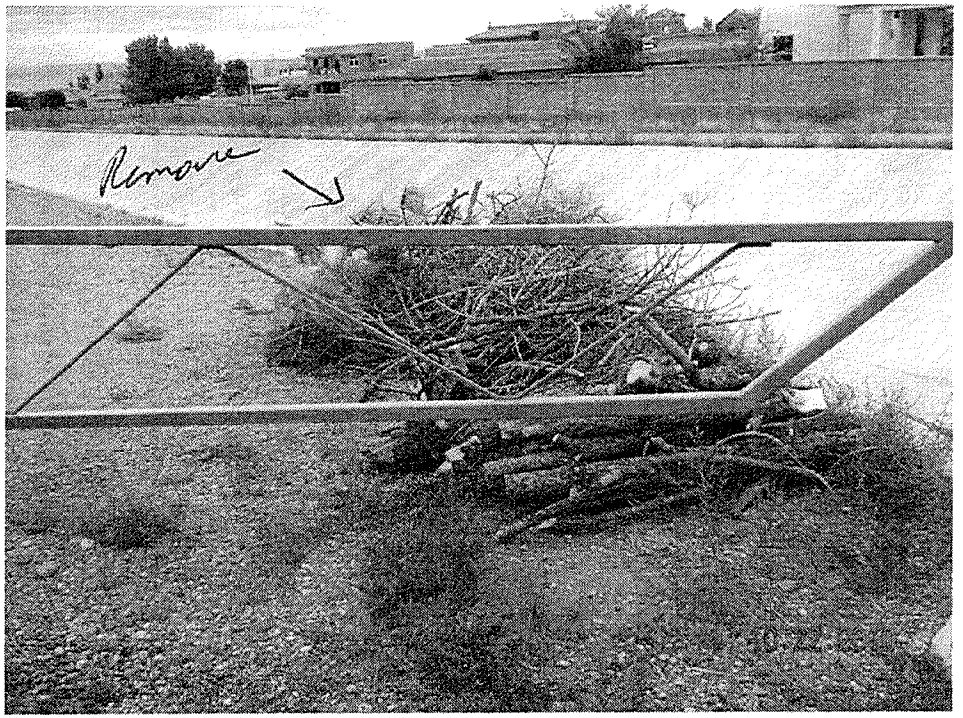
2-14-11
Date

Inspector: (Print) Kurt Wagner (Signature) Kurt Wagner

1)


Clean, remove elms, & willows
Add rip-rap
10 22 2010

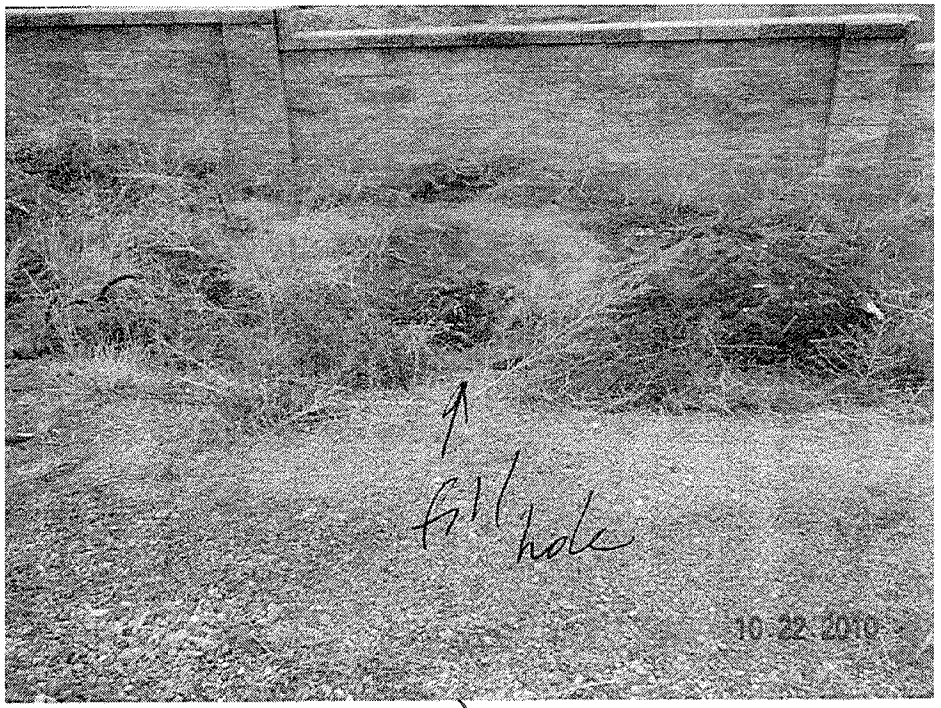
2)


Remove


parking
matress
10 22

3)

4)


fill hole
10 22 2010

57

Remove 5.7ft fence
throughout project