

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

November 2, 2023

Jeffrey T. Wooten, P.E.
Wooten Engineering
PO Box 15814
Rio Rancho, NM 87174

RE: Townhomes at 4505 12th St. NW
Grading and Drainage Plan
Engineer's Stamp Date: 10/03/23
Hydrology File: G14D080A

Dear Mr. Wooten:

Based upon the information provided in your submittal received 10/23/2023, the Grading & Drainage Plan is approved for Building Permit, Grading Permit and SO-19 Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

PRIOR TO CERTIFICATE OF OCCUPANCY:

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.
2. Please provide the executed paper Drainage Covenant (latest revision) printed on one-side only with Exhibit A and a check for **\$25.00** made out to "**Bernalillo County**" for the stormwater quality ponds per Article 6-15(C) of the DPM to Hydrology for review at Plaza de Sol.
3. Please pay the Payment-in-Lieu of **\$ 112.00** by emailing the attached approved Waiver Application from Stormwater Quality Volume Management On-site to PLNDRS@cabq.gov. Once this is received, a receipt will then be produced and email back. Follow the instructions on the bottom of the form and pay it at the Treasury in Plaza de Sol. Once paid, please provide me proof of payment.

As a reminder, 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.

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

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

Sincerely,

Renée C. Brissette

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

**CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
HYDROLOGY DEVELOPMENT SECTION**

**WAIVER APPLICATION FROM STORMWATER
QUALITY VOLUME MANAGEMENT ON-SITE**

GENERAL INFORMATION

APPLICANT: Wooten Engineering (Jeff Wooten) DATE: 10/22/2023
DEVELOPMENT: Townhomes; 4505 12th St NW
LOCATION: 4505 12th Street NW

STORMWATER QUALITY POND VOLUME

Per the DPM Article 6-12 - Stormwater Quality and Low-Impact Development, the calculated sizing for required Stormwater Quality Pond volume is equal to the impervious area draining to the BMP multiplied by 0.42 inches for new development sites and by 0.26 inches for redevelopment sites.

The required volume is 436 cubic feet

The provided volume is 422 cubic feet

The deficient volume is 14 cubic feet


WAIVER JUSTIFICATION

Per the DPM Article 6-12(C), private off-site mitigation and payment-in-lieu may only be considered if management on-site is waived in accordance with the following criteria and procedures.

1. Management on-site shall be waived by the City Engineer if the following conditions are met:

- a. Stormwater quality can be effectively controlled through private off-site mitigation or through an arrangement (approved by the City) to use a cooperator's existing regional stormwater management infrastructure or facilities that are available to control stormwater quality.
 - b. Any of the following conditions apply:
 - i. The lot is too small to accommodate management on site while also accommodating the full plan of development.
 - ii. The soil is not stable as demonstrated by a geotechnical report certified by a professional engineer licensed in the State of New Mexico.
 - iii. The site use is inconsistent with the capture and reuse of stormwater.
 - iv. Other physical conditions exist where compliance with on-site stormwater quality control leaves insufficient area.
 - v. Public or private off-site facilities provide an opportunity to effectively accomplish the mitigation requirements of the Drainage Ordinance (Part 14-5-2 ROA 1994) as demonstrated on as-built construction drawings and an approved drainage report.
 - vi. The developer constructs a project to replenish regional groundwater supplies at an off-site location.
 - vii. A waiver to State water law or acquisition of water rights would be required in order to implement management on site.
2. The basis for requesting payment-in-lieu or private off-site mitigation is to be clearly demonstrated on the drainage plan.

This project's justification: There are two small drainage Basins
that include the water break portion of the curb cuts.
These two areas cannot drain into the SWQ Ponds.



Professional Engineer or Architect

PAYMENT-IN-LIEU

Per the DPM Article 6-12(C)(1), the amount of payment-in-lieu is deficient volume (cubic feet) times \$6 per cubic feet for detached single-family residential projects or \$8 per cubic feet for all other projects.

AMOUNT OF PAYMENT-IN-LIEU = \$ 112.00

THIS SECTION IS FOR CITY USE ONLY

☒ Waiver is approved. The amount of payment-in-lieu from above must be paid prior to Certificate of Occupancy.

☐ Waiver is DENIED.

Renée C. Brissette
City of Albuquerque
Hydrology Section

11/02/23

Capacity of a Single 'C' Storm Drop Inlet Sag Inlet

Capacity of the grate:

$$\begin{aligned} L &= 40'' - 2(2'' \text{ ends}) - 7(\frac{1}{2}'' \text{ middle bars}) \\ &= 32 \frac{1}{2}'' \\ &= 2.7083' \end{aligned}$$

$$\begin{aligned} W &= 25'' - 13(\frac{1}{2}'' \text{ middle bars}) \\ &= 18.5'' \\ &= 1.54' \end{aligned}$$

$$\begin{aligned} \text{Area} &= 2.7083' \times 1.54' \\ &= 4.18 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{Effective Area} &= 4.18 - 4.18 * 0.5 \text{ (clogging factor)} \\ &= 2.09 \text{ ft}^2 \text{ at the grate} \end{aligned}$$

Orifice Equation

$$\begin{aligned} Q &= CA \sqrt{2gH} \\ Q &= 0.6 * 2.09 * \sqrt{2 * 32.2 * 0.37} \\ Q &= 6.12 \text{ cfs} \end{aligned}$$

Capacity of the Throat:

$$L = 2.95'$$

$$\begin{aligned} H &= 10 \frac{3}{4}'' - 4 \frac{1}{2}'' \\ &= 6 \frac{1}{4}'' \\ &= 0.5208' \end{aligned}$$

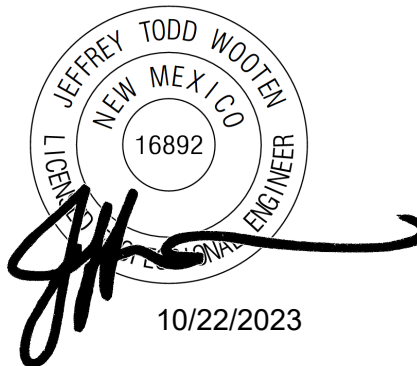
$$\begin{aligned} \text{Area} &= 2.95' \times 0.5208' \\ &= 1.54 \text{ ft}^2 \text{ at the throat} \end{aligned}$$

Weir Equation

$$\begin{aligned} Q &= CLH^{(3/2)} \\ Q &= 2.95 * 1.54 * 0.37^{(3/2)} \\ Q &= 1.02 \text{ cfs} \end{aligned}$$

Total Capacity:

$$\begin{aligned} Q_{\text{cap}} &= 6.12_{\text{grate}} + 1.02_{\text{throat}} \\ Q_{\text{cap}} &= 7.14 \text{ cfs} \end{aligned}$$



Capacity of a Single 'D' Storm Drop Inlet Sag Inlet

Capacity of the grate:

$$\begin{aligned} L &= 40'' - 2(2'' \text{ ends}) - 7(1\frac{1}{2}'' \text{ middle bars}) \\ &= 32 \frac{1}{2}'' \\ &= 2.7083' \end{aligned}$$

$$\begin{aligned} W &= 25'' - 13(1\frac{1}{2}'' \text{ middle bars}) \\ &= 18.5'' \\ &= 1.54' \end{aligned}$$

$$\begin{aligned} \text{Area} &= 2.7083' \times 1.54' \\ &= 4.18 \text{ ft}^2 \end{aligned}$$

$$\text{Double Grate} = 8.36 \text{ SF}$$

$$\begin{aligned} \text{Effective Area} &= 4.18 - 4.18 * 0.5 \text{ (clogging factor)} \\ &= 2.09 \text{ ft}^2 \text{ at the grate} \end{aligned}$$



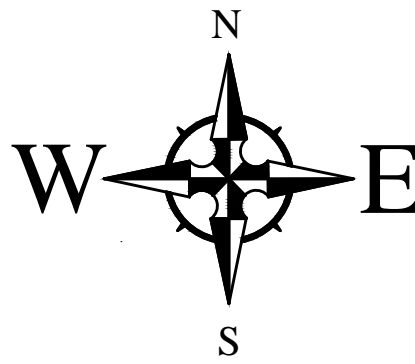
10/22/2023

Orifice Equation

$$Q_{cap} = CA \sqrt{2gH}$$

$$Q_{cap} = 0.6 * 2.09 * \sqrt{2 * 32.2 * 0.67}$$

$$Q_{cap} = 8.24 \text{ cfs}$$



20' 10' 0' 20'
SCALE: 1"=20'

CAUTION - NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

NO WORK SHALL BE PERFORMED IN THE PUBLIC RIGHT-OF-WAY WITHOUT AN APPROVED WORK ORDER OR EXCAVATION PERMIT.

ACS Monument "DOUGLAS"
NAD 1983 CENTRAL ZONE
X=1520286.421 *
Y=1505417.495 *
Z=4975.078 * (NAVD 1988)
G-G=0.999682452
Mapping Angle=-0°13'52.53"
*U.S. SURVEY FEET

COLORLED CONCRETE SIDEWALKS IN FRONT OF UNITS SHALL SLOPE AWAY FROM THE BUILDINGS AT A MAXIMUM 2% SLOPE.

LEGEND

- FLOW ARROW
- 27.8 PROPOSED TOP OF GRADE/PVMT ELEVATIONS
- FL27.8 PROPOSED FLOW LINE/GUTTER ELEVATIONS
- TC27.8 PROPOSED TOP OF CURB ELEVATIONS
- TS27.8 PROPOSED TOP OF SIDEWALK ELEVATION
- FGH83.40 FINISHED GRADE AT TOP OF WALL
- FGL83.40 FINISHED GRADE AT BOTTOM OF WALL
- 515 EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STORM DRAIN
- FLOW THROUGH WALL: TURN BLOCK SIDEWAYS WITH TWO FULL OPENINGS
- A DRAINAGE AREA
- 0.16 ACRES

DRAINAGE MANAGEMENT PLAN

INTRODUCTION

The purpose of this submittal is to provide a final grading plan for the subject site located on Lot 58-A, Rossiter Addition (4505 12th St NW) in Albuquerque, NM. The development contains approximately 0.69 acres. The site was previously developed as Single Family Residential and these homes were demolished in 2022 per Google Earth Historical Imagery. The site is now being developed into Townhomes.

EXISTING HYDROLOGIC CONDITIONS

The drainage from the site currently ponds within the property and then overflows into 12th St NW as well as the neighbors to the west. There is an existing Storm Drain system in 12th St NW.

PROPOSED HYDROLOGIC CONDITIONS

The proposed development will consist of Stormwater Quality Ponds and a Retention Pond within Basin A-2. (See the note below the Drainage Calculations Table regarding Percolation of the Soils.) Since there is zero runoff during the 100-Yr, 6-Hr Storm Event, the total discharge from the site is approximately 1.48 cfs/acre (Total of Basins A-1, A-3, and A-4 (1.03 cfs) divided by 0.69 acres). The site is located in the Valley Drainage Area which allows a Maximum Discharge of 2.75 cfs/acre. This site does not exceed this Maximum Allowable Discharge.

Basin's A-3 and A-4 consist of the project curb cuts that can't be routed to the Stormwater Quality Ponds due to the Water Break being located within the Site. The Owner will need to make a Payment-in-Lieu in the amount of \$112.00 per the below calculations.

CONCLUSION

This drainage management plan conforms to the City of Albuquerque DPM and will reduce the discharge from the site due to the new ponds. With this submittal, we are requesting Building Permit approval.

STORMWATER QUALITY POND CALCULATIONS

Basin A-1

TOTAL NEW IMPERVIOUS AREAS = 8,700 SF
SWQ VOLUME REQ'D = $8,700 \times 0.26'' / 12 = 189$ CF
TOTAL VOLUME PROVIDED = 266 CF

Basin A-2

TOTAL NEW IMPERVIOUS AREAS = 10,760 SF
SWQ VOLUME REQ'D = $10,760 \times 0.26'' / 12 = 233$ CF
TOTAL VOLUME PROVIDED = 335 CF

Basin A-3

TOTAL NEW IMPERVIOUS AREA = 311 SF
FIRST FLUSH = $311 \times 0.26'' = 7$ CF
TOTAL VOLUME PROVIDED = 0 CF
PAYMENT-IN-LIEU REQ'D = $7 \text{ CF} \times \$8.00 = \56.00

Basin A-4

TOTAL NEW IMPERVIOUS AREA = 344 SF
FIRST FLUSH = $344 \times 0.26'' = 7$ CF
TOTAL VOLUME PROVIDED = 0 CF
PAYMENT-IN-LIEU REQ'D = $7 \text{ CF} \times \$8.00 = \56.00

TOTAL PAYMENT-IN-LIEU REQ'D = \$112.00

INSTALL SIDEWALK CULVERT PER COA STD DWG 2236. SO-19 PERMIT IS REQUIRED; REF. SO-19 NOTES THIS SHEET.

REMOVE EXISTING TYPE 'A' INLET AND REPLACE WITH A DOUBLE TYPE 'D' INLET PER COA STD DWG 2206. TOP OF GRATE = 4971.20

INSTALL SIDEWALK CULVERT PER COA STD DWG 2236. SO-19 PERMIT IS REQUIRED; REF. SO-19 NOTES THIS SHEET.

INSTALL SIDEWALK CULVERT PER COA STD DWG 2236. SO-19 PERMIT IS REQUIRED; REF. SO-19 NOTES THIS SHEET.

Existing Drainage Calculations

This table is based on the COA DPM Chapter 6.2 (A), Zone 1/2											
BASIN	Area (A.S.)	Land Treatment Percentages (%)	Weighted C	Tc	I (100) (in/hr)	Q (100) (cfs)	Q (100) (cfs)	WTE (in/hr)	V (100) (cu ft)	V (100) (cu ft)	V (100) (cu ft)
A-1	0.30	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.68	1.29	1405	1753	1753
A-2	0.37	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.84	1.29	1733	2162	2162
A-3	0.01	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.02	1.29	47	58	58
A-4	0.01	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.02	1.29	47	58	58
TOTAL	0.69						1.56		3231	4033	4033

Proposed Drainage Calculations

This table is based on the COA DPM Chapter 6.2 (A), Zone 1/2											
BASIN	Area	Land Treatment Percentages (%)	Weighted C	Tc	I (100) (in/hr)	Q (100) (cfs)	Q (100) (cfs)	WTE (in/hr)	V (100) (cu ft)	V (100) (cu ft)	V (100) (cu ft)
A-1	0.30	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.68	1.29	1405	1753	1753
A-2	0.37	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.84	1.29	1733	2162	2162
A-3	0.01	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.02	1.29	47	58	58
A-4	0.01	0.0 0.0 80.0 20.0	0.68	12.00	3.31	2.26	0.02	1.29	47	58	58
TOTAL	0.69						1.56		3231	4033	4033

**SOIL PERCOLATION DATA

PER PERCOLATION TESTS CONDUCTED BY WESTERN TECHNOLOGIES, INC. (AZUPURI G. A. HABA, PE, THE SOILS AT THE SOUTH POND DRAIN AT A RATE OF 4 MINUTES PER INCH. THIS EQUATES TO 15 INCHES PER HOUR. THE POND BOTTOM IS 290 SF WHICH MEANS THAT THE POND CAN DRAIN 363CF/HR (8,712CF/DAY). SINCE THE 100 YR - 6 HR STORM VOLUME FOR BASIN A-2 IS 2,553 CF, THE POND SHOULD BE ABLE TO COMPLETELY DRAIN IN JUST OVER 7 HOURS.

City of Albuquerque

Planning Department

Development Review Services

HYDROLOGY SECTION

APPROVED

DATE: 11/02/23
BY: [Signature]
Hydrologist: G14D080A

APPROVAL OF GRADING & DRAINAGE PLANS SHALL EXPIRE TWO (2) YEARS AFTER THE APPROVAL DATE BY THE CITY IF NO BUILDING PERMIT HAS BEEN PULLED ON THE DEVELOPMENT.



FIRM MAP 35001C0119G

Per FIRM Map 35001C0119G, dated September 26, 2008, the site is located in the Floodplain and determined to be inside the 0.2% chance Annual Floodplain.

LEGEND DESCRIPTION:

Lot 58-A, Rossiter Addition, Albuquerque, NM. 0.6945 Acres.

GRADING NOTES

- EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
- THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST.
- ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION," AS PROVIDED BY THE ARCHITECT OR OWNER. ALL OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT, (FIRST PRIORITY) SPECIFICATIONS, AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).
- EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
- IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.
- THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS OR SILT FENCE AT THE PROPERTY LINES AND WETTING THE SOIL TO PROTECT IT FROM WIND EROSION.
- A DISPOSAL SITE FOR ANY & ALL EXCESS EXCAVATION MATERIAL, AND UNSUITABLE MATERIAL AND/OR A BORROW SITE CONTAINING ACCEPTABLE FILL MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL OR BORROW SITE AND HAUL TO OR FROM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
- PAVING AND ROADWAY GRADES SHALL BE +/- 0.05' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATION.
- ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT TOP OF PAVEMENT ELEVATIONS IN THE PARKING AREA AND MUST BE ADJUSTED FOR PAVEMENT, MEDIANS, AND ISLANDS.
- VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION (IF APPLICABLE) PRIOR TO BEGINNING CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE THE SWPPP DOCUMENT (IF NECESSARY) AND SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.

Private Drainage Facilities within City Right-of-Way Notice to Contractor (Special Order 19 ~ "SO-19")

- Build sidewalk culvert per COA STD DWG 2236. Work is permitted and inspected by DMD Construction Services Division.
- An excavation permit will be required before beginning any work within City Right-Of-Way.
- All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
- Prior to any excavation, the contractor must contact New Mexico One Call, dial "811" (or (505) 260-1990) for the location of existing utilities.
- Prior to construction, the contractor shall excavate and verify the locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
- Backfill compaction shall be 95%.
- Maintenance of the facility shall be the responsibility of the owner of the property being served.
- Work on arterial streets may be required on a 24-hour basis.
- For excavation and barricading inspections, contact DMD Construction Services Division.

BENCH MARKS

A.C.S. MONUMENT "DOUGLAS"

MONUMENT TYPE 3

NEW MEXICO STATE PLANE COORDINATES

(CENTRAL ZONE-N.A.D. 1983)

N=1,505,417.495

E=1,520,286.421

PUB. EL.=4975.078 NAVD 1988

GROUND TO GRID FACTOR=0.999682452

DELTA ALPHA ANGLE = -0°13'52.53"

Townhomes

4505 12th Street
Albuquerque, NM 87107

Grading Plan

CIVIL102