

Final Drainage Report
for
The Sanctuary Filing 1
at
Meridian Ranch



EL PASO COUNTY, COLORADO

~~July~~ 2022
August

Prepared For:

GTL DEVELOPMENT, INC.
P.O. Box 80036
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Prepared By:
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PCD Project No. SF22-020

CERTIFICATIONS

Design Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.



Thomas A. Kerby, P.E. #31429

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in this drainage report and plan.

A handwritten signature in black ink, appearing to read "Raul Guzman", written over a horizontal line.

Raul Guzman, Vice President
GTL Development, Inc.
P.O. Box 80036
San Diego, CA 92138

07/14/22

Date

El Paso County:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 & 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

Joshua Palmer, P.E.
~~Interim~~ County Engineer / ECM Administrator

Date

Please fix the total acre discrepancy. Also the previous %impervious shown on the 1st submittal is more accurate as the 26 acre tract from rolling hills ranch 1-3 that is being added to this development was already used in that subdivision in regards to imperviousness. By including it in your calculation for this subdivision you'd be double dipping. Please revise.

DRAINAGE FEES

The proposed development falls in the Gieck Ranch Drainage Basin. The entire development occupies 48.9 acres of residential development of which 26.3 acres are residential development and 14.7 acres are designated as right-of-way. the remainder is open space.

The following is the imperviousness calculation:

Revised as necessary

	<u>Acres</u>	<u>Assumed Imperviousness</u>	<u>Impervious Acres</u>
Open Space	33.33 7.84	3%	1.00 0.24
Right-of-way	14.73	90%	13.26
Residential Lots	26.33	65% (343 Lots)	17.11
Total	74.39 49.90		31.37 42.2% imperv 30.61=62.6%

GIECK RANCH FEES:

Drainage Fees: There are no drainage fees for this basin.

Bridge Fees: There are no bridge fees for this basin.

CONCLUSION

The rational and SCS based hydrologic calculation methods were used to estimate the historic, interim, and future developed runoff values to determine the impact of this project on surrounding property. The resulting calculations were used to estimate the hydraulic impact on the existing and proposed facilities. Finally, the model storms were analyzed to simulate the impacts of storm events of various return periods on the existing detention pond and downstream facilities. Based on the aforementioned design parameters the development of the project will not adversely affect downstream properties.

EROSION CONTROL DESIGN

General Concept

Historically, erosion on this property has been held to a minimum by a variety of natural features and agricultural practices including:

- Substantial prairie grass growth
- Construction of drainage arresting berms
- Construction of multiple stock ponds along drainage courses

Existing temporary sediment ponds will also help to minimize erosion by reducing both the volume and velocity of the peak runoff.

During construction, best management practices (BMP) for erosion control will be employed based on El Paso county Criteria. BMP's will be utilized as deemed necessary by the contractor and/or engineer and are not limited to the measures shown on the construction drawing set. The contractor shall minimize the amount of area disturbed during all construction activities.

In general the following shall be applied in developing the sequence of major activities:

- Install down-slope and side-slope perimeter BMP's before the land disturbing activity occurs.
- Do not disturb an area until it is necessary for the construction activity to proceed
- Cover or stabilize as soon as possible.
- Time the construction activities to reduce the impacts from seasonal climatic changes or weather events.
- The construction of filtration BMP's should wait until the end of the construction project when upstream drainage areas have been stabilized.
- Do not remove the temporary perimeter controls until after all upstream areas are stabilized.

see above comment.

Removed sentence

Four Step Process

The following four step process is recommended for selecting structural BMP's in developing urban areas:

Step 1: Employ Runoff Reduction Practices

~~The project has over thirty acres of open space, accounting for over 44% of the entire project, creating a lower density development.~~

Homeowners and builders are encouraged to direct roof drains to the sideyards where the runoff will travel overland to the streets and creating an opportunity to allow the runoff to infiltrate into the ground.

Step 2: Stabilize Drainageways

The drainage swale located adjacent and south of the project was designed to have a wide flat bottom and slope reducing the velocity of the concentrated flow traveling along the drainageway. The construction of the swale also included erosion control along the entire length of the swale.