# CITY OF ALBUQUERQUE

*Planning Department*
Brennon Williams, Director

*Mayor Timothy M. Keller*

March 3, 2020

Fred C. Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. N.E
Albuquerque, NM 87108

**RE:** **Bosque Escondido**
**Grading & Drainage Plan and Drainage Report**
**Engineer's Stamp Date: 02/28/20**
**Hydrology File: F14D076**

Dear Mr. Arfman:

Based upon the information provided in your submittal received 02/28/2020, the Grading & Drainage Plan and Drainage Report are approved for Grading Permit and for action by the DRB on Platting.

Once the grading is complete, a pad certification will be required prior to release of Building Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter and the pad certification approval letter.

If the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

FEBRUARY 28, 2020

# DRAINAGE REPORT

FOR

# BOSQUE ESCONDIDO

## A 5-LOT DWELLING UNIT
## SINGLE-DETACHED RESIDENTIAL
## PRIVATE DEVELOPMENT

## ALBUQUERQUE, NEW MEXICO

BY

*Isaacson&* EST 1980
*Arfman, Inc.*
Civil Engineering Consultants

128 Monroe Street NE
Albuquerque, NM 87108
505-268-8828 | www.iacivil.com

*I&A Project No. 2352*

# TABLE OF CONTENTS

For more details about the Integrated Development Ordinance visit: http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance

**IDO Zone Atlas**
**May 2018**

**AGIS**
Albuquerque Geographic Information System

IDO Zoning information as of May 17, 2018

The Zone Districts and Overlay Zones
are established by the
Integrated Development Ordinance (IDO).

Gray Shading
Represents Area Outside
of the City Limits

Zone Atlas Page:
**F-14-Z**

Easement ⬚ Escarpment

Petroglyph National Monument

Areas Outside of City Limits

Airport Protection Overlay (APO) Zone

Character Protection Overlay (CPO) Zone

Historic Protection Overlay (HPO) Zone

View Protection Overlay (VPO) Zone

Feet
0   250   500   1,000

N

**VICINITY MAP F-14-Z**

# National Flood Hazard Layer FIRMette

**FEMA**

35°8'35.41"N
106°39'1.96"W

Zone AH
(EL 4976 Feet)

Zone AH
(EL 4976 Feet)

Zone AH
(EL 4974 Feet)

AREA WITH REDUCED FLOOD RISK DUE TO LEVEE
Zone X

City of Albuquerque
350002

35001 C0119 G

eff. 9/26/2008

USGS The National Map: Orthoimagery. Data refreshed April, 2019.

35°8'5.99"N

Feet
0    250    500    1,000    1,500    2,000

1:6,000

106°38'24.53"W

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- – – – Channel, Culvert, or Storm Sewer
- ⊦⊦⊦⊦⊦⊦ Levee, Dike, or Floodwall

- ⬡ 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- ⊙– – – Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline

**OTHER FEATURES**
- Profile Baseline
- Hydrographic Feature

- Digital Data Available
- No Digital Data Available

**MAP PANELS**
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/28/2019 at 6:36:16 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# I. PROJECT INFORMATION

PROPOSED LEGAL DESCRIPTION:
>
> Bosque Escondido

EXISTING LEGAL DESCRIPTION:
>
> Tract 6-A-2, Fourth Street Homesites Addition

ENGINEER:      Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
(505) 268-8828
Attn:  Åsa Nilsson-Weber

SURVEYOR:      Cartesian Surveys, Inc.
(505) 896-3050
Attn:  Will Plotner

DEVELOPER:      Montano Family Homes, LLC
(505) 362-6824
Attn:  Tim Nisly

NUMBER OF PROPOSED DWELLING UNITS:  5

TOTAL AREA:    1.7468 Ac.

FLOOD PLAIN:    This property lies within Flood Zone X Shaded which is defined as an area with reduced flood risk due to levee. As determined by FEMA and shown on Flood Insurance Rate Map dated September 26, 2008, Map No. 35001C0119G.

## II. INTRODUCTION

This site is comprised of a vacant lot located south of Montano Rd. NW, west of 4<sup>th</sup> St. and east of 9<sup>th</sup> St. and is bound on the west by a residential subdivision, on the northeast by a commercial property (beauty salon), on the southeast by a single residence and on the south by a tract with agricultural use. The site will be developed as a private development with 5 detached residential homes The flat land grading scheme will be applied so that each lot provides ponding for the 100-year, 24-hr storm.
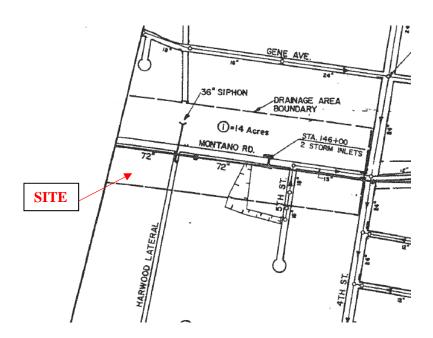
## III. EXISTING CONDITIONS

The majority of the site is undeveloped.  A portion in the front has been graded with dirt access roads and the remaining consists of trees and vegetation.

AERIAL VIEW OF PROPERTY

The site is flat, and except for the graded portion at the north end that drains to Montano Rd., the majority of the site ponds on the property. Montano Rd. is a 4-lane road with a center turn lane, bike lanes and curb and gutter and sidewalks on both sides. There is a 66-inch storm drain in Montano Road that has limited capacity. Appendix B shows excerpts from the Drainage Report for Phase 1 of Montano Corridor from Rio Grande to Edith by Wilson & Co, dated August 1985. This report indicates that a portion of this site (approximately a 150' strip from Montano Rd.) is allowed to drain to the Montano Rd. storm drain. See below for an enlarged exhibit from the basin map in the Wilson & Co. report—this property is located in Basin 1.



## IV.  PROPOSED CONDITIONS

The site will be developed as a private development using a flat grading scheme per DPM Chapter 22, Section 5G per the following criteria:

- The maximum percent impervious of each lot and the contributing area may not be greater than 45% (street area, drivepads, walks, roof area, patios, etc.)
- Each lot must provide retention ponding around the perimeter of each residence (outside of utility easements) to store the 100-year, 24 hour storm volume for the fully developed lot.
- Walls must be constructed along the lot lines to contain the required 100-year, 24 hour volume within the associated lot limits.

- The pad elevation shall be a minimum of one (1) foot above the 100-year 10-day stormwater surface elevation. Therefore, all pad elevations must be at elevation 4977.7 or greater.
- The flow between the front yard and back yard cannot be obstructed. Stormwater must be allowed to equalize to the same level between the front and back yards (using wall openings, swales, equilizer pipes, etc.)

This report stipulates the general criteria for ponding based on an assumed 45 percent Type D land treatment. The road and utility infrastructure will be constructed as part of the initial construction. Upon development of each lot, a grading plan will need to be submitted for building permit approval. These grading plans shall adhere to the criteria established in this report and on the grading plan.

The private road, Escondida Ln., will be graded at the same elevation throughout and be crowned so that the flows drain to each future lot. The road will be aggregate base course with sidewalks (deferred) adjacent to Lots 1-3. The grading will be contained to the roadway and across the utility easement with catch slopes tying to existing grade both sides. The site will continue to pond the roadway and undeveloped lots until the lots are developed.

The existing perimeter walls will remain. New perimeter walls will need to be constructed with the development of each lot to contain the 100-year, 24-hour storm.

Basin A (Tract A and the north half of the street within Lot 1) will drain approximately 0.2 cfs to Montano Rd.. The remaining basins will provide on-lot ponding for the 100-year, 24-hour storm.

The grading & drainage plan is included in the back pocket of this report.

LAND TREATMENTS AND HYDROLOGY

Hydrology calculations assume the 45% max. impervious area allowed calculated for the developed area based on the building pad, driveway and roadway areas, and the remaining area was split between land treatments B and C.

Appendix A includes a Drainage Basin Exhibit and the 100-year, 24-hour pond volume calculations using the equations from the Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993.

WATER QUALITY REQUIREMENTS

The water quality requirement will be met since the lots will have on-lot ponding. Payment in-lieu for 15 cubic feet of water quality volume may be required for Basin A which will discharge to Montano Rd.

## V.   SUMMARY & CONCLUSIONS

The site will be developed with 5 detached residential homes and an aggregate base course road with a sidewalk adjacent to Lots 1-3 (sidewalk deferred until homes are constructed).  Each lot shall provide the required 100-yr, 24-hr retention ponding areas.

Based on this report, it is recommended that the following improvements be constructed initially:

- Aggregate base course street with crown and utility infrastructure.
- Grading at road/utility easement edge to match existing elevations.
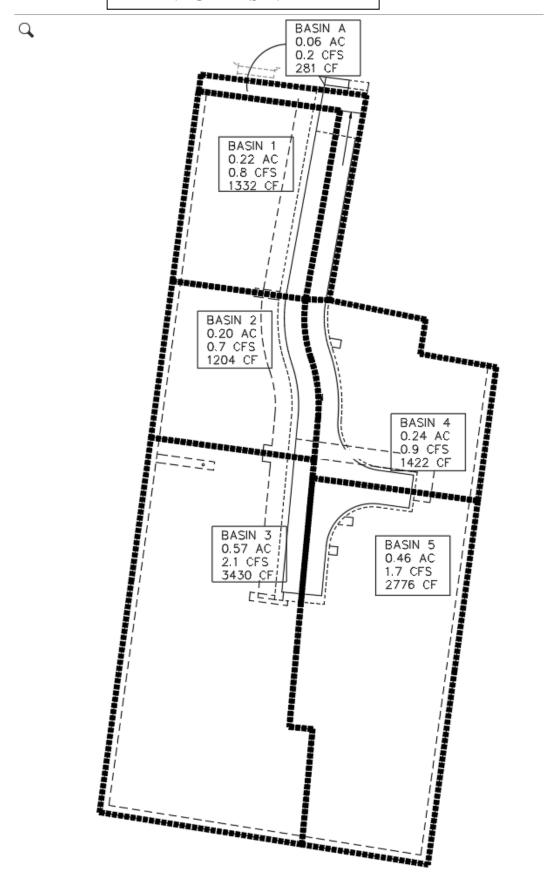
Once each lot develops, a detailed grading plan shall be submitted along with calculations for ponding volumes.  The individual grading plans shall adhere to the following criteria:

- The 100-year 10-day water surface elevation will be at or below 4976.67 which would equal the edge of (deferred) sidewalk.
- The 100-year 24-hour storm (developed condition) will be at or below 4976.5.
- Perimeter walls around the lot will contain the 100-year 24 hour developed runoff.

# APPENDIX  A

**Drainage Basin Exhibit**
**Drainage Calculations**

# DRAINAGE BASIN EXHIBIT

BASIN A
0.06 AC
0.2 CFS
281 CF

BASIN 1
0.22 AC
0.8 CFS
1332 CF

BASIN 2
0.20 AC
0.7 CFS
1204 CF

BASIN 4
0.24 AC
0.9 CFS
1422 CF

BASIN 3
0.57 AC
2.1 CFS
3430 CF

BASIN 5
0.46 AC
1.7 CFS
2776 CF

**2352 BOSQUE ESCONDIDO**

| BASIN NO. | 1 | DESCRIPTION | | LOT 1 |
|---|---|---|---|---|

Area of basin flows = 9622 SF = 0.22 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

**LAND TREATMENT**

Sub-basin Weighted Excess Precipitation:

| | A = | 0% |
|---|---|---|

Weighted E = 1.48 in.

| | B = | 27% |
|---|---|---|

Sub-basin Volume of Runoff:

| | C = | 28% |
|---|---|---|

| $V_{360}$ = | 1188 | CF | | D = | 45% |
|---|---|---|---|---|---|

| $V_{1440}$ = | 1332 | CF |
|---|---|---|

Sub-basin Peak Discharge Rate:

**FIRST FLUSH VOL.**

| $Q_{P360}$ = | 0.8 | cfs | | 123 CF |
|---|---|---|---|---|

| BASIN NO. | 2 | DESCRIPTION | | LOT 2 |
|---|---|---|---|---|

Area of basin flows = 8699 SF = 0.20 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

**LAND TREATMENT**

Sub-basin Weighted Excess Precipitation:

| | A = | 0% |
|---|---|---|

Weighted E = 1.48 in.

| | B = | 27% |
|---|---|---|

Sub-basin Volume of Runoff:

| | C = | 28% |
|---|---|---|

| $V_{360}$ = | 1074 | CF | | D = | 45% |
|---|---|---|---|---|---|

| $V_{1440}$ = | 1204 | CF |
|---|---|---|

Sub-basin Peak Discharge Rate:

**FIRST FLUSH VOL.**

| $Q_{P360}$ = | 0.72 | cfs | | 111 CF |
|---|---|---|---|---|

| BASIN NO. | 3 | DESCRIPTION | | LOT 3 |
|---|---|---|---|---|

Area of basin flows = 24777 SF = 0.57 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

**LAND TREATMENT**

Sub-basin Weighted Excess Precipitation:

| | A = | 0% |
|---|---|---|

Weighted E = 1.48 in.

| | B = | 27% |
|---|---|---|

Sub-basin Volume of Runoff:

| | C = | 28% |
|---|---|---|

| $V_{360}$ = | 3058 | CF | | D = | 45% |
|---|---|---|---|---|---|

| $V_{1440}$ = | 3430 | CF |
|---|---|---|

Sub-basin Peak Discharge Rate:

**FIRST FLUSH VOL.**

| $Q_{P360}$ = | 2.1 | cfs | | 316 CF |
|---|---|---|---|---|

| BASIN NO. | 4 | DESCRIPTION | | LOT 4 |
|---|---|---|---|---|

Area of basin flows = 10276 SF = 0.24 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

**LAND TREATMENT**

Sub-basin Weighted Excess Precipitation:

| | A = | 0% |
|---|---|---|

Weighted E = 1.48 in.

| | B = | 27% |
|---|---|---|

Sub-basin Volume of Runoff:

| | C = | 28% |
|---|---|---|

| $V_{360}$ = | 1268 | CF | | D = | 45% |
|---|---|---|---|---|---|

| $V_{1440}$ = | 1422 | CF |
|---|---|---|

Sub-basin Peak Discharge Rate:

**FIRST FLUSH VOL.**

| $Q_{P360}$ = | 0.9 | cfs | | 131 CF |
|---|---|---|---|---|

| BASIN NO. | 5 | DESCRIPTION | | LOT 5 |
|---|---|---|---|---|

Area of basin flows = 20053 SF = 0.46 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

**LAND TREATMENT**

Sub-basin Weighted Excess Precipitation:

| | A = | 0% |
|---|---|---|

Weighted E = 1.48 in.

| | B = | 27% |
|---|---|---|

Sub-basin Volume of Runoff:

| | C = | 28% |
|---|---|---|

| $V_{360}$ = | 2475 | CF | | D = | 45% |
|---|---|---|---|---|---|

| $V_{1440}$ = | 2776 | CF |
|---|---|---|

Sub-basin Peak Discharge Rate:

**FIRST FLUSH VOL.**

| $Q_{P360}$ = | 1.7 | cfs | | 256 CF |
|---|---|---|---|---|

| BASIN NO. | A | DESCRIPTION | | |
|---|---|---|---|---|

Area of basin flows = 2664 SF = 0.06 Ac.

The following calculations are based on Treatment %'s as shown in table to the right

**LAND TREATMENT**

Sub-basin Weighted Excess Precipitation:

| | A = | 0% |
|---|---|---|

Weighted E = 1.19 in.

| | B = | 40% |
|---|---|---|

Sub-basin Volume of Runoff:

| | C = | 40% |
|---|---|---|

| $V_{360}$ = | 264 | CF | | D = | 20% |
|---|---|---|---|---|---|

| $V_{1440}$ = | 281 | CF |
|---|---|---|

Sub-basin Peak Discharge Rate:

**FIRST FLUSH VOL.**

| $Q_{P360}$ = | 0.2 | cfs | | 15 CF |
|---|---|---|---|---|

# APPENDIX  B

**Excerpts from *Drainage Report for Phase 1 of Montano Corridor from Rio Grande to Edith* by Wilson & Co**

DRAINAGE REPORT


Phase 1 of the Montano Corridor
From Rio Grande Boulevard to Edith

Prepared By:

WILSON & COMPANY, ENGINEERS & ARCHITECTS

AUGUST 1985
(85-517)
REVISED MARCH 1986

WILSON
& COMPANY
ENGINEERS
ARCHITECTS

## INTRODUCTION

This report outlines the storm water drainage plan for the Montano Corridor from Rio Grande Boulevard to 2nd Street (see Phase 1 on the Location Map). This corridor is in the North Valley where the existing drainage is sheet flow with no defined drainage paths. The major outlets for drainage through this area are the Alameda Drain, the Rio Grande and, to a limited extent, the riverside drains. There are existing storm drains at the 4th Street and 2nd Street intersections. West of 5th Street there are no storm drains with the rainfall runoff ponding in many low areas and sheet flow generally to the river. Several irrigation laterals and drains cross the proposed roadway corridor. The area is currently developed east of Guadalupe, primarily residential with scattered churches and commercial buildings at the 4th Street and 2nd Street intersections. A small shopping center has been constructed in the northeast quadrant of the 4th Street intersection. The area in this phase of the project west of Guadalupe is in the process of being developed with plans for residential, multi-family and commercial development.

The drainage area to the Montano corridor is primarily a strip adjacent to the roadway with a wide sheet flow area to the northeast of Rio Grande Boulevard approximately 3,000 feet (see Figure 3-5). The City's Master Drainage Plan shows an 18-inch storm drain from a low area south of Guadalupe Trail to the Griegos Drain. The proposed drainage plan consists of a storm drain from Rio Grande Boulevard to the Alameda Drain with a pumping station at Rio Grande Boulevard to discharge the storm runoff to the Rio Grande. A tee will be provided at the Guadalupe Trail to receive a sewer draining the low area south of Montano. Approximately 130 cfs will be discharged from the Alameda Drain to the proposed system during high flows in the drain (see attached Plans and Profiles).

## HYDROLOGY & HYDRAULICS

The design criteria, hydrologic methods and hydraulic computations were in accordance with the City of Albuquerque "Development Process Manual," with Montano a minor arterial. Calculations for the project drainage are included in the Appendix and the results summarized in the following table.

## DRAINAGE SUMMARY

| Segment Sta. to Sta. | Area No(s). | Drainage Area (Ac.) | Time of Concen- tration (Min.) | Design Flow Without Alameda Drain Flow (cfs) (100-year) | Design Flow With Alameda Drain Flow of 130 cfs (peak) 100- Year (cfs) | Storm Drain Size (Dia. in inches) |
|---|---|---|---|---|---|---|
| 156+00 - 164+00 | 0 | 3.0(3)** | 39 | 7.7(7) | 130 | 60(-) |
| 136+00 - 156+00 | 0-1 | 14.0(3) | 39 | 15.1(8) | 130 | 72(24) |
| 120+00 - 136+00 | 0-2 | 15.0(3) | 39 | 24.9(10) | 130 | 72(24) |
| 105+00 - 120+00 | 0-3 | 22.0(3) | 39 | 38.6(13) | 130 | 72(30) |
| 76+00 - 105+00 | 0-4 | 79.0(3) | 39 | 43.6(18) | 130 | 72(30) |
| *68+00 - 76+00 | 5 | 7.5(3) | 9 | 37.8(29) | 130 | 72(24) |
| | | 140.5(18) | | | | |

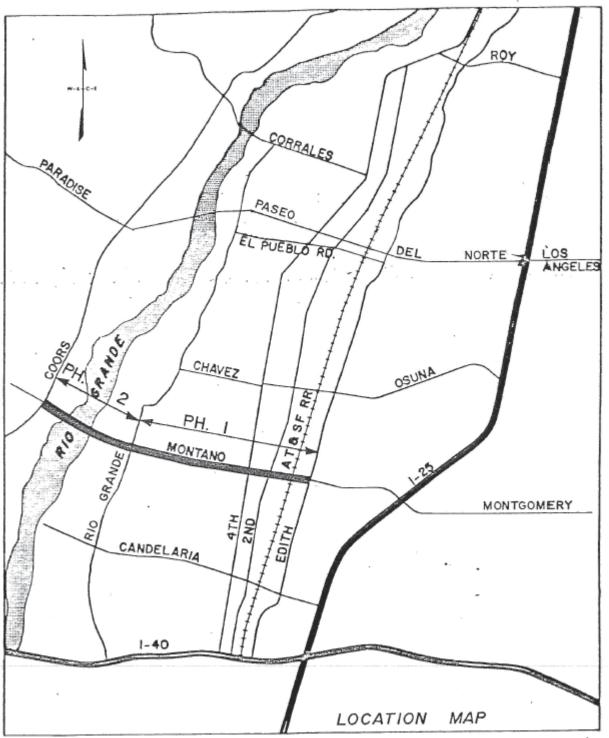*Segment to be added in Phase 2 of project with the Rio Grande Boulevard overpass.

**Numbers in parentheses reflect areas, flows and pipe sizes considering Roadway only.

Due to the "flat" grades and the sump conditions of the inlets, the 100-year design storm runoff maximum depth of 0.87 foot within the street right-of-way controlled the storm sewer pipe sizes.
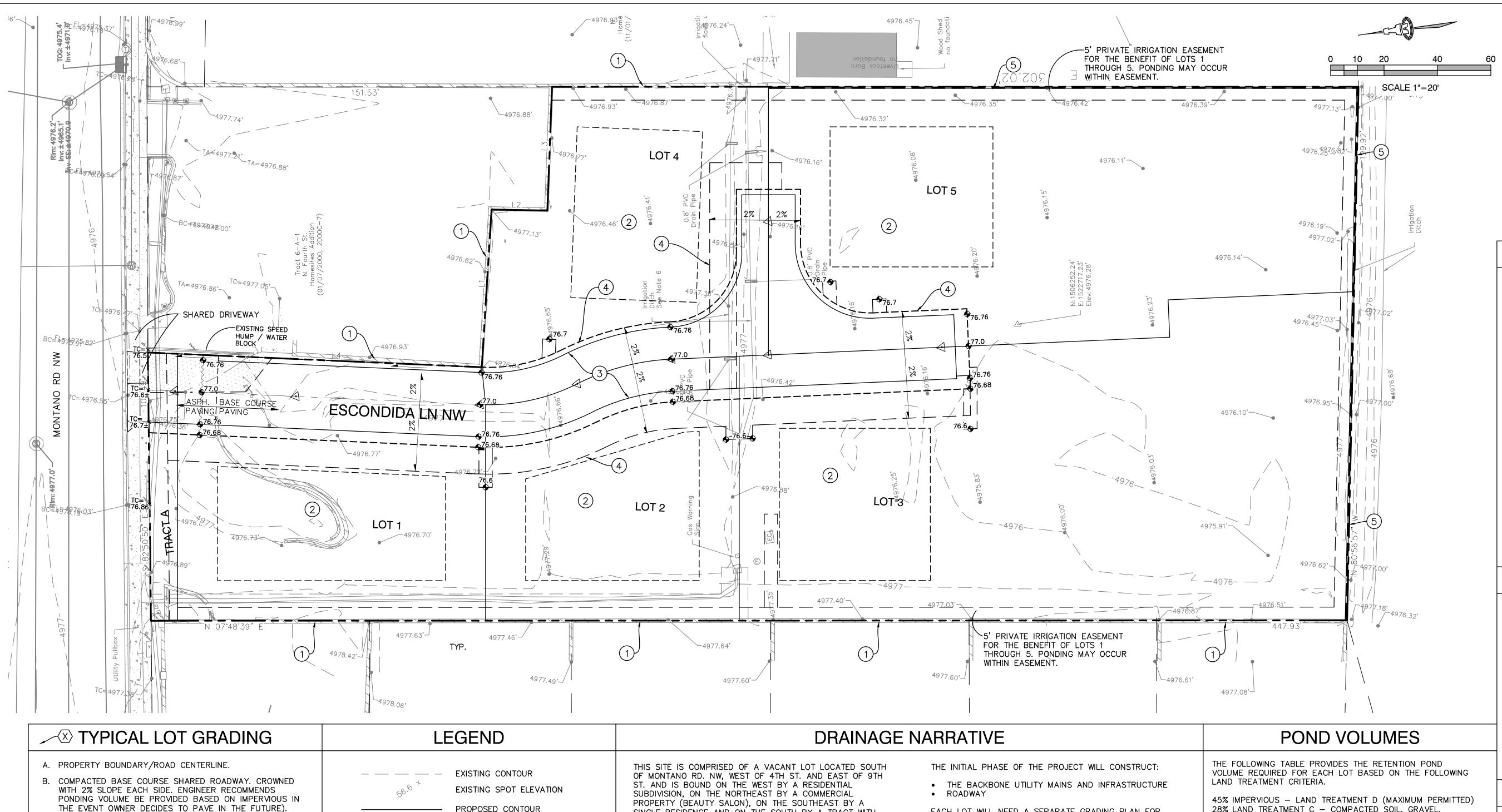

RECOMMENDED PLAN

The recommended plan is to provide a storm drain from Rio Grande Boulevard to the Alameda Drain with a pumping station to collect and pump the storm water from Rio Grande Boulevard to the Rio Grande. Approximately 130 cfs will be discharged from the Alameda Drain to the proposed system during high flows. The Montano grade will be "rolled" to obtain minimum grades with inlets constructed in the low points. (See the Plans and Profiles for details of the recommended plan.) The estimated construction cost for the storm drain system for Montano Corridor Phase 1 from Rio Grande to 2nd Street is $2.96 million (see Appendix A).

Detention ponding to control the discharges was not feasible for this pro-ject due to: 1) lack of suitable right-of-way, 2) the lack of relief, and 3) the depressed roadway for Montano under Rio Grande Boulevard. Any alter-nate using detention ponding would require pumps to lift the storm water runoff to the pond. However, approximately five acre-feet of storage in the 72"/60" storm drain was used in the pump station hydraulics to reduce the peak flow for the pump station. The flow was reduced from 130 cfs to 95 cfs - see Appendix E for calculations.

LOCATION MAP

FIGURE I

FIGURE 5

CITY OF ALBUQUERQUE
TRANSPORTATION DEPARTMENT

MONTANO ROAD
DRAINAGE PLAN

ZONE ATLAS F-14-Z

SCALE 1"=20'

0 10 20 40 60

SITE

## PROJECT DATA

**LEGAL DESCRIPTION:** TRACT 6-A-2, FOURTH STREET HOMESITES ADDTION

**SITE AREA:** 1.7468 ACRES

**FLOOD ZONE:** BASED UPON SCALING, THIS PROPERTY LIES WITHIN SHADED FLOOD ZONE X WHICH IS DEFINED AS AN AREA WITH REDUCED FLOOD RISK DUE TO LEVEE. AS DETERMINED BY F.E.M.A. AND SHOWN ON FLOOD INSURANCE RATE MAP DATE SEPTEMBER 26, 2008, MAP NO. 35001C0119G.

**ENGINEER:** ÅSA NILSSON-WEBER
ISAACSON & ARFMAN, P.A.
128 MONROE ST NE, ABQ. NM 87108
PHONE: (505) 268-8828

**SURVEYOR:** WILL PLOTNER
CARTESIAN SURVEYS INC.
P.O. BOX 44414, RIO RANCHO, N.M. 87174
PHONE: (505) 896-3050

**BENCHMARK:** ACS MONUMENT "DOUGLAS" NAD 1983 (CENTRAL ZONE)
N=1520286.421*, E=1505417.495*,
G-G=0.999682452, DA=-00'13'52.53"
ELEVATION, IN FEET (NAVD 1988) =
4975.078' (US SURVEY FEET)

## KEYED NOTES

1. EXISTING PERIMETER WALL TO REMAIN.

2. APPROXIMATE LOCATION OF FUTURE BUILDING PAD (BY OTHERS). SEE TYPICAL LOT GRADING PLAN AND NOTES FOR INDIVIDUAL LOT GRADING/DRAINAGE REQUIREMENTS. RETENTION PONDS ON EACH LOT MUST RETAIN THE 100-YEAR 24-HOUR STORM. SEE POND CONSTRUCTION NOTES AND POND VOLUME TABLE THIS SHEET.

3. GRADE CROWNED ROAD AT 2% CROSS SLOPE. EXTEND GRADING ACROSS ALL UTILITY EASEMENTS. NOTE: ROAD TO BE 6" COMPACTED AGGREGATE BASE COURSE.

4. TRANSITION AT MAX. 6:1 TO EXISTING GRADES (TYPICAL).

5. FUTURE PERIMETER WALLS REQUIRED CONCURRENT WITH THE DEVELOPMENT OF LOTS 3 AND 5. WALL SHALL CONTAIN THE 100-YEAR 24-HOUR DEVELOPED RUNOFF.
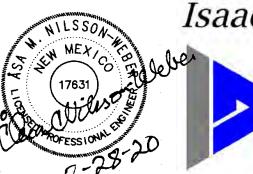
## WALL NOTES

A. PERIMETER WALLS SHALL REMAIN.

B. FUTURE RETAINING WALL DESIGN(S) SHALL BE BY STRUCTURAL ENGINEER.

## KEYED EASEMENT NOTES

A. DRAINAGE EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE BY FINAL PLAT.

---

## TYPICAL LOT GRADING

A. PROPERTY BOUNDARY/ROAD CENTERLINE.

B. COMPACTED BASE COURSE SHARED ROADWAY. CROWNED WITH 2% SLOPE EACH SIDE. ENGINEER RECOMMENDS PONDING VOLUME BE PROVIDED BASED ON IMPERVIOUS IN THE EVENT OWNER DECIDES TO PAVE IN THE FUTURE).

C. SIDEWALK (DEFERRED). NO PONDING SHALL OCCUR WITHIN ROADWAY AND UTILITY EASEMENTS.

D. PAD GRADE = 4977.7 (MINIMUM).

E. DRIVE CONNECTION TO PAD. SLOPE TO DRAIN

F. AVAILABLE POND AREA OUTSIDE OF ALL EASEMENTS BASED ON 100-YEAR 24-HOUR WSEL = 4976.5. ALL SITE PONDS MUST BE ABLE TO EQUILIZE WITHIN THE PROPERTY.

G. EXISTING PERIMETER WALL. MAX. 3:1 TRANSITION FROM WALL TO BOTTOM OF POND.

H. SIDE YARD WALLS SHALL BE CONSTRUCTED TO CONTAIN PONDING VOLUMES AT A TOP OF WALL=76.5 MIN. WALL DESIGN BY OTHERS.

I. ENGINEER RECOMMENDS PERCOLATION PITS BE INSTALLED (2 PER LOT) TO IMPROVE INFILTRATION OF PONDED STORMWATER. LOCATE MIN. 10' FROM BUILDING. SEE DETAIL SHEET CG-501.

J. OWNER'S OPTION: TRANSITIONS AND EXTENTS OF PONDING MAY VARY AS LONG AS:

K. MAXIMUM WATER SURFACE ELEVATION = 4976.5;

L. MAXIMUM DEPTH = 18"; REQUIRED POND VOLUME IS ACHIEVED.

M. DRAINAGE COVENANT FOR EACH POND IS REQUIRED TO ENSURE COMPLIANCE.

N. RUNOFF FROM LOT AND ½ ADJACENT ROADWAY IS CAPTURED WITHIN LOT PONDING.

## LEGEND

- - - - EXISTING CONTOUR

56.6 + EXISTING SPOT ELEVATION

———— PROPOSED CONTOUR

♦ 59.20 PROPOSED SPOT ELEVATION

PG= PROPOSED PAD GRADE
4978.6

## DRAINAGE NARRATIVE

THIS SITE IS COMPRISED OF A VACANT LOT LOCATED SOUTH OF MONTANO RD. NW, WEST OF 4TH ST. AND EAST OF 9TH ST. AND IS BOUND ON THE WEST BY A RESIDENTIAL SUBDIVISION, ON THE NORTHEAST BY A COMMERCIAL PROPERTY (BEAUTY SALON), ON THE SOUTHEAST BY A SINGLE RESIDENCE AND ON THE SOUTH BY A TRACT WITH AGRICULTURAL USE. THE SITE WILL BE RE-DEVELOPED AS A PRIVATE DEVELOPMENT WITH 5 DETACHED RESIDENTIAL HOMES.

THE SUBDIVISION WILL BE DEVELOPED WITH A FLAT GRADING SCHEME PER DPM CHAPTER 22, SECTION 5.G. PER CALCULATIONS:

- THE STREET MUST DRAIN INTO THE ADJACENT LOTS.
- THE 100-YEAR 10-DAY WATER SURFACE ELEVATION WILL BE AT OR BELOW 4976.67 WHICH WOULD EQUAL THE EDGE OF (DEFERRED) SIDEWALK.
- THE 100-YEAR 24-HOUR STORM (DEVELOPED CONDITION) WILL BE AT OR BELOW 4976.5.
- THE PRIVATE COMPACTED BASE COURSE ROADWAY HIGH POINT WILL BE 4" ABOVE THE 100-YEAR 10-DAY STORMWATER SURFACE ELEVATION (4976.67 + 0.33 = 4977 = HIGH POINT.
- A PERMANENT PERIMETER WALL AROUND THE DEVELOPMENT WILL CONTAIN THE 100-YEAR 24 HOUR DEVELOPED RUNOFF.

THE INITIAL PHASE OF THE PROJECT WILL CONSTRUCT:

- THE BACKBONE UTILITY MAINS AND INFRASTRUCTURE
- ROADWAY

EACH LOT WILL NEED A SEPARATE GRADING PLAN FOR BUILDING PERMIT APPROVAL.

THE LOTS WILL BE DEVELOPED INDIVIDUALLY WITH A FLAT GRADING SCHEME PER DPM CHAPTER 22, SECTION 5.G COMPLYING WITH THE FOLLOWING CRITERIA:

- THE MAXIMUM PERCENT IMPERVIOUS OF EACH LOT AND THE CONTRIBUTING AREA MAY NOT BE GREATER THAN 45% (STREET AREA, DRIVEPADS, WALKS, ROOF AREA, PATIOS, ETC.)
- EACH LOT MUST PROVIDE RETENTION PONDING AROUND THE PERIMETER OF EACH RESIDENCE (OUTSIDE OF UTILITY EASEMENTS) TO STORE THE 100-YEAR 24 HOUR STORM VOLUME FOR THE FULLY DEVELOPED LOT.
- WALLS MUST BE CONSTRUCTED ALONG THE LOT LINES TO CONTAIN THE REQUIRED VOLUME WITHIN THE ASSOCIATED LOT LIMITS.
- THE PAD ELEVATION SHALL BE A MINIMUM OF ONE (1) FOOT ABOVE THE 100-YEAR 10-DAY STORMWATER SURFACE ELEVATION. THEREFORE, ALL PAD ELEVATIONS MUST BE AT ELEVATION 4977.7 OR GREATER.
- THE FLOW BETWEEN THE FRONT YARD AND BACK YARD CANNOT BE OBSTRUCTED. STORMWATER MUST BE ALLOWED TO EQUALIZE TO THE SAME LEVEL BETWEEN THE FRONT AND BACK YARDS (USING WALL OPENINGS, SWALES, EQUILIZER PIPES, ETC.)

A SMALL BASIN AT THE NORTH END OF THE SITE WILL DRAIN 0.2 CFS TO MONTANO RD.

## POND VOLUMES

THE FOLLOWING TABLE PROVIDES THE RETENTION POND VOLUME REQUIRED FOR EACH LOT BASED ON THE FOLLOWING LAND TREATMENT CRITERIA.

45% IMPERVIOUS - LAND TREATMENT D (MAXIMUM PERMITTED)
28% LAND TREATMENT C - COMPACTED SOIL, GRAVEL.
27% LAND TREATMENT B - LAWNS, NATIVE GRASSES.

| LOT # | LOT AREA (SF) | 100YR 24HR VOL. | POND AREA (1.5' DEEP) |
|---|---|---|---|
| 1 | 9,622 | 1,332 CF | 888 SF |
| 2 | 8,699 | 1,204 CF | 803 SF |
| 3 | 24,776 | 3,430 CF | 2,287 SF |
| 4 | 10,276 | 1,422 CF | 948 SF |
| 5 | 20,053 | 2,776 CF | 1,851 SF |

IF PROPERTY OWNER DESIRES TO REDUCE POND DEPTH OR VOLUME BASED ON A DIFFERENT LAND TREATMENT RATIO, UPDATE CALCULATIONS AND SUBMIT WITH THE INDIVIDUAL LOT GRADING & DRAINAGE PLAN.

---

**Isaacson & Arfman, Inc.**
Civil Engineering Consultants

128 Monroe Street NE
Albuquerque, NM 87108
505-268-8828 | www.iacivil.com

**BOSQUE ESCONDIDO**

MONTANO FAMILY HOMES, LLC

**GRADING & DRAINAGE PLAN**

| Date: 01/2020 | No. | Revision: | | Date: | Job No. 2352 |
|---|---|---|---|---|---|
| Drown By: ÅNW | | | | | CG-101 |
| Ckd By: ÅNW | | | | | SH. OF |

### Labels on plan
ESCONDIDA LN NW
LOT 1, LOT 2, LOT 3, LOT 4, LOT 5
MONTANO RD NW
SHARED DRIVEWAY
EXISTING SPEED HUMP / WATER BLOCK
ASPH. BASE COURSE PAVING

5' PRIVATE IRRIGATION EASEMENT FOR THE BENEFIT OF LOTS 1 THROUGH 5. PONDING MAY OCCUR WITHIN EASEMENT.