



March 17, 2015

Reza Afaghpour, PE
through SBS Construction and Engineering, LLC
10209 Snowflake Court NW
Albuquerque, NM 87114

**RE: Lot 15, Block 2, Unit 3, Tract 3, Eagle Rock Avenue
Grading and Drainage Plan
Engineer's Stamp Date 2-22-2015 (File: C20-D056B)**

Dear Mr. Afaghpour:

Based upon the information provided in your submittal received 2-24-15, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

- 1) Provide a survey benchmark and existing spot elevations along the entire site perimeter.
- 2) Label the first flush volumes on the plan view. Show the roof drain locations. If part of the roof is draining to the north, locate some of this retention for the first flush immediately to the north of the proposed building, and label the volume of retention at this location.
- 3) How do the retaining wall heights match existing contour elevations? In addition to providing the top of retaining wall, provide the bottom of wall elevations in lieu of the top of footing elevations. (The elevations for the wall labeled along the southeast corner of the site look incorrect.)
- 4) Provide new contours tie-ins to existing contours at the site boundaries. Existing contours do not appear to represent improvements on Lot 18 to the south. On Lot 18, there is already an existing wall along the boundary, and the proposed wall construction conflicts with this. Also, show boundary line for subject property according to the legend.
- 5) Show calculations for the 1.71 cfs of off-site flow discharged to the site from the east. How is the flow getting to each of the on-site inlets? (The listed beehive grate elevations appear to be too high relative to the surrounding areas.) Provide more

- proposed contours. Include discussion of off-site flows within the "Proposed Conditions" write-up, and also include a very brief description of Basin 11.0 from the NAA Report, especially since it is a huge contributor of off-site flow.
- 6) On the downstream end of the pipe where the riprap is shown, provide calculations for determination of both riprap dimensioning and sizing. Specifically for the sizing, provide a "d50" of 9 inches or else provide a computation for determination of sizing. For the riprap dimensioning, there is a concern that there is not as long of a riprap section downstream of the two 36" pipes to handle the amount and the velocity of flow.
- Based upon these calculations, show the size and depth of riprap that is placed at the downstream and upstream ends of the pipe. If a longer section of riprap is required based upon these calculations, shorten the two 36-inch pipes to make more room for the riprap.
- 7) There is concern about scour where the shotcrete meets the riprap. Either provide a scour wall that extends a minimum of two feet below grade, or provide computations for the required depth of the scour wall.
- 8) Label the slope of the two 36" pipes on the plan view. If these are CMPs, call out the gauge of the pipes.
- 9) Show the proposed driveway location for the site and the proposed grades. Show adequate pipe cover at the point where the proposed driveway crosses over the 2-36" pipes.
- 10) Show proposed pipe run slopes for the proposed 8" pipe and the 100-year flow each individual pipe run is conveying. Provide capacity calculations for each of the individual pipe runs.
- 11) To reduce on-site flow from discharging to the site immediately to the west, provide an inlet for the 8" storm drain system to capture the flow from the southwest corner of the site.
- 12) Place headwall at the inlet location for the two 36" pipes.
- 13) The property owner is unable to directly access the beehive grate that is proposed on the east side of the site on the other side of the retaining wall. In lieu of this configuration for collection of off-site flows, it is recommended to collect the 1.71 cfs on the opposite side of the wall. Grade the site to make sure the flow gets into the grate, and ensure that there is flow away from proposed building.
- 14) In order to make the backyard area more usable, it is permissible to slightly raise the bottom grade of the backyard detention pond.

CITY OF ALBUQUERQUE



If you have any questions, you can contact me at 924-3924.

Sincerely,

A handwritten signature in blue ink, which appears to read 'Jeanne Wolfenbarger', is written over a light blue horizontal line.

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

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

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

Legal Description: _____

City Address: _____

Engineering Firm: _____ Contact: _____

Address: _____

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

Owner: _____ Contact: _____

Address: _____

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

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERT (TCL)
- ☐ ENGINEER'S CERT (DRB SITE PLAN)
- ☐ ENGINEER'S CERT (ESC)
- ☐ SO-19
- ☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE 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
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ GRADING CERTIFICATION
- ☐ SO-19 APPROVAL
- ☐ ESC PERMIT APPROVAL
- ☐ ESC CERT. ACCEPTANCE
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED: _____ Yes _____ No _____ Copy Provided

DATE SUBMITTED: _____ By: _____

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
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

* ZONE 4, ON-SITE

* 100-YEAR, 6-HR STORM (UNDER HISTORICAL CONDITIONS)

START RAINFALL TYPE=1 RAIN QUARTER=0.0 IN RAIN ONE=2.23 IN RAIN SIX=2.90 IN RAIN DELAY=3.65 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.001385 SQ MI PER A=100.0 PER B=0.0 PER C=0.0 PER D=0.0 TP=0.1333 HR MASS RAINFALL=-1

* 10-YEAR, 6-HR STORM (UNDER HISTORICAL CONDITIONS)

START RAINFALL TYPE=1 RAIN QUARTER=0.0 IN RAIN ONE=1.49 IN RAIN SIX=1.93 IN RAIN DELAY=2.43 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=111.1 AREA=0.001385 SQ MI PER A=100.0 PER B=0.0 PER C=0.0 PER D=0.0 TP=0.1333 HR MASS RAINFALL=-1

* 100-YEAR, 6-HR STORM (UNDER ALLOWABLE CONDITIONS)

START RAINFALL TYPE=1 RAIN QUARTER=0.0 IN RAIN ONE=2.23 IN RAIN SIX=2.90 IN RAIN DELAY=3.65 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=102.1 AREA=0.001385 SQ MI PER A=43.0 PER B=20.0 PER C=20.0 PER D=17.0 TP=0.1333 HR MASS RAINFALL=-1

* OFFSITE 111.0-A COMPUTE NM HYD ID=1 HYD NO=103.2 AREA=0.000839 SQ MI PER A=43.0 PER B=20.0 PER C=20.0 PER D=17.0 TP=0.1333 HR MASS RAINFALL=-1

* 10-YEAR, 6-HR STORM (UNDER ALLOWABLE CONDITIONS)

START RAINFALL TYPE=1 RAIN QUARTER=0.0 IN RAIN ONE=1.49 IN RAIN SIX=1.93 IN RAIN DELAY=2.43 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=112.1 AREA=0.001385 SQ MI PER A=43.0 PER B=20.0 PER C=20.0 PER D=17.0 TP=0.1333 HR MASS RAINFALL=-1

* 100-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)

START RAINFALL TYPE=1 RAIN QUARTER=0.0 IN RAIN ONE=2.23 IN RAIN SIX=2.90 IN RAIN DELAY=3.65 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=101.2 AREA=0.001385 SQ MI PER A=0.0 PER B=32.0 PER C=10.0 PER D=58.0 TP=0.1333 HR MASS RAINFALL=-1

* 10-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)

START RAINFALL TYPE=1 RAIN QUARTER=0.0 IN RAIN ONE=1.49 IN RAIN SIX=1.93 IN RAIN DELAY=2.43 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=111.2 AREA=0.001385 SQ MI PER A=0.0 PER B=32.0 PER C=10.0 PER D=58.0 TP=0.1333 HR MASS RAINFALL=-1

FINISH

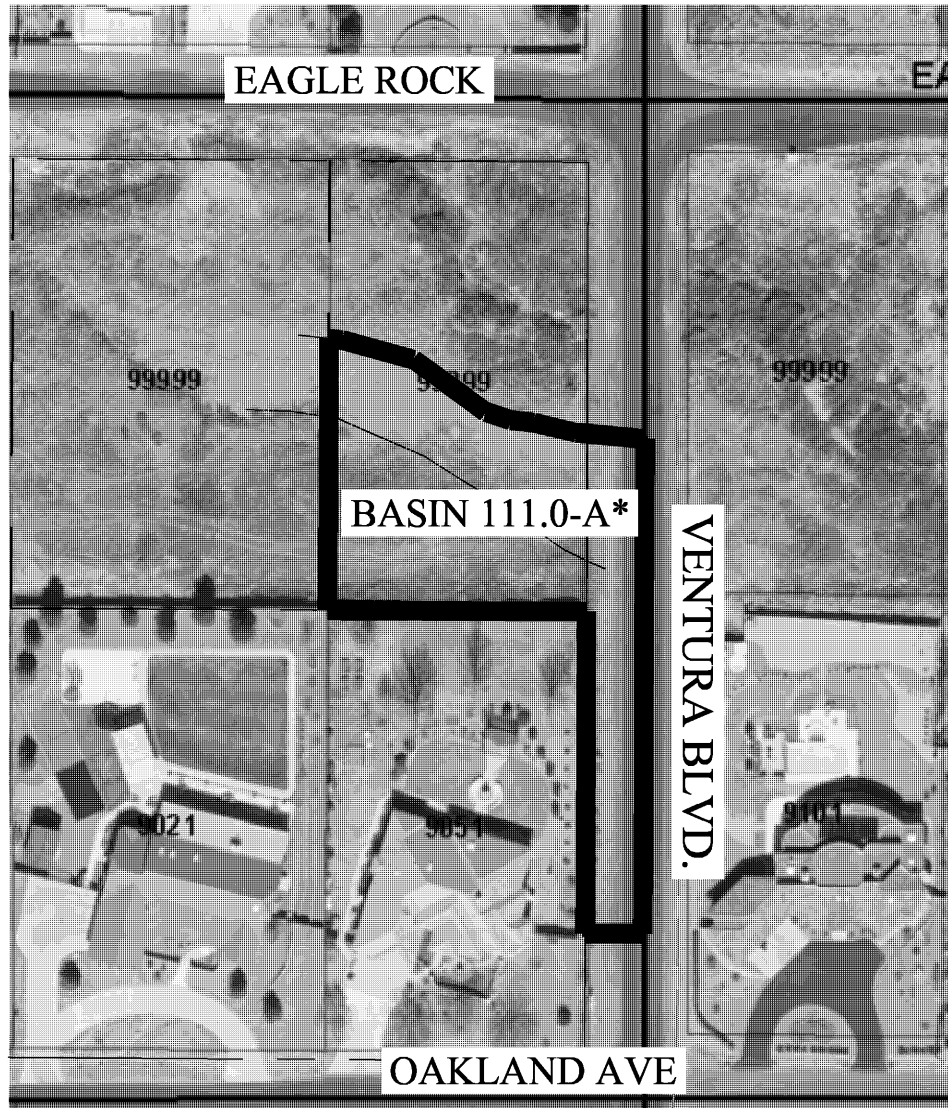
Location
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres is located south side of Eagle Rock and west of Ventura Boulevard contains +/- 0.89. See attached portion of the Vicinity Map for exact location.

Purpose
The purpose of this drainage report is to present a grading and drainage solution for the proposed buildings.

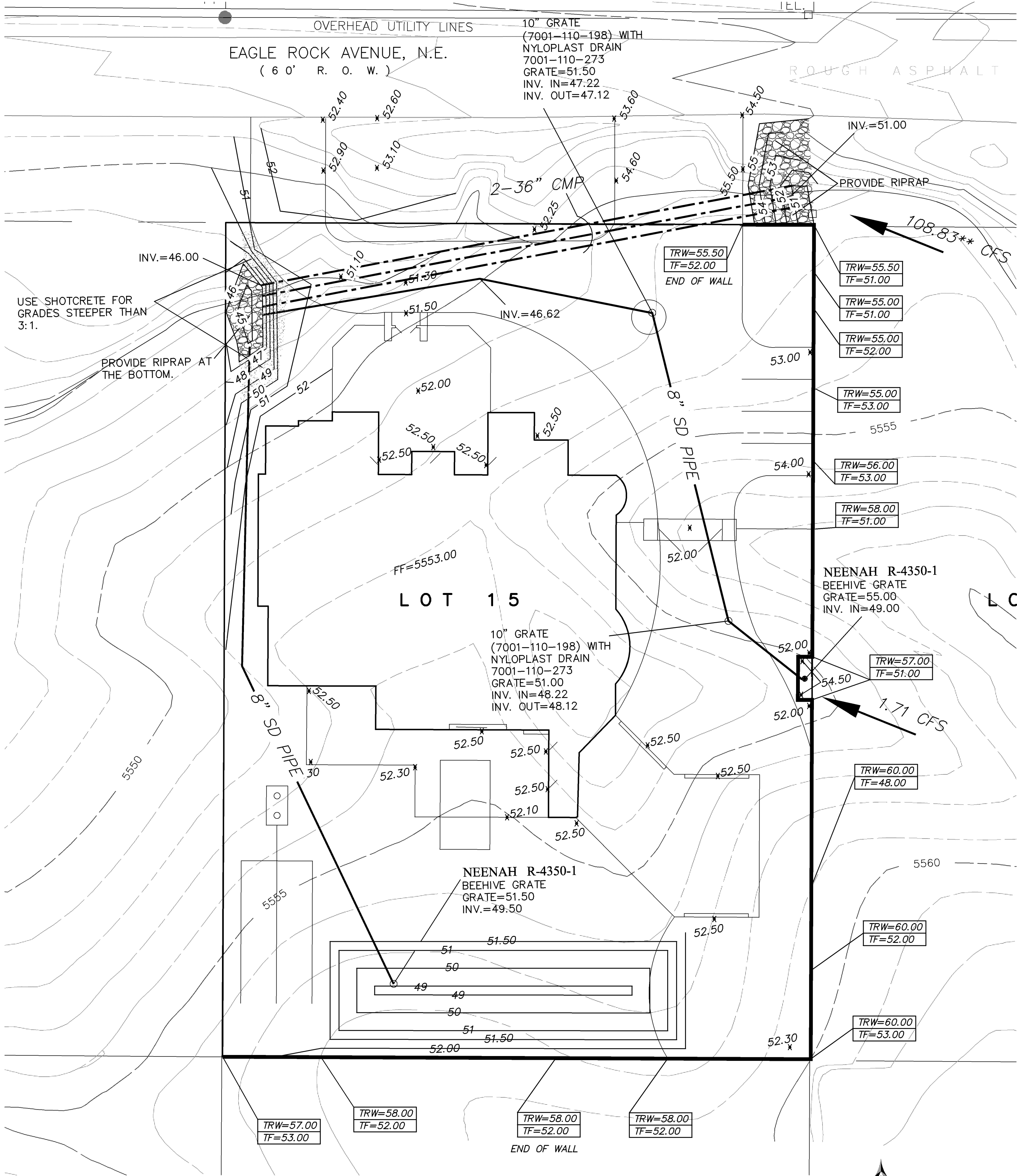
Existing Drainage Conditions
This site is undeveloped and falls within the NAA Master Drainage Plan prepared by RTI. The site is within Basin 111.0 of the RTI report and is subject to 108.83 cfs which passes through the lot at the northerly portion of the site. Another 1.71 cfs enters the mid portion of the lot from the east. Based on the FIRI Map 33001C0141G (revised September 26, 2008) the site does not fall within a 100-year floodplain.

Proposed Conditions and On-Site Drainage Management Plan
The developed runoff generated from this site will have to comply with the land treatments set as part of the NAA Master Drainage Plan. Additional runoff volume generated by this development will be retained on site. Therefore, a retention pond with a volume of 3,545.01 cfs is designed to retain the additional volume. The total retention volume required is only 2,395.08 cfs. The offsite flow of 1.71 cfs will be intercepted by a beehive inlet and then routed through the site. The 108.83 cfs will be intercepted by 2-36" CMPs and will be carried across the property.

Calculations
City of Albuquerque, Development Process Manual, Section 22.2, Hydrology Section, was used for runoff calculations. See this plan for AHYMO input and Summary output files.



* PORTION OF BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN
OFFSITE BASIN MAP



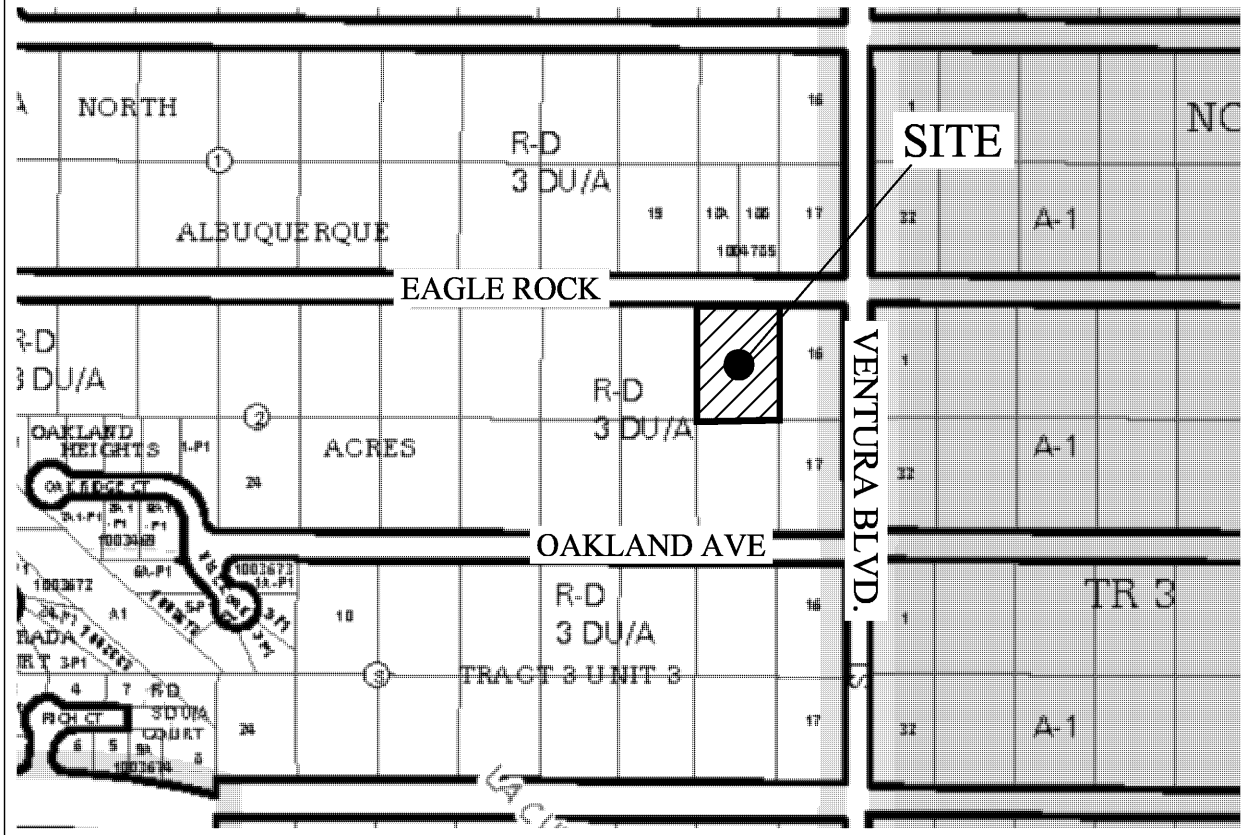
** BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN

POND CALCULATIONS

BOTTOM AREA = 179.29 SF (@ 49.00), TOP AREA = 2,672.22 SF (@ 51.50), DEPTH = 2.5'
VOLUME PROVIDED = (179.29 + 2,672.22)/2 X 2.5 = 3,564.39 CF

TOTAL PONDING VOLUME REQUIRED (NAA) = VOL. PROPOSED CONDITIONS - VOL. ALLOWABLE/NAA
= 0.149 - 0.094 = 0.055 AC-FT = 2,395.08 CF

TOTAL PONDING VOLUME REQUIRED (90TH PERCENTILE/FIRST FLUSH) = 0.34 INCHES x IMPERVIOUS AREA
= (0.34/12 x 22,393.80) = 634.49 CF



VICINITY MAP:
C-20-Z

LEGAL DESCRIPTION:
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres
CONTAINING 0.89 ACRE

GENERAL NOTES:

- 1: CONTOUR INTERVAL IS HALF (1.00) FOOT.
- 2: ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION 7_B20, HAVING AN ELEVATION OF 5566.658 FEET ABOVE SEA LEVEL.
- 3: UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/ OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
- 4: THIS IS NOT A BOUNDARY SURVEY, BEARINGS ARE ASSUMED, DISTANCES AND FOUND PROPERTY CORNERS ARE FOR INFORMATIONAL PURPOSES ONLY.
- 5: SLOPES ARE AT 3:1 MAXIMUM.

NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

LEGEND

- 5100--- EXISTING CONTOUR (MAJOR)
- 5102--- EXISTING CONTOUR (MINOR)
- BOUNDARY LINE
- x 85.46 PROPOSED SPOT ELEVATION
- x 5265.16 EXISTING GRADE
- x 5284.43 EXISTING FLOWLINE ELEVATION
- FL
- PROPOSED RETAINING WALL
- BC=89.08 BOTTOM OF CHANEL
- TRW=91.50 TOP OF RETAINING WALL
- TF=88.00 TOP OF FOOTING
- HP HIGH POINT

PIPE & GRATE CAPACITY CALCULATIONS

CALCULATING PIPE CAPACITY USING ORFICIE EQUATION: $Q = CA(2gh)^{0.50}$

NEENAH R-4350-1 BEEHIVE GRATE:
 $Q = 0.6 \times 0.30 (2 \times 32.2 \times 2.0)^{0.50} = 2.04$ cfs

NYLOPLAST 10" GRATE (7001-110-198):
 $Q = 0.6 \times 0.20 (2 \times 32.2 \times 1.0)^{0.50} = 0.95$ cfs

8" PVC:
 $Q = 0.6 \times 0.35 (2 \times 32.2 \times 2.88)^{0.50} = 2.85$ cfs

2-36" PVC:
 $Q = 2 \times 0.6 \times 7.07 (2 \times 32.2 \times 4.0)^{0.50} = 136.07$ cfs

GRAPHIC SCALE



SBS CONSTRUCTION AND ENGINEERING, LLC

10209 SNOWFLAKE CT. NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-3570

**LOT 15, BLOCK 2, UNIT3, TRACT 3, NAA
GRADING AND DRAINAGE PLAN**

DRAWING:	DRAWN BY:	DATE:	SHEET #
201423-GR.DWG	SH-B	2-16-2015	