



ITEM FOR ENVIRONMENTAL COMMISSION AGENDA

COMMISSION MEETING DATE: February 15, 2023

NAME & NUMBER OF PROJECT: Velocity Channel Improvements
SP-2021-0153D

NAME OF APPLICANT OR ORGANIZATION: Justin J. Kramer
Kimley-Horn

LOCATION: 3875 ½ S FM 973 Rd, Austin, TX 78617

COUNCIL DISTRICT: District 2

ENVIRONMENTAL REVIEW STAFF: Miranda Reinhard, Environmental Scientist Senior
Watershed Protection Department
512-978-1537, miranda.reinhard@austintexas.gov

WATERSHED: Onion Creek Watershed
Suburban Classification
Desired Development Zone

REQUEST: Variance request is as follows:
Request to vary from LDC 25-8-261(G) to allow floodplain modification for development within the Critical Water Quality Zone (CWQZ).

**STAFF
RECOMMENDATION:**

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

STAFF CONDITION:

Staff recommends the following conditions:

1. The applicant will pay \$2,448,704.81 into the Riparian Zone Mitigation Fund for both the area of Zone 1 (Floodplain outside of the CWQZ) and the area of Zone 2/3 (Floodplain within the CWQZ) using the appropriate ratios per ECM 1.7.6.
2. Improvements of the channel will be carried out as shown on Plan Set, attached in the staff variance packet.
3. The following enhancements will be completed in accordance with the site plan sheet (Enhanced Elements Plan EX-P), attached in the staff variance packet:
 - a. Meet water quality requirements for the site using biofiltration ponds with native plantings
 - b. 24.80 acres of native 609S planting and seeding in excess of the required native riparian restoration will be provided as shown in site plan sheet (Enhanced Elements Plan EX-P) and will remain until future site development permits are approved for either future private development or parkland improvements. Established native restoration areas will be preserved to extent practicable in future development phases.
 - c. Provide rainwater harvesting cisterns to capture ½ inch of rainwater off the rooftops of all proposed buildings (with the exception of carports and/or park shelters/picnic table covers unattached to other proposed buildings) for future development within the green area of enhancement shown on the site plan sheet (Enhanced Elements Plan EX-P) Rainwater harvesting will be utilized to provide on-site landscape irrigation.



Watershed Protection Department
Staff Recommendations Concerning Required Findings

Project Name:	Velocity Channel Improvements SP-2021-0153D
Ordinance Standard:	Watershed Protection Ordinance (current code)
Variance Request:	Request to vary from LDC 25-8-261(G) to allow floodplain modification for development within the Critical Water Quality Zone (CWQZ).

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 The creek was illegally modified prior to the approval of this site plan and the proposed floodplain modifications within the Critical Water Quality Zone, including the active channel, are necessary to ensure that the creek will not only be restored, but be improved beyond the previous degraded conditions. While this situation is unprecedented, had the applicant sought approval of a variance prior to the work would have resulted in a similar restoration plan with improvements to the active channel to prevent further downcutting, a vegetated bench to help improve riparian habitat, and native plantings throughout the Critical Water Quality Zone. The proposed work will provide higher environmental protection than attempting to return the channel to its undeveloped condition.

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 project proposes new development within and modification of the floodplain and CWQZ to mitigate unpermitted development. The proposed modifications could have otherwise been avoided by leaving the floodplain and CWQZ undeveloped/unimpacted; however, the resulting creek channel will be superior to what was present prior to disturbance

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

Yes The Land Development Code does allow floodplain modifications outside of the Critical Water Quality Zone for floodplains scoring fair or poor on the Functional Assessment of Floodplain Health if done in conjunction with improvements within the Critical Water Quality Zone or payment into the Riparian Zone Mitigation Fund. The applicant is proposing 12.97 acres of restoration on site and 63.31 acres of mitigation by payment of \$2,448,704.81 into the Riparian Zone Mitigation Fund as allowed by the Environmental Criteria Manual.

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

Yes Any impacts during construction of the unpermitted modifications have already occurred. The completed project utilizes a more stable and well-vegetated channel design than either the current or pre-development condition.

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 project must meet current code with regards to impervious cover and water quality requirements. The improvements for the channel will provide better water quality than without the variance. By providing the several channel improvement measures, the channel will be improved to a more natural state, runoff velocities will be reduced (minimizing erosion) and infiltration will be increased. These will all positively impact water quality over both the current and pre-development condition.

- 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;

Yes The criteria in Subsection (A) have not been met.

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

Yes The requirement does prevent the applicant from a reasonable, economic use of the entire property.

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

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

Staff Determination: Staff recommends this variance, having determined the findings of fact to have been met. Staff recommends the following conditions:

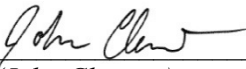
1. The applicant will pay \$2,448,704.81 into the Riparian Zone Mitigation Fund for both the area of Zone 1 (Floodplain outside of the CWQZ) and the area of Zone 2/3 (Floodplain within the CWQZ) using the appropriate ratios per ECM 1.7.6.
2. Improvements of the channel will be carried out as shown on Plan Set, attached in the staff variance packet.
3. The following enhancements will be completed in accordance with the site plan sheet (Enhanced Elements Plan EX-P), attached in the staff variance packet:
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 - b. 24.80 acres of native 609S planting and seeding in excess of the required native riparian restoration will be provided as shown in site plan sheet (Enhanced Elements Plan EX-P) and will remain until future site development permits are approved for either future private development or parkland improvements. Established native restoration areas will be preserved to extent practicable in future development phases.
 - c. Provide rainwater harvesting cisterns to capture ½ inch of rainwater off the rooftops of all proposed buildings (with the exception of carports and/or park shelters/picnic table covers unattached to other proposed buildings) for future development within the green area of enhancement shown on the site plan sheet (Enhanced Elements Plan EX-P). Rainwater harvesting will be utilized to provide on-site landscape irrigation.

Wetland Biologist
Reviewer (WPD)


(Miranda Reinhard)


Date: 1/17/23

Environmental
Conservation Program
Manager (WPD)


(John Clement)

Date: 1/17/23

Deputy Environmental
Officer (WPD)


(Liz Johnston)

Date: 1/17/23

OPTION 1 WORKSHEET
CALCULATION FOR PAYMENT INTO THE RIPARIAN ZONE MITIGATION FUND

A. OWNER/AGENT INFORMATION:

Name: Mark G. Bulmash
Company: VC Holdings QOZ, LP a Texas Limited Partnership
Telephone: 512-494-4224 Fax: _____

B. PROJECT INFORMATION:

Name: Velocity Channel Improvements
Location or Address: 3725 1/2 S FM 973 RD
Permit Number: SP-2021-0153D
Case Manager: Rosemary Avila

C. MITIGATION REQUIRED

Area Modified within the 100-Year Floodplain: Zone 1: 19.54
Zone 2/3: 9.30 (ac.)
Area Disturbed by a Parallel Utility within the CWQZ: 0 (ac.)

Ratio Applied (circle): 1:1 2:1 3:1 4:1 6:1 8:1

The ratio for an area modified within the 100-Year Floodplain is determined by ECM 1.7.6. The ratio is 1:1 for a parallel utility within the CWQZ. Multiply the acres modified or disturbed by the ratio to determine the mitigation required.

Zone 1: 39.08
Zone 2/3: 37.20
Mitigation Required: TOTAL: 76.28 (ac.)

D. PAYMENT CALCULATION:

Zone 1: 1.13
Zone 2/3: 11.84
Mitigation Land Provided by Applicant: TOTAL: 12.97 (ac.)

Mitigation land provided by the applicant must be approved by the Director of the Watershed Protection Department and the Proposed Land Manager (Option 2 Worksheet). A project disturbing the CWQZ with a parallel utility does not have the option to provide mitigation land.

Mitigation by Payment (ac.) = Mitigation Required - Mitigation Land Provided by Applicant
Mitigation by Payment: 63.31 (ac.)

Base Fee: \$15,000 per acre
Annual Adjustment Factor: 7% beginning October 1, 2008

Adjusted Fee: \$ 38,678.01
Total Fee: Mitigation by Payment (ac.) x Adjusted Fee = \$ 2,448,704.81

E. AUTHORIZATION:

Owner/Agent: Mark G. Bulmash
Reviewed by: Miranda Reinhard
For the Director of the Planning and Development Review Department



August 5, 2022

City of Austin
505 Barton Springs Road, 12th Floor
Austin, TX 78704

**RE: *Environmental Commission Floodplain Modification Variance Request
Velocity Channel Improvements (SP-2021-0153D)***

To Whom It May Concern:

On behalf of our client, VC Holdings QOZ, LP, Kimley-Horn is requesting a Floodplain Modification waiver from LDC 25-8-261G. The request is to allow floodplain modification within City of Austin Critical Water Quality Zone.

Per the attached Environmental Commission Variance Application Form Findings of Fact, this waiver is required to allow for the development on a tract of land bounded by SH-71 to the North, and SH 130 to the East and FM 973 to the West.

Decades (if not centuries) of farming on the property have leveled the subject development depriving it's natural characteristics, topology and environmental health condition. This leveling, over time, has changed the City of Austin Floodplain causing it to spread out. Had this human activity not occurred, the clay soils onsite would have permitted a naturally defined dry creek system, containing floodplain, created by storm / flooding events common to central Texas. This variance will provide a greater overall environmental benefit to the floodplain and critical water quality zone than is achievable without the variance. The proposed improvements, intended to create a more natural channel, include the following:

- Natural channel cross section with stream bank segments containing the varying storm events common to the area;
- Riffle pools inside the channel, slowing runoff velocity and minimizing erosion;
- Meandering inside channel, slowing runoff velocity and minimizing erosion;
- Shallower running grade to decrease velocity;
- Woody debris and saplings planted throughout;
- Varying cross-sectional side slopes (shallower on the inside of the meandering turns and steeper on the outside turns).

By providing the listed improvements, the existing poor condition channel will be improved to a good condition and have more natural characteristics. This has also been confirmed by a Zone 3 Functional Assessment of Floodplain Health prepared by ACI that is attached with this request.

Your favorable consideration of this request is appreciated. Should you require additional information, please contact me at (512) 418-1771 or justin.kramer@kimley-horn.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Justin K.", written over a light blue horizontal line.

Justin J. Kramer, P.E.



ENVIRONMENTAL COMMISSION VARIANCE APPLICATION FORM

PROJECT DESCRIPTION

Applicant Contact Information

Name of Applicant	Justin J. Kramer, P.E.
Street Address	10814 Jollyville Road, Building 4, Suite 200
City State ZIP Code	Austin, TX 78759
Work Phone	512-418-1771
E-Mail Address	Justin.Kramer@kimley-horn.com

Variance Case Information

Case Name	Velocity Channel Improvements
Case Number	SP-2021-0153D
Address or Location	3725 1/2 S FM 973 RD, Austin, TX 78617
Environmental Reviewer Name	Mel Fuechec
Environmental Resource Management Reviewer Name	Miranda Reinhard
Applicable Ordinance	25-8-261(G) and 25-8-41
Watershed Name	Onion 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	Onion Creek runs along south easter property line (+/-800').
Water and Waste Water service to be provided by	AWU
Request	The variance request is as follows: 25-8-261(G) Floodplain Modification

Impervious cover	Existing	Proposed
square footage:	<u>0</u>	<u>0</u>
acreage:	<u>0</u>	<u>0</u>
percentage:	<u>0%</u>	<u>0%</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>The existing site is undeveloped farmland.</p> <p>98.8% 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 468 to 412.</p> <p>The site has various trees species, mainly Oak, Elm, and Hackberry along the eastern portion of the property near Onion Creek.</p> <p>On-site soils consist of expansive clays, typically identified as Lewisville Silty Clay.</p> <p>Multiple Critical Water Quality Zones exist within the site. Fully developed 100-year and 500-year floodplains exist within the site. There are no CEF's present.</p>	

Clearly indicate in what way the proposed project does not comply with current Code (include maps and exhibits)	Per the attached exhibits, floodplain modification is proposed within COA CWQZ. Specifically, topography/grade changes ranging from 5.2' cut to 1.8' fill.
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FINDINGS OF FACT

As required in LDC Section 25-8-41, 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: Velocity Channel Improvements

Ordinance: 25-8-261(G) Floodplain modification

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 The current property owner was not aware of this situation when the property was purchased and the disturbance to existing City of Austin critical water quality zone was created by the prior owner. The current property owner has taken full responsibility to address this situation. The proposed remediation would clearly benefit the City, property, and environment by providing a better environmental condition for this area. If this condition had not been created, there could have been the opportunity to reclaim the floodplain without the variance. Therefore, we believe by denial of the variance, the City, property, and environment would not benefit and this could deprive the owner of a benefit that a similarly situated site could have.

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;

No, however additional improvements have been proposed to provide a greater environmental benefit. These improvements include rainwater harvesting via cisterns, additional 609s plantings, and biofiltration ponds as shown on the Enhanced Elements Plan on sheet 7.

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

Yes See response to A1 above.

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

Yes The Velocity Channel Improvements does not create harmful environmental consequences, rather the contrary. The proposed improvements will take the existing channel that was in poor condition and will bring this floodplain area to a good condition, which provides an environmental benefit.

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 Velocity Channel Improvements will result in better quality than existing conditions. By providing the measures listed below, the channel will be improved to a more natural state, the runoff velocity will be reduced (minimizing erosion) and improve water quality.

- Natural channel cross section with stream bank segments containing the varying storm events common to the area;
- Riffle pools inside the channel, slowing runoff velocity and minimizing erosion;
- Meandering inside channel, slowing runoff velocity and minimizing erosion;
- Shallower running grade to decrease velocity;
- Woody debris and saplings planted throughout;
- Varying cross-sectional side slopes (shallower on the inside of the meandering turns and steeper on the outside turns).

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;

No See above
2. The requirement for which a variance is requested prevents a reasonable, economic use of the entire property;

Yes By not completing these improvements, approximately 18.5 acres of developable land is lost.
3. The variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property.

No

**Variance approval requires all above affirmative findings.

Exhibits for Commission Variance

- Enhanced Elements Plan
- Aerial photos of the site
- Site photos
- Aerial photos of the vicinity
- Context Map—A map illustrating the subject property in relation to developments in the vicinity to include nearby major streets and waterways
- Topographic Map - A topographic map is recommended if a significant grade change on the subject site exists or if there is a significant difference in grade in relation to adjacent properties.
- For cut/fill variances, a plan sheet showing areas and depth of cut/fill with topographic elevations.
- Site plan showing existing conditions if development exists currently on the property
- Proposed Site Plan- full size electronic or at least legible 11x17 showing proposed development, include tree survey if required as part of site or subdivision plan
- Environmental Map – A map that shows pertinent features including Floodplain, CWQZ, WQTZ, CEFs, Setbacks, Recharge Zone, etc.
- An Environmental Resource Inventory pursuant to ECM 1.3.0 ([if required by 25-8-121](#))
- Applicant's variance request letter

Plotted By: Lutiz, Nick Date: January 08, 2023 03:16:04pm File Path: K:\AUS_Civil\069243907 - Velocity Crossing Preliminary Plan Working Folder - Site Plan D\Cad\PlanSheets\Variorance - Enhanced Elements Plan.dwg

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



ADDITIONAL NATIVE 609S PLANTING AND SEEDING AREA TOTALS:	
<div></div>	TEMPORARY/FUTURE PRIVATE DEVELOPMENT: 17.62 ACRES
<div></div>	PERMANENT/FUTURE PARKLAND IMPROVEMENTS: 7.18 ACRES
TOTAL: 24.80 ACRES	

LEGEND	
<div></div>	PROPERTY LINE
<div></div>	EX. EASEMENT LINE
<div></div>	EX. RIGHT OF WAY LINE
<div></div>	RIGHT OF WAY LINE
<div></div>	LOT LINE
<div></div>	EASEMENT LINE
<div></div>	PR. SIDEWALK
<div></div>	STREET CENTERLINE
<div></div>	FULLY DEVELOPED 100-YR FLOODPLAIN
<div></div>	FEMA FLOODPLAIN
<div></div>	CREEK CENTERLINE
<div></div>	LIMITS OF ADDITIONAL NATIVE 609S PLANTING AND SEEDING TO REMAIN UNTIL FUTURE SITE DEVELOPMENT PERMITS ARE APPROVED FOR FUTURE PRIVATE DEVELOPMENT.
<div></div>	LIMITS OF ADDITIONAL NATIVE 609S PLANTING AND SEEDING TO REMAIN UNTIL FUTURE SITE DEVELOPMENT PERMITS ARE APPROVED FOR PARKLAND IMPROVEMENTS. A PORTION OF THIS AREA IS COA DEDICATED PARKLAND.
<div></div>	BIOFILTRATION PONDS WITH NATIVE PLANTINGS
<div></div>	LIMITS OF ENHANCED ELEMENTS AREA

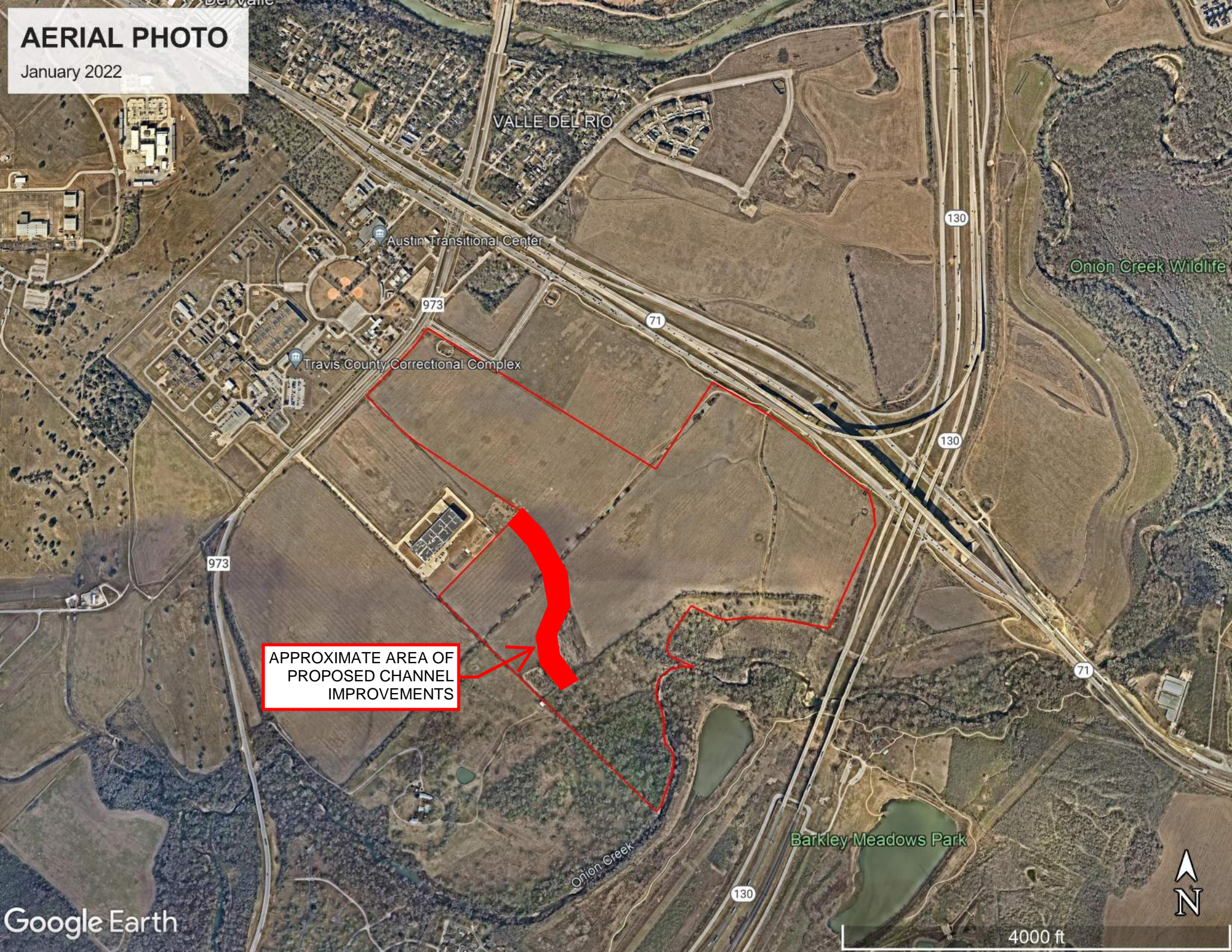
- NOTES**
1. RAINWATER HARVESTING CISTERNS TO CAPTURE 1/2 INCH OF RAINWATER OFF THE ROOFTOPS OF ALL PROPOSED BUILDINGS (WITH THE EXCEPTION OF CARPORTS AND/OR PARK SHELTERS/PICNIC TABLE COVERS UNATTACHED TO OTHER PROPOSED BUILDINGS) FOR FUTURE DEVELOPMENT. WITHIN THE GREEN AREA OF ENHANCEMENT ORIGINALLY PROPOSED FOR THE PRELIMINARY PLAN, PROPOSED RAINWATER HARVESTING WILL BE UTILIZED TO PROVIDE ON-SITE LANDSCAPE IRRIGATION.
 2. 609S PLANTING AND SEEDING TO BE PROVIDED WITHIN THE AREA SHOWN (COMPLETED AT TIME OF SITE PLAN D RESTORATION)
 3. BIOFILTRATION PONDS TO BE PROVIDED WITHIN ENHANCED AREA
 4. LIMITS OF ADDITIONAL NATIVE 609S PLANTINGS AND SEEDING AREAS/ESTABLISHED NATIVE RESTORATION AREAS WILL BE PRESERVED TO THE EXTENT PRACTICABLE IN FUTURE DEVELOPMENT PHASES.

BENCHMARKS	
BENCHMARKS:	
TBM #1	1/2" SET ON HEADWALL LOCATED 107.93' FROM THE NORTHERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =452.66 FEET (AS SHOWN)
TBM #3	1/2" SET ON HEADWALL LOCATED 1,107.52' FROM THE NORTHEASTERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =439.44 FEET (AS SHOWN)

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KHA PROJECT 069243907-D		DATE MAY 2022
SCALE: AS SHOWN		DESIGNED BY: NZL
DRAWN BY: GKM		CHECKED BY: JJK
VELOCITY CHANNEL IMPROVEMENTS		ENHANCED ELEMENTS PLAN
CITY OF AUSTIN TRAVIS COUNTY, TEXAS		SHEET NUMBER EX-P
REVISIONS		DATE BY
No.		

AERIAL PHOTO

January 2022



VALLE DEL RIO

Austin Transitional Center

Travis County Correctional Complex

Onion Creek Wildlife

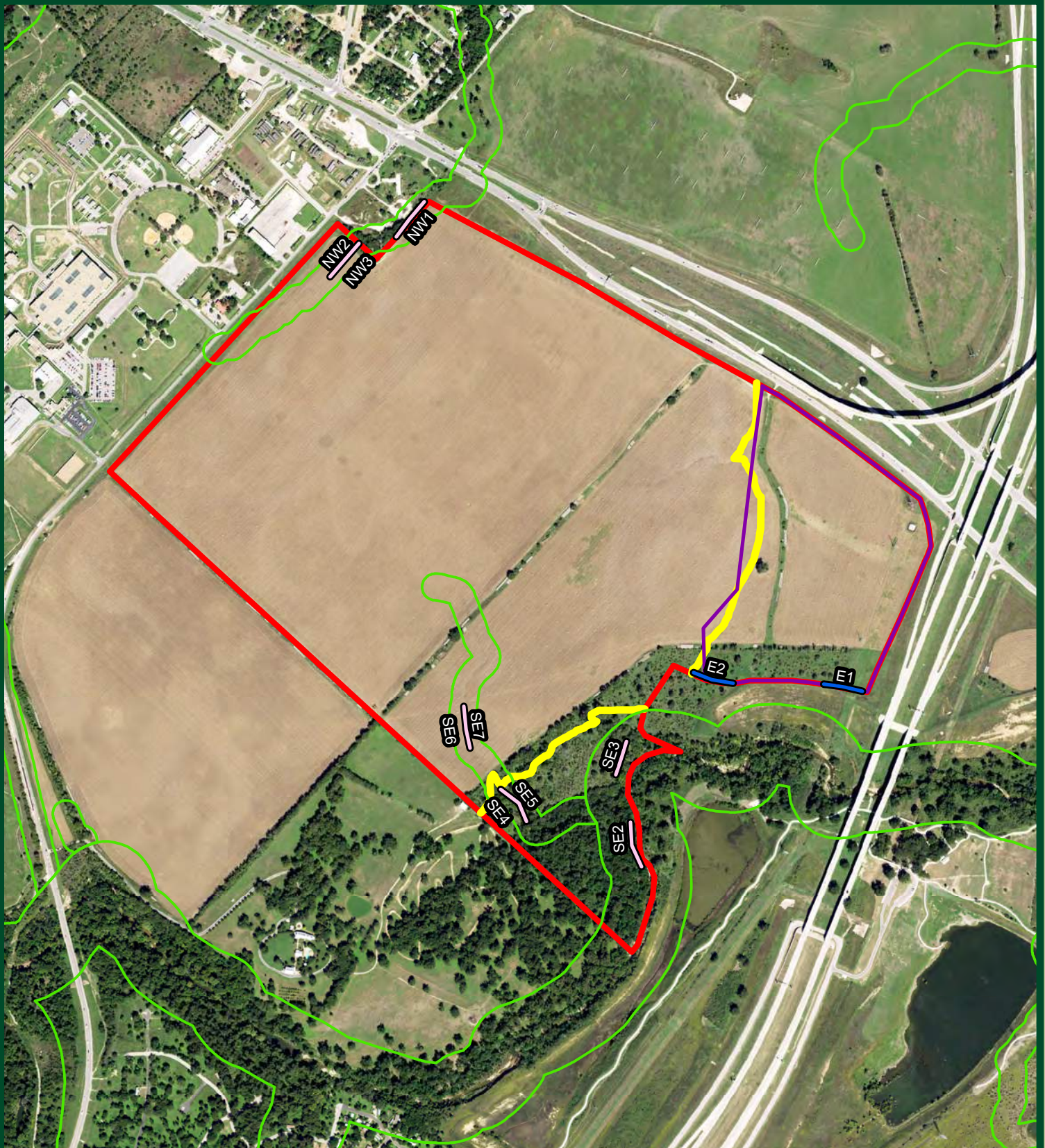
APPROXIMATE AREA OF
PROPOSED CHANNEL
IMPROVEMENTS

Barkley Meadows Park

Onion Creek



SITE PHOTOS



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



1,000 500 0 1,000
1:12,000 1 inch = 1,000 Feet
Feet

- Zone 1 Transect
- Zone 2 Transect
- Proposed Floodplain Reclamation
- Critical Water Quality Zone
- City of Austin Fully-developed Floodplain
- Subject Area



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 1

Direction North

Location Transect E1

Description Eastern Extent of Transect E1



Date Taken 4/16/2015 Photo # 2

Direction North

Location Transect E1

Description Central Portion of Transect E1



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 3

Direction
North

Location
Transect SE1

Description
Western Extent of Transect E1

Date & Time: Thu Apr 16 09:10:03 CDT 2015
Position: +030.19083° / -097.62821°
Altitude: 442ft
Azimuth/Bearing: 358° N02W 6364mils (Magnetic)
Elevation Angle: +00.3°
Horizon Angle: -00.2°
Zoom: 1X
003 n



Date Taken 4/16/2015 Photo # 4

Direction
North

Location
Transect E2

Description
Eastern Extent of Transect E2

Date & Time: Thu Apr 16 09:23:00 CDT 2015
Position: +030.19079° / -097.63032°
Altitude: 450ft
Azimuth/Bearing: 000° N00E 0000mils (Magnetic)
Elevation Angle: -00.2°
Horizon Angle: +00.3°
Zoom: 1X
004 n



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 5

Direction
West

Location
Transect E2

Description
Central Portion of Transect E2



Date Taken 4/16/2015
Photo # 6

Direction
North

Location
Transect E2

Description
Western Extent of Transect E2



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 7

Direction
West

Location
Transect SE2

Description
Southern Extent of Transect SE2

Date & Time: Thu Apr 16 10:41:55 CDT 2015
Position: +030.18707° / -097.69257°
Altitude: 422ft
Azimuth/Bearing: 272° N89W 4836mils (Magnetic)
Elevation Angle: +00.1°
Horizon Angle: -01.6°
Zoom: 1X
007 w



Date Taken 4/16/2015
Photo # 8

Direction
West

Location
Transect SE2

Description
Central Portion of Transect SE2

Date & Time: Thu Apr 16 10:57:09 CDT 2015
Position: +030.18750° / -097.63276°
Altitude: 420ft
Azimuth/Bearing: 270° S90W 4800mils (Magnetic)
Elevation Angle: -00.2°
Horizon Angle: +00.4°
Zoom: 1X
008 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 9

Direction
West

Location
Transect SE2

Description
Northern Extent of Transect SE2

Date & Time: Thu Apr 16 11:06:02 CDT 2015
Position: +030.18795 / -097.63281
Altitude: 413ft
Azimuth/Bearing: 270° S90W 4800mils (Magnetic)
Elevation Angle: +00.2°
Horizon Angle: -02.5°
Zoom: 1X
009 w



Date Taken 4/16/2015
Photo # 10

Direction
West

Location
Transect SE3

Description
Southern Extent of Transect SE3

Date & Time: Thu Apr 16 11:25:34 CDT 2015
Position: +030.18894° / -097.63311°
Altitude: 432ft
Azimuth/Bearing: 270° N90W 4800mils (Magnetic)
Elevation Angle: +00.1°
Horizon Angle: +01.9°
Zoom: 1X
010 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 11

Direction
West

Location
Transect SE3

Description
Central Portion of Transect SE3

Date & Time: Thu Apr 16 11:33:21 CDT 2015
Position: +030.18932° / -097.63298°
Altitude: 429ft
Azimuth/Bearing: 271° N89W 4810mils (Magnetic)
Elevation Angle: +00.1°
Horizon Angle: +00.5°
Zoom: 1X
011 w



Date Taken 4/16/2015
Photo # 12

Direction
South

Location
Transect SE3

Description
Northern Extent of Transect SE3

Date & Time: Thu Apr 16 11:42:54 CDT 2015
Position: +030.18952° / -097.63297°
Altitude: 430ft
Azimuth/Bearing: 180° S00E 3200mils (Magnetic)
Elevation Angle: -02.1°
Horizon Angle: +00.7°
Zoom: 1X
012 s



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 13

Direction
East

Location
Transect NW1

Description
Northern Extent of Transect NW1

Date & Time: Thu Apr 16 12:42:37 CDT 2015
Position: +030.20087° / -097.63737°
Altitude: 461ft
Azimuth/Bearing: 088° N88E 1564mils (Magnetic)
Elevation Angle: +00.1°
Horizon Angle: +00.5°
Zoom: 1X
013 e



Date Taken 4/16/2015 Photo # 14

Direction
East

Location
Transect NW1

Description
Central Portion of Transect NW1

Date & Time: Thu Apr 16 12:49:32 CDT 2015
Position: +030.20052° / -097.63774°
Altitude: 459ft
Azimuth/Bearing: 088° N88E 1564mils (Magnetic)
Elevation Angle: +00.2°
Horizon Angle: +00.8°
Zoom: 1X
014 e



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 15

Direction
South

Location
Transect NW1

Description
Southern Extent of Transect NW1

Date & Time: Thu Apr 16 12:52:14 CDT 2015
Position: +030.20016° / -097.63813°
Altitude: 464ft
Azimuth/Bearing: 181° S01W 3218mils (Magnetic)
Elevation Angle: +00.2°
Horizon Angle: +00.3°
Zoom: 1X
015 s



Date Taken 4/16/2015
Photo # 16

Direction
West

Location
Transect NW2

Description
Northern Extent of Transect NW2

Date & Time: Thu Apr 16 13:03:09 CDT 2015
Position: +030.20006° / -097.63897°
Altitude: 470ft
Azimuth/Bearing: 271° N88W 4818mils (Magnetic)
Elevation Angle: +00.0°
Horizon Angle: +00.5°
Zoom: 1X
016 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 17

Direction
West

Location
Transect NW2

Description
Central Portion of Transect NW2

Date & Time: Thu Apr 16 13:15:22 CDT 2015
Position: +030.19969° / -097.63936°
Altitude: 466ft
Azimuth/Bearing: 270° N90W 4800mils (Magnetic)
Elevation Angle: -00.4°
Horizon Angle: +00.3°
Zoom: 1X
017 w



Date Taken 4/16/2015
Photo # 18

Direction
West

Location
Transect NW2

Description
Southern Extent of Transect NW2

Date & Time: Thu Apr 16 13:17:09 CDT 2015
Position: +030.19936° / -097.63971°
Altitude: 467ft
Azimuth/Bearing: 272° N88W 4836mils (Magnetic)
Elevation Angle: -00.4°
Horizon Angle: +00.9°
Zoom: 1X
018 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015
Photo # 19

Direction
East

Location
Transect NW3

Description
Northern Extent of Transect NW3



Date Taken 4/16/2015
Photo # 20

Direction
East

Location
Transect NW3

Description
Central Portion of Transect NW3



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 21

Direction
East

Location
Transect NW3

Description
Southern Extent of Transect NW3

Date & Time: Thu Apr 16 13:17:03 CDT 2015
Position: +030.19935° / -097.63969°
Altitude: 466ft
Azimuth/Bearing: 090° N88E 1564mils (Magnetic)
Elevation Angle: -00.0°
Horizon Angle: +00.0°
Zoom: 1X
018 e



Date Taken 4/16/2015 Photo # 22

Direction
West

Location
Transect SE4

Description
Southern Extent of Transect SE4

Date & Time: Thu Apr 16 13:41:18 CDT 2015
Position: +030.18806° / -097.63529°
Altitude: 476ft
Azimuth/Bearing: 270° S90W 4800mils (Magnetic)
Elevation Angle: +00.4°
Horizon Angle: +01.4°
Zoom: 1X
019 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 23

Direction
West

Location
Transect SE4

Description
Central Portion of Transect SE4

Date & Time: Thu Apr 16 13:57:24 CDT 2015
Position: +030.18848° / -097.63549°
Altitude: 446ft
Azimuth/Bearing: 269° S89W 4782mils (Magnetic)
Elevation Angle: -00.5°
Horizon Angle: +00.8°
Zoom: 1X
020 w



Date Taken 4/16/2015 Photo # 24

Direction
West

Location
Transect SE4

Description
Northern Extent of Transect SE4

Date & Time: Thu Apr 16 14:05:09 CDT 2015
Position: +030.18872° / -097.63595°
Altitude: 450ft
Azimuth/Bearing: 270° S90W 4800mils (Magnetic)
Elevation Angle: -00.4°
Horizon Angle: +00.4°
Zoom: 1X
021 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 25

Direction
East

Location
Transect SE5

Description
Southern Extent of Transect SE5

Date & Time: Thu Apr 16 13:41:11 CDT 2015
Position: +030.18806° / -097.63527°
Altitude: 446ft
Azimuth/Bearing: 088° N88E 1564mils (Magnetic)
Elevation Angle: +00.2°
Horizon Angle: -01.3°
Zoom: 1X
019 e



Date Taken 4/16/2015 Photo # 26

Direction
East

Location
Transect SE5

Description
Central Portion of Transect SE5

Date & Time: Thu Apr 16 13:57:15 CDT 2015
Position: +030.18848° / -097.63548°
Altitude: 446ft
Azimuth/Bearing: 088° N88E 1564mils (Magnetic)
Elevation Angle: -01.8°
Horizon Angle: +00.2°
Zoom: 1X
020 e



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 27

Direction East

Location Transect SE5

Description Northern Extent of Transect SE5



Date Taken 4/16/2015 Photo # 28

Direction West

Location Transect SE6

Description Southern Extent of Transect SE6



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 29

Direction
West

Location
Transect SE6

Description
Central Portion of Transect SE6

Date & Time: Thu Apr 16 14:30:55 CDT 2015
Position: +030.19003° / -097.63669°
Altitude: 452ft
Azimuth/Bearing: 270° S80W 4800mils (Magnetic)
Elevation Angle: +01.0°
Horizon Angle: +01.3°
Zoom: 1X
023 w



Date Taken 4/16/2015 Photo # 30

Direction
West

Location
Transect SE6

Description
Northern Extent of Transect SE6

Date & Time: Thu Apr 16 14:34:57 CDT 2015
Position: +030.19047° / -097.63674°
Altitude: 450ft
Azimuth/Bearing: 268° S88W 4764mils (Magnetic)
Elevation Angle: +00.4°
Horizon Angle: +01.0°
Zoom: 1X
024 w



Functional Assessment of Floodplain Health

Date Taken 4/16/2015 Photo # 31

Direction
East

Location
Transect SE7

Description
Southern Extent of Transect SE7

Date & Time: Thu Apr 16 14:25:07 CDT 2015
Position: +030.18953° / -097.63657°
Altitude: 454ft
Azimuth/Bearing: 088° N88E 1564mils (Magnetic)
Elevation Angle: +00.5°
Horizon Angle: -00.4°
Zoom: 1X
022 e



Date Taken 4/16/2015 Photo # 32

Direction
East

Location
Transect SE7

Description
Central Portion of Transect SE7

Date & Time: Thu Apr 16 14:30:48 CDT 2015
Position: +030.19003° / -097.63669°
Altitude: 453ft
Azimuth/Bearing: 088° N88E 1564mils (Magnetic)
Elevation Angle: +00.6°
Horizon Angle: +00.6°
Zoom: 1X
023 e



Date Taken Photo #
4/16/2015 33

Direction
East

Location
Transect SE7

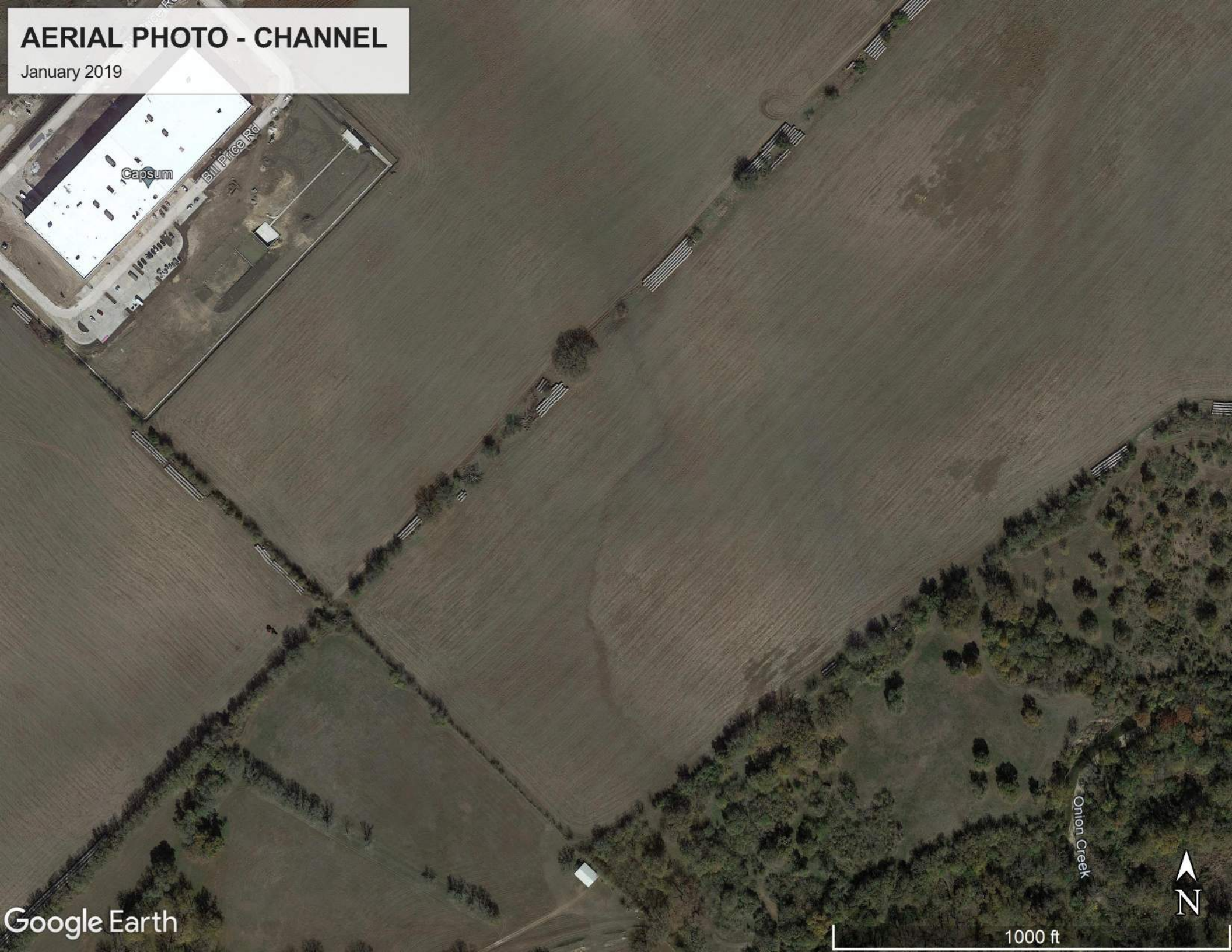
Description
Northern Extent of Transect SE7

Date & Time: Thu Apr 16 14:34:50 CDT 2015
Position: +030.19047° / -097.63674°
Altitude: 452ft
Azimuth/Bearing: 091° S89E 1610mils (Magnetic)
Elevation Angle: -00.5°
Horizon Angle: +00.7°
Zoom: 1X
024 e



AERIAL PHOTO - CHANNEL

January 2019



Capsun

Bill Price Rd

Onion Creek

Google Earth

1000 ft

N

CONTEXT MAP

JUNE 2021



AUSTIN BERGSTROM INTERNATIONAL AIRPORT

SUBJECT SITE

TESLA



2 mi

Plotted By: Lutz, Nick Date: May 04, 2022 12:53:47pm File Path: K:\AUS_Civil\069245907 - Velocity Crossing Preliminary Plan\Working Folder - Site Plan D\Coa\Exhibits\G-Existing Conditions Map.dwg

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BENCHMARKS

BENCHMARKS:

TBM #1
[Symbol] SET ON HEADWALL LOCATED 107.93' FROM THE NORTHERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =452.68 FEET (AS SHOWN)

TBM #3
[Symbol] SET ON HEADWALL LOCATED 1,107.52' FROM THE NORTHEASTERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =439.44 FEET (AS SHOWN)

SHEET NUMBER		VELOCITY CHANNEL IMPROVEMENTS CITY OF AUSTIN TRAVIS COUNTY, TEXAS		EXISTING CONDITIONS & ENVIRONMENTAL MAP		KHA PROJECT 069243907-D		DATE MAY 2022		SCALE: AS SHOWN DESIGNED BY: NZL DRAWN BY: GKM CHECKED BY: JJK		Kimley»»Horn		© 2021 KIMLEY-HORN AND ASSOCIATES, INC. 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		No.	REVISIONS	DATE	BY

[illegible]

Kimley»Horn

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10814 JOLLYVILLE ROAD, AUSTIN, TX 78759
PHONE: 512-418-1717 FAX: 512-418-1791
WWW.KIMLEY-HORN.COM TEXAS REGISTERED ENGINEERING FIRM E-928

8/10/2022

KHA PROJECT

069243907-D

DATE

MAY 2022

SCALE:

AS SHOWN

DESIGNED BY:

NZL

DRAWN BY:

GBM

CHECKED BY:

JUK

VELOCITY CHANNEL IMPROVEMENTS

CITY OF AUSTIN TRAVIS COUNTY, TEXAS

SHEET NUMBER2

GENERAL NOTES

APPROVED FOR CONSTRUCTION

JUSTIN J. KRAMER LICENSE # 122309 EXPIRATION DATE 12/31/2025

APPROVED FOR CONSTRUCTION

JUSTIN J. KRAMER LICENSE # 122309 EXPIRATION DATE 12/31/2025

APPENDIX P-2: TREE AND NATURAL AREA PROTECTION NOTES

FIRE DEPARTMENT NOTES

APPENDIX P-1: EROSION CONTROL NOTES

RELEASE NOTES

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF AUSTIN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

2. THE CONTRACTOR IS TO CONTACT ONE OF THE FOLLOWING:
NATIONAL "CALL BEFORE YOU DIG" 811
TEXAS EXCAVATION SAFETY SYSTEM (TESS) 1-800-248-3477
TEXAS ONE CALL SYSTEM (TOS) 1-800-245-4545
LONE STAR NOTIFICATION CENTER 1-800-669-8344
FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET R.O.W.

3. CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION (PW/T) AT 974-7161 AT LEAST 24 HOURS PRIOR TO INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET R.O.W. THE METHOD OF PLACEMENT AND DISTRIBUTION OF BACKFILL IN THE CITY'S R.O.W. MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.

4. FOR SLOPES OR TRENCHES GREATER THAN FIVE (5) FEET IN DEPTH, ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE, INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 611 EAST 6TH STREET, AUSTIN, TEXAS.)

5. ALL SITE WORK SHALL COMPLY WITH ENVIRONMENTAL REQUIREMENTS SET FORTH IN THE CITY OF AUSTIN LAND DEVELOPMENT CODE AND ENVIRONMENTAL CRITERIA MANUAL.

6. UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS AND PRIOR TO RELEASE OF THE CERTIFICATE OF OCCUPANCY BY THE WATERSEDDITION AND DEVELOPMENT REVIEW DEPARTMENT, THE ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DRAINAGE, FILTRATION, AND DETENTION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.

7. ALL CONSTRUCTION SHALL COMPLY WITH THE "CITY OF AUSTIN STANDARD SPECIFICATIONS," AS AMENDED BY SPECIAL PROVISION CURRENT AT THE TIME OF BIDDING.

8. CONTRACTOR TO TAKE ALL DUE PRECAUTIONS TO PROTECT EXISTING FACILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF THESE CONSTRUCTION OPERATIONS TO BE REPAIRED IMMEDIATELY BY THE CONTRACTOR, AT NO ADDITIONAL COST TO OWNER.

9. CONTRACTOR TO GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR TO MAKE CERTAIN THAT ALL CONSTRUCTION PERMITS THAT CAN ONLY BE ISSUED TO THE CONTRACTOR HAVE BEEN OBTAINED BY THE CONTRACTOR AT ITS EXPENSE PRIOR TO COMMENCEMENT OF WORK.

11. CONTRACTOR TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS REGARDING EXCESS AND WASTE MATERIAL, INCLUDING METHODS OF HANDLING AND DISPOSAL.

12. CONTRACTOR TO COORDINATE INTERRUPTIONS OF ALL UTILITIES AND SERVICES. ALL WORK TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY COMPANY OR AGENCY INVOLVED.

13. LOCATION OF EXISTING UTILITIES SHOWN ON PLANS WAS COMPILED FROM RECORD INFORMATION. NO WARRANTY IS MADE AS TO THE CORRECT LOCATION OF EXISTING UTILITIES.

14. WHEN UNLOCATED OR INCORRECTLY LOCATED UNDERGROUND PIPING, OR A BREAK LOCATED IN THE LINE, OR OTHER UTILITIES AND SERVICES ARE ENCOUNTERED DURING SITE WORK OPERATIONS, NOTIFY THE APPLICABLE UTILITY COMPANY IMMEDIATELY TO OBTAIN PROCEDURE DIRECTIONS. COOPERATE WITH THE APPLICABLE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.

15. CONTRACTOR TO LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, CONTROL POINTS, AND PROJECT ENGINEERING REFERENCE POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO OWNER.

16. CONTRACTOR TO CONTROL DUST CAUSED BY THE WORK AND COMPLY WITH POLLUTION CONTROL REGULATIONS OF GOVERNING AUTHORITIES (NO SEPARATE PRY).

17. THROUGHOUT THE CONSTRUCTION, AND AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR TO ENSURE THAT DRAINAGE OF STORM WATER RUNOFF IS NOT BLOCKED.

18. THESE PLANS, PREPARED BY KIMLEY-HORN & ASSOCIATES, DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. *THE APPLICABLE SAFETY SYSTEMS, INCLUDING THE PLANS AND SPECIFICATIONS REQUIRED BY HOUSE BILLS 662 AND 665 ENACTED BY THE TEXAS LEGISLATURE IN THE 70TH LEGISLATURE - REGULAR SESSION.

19. TRAFFIC CONTROLS TO BE CONTRACTOR'S RESPONSIBILITY AND INSTALLED IN ACCORDANCE WITH THE "CITY OF AUSTIN MANUAL OF UNIFORM CONSTRUCTION BARRICADE STANDARDS," OCTOBER 1989. ADDITIONALLY, THE CONTRACTOR IS TO SCHEDULE THE WORK AND TRAFFIC CONTROLS TO ACHIEVE THE FOLLOWING TRAFFIC GUIDELINES:

PARKING LOTS:
MINIMUM OF ONE ACCESS POINT TO PARKING LOTS TO REMAIN OPEN AT ALL TIMES.

20. CONTRACTOR TO EXERCISE CAUTION DURING CONSTRUCTION NEAR AND AROUND GAS LINES. NOTIFY GAS COMPANY 24 HOURS PRIOR TO CONSTRUCTION.

21. NO BLASTING WITHIN 15 FEET OF EXISTING UTILITIES OR STRUCTURES. IF BLASTING IS TO BE USED BY THE CONTRACTOR, A BLASTING PERMIT MUST BE SECURED PRIOR TO COMMENCEMENT OF WORK. BLASTING TO BE IN ACCORDANCE WITH "CITY OF AUSTIN STANDARD SPECIFICATIONS" AND CRITERIA OF THE NATIONAL FIRE PROTECTION ASSOCIATION.

22. BURNING IS NOT ALLOWED ON THIS PROJECT.

23. CONTRACTOR TO INSTALL 1/2-INCH DIAMETER BY 12-INCH LONG REBAR VERTICALLY, WITH TWO (2) FEET OF SURVEYOR'S RIBBON ATTACHED, AT END OF ALL PIPE STUDS. TOP OF BAR TO BE NOT LESS THAN 12 INCHES BELOW THE FINISHED GRADE.
A. BLUE RIBBON - WATER LINE D. ORANGE RIBBON - TELECOM DUCT BANK
B. GREEN RIBBON - WASTEWATER LINE E. RED RIBBON - ELECTRICAL DUCT BANK
C. YELLOW RIBBON - GAS LINE

24. MAKE CONNECTION BETWEEN NEW AND EXISTING ASPHALT STREETS BY REMOVING EXISTING STREET FROM END BACK UNTIL FULL DEPTH BASE AND HMAC ARE ENCOUNTERED AND HMAC APPEARS TO BE IN SOUND CONDITION. PROVIDE EXPANSION JOINT AND COWLS WHERE CONNECTING EXISTING CURB TO NEW.

25. A CURB LAYDOWN IS REQUIRED AT ALL POINTS WHERE THE PROPOSED SIDEWALK INTERSECTS THE CURB.

26. UNLESS OCCURRING AT AN EXPANSION JOINT, MAKE CONNECTION BETWEEN NEW AND EXISTING SIDEWALK BY EXPOSING AND CLEANING A ONE-FOOT LENGTH OF WELDED WIRE REINFORCEMENT AND LAPPING NEW REINFORCEMENT ONTO THIS LENGTH.

27. CONCRETE FOR SITE WORK, OTHER THAN CONCRETE PAVEMENT AND STRUCTURES, TO BE CLASS "A" (6 BAGG, 3000 PSI @ 28-DAYS) AND ALL REINFORCING STEEL TO BE ASTM A615 60, UNLESS OTHERWISE NOTED. REFER TO GEOTECHNICAL REPORT AND ARCHITECTURAL DRAWINGS FOR PAVEMENT STRUCTURAL SPECIFICATIONS.

28. TREE SURVEY, CONTOURS, AND BENCHMARK INFORMATION SUPPLIED BY OTHER PARTY. LOCATION OF TREES AND ELEVATION OF NATURAL GROUND ON THE PROJECT SITE MAY VARY FROM WHAT IS DEPICTED ON THE PLAN SHEETS. KIMLEY-HORN & ASSOCIATES IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION REGARDING SURVEYS OR BENCHMARK LOCATIONS. BENCHMARKS ARE AS FOLLOWS:

29. DEMOLITION PERMITS (IF NEEDED) ARE TO BE OBTAINED BY THE CONTRACTOR AT THEIR EXPENSE.

30. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL INVESTIGATION REPORT FOR THIS SITE FOR SUBSURFACE INFORMATION REGARDING THIS PROJECT. AT ITS EXPENSE THE CONTRACTOR IS ENCOURAGED TO MAKE ADDITIONAL SUBSURFACE INVESTIGATIONS.

31. CONTRACTOR TO FIELD VERIFY LOCATION AND FLOWLINES OF EXISTING UTILITIES PRIOR TO INSTALLATION OF PROPOSED UTILITY. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

32. PUMPING OF STORMWATER FROM EXCAVATIONS IS PROHIBITED UNLESS THE STORMWATER IS DISCHARGED TO ENCOURAGE SHEET/OVERLAND FLOW. ADDITIONAL EROSION AND SEDIMENTATION CONTROLS MAY BE REQUIRED, AT NO ADDITIONAL COST TO THE OWNER.

33. UNLESS OTHERWISE NOTED, STORM SEWERS TO BE:
6"-15" SDR 35 PVC, 18" AND GREATER RCP ASTM-C76 CLASS III.

34. ALL WORK MUST STOP IF A VOID IN THE ROCK STRATUM IS DISCOVERED WHICH IS ONE SQUARE FOOT IN TOTAL AREA, BLOWS AIR FROM WITHIN THE SUBSTRATE, AND/OR CONSISTENTLY RECEIVES WATER DURING ANY RAIN EVENT. AT THIS TIME IT IS THE RESPONSIBILITY OF THE PROJECT MANAGER TO IMMEDIATELY CONTACT A CITY OF AUSTIN ENVIRONMENTAL INSPECTOR FOR FURTHER INVESTIGATION.

1. ALL TREES AND NATURAL AREAS SHOWN ON PLANS TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.

2. PROTECTIVE FENCES TO BE ERRECTED ACCORDING TO CITY OF AUSTIN "STANDARDS FOR TREE PROTECTION."

3. PROTECTIVE FENCES TO BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING), AND TO BE MAINTAINED THROUGHTOUT ALL PHASES OF THE CONSTRUCTION PROJECT.

4. EROSION AND SEDIMENTATION CONTROL BARRIERS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRILIPILES.

5. PROTECTIVE FENCES TO SURROUND THE TREE OR GROUP OF TREES, AND TO BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRILIPILE) OR, FOR DESIGNATED PROTECTED NATURAL AREAS, PROTECTIVE FENCES TO FOLLOW THE LIMIT OF CONSTRUCTION LINE. CONTRACTOR IS TO AVOID THE FOLLOWING:
A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS.
B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX (6) INCHES CUT OR FILL), OR TRENCHING NOT REVISED AND AUTHORIZED BY THE CITY ARBORIST.
C. WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT;
D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING, AND FIRES.

6. EXCEPTIONS TO INSTALLING FENCES AT TREE DRILIPILES MAY BE PERMITTED IN THE FOLLOWING CASES:
A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER STEP AT SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY TWO TO FOUR (2-4) FEET BEYOND THE AREA IN QUESTION.
B. WHERE PERMEABLE PAYING IS TO BE INSTALLED WITHIN A TREE'S DRILIPILE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING, SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZE ROOT DAMAGE).
C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW SIX TO TEN (6-10) FEET OF WORK SPACE BETWEEN THE FENCE AND THE BUILDING.
D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE OR OTHER SPECIAL REQUIREMENTS, CONTACT THE CITY ARBORIST AT 974-1976 TO DISCUSS ALTERNATIVES.

NOTE: FOR THE PROTECTION OF NATURAL AREAS, NO EXCEPTIONS TO INSTALLING FENCES AT THE LIMIT OF CONSTRUCTION LINE WILL BE PERMITTED.

7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER FIVE (5) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCE REGULATIONS, AND RESTRICTIONS WHICH MAY BE APPLICABLE TO THE PROPERTY AND ITS USE.

8. TREES APPROVED FOR REMOVAL TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.

9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.

10. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION TO BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.

11. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRILIPILE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.

12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT TO TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).

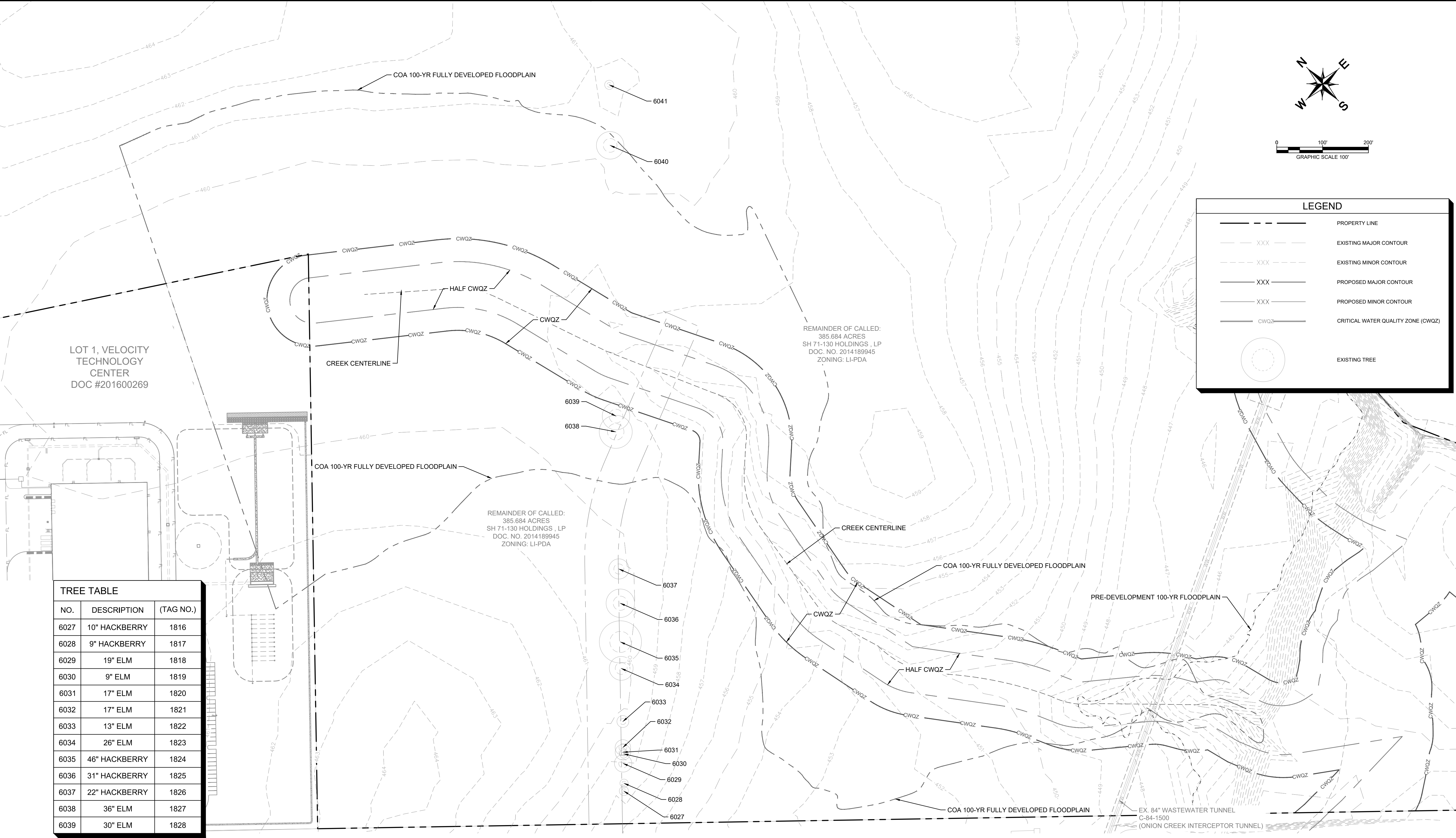
13. ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECO

Plotted By: lutz, Nick Date: August 10, 2022 06:17:02pm File Path: K:\AUS-Civil\069243907-Velocity_Crossing_Preliminary_Plant_Working_Edior-- Site Plan D-CurbPlanSheets\G-General_Notes.dwg
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VELOCITY CHANNEL IMPROVEMENTS		KIMLEY-HORN GENERAL NOTES		SHEET NUMBER	
CITY OF AUSTIN		TRAVIS COUNTY, TEXAS		3	
8/10/2022		DATE		8/10/2022	
RHA PROJECT		DATE		8/10/2022	
069243907-D		DATE		8/10/2022	
SCALE: AS SHOWN		DATE		8/10/2022	
DESIGNED BY: NZL		DATE		8/10/2022	
DRAWN BY: JJK		DATE		8/10/2022	
CHECKED BY: JJK		DATE		8/10/2022	
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CHECKED BY: JJK		DATE		8/10/2022	
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DRAWN BY: JJK		DATE		8/10/2022	
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TREE TABLE		
NO.	DESCRIPTION	(TAG NO.)
6027	10" HACKBERRY	1816
6028	9" HACKBERRY	1817
6029	19" ELM	1818
6030	9" ELM	1819
6031	17" ELM	1820
6032	17" ELM	1821
6033	13" ELM	1822
6034	26" ELM	1823
6035	46" HACKBERRY	1824
6036	31" HACKBERRY	1825
6037	22" HACKBERRY	1826
6038	36" ELM	1827
6039	30" ELM	1828

BENCHMARKS	
BENCHMARKS:	
TBM #1	12" SET ON HEADWALL LOCATED 107.93' FROM THE NORTHERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =452.68 FEET (AS SHOWN)
TBM #3	12" SET ON HEADWALL LOCATED 1,107.52' FROM THE NORTHEASTERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =439.44 FEET (AS SHOWN)

VELOCITY CHANNEL IMPROVEMENTS CITY OF AUSTIN TRAVIS COUNTY, TEXAS

SHEET NUMBER 4

EXISTING CONDITIONS

KHA PROJECT 069243907-D

DATE MAY 2022

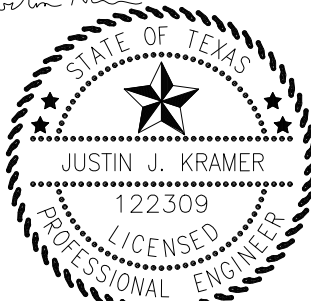
SCALE: AS SHOWN

DESIGNED BY: NZL

DRAWN BY: GKM

CHECKED BY: JJK

8/10/2022



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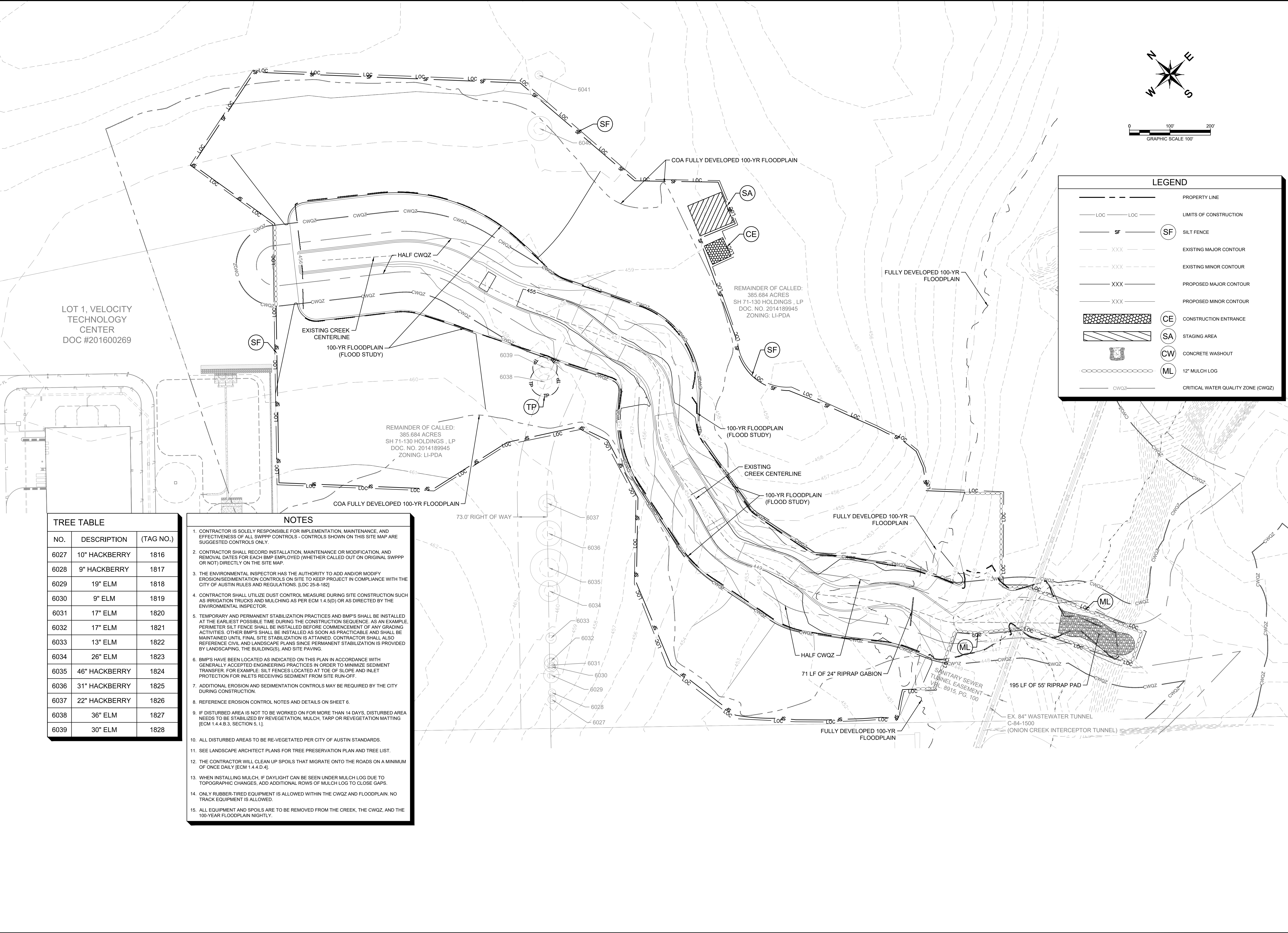
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No.	DATE	BY

SP-2021-0153D

Plotted By: Lutz, Nick Date: August 10, 2022 06:17:40pm File Path: K:\AUS-Civil\069243907 - Velocity_Crossing Preliminary Plan\Working Folder - Site Plan D\CoaPlanSheets\C-Erosion Control Plan.dwg

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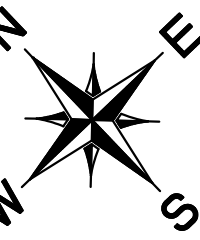


LOT 1, VELOCITY
TECHNOLOGY
CENTER
DOC #201600269

TREE TABLE		
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6038	36" ELM	1827
6039	30" ELM	1828

NOTES

1. CONTRACTOR IS SOLELY RESPONSIBLE FOR IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL SWPPP CONTROLS. CONTROLS SHOWN ON THIS SITE MAP ARE SUGGESTED CONTROLS ONLY.
2. CONTRACTOR SHALL RECORD INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL DATES FOR EACH BMP EMPLOYED (WHETHER CALLED OUT ON ORIGINAL SWPPP OR NOT) DIRECTLY ON THE SITE MAP.
3. THE 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 25-8-182]
4. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURE DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(D) OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
5. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AT THE EARLIEST POSSIBLE TIME DURING THE CONSTRUCTION SEQUENCE. AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED BEFORE COMMENCEMENT OF ANY GRADING ACTIVITIES. OTHER BMP'S SHALL BE INSTALLED AS SOON AS PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S), AND SITE PAVING.
6. BMP'S HAVE BEEN LOCATED AS INDICATED ON THIS PLAN IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER. FOR EXAMPLE: SILT FENCES LOCATED AT TOE OF SLOPE AND INLET PROTECTION FOR INLETS RECEIVING SEDIMENT FROM SITE RUN-OFF.
7. ADDITIONAL EROSION AND SEDIMENTATION CONTROLS MAY BE REQUIRED BY THE CITY DURING CONSTRUCTION.
8. REFERENCE EROSION CONTROL NOTES AND DETAILS ON SHEET 6.
9. 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.3, SECTION 5.1].
10. ALL DISTURBED AREAS TO BE RE-VEGETATED PER CITY OF AUSTIN STANDARDS.
11. SEE LANDSCAPE ARCHITECT PLANS FOR TREE PRESERVATION PLAN AND TREE LIST.
12. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS ON A MINIMUM OF ONCE DAILY [ECM 1.4.4.D.4].
13. WHEN INSTALLING MULCH, IF DAYLIGHT CAN BE SEEN UNDER MULCH LOG DUE TO TOPOGRAPHIC CHANGES, ADD ADDITIONAL ROWS OF MULCH LOG TO CLOSE GAPS.
14. ONLY RUBBER-TIRED EQUIPMENT IS ALLOWED WITHIN THE CWQZ AND FLOODPLAIN. NO TRACK EQUIPMENT IS ALLOWED.
15. ALL EQUIPMENT AND SPOILS ARE TO BE REMOVED FROM THE CREEK, THE CWQZ, AND THE 100-YEAR FLOODPLAIN NIGHTLY.



0 100' 200'
GRAPHIC SCALE 100'

LEGEND

- | | | |
|-----|------|------------------------------------|
| --- | --- | PROPERTY LINE |
| --- | --- | LIMITS OF CONSTRUCTION |
| --- | SF | SILT FENCE |
| --- | XXX | EXISTING MAJOR CONTOUR |
| --- | XXX | EXISTING MINOR CONTOUR |
| --- | XXX | PROPOSED MAJOR CONTOUR |
| --- | XXX | PROPOSED MINOR CONTOUR |
| | CE | CONSTRUCTION ENTRANCE |
| | SA | STAGING AREA |
| | CW | CONCRETE WASHOUT |
| | ML | 12" MULCH LOG |
| --- | CWQZ | CRITICAL WATER QUALITY ZONE (CWQZ) |

KHA PROJECT 069243907-D		DATE MAY 2022		SCALE: AS SHOWN		DESIGNED BY: NZL		DRAWN BY: GKM		CHECKED BY: JUK	
VELOCITY CHANNEL IMPROVEMENTS		EROSION CONTROL PLAN		CITY OF AUSTIN TRAVIS COUNTY, TEXAS		SHEET NUMBER 5		REVISIONS		BY DATE	

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TEXAS REGISTERED ENGINEERING FIRM F-928

JUSTIN J. KRAMER
122309
PROFESSIONAL ENGINEER
8/10/2022

Plotted By: Luis, Nick Date: August 10, 2022 06:17:54pm File Path: K:\AUS_Civil\069243907 - Velocity Crossing Preliminary Plan\Working Folder - Site Plan D\Code\PlanSheets\C-Erosion Control Details.dwg

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LINEAR CONSTRUCTION THROUGH TREES

TREES IN PAVING AREA

NATURAL AREAS

TREES NEAR CONSTRUCTION ACTIVITY

INDIVIDUAL TREE

GROUP OF TREES

CITY OF AUSTIN
WATERSHED PROTECTION DEPARTMENT

[Signature] *11/16/22*
ADOPTED

TREE PROTECTION FENCE LOCATIONS

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO.
610S-1

TREE PROTECTION FENCE

CRITICAL ROOT ZONE

CITY OF AUSTIN
WATERSHED PROTECTION DEPARTMENT

[Signature] *11/16/22*
ADOPTED

TREE PROTECTION FENCE
TYPE A - CHAIN LINK

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO.
610S-2

STABILIZED CONSTRUCTION ENTRANCE

NOTES:

- STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
- LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
- THICKNESS: NOT LESS THAN 200 mm (8").
- WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
- WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
- MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
- DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN
WATERSHED PROTECTION DEPARTMENT

[Signature] *5/13/20*
ADOPTED

STABILIZED CONSTRUCTION ENTRANCE

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO.
641S-1

TYPICAL MULCH SOCK INSTALLATION

NOTES:

- Place additional mulch material to fill seam between the sock and the ground
- Mulch material
- Stake

CITY OF AUSTIN
WATERSHED PROTECTION DEPARTMENT

[Signature] *9/1/2021*
ADOPTED

MULCH SOCK

N.T.S.

SILT FENCE

STANDARD SYMBOL FOR SILT FENCE (SF)

SF
L

1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 INCHES) DEPTH, USE STEEL POSTS.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.

3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 INCHES) DEEP AND 150 mm (6 INCHES) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.

5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 INCHES). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN
WATERSHED PROTECTION DEPARTMENT

[Signature] *9/1/2021*
ADOPTED

SILT FENCE

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO.
642S-1

BENCHMARKS:

TBM #1

12" SET ON HEADWALL LOCATED 107.93' FROM THE NORTHERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =452.68 FEET (AS SHOWN)

TBM #3

12" SET ON HEADWALL LOCATED 1,107.52' FROM THE NORTHEASTLY CORNER OF LOT 3, BLOCK "A", ELEVATION =439.44 FEET (AS SHOWN)

VELOCITY
CHANNEL IMPROVEMENTS
CITY OF AUSTIN
TRAVIS COUNTY, TEXAS

EROSION CONTROL
DETAILS

SHEET NUMBER
6

DATE
MAY 2022

SCALE: AS SHOWN

DESIGNED BY: NZL

DRAWN BY: GKM

CHECKED BY: JJK

Kimley»Horn

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TEXAS REGISTERED ENGINEERING FIRM F-928

STATE OF TEXAS
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122309
LICENSED PROFESSIONAL ENGINEER

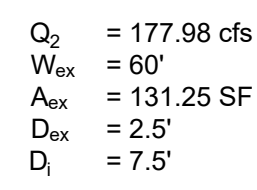
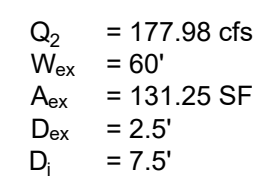
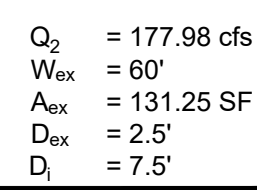
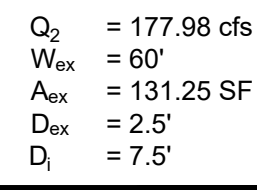
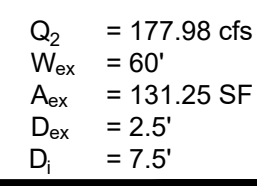
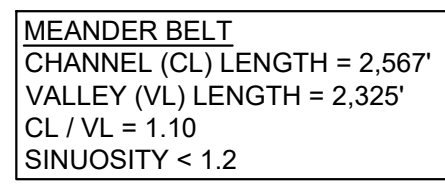
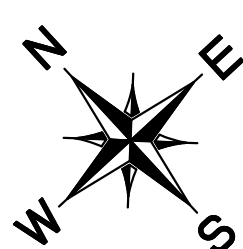
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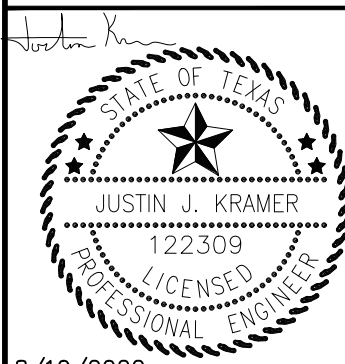
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BY _____



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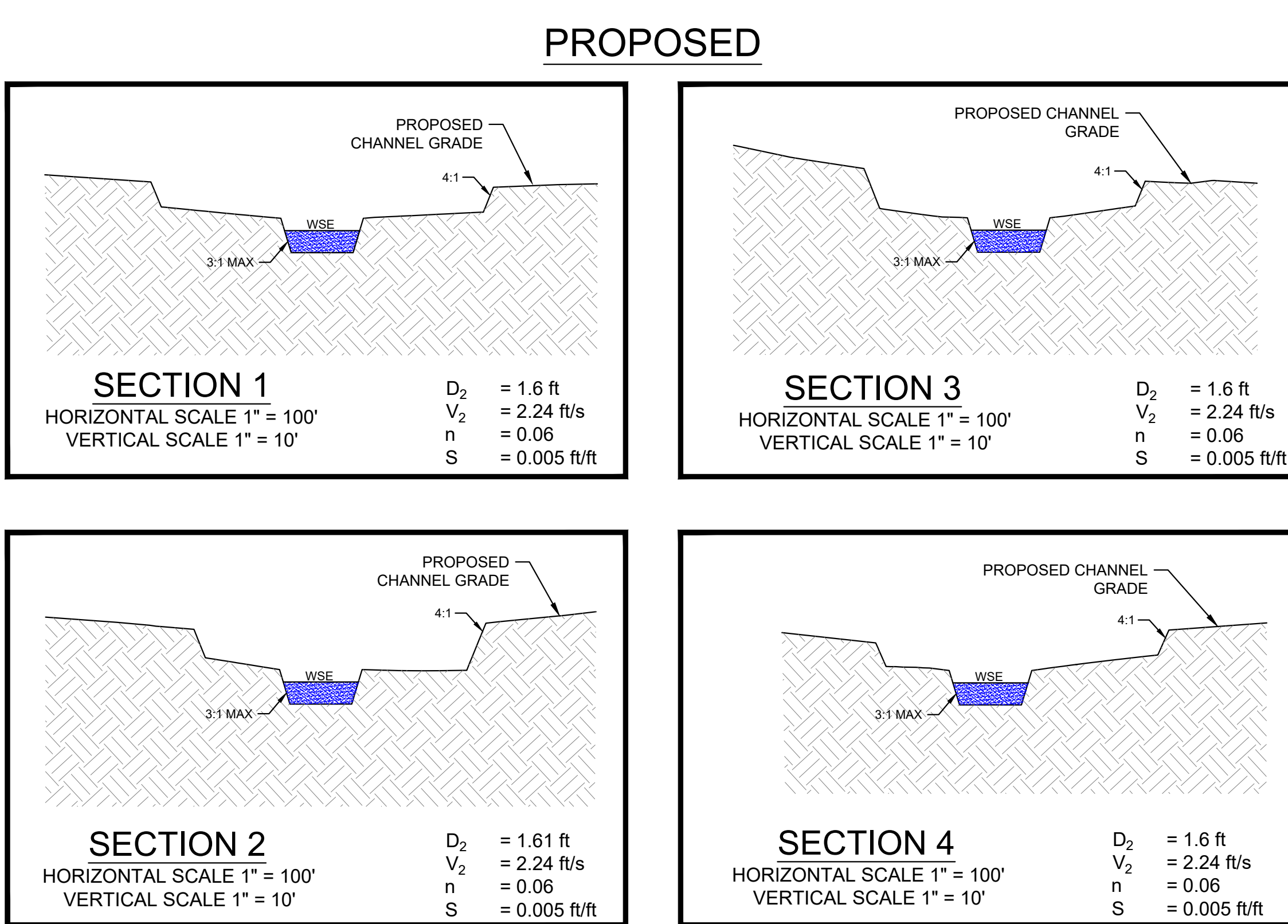
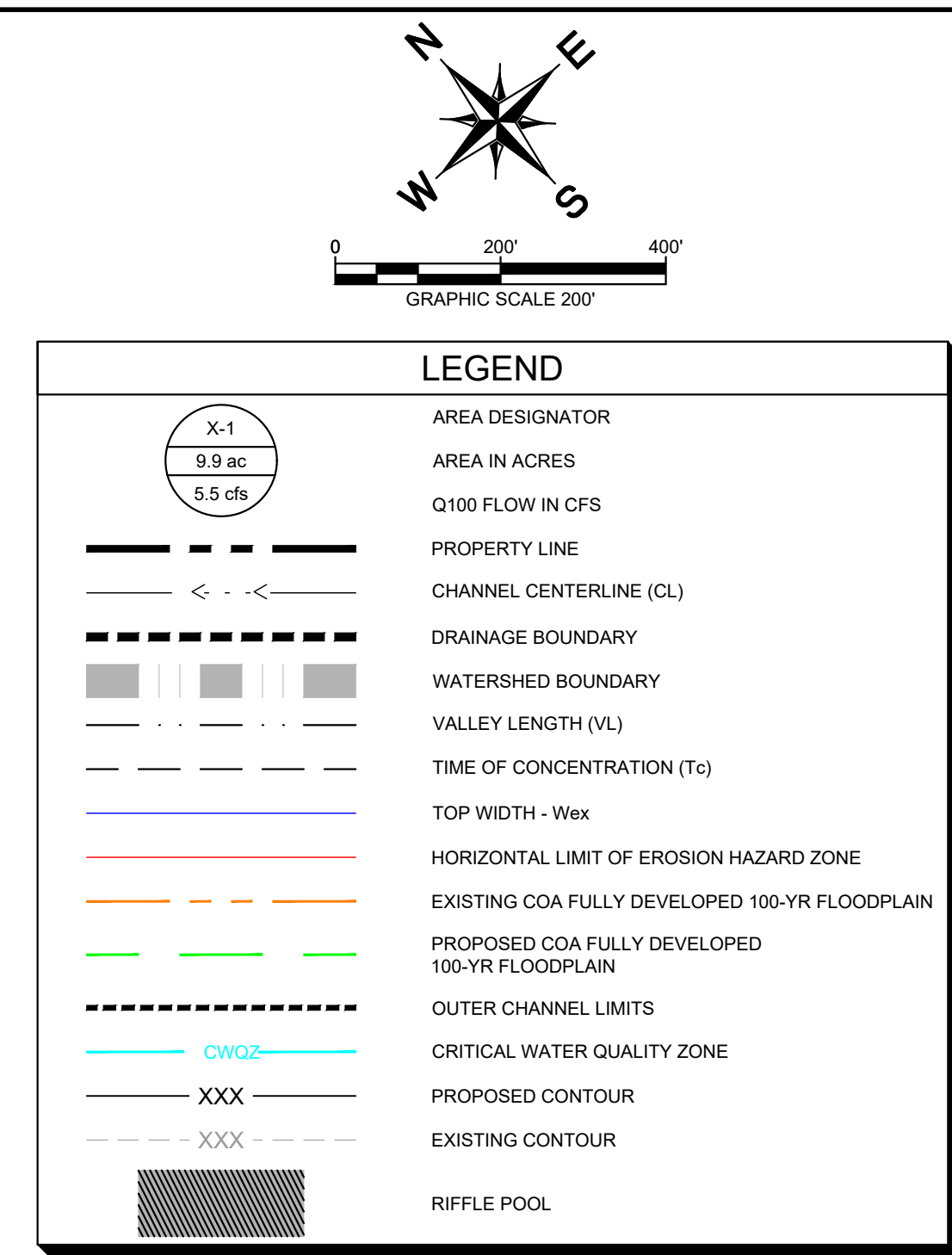
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10814 JOLLYVILLE ROAD, AVALLON IV, SUITE 200, AUSTIN, TX 78759
PHONE: 512-418-1771 FAX: 512-418-1791



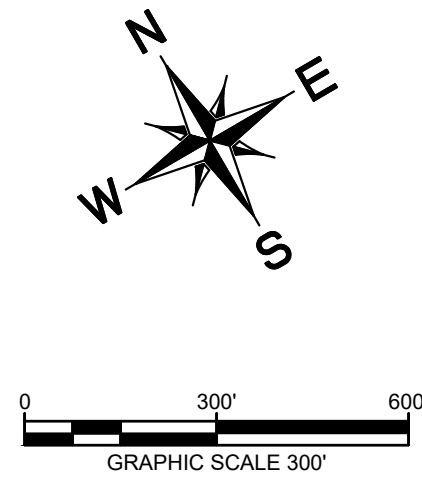
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EROSION HAZARD STUDY

VELOCITY
CHANNEL IMPROVEMENTS
CITY OF AUSTIN
TRAVIS COUNTY, TEXAS



Q-V-n COMPARISON TABLE						
	Q-Ex (cfs)	Q-Pr (cfs)	V-Ex (ft/s)	V-Pr (ft/s)	n-Ex	n-Pr
SECTION-1	177.98	177.98	4.22	2.24	0.03	0.06
SECTION-2	177.98	177.98	6.56	2.24	0.03	0.06
SECTION-3	177.98	177.98	9.28	2.24	0.03	0.06
SECTION-4	177.98	177.98	4.3	2.24	0.03	0.06



	AREA DESIGNATOR
	JUNCTION DESIGNATOR
	PROPERTY LINE
	DRAINAGE DIVIDE
	FLOW DIRECTION
	EXISTING CONTOUR

Name	Area		CN	Imp. %	Tc (min)	Q ₁₀₀ (cfs)
	(ac)	(sq. mi.)				
DA-A1	64.3	0.1005	74	90	8.7	784
DA-A2	46.4	0.0725	74	90	12.1	505
DA-A3	35.8	0.0559	74	90	11.5	397
J-A1	---	---	---	---	---	784
J-A2	---	---	---	---	---	1,200
J-A3	---	---	---	---	---	1,448

Name	Inlet T (min)	Storm Sewer			Open Channel			T _o (min)	T _{pg} (min)
		L (ft)	V (fps)	T (min)	L (ft)	V (fps)	T (min)		
DA-A1	5.0	1341	6	3.7	0	4	0.0	8.7	5.2
DA-A2	5.0	575	6	1.6	1327	4	5.5	12.1	7.3
DA-A3	5.0	774	6	2.2	1040	4	4.3	11.5	6.9

Name	Length (ft)	Slope (ft/ft)	"n"	Bottom (ft)	S. Slope (z:1)
R-A1	1327	0.005	0.06	50	4
R-A2	1124	0.005	0.06	50	4

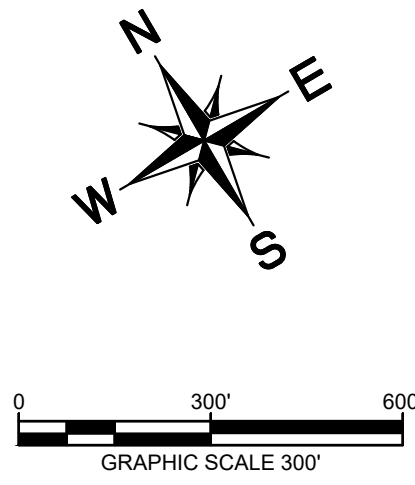
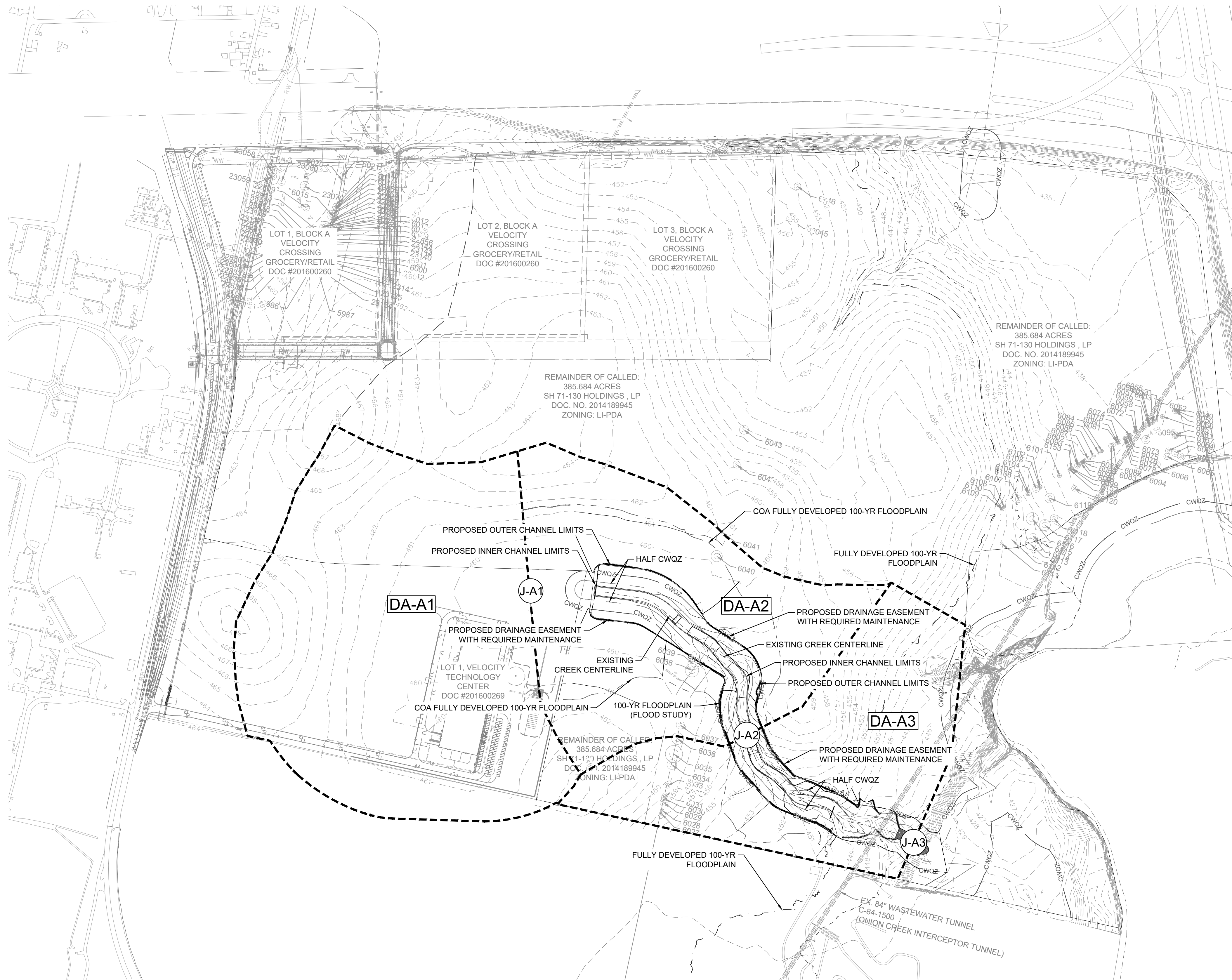
BENCHMARKS:

TBM #1

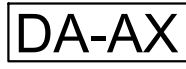





☒ SET ON HEADWALL LOCATED 107.93' FROM THE NORTHERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =452.68 FEET (AS SHOWN)

TBM #3

☒ SET ON HEADWALL LOCATED 1,107.52' FROM THE NORTHEASTERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =439.44 FEET (AS SHOWN)



LEGEND

	AREA DESIGNATOR
	JUNCTION DESIGNATOR
	PROPERTY LINE
	DRAINAGE DIVIDE
	FLOW DIRECTION
	EXISTING CONTOUR

Name	Area		CN	Imp. (%)	Tc (min)	Q ₁₀₀ (cfs)
	(ac)	(sq. mi.)				
DA-A1	64.3	0.1005	74	90	8.7	784
DA-A2	46.4	0.0725	74	90	12.1	505
DA-A3	35.8	0.0559	74	90	11.5	397
J-A1	---	---	---	---	---	784
J-A2	---	---	---	---	---	1,200
J-A3	---	---	---	---	---	1,448

Time of Concentration Calculations									
Name	Inlet T (min)	Storm Sewer			Open Channel			T _c (min)	T _{lag} (min)
		L (ft)	V (fps)	T (min)	L (ft)	V (fps)	T (min)		
DA-A1	5.0	1341	6	3.7	0	4	0.0	8.7	5.2
DA-A2	5.0	575	6	1.6	1327	4	5.5	12.1	7.3
DA-A3	5.0	774	6	2.2	1040	4	4.3	11.5	6.9

Name	Length (ft)	Slope (ft/ft)	"n"	Bottom (ft)	S. Slope (z:1)
R-A1	1327	0.005	0.06	50	4
R-A2	1124	0.005	0.06	50	4

BENCHMARKS

BENCHMARKS:

TBM #1

☒ SET ON HEADWALL LOCATED 107.93' FROM THE NORTHERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =452.68 FEET (AS SHOWN)

TBM #3

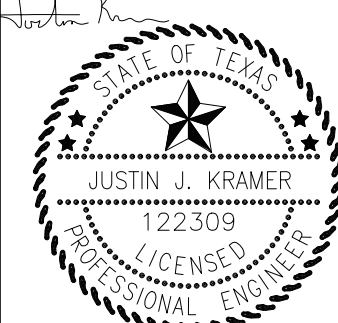
☒ SET ON HEADWALL LOCATED 1,107.52' FROM THE NORTHEASTERLY CORNER OF LOT 3, BLOCK "A", ELEVATION =439.44 FEET (AS SHOWN)

FLOOD STUDY
PROPOSED ULTIMATE
CONDITIONS
DRAINAGE AREA MAP

VELOCITY
CHANNEL IMPROVEMENTS
CITY OF AUSTIN
TRAVIS COUNTY, TEXAS

SHEET NUMBER
10

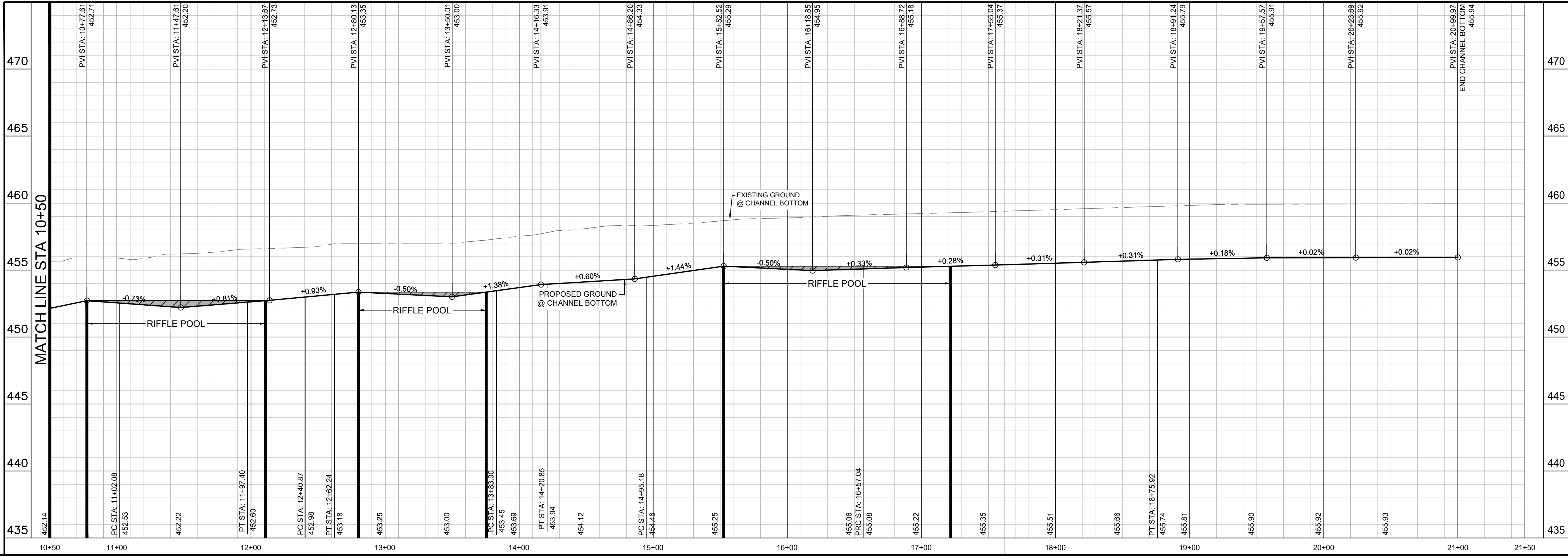
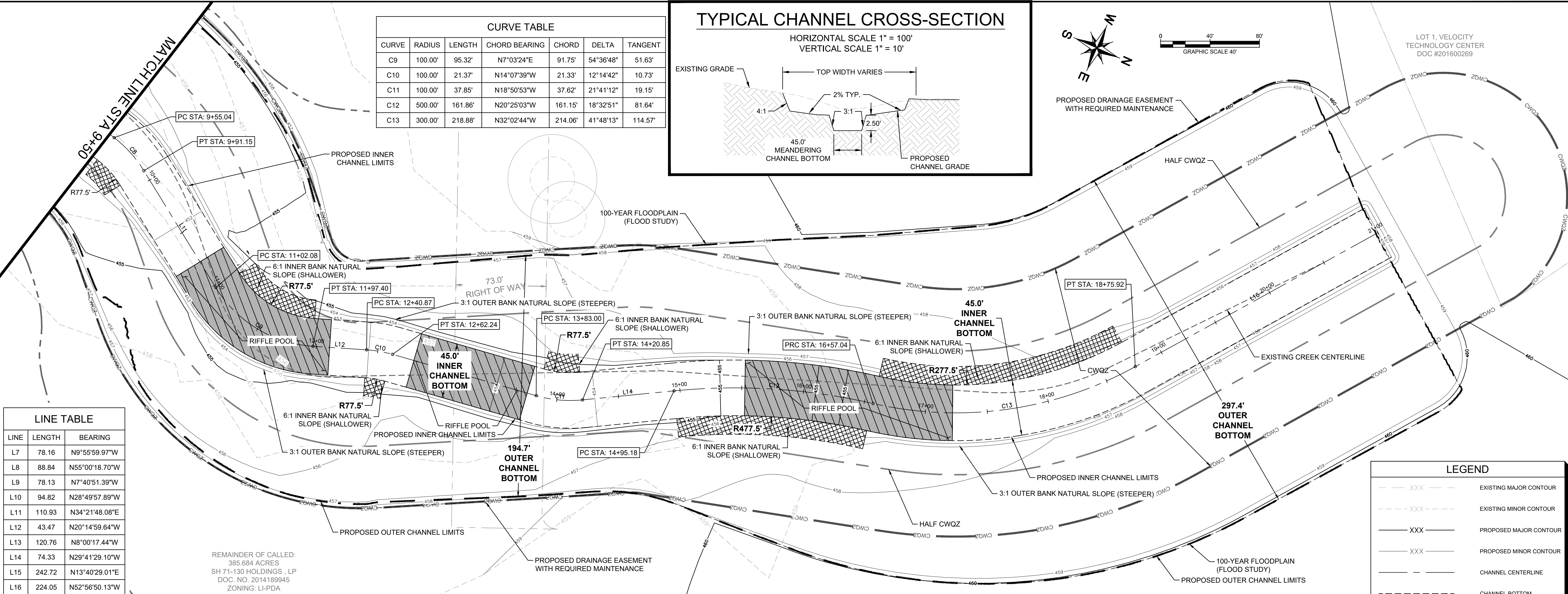
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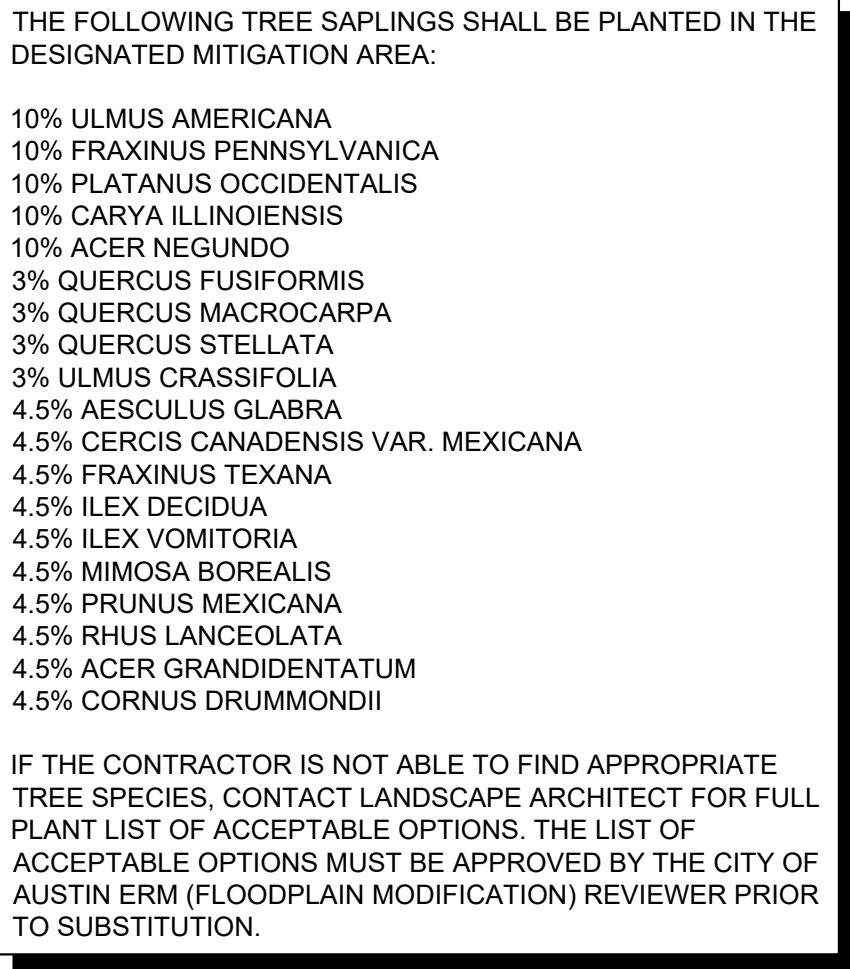
KHA PROJECT 069243907-D	DATE MAY 2022	SCALE: AS SHOWN	DESIGNED BY: NZL	DRAWN BY: GKM	CHECKED BY: JJK
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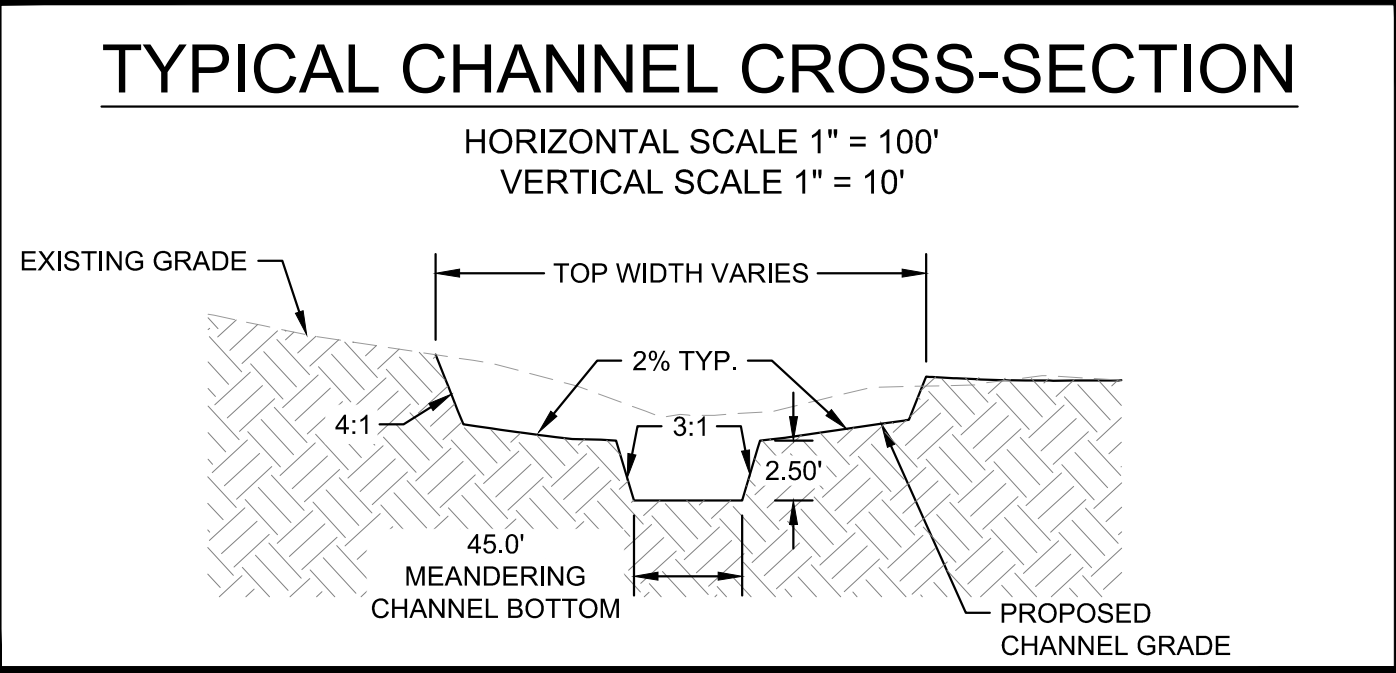
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KHA PROJECT		DATE		SCALE: AS SHOWN		DESIGNED BY: NZL		DRAWN BY: GKM		CHECKED BY: JUK	
069243907-D		MAY 2022									
Kimley»Horn											
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Kimley»Horn											
8/10/2022											
JUSTIN J. KRAMER 122309 LICENSED PROFESSIONAL ENGINEER											
CHANNEL PLAN & PROFILE											
VELOCITY CHANNEL IMPROVEMENTS CITY OF AUSTIN TRAVIS COUNTY, TEXAS											
SHEET NUMBER 11											

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MITIGATION AND RESTORATION TABLE		
LOCATION OF MODIFICATION	AREA (AC.)	REQUIRED RESTORATION AND/OR MITIGATION (AC.)
ZONE 1 (FLOODPLAIN OUTSIDE CWOQZ) (2:1)	19.54	39.08
ZONE 2/3 (FLOODPLAIN WITHIN CWOQZ) (4:1)	9.30	37.20
TOTAL REQUIRED RESTORATION AND/OR MITIGATION		76.28
ZONE 1 RESTORATION AREA		1.13
ZONE 2 RESTORATION AREA		11.84
TOTAL PROVIDED RESTORATION (REF. LIMITS OF SEEDING / PLANTING SHEET 13)		12.97
TOTAL MITIGATION AREA		63.31



NOTES

1. IF THE CONTRACTOR IS NOT ABLE TO FIND APPROPRIATE TREE SPECIES, CONTACT LANDSCAPE ARCHITECT FOR FULL PLAN SET OF ACCEPTABLE OPTIONS. THE LIST OF ACCEPTABLE OPTIONS MUST BE APPROVED BY THE CITY OF AUSTIN ERM (FLOODPLAIN MODIFICATION) REVIEWER PRIOR TO SUBSTITUTION.
2. CONTRACTOR TO PLANT THE 5 FACV+ OR GREATER WETLAND TREE SPECIES (PLATANUS OCCIDENTALIS+ FACV+, CARYA LILINOENSIS+ FACV+, ACER NEGUNDO FACV+, QUERCUS STELLATA FACV+, AND ILEX DECIDUA FACV+) CLOSER TO THE ACTIVE CHANNEL.
3. CONTRACTOR SHALL INSTALL TEMPORARY IRRIGATION SERVING FLOODPLAIN RESTORATION AREA

