



**ITEM FOR ENVIRONMENTAL COMMISSION AGENDA**

**COMMISSION MEETING DATE:** May 4, 2022

**NAME & NUMBER OF PROJECT:** Pinnacle at Wildhorse Ranch  
C8-2021-0152

**NAME OF APPLICANT OR ORGANIZATION:** Kimley Horn & Assoc., Kevin Burks

**LOCATION:** 12000 Blue Bluff Rd, Austin, TX, 78724

**COUNCIL DISTRICT:** District #1

**ENVIRONMENTAL REVIEW STAFF:** Pamela Abee-Taulli, Environmental Program Coordinator, Development Services Department, 512.974.1879, pamelaaabee-taulli@austingexas.gov

**WATERSHED:** Gilleland Creek Watershed, Suburban Classification, Desired Development Zone

**REQUEST:** Variance request is as follows:

- Request to vary from LDC 25-8-341 to allow cut to 15 feet.
- Request to vary from LDC 25-8-342 to allow fill to 15 feet.

**STAFF RECOMMENDATION:** Staff recommends this variance, having determined the findings of fact to have been met.

**STAFF CONDITION:**

1. The applicant will provide enhanced vegetation for the wetland critical environmental features, to be comprised of 1 (one) canopy tree and 2 (two) understory trees per 700 square feet, to be planted in clusters, with plants no closer than 3feet on center, in a generally tree-less area that is roughly 70,000 sf.
2. Grading over 8 feet will be stabilized by containment and/or terracing.
3. Water quality requirements will be met by using biofiltration, a green storm water quality infrastructure.



Development Services Department  
Staff Recommendations Concerning Required Findings

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Project Name: Pinnacle at Wildhorse Ranch  
Ordinance Standard: Comprehensive Watershed Ordinance as modified by Planned Unit Development (PUD) Ordinance 020214-28  
Variance Request: Request to vary from LDC 25-8-341 to allow cut to 15 feet.

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Include an explanation with each applicable finding of fact.

A. Land Use Commission variance determinations from Chapter 25-8-41 of the City Code:

1. The requirement will deprive the applicant of a privilege available to owners of similarly situated property with approximately contemporaneous development subject to similar code requirements.

Yes Grading variances have been deemed appropriate under similar development circumstances for sites with multiple constraints. Blue Bluff/Saddle Ridge at Wildhorse Ranch (C8-2020-0033) also received variances for cut to 15 feet and fill to 15 feet.

Both sites have topographical challenges, including slopes near or exceeding a grade of fifteen percent. This site has two wetland features as well. These constraints make it difficult to comply with Transportation Criteria Manual and Americans with Disabilities requirements for slopes, stopping sight distance, and block length maximums without variances to the Land Development Code grading regulations.

2. The variance:
  - a) Is not necessitated by the scale, layout, construction method, or other design decision made by the applicant, unless the design decision provides greater overall environmental protection than is achievable without the variance;

Yes The variance is not necessitated by a design decision. It is necessitated by the site constraints, including slopes and wetlands. The houses are located on a stretch of flatter area, and the roadway follows the topography, dodging between the steeper slopes. The proposed design preserves the natural drainage patterns by detaining and treating stormwater in multiple basins throughout the property.

- b) Is the minimum deviation from the code requirement necessary to allow a reasonable use of the property;
    - Yes The project has been designed to minimally deviate from the code to allow for accessible routes and crossings in compliance with the Americans with Disabilities Act and in compliance with the Transportation Criteria Manual’s vertical roadway design criteria. The housing and roadways are located on the site so as to maximize use of the flatter areas, and the ponds are located so as to prioritize natural drainage patterns.
  - c) Does not create a significant probability of harmful environmental consequences.
    - Yes With appropriate erosion and sedimentation controls provided in accordance with Code and Criteria, the proposed cut and fill can be managed during construction, despite the slopes and proximity to wetlands. Neither will the completed project create a probability of harmful environmental consequences.
3. Development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.
- Yes Water quality will be code-compliant and therefore equal to the water quality that would be provided without the variance. In addition, the proposed design preserves the natural drainage patterns by detaining and treating stormwater in multiple basins throughout the property.

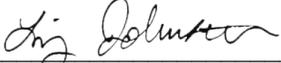
B. The Land Use Commission may grant a variance from a requirement of Section 25-8-422 (*Water Supply Suburban Water Quality Transition Zone*), Section 25-8-452 (*Water Supply Rural Water Quality Transition Zone*), Section 25-8-482 (*Barton Springs Zone Water Quality Transition Zone*), Section 25-8-368 (*Restrictions on Development Impacting Lake Austin, Lady Bird Lake, and Lake Walter E. Long*), or Article 7, Division 1 (*Critical Water Quality Zone Restrictions*), after determining that::

- 1. The criteria for granting a variance in Subsection (A) are met;  
N/A
- 2. The requirement for which a variance is requested prevents a reasonable, economic use of the entire property;  
N/A
- 3. The variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property.  
N/A

Staff Determination: Staff determines that the findings of fact have / have not been met. Staff recommends the following condition:

- 1. The applicant will provide enhanced vegetation for the wetland critical environmental features.

2. Grading over 8 feet will be stabilized by containment and/or terracing.
3. Water quality requirements will be met by using biofiltration, a green storm water quality infrastructure.

Environmental Reviewer (DSD)	 _____ (Pamela Abee-Taulli)	Date: 3/17/2022
Environmental Review Manager (DSD)	 _____ (Mike McDougal)	Date: 3/19/2022
Deputy Environmental Officer (WPD)	 _____ (Liz Johnston)	Date: 03/28/2022



Development Services Department  
Staff Recommendations Concerning Required Findings

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Project Name: Pinnacle at Wildhorse Ranch  
Ordinance Standard: Comprehensive Watershed Ordinance as modified by Planned Unit Development (PUD) Ordinance 020214-28  
Variance Request: Request to vary from LDC 25-8-342 to allow fill to 15 feet.

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Include an explanation with each applicable finding of fact.

A. Land Use Commission variance determinations from Chapter 25-8-41 of the City Code:

1. The requirement will deprive the applicant of a privilege available to owners of similarly situated property with approximately contemporaneous development subject to similar code requirements.

Yes Grading variances have been deemed appropriate under similar development circumstances for sites with multiple constraints. Blue Bluff/Saddle Ridge at Wildhorse Ranch (C8-2020-0033) also received variances for cut to 15 feet and fill to 15 feet.

Both sites have topographical challenges, including slopes near or exceeding a grade of fifteen percent. This site has two wetland features as well. These constraints make it difficult to comply with Transportation Criteria Manual and Americans with Disabilities requirements for slopes, stopping sight distance, and block length maximums without variances to the Land Development Code grading regulations.

2. The variance:
  - a) Is not necessitated by the scale, layout, construction method, or other design decision made by the applicant, unless the design decision provides greater overall environmental protection than is achievable without the variance;

Yes The variance is not necessitated by a design decision. It is necessitated by the site constraints, including slopes and wetlands. The houses are located on a stretch of flatter area, and the roadway follows the topography, dodging between the steeper slopes. The proposed design preserves the natural drainage patterns by detaining and treating stormwater in multiple basins throughout the property.

- b) Is the minimum deviation from the code requirement necessary to allow a reasonable use of the property;

Yes The project has been designed to minimally deviate from the code to allow for accessible routes and crossings in compliance with the Americans with Disabilities Act and in compliance with the Transportation Criteria Manual's vertical roadway design criteria. The housing and roadways are located on the site so as to maximize use of the flatter areas, and the ponds are located so as to prioritize natural drainage patterns.

- c) Does not create a significant probability of harmful environmental consequences.

Yes With appropriate erosion and sedimentation controls provided in accordance with Code and Criteria, the proposed cut and fill can be managed during construction, despite the slopes and proximity to wetlands. Neither will the completed project create a probability of harmful environmental consequences.

3. Development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.

Yes Water quality will be code-compliant and therefore equal to the water quality that would be provided without the variance. In addition, the proposed design preserves the natural drainage patterns by detaining and treating stormwater in multiple basins throughout the property.

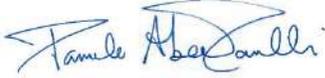
B. The Land Use Commission may grant a variance from a requirement of Section 25-8-422 (*Water Supply Suburban Water Quality Transition Zone*), Section 25-8-452 (*Water Supply Rural Water Quality Transition Zone*), Section 25-8-482 (*Barton Springs Zone Water Quality Transition Zone*), Section 25-8-368 (*Restrictions on Development Impacting Lake Austin, Lady Bird Lake, and Lake Walter E. Long*), or Article 7, Division 1 (*Critical Water Quality Zone Restrictions*), after determining that::

1. The criteria for granting a variance in Subsection (A) are met;  
N/A
2. The requirement for which a variance is requested prevents a reasonable, economic use of the entire property;  
N/A
3. The variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property.  
N/A

Staff Determination: Staff determines that the findings of fact have / have not been met. Staff recommends the following condition:

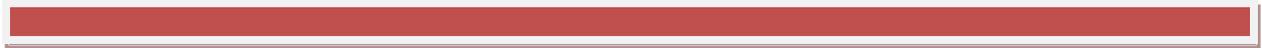
1. The applicant will provide enhanced vegetation for the wetland critical environmental features.

2. Grading over 8 feet will be stabilized by containment and/or terracing.
3. Water quality requirements will be met by using biofiltration, a green storm water quality infrastructure.

Environmental Reviewer (DSD)	 _____ (Pamela Abee-Taulli)	Date: 3/17/2022
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Deputy Environmental Officer (WPD)	 _____ (Liz Johnston)	Date: 03/28/2022



## ENVIRONMENTAL COMMISSION VARIANCE APPLICATION FORM



### PROJECT DESCRIPTION

#### Applicant Contact Information

Name of Applicant	Kevin Burks, P.E.
Street Address	10814 Jollyville Rd Building 4, Suite 200
City State ZIP Code	Austin, TX 78759
Work Phone	512-418-4528
E-Mail Address	Kevin.Burks@kimley-horn.com

#### Variance Case Information

Case Name	Pinnacle at Wildhorse Ranch
Case Number	C8-2021-0152PA
Address or Location	Along Wildhorse Ranch Trail, between Blue Bluff Road and E Parmer Lane in Austin, TX.
Environmental Reviewer Name	Pamela Abee-Taulli
Environmental Resource Management Reviewer Name	Hank Marley
Applicable Ordinance	25-8-341 & 25-8-342
Watershed Name	Gilleland Creek

Watershed Classification	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Suburban <input type="checkbox"/> Water Supply Suburban <input type="checkbox"/> Water Supply Rural <input type="checkbox"/> Barton Springs Zone
Edwards Aquifer Recharge Zone	<input type="checkbox"/> Barton Springs Segment <input type="checkbox"/> Northern Edwards Segment <input checked="" type="checkbox"/> Not in Edwards Aquifer Zones
Edwards Aquifer Contributing Zone	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Distance to Nearest Classified Waterway	Gilleland Creek runs just east of Preliminary Plat boundary
Water and Waste Water service to be provided by	Austin Water Utility
Request	The variance request is as follows: 25-8-341 Cut Requirements & 25-8-342 Fill Requirements

Impervious cover	Existing	Proposed
square footage:	<u>0</u>	<u>288,148</u>
acreage:	<u>18.37</u>	<u>18.37</u>
percentage:	<u>0</u>	<u>36.00%</u>
Provide general description of the property (slope range, elevation range, summary of vegetation / trees, summary of the geology, CWQZ, WQTZ, CEFs, floodplain, heritage trees, any other notable or outstanding characteristics of the property)	<p>76.5% of the property falls within the 0% to 15% slope category. The remainder property has slopes exceeding 15% slope.</p> <p>The property ranges in elevation from 645 to 515.</p> <p>There is an assortment of Cedar Elm and Willow trees within the site; only nine of which exceed 24 caliper inches.</p> <p>On-site soils are Type D Expansive Clays and is identified as Ferris-Heiden complex and Heiden clay by the USGS web soil survey.</p> <p>Two wetland CEFs exist within the site. No Critical Water Quality Zones or Fully developed 25-year and 100-year floodplains exist within the site.</p>	

Clearly indicate in what way the proposed project does not comply with current Code (include maps and exhibits)	Per the attached cut/fill exhibit, there are areas that require cut/fills greater than 4'.
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## FINDINGS OF FACT

As required in LDC Section 25-8-341, in order to grant a variance, the Land Use Commission must make the following findings of fact:

Include an explanation with each applicable finding of fact.

Project: Blue Bluff at Wildhorse Ranch

Ordinance: 25-8-341 Cut Requirements & 25-8-342 Fill Requirements

A. Land Use Commission variance determinations from Chapter 25-8-341 and 25-8-342 of the City Code:

1. The requirement will deprive the applicant of a privilege available to owners of similarly situated property with approximately contemporaneous development subject to similar code requirements.

Yes

The otherwise developable land located within the 0% to 15% slope category is primarily comprised of slopes closer to 15%. In order to comply with the Americans with Disabilities Act (ADA) requiring 2% cross slope at intersection crosswalks on the local and collector roadways and to meet Transportation Criteria Manual (TCM) requirements for stopping sight distance (for vertical curves and roadway design) and block length maximums, the proposed grades will need to exceed the cut and fill allowed by Chapter 25. This applies to the single-family lots fronting the roadways meeting the ADA and TCM requirements due to access requirements for the lots. The maximum Cut is 14.7 feet. The maximum Fill is 14.9 feet.

In addition, the development of adjacent properties will be challenged by the existing topography. It's highly likely future developments will be pursuing a cut and fill variance request of this magnitude. We also requested and received

similar variances on our Saddle Ridge at Wildhorse Ranch project next door (C8-2020-0033) due to the same TCM design criteria and ADA requirements that were required as part of that subdivision.

2. The variance:

- a) Is not necessitated by the scale, layout, construction method, or other design decision made by the applicant, unless the design decision provides greater overall environmental protection than is achievable without the variance;

Yes

Pinnacle at Wildhorse Ranch is primarily a single-family residential development with roadways and lot layouts generally designed to follow the existing topography to preserve the natural character of the property. In addition, multiple water quality and detention basins have been placed in natural low areas to preserve the existing drainage patterns. We are not changing drainage patterns to route runoff to one basin, and intend to maintain adequate runoff reaching the existing wetland CEFs. This variance request is not driven by a design decision on our side.

- b) Is the minimum deviation from the code requirement necessary to allow a reasonable use of the property;

Yes

Pinnacle at Wildhorse Ranch has been designed to minimally deviate from the code to allow for accessible routes and crossings in compliance with the Americans with Disabilities Act, and meet TCM vertical roadway design criteria. The percentage of the property exceeding 8 feet for this property is 3.4%.

Specifically, the design accounts for existing constraints such as the elevation of the adjacent connecting roads at City of Austin approved locations and the minimum allowable roadways slopes to allow for ADA compliance.

The roadway network has been designed to minimize the number of cross streets to reduce the amount of cut and fill and to maintain compliance with the Transportation Criteria Manual (TCM) block-length requirement. As such, these cross-streets are required to comply with block length requirements outlined in the code.

- c) Does not create a significant probability of harmful environmental consequences.

Yes

The proposed roadways and associated drainage system have been designed to protect the natural character and function of the Critical Environmental Features by ensuring they receive the required surface water runoff quantity and quality needed to promote wetland and floodplain health. In addition, the proposed design preserves the natural drainage patterns by detaining and treating stormwater in multiple basins throughout the property.

3. Development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.

Yes

The proposed design adheres to all water quality requirements outlined within the Environmental Criteria Manual and as such, will result in water quality that is at least equal to water quality achievable without the variance. In addition, the proposed design preserves the natural drainage patterns by detaining and treating stormwater in multiple basins throughout the property. Based on preliminary discussions with Staff, we are comfortable upgrading from the standard full sedimentation/filtration ponds to green water quality controls as an effort to obtain environmental superiority with this variance request.

- B. Additional Land Use Commission variance determinations for a requirement of Section 25-8-422 (Water Quality Transition Zone), Section 25-8-452 (Water Quality Transition Zone), Article 7, Division 1 (Critical Water Quality Zone Restrictions), or Section 25-8-368 (Restrictions on Development Impacting Lake Austin, Lady Bird Lake, and Lake Walter E. Long):

1. The criteria for granting a variance in Subsection (A) are met;

N/A to this variance request.

2. The requirement for which a variance is requested prevents a reasonable, economic use of the entire property;

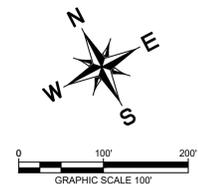
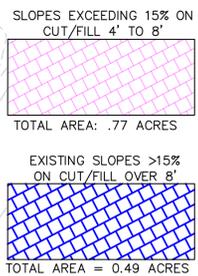
N/A to this variance request.

3. The variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property.

N/A to this variance request.

\*\*Variance approval requires all above affirmative findings.

Plotted By: Costey, Megan Date: March 17, 2022 01:45:27pm File Path: K:\AUS\_Civil\069244531-Pinnacle at Wildhorse Ranch\Plan\069244531-Fill\Exhibit - COMBINED.dwg  
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**LEGEND**

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- BENCHMARK
- PROPERTY PIN
- ROADWAY EASEMENT LINE
- W WATER LINE
- WW WASTE WATER LINE
- SS STORM SEWER LINE
- WASTEWATER MANHOLE
- RIGHT OF WAY
- PROPOSED CONTOUR
- EXISTING CONTOUR
- CEFB EXISTING CEF BUFFER
- 65.3 EXISTING TREE
- ATLAS 14 25 YEAR FLOODPLAIN
- ATLAS 14 100 YEAR FLOODPLAIN
- FEMA 100 YEAR FLOODPLAIN
- CRITICAL WATER QUALITY ZONE
- WATER QUALITY TRANSITION ZONE
- CREEK CENTERLINE

**Block A Slopes Table**

Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	15.00%	14.91	
2	15.00%	25.00%	3.16	
3	25.00%	35.00%	1.08	
4	35.00%	100.00%	0.40	

**Elevations Table**

Number	Minimum Elevation	Maximum Elevation	Area	Color
1	-14.99	-8.00	0.63	
2	-8.00	-4.00	1.27	
3	4.00	8.00	1.42	
4	8.00	14.99	0.88	

**BENCHMARKS**

DATUM IS NAVD '88, USING GEOID 12A, BASED ON GPS OBSERVATIONS.

BM #101	"X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

No.	REVISIONS	DATE	BY

**Kimley-Horn**

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 10814 JOLLYVILLE ROAD, AVALON IV, SUITE 200, AUSTIN, TX 78759  
 PHONE: 512-418-1771 FAX: 512-418-791  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

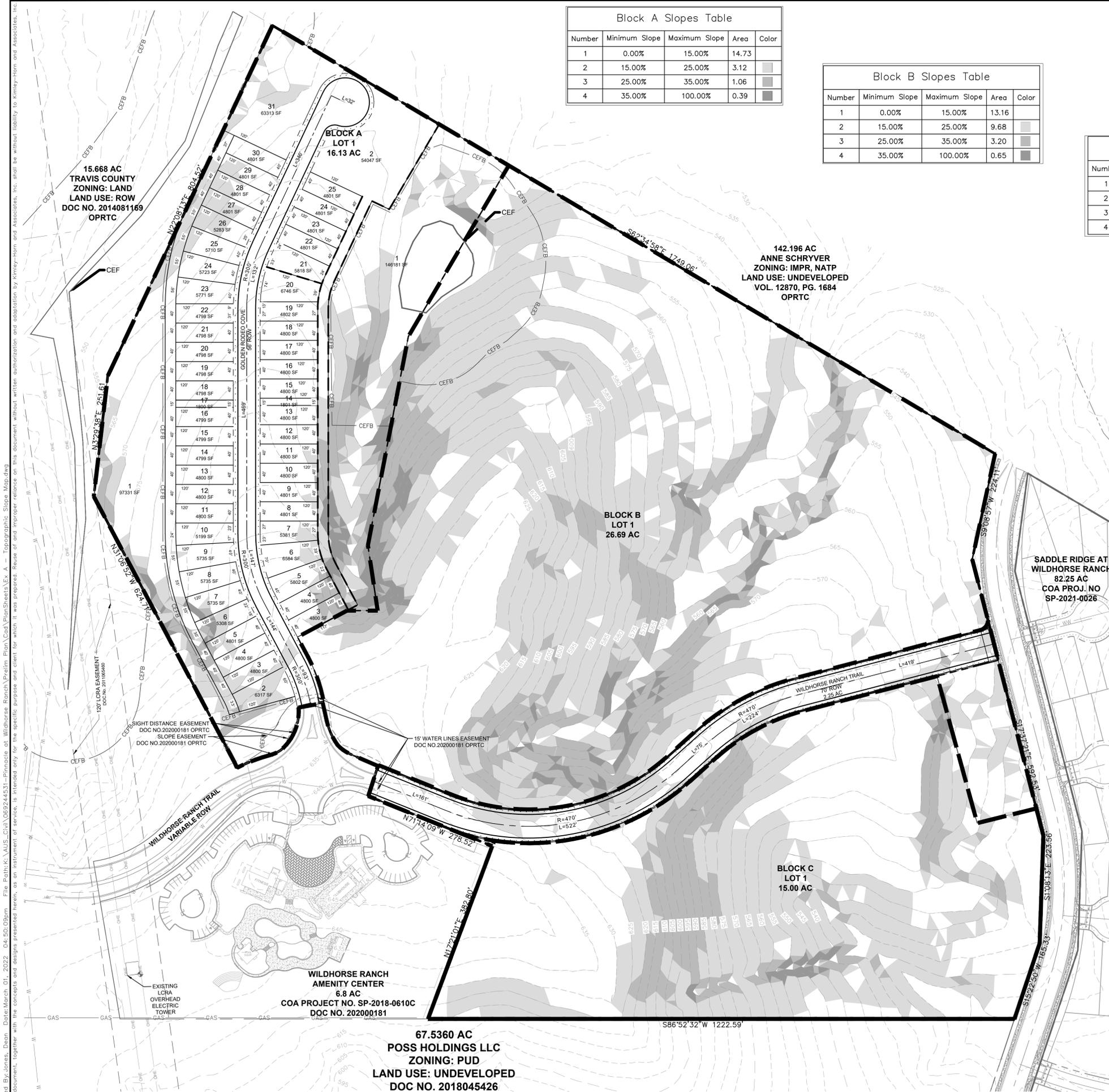
03/17/2022

KHA PROJECT	069244531
DATE	MARCH 2022
SCALE	AS SHOWN
DESIGNED BY:	JMW
DRAWN BY:	MCC
CHECKED BY:	KJB

THE PINNACLE AT  
 WILDHORSE RANCH  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

CUT/FILL EXHIBIT:  
 COMBINED

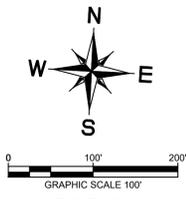
SHEET NUMBER  
**EX**



Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	15.00%	14.73	
2	15.00%	25.00%	3.12	
3	25.00%	35.00%	1.06	
4	35.00%	100.00%	0.39	

Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	15.00%	13.16	
2	15.00%	25.00%	9.68	
3	25.00%	35.00%	3.20	
4	35.00%	100.00%	0.65	

Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	15.00%	6.92	
2	15.00%	25.00%	5.18	
3	25.00%	35.00%	1.83	
4	35.00%	100.00%	0.13	



---	PROPERTY LINE
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•	BENCHMARK
•	PROPERTY PIN
---	ROADWAY EASEMENT LINE
W	WATER LINE
WW	WASTE WATER LINE
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⊙	WASTEWATER MANHOLE
---	RIGHT OF WAY
---	PROPOSED CONTOUR
---	EXISTING CONTOUR
---	PROPOSED CEF BUFFER
---	CRITICAL WATER QUALITY ZONE
---	WATER QUALITY TRANSITION ZONE

APPENDIX Q-1 PINNACLE AT WILDHORSE RANCH NET SITE AREA - BLOCK A				
TOTAL GROSS SITE AREA=	19.30 ACRES			
<b>SITE DEDUCTIONS</b>				
CRITICAL WATER QUALITY ZONE (CWQZ) =	0 ACRES			
WATER QUALITY TRANSITION ZONE (WQTZ) =	0 ACRES			
WASTEWATER IRRIGATION AREAS =	0 ACRES			
DEDUCTION SUBTOTAL =	0 ACRES			
<b>UPLAND AREA (GROSS SITE AREA MINUS TOTAL DEDUCTIONS) =</b>	<b>19.30 ACRES</b>			
<b>NET SITE AREA CALCULATION</b>				
AREA OF UPLANDS WITH SLOPES 0 - 15% =	14.73 X 100% = 14.73 ACRES			
AREA OF UPLANDS WITH SLOPES 15 - 25% =	3.12 X 40% = 1.25 ACRES			
AREA OF UPLANDS WITH SLOPES 25 - 35% =	1.06 X 20% = 0.21 ACRES			
AREA OF UPLANDS WITH SLOPES > 35% =	0.39 X 0% = 0 ACRES			
<b>NET SITE AREA TOTAL =</b>	<b>16.19 ACRES</b>			
APPENDIX Q-2 PINNACLE AT WILDHORSE RANCH IMPERVIOUS COVER - BLOCK A				
<b>ALLOWABLE IMPERVIOUS COVER</b>				
Single Family	60% X 5.93 ACRES = 3.56 ACRES			
Drainage, Water Quality, PUE, Landscape, and Greenbelt	45% X 9.22 ACRES = 4.15 ACRES			
Right of Way	85% X 4.15 ACRES = 3.53 ACRES			
<b>ALLOWABLE IMPERVIOUS COVER BREAKDOWN BY SLOPE CATEGORY</b>				
TOTAL ACREAGE 15 - 25% =	3.12 X 10% = 0.31 ACRES			
<b>PROPOSED TOTAL IMPERVIOUS COVER</b>				
TOTAL PROPOSED IMPERVIOUS COVER =	7.10 ACRES = 36.76%			
<b>PROPOSED IMPERVIOUS COVER ON SLOPES</b>				
	<b>IMPERVIOUS COVER</b>			
SLOPE CATEGORIES	BUILDING / AND OTHER IMPERVIOUS COVER	DRIVEWAYS / ROADWAYS		
0 - 15%	14.73 ACRES	3.4 ACRES	23.1%	2.98 ACRES
15 - 25%	3.12 ACRES	0.19 ACRES	5.9%	0.49 ACRES
25 - 35%	1.06 ACRES	0.00 ACRES	0.0%	0.04 ACRES
OVER 35%	0.39 ACRES	0.00 ACRES	0.0%	0.00 ACRES
TOTAL SITE AREA	19.30 ACRES			

PRELIMINARY SUBDIVISION APPROVAL SHEET    OF    2  
 FILE NUMBER C8-20210152.PA APPLICATION DATE   , 2022.  
 APPROVED BY COMMISSION ON   , 2022.  
 EXPIRATION DATE (LDC 25-4-62)   , 2022.  
 CASE MANAGER:   

Danise Lucas, Director, Development Services Department  
*Final plan must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.*



DATUM IS NAVD '88, USING GEOID 12A, BASED ON GPS OBSERVATIONS.	
BM #101	"X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

NO.	REVISIONS	DATE

**Kimley-Horn**  
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 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928



KHA PROJECT	069244531
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	JMW
DRAWN BY	MCC
CHECKED BY	KJB

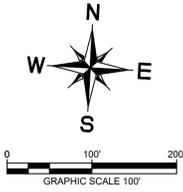
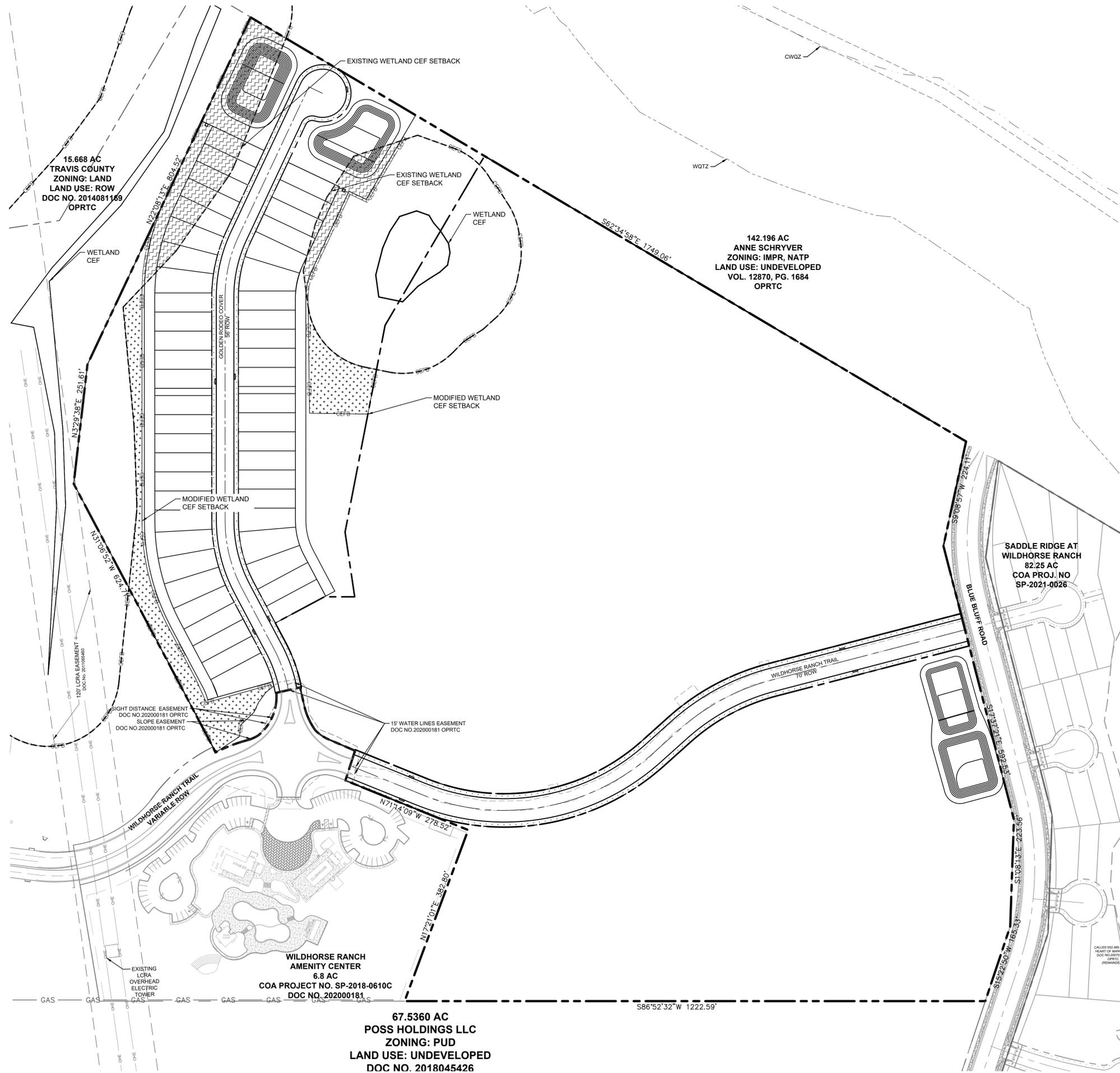
**EXHIBIT A - TOPOGRAPHIC SLOPE MAP**

**THE PINNACLE AT WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

SHEET NUMBER  
**EX**

Plotted By: Jones, Dean, Date: March 01, 2022, 04:50:09pm, File Path: K:\AUS\_CIVIL\069244531-Pinnacle at Wildhorse Ranch\Plan\Map\Map.dwg, Topographic Slope Map.dwg  
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Plotted By: Jones, Dean Date: March 01, 2022 10:54:22am File Path: K:\AUS-CIVIL\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\Grid\PlanSheets\EX B - CEF Mitigation Sheet.dwg  
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**LEGEND**

	PROPERTY LINE
	ADJACENT PROPERTY LINE
	BENCHMARK
	ROADWAY EASEMENT LINE
	WATER LINE
	WASTE WATER LINE
	STORM SEWER LINE
	WASTEWATER MANHOLE
	RIGHT OF WAY
	PROPOSED CONTOUR
	EXISTING CONTOUR
	PROPOSED CEF BUFFER
	CEF BUFFER TO BE REMOVED
	CEF BUFFER TO BE ADDED
	PLANTING AREAS ADDED
	WATER QUALITY TRANSITION ZONE
	CRITICAL WATER QUALITY ZONE

**CEF Buffer & Mitigation**

Standard 150' CEF A Setback	3.49	AC
Standard 150' CEF B Setback	12.93	AC
<b>TOTAL =</b>	<b>16.42</b>	<b>AC</b>
Proposed CEF A Setback	4.25	AC
Proposed CEF B Setback	12.31	AC
<b>TOTAL =</b>	<b>16.56</b>	<b>AC*</b>

\*Proposed CEF setback plus restoration area is equal to or greater than existing standard 150' setback area.

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
 FILE NUMBER \_\_\_\_\_ APPLICATION DATE \_\_\_\_\_  
 APPROVED BY COMMISSION ON \_\_\_\_\_, 2022.  
 EXPIRATION DATE (LDC 25-4-62) \_\_\_\_\_  
 CASE MANAGER: \_\_\_\_\_

Denise Lucas, Director, Development Services Department  
 Final plan must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

**BENCHMARKS**

DATUM IS NAVD '88, USING GEOID 12A, BASED ON GPS OBSERVATIONS.

BM #101	"X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'



NO.	REVISIONS	DATE	BY

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 TEXAS REGISTERED ENGINEERING FIRM F-928



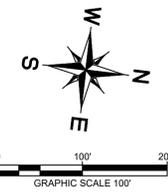
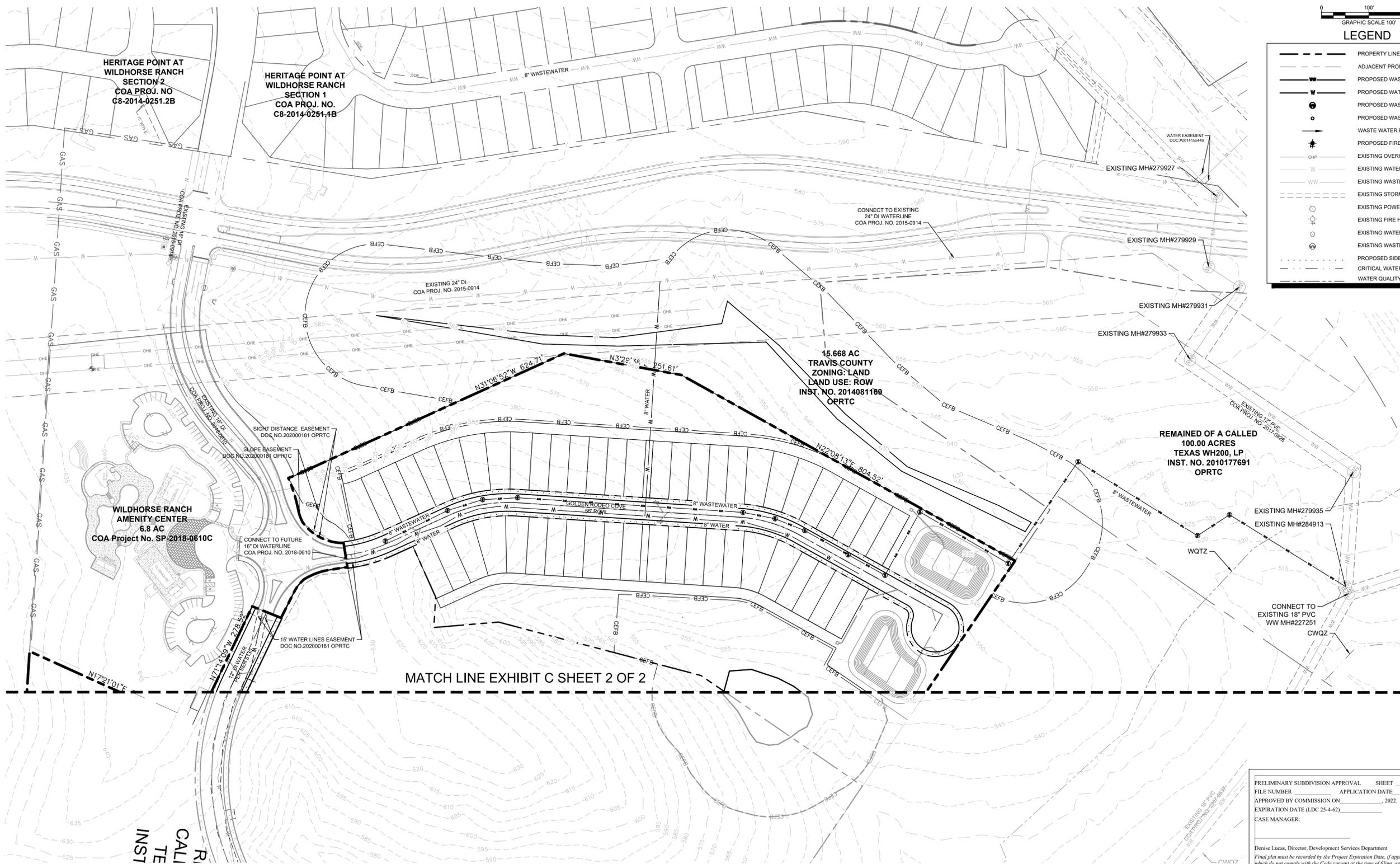
KHA PROJECT	069244531
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	JMW
DRAWN BY	MCC
CHECKED BY	KJB

**EXHIBIT B - CEF MITIGATION SHEET**

**THE PINNACLE AT WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

SHEET NUMBER  
**EX**

Plotted By: Jones, Dean Date: March 01, 2022 10:54:52am File Path: K:\AUS\_CWA\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\Grid\PlanSheets\EX\_C - Water & Wastewater Planning  
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**LEGEND**

	PROPERTY LINE
	ADJACENT PROPERTY LINE
	PROPOSED WASTE WATER LINE
	PROPOSED WATER LINE
	PROPOSED WASTE WATER MANHOLE
	PROPOSED WASTE WATER CLEANOUT
	WASTE WATER FLOW DIRECTION
	PROPOSED FIRE HYDRANT
	EXISTING OVERHEAD POWER LINE
	EXISTING WATER LINE
	EXISTING WASTE WATER LINE
	EXISTING STORM SEWER LINE
	EXISTING POWER POLE
	EXISTING FIRE HYDRANT
	EXISTING WATER METER
	EXISTING WASTE WATER MANHOLE
	PROPOSED SIDEWALK
	CRITICAL WATER QUALITY ZONE
	WATER QUALITY TRANSITION ZONE

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KHA PROJECT	069244531
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	JMW
DRAWN BY	MCC
CHECKED BY	KJB

**EXHIBIT C - WATER & WASTEWATER PLAN (SHEET 1 OF 2)**

**THE PINNACLE AT WILDHORSE RANCH**  
CITY OF AUSTIN  
TRAVIS COUNTY, TEXAS

SHEET NUMBER  
**EX**

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
 FILE NUMBER APPLICATION DATE  
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**BENCHMARKS**

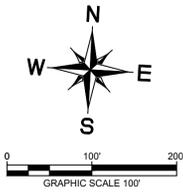
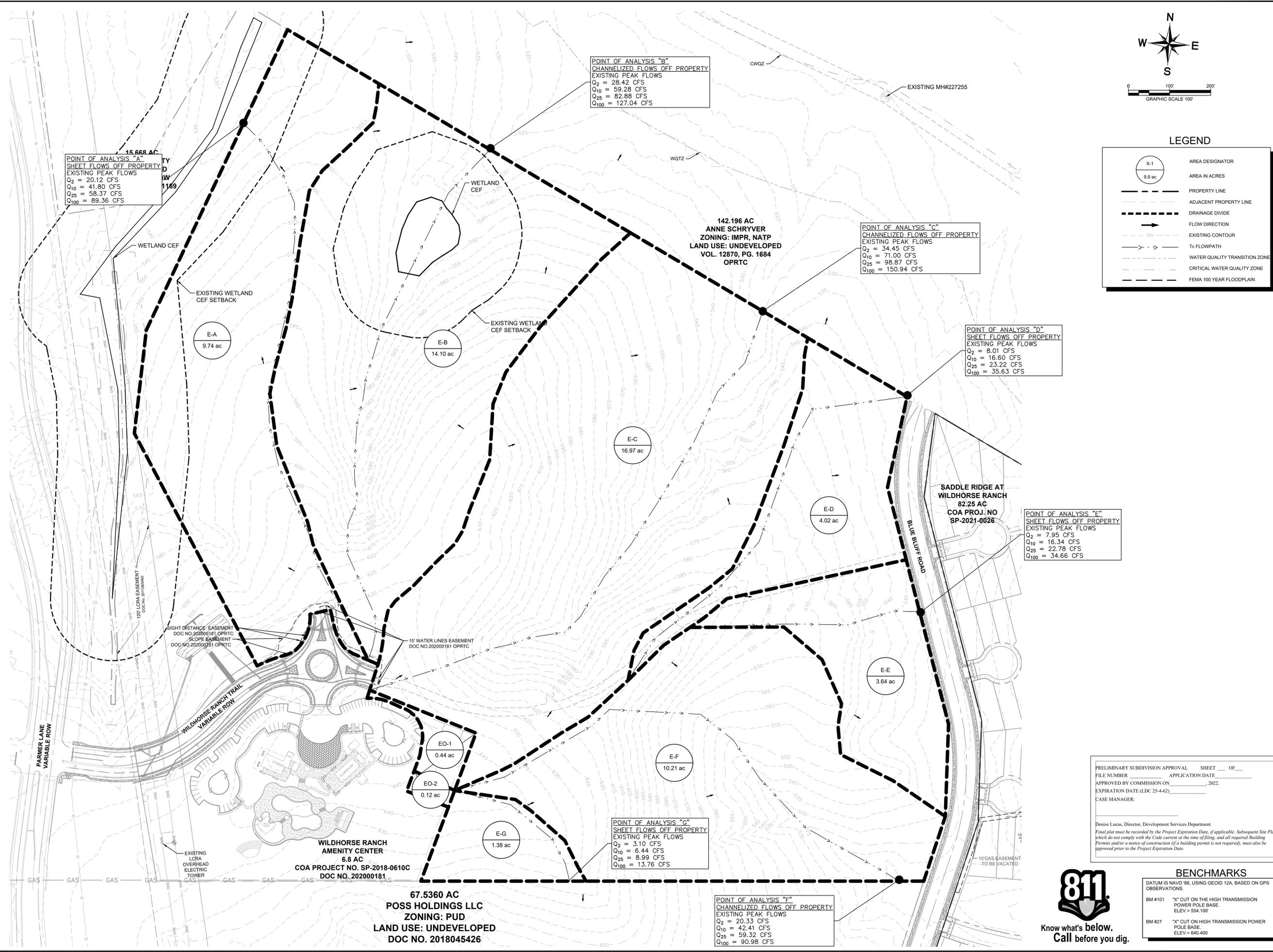
BM #101	"X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'



NO.	REVISIONS	DATE	BY



Plotted By: Jones, Dean Date: March 01, 2022 10:55:33am File Path: K:\AUS-CWA\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\Grid\PlanSheets\EX-D - Existing Drainage Area Map.dwg  
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**LEGEND**

- X-1 AREA DESIGNATOR
- 9.9 ac AREA IN ACRES
- PROPERTY LINE
- - - ADJACENT PROPERTY LINE
- - - DRAINAGE DIVIDE
- FLOW DIRECTION
- - - EXISTING CONTOUR
- - - Tc FLOWPATH
- - - WATER QUALITY TRANSITION ZONE
- - - CRITICAL WATER QUALITY ZONE
- - - FEMA 100 YEAR FLOODPLAIN

**POINT OF ANALYSIS "A"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 20.12 CFS  
 Q<sub>10</sub> = 41.80 CFS  
 Q<sub>25</sub> = 58.37 CFS  
 Q<sub>100</sub> = 89.36 CFS

**POINT OF ANALYSIS "B"**  
 CHANNELIZED FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 28.42 CFS  
 Q<sub>10</sub> = 59.28 CFS  
 Q<sub>25</sub> = 82.88 CFS  
 Q<sub>100</sub> = 127.04 CFS

**POINT OF ANALYSIS "C"**  
 CHANNELIZED FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 34.45 CFS  
 Q<sub>10</sub> = 71.00 CFS  
 Q<sub>25</sub> = 98.87 CFS  
 Q<sub>100</sub> = 150.94 CFS

**POINT OF ANALYSIS "D"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 8.01 CFS  
 Q<sub>10</sub> = 16.60 CFS  
 Q<sub>25</sub> = 23.22 CFS  
 Q<sub>100</sub> = 35.63 CFS

**POINT OF ANALYSIS "E"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 7.95 CFS  
 Q<sub>10</sub> = 16.34 CFS  
 Q<sub>25</sub> = 22.78 CFS  
 Q<sub>100</sub> = 34.66 CFS

**POINT OF ANALYSIS "G"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 3.10 CFS  
 Q<sub>10</sub> = 6.44 CFS  
 Q<sub>25</sub> = 8.99 CFS  
 Q<sub>100</sub> = 13.76 CFS

**POINT OF ANALYSIS "F"**  
 CHANNELIZED FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 20.33 CFS  
 Q<sub>10</sub> = 42.41 CFS  
 Q<sub>25</sub> = 59.32 CFS  
 Q<sub>100</sub> = 90.98 CFS

SIGHT DISTANCE EASEMENT  
 DOC NO. 202000181 OPRTC  
 SLOPE EASEMENT  
 DOC NO. 202000181 OPRTC

15' WATER LINES EASEMENT  
 DOC NO. 202000181 OPRTC

EXISTING LCRA  
 OVERHEAD  
 ELECTRIC  
 TOWER

**WILDHORSE RANCH  
 AMENITY CENTER**  
 6.8 AC  
 COA PROJECT NO. SP-2018-0610C  
 DOC NO. 202000181

**67.5360 AC  
 POSS HOLDINGS LLC**  
 ZONING: PUD  
 LAND USE: UNDEVELOPED  
 DOC NO. 2018045426

**142.196 AC  
 ANNE SCHRYVER**  
 ZONING: IMPR, NATP  
 LAND USE: UNDEVELOPED  
 VOL. 12870, PG. 1684  
 OPRTC

**SADDLE RIDGE AT  
 WILDHORSE RANCH**  
 82.25 AC  
 COA PROJ. NO  
 SP-2021-0026

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
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**BENCHMARKS**

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BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

NO.	REVISIONS	DATE	BY

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 TEXAS REGISTERED ENGINEERING FIRM F-928



KHA PROJECT	069244531
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	JMW
DRAWN BY	MCC
CHECKED BY	KJB

**EXHIBIT D - EXISTING  
 DRAINAGE AREA MAP**

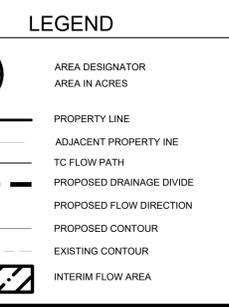
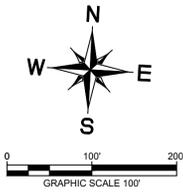
**THE PINNACLE AT  
 WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

SHEET NUMBER  
**EX**

Plotted By: Jones, Dean Date: March 01, 2022 10:56:08am File Path: K:\AUS\_Civil\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\Cad\PlanSheets\EX E - Proposed Drainage Area Map.dwg  
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**PINNACLE AT WILDHORSE RANCH**  
 Drainage Calculations - SCS Method

DRAINAGE AREA (ac)	AREA (sq ft)	IMPERVIOUS COVER (%)	PERVIOUS COVER (%)	WEIGHTED CURVE NO.	SHEET FLOW		SHALLOW CONCENTRATED FLOW		CHANNEL FLOW		TOTAL Tc (min)	Q <sub>2</sub> (cfs)	Q <sub>10</sub> (cfs)	Q <sub>25</sub> (cfs)	Q <sub>100</sub> (cfs)		
					F-2/24hr (in)	L (ft)	V (ft/s)	S (ft/mi)	L (ft)	V (ft/s)						L (ft)	V (ft/s)
EA	424.88	9.74	0.00%	80.00	0.15	100	0.07	5.176	161	4.1	0.00	2.94	0.00	0.00	0.00	0.00	
EB	814.277	14.10	0.00%	80.00	0.15	100	0.07	6.726	1192	6.2	0.15	3.179	0.00	0.00	0.00	0.00	
EC	739.363	19.97	0.00%	80.00	0.15	100	0.08	6.428	1319	4.6	0.00	4.817	0.00	0.00	0.00	0.00	
ED	174.636	4.02	0.00%	80.00	0.15	100	0.07	6.726	945	4.3	0.07	3.886	0.00	0.00	0.00	0.00	
EE	158.515	3.64	0.00%	80.00	0.15	100	0.15	4.221	465	5.1	0.10	1.919	0.00	0.00	0.00	0.00	
EF	444.746	10.21	0.00%	80.00	0.15	100	0.08	6.178	1199	5.1	0.10	3.887	0.00	0.00	0.00	0.00	
EG	80.281	1.38	0.00%	80.00	0.15	100	0.05	6.650	292	3.6	0.05	1.363	0.00	0.00	0.00	0.00	
EA-1	19.114	0.44	85	0.44%	80.00	0.15	100	0.01	10.899	0	16.5	1.05	0.000	105	2.41	0.014	0.728
EA-2	5.155	0.12	500	10.67%	80.00	0.15	100	0.01	10.899	0	5.1	0.10	0.000	85	2.41	0.014	0.728
DA1	97.341	2.23	0.00%	80.00	0.15	100	0.10	4.864	548	5.1	0.10	1.760	0.00	0.00	0.00	0.00	
DA2	291.380	6.69	1996%	14.00%	80.00	0.15	100	0.10	4.864	0	3.2	0.06	0.000	126	4.98	0.06	0.201
DA3	168.141	3.86	689%	40.60%	80.00	0.15	100	0.10	4.864	807	3.2	0.04	4.426	0.00	0.00	0.00	0.00
DA4	145.933	3.35	0.00%	80.00	0.15	100	0.07	6.726	919	4.3	0.07	3.884	0.00	0.00	0.00	0.00	
DA5	348.532	7.73	0.00%	80.00	0.15	100	0.12	4.816	711	5.6	0.12	2.126	0.00	0.00	0.00	0.00	
DC	672.819	15.45	0.00%	80.00	0.15	100	0.08	6.428	1285	4.6	0.08	4.883	0.00	0.00	0.00	0.00	
DD	130.384	3.45	0.00%	80.00	0.15	100	0.08	6.428	688	4.6	0.08	2.813	0.00	0.00	0.00	0.00	
DE1	160.071	3.67	13000%	85.00%	80.00	0.15	100	0.02	10.602	0	3.6	0.05	0.000	0.00	0.00	0.00	
DE2	165.883	3.70	0.00%	80.00	0.15	100	0.11	4.778	435	5.4	0.11	1.365	0.00	0.00	0.00	0.00	
DF	438.484	10.07	0.00%	80.00	0.15	100	0.09	6.178	1199	5.1	0.10	3.887	0.00	0.00	0.00	0.00	
DG	90.283	1.38	0.00%	80.00	0.15	100	0.05	6.650	292	3.6	0.05	1.363	0.00	0.00	0.00	0.00	
DO-1	19.114	0.44	85	0.44%	80.00	0.15	100	0.01	10.899	0	16.5	1.05	0.000	105	2.41	0.014	0.728
DO-2	5.155	0.12	500	10.67%	80.00	0.15	100	0.01	10.899	0	7.0	0.10	0.000	85	2.41	0.014	0.728



NOTE: DETENTION AND WATER QUALITY FOR POINTS OF ANALYSIS C, D, F, AND G SHALL BE PROVIDED WITH THEIR INDIVIDUAL SITE PLANS. FULL POND DESIGNS FOR DRAINAGE AREAS D-A, D-B, AND D-E1 SHALL BE PROVIDED WITH THE SUBDIVISION CONSTRUCTION PLANS.

**POINT OF ANALYSIS "A"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 20.12 CFS  
 Q<sub>10</sub> = 41.80 CFS  
 Q<sub>25</sub> = 53.37 CFS  
 Q<sub>100</sub> = 89.36 CFS

**POINT OF ANALYSIS "B"**  
 CHANNELIZED FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 28.42 CFS  
 Q<sub>10</sub> = 59.28 CFS  
 Q<sub>25</sub> = 82.88 CFS  
 Q<sub>100</sub> = 127.04 CFS

**POINT OF ANALYSIS "C"**  
 CHANNELIZED FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 34.45 CFS  
 Q<sub>10</sub> = 71.00 CFS  
 Q<sub>25</sub> = 98.87 CFS  
 Q<sub>100</sub> = 150.94 CFS

**POINT OF ANALYSIS "D"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 8.01 CFS  
 Q<sub>10</sub> = 16.60 CFS  
 Q<sub>25</sub> = 23.22 CFS  
 Q<sub>100</sub> = 35.63 CFS

**POINT OF ANALYSIS "E"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 7.95 CFS  
 Q<sub>10</sub> = 16.34 CFS  
 Q<sub>25</sub> = 22.78 CFS  
 Q<sub>100</sub> = 34.66 CFS

AREA IN THE INTERIM CONDITION CONSIDERED UNDEVELOPED OFFSITE FLOW. THIS AREA WILL BE ACCOUNTED FOR WITH WATER QUALITY AND DETENTION CONTROLS BY THE FUTURE DEVELOPER OF BLOCK C.

**POINT OF ANALYSIS "G"**  
 SHEET FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 3.10 CFS  
 Q<sub>10</sub> = 6.44 CFS  
 Q<sub>25</sub> = 8.99 CFS  
 Q<sub>100</sub> = 13.76 CFS

**POINT OF ANALYSIS "H"**  
 CHANNELIZED FLOWS OFF PROPERTY  
 EXISTING PEAK FLOWS  
 Q<sub>2</sub> = 20.33 CFS  
 Q<sub>10</sub> = 42.41 CFS  
 Q<sub>25</sub> = 59.32 CFS  
 Q<sub>100</sub> = 90.98 CFS

**PINNACLE AT WILDHORSE RANCH**  
 DRAINAGE RESULTS - SCS METHOD

Point of Analysis	Storm Event	Existing Runoff POA-A	Developed Runoff POA-A	Runoff Difference at Confluence	Is Developed & Existing?
A	2	20.12	18.48	1.64	YES
	10	41.80	37.22	4.58	YES
	25	53.37	51.15	7.22	YES
	100	89.36	76.30	13.06	YES
B	2	28.42	24.36	4.06	YES
	10	59.28	55.17	4.11	YES
	25	82.88	77.88	5.00	YES
	100	127.04	119.90	7.14	YES
C	2	34.45	30.51	3.94	YES
	10	71.00	62.86	8.14	YES
	25	98.87	87.51	11.36	YES
	100	150.94	134.31	16.63	YES
D	2	8.01	7.18	0.83	YES
	10	16.60	14.90	1.70	YES
	25	23.22	20.80	2.42	YES
	100	35.63	31.83	3.80	YES
E	2	7.95	6.65	1.30	YES
	10	16.34	12.11	4.23	YES
	25	22.78	17.60	5.18	YES
	100	34.66	29.22	5.44	YES
F	2	20.33	20.31	0.02	YES
	10	42.41	42.35	0.06	YES
	25	59.32	59.20	0.12	YES
	100	90.98	90.75	0.23	YES
G	2	3.10	3.10	0.00	YES
	10	6.44	6.44	0.00	YES
	25	8.99	8.99	0.00	YES
	100	13.76	13.76	0.00	YES



**WILDHORSE RANCH AMENITY CENTER**  
 6.8 AC  
 COA PROJECT NO. SP-2018-0610C  
 DOC NO. 202000181

**67.5360 AC**  
 POSS HOLDINGS LLC  
 ZONING: PUD  
 LAND USE: UNDEVELOPED  
 DOC NO. 2018045426

**SADDLE RIDGE AT WILDHORSE RANCH**  
 82.25 AC  
 COA PROJ. NO SP-2021-0026

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
 FILE NUMBER APPLICATION DATE  
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 EXPIRATION DATE (LDC 25-4-62)  
 CASE MANAGER:

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Know what's below.  
 Call before you dig.

**BENCHMARKS**  
 DATUM IS NAVD '88, USING GEOID 12A, BASED ON GPS OBSERVATIONS.  
 BM #101 "X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'  
 BM #27 "X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

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 PHONE: 512-418-1771 FAX: 512-418-1791  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

**EXHIBIT E - PROPOSED DRAINAGE AREA MAP**

**THE PINNACLE AT WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

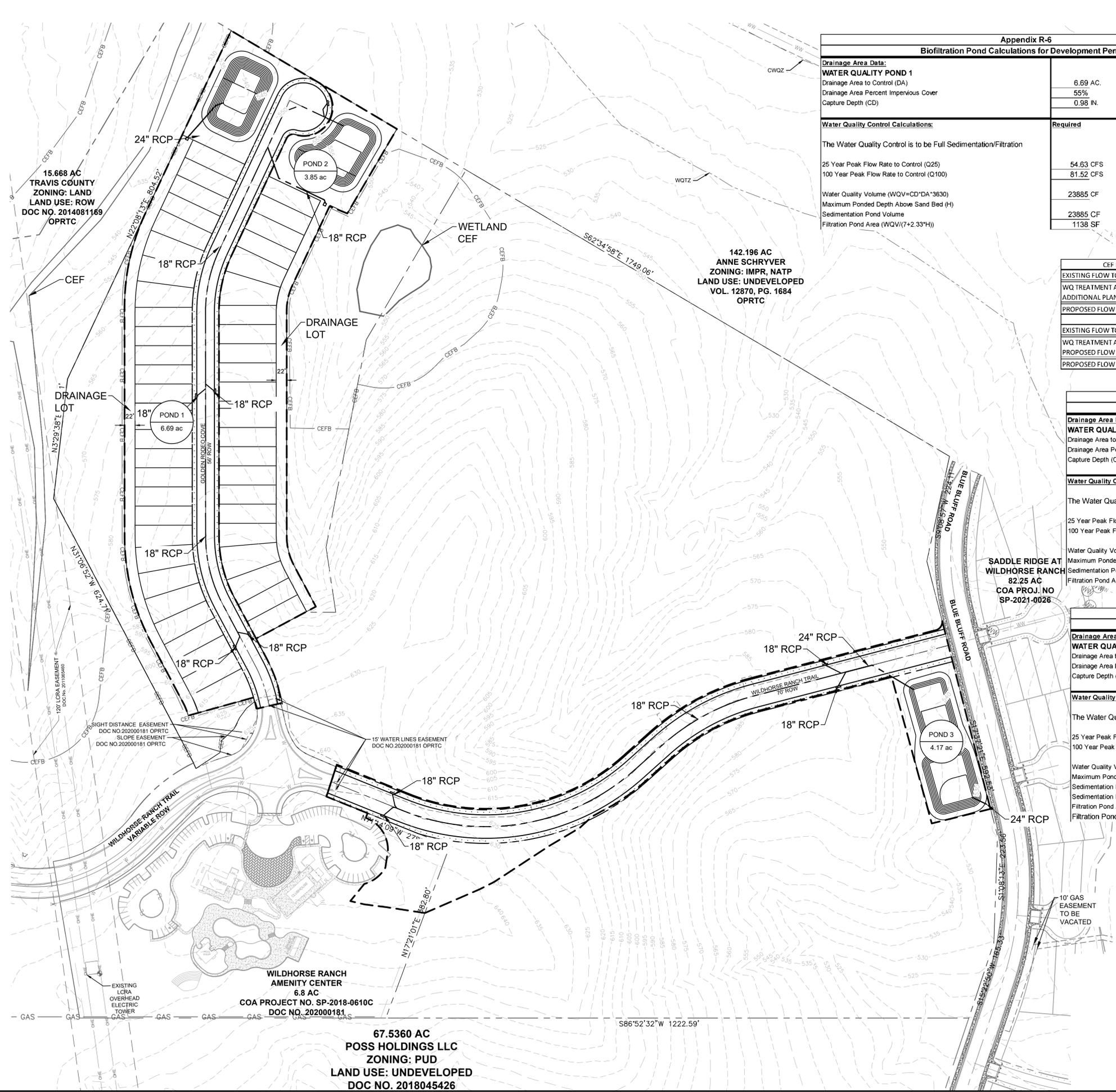
SHEET NUMBER  
**EX**

DATE  
 REVISIONS  
 NO.

KHA PROJECT 069244531  
 DATE FEBRUARY 2022  
 SCALE: AS SHOWN  
 DESIGNED BY: JMW  
 DRAWN BY: MCC  
 CHECKED BY: KJB

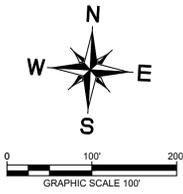
03/01/2022

Plotted By: Jones, Dean Date: March 01, 2022 10:56:35am File Path: K:\AUS-CWA\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\Cad\PlanSheets\EX\_F - Drainage & Water Quality\Plan.dwg  
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Appendix R-6 Biofiltration Pond Calculations for Development Permits		
<b>Drainage Area Data:</b>		
<b>WATER QUALITY POND 1</b>		
Drainage Area to Control (DA)		6.69 AC.
Drainage Area Percent Impervious Cover		55%
Capture Depth (CD)		0.98 IN.
<b>Water Quality Control Calculations:</b>		
The Water Quality Control is to be Full Sedimentation/Filtration		
25 Year Peak Flow Rate to Control (Q25)	54.63 CFS	Required
100 Year Peak Flow Rate to Control (Q100)	81.52 CFS	Provided
Water Quality Volume (WQV=CD*DA*3630)	23885 CF	39539 CF
Maximum Ponded Depth Above Sand Bed (H)	23885 CF	6.00 FT
Sedimentation Pond Volume	1138 SF	29787 CF
Filtration Pond Area (WQV/(7+2.33*H))		1673 SF

CEP FLOW MITIGATION	
EXISTING FLOW TO CEP A	9.74 AC
WQ TREATMENT AREA TO CEP A	6.69 AC
ADDITIONAL PLANTING ZONE	3.57 AC
PROPOSED FLOW TO CEP A	10.26 AC
EXISTING FLOW TO CEP B	14.1 AC
WQ TREATMENT AREA TO CEP B	3.85 AC
PROPOSED FLOW PER EXHIBIT E	11.07 AC
PROPOSED FLOW TO CEP B	14.92 AC



**LEGEND**

- X-1 AREA DESIGNATOR
- 9.9 ac AREA IN ACRES
- PROPERTY LINE
- TO FLOW PATH
- PROPOSED DRAINAGE DIVIDE
- PROPOSED FLOW DIRECTION
- PROPOSED CONTOUR
- EXISTING CONTOUR
- EXISTING CEP TO REMAIN
- EXISTING CEP BUFFER
- CRITICAL WATER QUALITY ZONE
- WATER QUALITY TRANSITION ZONE
- PLANTING ZONE

NOTE: DETENTION AND WATER QUALITY FOR POINTS OF ANALYSIS C, D, F, AND G SHALL BE PROVIDED WITH THEIR INDIVIDUAL SITE PLANS. FULL POND DESIGNS FOR DRAINAGE AREAS D-A, D-B, AND D-E1 SHALL BE PROVIDED WITH THE SUBDIVISION CONSTRUCTION PLANS.

Appendix R-6 Biofiltration Pond Calculations for Development Permits		
<b>Drainage Area Data:</b>		
<b>WATER QUALITY POND 2</b>		
Drainage Area to Control (DA)		3.85 AC.
Drainage Area Percent Impervious Cover		41%
Capture Depth (CD)		0.80 IN.
<b>Water Quality Control Calculations:</b>		
The Water Quality Control is to be Full Biofiltration		
25 Year Peak Flow Rate to Control (Q25)	98.48 CFS	Required
100 Year Peak Flow Rate to Control (Q100)	142.64 CFS	Provided
Water Quality Volume (WQV=CD*DA*3630)	11135 CF	20320 CF
Maximum Ponded Depth Above Sand Bed (H)	11135 CF	3.00 FT
Sedimentation Pond Volume	11135 CF	14231 CF
Filtration Pond Area (WQV/(7+2.33*H))	764 SF	1430 SF

Appendix R-2 Full Sedimentation/Filtration Pond Calculations for Development Permits		
<b>Drainage Area Data:</b>		
<b>WATER QUALITY POND 3</b>		
Drainage Area to Control (DA)		4.17 AC.
Drainage Area Percent Impervious Cover		61%
Capture Depth (CD)		1.05 IN.
<b>Water Quality Control Calculations:</b>		
The Water Quality Control is to be Full Sedimentation/Filtration		
25 Year Peak Flow Rate to Control (Q25)	21.81 CFS	Required
100 Year Peak Flow Rate to Control (Q100)	31.21 CFS	Provided
Water Quality Volume (WQV=CD*DA*3630)	16107 CF	18854 CF
Maximum Ponded Depth Above Sand Bed (H)	1611 CF	5.00 FT
Sedimentation Pond Area	16107 CF	2,657 SF
Sedimentation Pond Volume	837 SF	18854 CF
Filtration Pond Area (WQV/(7+2.33*H))	3221 CF	915 CF
Filtration Pond Volume (minimum 20% of WQV)		5933 CF

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
 FILE NUMBER APPLICATION DATE  
 APPROVED BY COMMISSION ON \_\_\_\_, 2022.  
 EXPIRATION DATE (LDC 25-4-62)  
 CASE MANAGER:  
 Denise Lucas, Director, Development Services Department  
 Final plan must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.



**BENCHMARKS**

BM #101	"X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

NO.	REVISIONS	DATE	BY

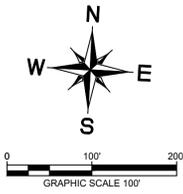
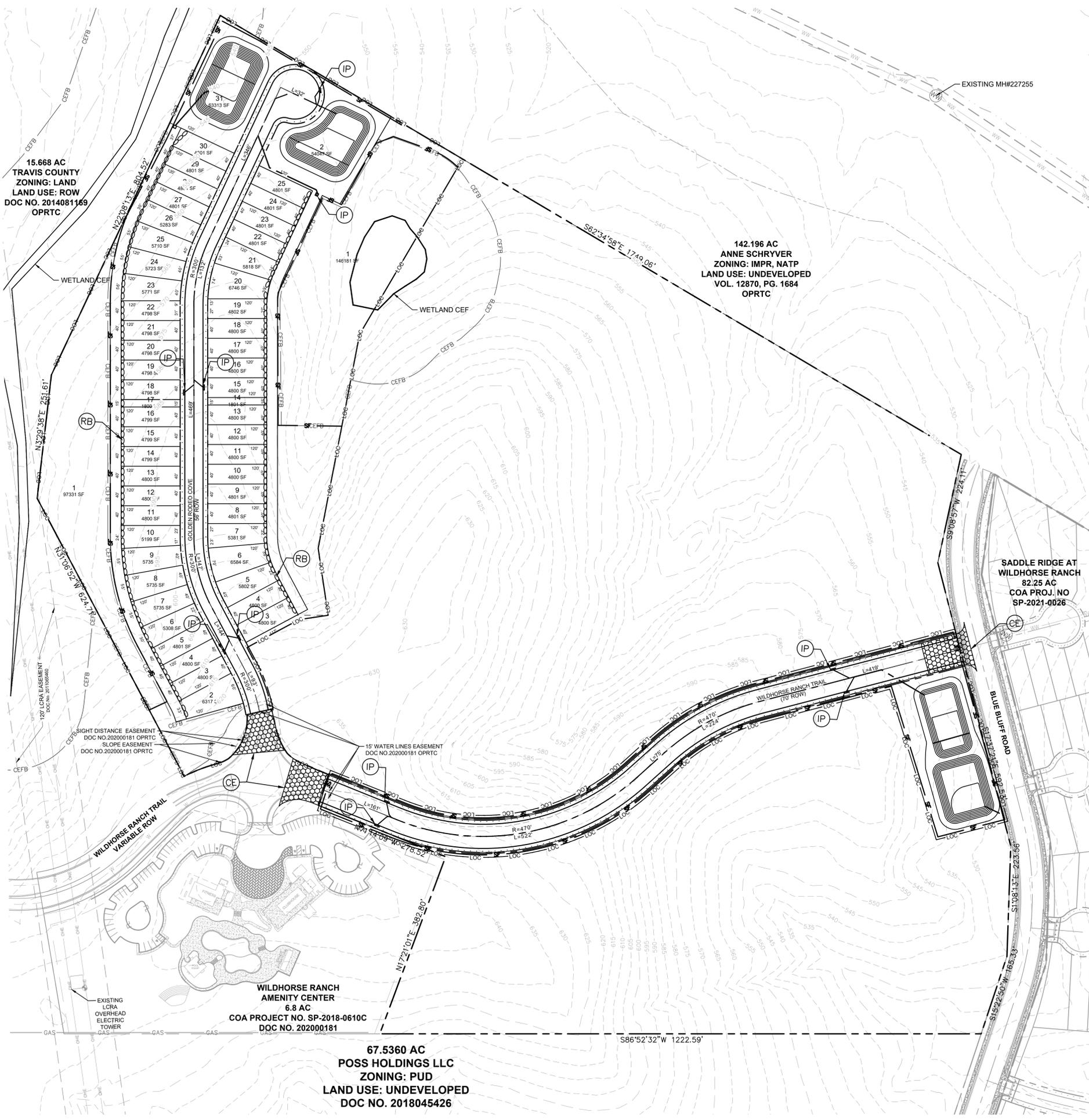
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 10814 JOLLYVILLE ROAD, AVALON IV, SUITE 200, AUSTIN, TX 78759  
 PHONE: 512-418-1771 FAX: 512-418-1791  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

STATE OF TEXAS  
 KEVIN J. BURKS  
 133953  
 LICENSED PROFESSIONAL ENGINEER  
 03/01/2022  
 KHA PROJECT 069244531  
 DATE FEBRUARY 2022  
 SCALE: AS SHOWN  
 DESIGNED BY: JMW  
 DRAWN BY: MCC  
 CHECKED BY: KJB

**EXHIBIT F - DRAINAGE & WATER QUALITY PLAN**

**THE PINNACLE AT WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS  
 SHEET NUMBER  
**EX**

Plotted By: Jones, Dean, Date: March 01, 2022, 10:57:07am, File Path: K:\AUS\_Civil\069244531\_Pinnacle at Wildhorse Ranch Prelim Plan\Grid\PlanSheets\EX G - Erosion Control Plan.dwg  
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**LEGEND**

	PROPERTY LINE
	ADJACENT PROPERTY LINE
	PROPOSED CONTOUR
	EXISTING CONTOUR
	SILT FENCE
	STABILIZED CONSTRUCTION ENTRANCE/EXIT
	INLET PROTECTION
	ROCK BERM
	LIMITS OF CONSTRUCTION
	EROSION CONTROL STAGING BOUNDARY
	CRITICAL WATER QUALITY ZONE
	WATER QUALITY TRANSITION ZONE

- NOTES:**
- IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING [ECM 1.4.4.B.C. SECTION 5.1]
  - ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN-COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS. [LDC 25-8-183]
  - CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
  - THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY [ECM 1.4.4.D.4]
  - ALL SPOILS TO BE PLACED BACK IN TRENCH EVERY NIGHT; OR IF SPOILS PILES ARE TO REMAIN OVERNIGHT, SPOILS MUST BE PLACED ON THE UPHILL SIDE OF TRENCH WITHIN THE LOC.
  - CONTRACTOR TO INSTALL CURLEX ON ALL 3:1 SLOPES EXCEEDING 4' IN HEIGHT.

NO.	REVISIONS	DATE	BY

**Kimley-Horn**  
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KHA PROJECT	069244531
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	JMW
DRAWN BY	MCC
CHECKED BY	KJB

**THE PINNACLE AT WILDHORSE RANCH**  
 EXHIBIT G - EROSION CONTROL PLAN

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
 FILE NUMBER \_\_\_\_\_ APPLICATION DATE \_\_\_\_\_  
 APPROVED BY COMMISSION ON \_\_\_\_\_, 2022.  
 EXPIRATION DATE (LDC 25-4-62) \_\_\_\_\_  
 CASE MANAGER: \_\_\_\_\_

Denise Lucas, Director, Development Services Department  
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**BENCHMARKS**

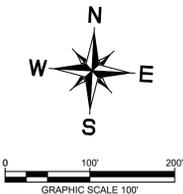
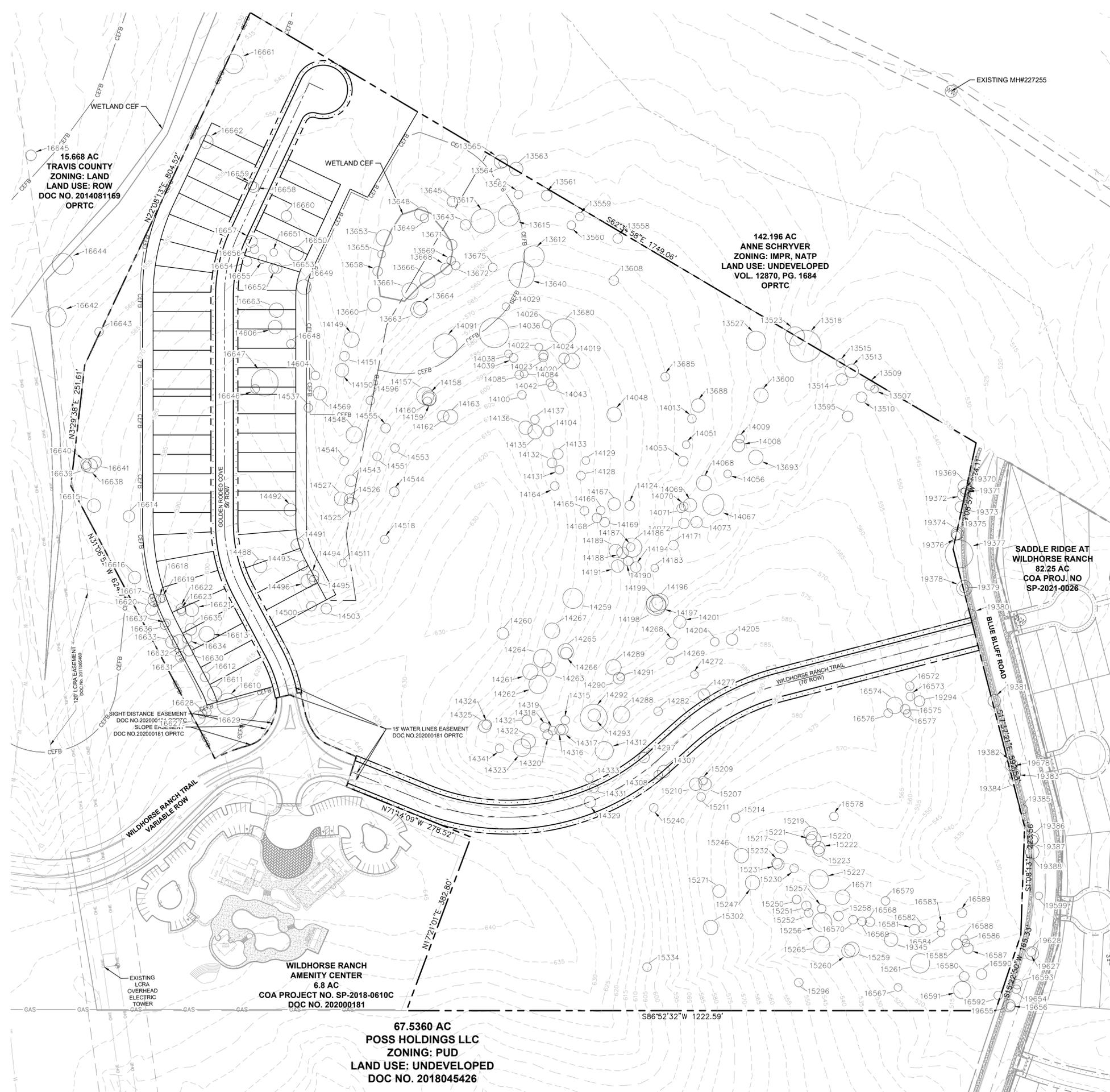
BENCHMARK	DESCRIPTION
BM #101	"X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27	"X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'



**THE PINNACLE AT WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

SHEET NUMBER  
**EX**

Plotted By: Jones, Dean, Date: March 01, 2022, 10:57:31am, File Path: K:\AUS\_CIVIL\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\069244531-Tree Information.dwg  
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**LEGEND**

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- PROPOSED WASTE WATER LINE
- PROPOSED WATER LINE
- PROPOSED WASTE WATER MANHOLE
- PROPOSED WASTE WATER CLEANOUT
- WASTE WATER FLOW DIRECTION
- ⊕ PROPOSED FIRE HYDRANT
- ⊕ PROPOSED TAPPING SLEEVE & VALVE
- IRRIGATION SLEEVE
- EXISTING OVERHEAD POWER LINE
- EXISTING WATER LINE
- EXISTING WASTE WATER LINE
- EXISTING STORM SEWER LINE
- EXISTING POWER POLE
- ⊕ EXISTING FIRE HYDRANT
- ⊕ EXISTING WATER METER
- ⊕ EXISTING WASTE WATER MANHOLE
- CRITICAL WATER QUALITY ZONE
- WATER QUALITY TRANSITION ZONE

NOTE: IF ANY EXISTING TREES ARE REQUIRED TO BE REMOVED DURING THE COURSE OF CONSTRUCTION, MITIGATION WILL BE PROVIDED IN ACCORDANCE WITH THE CITY OF AUSTIN'S STANDARDS.

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 PHONE: 512-418-1771, FAX: 512-418-1791  
 WWW.KIMLEY-HORN.COM  
 TEXAS REGISTERED ENGINEERING FIRM F-928

Professional Engineer Seal for Kevin J. Burks, License No. 133953, State of Texas, dated 03/01/2022.

KHA PROJECT	069244531
DATE	FEBRUARY 2022
SCALE	AS SHOWN
DESIGNED BY	JMW
DRAWN BY	MCC
CHECKED BY	KJB

**EXHIBIT H - TREE INFORMATION (SHEET 1 OF 2)**

**THE PINNACLE AT WILDHORSE RANCH**  
 CITY OF AUSTIN  
 TRAVIS COUNTY, TEXAS

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
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**BENCHMARKS**

DATUM IS NAVD '88, USING GEOID 12A, BASED ON GPS OBSERVATIONS.
BM #101 "X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'
BM #27 "X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

SHEET NUMBER EX

Plotted By: Jones, Dean Date: March 01, 2022 10:57:33am File Path: K:\AUS-CIVIL\069244531-Pinnacle at Wildhorse Ranch Prelim Plan\Cad\PlanSheets\EX\_H - Tree Information.dwg  
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Tag #	Species	Diameter(in)
13507	CEDAR ELM	8
13509	CEDAR ELM	11
13510	CEDAR ELM	11
13513	CEDAR ELM	14
13514	CEDAR ELM	12
13515	CEDAR ELM	9
13518	CEDAR ELM	33
13523	CEDAR ELM	20
13527	CEDAR ELM	20
13558	CEDAR ELM	10
13559	CEDAR ELM	9
13560	CEDAR ELM	9
13561	CEDAR ELM	11
13562	CEDAR ELM	9
13563	CEDAR ELM	14
13564	CEDAR ELM	9
13565	CEDAR ELM	14
13595	CEDAR ELM	11
13600	CEDAR ELM	15
13608	CEDAR ELM	10
13612	CEDAR ELM	22
13615	CEDAR ELM	22
13617	CEDAR ELM	25
13640	CEDAR ELM	27
13643	CEDAR ELM	11
13645	CEDAR ELM	11
13648	WILLOW	14
13649	WILLOW	9
13653	WILLOW	17
13655	WILLOW	8
13658	WILLOW	10
13660	CEDAR ELM	14
13661	WILLOW	17
13663	CEDAR ELM	17
13664	CEDAR ELM	14
13666	WILLOW	16
13668	CEDAR ELM	12
13669	WILLOW	9
13671	WILLOW	11
13672	CEDAR ELM	9
13675	CEDAR ELM	9
13680	CEDAR ELM	26
13685	MESQUITE	9
13688	CEDAR ELM	14
13693	CEDAR ELM	15
14008	CEDAR ELM	13
14009	CEDAR ELM	9
14013	CEDAR ELM	9
14019	CEDAR	16
14020	CEDAR	11
14022	CEDAR ELM	8
14023	CEDAR ELM	9
14024	CEDAR ELM	10
14026	CEDAR ELM	9
14029	CEDAR ELM	8
14036	CEDAR ELM	31
14038	CEDAR ELM	8
14039	CEDAR ELM	9
14042	CEDAR ELM	8
14043	CEDAR ELM	9
14048	CEDAR ELM	15
14051	CEDAR ELM	8
14053	CEDAR ELM	10
14056	CEDAR ELM	8
14067	CEDAR ELM	22
14068	CEDAR ELM	16
14069	CEDAR ELM	14
14070	CEDAR ELM	9
14071	CEDAR ELM	9
14072	CEDAR ELM	11
14073	CEDAR ELM	12
14084	CEDAR ELM	8
14085	CEDAR ELM	9
14091	CEDAR ELM	25
14100	CHINABERRY	9
14104	CEDAR ELM	10
14124	CEDAR ELM	10
14128	CEDAR ELM	9
14129	CEDAR ELM	8
14131	CEDAR ELM	9

Tag #	Species	Diameter(in)
14132	CEDAR ELM	10
14133	CEDAR ELM	11
14135	CEDAR ELM	15
14136	CEDAR	14
14137	CEDAR	9
14149	CEDAR ELM	16
14150	CEDAR ELM	14
14151	CEDAR ELM	10
14157	CEDAR ELM	18
14158	CEDAR ELM	15
14159	CEDAR ELM	14
14160	CEDAR ELM	9
14162	CEDAR	12
14163	CEDAR ELM	15
14164	CEDAR ELM	9
14165	CEDAR ELM	9
14166	CEDAR ELM	9
14167	CEDAR ELM	13
14168	CEDAR ELM	10
14169	CEDAR ELM	10
14171	CEDAR ELM	10
14183	CEDAR ELM	8
14186	MESQUITE	20
14187	MESQUITE	9
14188	HACKBERRY	12
14189	CEDAR ELM	14
14190	HACKBERRY	10
14191	CEDAR ELM	13
14194	HACKBERRY	11
14196	CEDAR ELM	17
14197	CEDAR ELM	17
14198	CEDAR ELM	21
14199	CEDAR ELM	17
14201	CEDAR	13
14204	CEDAR ELM	9
14205	CEDAR ELM	12
14259	CEDAR ELM	21
14260	CEDAR ELM	12
14261	CEDAR ELM	16
14262	CEDAR ELM	19
14263	CEDAR ELM	14
14264	CEDAR ELM	19
14265	CEDAR ELM	16
14266	CEDAR ELM	12
14267	CEDAR ELM	16
14268	CEDAR ELM	12
14269	CEDAR ELM	8
14272	CEDAR ELM	8
14277	CEDAR ELM	12
14282	CEDAR ELM	9
14288	CEDAR ELM	17
14289	BOIS D'ARC	16
14290	CEDAR ELM	12
14291	CEDAR ELM	8
14292	BOIS D'ARC	28
14293	BOIS D'ARC	13
14297	CEDAR ELM	11
14307	CEDAR ELM	13
14308	CEDAR ELM	9
14312	CEDAR ELM	19
14315	HACKBERRY	9
14316	CEDAR ELM	11
14317	CEDAR ELM	11
14318	CEDAR ELM	10
14319	CEDAR ELM	9
14320	CEDAR	10
14321	CEDAR ELM	10
14322	CEDAR ELM	15
14323	CEDAR	18
14324	CEDAR ELM	10
14325	HACKBERRY	13
14329	CEDAR ELM	12
14331	CEDAR ELM	9
14333	CEDAR ELM	8
14341	CEDAR ELM	9
14488	CEDAR ELM	14
14491	CEDAR ELM	13
14492	CEDAR	13
14493	CEDAR ELM	10
14494	CEDAR ELM	12

Tag #	Species	Diameter(in)
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14496	CEDAR	14
14500	CEDAR ELM	10
14503	CEDAR ELM	11
14511	CEDAR ELM	8
14518	CEDAR ELM	9
14525	CEDAR	15
14526	CEDAR ELM	10
14527	CEDAR ELM	14
14537	HACKBERRY	9
14541	CEDAR ELM	9
14543	CEDAR ELM	12
14544	CEDAR	10
14548	CEDAR ELM	17
14551	CEDAR ELM	9
14553	CEDAR ELM	9
14555	CEDAR ELM	10
14569	CEDAR	14
14596	CEDAR ELM	9
14604	CEDAR ELM	9
14606	CEDAR ELM	14
15207	CEDAR ELM	13
15209	CEDAR ELM	9
15210	CEDAR ELM	13
15211	CEDAR ELM	9
15214	CEDAR ELM	9
15217	CEDAR ELM	13
15219	CEDAR ELM	14
15220	CEDAR ELM	16
15221	CEDAR ELM	11
15222	CEDAR ELM	13
15223	CEDAR ELM	11
15227	CEDAR ELM	20
15230	CEDAR ELM	9
15231	CEDAR ELM	12
15232	CEDAR ELM	11
15240	CEDAR ELM	9
15246	CEDAR ELM	15
15247	CEDAR ELM	15
15250	CEDAR ELM	9
15251	CEDAR ELM	10
15252	CEDAR ELM	9
15256	CEDAR ELM	20
15257	CEDAR ELM	9
15258	CEDAR ELM	10
15259	CEDAR ELM	15
15260	CEDAR ELM	14
15261	CEDAR ELM	20
15265	CEDAR ELM	17
15271	CEDAR ELM	13
15296	CEDAR ELM	9
15302	CEDAR ELM	15
15334	CEDAR ELM	9
16567	CEDAR ELM	8
16568	CEDAR ELM	10
16569	CEDAR ELM	9
16570	CEDAR ELM	9
16571	CEDAR ELM	15
16572	CEDAR ELM	9
16573	CEDAR ELM	9
16574	CEDAR ELM	17
16575	CEDAR ELM	10
16576	CEDAR ELM	9
16577	CEDAR ELM	8
16578	CEDAR ELM	9
16579	CEDAR ELM	9
16580	CEDAR ELM	10
16581	CEDAR ELM	11
16582	CEDAR ELM	8
16583	CEDAR ELM	8
16584	CEDAR ELM	8
16585	CEDAR ELM	11
16586	CEDAR ELM	8
16587	CEDAR ELM	11
16588	CEDAR ELM	8
16589	CEDAR ELM	10
16590	CEDAR ELM	11
16591	CEDAR ELM	18
16592	CEDAR ELM	9
16593	CEDAR ELM	10

Tag #	Species	Diameter(in)
16610	CEDAR ELM	22
16611	CEDAR ELM	15
16612	CEDAR ELM	10
16613	CEDAR ELM	16
16614	CEDAR ELM	12
16615	CEDAR ELM	14
16616	CEDAR ELM	13
16617	CEDAR ELM	13
16618	CEDAR ELM	9
16619	CEDAR ELM	8
16620	CEDAR ELM	13
16621	CEDAR ELM	14
16622	CEDAR ELM	10
16623	CEDAR ELM	9
16627	CEDAR	14
16628	HACKBERRY	9
16629	HACKBERRY	9
16630	CEDAR ELM	11
16631	CEDAR ELM	11
16632	CEDAR ELM	15
16633	CEDAR ELM	13
16634	CEDAR ELM	10
16635	CEDAR ELM	12
16636	CEDAR ELM	9
16637	CEDAR ELM	8
16638	CEDAR ELM	15
16639	CEDAR ELM	10
16640	CEDAR ELM	11
16641	CEDAR ELM	13
16642	CEDAR ELM	21
16643	CEDAR ELM	9
16644	CEDAR ELM	22
16645	CEDAR ELM	11
16646	CEDAR ELM	9
16647	CEDAR ELM	28
16648	CEDAR ELM	9
16649	CEDAR ELM	15
16650	CEDAR ELM	15
16651	CEDAR ELM	8
16652	CEDAR ELM	10
16653	CEDAR ELM	11
16654	CEDAR ELM	10
16655	CEDAR ELM	9
16656	CEDAR ELM	9
16657	CEDAR ELM	12
16658	CEDAR ELM	11
16659	CEDAR ELM	9
16660	CEDAR ELM	11
16661	CEDAR ELM	20
16662	CEDAR ELM	14
16663	CEDAR ELM	15
19294	CEDAR ELM	11
19345	CEDAR ELM	14
19369	CEDAR ELM	14
19370	CEDAR ELM	8
19371	CEDAR ELM	9
19372	CEDAR ELM	13
19373	CEDAR ELM	12
19374	CEDAR ELM	13
19375	CEDAR ELM	11
19376	CEDAR ELM	9
19377	CEDAR ELM	29
19378	CEDAR ELM	16
19379	CEDAR ELM	9
19380	CEDAR ELM	12
19381	CEDAR ELM	13
19382	CEDAR ELM	13
19383	CEDAR ELM	12
19384	CEDAR ELM	11
19385	CEDAR	9
19386	CEDAR ELM	12
19387	CEDAR ELM	10
19388	CEDAR ELM	14
19599	CEDAR ELM	8
19627	CEDAR ELM	9
19628	MESQUITE	14
19654	CEDAR ELM	9
19655	CEDAR ELM	13
19656	CEDAR ELM	9
19678	CEDAR ELM	8

PRELIMINARY SUBDIVISION APPROVAL SHEET \_\_\_ OF \_\_\_  
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 APPROVED BY COMMISSION ON \_\_\_\_\_, 2022.  
 EXPIRATION DATE (LDC 25-4-62) \_\_\_\_\_  
 CASE MANAGER: \_\_\_\_\_  
 Denise Lucas, Director, Development Services Department  
*Final plat must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.*

**BENCHMARKS**  
 DATUM IS NAVD '88, USING GEOID 12A, BASED ON GPS OBSERVATIONS.  
 BM #101 \*X" CUT ON THE HIGH TRANSMISSION POWER POLE BASE. ELEV = 554.100'  
 BM #27 \*X" CUT ON HIGH TRANSMISSION POWER POLE BASE. ELEV = 640.400'

KHA PROJECT 069244531  
 DATE FEBRUARY 2022  
 SCALE: AS SHOWN  
 DESIGNED BY: JMW  
 DRAWN BY: MCC  
 CHECKED BY: KJB

03/01/2022

REVISIONS  
 No. DATE BY

## EXHIBIT H - TREE INFORMATION (SHEET 2 OF 2)

# THE PINNACLE AT WILDHORSE RANCH

CITY OF AUSTIN  
TRAVIS COUNTY, TEXAS

SHEET NUMBER

# EX

