



Building/Planning Department
City of Glen Rose, Texas 76043
PH: (254) 897-9373
Fax: (254) 897-7989

Staff Use Only
Date Received: 11/26/24
Fee: 447.00 Paid On: 11/26/24

PRELIMINARY PLAT APPLICATION

Address of property: No Address at this time- See survey

Applicant's Name: Horizon Capital Solutions LLC Date: 11/13/2024

Property Owner Information

Full Name: Horizon Capital Solutions LLC c/o A. Joe Mitchell Jr

Address: 6647 South FM 56, Glen Rose TX 76043

Telephone No: _____ Email: _____

Applicant/Owner's Representative (if not the owner)

Full Name: Stephen Bezner

Address: _____

Telephone No: _____ Email: _____

Property Information

Present zoning at site: R-1 requesting PD Zoning

Form of Ownership of the property: ☒ Individual ☐ Partnership ☐ Corporation

Legal Description of Current Property:

Acres: 13.256 Lot# _____ Block: _____

Subdivision: Abstract 136, Milam County School Survey, West Gibbs Blvd See Attached Survey

Additional Comments/Information

Pleass see the attached preliminary Plat of the 13.256 Acres known as Rock Ridge 3
This property is located just east of the subdivision known as Rock Ridge 1, located within
the city of Glen Rose TX

I/We, am/are the owner(s) of the property. I/We hereby certify that all the information provided is true and correct.

[Signature]
Owner(s) Signature

Nov 13, 2024
Date



Building, Planning and Code Enforcement Department
201 NE Vernon Street, PO Box 1949, Glen Rose, Texas 76043
(254) 897-2272 Fax: (254) 897-7989

NOTIFICATION

March 14, 2025

NOTICE OF PUBLIC HEARING ROCK RIDGE 3

Public hearings will be held at 5:30 p.m. at City Hall (201 NE Vernon Street, Glen Rose, Texas) on March 26, 2025 before the Planning and Zoning Commission and on April 8, 2025 before the City Council on a request as submitted by Stephen Bezner for owners Horizon Capital Solutions, LLC, to Rezone from R-1 (Single-Family Residential District) to PD (Planned Development) and a Preliminary Plat application for Rock Ridge 3, as submitted by Stephen Bezner for owners Horizon Capital Solutions, LLC; also known as Acres: 13.260, Tract: D4-1-5, Abst: A136, A136 MILAM CO SCH LD, TRACT D4-1-5, ACRES 13.26.

Dear Property Owner:

You are receiving this notice because our records indicate you own property within 200' of the property located referenced above. That is the subject of these hearings. Included with this letter is a Property Owner Response Form, the application for rezoning and preliminary plat which is under consideration, and a map showing all the properties within 200' of the property referenced above. If you would like to register your opinion in favor or in opposition to granting the rezoning and preliminary plat requests, please complete the form and either mail or email it to us, or deposit it in one of the drop boxes at City Hall.

If the owners of 20% or more of the land within 200' of property referenced above provide written notice of their objection to the issuance of the rezoning request, instead of a simple majority it will require a vote of $\frac{3}{4}$ of the City Council members present to approve the request.

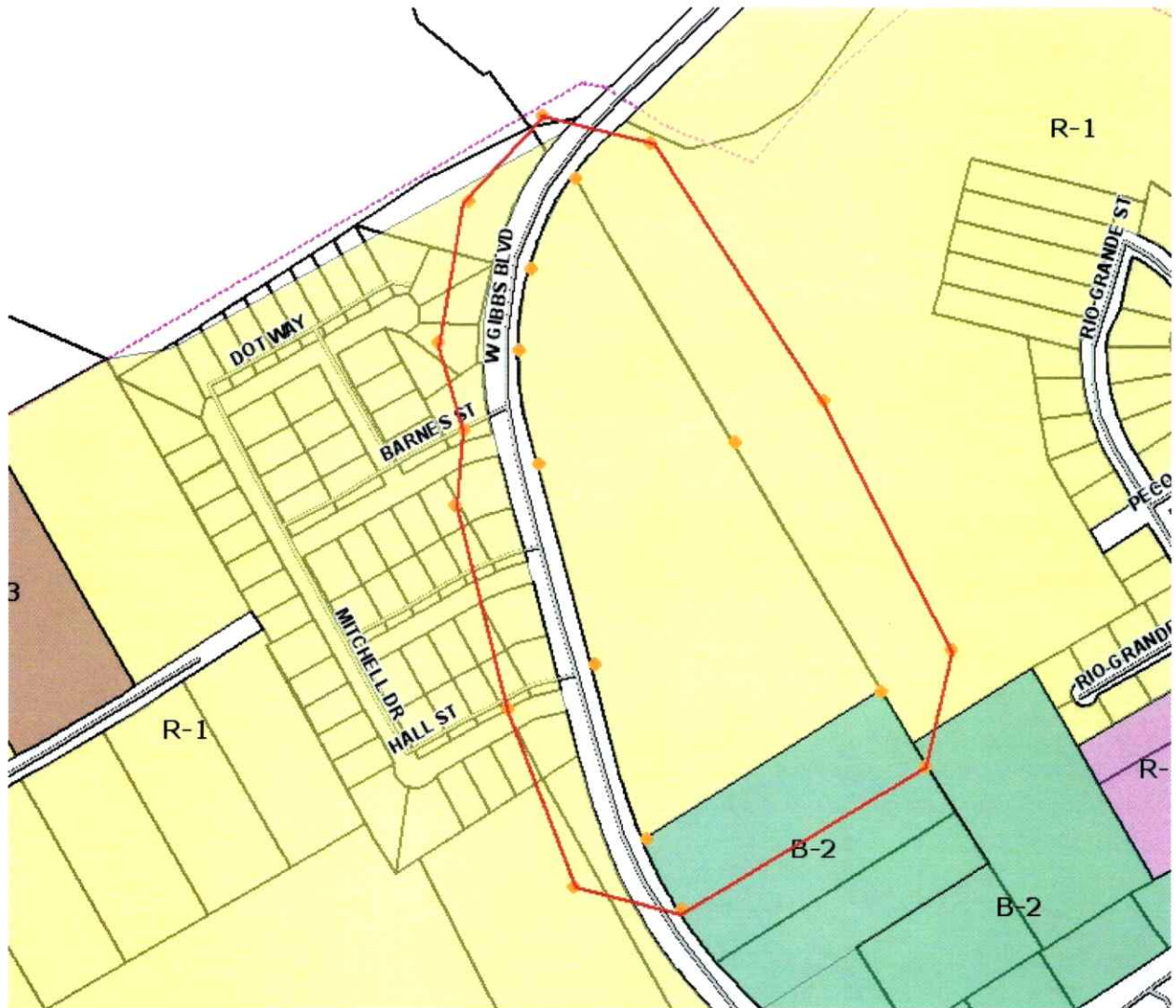
You are welcome to attend and participate in either or both of the Public Hearings. If you are unable to attend, but would like to listen to the hearings, generally, those proceedings are broadcast via Facebook and YouTube.

Should you have any questions, please contact us at jodi.holthe@glenrosetexas.org or at (254) 897-2272 ext. 109.

Sincerely,

Building, Planning, and Code Compliance Department

Rockridge Phase III – 200 ft Radius



Presentation to Glen Rose Planning and Zoning and City Council

Introduction

- Thank you for the opportunity to present this unique housing development proposal.
- Our goal is to address Glen Rose's housing shortage while enhancing economic expansion and providing a high-quality living environment.

Background & Vision

- The concept for this development was originally designed in 1978 by my architect Ron Morris and myself. It was well received in Dallas, Texas, and remains a successful, desirable community today.
- This development is designed as a superior alternative to traditional townhouses, offering **detached ownership with private yards and garage storage**.
- By introducing **multi-use private courtyards**, we create an exclusive yet affordable homeownership opportunity that strengthens community pride and individual space.

Addressing Glen Rose's Housing Needs

- A recent study identified that Glen Rose lacks approximately **90 homes** to meet current demand, and projections suggest that **200 new homes** are needed to support growth (**Glen Rose Reporter** article).
- Our development directly aligns with this need, creating **affordable yet high-quality homes** targeting households earning around **130% of the median income**.
- The design and planning focus on **value retention, aesthetic appeal, and long-term sustainability**, making it a strong investment for both homeowners and the city.

Economic & Community Benefits

- **Higher Taxable Value Per Acre:** The development design nearly **doubles the taxable value per acre** compared to traditional developments.
- **Lower City Maintenance Costs:** Due to its unique layout, city maintenance costs are estimated to be **about 50% lower** than conventional neighborhoods.
- **Enhancing Glen Rose's Appeal:** These high-quality homes will **attract new residents to Somervell County**, supporting local businesses and boosting the economy.

Development Features & Layout

- Streetscape and architectural renderings are provided (**see Rock Ridge 3 Elevations and Streetscape documents**).
- Homes are built with **high-end finishes** inside and out, offering both luxury and efficiency.
- The use of **private multi-use courtyards** enhances privacy while maintaining affordability.

Addressing City Concerns: Private Courtyard Driveways

- A key discussion point has been the **Private Courtyard Dead-End Streets**.
- These were **never designed to function as public streets** but rather as **private multi-use driveways** that provide efficient and accessible home entry.
- As shown in the attached layout, these driveways are **short and well-integrated into the community**, ensuring safe and effective use.
- If reclassified as public streets, this would significantly impact on the **affordability and feasibility** of the project, making it too expensive for Glen Rose's market.

Call to Action: Collaborative Planning for Success

- We invite the city to **work with us on finalizing development details** to ensure the best outcome for Glen Rose.
- Our team is prepared to discuss potential modifications and address any remaining concerns.
- We look forward to a **collaborative partnership** in bringing this innovative, high-value community to Glen Rose.

Supporting Documents

1. **Glen Rose Reporter Article** – Highlighting the city's housing shortage and need for growth.
2. **Rock Ridge 3 Logo & Branding** – Establishing identity and community appeal.
3. **Site Layout & Design Features** – Demonstrating the unique benefits of the development and Fire Code compliance.
4. **Architectural Elevations & Streetscape** – Illustrating home quality and streetscape aesthetics.

Specific Request for Planned Development:

Zoning and Platting Request – Glen Rose, Texas

We are requesting approval for a zoning and platting Planned Development that will allow the development of a high-quality, mid-density detached single-family residential neighborhood designed to accommodate market values around \$275,000 per home. This concept has been successfully implemented in previous developments over the last 50 years, creating vibrant and well-planned communities. The private areas and Courtyards that are not Public Streets will be maintained by a Homeowners Association.

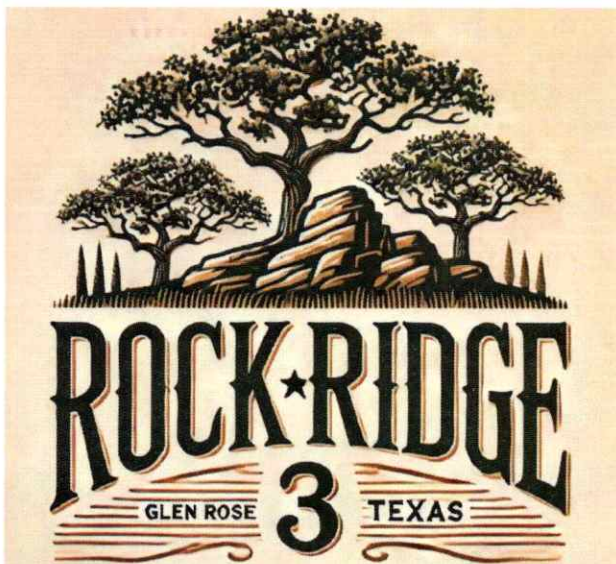
Development Parameters:

- **Lot Sizes & Layout:**
 - Minimum lot size: **3,000 square feet** (with most lots averaging around 4,000 square feet).

- Designed for an efficient and functional neighborhood layout with a focus on maximizing homeownership opportunities.
- **Setbacks & Site Planning:**
 - **Front setback:** 10 feet from all public rights-of-way.
 - **Rear setback:** 10 feet around the perimeter of the central courtyard (serving as the rear yard).
 - **Side setback:** 10 feet between homes, ensuring privacy while maintaining neighborhood density.
- **Street Planning:**
 - Maximum **150-foot-long** dead-end streets, promoting accessibility while maintaining a pedestrian-friendly environment.
- **Home Sizes & Features:**
 - Minimum home size: **1,000 square feet**
 - Average home size: **1,300 square feet**
 - Each lot will accommodate **one enclosed parking space plus three additional off-street parking spaces**, ensuring sufficient parking for residents and guests.
- **Community & Open Spaces:**
 - All open spaces will be **landscaped or designed for pedestrian accessibility**, fostering a walkable and aesthetically pleasing environment.

This zoning and platting request is designed to support a thoughtfully planned, detached residential neighborhood that balances density with livability while maintaining a strong market appeal. The proposed standards align with modern housing trends and offer an opportunity to introduce an established, successful housing model into the City of Glen Rose.

Thank you for your time and consideration. We look forward to discussing this further and working together to create a lasting impact for Glen Rose.



Glen Rose City Council explores economic diversification and housing expansion

By Hannah Barricks
Glen Rose Reporter

GLEN ROSE- In a recent presentation to the Glen Rose City Council, the Next Move Group, a firm fostering economic growth for small to mid-sized communities, outlined strategic recommendations to bolster the city's financial landscape and address pressing housing shortages.

Economic Diversification

The Next Move Group suggested reducing Glen Rose's reliance on tourism by attracting manufacturing industries. They identified a 5-acre tract in the industrial park as an ideal location for a manufacturing facility capable of generating 100 to 200 jobs. To facilitate this, they recommended proactive marketing of the property and leveraging virtual meetings to engage potential manufacturers.

Addressing Housing Shortages

Highlighting a significant housing deficit, the group noted that Glen Rose currently lacks approximately 90 homes to meet existing demand. They projected that developing around 200 new homes, particularly higher-end residences, could attract additional Somervell County residents, stimulating population growth and supporting economic expansion.

County: Somervell
Project: Rock Ridge Glen Rose
M&B No: 24-191
CS Job No: 24193

METES AND BOUNDS DESCRIPTION OF 13.256 ACRES

Being a tract of land containing 13.256 acres, located in the Milam County School Land Survey, Abstract 136, in Somervell County, Texas; Said 13.256 acre tract being out of a called 18.07 acre tract of land recorded in the name of Horizon Capital Solutions in Somervell County Clerk's File (S.C.C.F.) Number 20220623; Said 13.256 acre tract being more particularly described by metes and bounds as follows (all bearings are referenced to the Texas Coordinate System of 1983, North Central Zone):

BEGINNING, at a 5/8-inch capped iron rod found for the west corner of Lot 1, Block 1, of the JW Glen Rose Subdivision as recorded in Plat Number 20171733 of the Somervell County Plat Records, on the west line of said 18.07 acre tract and the east Right-of-Way (R.O.W.) line of West Gibbs Boulevard (R.O.W. width varies), from which a 5/8-inch capped iron rod found for the south corner of said Lot 1 bears 176.70 feet along the arc of a curve to the left, having a radius of 1,025.98 feet, a central angle of $18^{\circ} 14' 04''$, and a chord that bears South $33^{\circ} 40' 36''$ East, a distance of 325.14 feet;

THENCE, with west lines of said 18.07 acre tract and the east R.O.W. lines of said West Gibbs Boulevard, the following five (5) courses:

1. 176.70 feet along the arc of a curve to the right, having a radius of 1,025.98 feet, a central angle of $09^{\circ} 52' 04''$, and a chord that bears North $19^{\circ} 37' 32''$ West, a distance of 176.48 feet to a 5/8-inch capped iron rod set for a point of tangency;
2. North $14^{\circ} 43' 27''$ West, a distance of 851.79 feet to a 5/8-inch iron rod found for the beginning of a curve to the right;
3. 171.07 feet along the arc of a curve to the right, having a radius of 639.11 feet, a central angle of $15^{\circ} 20' 11''$, and a chord that bears North $07^{\circ} 03' 21''$ West, a distance of 170.56 feet to a nail found for an angle point;
4. South $89^{\circ} 26' 43''$ East, a distance of 20.00 feet to a 5/8-inch capped iron rod found for the beginning of a curve to the right;
5. 351.72 feet along the arc of a curve to the right, having a radius of 619.11 feet, a central angle of $32^{\circ} 33' 01''$, and a chord that bears North $16^{\circ} 54' 48''$ East, a distance of 347.01 feet to a 5/8-inch iron rod found for the north corner of said 18.07 acre tract and the west corner of a called 34.590 acre tract of land recorded in the name of Rojelio and Jennifer Montoya in S.C.C.F. Number 20190662;

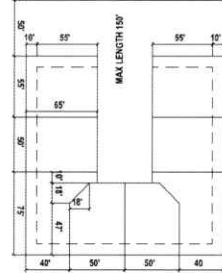
THENCE, South $31^{\circ} 59' 33''$ East, with the line common to said 18.07 acre tract and said 34.590 acre tract, a distance of 1,357.89 feet to a 5/8-inch capped iron rod set at the north corner of aforesaid Lot 1, from which a 5/8-inch capped iron rod found for the east corner of said Lot 1 bears South $31^{\circ} 59' 33''$ East, a distance of 325.00 feet;

EXHIBIT __, PAGE 2 OF 2 PAGES

THENCE, South 58° 01' 06" West, through and across said 18.07 acre tract and with the northwest line of said Lot 1, a distance of 640.94 feet to the **POINT OF BEGINNING** and containing 13.256 acres of land.

An ALTA/NSPS Land Title Survey of the herein described tract was prepared in conjunction with and accompanies this description.

Michael Hall, R.P.L.S.
Texas Registration Number 5765
CIVIL-SURV LAND SURVEYING, LC
PH: (713) 839-9181
November 6, 2024



0.5 ACRE LANDSCAPE BUFFER ALONG HWY

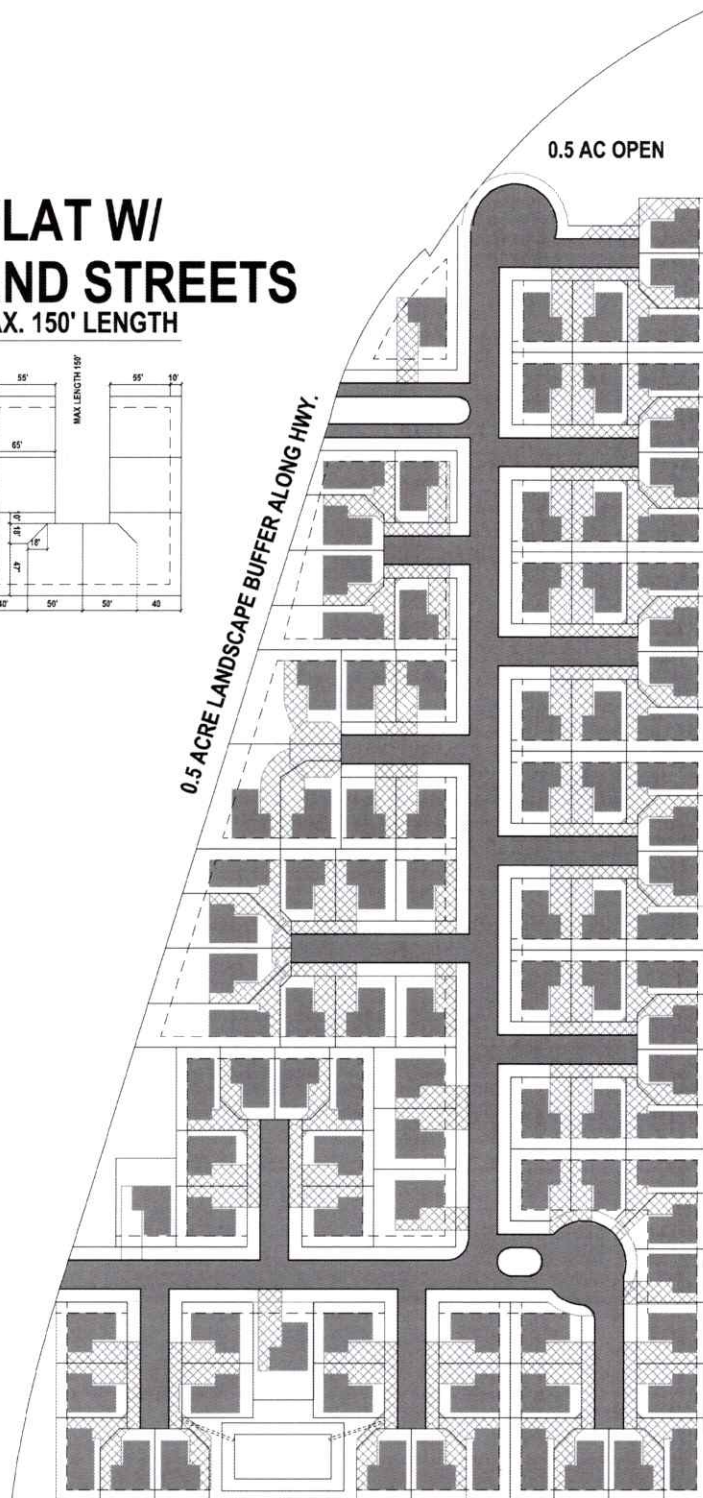
**LAT W/
ND STREETS**
X. 150' LENGTH

0.5 AC OPEN

0.5 ACRE LANDSCAPE BUFFER ALONG HWY.

DATE 11/6/2024	SCALE	MODEL ROCK RIDGE COURTYARD GLEN ROSE, TX	DRAWING & DESIGN SERVICES BY 36752 NASHUA BLVD. RON MORRIS SORRENTO, FL 32776 469-271-3059 DESIGNS, LLC. EMAIL: ronmorrisedesigns@gmail.com
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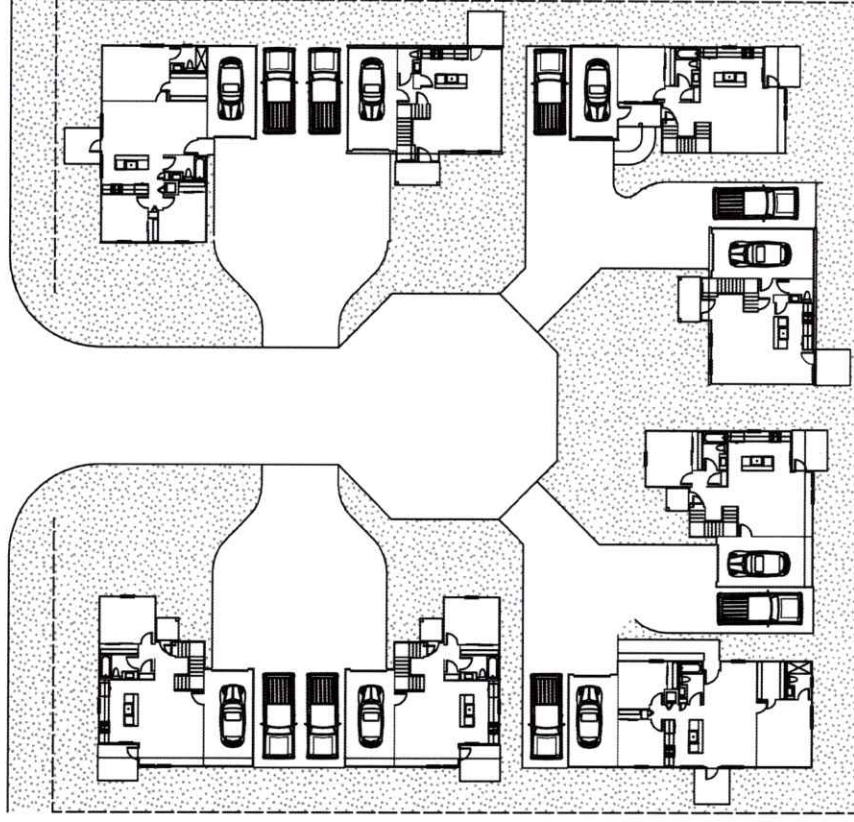
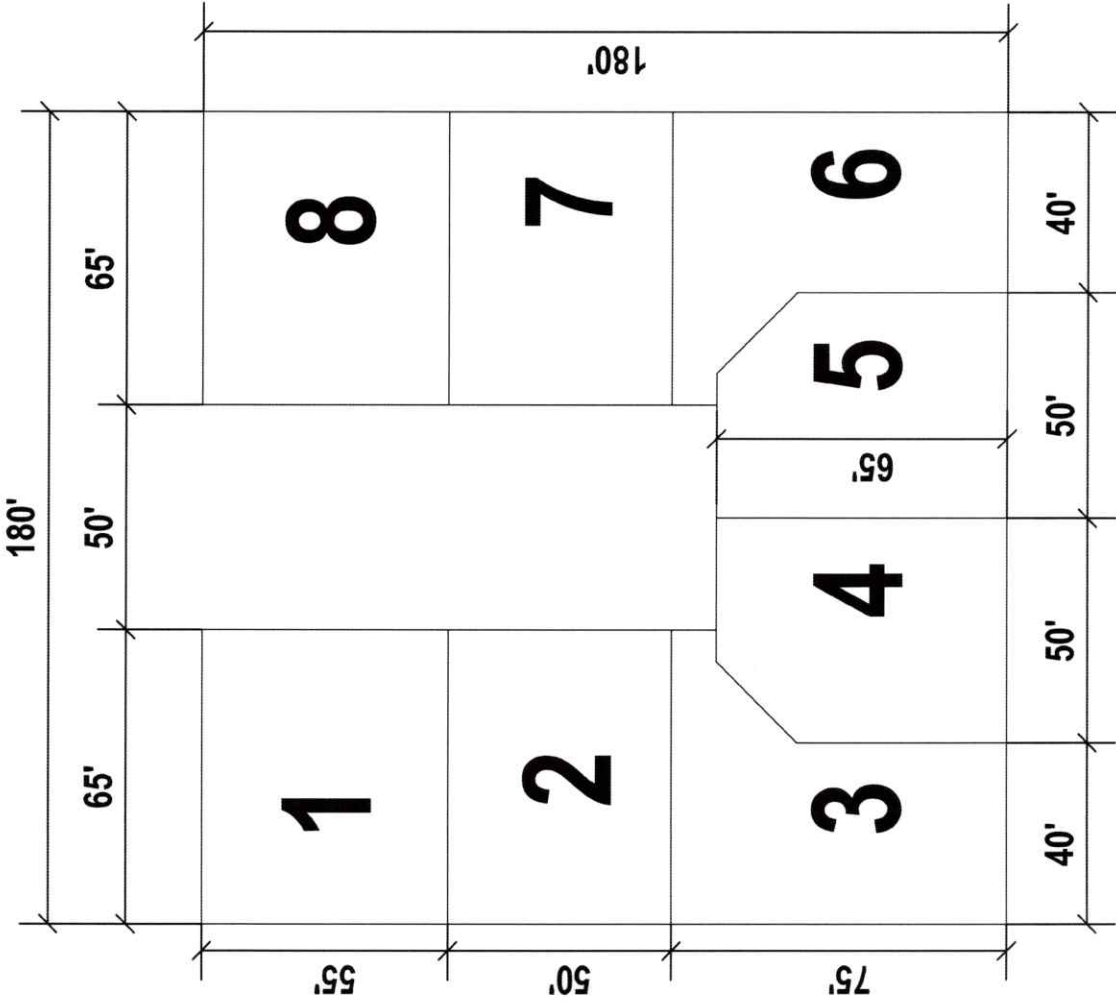
DRAFTING & DESIGN SERVICES BY
RON MORRIS
DESIGNS, LLC.
EMAIL: ronmorrisedesigns@gmail.com



SHEET	DATE 11/6/2024	SCALE	MODEL	DRAFTING & DESIGN SERVICES BY
			ROCK RIDGE COURTYARD GLEN ROSE, TX	36752 NASHUA BLVD. NORRIS, FL 32776 404-271-3093 RON MORRIS DESIGNS, LLC. EMAIL: ronmorrisedesigns@gmail.com

ALL FOOTPRINTS 24X44 W/ 11X22 GARAGE

Exhibit 2



LEGEND

[illegible]

VICINITY MAP
SCALE 1" = 1/4 MI.

LINE TABLE		
LINE #	DIRECTION	LENGTH
1.1	S. 80°26'43" E.	20.00'

CURVE TABLE					
CURVE #	RADIUS	DELTA	LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	1025.96'	95°2'04"	176.70'	N 19°37'32" W	176.46'
C2	636.11'	19°20'11"	171.67'	N 07°03'21" W	170.56'
C3	819.11'	32°33'01"	351.72'	N 18°04'48" E	347.01'
C4	1025.96'	180°4'04"	336.82'	S 33°40'38" E	325.14'

NOTES

- [illegible]

SCHEDULE "B", ITEM 10 EXCEPTION NOTES:

10(x)-XXXXXXXXXX

*ONLY THOSE ITEMS LISTED IN SCHEDULE "B" OF THE COMMITMENT FOR TITLE INSURANCE REFERENCED HEREON AND RELISTED ABOVE WERE CONSIDERED IN PREPARATION OF THIS SURVEY.

13.256 ACRES
577.421 S.F.

REMAINDER OF A
CALLED 18.07 ACRES
HORIZON CAPITAL
SOLUTIONS, LLC,
S.C.C.F. No. 20220823

METES AND BOUNDS DESCRIPTION OF 13.256 ACRES

Being a tract of land containing 13,256 acres, located in the Milam County School Land Survey, Abstract 136, in Somervell County, Texas, said 13,256 acre tract being out of a ceded 18,977 acre tract of land recorded in the name of Horizon Capital Solutions in Somervell County Clerk's File (S.C.C.F.) Number 20220623; said 13,256 acre tract being more particularly described by metes and bounds as follows (all bearings are referenced to the Texas Coordinate System of 1983, North Central Zone):

REMARKS: at a 5/8-inch capped iron rod found for the west corner of Lot 1, located at the NW Glen Run Subdivision as recorded in Plat Number 20171733 and the General County Plat Records, on the east line of said 16.67 acre tract and the NW 1/4 of a 36 acre city block of West Glades, measured 10.025 feet from the NW corner of said block, a 5/8-inch capped iron rod found for the south corner of said Lot 1 bears 176.70 feet along the arc of a curve to the left, having a radius of 1,025.08 feet, central angle of 18° 14' 04", and a chord that bears South 33° 40' 36" East, a distance of 325.14 feet.

176.70 feet along the arc of a curve to the right, having a radius of 1,025.98 feet, a central angle of 09° 52' 04", and a chord that bears North 15° 37' 32" West, a distance of 176.48 feet, a 5/8-inch capped iron nail set for a point of tangency, North 14° 43' 25" West, a distance of 851.79 feet to a 5/8-inch iron nail found for

South 89° 25' 43" East, a distance of 20.00 feet to a 5/8-inch capped iron rod

351.72 feet along the arc of a curve to the right, having a radius of 615.11 feet, a central angle of 32° 33' 01"; and a chord that bears North 10° 54' 48" East, a distance of 347.01 feet to a 5/8-inch iron rod found for the north corner of said E.67.07 acre tract and the west corner of a called 34.590 acre tract of land recorded in the name of Rajala and Jennifer Montoya in S.C.C.F. Number 20190682;

ENCE, South 31° 56' 33" East, with the line common to said 18.07 acre tract and said 34.590 acre tract, a distance of 1,357.85 feet to a 5/8-inch capped iron rod set at the north corner of aforesaid Lot 1, from which a 5/8-inch capped iron rod found for the east corner of said Lot 1 bears South 31° 56' 33" East, a distance of 325.00 feet;

THENCE, South 56° 01' 06" West, through and across said 18.07 acre tract and with the northwest line of said Lot 1, a distance of 640.94 feet to the POINT OF BEGINNING and containing 13.256 acres of land.

TO: DIRECTOR

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NPS/PLAT TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6(a), 7(a), 8, 9, 10, 11(a), 13, 14 AND 16-19 OF TABLE A, 2021 ALTA AND NPS MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NPS/PLAT TITLE SURVEYS.

PRELIMINARY FOR
REVIEW
11/07/2024

MICHAEL HALL
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO.: 5285

ALTA/NSPS LAND TITLE SURVEY

13.256 ACRES

THE REMAINDER OF A CALLED 18.07
ACRE TRACT OF LAND RECORDED IN THE
NAME OF HORIZON CAPITAL SOLUTIONS,
LLC. IN S.C.C.F. No. 20220623

IN THE
MILAM COUNTY SCHOOL LAND SURVEY
ABSTRACT NO. 136
SOMERVELL COUNTY, TEXAS

DATE:	11/07/20
SCALE:	1" = 60'
BOOK NO.:	
DRAWN BY:	N.P.
CHECKED BY:	M.H.
PROJECT NO.:	CS 24193
DRAWING NO.:	1 OF 1

10000 WESTOFFICE DRIVE, SUITE 210
HOUSTON, TEXAS 77060
OFFICE: (713) 838-4118

 **Civil-Surv**
Land Surveying, LLC

TELEFAX No. 1014300
FAX: (713) 838-4118

10050 WESTOFFICE DRIVE, SUITE #400
HOUSTON, TEXAS 77042
(713) 865-0300 FAX (713) 865-0301

OFFICIAL (P.O.) 103-1031

Oil Spill

MI-Surv

Surveying, LLC

TPFELS No. 1014.3600
Print: michaell@tpe-arc.net

STATE OF TEXAS
COUNTY OF SOMERVELL

THE OWNER OF THE LAND SHOWN ON THIS PLAT, WHOSE NAME IS SUBSCRIBED HERETO, IN PERSON OR THROUGH DULY AUTHORIZED AGENT, HEREBY DEDICATES TO THE PUBLIC FOREVER, ALL STREETS, ALLEYS, PARKS, WATERCOURSES, DRAINS, EASEMENTS AND PUBLIC PLACES HEREIN SHOWN FOR THE CONSERVATION AND PURPOSES EXPRESSED.

HORIZON CAPITAL SOLUTIONS LLC

BY:
JOE MITCHELL JR.
OWNER

STATE OF TEXAS
COUNTY OF _____

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED JOE MITCHELL JR., KNOWN TO ME TO BE THE PERSONS WHOSE NAMES ARE SUBSCRIBED TO THE FOREGOING INSTRUMENT AND ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ DAY OF _____, 2023.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

PRINTED NAME: _____

COMMISSION EXPIRES: _____

I, CHRIS RHODES, AM AUTHORIZED (OR REGISTERED) UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING AND HEREBY CERTIFY THAT THE ABOVE SUBDIVISION IS TRUE AND ACCURATE; WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION ON THE GROUND; THAT, EXCEPT AS SHOWN ALL BOUNDARY CORNERS, ANGLE POINTS, POINTS OF CURVATURE AND OTHER POINTS OF REFERENCE HAVE BEEN MARKED WITH IRON (OR OTHER OBJECTS OF A PERMANENT NATURE) PIPES OR RODS HAVING AN OUTSIDE DIAMETER OF NOT LESS THAN FIVE EIGHTHS (5/8) INCH AND A LENGTH OF NOT LESS THAN THREE (3) FEET; AND THAT THE PLAT BOUNDARY CORNERS HAVE BEEN TIED TO THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE.



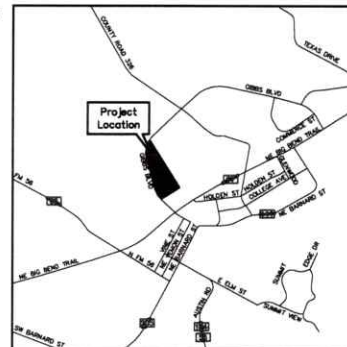
CHRIS RHODES, R.P.L.S.
TEXAS REGISTRATION NO. 6532

50 25 0 50 100 150

SCALE IN FEET
1" = 50'

RIGHT-OF-WAY CURVE TABLE

CURVE #	RADIUS	DELTA	LENGTH	CHORD DIRECTION	CHORD LENGTH
C4	50.00'	176°52'37"	154.35'	N 58°01'48" E	99.96'
C5	50.00'	265°19'03"	231.53'	S 30°05'17" W	73.54'



VICINITY MAP
SCALE: 1" = 1/2 MI.

ABBREVIATIONS

B.L.	= BUILDING LINE
ESMT	= EASEMENT
S.C.C.F.	= SOMERVELL COUNTY CLERK'S FILE
S.C.D.R.	= SOMERVELL COUNTY DEED RECORDS
S.C.P.R.	= SOMERVELL COUNTY PLAT RECORDS
No.	= NUMBER
PG.	= PAGE
R.O.W.	= RIGHT OF WAY
VOL.	= VOLUME
FND.	= FOUND
I.R.	= IRON ROD
C.I.R.	= CAPPED IRON ROD
P.A.E.	= PERMANENT ACCESS EASEMENT
P.U.E.	= PERMANENT UTILITY EASEMENT



LOT LINE TABLE		
LINE #	DIRECTION	LENGTH
L4	N 75°58'56" W	14.14'
L5	N 13°01'04" E	14.14'
L6	N 13°01'04" E	7.78'
L7	N 75°58'56" W	7.78'
L8	N 13°01'04" E	7.78'
L9	N 75°58'56" W	7.78'

RESERVE TABLE			
RESERVE	ACREAGE	SQ.FT.	TYPE
A	0.5686	24,768	RESTRICTED TO OPEN SPACE
B	0.1977	8,612	RESTRICTED TO OPEN SPACE
C	0.0946	4,119	RESTRICTED TO OPEN SPACE
D	0.2710	11,803	RESTRICTED TO DETENTION/DRAINAGE PURPOSES
TOTAL	1.1319	49,302	

ROCK RIDGE 3

A SUBDIVISION OF 13.256 ACRES OF LAND,
LOCATED IN THE MILAM COUNTY SCHOOL LAND
SURVEY, ABSTRACT-136,
CITY OF GLEN ROSE, SOMERVELL COUNTY, TEXAS

DATE: MARCH, 2025

JOB NO. 24193

101 LOTS 1 BLOCK 4 RESERVES

OWNER: HORIZON CAPITAL SOLUTIONS LLC

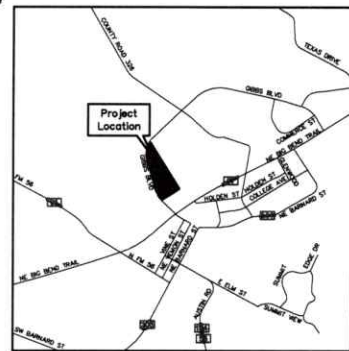
Civil-Surv
Land Surveying, LLC
10990 WESTOFFICE DR. SUITE 100
HOUSTON, TEXAS 77042
FIRM No. 10143800 OFFICE: (713) 838-9181
Email: michael@civil-surf.net

- NOTES:
- THE COORDINATES SHOWN HEREON ARE TEXAS NORTH CENTRAL ZONE NO. 4202 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING THE FOLLOWING COMBINED SCALE FACTOR: 0.999947804063.
 - LOTS ARE LIMITED TO ONE SINGLE FAMILY DWELLING EACH.

NOTES:

1. THE COORDINATES SHOWN HEREON ARE TEXAS NORTH CENTRAL ZONE NO. 4302 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING THE FOLLOWING COMBINED SCALE FACTOR: 0.9999478604063.
2. LOTS ARE LIMITED TO ONE SINGLE FAMILY DWELLING EACH.

50 25 0 50 100 150
SCALE IN FEET
1" = 50'



VICINITY MAP
SCALE: 1" = 1/2 MI.

APPROVED BY THE CITY OF GLEN ROSE, TEXAS

BY: MAYOR

BY: BUILDING OFFICIAL

BY: ATTEST: SECRETARY

FLOOD STATEMENT: THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP FOR THE CITY OF GLEN ROSE, SOMERVILLE COUNTY, TEXAS AND INCORPORATED AREAS, COMMUNITY NO. 480574, DATED SEPTEMBER 21, 2023, INDICATES THAT THIS TRACT IS WITHIN ZONE "X" UNSHADED AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON MAP AND PANEL NO. 48423C01300. THIS DETERMINATION HAS BEEN MADE BY SCALING THE PROPERTY ON THE ABOVE REFERENCED MAP AND IS NOT THE RESULT OF AN ELEVATION SURVEY. WARNING: IF THIS SITE IS NOT WITHIN AN IDENTIFIED SPECIAL FLOOD HAZARD AREA, THIS STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE, ON RARE OCCASIONS, GREATER FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

BOUNDARY LINE TABLE		
LINE #	DIRECTION	LENGTH
L1	S 89°26'43" E	20.00'

CENTERLINE LINE TABLE		
LINE #	DIRECTION	LENGTH
L2	S 58°01'04" W	24.98'
L3	N 31°58'56" W	10.63'

I, MICHELLE REYNOLDS, COUNTY CLERK OF SOMERVILLE COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING PLAT, WITH CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON 03/23/2023, AT 1:00 P.M., IN THE DEED RECORDS OF SOMERVILLE COUNTY, TEXAS, AND IN PLAT CABINET SLIDE NO. _____
IN TESTIMONY WHEREOF, I HAVE SET MY HAND AND SEAL OF OFFICE THE DAY AND DATE LAST ABOVE WRITTEN.

MICHELLE REYNOLDS
COUNTY CLERK OF SOMERVILLE COUNTY, TEXAS

BOUNDARY CURVE TABLE					
CURVE #	RADIUS	DELTA	LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	1025.98'	9°52'04"	176.70'	N 19°37'32" W	176.48'
C2	639.11'	15°20'11"	171.07'	N 07°03'21" W	170.56'
C3	819.11'	32°33'01"	351.72'	N 18°54'48" E	347.01'

ABBREVIATIONS

B.L. = BUILDING LINE
ESMT. = EASEMENT
S.C.C.F. = SOMERVILLE COUNTY CLERK'S FILE
S.C.D.R. = SOMERVILLE COUNTY DEED RECORDS
S.C.P.R. = SOMERVILLE COUNTY PLAT RECORDS
No. = NUMBER
Pg. = PAGE
R.O.W. = RIGHT OF WAY
VOL. = VOLUME
FND. = FOUND
I.R. = IRON ROD
C.I.R. = CAPPED IRON ROD
P.A.E. = PERMANENT ACCESS EASEMENT
P.U.E. = PERMANENT UTILITY EASEMENT

ROCK RIDGE 3

A SUBDIVISION OF 13.256 ACRES OF LAND,
LOCATED IN THE MILAM COUNTY SCHOOL LAND
SURVEY, ABSTRACT-136,
CITY OF GLEN ROSE, SOMERVILLE COUNTY, TEXAS

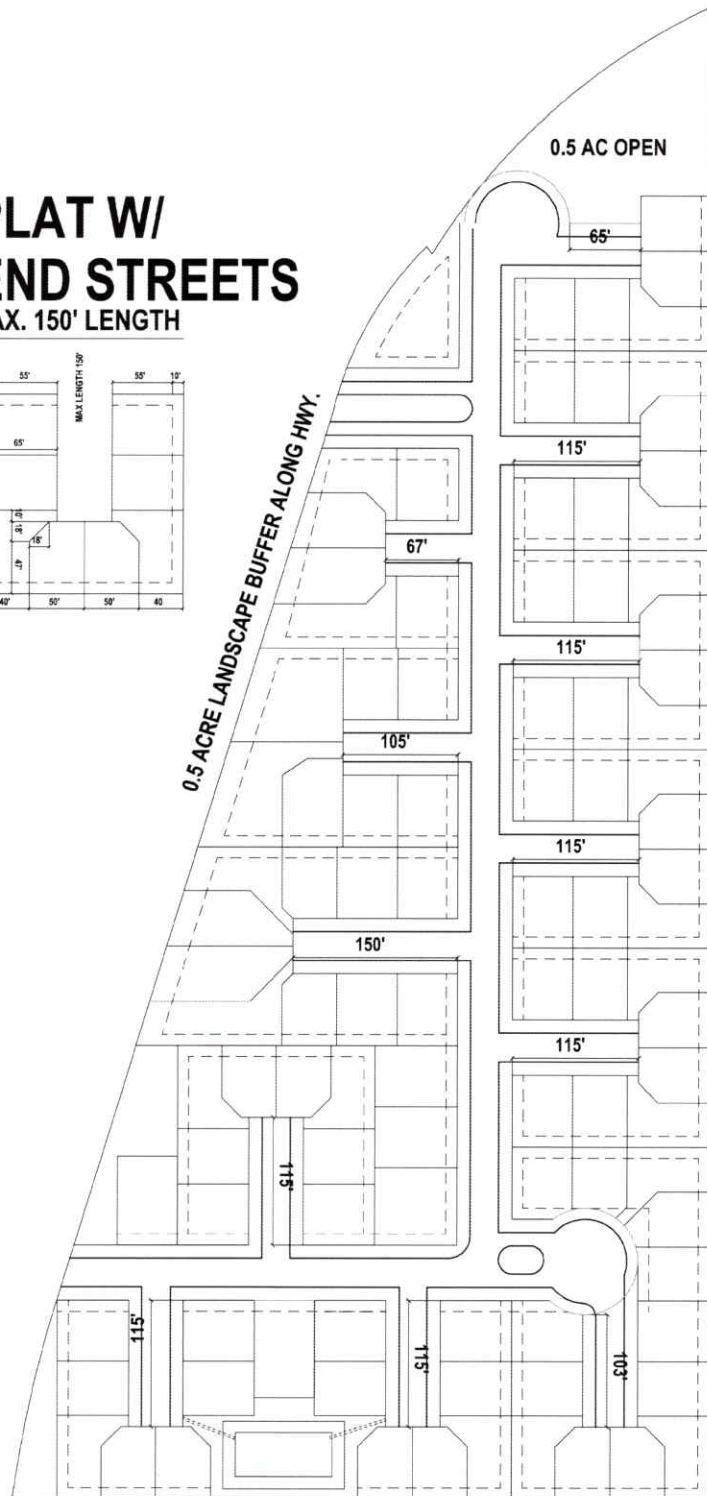
DATE: MARCH, 2023

JOB NO. 24193

101 LOTS 1 BLOCK 4 RESERVES



PLAT W/ DEAD END STREETS MAX. 150' LENGTH

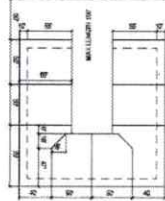


COPYRIGHT RON MORRIS DESIGNS, LLC. 2024

SHEET	DATE 11/8/2024	SCALE	MODEL ROCK RIDGE COURTYARD GLEN ROSE, TX	DRAFTING & DESIGN SERVICES BY RON MORRIS DESIGNS, LLC. EMAIL: ronmorrisedesigns@gmail.com 36752 NASHUA BLVD. SORRENTO, FL 32776 407-271-3055
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PLAT W/
DEAD END STREETS
MAX. 150' LENGTH

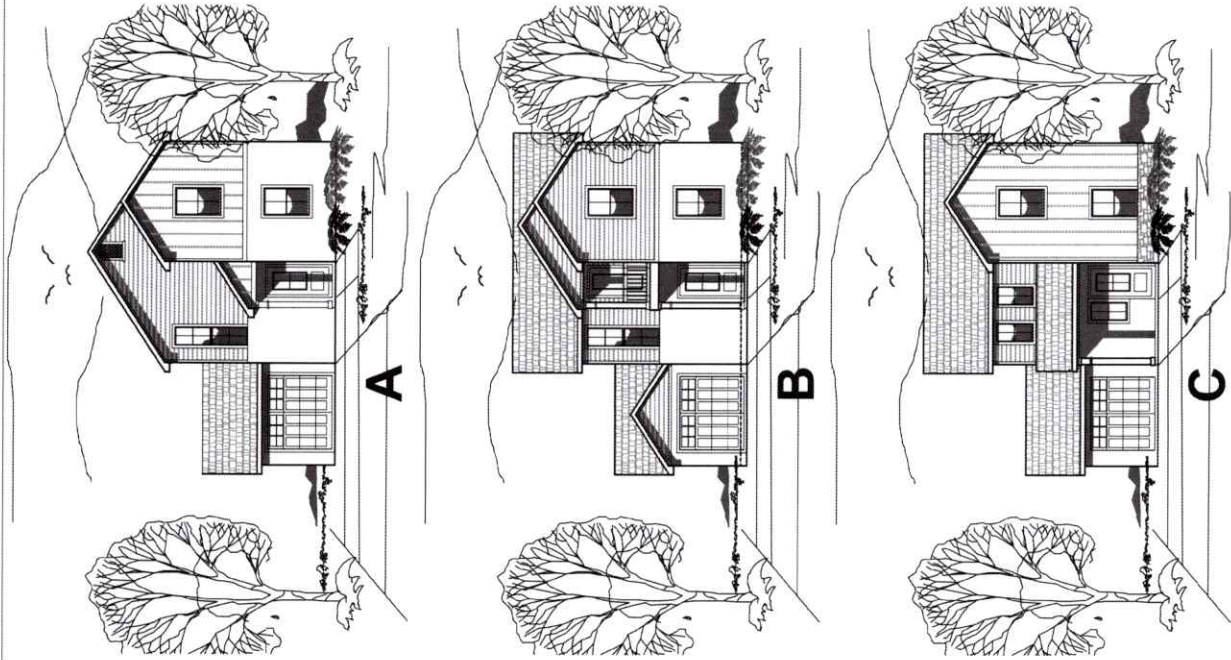


0.5 ACRE LANDSCAPE BUFFER ALONG HWY

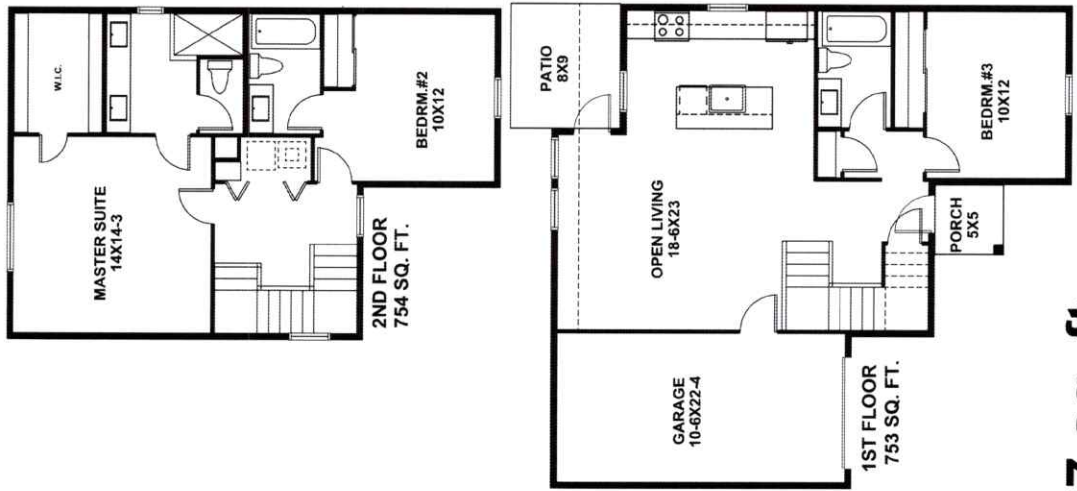
0.5 AC OPEN

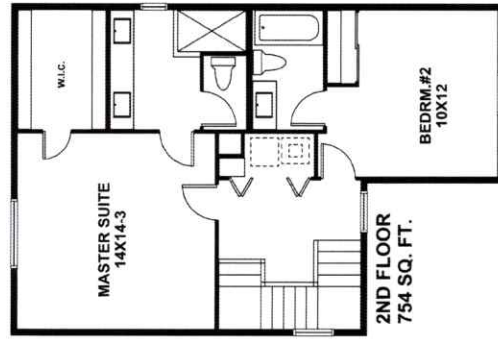
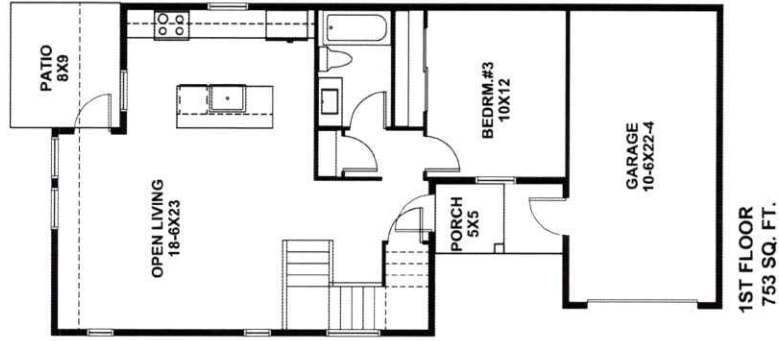
COPYRIGHT RON MORRIS DESIGNS, LLC. 2024

DATE 11/01/2014	MODEL ROCK RIDGE COURTYARD GLEN ROSE, TX	DESIGNER & OTHER MEMBERS OF RON MORRIS DESIGNS, LLC. EMAIL: ronmorrisedesigns@gmail.com	DEVELOPER DAVID WACHHA BLVD SUITE 100 GLEN ROSE, TX 75043 409-271-3000
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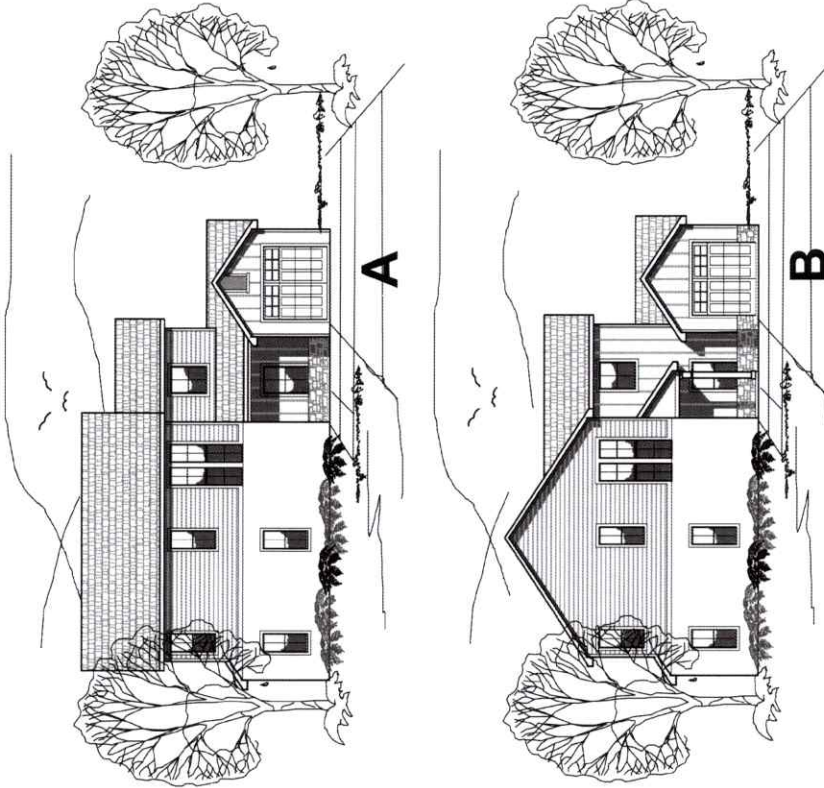
1507 sq. ft.

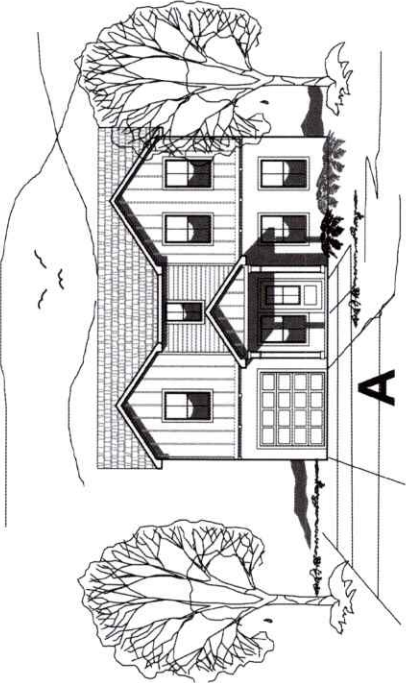




windows vary w/elevation & orientation

1507 sq. ft.
corner lot

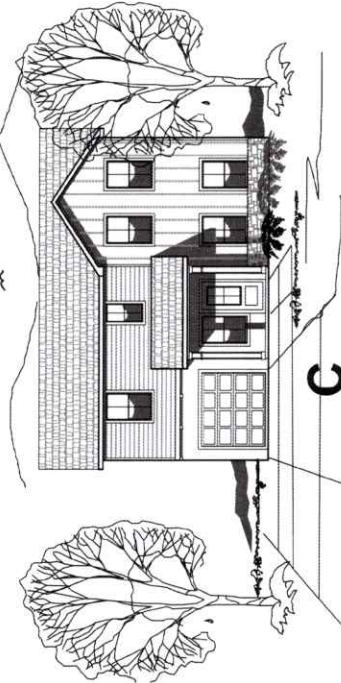




A

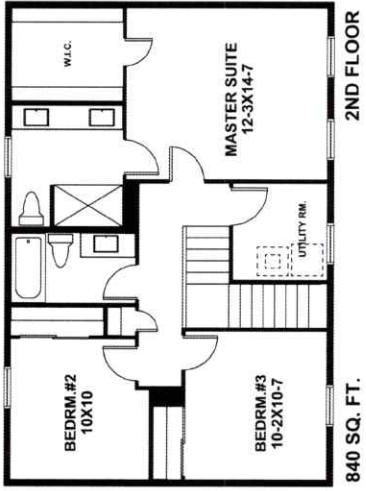


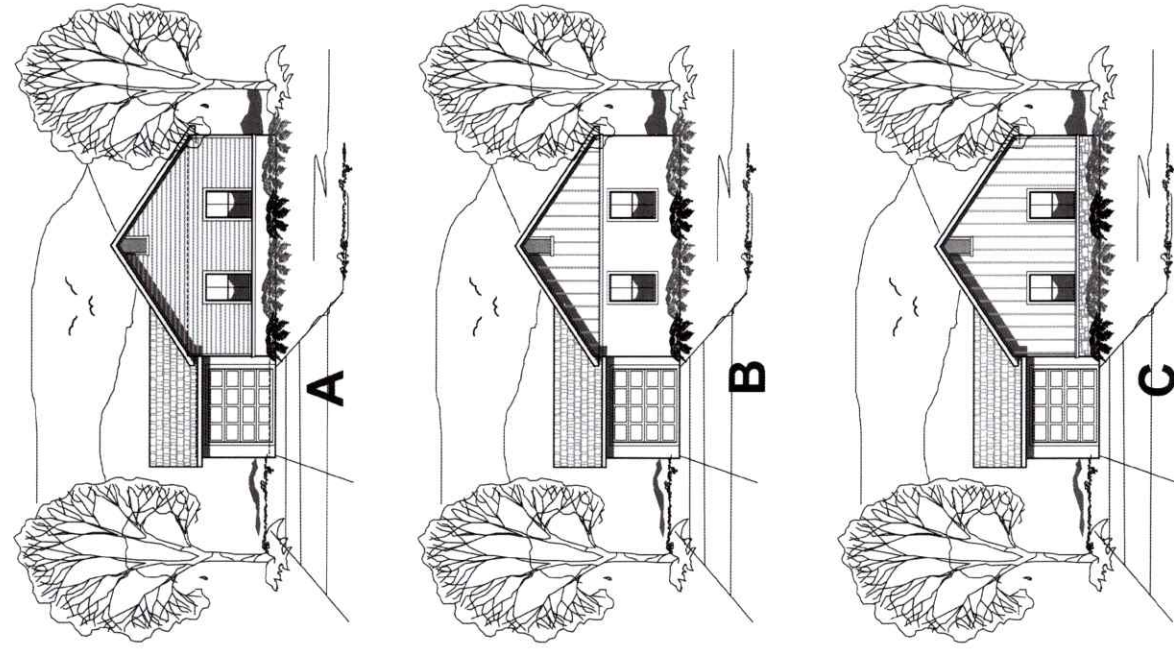
B



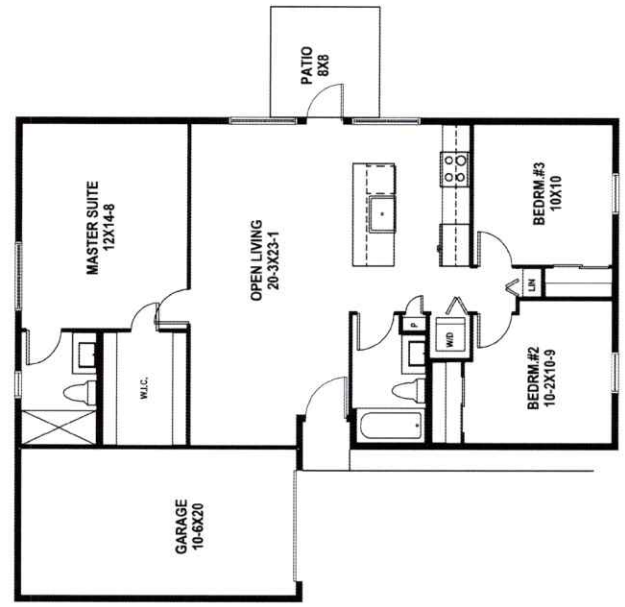
C

1408 sq. ft.



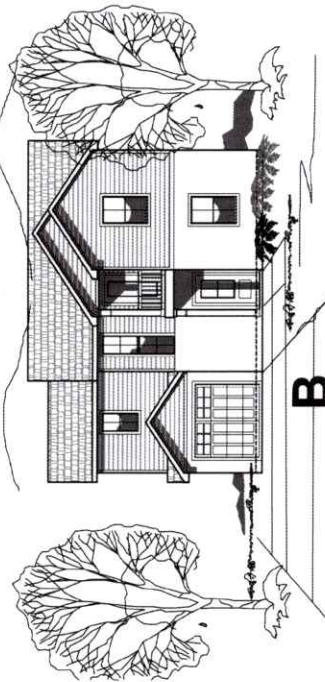


1050 sq. ft.





A

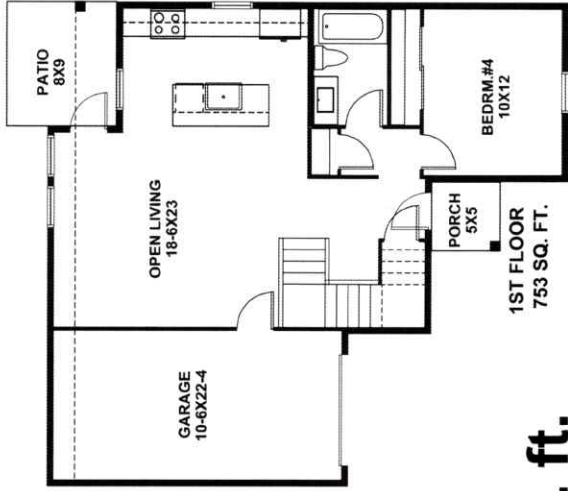
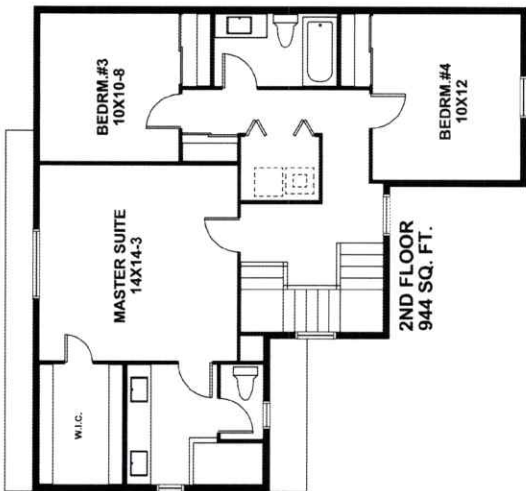


B



C

1697 sq. ft.



ROCK RIDGE COURTYARDS

MODEL	SCALE	DATE	SHEET
	1/4"=1'-0"	11/15/2014	5

DECEMBER 23RD, 2024

Conveyance Analysis Report for
Rock Ridge Courtyard

INTRODUCTION

Project Location: Bo Gibbs Blvd, Glen Rose, TX 76043

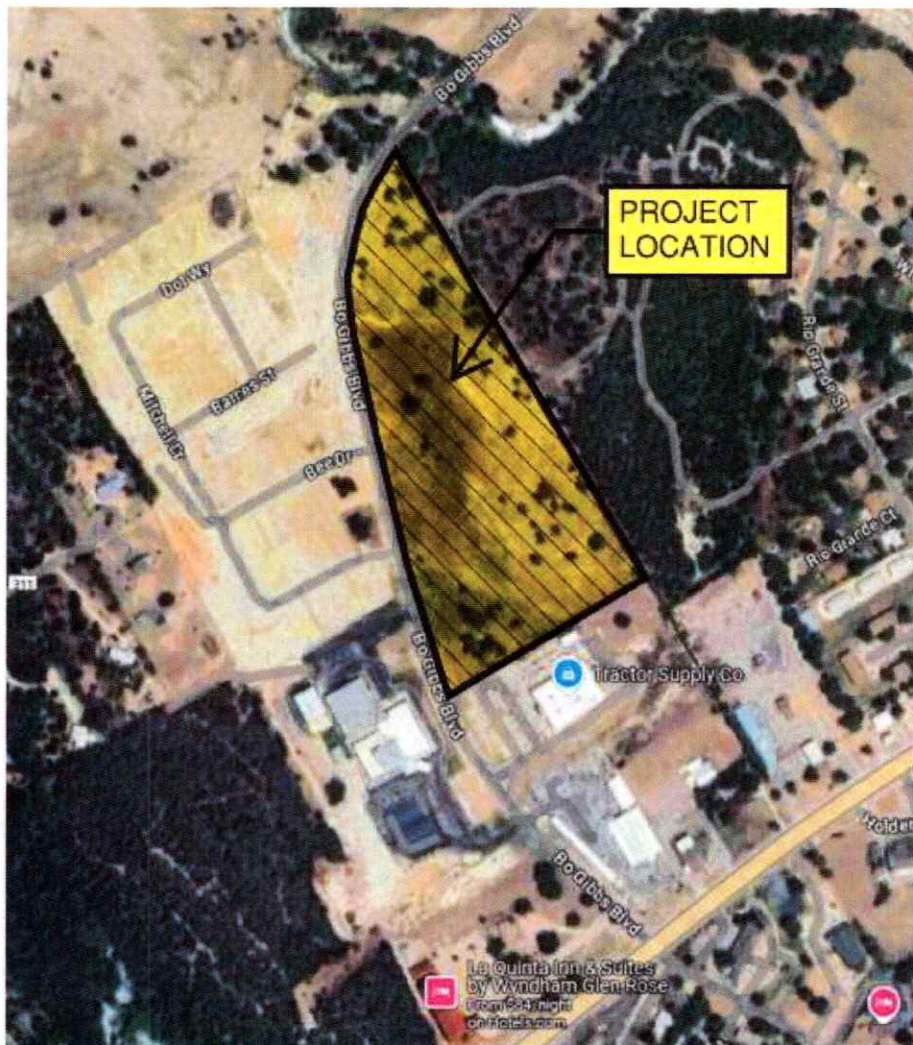


Figure 1: Project Location

The purpose of this submittal is to develop a drainage analysis to show that the proposed Rock Ridge Courtyard development will have negligible impact on the hydrology at the project site. Glen Rose is a city in and the county seat of Somervell County, Texas, United States. As of the 2020 census, the city population was 2,659. In Glen Rose, the summers are hot and muggy, the winters are cold and windy, and it is partly cloudy year round. Over the course of the year, the temperature typically varies from 37°F to 96°F and is rarely below 25°F or above 102°F. The normal annual precipitation average **35 inches**.

We have determined that the **runoff Post development of proposed Rock Ridge Courtyard development will be detained at the south west (SW) corner of the project site for the 100-year return period storm.**

TOPOGRAPHY

Elevation Data from the Digital Elevation Model (DEM) (1m resolution) from USGS:

*USGS_one_meter_x61y357_TX_MiddleBrazos_2016*¹ was used to generate the terrain for the project:

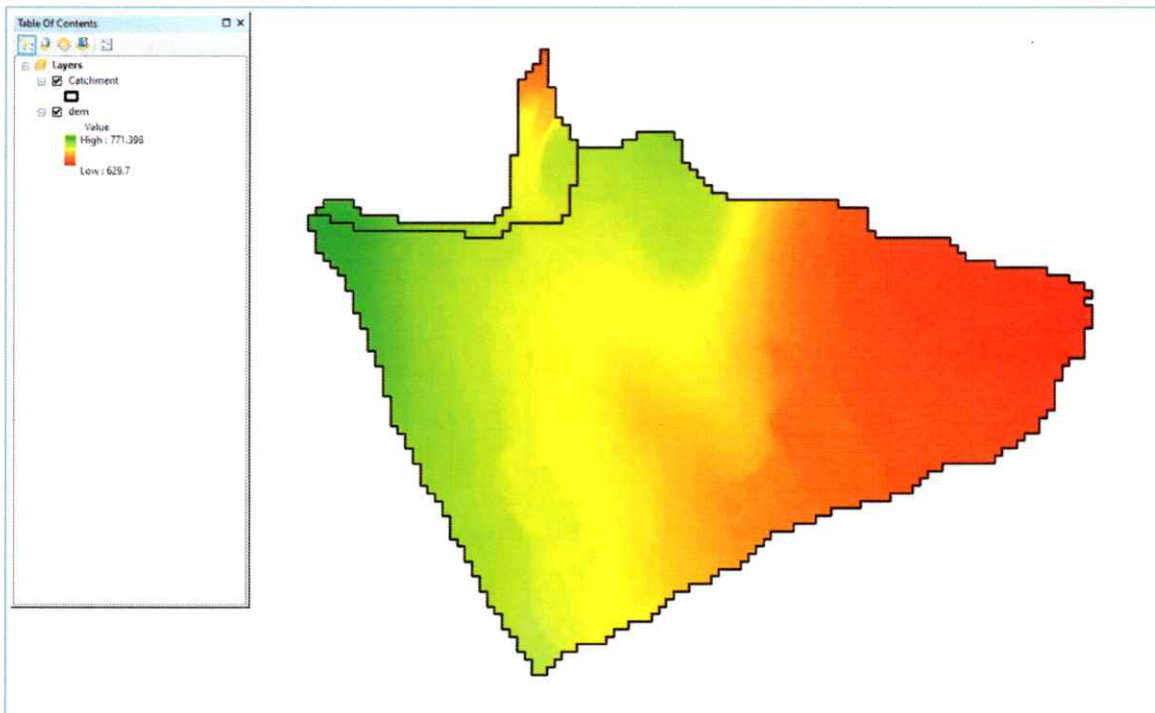


Figure 2: Project Terrain

¹ USGS, USGS_one_meter_x61y357_TX_MiddleBrazos_2016

Source: <https://apps.nationalmap.gov/downloader/#/>

RAINFALL INTENSITY

The rainfall intensity for varies return period of storm are extracted from the online application of *NOAA: Precipitation Frequency Data Server (PFDS)*² based on the address of the project site.

Note: The Rainfall intensity of 24-hr duration for 2, 5, 10, 25, 50 and 100-year return period is selected for the drainage analysis



NOAA Atlas 14, Volume 11, Version 2
Location name: Glen Rose, Texas, USA*
Latitude: 32.2441°, Longitude: -97.7587°
Elevation: 703 ft**
* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Oran White
NOAA, National Weather Service, Silver Spring, Maryland
[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.409 (0.309-0.540)	0.478 (0.366-0.627)	0.593 (0.452-0.780)	0.687 (0.516-0.915)	0.816 (0.592-1.12)	0.913 (0.646-1.28)	1.01 (0.697-1.48)	1.11 (0.748-1.64)	1.25 (0.812-1.90)	1.36 (0.858-2.12)
10-min	0.656 (0.496-0.866)	0.768 (0.587-1.01)	0.952 (0.726-1.25)	1.10 (0.829-1.47)	1.31 (0.954-1.80)	1.47 (1.04-2.07)	1.63 (1.12-2.34)	1.78 (1.20-2.63)	1.99 (1.29-3.03)	2.14 (1.36-3.34)
15-min	0.812 (0.615-1.07)	0.951 (0.728-1.25)	1.18 (0.899-1.55)	1.37 (1.03-1.82)	1.62 (1.18-2.22)	1.82 (1.29-2.56)	2.01 (1.39-2.90)	2.21 (1.49-3.27)	2.48 (1.61-3.77)	2.68 (1.69-4.17)
30-min	1.12 (0.851-1.48)	1.31 (1.00-1.72)	1.62 (1.24-2.14)	1.88 (1.41-2.50)	2.23 (1.62-3.04)	2.49 (1.76-3.49)	2.75 (1.90-3.96)	3.03 (2.04-4.47)	3.40 (2.21-5.18)	3.69 (2.34-5.76)
60-min	1.46 (1.10-1.93)	1.71 (1.30-2.24)	2.12 (1.61-2.73)	2.45 (1.84-3.28)	2.91 (2.11-3.98)	3.25 (2.30-4.56)	3.61 (2.49-5.19)	3.98 (2.69-5.88)	4.51 (2.93-6.88)	4.92 (3.12-7.68)
2-hr	1.79 (1.36-2.35)	2.12 (1.63-2.75)	2.65 (2.03-3.46)	3.10 (2.34-4.10)	3.72 (2.72-5.04)	4.20 (2.99-5.84)	4.70 (3.26-6.65)	5.24 (3.54-7.64)	5.99 (3.91-9.01)	6.59 (4.19-10.1)
3-hr	1.99 (1.52-2.60)	2.36 (1.82-3.08)	2.99 (2.30-3.88)	3.51 (2.66-4.62)	4.25 (3.11-5.73)	4.82 (3.44-6.66)	5.43 (3.77-7.68)	6.08 (4.12-8.80)	7.00 (4.58-10.4)	7.73 (4.93-11.8)
6-hr	2.34 (1.80-3.03)	2.82 (2.18-3.60)	3.58 (2.77-4.61)	4.24 (3.23-5.54)	5.17 (3.82-6.92)	5.91 (4.24-8.09)	6.70 (4.69-9.37)	7.55 (5.14-10.8)	8.76 (5.76-12.9)	9.74 (6.24-14.6)
12-hr	2.68 (2.06-3.45)	3.27 (2.54-4.14)	4.21 (3.27-5.37)	5.00 (3.84-6.48)	6.14 (4.55-8.12)	7.02 (5.07-9.51)	7.97 (5.60-11.0)	9.03 (6.18-12.8)	10.5 (6.97-15.3)	11.8 (7.58-17.5)
24-hr	3.07 (2.39-3.92)	3.76 (2.94-4.73)	4.86 (3.80-6.16)	5.89 (4.47-7.45)	7.42 (5.30-9.34)	8.46 (5.91-10.9)	9.76 (6.54-12.7)	11.8 (7.23-14.7)	13.9 (8.17-17.6)	15.5 (9.91-20.1)
2-day	3.55 (2.78-4.50)	4.32 (3.39-5.39)	5.54 (4.36-6.97)	6.58 (5.10-8.38)	8.05 (6.03-10.6)	9.21 (6.71-12.2)	10.4 (7.42-14.1)	11.8 (8.19-16.3)	13.9 (9.26-19.5)	15.5 (10.1-22.3)
3-day	3.86 (3.05-4.90)	4.70 (3.70-5.84)	5.98 (4.72-7.50)	7.09 (5.52-8.99)	8.65 (6.50-11.2)	9.88 (7.23-13.0)	11.2 (7.98-15.0)	12.7 (8.79-17.3)	14.8 (9.90-20.7)	16.5 (10.8-23.6)
4-day	4.14 (3.26-5.20)	4.99 (3.94-6.19)	6.34 (5.01-7.92)	7.49 (5.84-9.47)	9.12 (6.87-11.7)	10.4 (7.62-13.6)	11.8 (8.40-16.7)	13.3 (9.24-18.1)	15.4 (10.4-21.5)	17.2 (11.3-24.4)
7-day	4.71 (3.73-5.88)	5.64 (4.49-6.96)	7.12 (5.66-8.84)	8.37 (6.56-10.5)	10.1 (7.68-13.0)	11.5 (8.48-15.0)	13.0 (9.30-17.2)	14.5 (10.2-19.6)	16.8 (11.3-23.1)	18.6 (12.2-26.0)
10-day	5.19 (4.12-6.46)	6.17 (4.93-7.61)	7.75 (6.19-9.60)	9.08 (7.14-11.4)	10.9 (8.32-13.9)	12.4 (9.16-16.0)	13.9 (10.0-18.3)	15.5 (10.9-20.8)	17.8 (12.1-24.4)	19.7 (12.9-27.3)
20-day	6.67 (5.32-8.23)	7.77 (6.26-9.54)	9.57 (7.69-11.8)	11.1 (8.75-13.7)	13.1 (10.0-16.5)	14.7 (10.9-18.8)	16.3 (11.8-21.3)	18.0 (12.7-23.8)	20.5 (13.9-27.8)	22.4 (14.8-30.6)
30-day	7.87 (6.31-9.67)	9.08 (7.36-11.1)	11.1 (8.94-13.6)	12.7 (10.1-15.7)	14.9 (11.4-18.7)	16.6 (12.4-21.1)	18.3 (13.3-23.6)	20.1 (14.2-26.4)	22.7 (15.5-30.3)	24.7 (16.4-33.4)
45-day	9.53 (7.66-11.8)	10.9 (8.91-13.4)	13.3 (10.8-16.2)	15.2 (12.1-18.7)	17.8 (13.7-22.1)	19.7 (14.7-24.8)	21.6 (15.7-27.7)	23.6 (16.7-30.6)	26.3 (18.0-34.7)	28.3 (18.9-38.0)
60-day	11.0 (8.86-13.4)	12.6 (10.3-15.4)	15.3 (12.4-18.6)	17.5 (14.0-21.4)	20.4 (16.7-25.3)	22.5 (18.9-28.3)	24.7 (19.0-31.4)	26.8 (19.0-34.6)	29.6 (20.3-38.9)	31.7 (21.2-42.2)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Figure 3: Rainfall Intensity data

² NOAA, Precipitation Frequency Data Server (PFDS)

Source: <https://hdsc.nws.noaa.gov/>

HYDROLOGY

To compute the pre and post development, a HEC HMS software application was used to delineate the catchment, as well as a Win TR-55 software application for pre v/s post drainage analysis for various return periods of storm using SCS Type-2 24-hr storm duration. USDA: Part 630 Hydrology National Engineering Handbook³

The inputs for the Win-TR-55 extracted from HEC HMS catchment delineation. The following are catchment parameters

Table 1: Catchment parameter

Parameters	Quantity	Units
Total Drainage Area	91.04	acre
Longest Flow path length	1552	ft
Channel slope	0.081	ft/ft

³ USDA, Part 630 Hydrology National Engineering Handbook

Source: <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=27002.wba>

PRE-DEVELOPMENT CONDITION

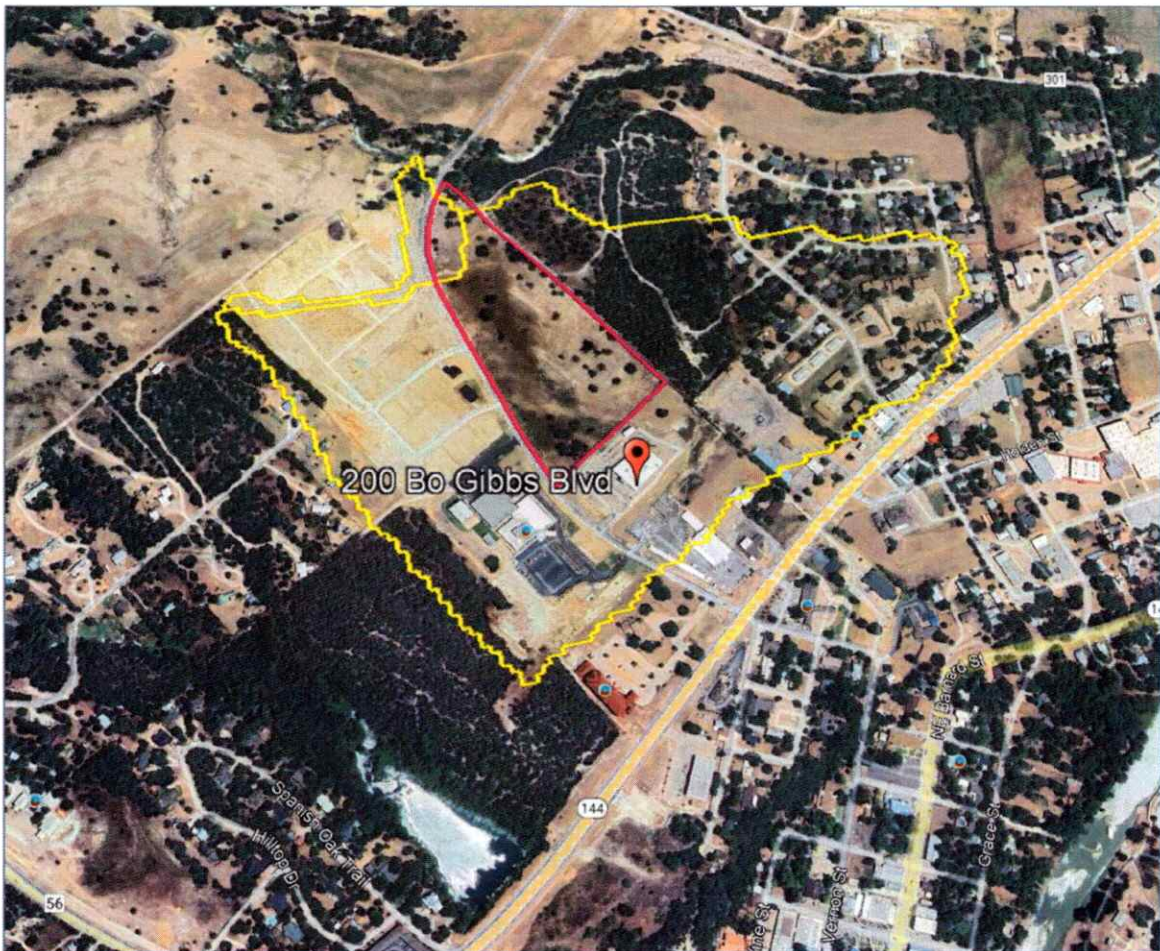


Figure 4: Catchment area spread over the Project site

For the pre-development analysis, the land use curve number CN assigned in the Win-TR55 model was based on the observation from the aerial imagery. Most of the catchment area is covered with developed medium intensity and high intensity urban industrial areas. Assuming Hydrological soil group B, and the weighted Curve number 76 assigned for the catchment in the pre development stage.

Land Use Details

Sub-area Name

Pre develo

Rename

Clear

Land Use Details

Land Use Categories

☒ Urban Area
 ☐ Developing Urban
 ☐ Cultivated Agriculture
 ☐ Other Agriculture
 ☐ Arid Rangeland

Area (Acres) for Hydrologic Soil Groups

Co	Land use for Pre develo	Area	HSG	B	CN	C	CN	D	CN
FULLY DEVELOPE	Open space; grass cover < 50% (poo	16.11	B						
	Open space (Lawn								
	Paved; curbs and storm sewers	4.24	B						
Poor condition; g	Residential districts (1/8 acre)	18.21	B	16.110	79		86		89
Fair condition; g	Residential districts (1/4 acre)	22.56	B		69		79		84
Good condition;	Woods - grass combination (fair)	24.48	B		61		74		80
	Woods (poor)	1.78	B						
Impervious Are	Herbaceous (fair)	3.66	B						
	Paved parking lots, roofs, driveways		98		98		98		98
	Streets and roads:								
	Paved; curbs and storm sewers		98	4.240	98		98		98
	Paved; open ditches (w/right-of-way)		83		89		92		93
	Gravel (w/ right-of-way)		76		85		89		91
	Dirt (w/ right-of-way)		72		82		87		89
Urban Districts									
	Avg % Imperv								

Project Area(ac)

182.08

Summary Screen

☐ Off
 ☒ On

Sub-Area

Area (ac)

91.04

Weighted CN:

76

Help

Cancel

Accept

Figure 5: Land use Curve number for pre-development

POST DEVELOPMENT ANALYSIS (PROPOSED ROCK RIDGE COURTYARD SITE PLAN)



Figure 6: Proposed Layout plan of Rock Ridge Courtyard

For the Post development scenario, the proposed development area is 13.25 acres. With a curve number of 98 assigned for this proposed development (which includes development of roads, building roofs and parking plots based on the site plan), the weighted curve number remains the same as predevelopment (i.e 78).

Land Use Details

Sub-area Name

Post
Rename
Clear

Land Use Details

Land Use Categories

☒ Urban Area
☐ Developing Urban
☐ Cultivated Agriculture
☐ Other Agriculture
☐ Arid Rangeland

Area (Acres) for Hydrologic Soil Groups

Co	Land use for Post	Area	HSG	B	CN	C	CN	D	CN	▲
FULLY DEVELOPE	Open space; grass cover < 50% (poo	3.010	B							
Open space (Lawn	Paved parking lots, roofs, driveways	13.100	B							
Poor condition; g	Paved; curbs and storm sewers	4.240	B	3.010	79		86		89	
Fair condition; g	Residential districts (1/8 acre)	18.210	B		69		79		84	
Good condition;	Residential districts (1/4 acre)	22.560	B		61		74		80	
	Woods - grass combination (fair)	24.480	B							
Impervious Area	Woods (poor)	1.780	B							
Paved parking la	Herbaceous (fair)	3.660	B	13.100	98		98		98	
Streets and roads:										
	Paved; curbs and storm sewers		98	4.240	98		98		98	
	Paved; open ditches (w/right-of-way)		83		89		92		93	
	Gravel (w/ right-of-way)		76		85		89		91	
	Dirt (w/ right-of-way)		72		82		87		89	
Urban Districts										
Avg % Imperv										

Project Area(ac)

182.08

Summary Screen

☐ Off
☒ On

Sub-Area

Area (ac)

91.04

Weighted CN:

78

Help

Cancel

Accept

Figure 7: Land use Curve number for post-development

PRE V/S POST DEVELOPMENT COMPARISON

File Display

Print Edit WinTR-20 Reports WinTR-55 Reports Help

Sub-Area Summary Table

PRO E 200 Bo Gibbs Blvd

Somervell County, Texas

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Pre develo	91.04	0.100	76	Outlet	
Post	91.04	0.100	78	Outlet	

Figure 8: Sub area summary table

File Display

Print Edit WinTR-20 Reports WinTR-55 Reports Help

Watershed Peak Table

PRO E 200 Bo Gibbs Blvd

Somervell County, Texas

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period						
	2-Yr (cfs)	5-Yr (cfs)	10-Yr (cfs)	25-Yr (cfs)	50-Yr (cfs)	100-Yr (cfs)	500-Yr (cfs)
SUBAREAS							
Pre develo	301.83	478.63	667.09	963.91	1235.28	1554.86	2864.89
Post	325.30	505.82	695.68	992.58	1263.56	1582.34	2887.92

Figure 9: watershed peak flow comparison summary table showing pre v/s post development scenario

Table 2: Drainage peak flow for pre and post conditions

Return period	Pre(cfs)	Post(cfs)	surplus flow(cfs)
2	301.83	337.19	35.36
5	478.63	518.69	40.06
10	667.09	708.77	41.68
25	963.91	1006.24	42.33
50	1235.28	1277.11	41.83
100	1554.86	1595.34	40.48
500	2864.89	2898.37	33.48

COMPUTATION SURPLUS RUN-OFF GENERATED FROM PROPOSED DEVELOPMENT FOR 100YR STORM

For 100-year storm,

Proposed developmental Area=13.250 acre

Pre development scenario,

Run off depth =11.586 inches

Total run off volume = 557509.97 cubic ft

Post development scenario,

Run off depth =11.882 inches

Total run off volume= 571753.28 cubic ft

Total surplus run off volume generated= Post development run off volume- Pre development run off volume

= 14,243.30 cubic ft.

A detention pond is proposed on the southwestern corner of the Rock Ridge courtyard development. The proposed pond will have a storm runoff storage capacity equal to or greater than the required post development runoff surplus mentioned above. Figure 10 shows the proposed location of the detention pond and the evacuation pipe.

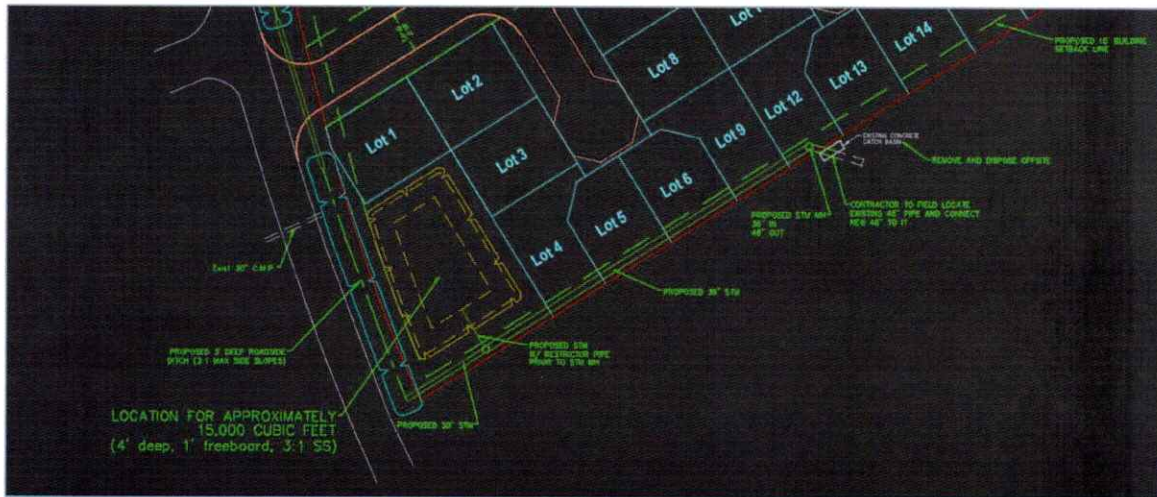


Figure 10: The Proposed location of detention pond and its evacuation pipe barrel.

In addition to the proposed onsite detention pond, a roadside ditch is planned to carry the existing run-off generated from the Bo Gibbs Boulevard, which is around 11.55 cfs for the 100-yr storm. The sizing of the concrete trapezoidal road ditch is shown in Figure 11, and the ditch alignment will be shown within the site plan drawing.

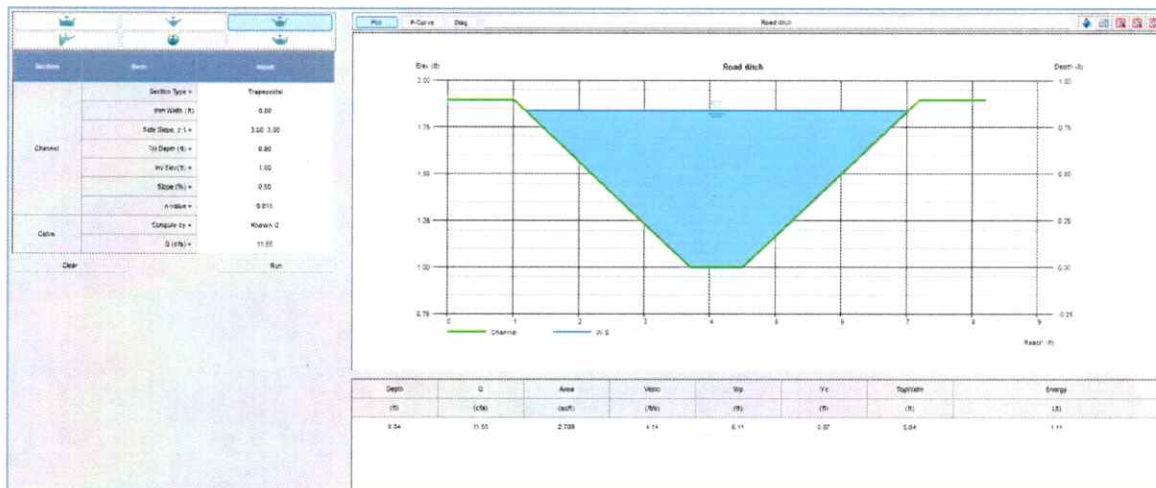


Figure 11: The Proposed size of the road ditch

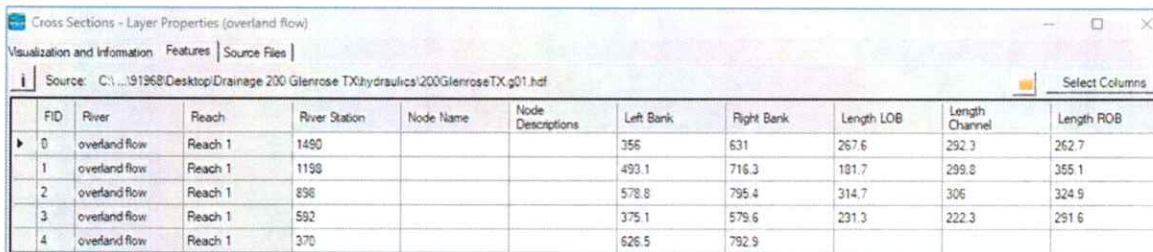
HYDRAULICS

Manning's N value

- **Channel** 0.07
- **Right overbank** 0.04
- **Left overbank** 0.07

Geometry – Cross-Sections

A total of 5 **cross-sections** were generated for the river stream. A **Cross-section** is drawn at the upstream limits of the project site. This allows for a conservative approach to the **BFE Determination**, as the BFE drops across the site (Cross section 1490 to 370):

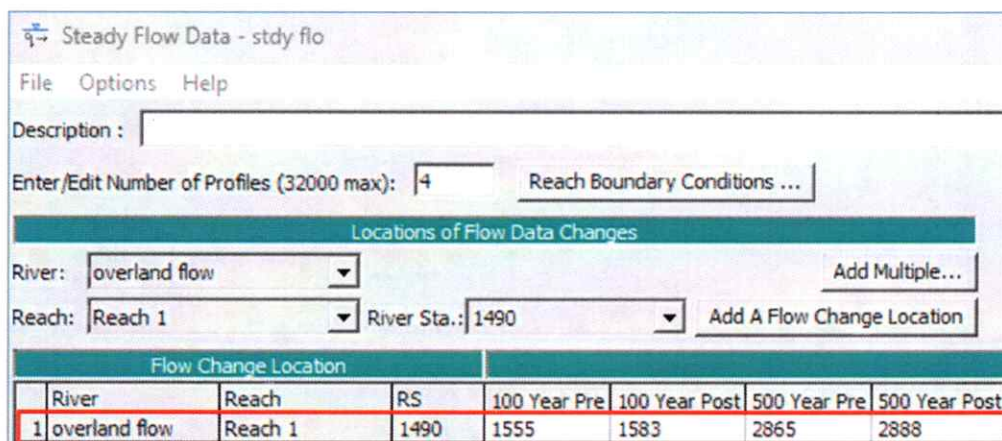


FID	River	Reach	River Station	Node Name	Node Descriptions	Left Bank	Right Bank	Length LOB	Length Channel	Length ROB
0	overland flow	Reach 1	1490			356	631	267.6	292.3	262.7
1	overland flow	Reach 1	1198			493.1	716.3	181.7	298.8	355.1
2	overland flow	Reach 1	898			578.8	795.4	314.7	306	324.9
3	overland flow	Reach 1	592			375.1	579.6	231.3	222.3	291.6
4	overland flow	Reach 1	370			626.5	792.9			

Table 3: Project Cross-Section Geometry

Steady Flow Data

The calculated 100-year peak discharge is applied at the upstream limit of the site at **Cross-section 1490**



Flow Change Location							
	River	Reach	RS	100 Year Pre	100 Year Post	500 Year Pre	500 Year Post
1	overland flow	Reach 1	1490	1555	1583	2865	2888

Table 4: Steady Flow Data

Per FEMA 265, the model was analyzed in Steady Flow conditions using HEC-RAS 6.4.1. Below are the visual representations of the results.

HEC-RAS Plan: Pre n Post River: overland flow Reach: Reach 1												
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	1490	100 Year Pre	1555.00	708.73	711.09	711.09	711.79	0.021509	6.72	231.66	172.11	1.01
Reach 1	1490	100 Year Post	1583.00	708.73	711.11	711.11	711.81	0.021309	6.74	234.96	172.97	1.01
Reach 1	1490	500 Year Pre	2865.00	708.73	711.81	711.81	712.80	0.018207	8.01	365.27	199.28	0.99
Reach 1	1490	500 Year Post	2888.00	708.73	711.83	711.83	712.82	0.017822	7.98	370.02	200.77	0.98
Reach 1	1198	100 Year Pre	1555.00	702.64	704.96	704.81	705.38	0.021037	5.85	318.57	260.18	0.97
Reach 1	1198	100 Year Post	1583.00	702.64	704.98	704.81	705.41	0.021213	5.94	323.74	261.86	0.98
Reach 1	1198	500 Year Pre	2865.00	702.64	705.50	705.36	706.23	0.022968	7.78	468.02	295.11	1.08
Reach 1	1198	500 Year Post	2888.00	702.64	705.51	705.36	706.24	0.023024	7.81	470.06	295.30	1.08
Reach 1	898	100 Year Pre	1555.00	695.96	698.19	698.19	698.81	0.031810	7.01	256.83	206.97	1.18
Reach 1	898	100 Year Post	1583.00	695.96	698.21	698.21	698.83	0.031574	7.03	260.58	207.95	1.18
Reach 1	898	500 Year Pre	2865.00	695.96	698.89	698.89	699.69	0.027231	7.95	429.87	275.87	1.15
Reach 1	898	500 Year Post	2888.00	695.96	698.90	698.90	699.70	0.027155	7.97	432.40	276.10	1.15
Reach 1	592	100 Year Pre	1555.00	686.44	689.21	689.21	689.92	0.018549	7.03	245.57	165.55	0.97
Reach 1	592	100 Year Post	1583.00	686.44	689.23	689.23	689.95	0.018745	7.06	248.94	167.56	0.97
Reach 1	592	500 Year Pre	2865.00	686.44	689.93	689.93	690.99	0.018899	8.59	376.76	191.51	1.02
Reach 1	592	500 Year Post	2888.00	686.44	689.94	689.94	691.00	0.018887	8.61	378.98	192.09	1.02
Reach 1	370	100 Year Pre	1555.00	681.57	684.21	684.21	684.94	0.020490	6.85	229.81	165.22	1.00
Reach 1	370	100 Year Post	1583.00	681.57	684.23	684.23	684.96	0.020462	6.88	233.00	166.49	1.00
Reach 1	370	500 Year Pre	2865.00	681.57	684.96	684.96	685.98	0.017894	8.14	362.65	184.05	0.99
Reach 1	370	500 Year Post	2888.00	681.57	684.96	684.96	685.99	0.018158	8.20	362.81	184.06	1.00

Table 3: Hydraulic table results

Cross section	100-Yr Water surface elevation(ft.)			500-Yr Water surface elevation(ft.)		
	Pre	Post	difference	Pre	Post	difference
1490	711.09	711.11	0.02	711.81	711.83	0.02
1198	704.96	704.98	0.02	705.5	705.51	0.01
898	698.19	698.21	0.02	698.89	698.9	0.01
592	689.21	689.23	0.02	689.93	689.94	0.01
370	684.96	684.96	0	684.96	684.96	0

Table 4: WSE (Water surface elevation) comparison for different scenarios

CONCLUSION

The surplus runoff generated from the Post development of Rock Ridge Courtyard development varies from 35 to 42 cfs. Also, an additional runoff volume storage of 14,243 cubic ft. for 100-year return period, which will be detained at the SW corner of the proposed development. The offsite flows will be conveyed within the proposed roadside ditch (Refer Figure 11.), then get captured by a 30" pipe, and eventually upsized to a 48" pipe prior to the ultimate connection point at the existing catch basin. The pond will connect to this line, with a restrictor prior to the connection point, to keep the flows at current conditions. (Refer Figure 10.)

Stream Profile Plot:

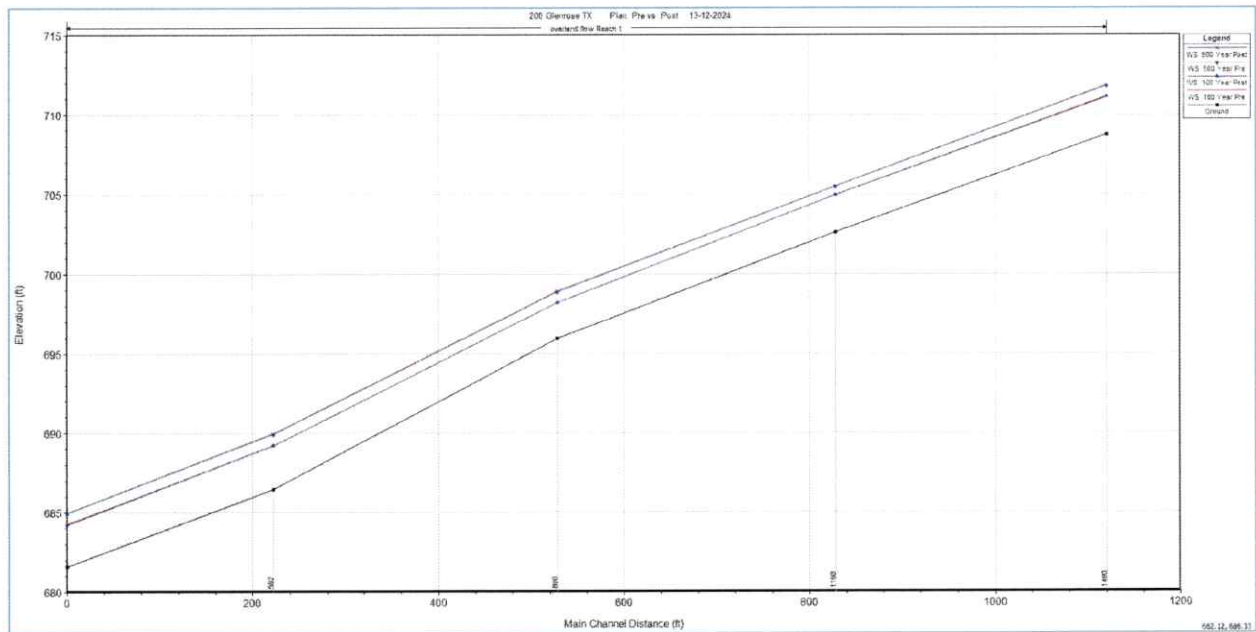


Figure 13: Stream Profile Plot (HEC-RAS)