

E23/D012

EASEMENT AGREEMENT
(Tract 15D-1B-1C/Unit 2 Mountain Highlands)

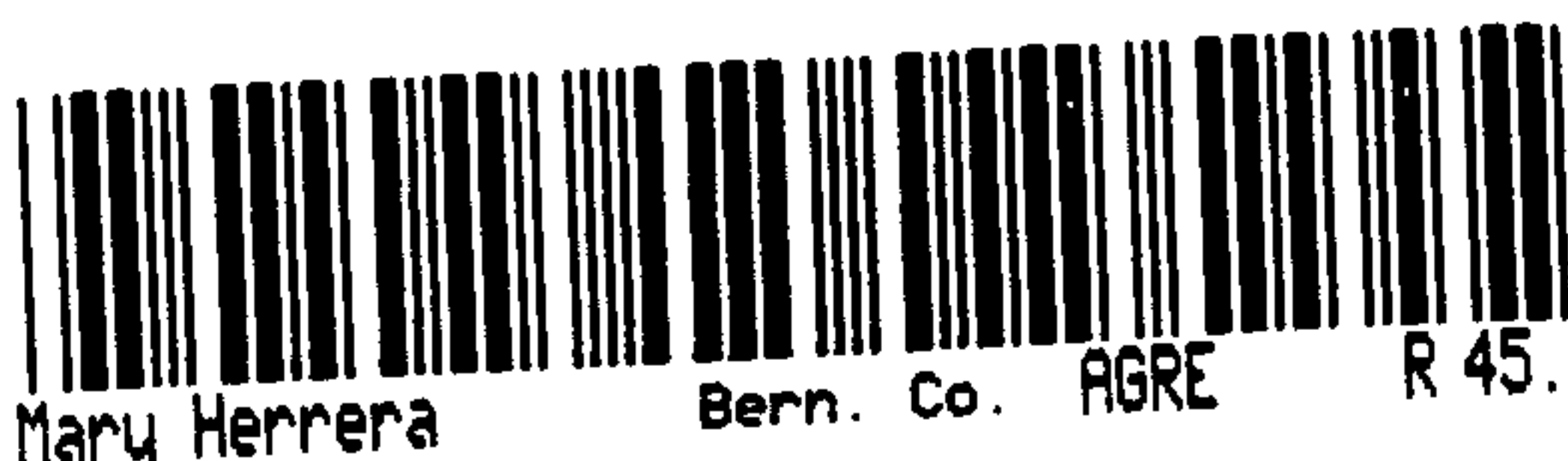
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This Easement Agreement, between High Desert Investment Corporation, a New Mexico corporation ("Grantor"), whose address is 13000 Academy Road, N.E., Albuquerque, New Mexico 87111, the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P. O. Box 1293, Albuquerque, New Mexico 87103 and High Desert Residential Owners Association, Inc., a New Mexico non-profit corporation, whose address is 13000 Academy Road, N.E., Albuquerque, New Mexico 87111 ("Owners Association").

1. Grant of Easement. Grantor grants to City an easement for the conveyance of surface storm water (the "Easement") on, over, across and through the following described property (the "Property"):

Those portions of Unit 2 Mountain Highlands at High Desert on the Plat of Unit 2 Mountain Highlands at High Desert (a Replat of Tract 15D-1B-1C High Desert) filed October 2, 2003 Book 2003C, Page 298, as document number 2003182214, records of Bernalillo County, New Mexico (the "Plat") which are (i) outside of the building envelopes for the lots indicated on the Plat (the "Building Envelopes"), and (ii) outside the AMAFCA drainage easement in Unit 1 Mountain Highlands at High Desert filed July 1, 1996 as document no. 96073621, in Book 96-18, Pages 3732-3779, records of Bernalillo County, New Mexico.

and grants to Owners Association and the City (to the extent necessary to exercise its rights under this Easement Agreement) the right to maintain and repair the Property and the Easement and the right to remove trees, bushes, undergrowth and any other



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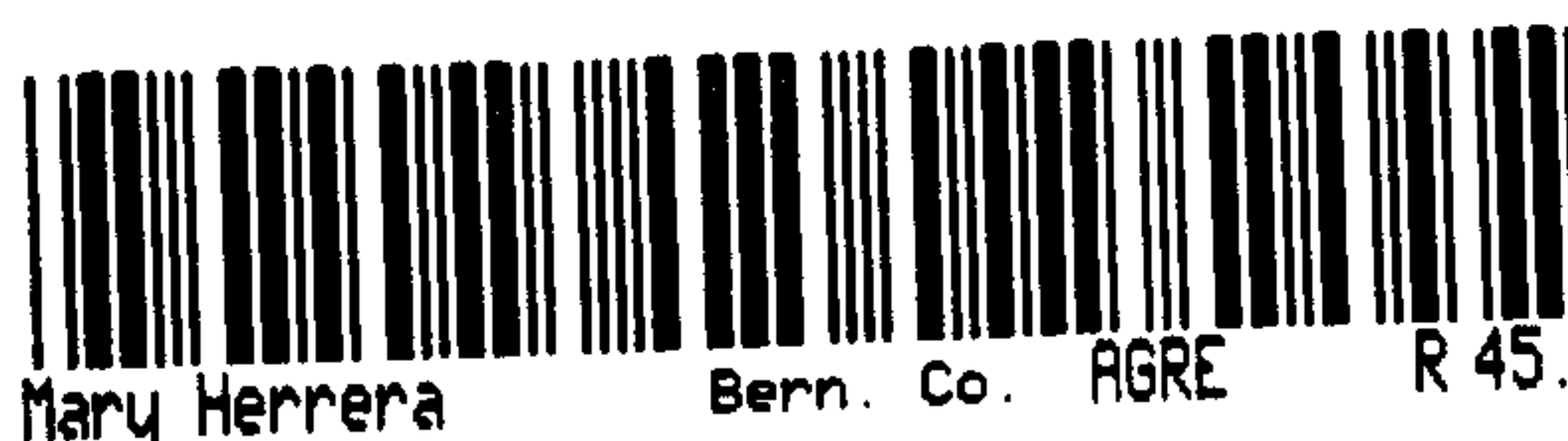
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obstacles upon the Property if such items interfere with the appropriate use or function of the Easement.

2. Grantor's, Owner's Associations and Owner's Responsibility for Easement. Grantor, Owner's Association and the Owner of portions of the Property ("Owner" or "Owners"), (Grantor and Owners only as to the portion of the Property owned thereby), will be responsible for conveying any storm water flows across the Property in a controlled manner to ensure the flows do not result in substantial damage to the Property, adjoining properties or downstream properties. Grantor, Owners Association and Owners (Grantor and Owners only as to the portion of the Property owned thereby) will be responsible for conveying all flows to the Property from the City's adjoining right-of-way in a controlled manner to ensure the flows do not result in substantial damages to the Property, adjoining properties or downstream properties. Grantor, Owners Association and Owners, (Grantor and Owners only as to the portions of the Property owned thereby), will be responsible for constructing drainage improvements upon, maintaining, repairing and modifying the Easement and the Property, and if City requires, removing improvements constructed on the Easement or the Property ("Maintenance and Repair"), all in accordance with City standards including but not limited to the Drainage Reports and Drainage Plans for the tracts subject to the Easement which Drainage Reports and Drainage Plans are approved by City from time to time. Grantor, Owners Association and Owners (Grantor and Owners



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only as to the portions of the Property owned thereby) will be responsible for all costs of the Maintenance and Repair under this Agreement. Neither Grantor, nor Owners, nor Owners Association will permit the Easement to constitute a hazard to the health or safety of the general public or to interfere with City's use of City's adjoining property. The Maintenance and Repair of the Easement and Property will be in accordance with standards required by City per the relevant approved Drainage Reports and Drainage Plans for Tract 15D, High Desert. Grantor, Owners Association and Owners (Grantor and Owners only as the portion of the Property owned thereby) covenant that all Maintenance and Repair under this Agreement and any drainage improvements constructed on the Easement and the Property will not result in substantial damage to adjoining or downstream properties and the Easement and the Property and will conform with all applicable laws, ordinances and regulations. Each Owner, only as to the portion of the Property owned thereby, will be responsible to maintain any walkways, driveways or paths crossing the Property.

3. Reserved Rights. Grantor reserves to itself, and to its successors and assigns, all rights accruing from the ownership of the Property, including the right to engage in or permit or invite others to engage in all uses of and activities of the Property that are not expressly prohibited by or inconsistent with Chapter 14, Article 5, Revised Ordinances of the City of Albuquerque (1994) (the "Drainage Ordinance") and the



purpose of the Easement. Without limiting the foregoing, Grantor will have and expressly reserves the following rights subject to written approval by City, which approval will not be unreasonably withheld:

A. The right to grant easements over portions of the Property to the appropriate parties as necessary for underground utilities including but not limited to water, sewer, gas, electricity, telephone and cable t.v.;

B. The right to locate and pave walkways, driveways and paths across the Property;

C. The right to locate, install and maintain on the Property landscaping and related irrigation facilities or structures; and

D. The right to grant easements to Owners Association for purposes of landscaping and irrigation of landscaping on the Property and the maintenance of such landscaping and irrigation facilities.

4. Maintenance and Repair of City Property. In addition to its responsibilities for Maintenance and Repair with respect to the Easement and the Property, Grantor, Owners Association and Owners (Grantor and each owner only as to those portions adjacent to the portion of the Property owned thereby) will also be responsible to perform Maintenance and Repair (the term "Maintenance and Repair" hereafter meaning Maintenance and Repair to the Easement, Property and City Property) for those portions of City's property within Tract 15D, High Desert subject



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to the Easement from the back of the curbs of any streets located within City rights-of-way to the rights-of-way boundary lines (the "City Property") to ensure the flows do not result in substantial damage to the Property, adjoining properties, downstream properties or the City Property. Grantor, Owners Association and Owners (Grantor and each Owner only as to those portions adjacent to the portion of the Property owned thereby) will be solely responsible for all costs for Maintenance and Repair related to the City Property. The Maintenance and Repair of the City Property will be in accordance with City standards including but not limited to the Drainage Reports and Drainage Plans for the tracts subject to the Easement which Drainage Reports and Drainage Plans are approved by City from time to time.

5. Role of Owners Association and Owners. All parties recognize that all responsibility for Maintenance and Repair provided for in this Agreement, although the obligation of Grantor, Owners Association and Owners (Grantor and each Owner only as such maintenance relates to the portion of the Property owned thereby), will be primarily the responsibility of Owners Association and secondarily the responsibility of Grantor and the Owners. Owners Association will be the primary and initial responsible party and, except as required in this paragraph, City will use its good faith efforts, but be under no obligation, to require performance first by Owners Association of any Maintenance and Repair or other action required under this



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Agreement. City will use its good faith efforts, but be under no obligation, to only require performance by Grantor or each Owner (as to Grantor's or such Owner's portion of the Property owned) or Grantor and the Owners collectively in the following instances: (i) Owners Association, after notice and opportunity to act pursuant to this Agreement, has failed to perform the Maintenance and Repair required under this Agreement or (ii) Owners Association, pursuant to its governing documents, has ceased to exist or function.

6. Limitation of City's Liability. Except any damage resulting from the negligent acts or errors or omissions of City, City will have no responsibility or liability resulting from or arising in connection with (i) any storm drainage on the Property, the Easement or the Building Envelopes; (ii) any Maintenance and Repair performed on the Property or the Easement or the City Property by Grantor, Owner's Association, any Owner or the City; (iii) any damage to any property, structures or improvements located on the Property or within the Building Envelopes caused by any storm drainage or any Maintenance and Repair; (iv) any damage to any portion of the Property or Building Envelopes owned by Grantor or Owner caused by any storm drainage or any Maintenance and Repair; or (v) any inspection performed by City pursuant to Section 8, below.

7. Warranties. Grantor covenants and warrants that it is the owner in fee simple of the Property and that it has a good lawful right to convey the Property or any part thereof and



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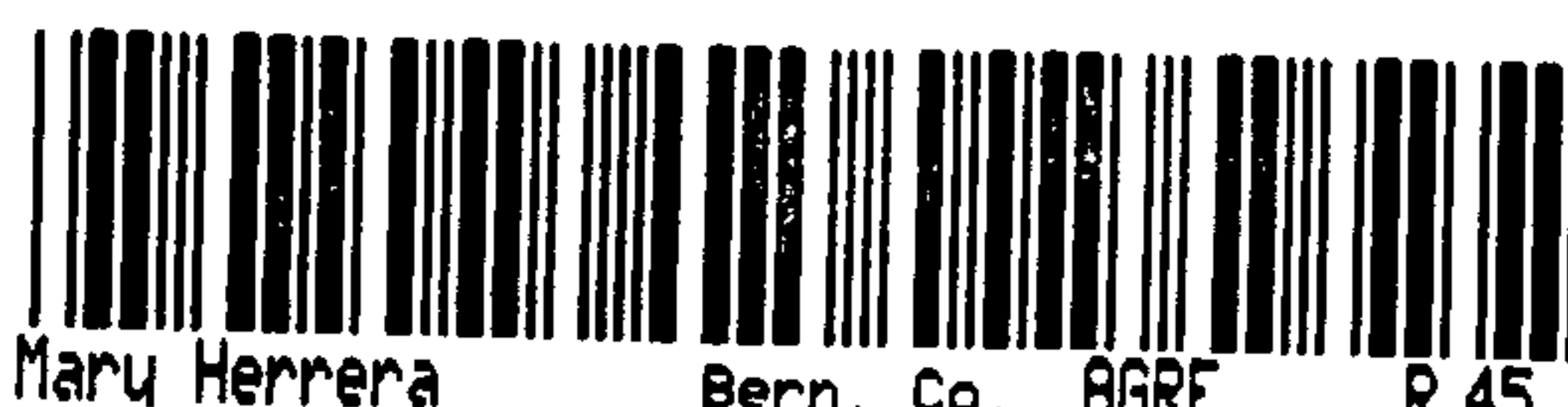
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that the Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

8. City's Right of Entry; Indemnification. City has the right to enter upon the Property or any portion thereof to perform inspections of the Easement or Property it deems appropriate, and will make good faith efforts, but be under no obligation, to make such entry at reasonable times, upon 10 (ten) days written notice to the then current Owners of the Property to be entered and Owners Association.

9. Demand for Maintenance or Repair; Failure to Perform by Owners Association.

A. If City determines that Owners Association has not adequately performed its obligations under this Agreement relating to the Property, the Easement or the City Property, City, will use good faith efforts, but be under no obligation, to, as its first action, send written notice ("Notice") to Owners Association requiring Owners Association to perform the Maintenance and Repair of the Easement or Property or City Property, or remove any facilities therein, within thirty (30) days ("Deadline") of receipt of the Notice, as provided under this Agreement or if such Maintenance and Repair is not possible within thirty (30) days, to commence and diligently pursue such Maintenance and Repair within such thirty (30) days period. Owners Association will comply promptly with the requirements of the Notice at Owners Association's sole expense.



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B. If Owners Association fails to comply with the terms of the Notice by the Deadline, City may then send written notice to Grantor and Owners who own those portions of the Property affected (the "Notice to Owners") requiring each of Grantor and such Owners (as to the portion of the Property owned thereby) to perform the Maintenance and Repair of the Easement or Property or City Property, or remove any facilities therein within thirty (30) days ("Owners Deadline") of receipt of the Notice to Owners, as provided under this Agreement or if such Maintenance and Repair is not possible within thirty (30) days, to commence and diligently pursue such Maintenance and Repair within such thirty (30) day period. Grantor and Owners will comply promptly with the requirements of the Notice at Grantor's and Owner's sole expense (Grantor and each Owner as to the portion of the Property owned thereby).

10. Failure to Perform by Owners and Emergency Work by City.

A. If (i) Owners Association fails to comply with the terms of the Notice by the Deadline and subsequently Grantor or Owners fail to comply with the terms of the Notice to Owners by the Owners Deadline, or (ii) if the City determines before the Deadline or Owners Deadline that an emergency condition exists, that requires immediate action, City may perform the Maintenance and Repair indicated in the Notice or Notice to Owners itself. City may assess Grantor and Owners (Grantor and each Owner only as to that portion of the Property



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owned thereby and affected) for the cost of the work and for any other expenses or damages which result from the emergency condition or Grantor's or Owners' failure to perform under the terms of the Notice to Owners. Grantor and each Owner will promptly pay City the amount assessed as appropriate for the portions of the Property owned thereby. If Grantor or an Owner fails to pay City within thirty (30) days after the City gives Grantor or such Owner written notice of the amount due, City may impose a lien against that portion of Property owned by Grantor or Owner, which lien will be imposed and foreclosed in the manner provided for in Sections 3-36-1 through 3-36-6 NMSA 1978. If feasible given the emergency condition, City will consult with Owners Association prior to Maintenance and Repair activity or work by City at the Property or City Property, with the understanding that Owners Association desires to minimize the use of concrete, rip rap and soil cement.

B. If at any time City determines in its sole discretion that a serious life-threatening or extensive property-threatening emergency situation exists at the Property, City may perform the Maintenance and Repair or any other work it determines to be reasonably necessary to abate the emergency situation. City may assess Grantor and the Owners (Grantor and each Owner only as to that portion of the Property owned thereby and affected) for the cost of the Maintenance and Repair and work and for any other expenses or damages which result from the emergency situation. Grantor and each Owner will promptly pay

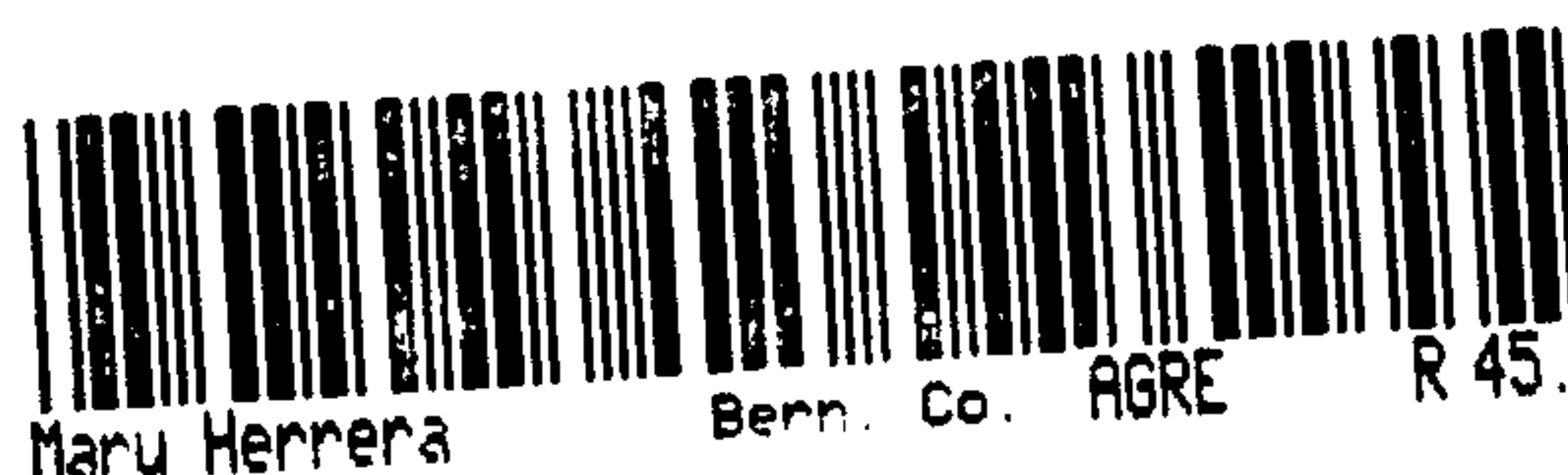


City the amount assessed, as appropriate for the portions of the Property owned thereby. If Grantor or an Owner fails to pay City within thirty (30) days after City gives such Owner written notice of the amount due, City may impose a lien against that portion of the Property owned by Grantor or Owner, which lien will be imposed and foreclosed in the manner provided for in Sections 3-36-1 through 3-36-6 NMSA 1978. If feasible given the emergency condition, City will consult with Owners Association prior to Maintenance and Repair activity or work by City at the Property or City Property, with the understanding that Owners Association desires to minimize the use of concrete, rip rap and soil cement.

11. Liability of City for Repair after Notice or as a Result of Emergency. City will not be liable to Grantor, Owners Association or any Owner for any damages resulting from City's repair or maintenance following Notice to Owners Association or Notice to Owners as required in this Agreement or in an emergency unless the damages are the result of the reckless conduct or negligence of City.

12. Insurance.

A. General Conditions. Owners Association will procure and maintain in full force and effect during the term of this Agreement such insurance as required in this section. City will be named as an additional insured on the policies of insurance. Policies of insurance will be written by companies authorized to write such insurance in New Mexico, and they will



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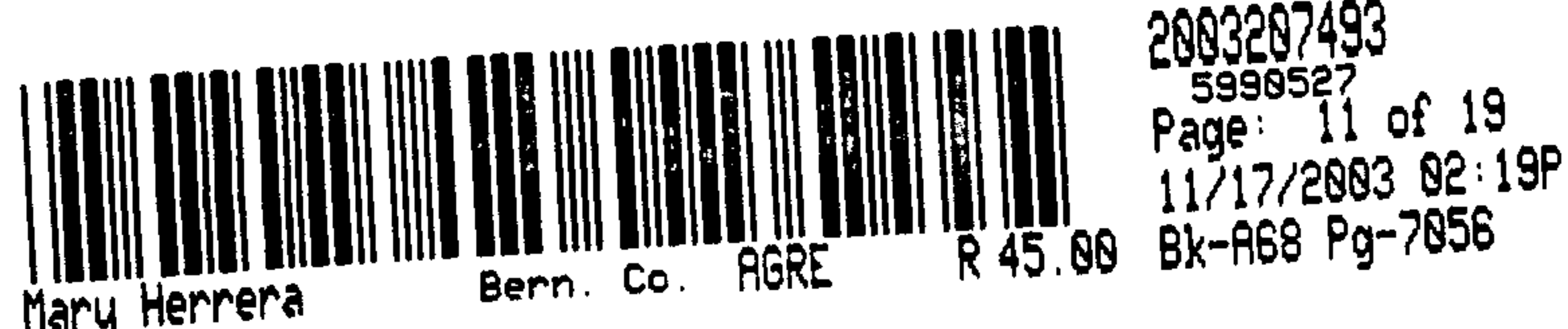
be in a form satisfactory to City and properly filed and approved by the Superintendent of Insurance, State of New Mexico. The insurance may be written in one or more policies. Owners Association will:

(1) Include any and all contractors and subcontractors performing any work on the Property (the "Contractors and Subcontractors") in its insurance policies; or

(2) Require the Contractors and Subcontractors to secure insurance to protect itself against all hazards enumerated herein that are not covered by Owners Association's policies.

(3) All certificates of insurance (or policies) will provide that thirty (30) days written notice be given to the Director of Risk Management, City of Albuquerque, P. O. Box 1293, Albuquerque, New Mexico 87103, before a policy is cancelled, materially changed or not renewed. A certificate or policy that states that failure to give such notice imposes no obligation on the insurance company is unacceptable to City.

(4) Owners Association will not violate the terms or prohibitions of insurance policies required to be furnished by Owners Association. Owners Association will promptly notify City of any claim or loss exceeding the amount of the deductible under such insurance policies, and certify that proper notice has been given to the appropriate insurance carrier.



B. Approval of Insurance. Even though a "Notice to Proceed" may have been given, Owners Association will not permit any Contractor or Subcontractor to begin any work under this Agreement until the required insurance has been obtained and the proper certificates (or policies) filed with City. Neither approval nor failure to disapprove certificates, policies or the insurance by City will relieve Owners Association or any Contractor or Subcontractor of full responsibility to maintain the required insurance in full force and effect.

C. Commercial General Liability Insurance. Owners Association will procure and maintain during the term of this Agreement a comprehensive general liability insurance policy with liability limits in amounts not less than \$1,000,000 combined single limit of liability for bodily injury, including death, and property damage in any one occurrence. Said policies of insurance must include coverage for all operations performed by Owners Association under this Agreement, including coverage for collapse (C), explosion (X) and underground (U) liability coverage, and contractual liability coverage which will specifically insure the indemnification provision of this Agreement.

D. Owners and Contractors Protective Liability Insurance. Owners Association shall procure and maintain during the term of the Easement and this Agreement, an owners and contractors protective liability insurance policy with liability limits in amounts not less than \$1,000,000 combined single limit

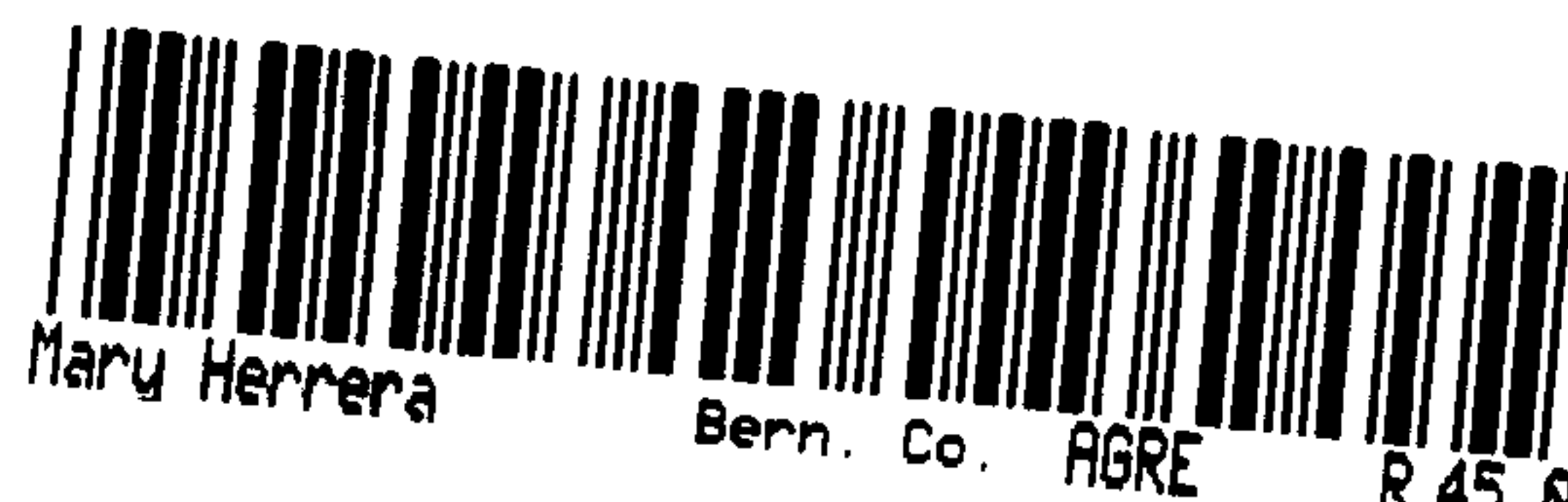


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of liability bodily injury, including death, and property damage in any one occurrence.

13. Indemnification. Grantor indemnifies and saves City, its officials, agents and employees harmless from all claims, actions, omissions, suits and proceedings arising out of or, resulting from Grantor's Maintenance and Repair or use of the Easement or Property or City Property, except those resulting from or caused by the negligent acts or reckless misconduct of City. Owners Association indemnifies and saves City, its officers, agents and employees from all claims, actions, suits and proceedings arising out of, or resulting from Owners Association's Maintenance and Repair or use of the Easement and Property or City Property, except those resulting from or caused by the negligent acts or reckless misconduct of City. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

The indemnification of High Desert Investment Corporation as



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Grantor under this Section is specifically limited as set forth in Section 24 of this Agreement.

14. Release of Agreement and Termination of Easement.

This Agreement may be released and the Easement terminated or vacated if the Easement is no longer required for the protection of the public health, safety and welfare, by City filing a "Notice of Release" and vacation action required per the Subdivision Ordinance with the Bernalillo County Clerk or by following the then current process for the release, termination or vacation of an easement. The Notice of Release must be signed by City's Chief Administrative Officer, or its designee, and the approval of the City Hydrologist must be endorsed thereon. Upon termination or vacation of the Easement, ownership of the Easement will revert to and revest in Grantor, its successors and assigns, as fully and completely as if the grant of the Easement had never been executed by Grantor and the Easement will then become void. If requested, City will convey Easement to Grantor, its successors and assigns by quit claim deed.

15. Assessment. Nothing in this Agreement will be construed to relieve Grantor, its heirs, assigns, and successors from an assessment against the Property for improvements to the Property under a duly authorized and approved Special Assessment District.

16. Notice. For purposes of giving formal written notice to Owners Association, Owners Association's address is:



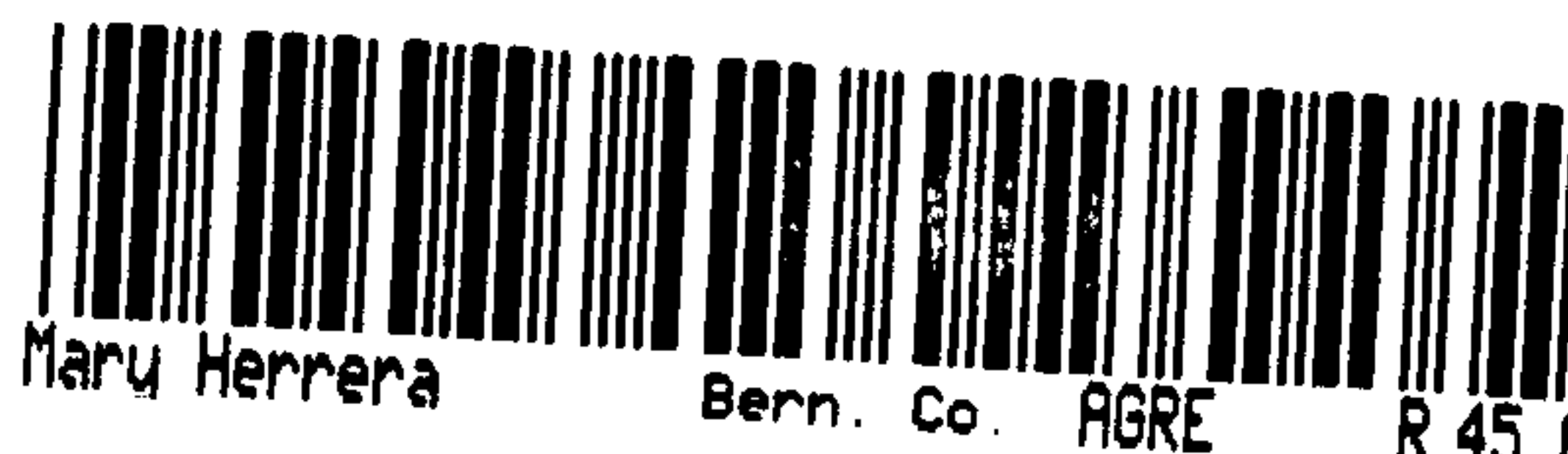
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High Desert Residential Owners Association, Inc.
13000 Academy Road N.E.
Albuquerque, New Mexico 87111

Notice may be given to the Owners Association either in person or by mailing the notice by first class U.S. mail, postage paid. Owners Association may change its address by giving written notice of the change by Certified Mail, return receipt requested, to the City Public Works Department, P. O. Box 1293, Albuquerque, New Mexico 87103. For purposes of giving formal written notice to each Owner, each Owner's address is that address found on the County of Bernalillo, New Mexico's current property tax rolls. Notice may be given to each Owner either in person or by mailing the notice by first class U.S. mail, postage paid.

17. Binding on Grantor's Property. The Easement and obligations contained herein will be binding on Grantor, its assigns and successors and on the Property and will constitute covenants running with title to the Property until released by the City. The covenants and obligations of Owners Association set forth herein will be binding on Owners Association, its heirs, personal representatives, assigns and successors.

18. Entire Agreement; Governing Law. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understanding, oral or written, whether previous to the execution hereof or contemporaneous herewith regarding this subject matter. This Agreement will be



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governed by and interpreted in accordance with the laws of the State of New Mexico.

19. Changes to Agreement. Changes to this Agreement will not be binding unless made in writing, signed by all parties.

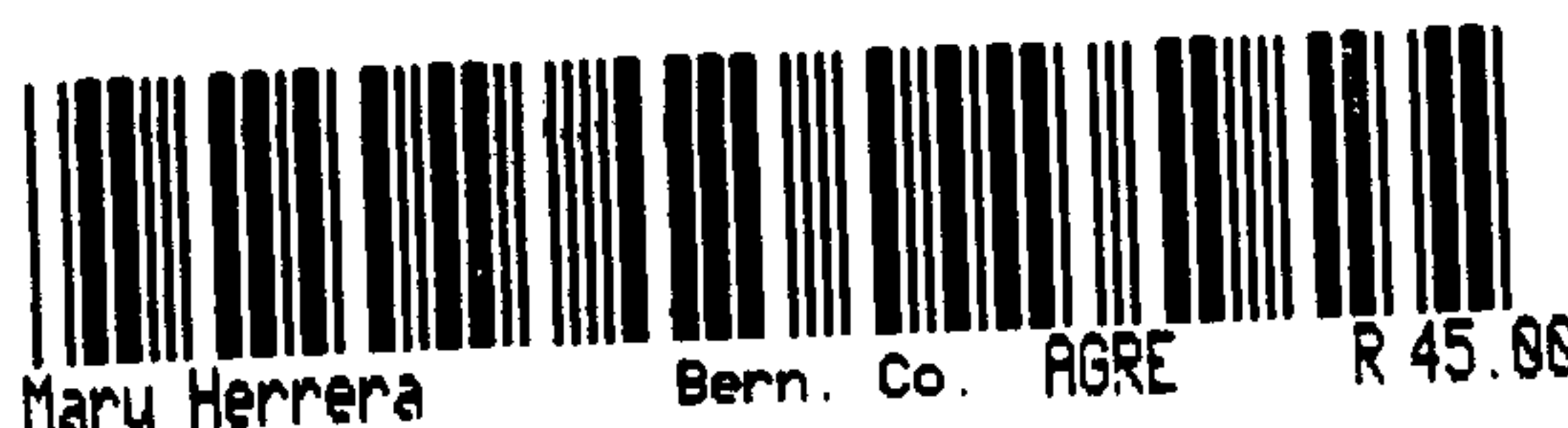
20. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

21. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

22. No Forfeiture. Nothing contained herein will result in a forfeiture or reversion of Grantor's title in any respect.

23. No Rights Granted or Conferred. This Agreement and the Easement are not intended to and do not grant or confer rights to any utilities on the public or confer any benefits as third party beneficiaries except those rights specifically granted and conferred herein.

24. High Desert Investment Corporation. The rights, obligations and liabilities of High Desert Investment Corporation, as Grantor or otherwise under this Agreement will automatically cease as to a portion or lot of the Property upon the transfer or conveyance of such portion or lot of the Property



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by High Desert Investment Corporation to a subsequent Owner.
Upon such transfer or conveyance, High Desert Investment Corporation will relinquish its rights and will be released from any obligation or liability under this Agreement as to the portion or lot conveyed.

25. Assignment. Owners Association may assign its rights and obligations, including obligations to perform any Maintenance and Repair, under this Agreement but only to a person or entity capable of performing such obligations and acceptable to City. Provided, however, that this Section will not limit any party's ability to obtain a contractor to perform the party's maintenance obligations under this Agreement.

Dated: 11/14/03, 2003.

GRANTOR:

HIGH DESERT INVESTMENT CORPORATION, a New Mexico corporation

By D. H. Collister
Douglas H. Collister, President
Dated October 6, 2003

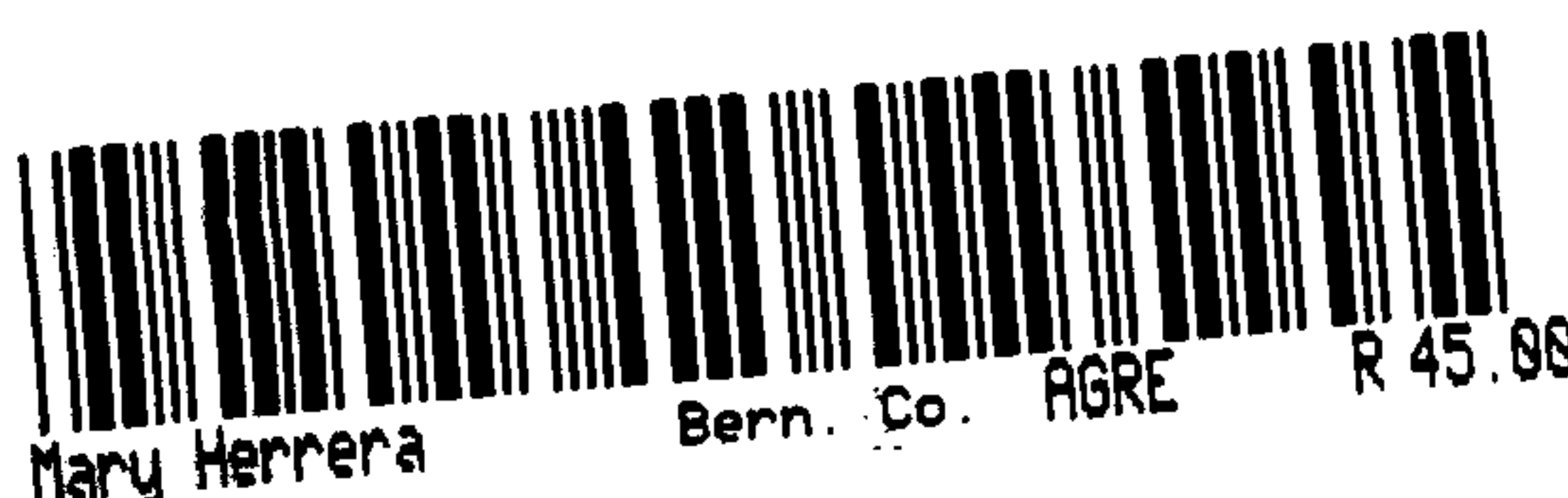
By Jack Eichorn
Jack Eichorn, Vice President
Dated 10/6/03

CITY OF ALBUQUERQUE

By [Signature]
Its [Signature]
Dated 11/14/03

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8/16/03



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OWNERS ASSOCIATION:

HIGH DESERT RESIDENTIAL
OWNERS ASSOCIATION, INC.,
a New Mexico non-profit
corporation

By [Signature]
Jack Eichorn, President
Dated 10/6/03

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on OCTOBER 6,
2003, by Douglas H. Collister, President of High Desert
Investment Corporation, a New Mexico corporation.

[Signature]
Notary Public

My Commission Expires:

11/18/06

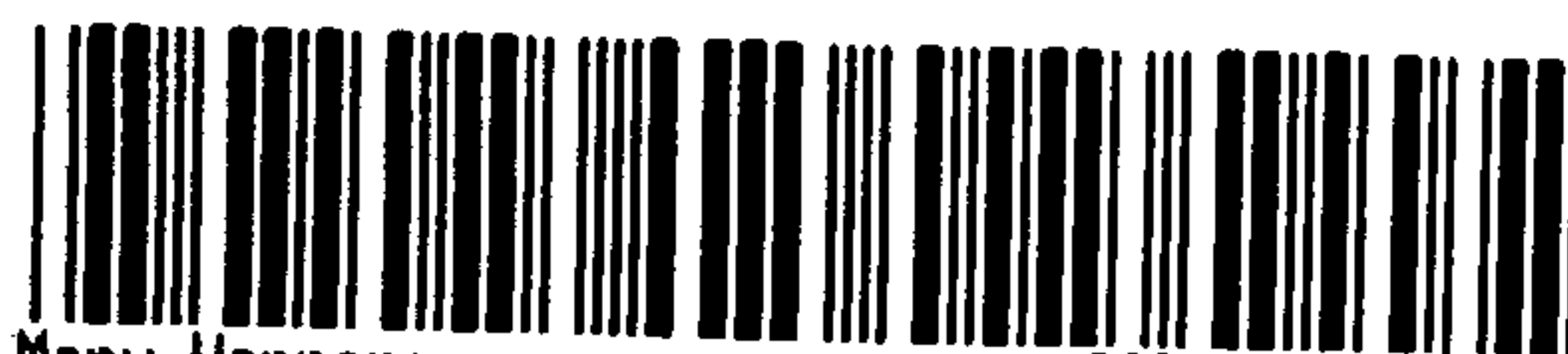
STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on OCTOBER 6,
2003, by Jack Eichorn, Vice President of High Desert Investment
Corporation, a New Mexico corporation.

[Signature]
Notary Public

My Commission Expires:

11/18/06



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STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on October 6, 2003, by Jack Eichorn, President of High Desert Residential Owners Association, Inc., a New Mexico non-profit corporation.

Linda J. Smith
Notary Public

My Commission Expires:

11/18/06

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on November 14, 2003, by Fred J. Aguirre, _____ of the City of Albuquerque, a New Mexico municipal corporation.

Gloria D. Saavedra
Notary Public

My Commission Expires:

11-15-2003

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Federal Emergency Management Agency

Washington, D.C. 20472

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Review,
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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Jim Baca
Mayor, City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

IN REPLY REFER TO:
Case No.: 99-06-1119P

Community: City of Albuquerque, NM
Community No.: 350002
Panels Affected: 35001C0144 D, 0161 D, and 0163 D

Effective Date of
This Revision: **JUL 13 2000**

102-I-A-C

Dear Mayor Baca:

This responds to a request that the Federal Emergency Management Agency (FEMA) revise the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Bernalillo County, New Mexico and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated March 29, 1999, Ms. Susan M. Calongne, P.E., City/County Floodplain Administrator, City of Albuquerque/Bernalillo County, requested that FEMA revise the FIRM and FIS report to show the effects of the following structures:

- The Bear Arroyo Tributary Diversion Structure along Bear Arroyo Tributary approximately 5,600 feet east of Tramway Boulevard;
- The South Pino Tributary Desiltation Pond approximately 2,500 feet downstream (along Bear Arroyo Tributary) of the Bear Arroyo Tributary Diversion Structure;
- The North Bear Arroyo Tributary Desiltation Pond approximately 800 feet south of the South Pino Tributary Desiltation Pond;
- The South Bear Arroyo Tributary Desiltation Pond approximately 500 feet south of the North Bear Arroyo Tributary Desiltation Pond;
- The South Pino Tributary storm drain system from Tramway Boulevard to the South Pino Tributary Desiltation Pond;
- The High Desert Subdivision Phase I-B-1 storm drain system from Tramway Boulevard to the North and South Bear Arroyo Tributary Desiltation Ponds; and
- The Peppertree Pond just south of Academy Road and approximately 700 feet west of Tramway Boulevard.
- The Bear Canyon storm drain system from Eubank Boulevard to Lowell Street.

This request also incorporated flooding effects at the intersection of Academy Boulevard and Carruthers Road.

All data required to complete our review of this request were submitted with letters from Ms. Brenda Martin, P.E., Water Resources Group, Bohannon-Huston, Inc., and Ms. Calongne.

We have completed our review of the submitted data and the flood data shown on the effective FIRM and FIS report. We have revised the FIRM and FIS report to modify the elevations and floodplain boundary delineations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) along South Pino Tributary from Tramway Boulevard to the South Pino Tributary Desiltation Pond and along Bear Arroyo Tributary from Eubank Boulevard to the Bear Arroyo Tributary Diversion Structure. As a result of the modifications, base flood elevations (BFEs) and a Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, were established for Bear Arroyo Tributary from the South Pino Tributary Desiltation Pond to just upstream of the Bear Arroyo Tributary Diversion Structure. The SFHAs for Bear Arroyo Tributary from Eubank Boulevard to the Bear Arroyo Tributary Diversion Structure and for South Pino Tributary from Tramway Boulevard to the South Pino Tributary Desiltation Pond were removed from the FIRM. SFHAs and BFEs were established for the North and South Bear Arroyo Tributary Desiltation Ponds and the Peppertree Pond. An SFHA and flood depth were established at the intersection of Academy Road and Carruthers Boulevard. The modifications are shown on the enclosed annotated copies of FIRM Panel(s) 35001C0144D, 35001C0161 D, and 35001C0163D; Profile Panel(s), 80P; and affected portions of the Summary of Discharges Table. This Letter of Map Revision (LOMR) hereby revises the above-referenced panel(s) of the effective FIRM and the affected portions of the FIS report, both dated September 20, 1996.

The modifications are effective as of the date shown above. The map panel(s) as listed above and as modified by this letter will be used for all flood insurance policies and renewals issued for your community.

The following table is a partial listing of existing and modified BFEs:

Location	Existing BFE (feet)**	Modified BFE (feet)*
Bear Arroyo Tributary:		
At Lowell Boulevard	1	None
Approximately 800 feet downstream of Bear Arroyo Tributary Diversion Structure	None	6,227
South Pino Tributary:		
Approximately 1,000 feet upstream of Tramway Boulevard	1	None

*Referenced to the National Geodetic Vertical Datum, rounded to the nearest whole foot

**Depth of flow

Public notification of the proposed modified BFEs will be given in the *Albuquerque Journal* on or about August 10 and August 17, 2000. A copy of this notification is enclosed. In addition, a notice of changes will be published in the *Federal Register*. Within 90 days of the second publication in the *Albuquerque Journal*, a citizen may request that FEMA reconsider the determination made by this LOMR. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until

the 90-day period elapses, the determination to modify the BFEs presented in this LOMR may itself be modified.

Because this LOMR will not be printed and distributed to primary users, such as local insurance agents and mortgage lenders, your community will serve as a repository for these new data. We encourage you to disseminate the information reflected by this LOMR throughout the community, so that interested persons, such as property owners, local insurance agents, and mortgage lenders, may benefit from the information. We also encourage you to prepare a related article for publication in your community's local newspaper. This article should describe the assistance that officials of your community will give to interested persons by providing these data and interpreting the NFIP maps.

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This LOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

The basis of this LOMR is, in whole or in part, a culvert project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management regulations. Consequently, the ultimate responsibility for maintenance of the culverts rests with your community.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed minimum NFIP criteria. These criteria are the minimum and do not supersede any State or local requirements of a more stringent nature. This includes adoption of the effective FIRM to which the regulations apply and the modifications described in this LOMR. Our records show that your community has met this requirement.

A Consultation Coordination Officer (CCO) has been designated to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Frank Pagano
Director, Mitigation Division
Federal Emergency Management Agency, Region VI
Federal Regional Center, Room 206
800 North Loop 288
Denton, Texas 76201-3698
(940) 898-5127

FEMA makes flood insurance available in participating communities; in addition, we encourage communities to develop their own loss reduction and prevention programs. Through the *Project Impact: Building Disaster Resistant Communities* initiative, launched by FEMA Director James Lee Witt in 1997, we seek to focus the energy of businesses, citizens, and communities in the United States on the importance of reducing their susceptibility to the impact of all natural disasters, including floods, hurricanes, severe storms, earthquakes, and wildfires. Natural hazard mitigation is most effective when it is planned for and implemented at the local level, by the entities who are most knowledgeable of local conditions and whose economic stability and safety are at stake. For your information, we are enclosing a copy of a pamphlet describing this nationwide initiative. For additional information on *Project Impact*, please visit our Web site at www.fema.gov/impact.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the CCO for your community at the telephone number cited above. If you have any questions regarding this LOMR, please contact the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,



Katie Hayden, Program Specialist
Hazards Study Branch
Mitigation Directorate

For: Matthew B. Miller, P.E., Chief
Hazards Study Branch
Mitigation Directorate

Enclosures

cc: Ms. Susan M. Calongne, P.E.
City/County Floodplain Administrator
City of Albuquerque/Bernalillo County

Mr. Howard C. Stone, P.E.
Vice President
Water Resources Group
Bohannon-Huston, Inc.

Ms. Brenda Martin, P.E.
Water Resources Group
Bohannon-Huston, Inc.

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On September 20, 1996, the Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Albuquerque, Bernalillo County, New Mexico, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Directorate has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified base flood elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A hydraulic analysis was performed to incorporate the effects of the Bear Arroyo Tributary Diversion Structure along Bear Arroyo Tributary approximately 5,600 feet east of Tramway Boulevard; the South Pino Tributary Desiltation Pond approximately 2,500 feet downstream of the Bear Arroyo Tributary Diversion Structure; the North Bear Arroyo Tributary Desiltation Pond approximately 800 feet south of the South Pino Tributary Desiltation Pond; the South Bear Arroyo Tributary Desiltation Pond approximately 500 feet south of the North Bear Arroyo Tributary Desiltation Pond; the Peppertree Pond just south of Academy Pond and approximately 700 feet west of Tramway Boulevard; the South Pino Tributary, High Desert Subdivision Phase 1-B-1, and Bear Canyon storm drain systems; and flooding effects at the intersection of Academy Boulevard and Carruthers Road. This has resulted in establishment of BFEs and an SFHA for Bear Arroyo Tributary from the South Pino Tributary Desiltation Pond to just upstream of the Bear Arroyo Tributary Diversion Structure, removal of the SFHAs for Bear Arroyo Tributary from Eubank Boulevard to the Bear Arroyo Tributary Diversion Structure and for South Pino Tributary from Tramway Boulevard to the South Pino Tributary Desiltation Pond, establishment of SFHAs and BFEs for the North and South Bear Arroyo Tributary Desiltation Ponds, and establishment of an SFHA and flood depth at the intersection of Academy Boulevard and Carruthers Road. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)**	Modified BFE (feet)*
Bear Arroyo Tributary:		
At Lowell Boulevard	1	None
Approximately 800 feet downstream of Bear Arroyo Tributary Diversion Structure	None	6,227
South Pino Tributary:		
Approximately 1,000 feet upstream of Tramway Boulevard	1	None

*National Geodetic Vertical Datum, rounded to nearest whole foot

**Depth of flow

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Directorate must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These

modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Directorate reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Directorate's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable Jim Baca
Mayor, City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

ELEVATION IN FEET (NGVD)

6320

6300

6280

6260

6240

6220

6200

6180

6160

6140

0

500

1000

1500

2000

2500

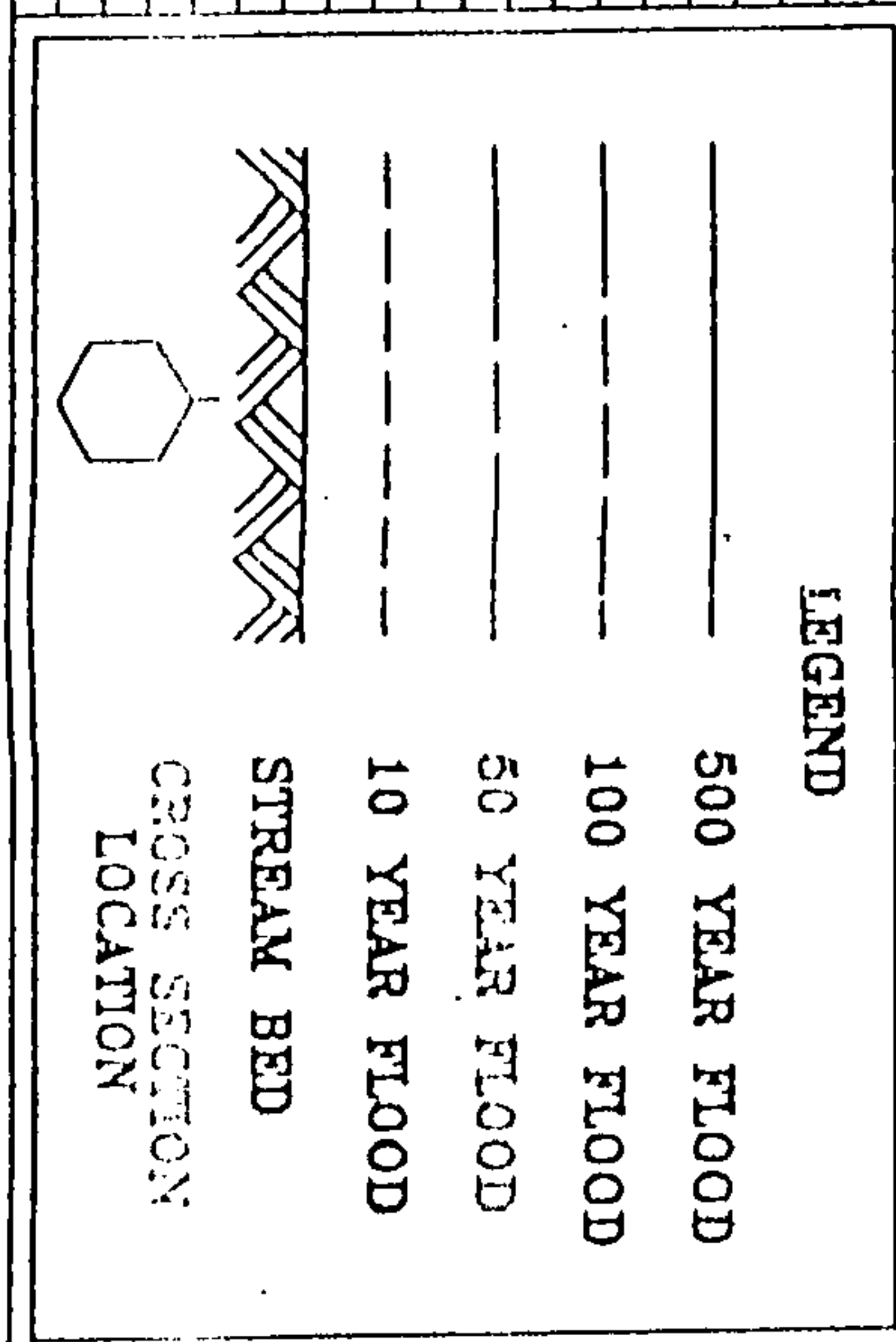
3000

3500

4000

SOUTH PINO TRIBUTARY
DESILTATION POND

STREAM DISTANCE IN FEET ABOVE DOWNSTREAM END OF SOUTH PINO TRIBUTARY DESILTATION POND



REVISED TO
REFLECT LOMR
DATED JUL 13 2000

FEDERAL EMERGENCY MANAGEMENT AGENCY

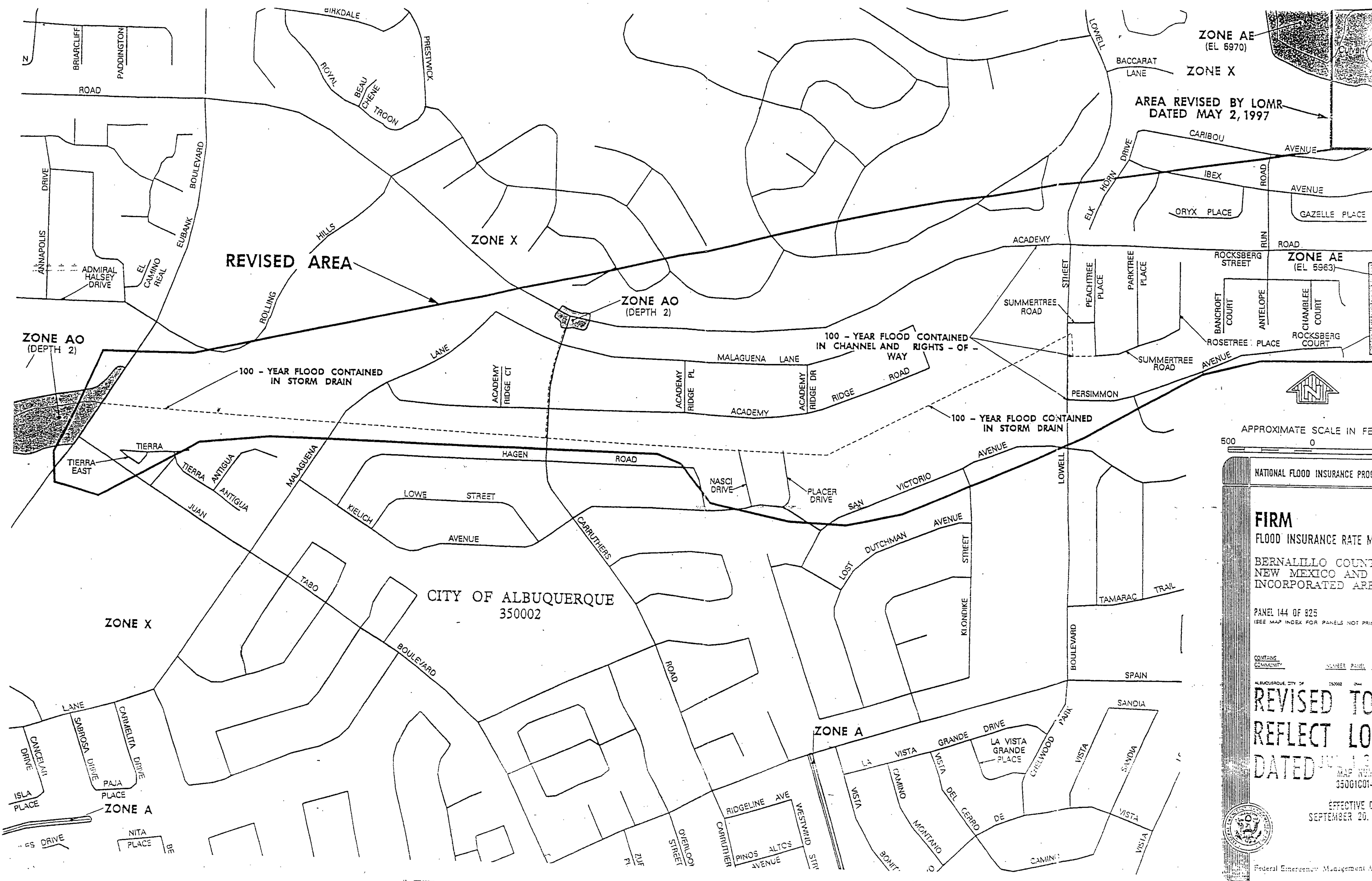
BERNALILLO COUNTY, NM

AND INCORPORATED AREAS

FLOOD PROFILES

BEAR ARROYO TRIBUTARY

80P



ZONE AE
(EL 6970)

ZONE X

AREA REVISED BY LOMR
DATED MAY 2, 1997

REVISED AREA

ZONE AO
(DEPTH 2)

ZONE AO
(DEPTH 2)

100 - YEAR FLOOD CONTAINED
IN CHANNEL AND RIGHTS - OF -
WAY

100 - YEAR FLOOD CONTAINED
IN STORM DRAIN

100 - YEAR FLOOD CONTAINED
IN STORM DRAIN

CITY OF ALBUQUERQUE
350002

ZONE X

ZONE A

ZONE A

APPROXIMATE SCALE IN FEET
500 0

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

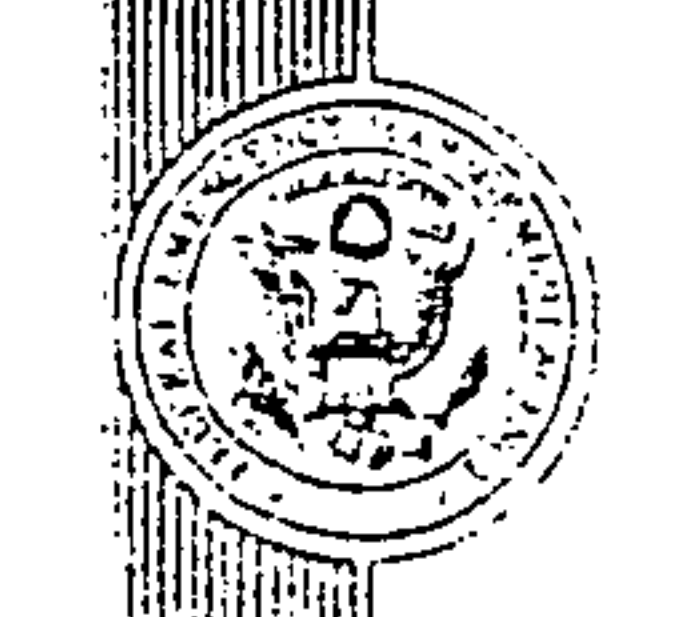
BERNALILLO COUNTY
NEW MEXICO AND
INCORPORATED AREA

PANEL 144 OF 325
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS
COMMUNITY

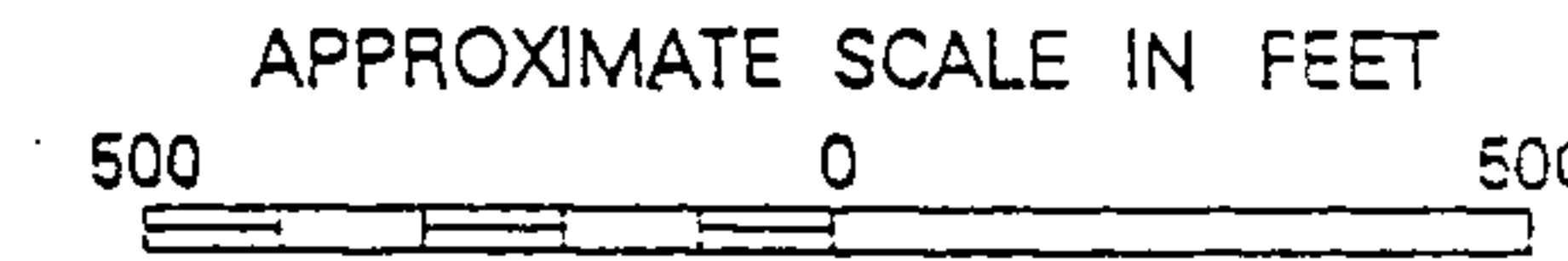
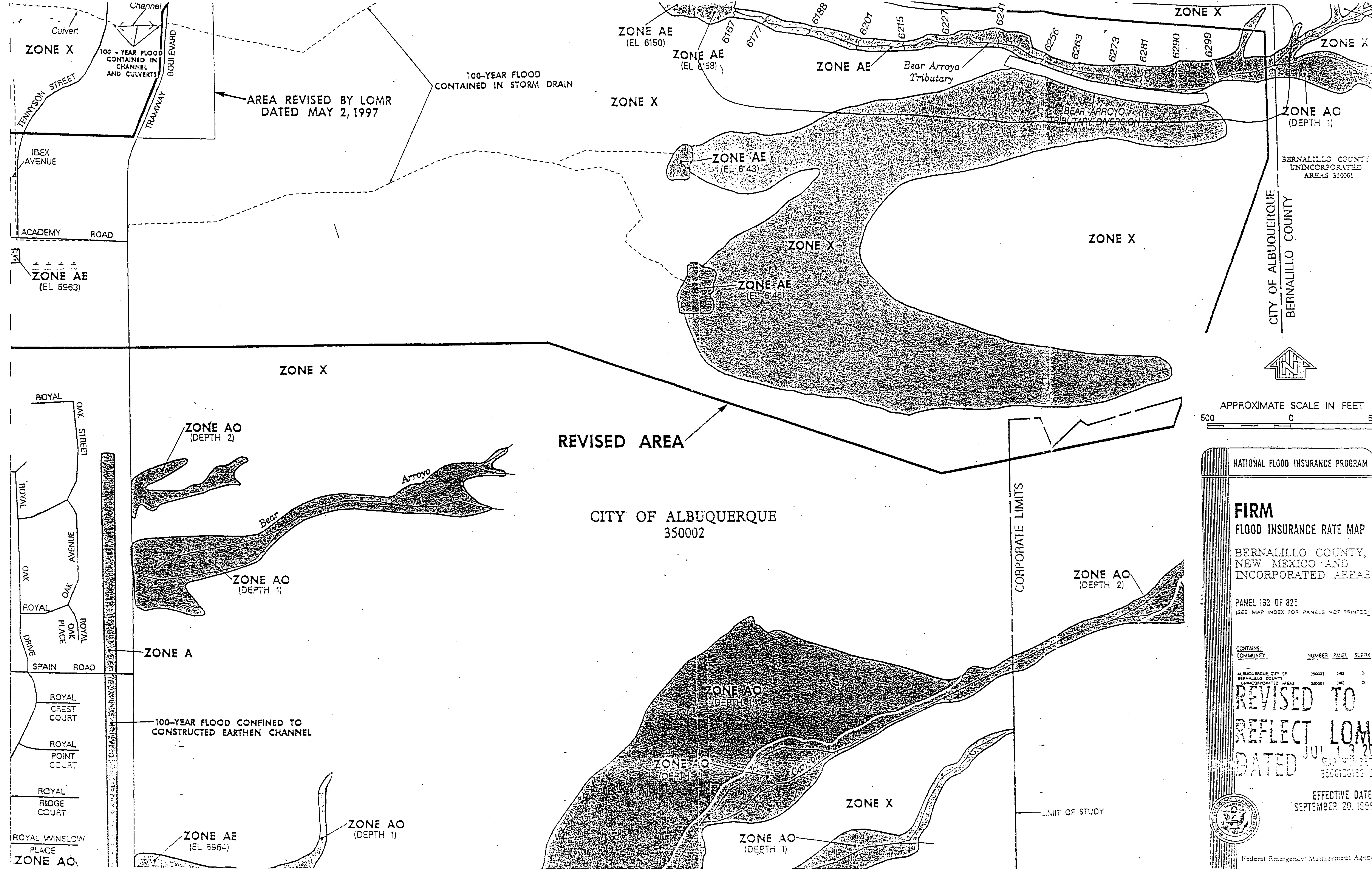
ALBUQUERQUE, CITY OF 350002

REVISED TO
REFLECT LOMR
DATED 10/1/97



EFFECTIVE DATE
SEPTEMBER 20, 1997

Federal Emergency Management Agency



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY,
NEW MEXICO AND
INCORPORATED AREAS

PANEL 163 OF 825
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	342	0
BERNALILLO COUNTY, UNINCORPORATED AREAS	350001	342	0

REVISED TO
REFLECT LOMR
DATED JUL 13 2000

EFFECTIVE DATE:
SEPTEMBER 20, 1999

Federal Emergency Management Agency

Table 3. Summary of Discharges for Shallow Flooding Areas

<u>Flooding Source and Location</u>	<u>Drainage Area (square miles)</u>	<u>100-Year Peak Discharges (cfs)</u>
Amole Arroyo ¹		
Above Dam	4.9	1,456
At Dam Outfall	4.9	80
Just East of Diversion Dike	0.96	477
At confluence with Sacate Blanco Arroyo	1.54	609 ³
Bear Canyon Arroyo ²		
At outflow of Juan Tabo Dam	9.7	1,930
At Eubank & confluence with Bear Arroyo	10.48	1,948
Bear Arroyo ²		
At Juan Tabo Boulevard	0.26	159
At confluence with Bear Canyon Arroyo	0.40	149
At Wyoming Boulevard	12.09	1,957
At inflow to Arroyo Del Oso Dam	15.00	2,159
<div> <div>REVIS</div> <div>ED</div> <div>DATA</div> </div>		
Bear Arroyo Tributary		
Upstream of Bear Arroyo Tributary		
Diversion Structure	0.73	1,330
At Juan Tabo Boulevard ²	1.87	1,400
At Wyoming Boulevard ²	2.41	1,520
Black Arroyo		
Black Arroyo Detention Dam Inflow	9.86	5,357
Black Arroyo Detention Dam Outflow	9.86	2,468
Boca Negra Arroyo ¹		
Just West of Atrisco Drive	2.12	894
At confluence with South Branch	4.38	1,653

¹Flows from Matotan, 1975²Flows from Northeast Heights Drainage Management Plan - Leonard Rice - April 1975³By Regression Analysis

REVISED TO
REFLECT LOMR
DATED JUL 13 2000



Federal Emergency
Management Agency

FACT SHEET

Office of Emergency Information and Media Affairs, Washington, D.C. 20472

(202) 646-4600

PROJECT IMPACT Building a Disaster Resistant Community

BACKGROUND

PROJECT IMPACT is an initiative developed by FEMA Director James Lee Witt to challenge the country to undertake actions that protect families, businesses and communities by reducing the effects of natural disasters. This initiative includes a national awareness campaign, the selection of pilot communities that demonstrate the benefits of hazard mitigation through a partnership approach, and an outreach effort to businesses and communities using a new guidebook that offers a formula for a community or business to follow to become disaster resistant.

RATIONALE

The increasing number and severity of natural disasters the past decade demands that action be taken to reduce the threat that hurricanes, severe storms, earthquakes, floods and wildfires impose upon the economic stability, economic future and safety of the citizens of the U.S. As the federal agency responsible for emergency management, FEMA is committed to reducing disaster losses by focusing the energy of businesses, citizens, and communities in the U.S. on the importance of reducing their susceptibility to the impact of natural disasters.

There are three primary tenets of the PROJECT IMPACT initiative:

- *Mitigation is a local issue.* It is best addressed by a local partnership that involves government, businesses and private citizens.
- *Private sector participation is essential.* Disasters threaten the economic and commercial growth of our cities, towns, villages and counties. Without the participation of the private sector, comprehensive solutions will not be developed.
- *Mitigation is a long-term effort that requires long-term investment.* Disaster losses will not be eliminated overnight.

PILOT COMMUNITIES

Director Witt and FEMA have worked closely with seven communities throughout the U.S. to develop a PROJECT IMPACT plan that localities, businesses and citizens can follow to build disaster resistant communities where they live and work. Director Witt will participate in events in each of these communities to congratulate them on their foresight, commitment, and contribution to a disaster resistant nation.

PROJECT IMPACT GUIDEBOOK

The guidebook presents the steps a community can take to become disaster resistant. It also provides examples of the actions and resources available to accomplish this goal.

ATTN:
-TIM SIMS

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 04/2009)

PROJECT TITLE: WILSON RESIDENCE ZONE MAP: E-23/D02
DRB#: _____ EPC#: _____ WORK ORDER#: E-24

LEGAL DESCRIPTION: LOT 37, MOUNTAIN HIGHLANDS, UNIT 2 AT HIGH DESERT
CITY ADDRESS: 13609 PINO RIDGE LANE NE

ENGINEERING FIRM: BRASHER & LORENZ, INC. CONTACT: DENNIS LORENZ
ADDRESS: 2201 SAN PEDRO NE, BUILDING 1, SUITE 1300 PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87110

OWNER: STEVE WILSON CONTACT: S. WILSON
ADDRESS: 1732 ARCHULETA NE PHONE: 291-1585
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87112

ARCHITECT: NONE CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: BRASHER & LORENZ, INC CONTACT: L. ARMIJO
ADDRESS: 2201 SAN PEDRO NE, BUILDING 1, SUITE 1200 PHONE: 888-6088
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87110

CONTRACTOR: UNKNOWN CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
☒ DRAINAGE REPORT
☒ DRAINAGE PLAN 1st SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL SOUGHT:
☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ GRADING CERTIFICATION
☒ OTHER (SPECIFY) 8019

WAS A PRE-DESIGN CONFERENCE ATTENDED:
☐ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: 2.6.13 BY: DENNIS A. LORENZ

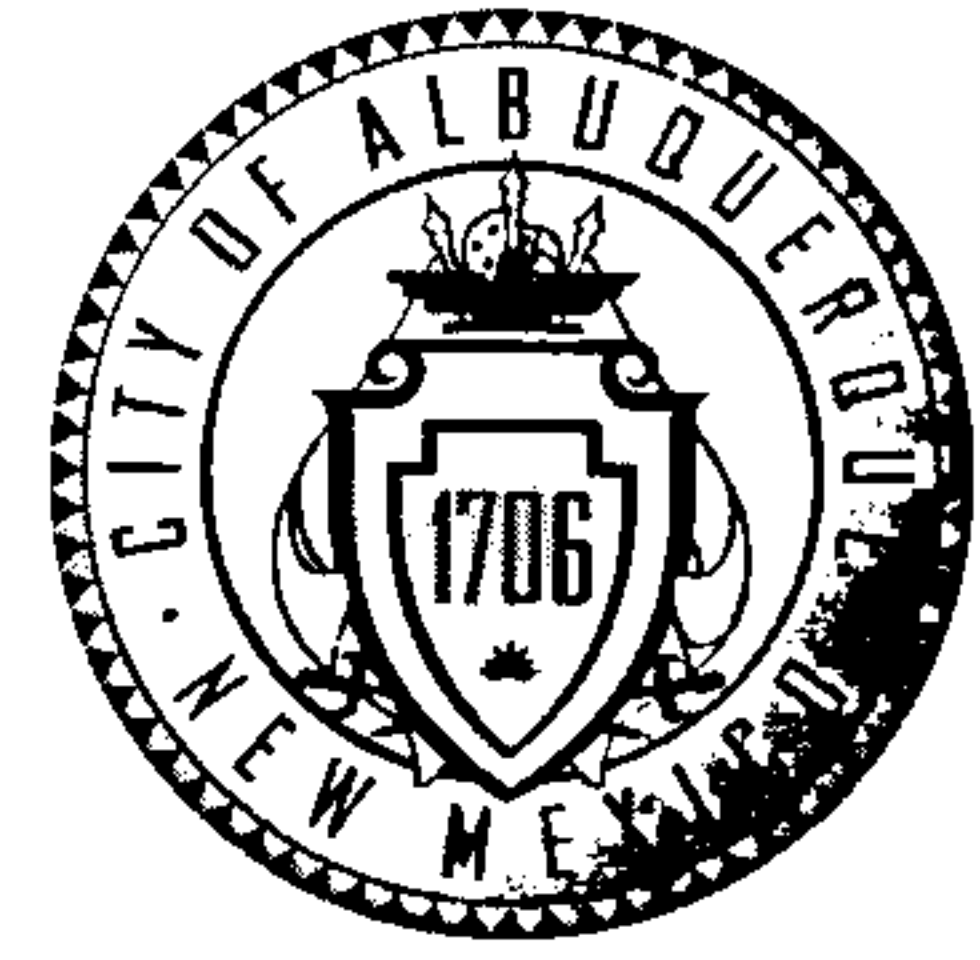
Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

RECEIVED
FEB - 8 2013

HIGH DESERT
COURTESY COPY.

CITY OF ALBUQUERQUE



February 12, 2013

Dennis Lorenz, P.E.
Brasher & Lorenz, Inc.
2207 San Pedro NE, Building 1, Suite 1200
Albuquerque, NM 87110

**Re: Wilson Residence, 13609 Pino Ridge Ln., Grading and Drainage Plan,
Engineer's Stamp dated 02-06-13 (E-23/D012)**

Dear Mr. Lorenz,

Thank you for providing the above referenced Grading and Drainage Plan for our records. Hydrology will add the plan to the appropriate drainage file. If you have any questions, you can contact me at 924-3695.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: Email



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 16, 2002

Kevin Patton, PE
Bohannon Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

Re: Mountain Highlands Subdivision, Unit 2 Drainage Report
Engineer Stamp dated 8-27-02 (E23/D12)

Dear Mr. Patton,

Based upon the information provided in your submittal dated 8-29-02, the above referenced report is approved for Preliminary Plat action by the DRB.

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

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

C: file

**DRAINAGE REPORT
FOR
UNIT 2 OF MOUNTAIN HIGHLANDS AT HIGH DESERT
(HIGH DESERT - TRACT 15D-1B-1C)**

August 23, 2002


PREPARED BY:

**BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109**

PREPARED FOR:

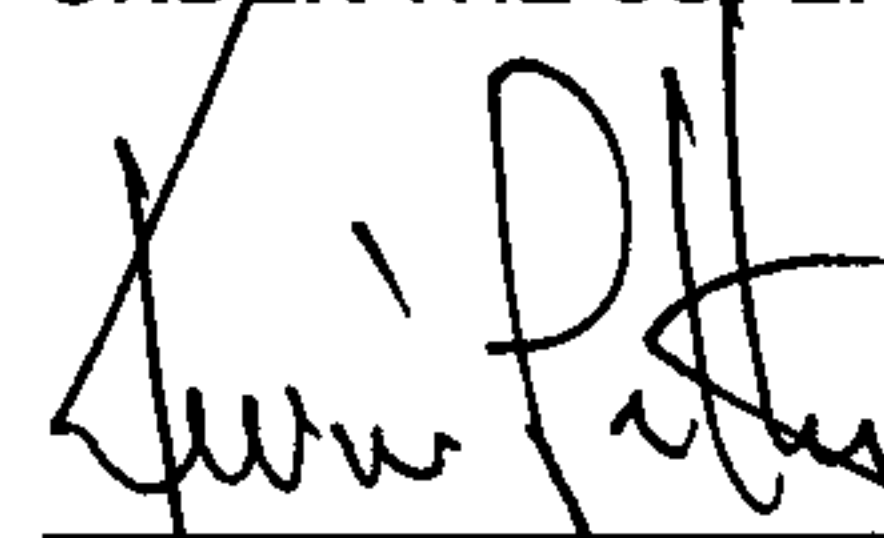
**HIGH DESERT INVESTMENT CORPORATION
13000 ACADEMY ROAD NE
ALBUQUERQUE, NM. 87111**

PREPARED BY:


Yolanda Padilla, E.I.

8/27/02
Date

UNDER THE SUPERVISION OF:


Kevin Patton, P.E.



Bohannon  Huston INC.

I. INTRODUCTION

This report pertains to the development of Tract 15D-1B-1C, High Desert, which will be referred to as the Mountain Highlands Unit 2.

For location of the site, please refer to the vicinity map on the grading and drainage plan enclosed with this report.

The site is located east of Mountain Highlands Unit 1, north of Unit 2 of the Desert Highlands Development, south of Simms Park Road, and west of the Cibola National Forest. The site is currently zoned SU-2/HD-R-1 and is approximately 48.47 acres in size. Access to the site will be provided from Pino Ridge Place, constructed with Mountain Highlands Unit 1, via Blue Grama Road.

The High Desert Development is bound by a Sector Development Plan within the City of Albuquerque and Bernalillo County. Tract 15D-1B-1C is zoned SU-2 HD/R-1. A portion of the lots within Mountain Highlands Unit 2 are located within the Design Overlay Zone. The Design Overlay Zone has additional requirements as noted in Section 4.B of the approved Sector Development Plan. Mountain Highlands Unit 2 will consist of 40 lots. Lots 30 –33 and 64 – 69 are outside of the Design Overlay Zone. Lots 34 –64 are located within the Design Overlay Zone. As required by the approved Sector Plan, lot sizes will be 0.5 acres or more, at least 100 foot wide with building envelopes no greater than 12,000 square feet.

Tracts 15D-1B-1C will be developed in a manner similar to past “Highlands” Subdivisions. The development will consist of building envelopes sited on the existing terrain. As with past Highlands developments, this site will be encompassed by a private cross-lot drainage easement located outside of the building envelopes, public roadways and the existing AMAFCA easements. This private cross-lot easement allows storm water to generally take its natural course across the existing topography. Each lot owner is required to provide a separate, individual grading and drainage plan, stamped and certified by a New Mexico Professional Engineer. The individual lot

grading and drainage plan is submitted to and approved by the High Desert Residential Owners Association New Construction Committee.

The roadways, which will serve the internal lots, are designed (as closely as possible) to follow the natural topography in order to permit the storm water to maintain its natural course. Similar to previous "Highlands" developments, the roadways within the Mountain Highlands Unit 2 will construct estate-type curb and gutters that will allow the storm water to pass over the roadways without trapping or redirecting the storm water. There are some cases where it was not possible to match existing terrain because the existing terrain exceeds the allowable design criteria. In these instance, standard curb and gutter and some storm drain is necessary to redirect the flow.

II. PURPOSE

The purpose of this report is to provide site-specific drainage analysis for existing and proposed conditions in the residential development, referred to as Unit 2 of the Mountain Highlands at High Desert (Tract 15D-1B-1C). This plan is prepared and submitted to support rough grading, infrastructure design, preliminary and final plat approvals.

This report will reference the following City of Albuquerque and the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) approved studies prepared for the High Desert Development: 1) the High Desert Drainage Management Master Plan, dated December 1993; 2) the High Desert - Phase II Prudent Line Analysis, date August 1995; 3) the Drainage Report for High Desert - Tract 15D-1A Unit 4 of the Highlands, dated December 19, 1997 and revised January 16, 1998; 4) the High Desert Subdivision LOMR-Forms and Floodplain Maps, date January 1999; and 5) the Drainage Report for Mountain Highlands Unit 1, dated August 18, 2000.

The High Desert Drainage Management Master Plan, dated December 1993, was prepared to support future drainage plans submitted for the development of individual land parcels within High Desert and to provide design guidance for the design of primary drainage infrastructure to be constructed by High Desert in advance of or simultaneously with individual parcel

development. In addition, it provides fully developed flow rates for basins that influence the "Estate Type" ("Highlands") Subdivisions in the High Desert Development.

The High Desert - Phase II Prudent Line Analysis, dated August 1995, is a follow-up study to the High Desert - Phase I Prudent Line Analysis, dated May 1994. Phase II establishes prudent lines for the South Pino Tributary Arroyo downstream of the South Pino Diversion to the North Bear Tributary. The report establishes prudent lines from fully developed flow rates of the basins influencing the "Estate Type" ("Highlands") Subdivisions in the High Desert Development.

The High Desert Subdivision LOMR-Forms and Floodplain Maps, date January 1999 shows the presence of any flood plain within High Desert. These maps are provided to show that there are no floodplains within the boundary of Mountain Highlands Unit 2.

The Drainage Report for High Desert - Tract 15D-1A Unit 4 of the Highlands, dated December 19, 1997, was prepared to address the drainage of the subdivision as well as the South Pino Pond, which was built with the tract. The report addresses all upstream flow that will drain to this pond, including Mountain Highlands Unit 2.

The Drainage Report for Mountain Highlands Unit 1, dated August 18, 2000, was prepared to address the drainage of Mountain Highlands Unit 1. However because the "Highlands" subdivisions are not mass graded and are based on the natural terrain, this drainage report also encompasses a portion of Mountain Highlands Unit 2. The proposed basin map is provided in the Exhibit section of this report to show this.

III. PRUDENT LINES

Please refer to the High Desert - Phase II Prudent Line Analysis, dated August 1995. The concept of the "prudent line" was established by AMAFCA. The prudent line represents the minimum setback necessary to provide protection for development from an active arroyo. The prudent line concept encompasses not only the flood plain necessary to pass the 100-year storm, but also represents the potential for natural arroyos to move laterally and degrade over time. The long-term effects are based on potential erosion associated with "representative" storm events occurring for a 30-year period.

The Grading and Drainage Plan enclosed contains the prudent lines calculated in the above-mentioned report. The prudent lines within Tract 15D-1B-1C were granted as drainage easements to AMAFCA on July 1, 1996, under Document No. 96073621, Book 96-18, Pages 3732-3779. The building envelopes in Tract 15D-1B-1C are not located within the prudent lines.

IV. METHODOLOGIES

Please refer to the above referenced reports for the specific methodologies used in preparing those individual reports or plans.

Site conditions are analyzed for a 100-year, 6-hour storm events in accordance with the City of Albuquerque Drainage Ordinance and the Development Process Manual (DPM), Volume 2, Design Criteria, Section 22.2, Hydrology for the City of Albuquerque, January 1993. The modified rational method contained within this edition of the Development Process Manual (DPM) was utilized to determine the hydrologic discharges and volumes generated by this development.

The site, as described in the 'Site Location and Characteristics' section below, is approximately 48.47 acres. Part A of the DPM, Section 22.2, which provides a simplified procedure for projects with sub-basins smaller than 40 acres, was used. Although some of the basins exceed 40 acres, we believe the simplified procedure provided in the City of Albuquerque

Development Processing Manual will generate a more conservative flow rate, which will be compared to those calculated in the Master Plan.

V. SUMMARY OF THE RELATED PLATTING AND EASEMENTS

Please refer to the proposed Bulk Land Plat enclosed in the Exhibit section of this report.

The Bulk Land Plat created Tract 15D-1B-1C (Mountain Highlands Unit 2). High Desert Investment Corporation will provide a public drainage easement to the City of Albuquerque addressing cross-lot drainage. This easement is identical to the public drainage easement that was granted to the City with the past developments of the "Highlands" at High Desert. As mentioned above, the prudent lines already exist as drainage easements granted to AMAFCA and the Residential Owners Association.

An existing recorded maintenance agreement; associated with the existing AMAFCA easements mentioned above, defines the different responsibilities required by AMAFCA and the Residential Owners Association. The final plat will clearly identify all maintenance responsibilities for all arroyo and tributary easements. AMAFCA has already been provided with the necessary arroyo and tributary easements for this and future projects in the "Highlands" at High Desert.

VI. EXISTING HYDROLOGIC AND SITE DRAINAGE CONDITIONS

Vegetation consists primarily of native grasses and trees. Slopes in the project site range from 2% to 15%, with the majority of the project sloping at 2% to 8%. The Soil Conservation Service has classified the soils on this site as Embudo-Tijeras complex, Embudo gravely fine sandy loam and Tijeras gravely fine sandy loam, all of which correspond to a common hydrological soil group classification B.

Please refer to the High Desert - Phase II Prudent Line Analysis, dated August 1995 and the Existing Drainage Conditions Map enclosed with this report.

The above referenced reports support the development of the Highlands at High Desert. The above reports also provide existing and developed flow rates within the prudent lines from the surrounding area.

The existing flow rates for the area within and around Tract 15D-1B-1C will vary due to the ongoing construction of individual lots within Unit 1 of Mountain Highlands and Unit 2 of Desert Highlands. Thus, this report will focus on the fully developed conditions, and how it will affect the proposed development within Tract 15D-1B-1C. The Existing Drainage Conditions Map enclosed provides the reader with an idea of what has been platted outside of this proposed subdivision.

A. FEMA Floodplain

Please refer to the High Desert - Phase II Prudent Line Analysis, dated August 1995. The prudent lines established in the above referenced report define the boundaries of the drainage easements that exist in High Desert - Tract 15D-1B-1C.

Please reference the Preliminary Plat and the Bulk Land Plat located in the Exhibit section of this report for location information.

Bohannon-Huston Inc. prepared a Letter of Map Revision (LOMR) to remove, revise and add floodplains within High Desert which was submitted and approved in January 1999. There are no floodplains within this tract. The LOMR is provided in the Exhibit section of this report.

VII. DEVELOPED HYDROLOGICAL AND HYDRAULIC CONDITIONS

Please refer to the High Desert Drainage Management Master Plan, dated December 1993 and the Grading and Drainage plan enclosed with this report.

A. Cross-Lot Drainage and Building Envelopes

The site proposes to preserve the natural terrain while at the same time adhering to the City's Design Criteria found in the Development Process Manual. The site contains 40 lots on approximately 48.47 acres. Each lot contains a maximum building envelope of 12,000 square feet. As with past "Highlands" Subdivisions, the site will be encompassed by a private cross-lot drainage easement located outside of the building envelopes, public roadways and the existing AMAFCA easements. This private cross-lot easement allows storm water to generally take its natural course across the existing topography. Each lot owner is required to provide a separate, individual grading and drainage plan, stamped and certified by a New Mexico Professional Engineer requiring each lot to safely manage upland storm water flows. The individual lot grading and drainage plan is submitted to and approved by the High Desert Residential Owners Association New Construction Committee (HDROA NCC). Building or non-native landscaping will not be permitted outside building envelopes. Before the HDROA NCC accepts each home, the lot owner is required to submit a copy of the approved grading and drainage plan certified by their engineer. This certified plan is review by NCC for compliance with the Design Guidelines and approved drainage report for the site-specific subdivision.

The above referenced report (HDDMMP) has projected storm water runoff values for fully developed conditions within the High Desert Development in order to properly size downstream storm drainage structures. This report compares the projected land treatment percentages assumed in the above report with a more accurate estimate from our enclosed preliminary plat layout. The following results indicate approximately the same values with only negligible differences:

	Land Treatment Types (%)				Peak Discharge
	A	B	C	D	(cfs/acre)
HDDMMP 1993	74.56	0.00	8.28	17.15	2.64
Tract 15D-1B (Unit 2) *	86.45	2.78	0.00	10.78	2.55

In determining the land treatment percentages shown above, HDDMMP assumed 1 du/acre (Tract 15D-1B-1C has 1.21 du/acre) while this report calculated an average building envelope of 12,000 square feet (.2755 AC) within an average lot size of 1.12 acres (50,617 SF). This report assumes that on average, at least 27% of the area within the building envelope will be landscaped (Land Treatment Type B) and 73% (or 8,760 SF) will be impervious (Land Treatment Type D).

B. Proposed Conditions

Tract 15D-1B-1C encompasses the Mountain Highlands Unit 2. This Tract will consist of 40 lots. The drainage associated with the development the Mountain Highlands Unit 2 can be simplified into two main categories: those basins that drain to Simms Park Road and those basins that drain west across Tract 15D-1B-1B into the existing South Pino Tributary storm drain.

BAS-1 and SPT-7B-R2 drain to the existing Simms Park Road. Basin SPT-7B-R1 flows west across Pino Ridge Place into Mountain Highlands Unit 1 and ultimately to the South Pino Storm Drain. The remaining basins (SPT-7A-R1 and SPT-6B-R1 thru R6) all drain to existing AMAFCA easements and drain to the South Pino Pond and ultimately to the South Pino Tributary Storm Drain system to Tramway.

BAS-1 (3.43 acres, $Q_{100}=9.42\text{cfs}$) consists of the backyards of lots 38-42, which lies in the northeast corner of Mountain Highlands Unit 2 and SPT-7B-R2 (1.24 acres, $Q_{100}=3.41\text{cfs}$) consists of the backyards of lots 35 -37. These basin drains into Simms

* I believe that this is a conservative estimate due to the fact that the estimate did not take into account that each lot is required to manage storm water flows, using minor detention and water harvesting techniques, within this building envelope, thus reducing peak flow rates indicated above.

Park Road; carried via swale on the side of the road and is intercepted by inlets within Simms Park Road. Currently there are three existing inlets on the south side of Simms Park Road that accept flows from existing basins south of Simms Park Road. Due to the fact that the Mountain Highlands Unit 2 Subdivision will not be mass graded, the proposed basins discharging into Simms Park Road will not significantly add to the flows currently draining into these inlets.

Basin SPT-7B-R1 (2.48acres, $Q_{100}=7.83\text{cfs}$) flows west across Pino Ridge Place into Mountain Highlands Unit 1, where it will be picked up by existing inlets in Pino Pond Court and be carried into the South Pino Storm Drain. This basin was already taken into account in the drainage report for Mountain Highlands Unit 1, therefore there is not impact on any downstream structures. See the Exhibit section of this report for the Proposed Basin Map for Mountain Highlands Unit 1.

SPT-6B-R2 (13.87acres, $Q_{100}=38.78\text{cfs}$) and a portion (approx. ⁴⁰~~60~~%) of basin SPT-6B-R6 (46.08acres, $Q_{100}=101.38\text{cfs}$), an offsite basin just east of the High Desert boundary and in the Cibola National Forest, will drain west. They will flow under Emory Oak Place, through a 48" culvert to the South Pino Pond and ultimately to the South Pino Tributary Storm System to Tramway Blvd. See the Appendix section of this report for any culvert calculations.

SPT-6B-R1 (0.21acres, $Q_{100}=1.08\text{cfs}$) will flow west and be captured by standard curb and gutter and inlets in Emory Oak Place, where it will be rerouted and carried via storm drain to the 48" culvert under the road. SPT-6B-R3 (4314acres, $Q_{100}=13.92\text{cfs}$), which encompasses the northern portion of Emory Oak Place up to the highpoint, will be captured by an inlet and drain to the 48" culvert under the road. SPT-6B-R4 (8.74acres, $Q_{100}=24.85\text{cfs}$) flows south and east. All three of these basins combine with SPT-6B-R5 and drain to the South Pino Pond and ultimately to the South Pino Tributary Storm Drain to Tramway. During the fully developed 100-year flow, 1730 cfs is calculated to flow in the

arroyo from this basin. The permanent pond on Tract 15D-1A-1 will take this flow from the arroyo and discharge it into the South Pino Tributary storm drain.

C. The Highlands Ponds and South Pino Storm Drain

The proposed site (Tract 15D-1B-1C) conveys flows to an existing detention/desilting pond, which ushers storm water runoff from the "Highlands" arroyos into the existing South Pino Storm Drain, which was built and accepted under COA Project #571282. The South Pino Storm Drain begins at the South Pino Tributary Pond (Tract 15D-1A-1) located at the northeast corner of Imperata St. and Pino Canyon Place and heads west along the south side of Blue Grama Road until it connects with the Tramway Boulevard storm drain system. The existing South Pino Storm Drain is a public storm drain, owned and maintained by the City of Albuquerque.

Mountain Highlands Unit 2 will require a roadway crossing of one of arroyos. Emory Oak Place will provide for a 48" RCP culvert crossing with flared end sections and the necessary erosion control at the outlet of the crossing. As mentioned previously, Emory Oak Place will create two isolated sump conditions that require inlets and storm drain that will discharge into the culvert crossing. Please refer to the Grading Plan located in the exhibit section of this report for the exact location of these inlets and storm drain.

VIII. CONCLUSION

The primary goal of this drainage plan for High Desert - Tract 15D-1B-1C, is to provide sound and innovative drainage management schemes that permit preservation of the natural terrain with the least possible impact. The utilization of drainage schemes outlined in this report accomplishes this goal in a safe and adequate manner. We recommend that this plan be approved as requested.

**UNIT 2 OF MOUNTAIN HIGHLANDS @ HIGH DESERT
HYDROLOGICAL VOLUMETRIC & DISCHARGE DATA (EXISTING)**

[illegible]

**UNIT 2 OF MOUNTAIN HIGHLANDS @ HIGH DESERT
HYDROLOGICAL VOLUMETRIC & DISCHARGE DATA (DEVELOPED)
(HIGH DESERT DRAINAGE MANAGEMENT MASTER PLAN -12/93)**

Basin		AREA (ACRES)	% LAND TREATMENT*								DEVELOPED (CFS)
			A	B	C	D					
SPT-6B	South Pino Pond	89.60	64.93	18.86	8.00	8.21					235.00
SPT-7A-R1		7.26	74.85	0.00	8.00	17.15					23.00
SPT-7B-R1		2.68	74.85	0.00	8.00	17.15					8.40
SPT-7B-R2		2.40	74.85	0.00	8.00	17.15					2.40
BAS-1		4.03	NOT INCLUDED								
TOTAL		105.97									268.80

**UNIT 2 OF MOUNTAIN HIGHLANDS @ HIGH DESERT
HYDROLOGICAL VOLUMETRIC & DISCHARGE DATA (DEVELOPED)
(CALCULATED)**

Basin		AREA (ACRES)	% LAND TREATMENT*					PEAK DISCHARGE - (CFS/ACRE)*				DEVELOPED (CFS)
			A	B	C	D		A	B	C	D	
SPT-6B-R1	South Pino Pond	0.21	0.00	5.00	0.00	95.00		2.20	2.92	3.73	5.25	1.08
SPT-6B-R2	South Pino Pond	13.87	76.71	4.91	0.00	18.38		2.20	2.92	3.73	5.25	38.78
SPT-6B-R3	South Pino Pond	4.14	56.28	7.30	0.00	36.42		2.20	2.92	3.73	5.25	13.92
SPT-6B-R4	South Pino Pond	8.74	74.60	5.62	0.00	19.78		2.20	2.92	3.73	5.25	24.85
SPT-6B-R5	South Pino Pond	16.56	89.25	1.60	0.00	9.15		2.20	2.92	3.73	5.25	41.24
SPT-6B-R6(offsite)	South Pino Pond	46.08	100.00	0.00	0.00	0.00		2.20	2.92	3.73	5.25	101.38
SPT-7A-R1	South Pino Pond	6.98	58.74	9.21	0.00	32.05		2.20	2.92	3.73	5.25	22.64
SPT-7B-R1	PinoRide/PinoPond	2.48	61.69	9.15	0.00	29.16		2.20	2.92	3.73	5.25	7.83
SPT-7B-R2		1.24	77.42	6.10	0.00	16.48		2.20	2.92	3.73	5.25	3.41
BAS-1		3.43	79.59	5.51	0.00	14.90		2.20	2.92	3.73	5.25	9.24
TOTAL		103.73										264.37

Unit 2 of Mountain Highlands					
LOT	Lot Area			Building Envelope Area	
	Square Feet	Acres		Square Feet	Acres
30	36,947	0.85		12,000	0.28
31	35,257	0.81		12,000	0.28
32	34,847	0.80		12,000	0.28
33	37,123	0.86		12,000	0.28
34	37,957	0.88		12,000	0.28
35	36,024	0.83		12,000	0.28
36	40,493	0.93		12,000	0.28
37	39,488	0.91		12,000	0.28
38	43,939	1.01		12,000	0.28
39	38,238	0.88		12,000	0.28
40	36,749	0.85		12,000	0.28
41	48,148	1.11		12,000	0.28
42	79,395	1.83		12,000	0.28
43	76,754	1.77		12,000	0.28
44	40,379	0.93		12,000	0.28
45	29,996	0.69		12,000	0.28
46	66,592	1.53		12,000	0.28
47	50,785	1.17		12,000	0.28
48	26,471	0.61		12,000	0.28
49	27,007	0.63		12,000	0.28
50	48,330	1.11		12,000	0.28
51	34,230	0.79		12,000	0.28
52	72,059	1.66		12,000	0.28
53	74,957	1.73		12,000	0.28
54	45,337	1.05		12,000	0.28
55	48,934	1.13		12,000	0.28
56	33,162	0.77		12,000	0.28
57	56,575	1.30		12,000	0.28
58	45,853	1.06		12,000	0.28
59	68,374	1.57		12,000	0.28
60	31,809	0.74		12,000	0.28
61	89,610	2.06		12,000	0.28
62	47,352	1.09		12,000	0.28
63	82,696	1.90		12,000	0.28
64	35,514	0.82		12,000	0.28
65	26,592	0.62		12,000	0.28
66	74,819	1.72		12,000	0.28
67	57,526	1.33		12,000	0.28
68	47,413	1.09		12,000	0.28
69	64,390	1.48		12,000	0.28

Analyzer Report

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Drainage Structure Analyzer

Culvert Hydraulic Analysis

Date: Wednesday, August 28, 2002 08:09:10 AM

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Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Entrance Edge	Smooth tapered inlet throat
Number of Barrels	1
Length	80.0000 ft
Slope	5.0000%
Tailwater	0.0000 ft
Inlet Control Equation	Entrance Loss
Size (W x T):	48.00 x 4.0000
Flow Rate	99.7900 cfs

Output Results

Flow Rate	99.7900 cfs
Control	Inlet
Capacity	321.1961 cfs
Manning's Velocity	22.5538 ft/s
Headwater	4.6960 ft
Critical Depth	3.0200 ft
Normal Depth	1.5300 ft
Size (W x T):	48.00 x 4.0000

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