Environmental Conservation Commission

October 3, 2023
Town Hall
2121 Cross Timbers Road
Flower Mound, TX 75028

6:30 p.m.

AGENDA

A. CALL TO ORDER

B. ELECTION OF CHAIR AND VICE CHAIR

C. INVOCATION

D. PLEDGE OF ALLEGIANCE TO THE AMERICAN FLAG

E. PUBLIC COMMENT

The purpose of this item is to allow the public an opportunity to address the Board/Commission regarding any item on this agenda that is not a "Public Hearing." Issues regarding daily operational or administrative matters should first be dealt with by calling Town Hall at 972- 874-6000 during business hours. To speak to the Board/Commission during public comment, please fill out a comment form, which is located in the lobby of Town Hall.

In accordance with the Texas Open Meetings Act, the Board/Commission is restricted from discussing or acting on items not listed on the agenda.

- Speakers are limited to 3 minutes; a tone will sound at 30 seconds left and when time has expired, and times may be adjusted by the Chair depending on the number of speakers.
- Speakers must address their comments to the Board/Commission.
- Please state your name and address when speaking.

F. STAFF/DIRECTOR REPORT

G. CONSENT ITEM(S)

This part of the agenda consists of non-controversial, or "housekeeping" items required by law. Items may be removed from Consent by any Commissioner by making such request prior to a motion and vote.

1. Minutes Approval - Consider approval of the minutes from the regular meeting of the Environmental Conservation Commission on August 1, 2023

H. REGULAR ITEM(S)

1. Consider an application for a tree removal permit - Consider an application for a tree removal permit (TRP23-0018) for two (2) specimen trees on property

proposed for development as Titensor Dental. The property is generally located west of Long Prairie Road and north of Bob White Lane.

2. Consider an application for a tree removal permit - Consider an application for a tree removal permit (TRP23-0019) for one (1) specimen tree on Lot 64, Block D of the Terracina subdivision. The property is located at 6700 Palermo Trl.

3. Hines Conservation Development - Consider a recommendation to the Planning and Zoning Commission and Town Council of an Open Space Management Plan and Concept Plan for the proposed Hines Conservation Development. The property is generally located north of Cross Timbers Road and west of Kimball Xing.

4. TRP23-0017 - Hines Conservation - Consider an application for a tree removal permit (TRP23-0017) for eighteen (18) specimen trees on property proposed for development as Hines Conservation. The property is generally located north of Cross Timbers Road and west of Kimball Xing.

I. FUTURE AGENDA ITEM(S)

J. COORDINATION OF CALENDARS

K. ADJOURN

I do hereby certify that the Notice of Meeting was posted on the bulletin board at the Town Hall for the Town of Flower Mound, Texas, in a place convenient and readily accessible to the general public at all times and said Notice was also posted on the Town's website in accordance with GC Section 551.056 on the following date and time: September 29, 2023, at 3:46 p.m., at least 72 hours prior to the scheduled time of said meeting.

Hannah Perez, Administrative Assistant

The Flower Mound Town Hall and Jody Smith Hall are wheelchair accessible. Requests for accommodation or interpretive services must be made 48 hours prior to this meeting by contacting Town Hall at 972.874.6000. Additional time limits will be provided for members of the public that need to address the Town Council through a translator.

Environmental Conservation Commission

August 1, 2023
Town Hall
2121 Cross Timbers Road
Flower Mound, TX 75028

6:30 p.m.

DRAFT MINUTES

A. CALL TO ORDER

The Environmental Conservation Commission met in a regular meeting with the following members present:

Marilyn Lawson, Chair, Place 4
Deanna Soper, Vice Chair, Place 7
Rich Murcheck, Place 1
James Seastrom, Place 2
Alton Bowman, Place 5
Juli Greenberg, Place 9
Andra Schwenk, Place 10

with the following member(s) absent:
Annaprabha Athappan, Place 6
Karyn Walsh, Place 3
Emily Strittmatter, Place 8

constituting a quorum with the following members of the Town Staff participating:

Matthew Woods, Director of Environmental Services
Jimmy Hoefert, Environmental Review Analyst
Joe Whiteley, Environmental Review Analyst
Hannah Perez, Administrative Assistant

B. INVOCATION

Commission Member James Seastrom gave the invocation and led the pledges.

C. PLEDGE OF ALLEGIANCE TO THE AMERICAN FLAG

D. PUBLIC COMMENT

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- Speakers must address their comments to the Board/Commission.
- Please state your name and address when speaking.

E. STAFF/DIRECTOR REPORT

Update and status report related to environmental issues and events regulatory activates, and projects.

F. CONSENT ITEM(S)

This part of the agenda consists of non-controversial, or "housekeeping" items required by law. Items may be removed from Consent by any Commissioner by making such request prior to a motion and vote.

1. Minutes Approval - Consider approval of the minutes from the regular meeting of the Environmental Conservation Commission on May 2, 2023

ACTION:	Commission Member Juli Greenberg moved to approve item F.1. as presented in the agenda caption. Commison Member James Seastrom seconded the motion.
AYES:	Alton Bowman, Deanna Soper-Pinkelman, James Seastrom, Juli Greenberg, Rich Murchek
NAYS:	None
ABSTAIN:	None
RESULT:	5 : 0

G. REGULAR ITEM(S)

1. TRP23-0008 - Montalcino Phase III - Consider an application for a tree removal permit (TRP23-0008) for seven (7) specimen trees on property proposed for development as Montalcino Phase III. The property is generally located north of Cross Timbers Road and east of Montalcino Boulevard.

Staff Presenter

Jimmy Hoefert, Environmental Review Analyst, gave a presentation with the following items included and answered questions:

- Project Information
- General Location
- Detailed Location
- Tree Survey
- Specimen Trees Requested for Removal – 4 slides
- Motion/Recommendation

Applicant Presenter
Ron Stewert, Landscape Architect, with McAdams.
111 Hillside Dr Lewisvile, Texas 75057 answered questions.

ACTION:	Commission Member James Seastrom made a motion to approve tree removal permit (TRP23-0008) as presented in the agenda caption. Commission Member Alton Bowman seconded the motion.
AYES:	Deanna Soper-Pinkelman, Andra Schwenk, Rich Murchek, James Seastrom, Alton Bowman, Juli Greenberg
NAYS:	None
ABSTAIN:	None
RESULT:	6 : 0

H. SUBCOMMITTEE REPORT

Receive updates and status reports related to subcommittee activates and establish subcommittees as necessary.

I. COORDINATION OF FUTURE AGENDAS/MEETINGS

J. ADJOURN

Chair Lawson adjourned the meeting at 7:46 p.m. on August 1 and all were in favor.

ENVIRONMENTAL CONSERVATION COMMISSION AGENDA H.1. REGULAR ITEM(S)

DATE: October 3, 2023
FROM: James Hoefert, Environmental Review Analyst
ITEM: **Consider an application for a tree removal permit (TRP23-0018) for two (2) specimen trees on property proposed for development as Titensor Dental. The property is generally located west of Long Prairie Road and north of Bob White Lane.**

BACKGROUND: The Titensor Dental development consists of approximately 3.422 acres and is generally located west of Long Prairie Road and north of Bob White Lane. The site is zoned for Office District (O) and Retail District-1 (R1) uses and master planned for office and retail as part of Planned Development 64 (PD-64). The applicant is requesting to amend the Development Standards for PD-64. According to the tree survey for the project, the site contains four (4) specimen trees. The applicant is requesting to remove two (2) specimen trees from the site to build a medical office building. The specimen trees proposed for removal are in good condition and located within the proposed buildable area.

The following is a list of the two (2) specimen trees being requested for removal:

Tree #1857 – 25” slash pine; and
Tree #1860 – 26” shumard red oak;

The Town’s tree ordinance requires that specimen trees removed from the site be replaced at a rate of two times their caliper inches. Based on their size, 102” of replacement trees, equaling 34 three-inch caliper trees, will be required for the two (2) specimen trees being requested for removal on this site. In addition, protected trees removed will also require replacement at a tree-for-tree rate. The developer is proposing to preserve existing protected and specimen trees on the site, so there will be credits available for the preservation of those trees. Tree mitigation may be accomplished by paying the applicable fee, planting mitigation trees, or through a combination of planting trees and paying the required fee.

BOARD REVIEW/CITIZEN FEEDBACK: As of September 29, 2023, staff has not received feedback related to this item.

ALTERNATIVES: N/A

FISCAL IMPACT: N/A

LEGAL REVIEW: N/A

ATTACHMENTS:
1. Letter of Intent
2. Specimen tree removal permit application
3. Photographs of the specimen trees proposed for removal

4. Photograph of tree removal request signage
5. Tree Survey

DRAFT MOTION: Move to recommend approval or denial of the requested permit for the removal of two (2) specimen trees on property proposed for development as Titensor Dental. The property is generally located west of Long Prairie Road and north of Bob White Lane.

LETTER OF INTENT – TREE REMOVAL
September 28, 2023

ATTN: James Hoefert
Town of Flower Mound,
2121 Cross Timber Road
Flower Mound, Texas 75028

Subject: Tree removal application for Titensor Dental in the J. Wizwell Survey abstract No. 11346 in Flower Mound.

Dear Mr. Hoefert,
This letter of intent is to inform the Environmental Conservation Commission (ECC) of the Town of Flower Mound of our submittal of a tree application to remove 2 (two) trees on the subject property.

Site Data:
a) Existing Zoning District: Remainder of PD-64 with underlying Office District (O)
b) Development Plan Acreage: 149,076 SF or 3.422 acres
c) Proposed Use: Medical office
d) Proposed Building Area: 15,426 SF
e) Specimen trees 1857 and 1860 are being removed per staff suggestion due to expected effects of grading in the root zone.

The trees need to be removed to accommodate stormwater management for the project. The trees are at high risk due to grading within the root zones.

We believe the development will be a great addition to the Town of Flower Mound for an existing business to relocate to. Should you have any questions, please feel free to contact us.

Sincerely,

Tim Shoemaker, Principal
RTM Engineering Consultants, LLC

Town of Flower Mound Environmental Services
Mailing Address: 2121 Cross Timbers Road, Flower Mound, TX 75028
Telephone: 972-874-6340 Website: www.flower-mound.com

TREE REMOVAL PERMIT

(Effective for Developments submitted 10/6/08 - present)

Check one: ___**Protected Tree** ___**Specimen Tree** ___**Historic Tree**

This application is required to be submitted 30 days prior to the next available ECC hearing.

1. Applicant- Note: Must be an ISA certified arborist, certified forester, or a registered landscape architect.

Name:
Lisa Cutshaw

Address:
1213 Roaring Fork Rd., Mars Hill NC 28754

Phone:
828.378.4791

Applicant's Legal Interest in the Property:
I am the landscape architect assisting with the design of the project.

2. Property Owner(s)

Name(s): Dr. Brett Titensor
Address: 1901 Long Prairie Road #320

3. Location and Legal Description of Property:
See attached legal description

4. Owner's Authorization of Representation

I, Brett Tifenser, the owner of the above described real property, do hereby authorize Lisa Cutshaw to represent my interests and to file an Application for Tree Removal Permit for said real property, pursuant to the terms and provisions of Chapter 94 (Trees), of the Land Development Regulations of the Town of Flower Mound, Texas Code of Ordinances.

Signature of Owner

Given Under My Hand and Seal of Office
This the 29th Day of SEPT, 2023

Notary Public
In and For Denton County, Texas.

AMERICA LIZETTE MOSQUEDA PEREZ
Notary ID #133490970
My Commission Expires
December 15, 2025

5. Applicants Affidavit- Note: Applicant must be an ISA certified arborist, certified forester, or a registered landscape architect.

Subject to criminal penalties contained in Subpart B, the Land Development Regulations of the Town of Flower Mound, Texas Code of Ordinances, I Lisa Cutshaw, do hereby swear or affirm that all of the Information contained herein and submitted herein is, to the best of my knowledge, true, correct and complete and that no false, misleading or incomplete information has been intentionally provided or submitted with this Application for a Tree Removal Permit.

Signature of Applicant

Landscape Architect License No. 3770
State of Licensure Texas
Or ISA Certified Arborist No.
Or Certified Forester No.

Given Under My Hand and Seal of Office
This the 25 Day of August, 2023

Notary Public
In and For ~~Denton~~ Buncombe County, ~~Texas~~ North Carolina

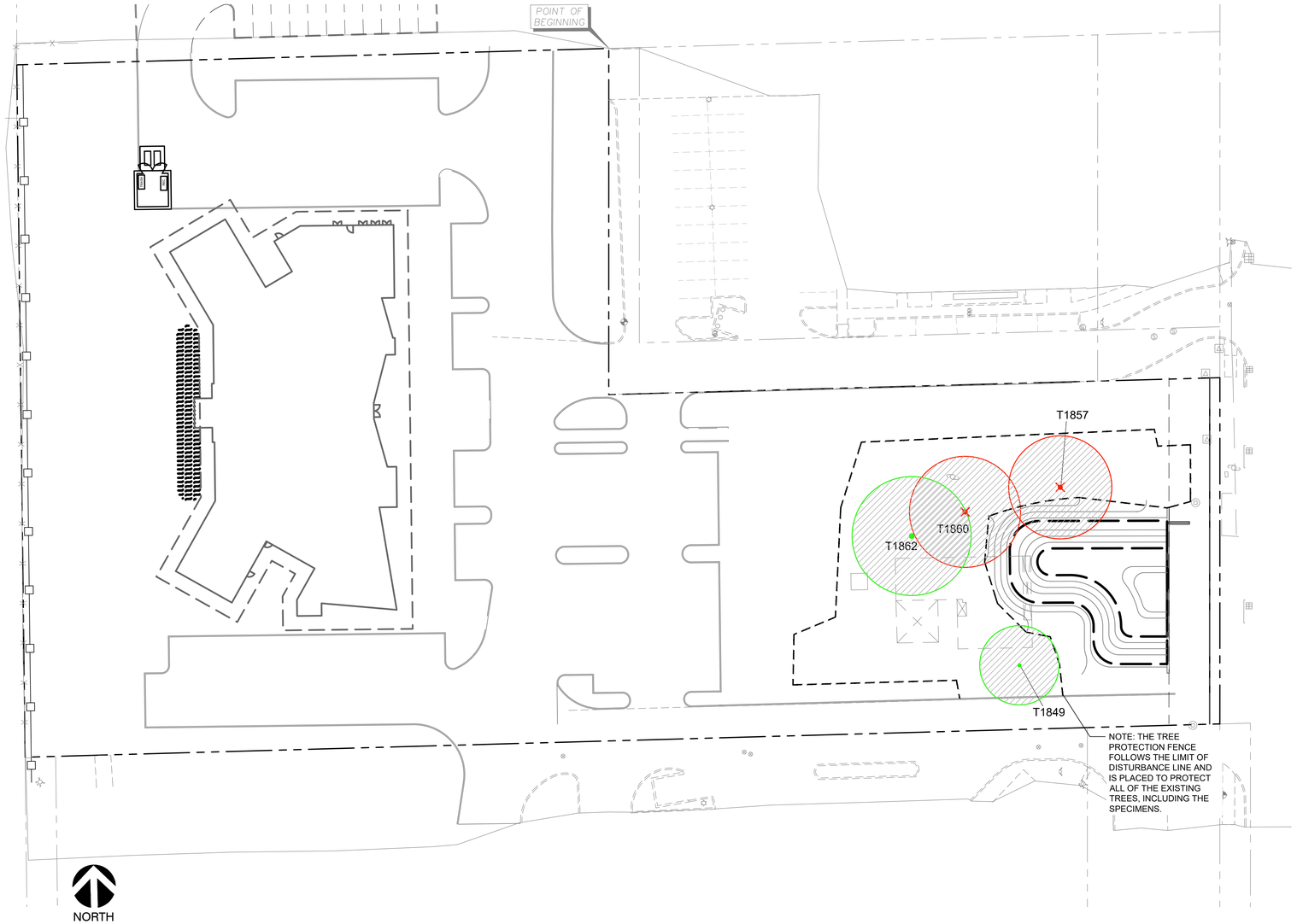
Eric Rice
NOTARY PUBLIC
Buncombe County
North Carolina
Comm. Exp. 7/25/2026

6. Received by Town of Flower Mound on (Date) 8/30/2023 by (initials) JRH.

Titensor Dental -
Specimen trees proposed for removal

Tree Removal Request Signage

Along Long Prairie Road



SPECIMEN TREE INVENTORY

TREE NO.	BOTANICAL NAME	COMMON NAME	DBH (in.)	RADIAL	CANOPY SQ FT	CONDITION	STATUS	COMMENTS	DISPOSITION	REASON
1849	PINUS ELLIOTTII	SLASH PINE	25	22	1519.76	GOOD	SPECIMEN		PRESERVED	
1857	PINUS ELLIOTTII	SLASH PINE	25	20	1256	GOOD	SPECIMEN		REMOVED	PER CITY COMMENTS
1860	QUERCUS SHUMARDII	RED OAK	26	26	2122.64	GOOD	SPECIMEN		REMOVED	PER CITY COMMENTS
1862	QUERCUS SHUMARDII	RED OAK	31	31	3017.54	GOOD	SPECIMEN		PRESERVED	

LEGEND

XX INDICATES TREE OR PALM NUMBER

SPECIMEN TREES TO BE PROTECTED IN PLACE

XX INDICATES TREE OR PALM NUMBER

SPECIMEN TREE TO BE REMOVED

TREE PROTECTION FENCE

NOTE: TREE PROTECTION FOR ANY PRESERVED TREES MUST BE PROVIDED PER DETAILS AND SPECIFICATIONS ON SHEET TD-2. THESE MUST BE UP PRIOR TO THE COMMENCEMENT OF ANY WORK AND MAINTAINED THROUGHOUT CONSTRUCTION.

NOTE: ALL TREE TRIMMING MUST BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO COMMENCEMENT OF WORK. ALL TREE TRIMMING MUST BE DONE BY AN ISA CERTIFIED ARBORIST IN ACCORDANCE WITH LOCAL TREE PRESERVATION ORDINANCE.

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

REGISTERED LANDSCAPE ARCHITECT
LISA CUTSHAW
3770
STATE OF TEXAS

09/07/2023

Project Name
3025 & 3031 Long Prairie Rd.
Flower Mound, TX 75022

SPECIMEN TREE DISPOSITION PLAN

	Date	Comment
1	05/24/23	PLANNING SUBMITTAL
2	07/17/23	PLANNING SUBMITTAL #2
3	08/29/23	PLANNING SUBMITTAL #3
4	09/07/23	PLANNING SUBMITTAL #4

Project Number	
Date	09/07/2023
Drawn By	LC
Checked By	LC/RM

TD-1

TREE PROTECTION SPECIFICATIONS

MATERIALS

1. FENCING: 6 FOOT HIGH CHAIN LINK FENCING.

2. POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL.

CONSTRUCTION METHODS

1. ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.

2. EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.

3. PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.

4. PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.

5. THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.

6. THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. CHAIN LINK SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE CHAIN LINK TO THE POSTS TO HOLD THE CHAIN LINK IN A STABLE AND UPRIGHT POSITION.

7. WITHIN THE CRZ:
   a. DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
   b. DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
   c. DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
   d. DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
   e. DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
   f. DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.

8. ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.

9. WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.

10. THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES

11. REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.

12. TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.

13. ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.

14. COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.

15. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DUING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

16. WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.

17. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

18. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.

TREE PROTECTION GENERAL NOTES

(A) PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
(1) AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
(2) AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
(3) AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.

(B) NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.

(C) DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.

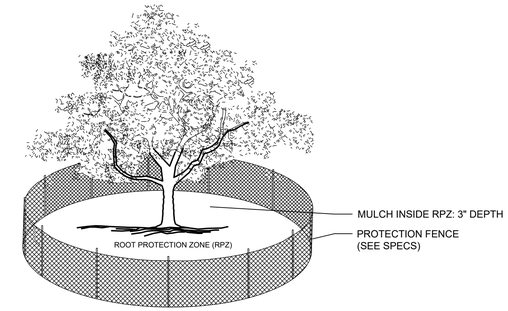
(D) NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.

(E) ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.

(F) PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BREAST HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE LOCAL ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.

(G) THE LOCAL ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.

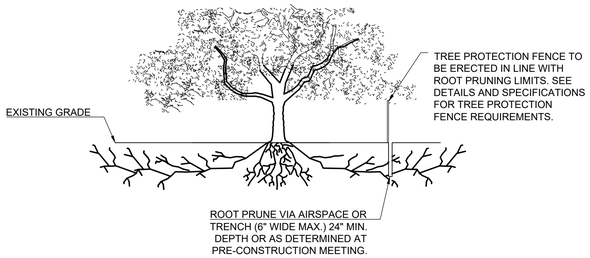
(H) IF, IN THE OPINION OF THE LOCAL ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.



NOTES:
1. THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

A TREE PROTECTION FENCE
SCALE: NOT TO SCALE

NOTES
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
3. EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR .
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
6. ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR.
7. SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



B ROOT PRUNING DETAIL
SCALE: NOT TO SCALE

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

REGISTERED LANDSCAPE ARCHITECT
LISA CUTSHAW
3770
STATE OF TEXAS
09/07/2023

Project Name
3025 & 3031 Long Prairie Rd.
Flower Mound, TX 75022

TREE DISPOSITION SPECS & DETAILS

	Date	Comment
1	05/24/23	PLANNING SUBMITTAL
2	07/17/23	PLANNING SUBMITTAL #2
3	08/29/23	PLANNING SUBMITTAL #3
4	09/07/23	PLANNING SUBMITTAL #4

Project Number	
Date	09/07/2023
Drawn By	LC
Checked By	LC/RM

TD-2

ENVIRONMENTAL CONSERVATION COMMISSION AGENDA H.2. REGULAR ITEM(S)

DATE: October 3, 2023
FROM: James Hoefert, Environmental Review Analyst
ITEM: **Consider an application for a tree removal permit (TRP23-0019) for one (1) specimen tree on Lot 64, Block D of the Terracina subdivision. The property is located at 6700 Palermo Trl.**

BACKGROUND: Lot 64, Block D of the Terracina subdivision is located at 6700 Palermo Trl. The lot is approximately 0.346 acres in size. The lot is currently zoned for Planned Development District No. 111 (PD-111) with Single Family District 15 (SF-15) uses and is master planned for low density residential. The applicant is requesting to remove the one (1) specimen remaining on the residential lot because of the tree's proximity to the building pad. The specimen tree proposed for removal (Tree #776 – 32" post oak) is in good condition and is located within the buildable area of the lot.

The Town's tree ordinance requires that specimen trees removed from the site be replaced at a rate of two times their caliper inches. Based on its size, 64" of replacement trees, equaling twenty-two (22) three-inch caliper trees, will be required for the one (1) specimen tree being requested for removal on this site. Tree mitigation may be accomplished by paying the applicable fee, planting mitigation trees, or through a combination of planting trees and paying the required fee.

BOARD REVIEW/CITIZEN FEEDBACK: As of September 29, 2023, staff has received correspondence from 23 residents that are in opposition to this item.

ALTERNATIVES: N/A

FISCAL IMPACT: N/A

LEGAL REVIEW: N/A

ATTACHMENTS:
1. Letter of Intent
2. Specimen tree removal permit application
3. Photographs of the specimen trees proposed for removal
4. Photographs of tree removal request signage
5. Tree Survey

DRAFT MOTION: Move to recommend approval or denial of the requested permit for one (1) specimen tree on Lot 64, Block D of the Terracina subdivision. The property is located at 6700 Palermo Trl.

September 8, 2023

Letter of Intent for TRP Application

To whom it may concern,

The intent for removal of tree #776, along with the TRP application, is for us to be able to commence construction of our proposed single family residence. The proposed construction of our single family residence requires this tree to be removed, and the tree well(in which the tree is located) to be properly filled.

Sincerely,
Irfana Arshad and Arshad Tatla

DocuSign Envelope ID: 12AB1761-7299-45AD-B89E-760CDBB51E61

Town of Flower Mound Environmental Services
Mailing Address: 2121 Cross Timbers Road, Flower Mound, TX 75028
Telephone: 972-874-6340 Website: www.flower-mound.com

TREE REMOVAL PERMIT

(Effective for Developments submitted 10/6/08 - present)

Check one: ___**Protected Tree** _X_**Specimen Tree** ___**Historic Tree**

This application is required to be submitted 30 days prior to the next available ECC hearing.

1. Applicant- Note: Must be an ISA certified arborist, certified forester, or a registered landscape architect.

Name: Wesley Rivers

Address: 1712 FM 407 E
Argyle, Texas 76226

Phone: 817-307-8670

Applicant's Legal Interest in the Property:
Certified Arborist

2. Property Owner(s)

Name(s): Irfana Arshad, Arshad Tatla
Address: 6700 Palermo Trail, Flower Mound, TX 75077

3. Location and Legal Description of Property:
Lot 64, Block D, Terracina Phase 1,
County: Denton
City: Flower Mound

4. Owner's Authorization of Representation

I, Infana Arshad, the owner of the above described real property, do hereby authorize Wesley Rivers to represent my interests and to file an Application for Tree Removal Permit for said real property, pursuant to the terms and provisions of Chapter 94 (Trees), of the Land Development Regulations of the Town of Flower Mound, Texas Code of Ordinances.

Signature of Owner

LORANS AKOK
Notary Public, State of Texas
Comm. Expires 03-29-2026
Notary ID 133673773

Given Under My Hand and Seal of Office
This the 3d Day of April, 2023

Notary Public
In and For Tarrant County, Texas.

5. Applicants Affidavit- Note: Applicant must be an ISA certified arborist, certified forester, or a registered landscape architect.

Subject to criminal penalties contained in Subpart B, the Land Development Regulations of the Town of Flower Mound, Texas Code of Ordinances, I Wesley Rivers, do hereby swear or affirm that all of the Information contained herein and submitted herein is, to the best of my knowledge, true, correct and complete and that no false, misleading or incomplete information has been intentionally provided or submitted with this Application for a Tree Removal Permit.

Signature of Applicant

Landscape Architect License No._____
State of Licensure_____
Or ISA Certified Arborist No. TX-3642B
Or Certified Forester No. _____

KIMBERLY L. RIGGS
Notary Public, State of Texas
Comm. Expires 07-08-2026
Notary ID 131614680

Given Under My Hand and Seal of Office
This the 3 Day of April, 2023

Notary Public
In and For Tarrant County, Texas

6. Received by Town of Flower Mound on (Date) 9/6/2023 by (Initials) JRH.

6700 Palermo Trail -
Specimen tree proposed for removal

Tree Removal Request Signage

Along Palermo Trl

Along Via Italia Dr.

No.		Description	Date
5			
4			
3			
2			
1			

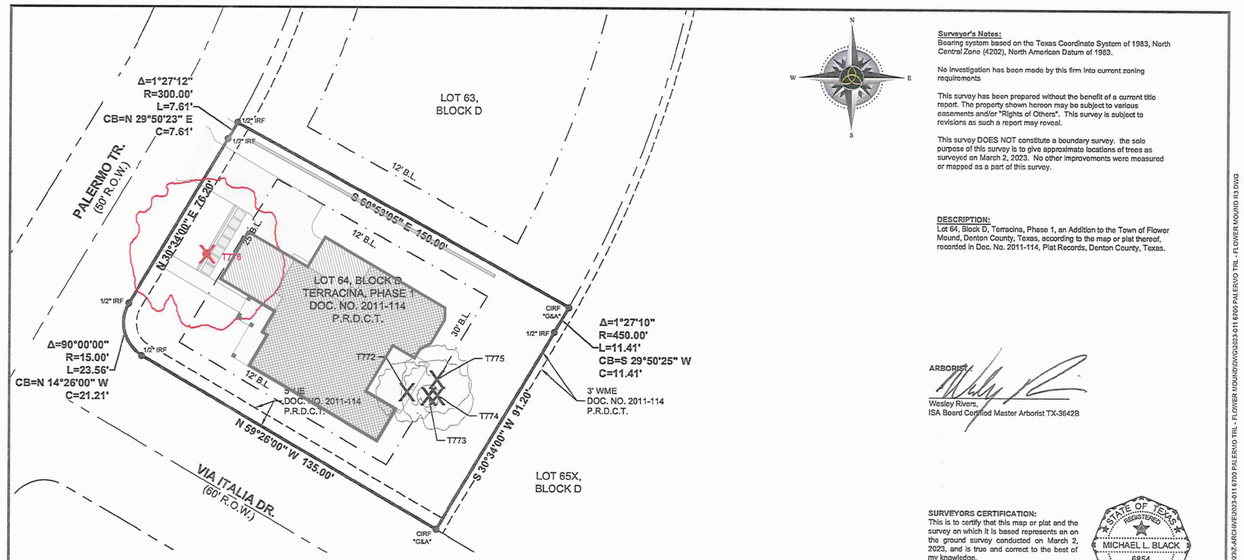
Revisions

N O T E S:

1. All utilities may not be shown on the plans. Location of existing utilities depicted on the plans are approximate. It shall be the contractor's responsibility to verify all utility locations prior to construction. Utilities damaged by the contractor during construction shall be repaired at the contractor's expense.

2. Call Texas 811 or other utility locating services 48 hours prior to construction activity. Di Sciullo–Terry, Stanton & Assocaites, Inc. is not responsible for knowing all existing utilities or depicting exact locations on all drawings.

3. Di Sciullo–Terry, Stanton & Associates, Inc. is not responsible for jobsite safety and construction means and methods. Those are the sole responsibility of the construction contractors.



Surveyor's Notes:
Bearing system based on the Texas Coordinate System of 1983, North Central Zone (4202), North American Datum of 1983.

No investigation has been made by this firm into current zoning requirements

This survey has been prepared without the benefit of a current title report. The property shown hereon may be subject to various easements and/or "Rights of Others". This survey is subject to revisions as such a report may reveal.

This survey DOES NOT constitute a boundary survey. the sole purpose of this survey is to give approximate locations of trees as surveyed on March 2, 2023. No other improvements were measured or mapped as a part of this survey.

DESCRIPTION:
Lot 64, Block D, Terracina, Phase 1, an Addition to the Town of Flower Mound, Denton County, Texas, according to the map or plat thereof, recorded in Doc. No. 2011-114, Plat Records, Denton County, Texas.

ARBORIST:
Wesley Rivers,
ISA Board Certified Master Arborist TX-3642B

SURVEYORS CERTIFICATION:
This is to certify that this map or plat and the survey on which it is based represents an on the ground survey conducted on March 2, 2023, and is true and correct to the best of my knowledge.

STATE OF TEXAS
REGISTERED
MICHAEL L. BLACK
6854
PROFESSIONAL
LAND SURVEYOR

Date of Signature: August 21, 2023

TREE TABLE

Tag ID	Common Name	Botanical Name	DBH	Drip	General Health	Status	Remain/Remove	Mitigation
T772	POST OAK	Quercus stellata	14"	24'	Good	Protected	Remove – Prev Approved	0
T773	POST OAK	Quercus stellata	6"	9'	Good	Protected	Remove – Prev Approved	0
T774	POST OAK	Quercus stellata	12"	28'	Good	Protected	Remove – Prev Approved	0
T775	POST OAK	Quercus stellata	18"	27'	Good	Protected	Remove – Prev Approved	0
T776	POST OAK	Quercus stellata	32"	60'	Fair	Specimen	Remove	

TREE SURVEY
6700 PALERMO TRAIL
FLOWER MOUND, TX 75077

BOUNDARY LINE
EASEMENT LINE
BUILDING LINE
WOOD FENCE
CONCRETE PAVEMENT
STONE WALL
BUILDING / HOUSE
COVERED AREA / OVERHANG
CABLE TV BOX
MAIL BOX
SANITARY SEWER CLEAN OUT
SANITARY SEWER MANHOLE
GAS SIGN
GAS METER
TELEPHONE BOX
ELECTRIC BOX
ELECTRIC METER
FIRE HYDRANT
WATER METER
IRRIGATION VALVE
SIGN
A/C UNIT
MONUMENT SET
MONUMENT FOUND
CALC POINT
U.E. UTILITY EASEMENT
B.L. BUILDING SETBACK LINE
CIRS 5/8" IRON ROD W/ "6854" CAP SET
IRF IRON ROD FOUND
XF "X" CUT IN CONCRETE FOUND
P.R.D.C.T. PLAT RECORDS, DENTON COUNTY, TEXAS

REVISON 3: 8/21/23 - CHANGES PER CLIENT REQUEST
REVISON 2: 8/18/23 - CITY COMMENTS
REVISON 1: 3/15/23 - UPDATED TREE TABLE AND SYMBOLS

TRINITY
LAND SURVEYING LLC
1222 Greenbrier St. Denton, Texas 76201 FIRM # 10194687 Tel. No. (940) 293-3180

Scale	Drawn by	Checked by	Date	Project No.	Sheet No.
1" = 30'	MLB	TLS	08/21/2023	2023-011	1 OF 1

MICHAEL BLACK 8/23/2023 3:21 PM Z:\SHARED\PROJECT FOLDER\2023\-ARCHIVE\2023-011 6700 PALERMO TRL, FLOWER MOUND\DWG\2023-011 6700 PALERMO TRL, FLOWER MOUND 1X1.DWG

TREE SURVEY SHOWN HEREON PROVIDED BY TRINITY LAND SURVEYING.
OVERLAY OF PROPOSED CONDITIONS BY DISCIULLO–TERRY, STANTON & ASSOCIATES, INC.

0 15 30 60 90
Graphic Scale In Feet

STATE OF TEXAS
REGISTERED
JOYCE P. STANTON
6173
PROFESSIONAL
LAND SURVEYOR
Joyce Stanton
9/5/2023

DI SCIULLO-TERRY, STANTON & ASSOCIATES, INC.
ENGINEERING AND SURVEYING
908 WEST MAIN STREET * ARLINGTON, TEXAS 76013
(817) 275–3361
ESTABLISHED 1953 * FIRM Nos. E–615 and S–100049–00

TREE EXHIBIT
6700 PALERMO TRAIL
LOT 64, BLOCK D
TERRACINA
PHASE I
FLOWER MOUND, DENTON COUNTY, TEXAS

DESIGNED: JPS	SCALE: 1"=10'	DATE: MAY 2023	PROJECT No.: E–1274	SHEET: 6
DRAWN: JMC				
CHECKED: JPS				

© DISCIULLO–TERRY, STANTON & ASSOCIATES, INC. 2023

P:\TERRACINA - FLOWER MOUND\CONSTRUCTION PLANS\DWG\6-TREE EXHIBIT.dwg, 1:1

ENVIRONMENTAL CONSERVATION COMMISSION AGENDA H.3. REGULAR ITEM(S)

DATE: October 3, 2023
FROM: Matthew Woods, Director of Environmental Services
ITEM: **Consider a recommendation to the Planning and Zoning Commission and Town Council of an Open Space Management Plan and Concept Plan for the proposed Hines Conservation Development. The property is generally located north of Cross Timbers Road and west of Kimball Xing.**

BACKGROUND: The applicant will present the conceptual plan and Open Space Management Plan for the proposed Hines Conservation development project. The site is currently zoned for Agricultural uses and master planned for Cross Timbers Conservation Development District. The applicant is requesting to rezone the property to Planned Development District No.196 (PD-196) for a conservation development. The Hines Conservation development consists of approximately 148 acres.

The property is generally located north of Cross Timbers Road and west of Kimball Xing and Pepper Creek Ranch. The project site is located in the Cross Timbers Conservation Development District, as designated within the Town's Master Plan. This site contains some characteristics of the Eastern Cross Timbers Forest that are found in this part of Texas, throughout eastern Oklahoma, and into Kansas. The current zoning for the property is agricultural with a minimum two acre lot size. The Town's conservation development option provides standards for residential development projects in which dwelling units are located on smaller lots than would otherwise be allowed for the purpose of preserving open or natural lands.

For projects within the Cross Timbers Conservation Development District, the preservation of 45% of the gross land as open space is established within the Town's conservation development standards. The proposed Hines development designates approximately 47% of the gross land as open space. The portion of the site that is left undeveloped may be placed in a conservation easement that is held by a third-party land trust or other qualified entity, or through other approved methods established within the conservation development standards, such as a Homeowners' Association. All of the open space areas within the proposed subdivision would be maintained by the Homeowners' Association.

Some of the Environmentally Sensitive Areas (ESAs) defined in the Town's SMARTGrowth Program are located on this property, and the predominant tree species on the property include: post oak, black jack oak, and cedar elm trees. ESAs located on the property include: upland habitat, Waters of the State, wetlands, floodplain, and topographical slope protection. The applicant has submitted their Environmental Protection Plan (EPP) as part of the development application. The current design and layout of the development proposes to incorporate non-jurisdictional ponds and wetlands into the open space plan where possible and mitigate any impacts through the drainage plan and/or any required U.S. Army Corps of Engineers permits. The applicant is required to comply with applicable U.S. Army Corps of Engineers requirements and permitting relative to any impacts to regulated wetlands or other jurisdictional Waters of the U.S. An approved floodplain boundary is pending Town and FEMA review and approval. Proposed mitigation for potential impacts to floodplain associated with equestrian and pedestrian trails includes utilizing only permeable surfaces on those trail

sections, subject to Town approval. The applicant is proposing to re-establish native prairie habitat within portions of the designated open space. The applicant is also requesting an exception from Town Council to the slope protection requirements as outlined in the Town's SMARTGrowth requirements due to proposed impacts to protected topographical slopes.

BOARD REVIEW/CITIZEN FEEDBACK: As of September 29, 2023, staff has not received feedback related to this item.

ALTERNATIVES: N/A

FISCAL IMPACT: N/A

LEGAL REVIEW: N/A

ATTACHMENTS:
1. Letter of Intent
2. Concept Development Plan
3. Open Space Management Plan
4. Environmental Protection Plan

DRAFT MOTION: Move to approve as presented in the agenda caption.

September 1, 2023

Lexin Murphy, AICP
Executive Director of Development Services
Town of Flower Mound
2121 Cross Timbers Road
Flower Mound, TX 75028

RE: FM 1171 CONSERVATION DEVELOPMENT
Planned Development Application
Letter of Intent

Ms. Murphy,

Please accept this letter, on behalf of Hines, as an explanation of the proposed Zoning Change Request for a Planned Development (PD) to establish a Conservation Development on 148 acres of land within the Cross Timbers Conservation Development District.

The proposed development will provide over 45 percent of open space in order to preserve existing trees, topography, environmental habitats, and floodplain areas found on the site. The neighborhood will complement the existing Montalcino and Pepper Creek neighborhoods that are located directly to the east; which will be connected by roadways with emergency access gates and connected through open space corridors. The development will provide the trails along FM 1171 in compliance with the Town's newly adopted Trail Plan.

EXCEPTIONS

We respectfully request a few exceptions to the Conservation Development Ordinance:

1. **Topographical Slope Protection Impact**: The site contains several pockets of steep slope areas meeting the SMARTGrowth criteria for slope greater than 12%. The design intent has been to minimize this impact as much as possible while still meeting the required design standards. The vast majority of the steep slope areas are within open space lots and will be preserved. The site includes approximately 61.59 acres of impacted slopes from 5% to 12% and 6.64 acres of impacted slopes greater than 12%.

MODIFICATIONS

We respectfully request a few modifications to the Conservation Development Ordinance:

1. **Scenic Buffer Encroachment**: The first exception is to allow for encroachment into the 200' scenic corridor buffer. This exception is needed in order to access the site from FM 1171, a street is required within the buffer. There are also steep slopes within the buffer and in order to minimize impact, the proposed streets only encroach minimally into the buffer just after the entry point from FM 1171 where the street has a T intersection to disperse traffic right or left. There are no proposed residential lots located within the buffer.

2. **Side Setback and Lot Coverage**: Due to the sizing of the houses on the lots, the side yard setback has been changed from 25' to 20' on a total of 10 lots. The lot coverage has been changed from 25% to 35%. Both requirements have been changed to allow for semi-custom homes on the lots.

The FM 1171 Conservation Development meets the standards of the Town of Flower Mound Code of Ordinances, Section 98-277 in the following ways: 1) the street has been meticulously planned in order maximize preservation of most specimen trees; 2) there was careful consideration to place specimen trees outside of the building envelope if located within lots; 3) most clusters of specimen trees and non-specimen trees are located in X lots; 4) the open space is greater than 45%; 5) the majority of lots are adjacent to open space; and 6) the open space network was designed to intentionally provide connections of open space corridors throughout the property.

As you are aware, we have held a pre-application conference with the Town staff and held a neighborhood meeting on March 22nd. The second neighborhood meeting will take place August 31st. We believe that the submitted plan meets the intent of the Town's regulations for Conservation Development and look forward to working with staff to process the application.

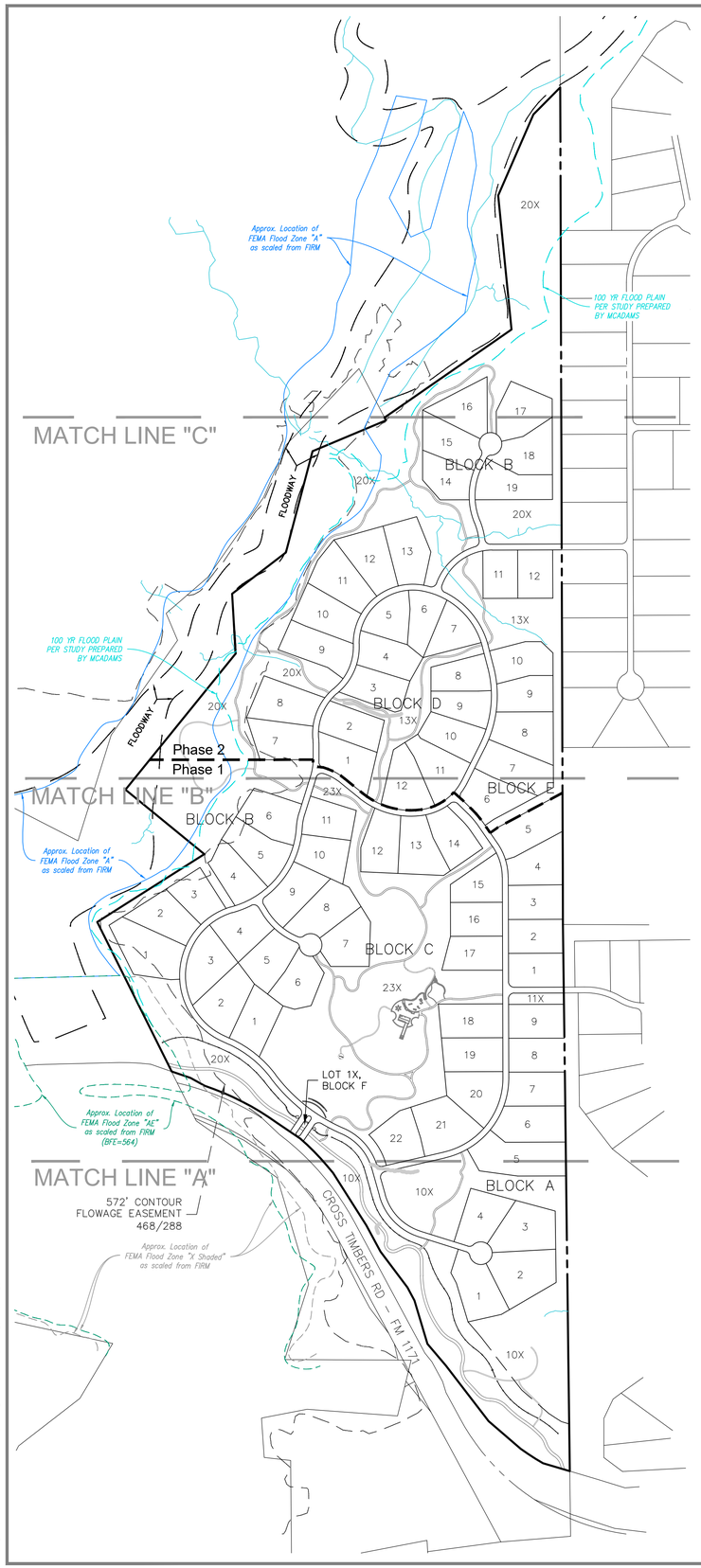
Please do not hesitate to contact us if you have any questions or need any additional information.

Sincerely,

MCADAMS

Patricia Fant

Patricia Fant, AICP
Land Planner, Planning + Design



PROJECT DATA TABLE		
Gross Site Area:	148.008 A; 6,447,226 SF	
Total Open Space:	70.21 A; 3,053,979 SF	
	47.4% of Total Gross Area	
Right-of-way:	6.389 A; 278,290 SF	
Proposed Lots:		
Residential	74	
Open Space	5	
X Lot	2	
Total:	81	
Smallest Residential Lot:	.754 A; 32,860 SF	
Largest Residential Lot:	1.451 A; 63,184 SF	
Average Residential Lot:	0.974 A; 42,427 SF	
> 1 Acre Lots:	28	37.8%
< 1 Acre Lots:	46	62.2%

OPEN SPACE LOTS ARE X LOTS THAT MEET THE TOWNS CRITERIA TO BE COUNTED TOWARD THE OPEN SPACE NUMBER. X LOTS ARE LOTS THAT ARE OPEN SPACE BUT DO NOT MEET THE TOWNS CRITERIA TO BE COUNTED TOWARD THE OPEN SPACE TOTAL.

GENERAL NOTES:

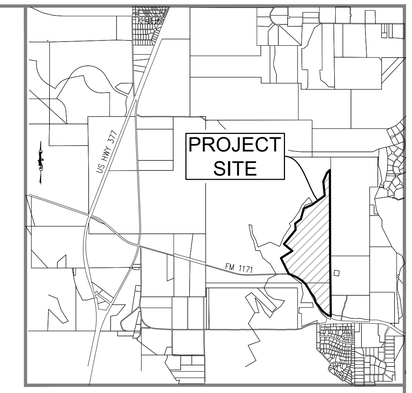
1. PURSUANT TO THE ORDINANCE NO. 36-92 OF THE TOWN OF FLOWER MOUND, TEXAS A MANDATORY HOMEOWNERS ASSOCIATION SHALL BE ESTABLISHED AND CREATED TO ASSUME AND BE RESPONSIBLE FOR THE CONTINUOUS AND PERPETUAL OPERATION MAINTENANCE AND/OR SUPERVISION OF DRAINAGE EASEMENTS, LANDSCAPING SYSTEMS OR THEIR PHYSICAL FACILITIES OF GROUND HELD IN COMMON AND NECESSARY OR DESIRABLE FOR THE WELFARE OF THE AREA OF SUBDIVISION OR THAT ARE OF COMMON USE OR BENEFIT. SAID MANDATORY HOMEOWNER'S ASSOCIATION SHALL BE RESPONSIBLE FOR THE CONTINUOUS AND PERPETUAL OPERATION MAINTENANCE AND/OR SUPERVISION OF THE LANDSCAPE SYSTEMS, FEATURES OR ELEMENTS LOCATED IN PARKWAY COMMON AREA, BETWEEN SCREENING WALLS OR LIVING SCREENS AND ADJACENT CURBS OR STREET PAVEMENT EDGES, ADJACENT TO DRAINAGE WAYS OR DRAINAGE STRUCTURES, OR AT SUBDIVISION ENTRYWAYS.

2. ALL "X" LOTS TO BE DEDICATED TO AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

3. ENVIRONMENTAL PROTECTION PLAN IS REQUIRED.

4. ANY FENCE CONSTRUCTED ADJACENT AND/OR PARALLEL TO OPEN SPACE SHALL CONSIST OF WROUGHT IRON OR TUBULAR STEEL.

5. AN OPEN SPACE MANAGEMENT PLAN IS REQUIRED.



VICINITY MAP SCALE: 1"=3000'

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 60°53'15" W	71.35'
L2	N 71°12'15" W	88.03'

Zoning Standard	Existing: Agricultural	Proposed:
Minimum Lot Area	87,120 sq. ft	32,670 sq. ft
Minimum Lot Width	200 ft	150 ft.
Minimum Floor Area	1,800 sq. ft.	2,100 sq. ft.
Minimum Front Yard	40 ft.	40 ft.
Minimum Side Yard	25 ft.	20 ft.
Minimum Rear Yard	20 ft.	20 ft.
Maximum Lot Coverage	25%	35%
Max Height (stories/ft.)	3/35 ft.	3/35 ft.

MASTER PLAN FEATURES	
Land Use Plan	Cross Timbers Conservation Development District
Urban Design Plan	Cross Timbers Conservation Development District
Parks and Trail	12' multi-use trail along F.M. 1171, 15' equestrian easement along F.M. 1171
Open Space Plan	Cross Timbers Conservation Development District
Thoroughfare Plan	F.M. 1171 – Major (Principal) Arterial : 120' ROW
Water Plan	20" Master planned water line along north side of F.M. 1171
Wastewater Plan	Cross Timbers Conservation Development District Town sewer not available.

OPEN SPACE CALCULATIONS:
OPEN SPACE IN X LOTS NOT INCLUDING FLOODWAY OR ALL PUDE UNLESS OTHERWISE NOTED

HOA LOT AREA TABLE			
LOT	BLOCK	SQUARE FEET	ACRES
10X	BLOCK A	630,517	14.475
20X	BLOCK B	1,387,672	31.857
23X	BLOCK C	695,737	15.972
13X	BLOCK D	85,081	1.953
13X	BLOCK E	144,448	3.316
	TOTAL:	2,943,455 SF;	67.57 A

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
1	BLOCK A	46,589	1.070
2	BLOCK A	56,467	1.296
3	BLOCK A	50,836	1.167
4	BLOCK A	40,860	0.938
5	BLOCK A	62,124	1.426
6	BLOCK A	47,837	1.098
7	BLOCK A	38,178	0.876
8	BLOCK A	37,042	0.850
9	BLOCK A	36,837	0.846
10X	BLOCK A	662,061	15.199
11X	BLOCK A	12,099	0.278

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
1	BLOCK B	56,345	1.293
2	BLOCK B	41,901	0.962
3	BLOCK B	32,943	0.756
4	BLOCK B	37,703	0.866
5	BLOCK B	45,848	1.053
6	BLOCK B	44,284	1.017
7	BLOCK B	43,770	1.005
8	BLOCK B	47,486	1.090
9	BLOCK B	44,805	1.029
10	BLOCK B	44,102	1.012
11	BLOCK B	47,918	1.100
12	BLOCK B	46,797	1.074
13	BLOCK B	44,914	1.031
14	BLOCK B	34,606	0.794
15	BLOCK B	40,863	0.938
16	BLOCK B	40,861	0.938
17	BLOCK B	44,657	1.025
18	BLOCK B	43,616	1.001
19	BLOCK B	43,764	1.005
20X	BLOCK B	1447,306	33.226

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
1	BLOCK C	38,560	0.885
2	BLOCK C	45,612	1.047
3	BLOCK C	42,992	0.987
4	BLOCK C	37,102	0.852
5	BLOCK C	39,297	0.902
6	BLOCK C	38,034	0.873
7	BLOCK C	42,687	0.980
8	BLOCK C	45,115	1.036
9	BLOCK C	38,815	0.891
10	BLOCK C	36,038	0.827
11	BLOCK C	33,904	0.778
12	BLOCK C	41,227	0.946
13	BLOCK C	43,935	1.009
14	BLOCK C	37,820	0.868
15	BLOCK C	35,218	0.809
16	BLOCK C	34,500	0.792
17	BLOCK C	37,566	0.862
18	BLOCK C	40,511	0.930
19	BLOCK C	39,976	0.918
20	BLOCK C	45,460	1.044

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
21	BLOCK C	48,963	1.124
22	BLOCK C	38,190	0.877
23X	BLOCK C	735,681	16.889

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
1	BLOCK D	41,077	0.943
2	BLOCK D	39,439	0.905
3	BLOCK D	37,851	0.869
4	BLOCK D	39,701	0.911
5	BLOCK D	34,173	0.784
6	BLOCK D	32,929	0.756
7	BLOCK D	32,860	0.754
8	BLOCK D	35,205	0.808
9	BLOCK D	34,517	0.792
10	BLOCK D	38,122	0.875
11	BLOCK D	43,707	1.003
12	BLOCK D	43,626	1.002
13X	BLOCK D	88,086	2.022

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
1	BLOCK E	36,437	0.836
2	BLOCK E	36,325	0.834
3	BLOCK E	36,712	0.843
4	BLOCK E	42,542	0.977
5	BLOCK E	47,825	1.098
6	BLOCK E	42,208	0.969
7	BLOCK E	48,871	1.122
8	BLOCK E	48,954	1.124
9	BLOCK E	37,292	0.856
10	BLOCK E	38,932	0.894
11	BLOCK E	32,982	0.757
12	BLOCK E	33,200	0.762
13X	BLOCK E	160,384	3.682

LOT / BLOCK ANALYSIS			
LOT	BLOCK	SQUARE FEET	ACRES
1X	BLOCK F	1,979	0.045

BLOCK ANALYSIS		
BLOCK	SQUARE FEET	ACRES
A	1090,930	25.044
B	2274,488	52.215
C	1617,204	37.126
D	541,293	12.426
E	642,665	14.754
F	1,979	0.045
ROW	278,290	6.389
OVERALL SITE	6,447,226	148.008

MCADAMS
The John R. McAdams Company, Inc.
111 Hillside Drive
Lewisville, Texas 75057
972. 436. 9712

201 Country View Drive
Roanoke, Texas 76262
940. 240. 1012
TBPE: 19762 TBPLS: 10194440
www.mcadamsco.com

CLIENT

HINES
2700 COMMERCE STREET, STE 1600
DALLAS, TEXAS 75226
PHONE: 972.716.2900
JEFF KENNEMER

SURVEYOR

JAMES STOWELL, RPLS
111 HILLSIDE DR
LEWISVILLE, TX 75057
EMAIL: JSTOWELL@MCADAMSCO.COM

ZONING CONCEPT PLAN
FM 1171 CONSERVATION DEVELOPMENT

LOTS 1-9 & 10X-11X, BLOCK A, LOTS 1-19 & 20X, BLOCK B, LOTS 1-22 & 23X, BLOCK C, LOTS 1-12 & 13X, BLOCK D, LOTS 1-12 & 13X, BLOCK E, AND LOT 1X, BLOCK F,
148.008 ACRES
B.B.B. & C.R.R. CO. SURVEY, ABSTRACT NO. 187
JAMES C. MMCGOWAN AND C. G. PITCOCK SURVEY, ABSTRACT NO. 959
TOWN OF FLOWER MOUND, DENTON COUNTY, TEXAS

PROJECT INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002 ZONING CONCEPT PLAN
CHECKED BY	RR & JP
DRAWN BY	BC
SCALE	1"=300'
DATE	06/09/2023

GRAPHIC SCALE
0 150 300 600
1 inch = 300 ft.

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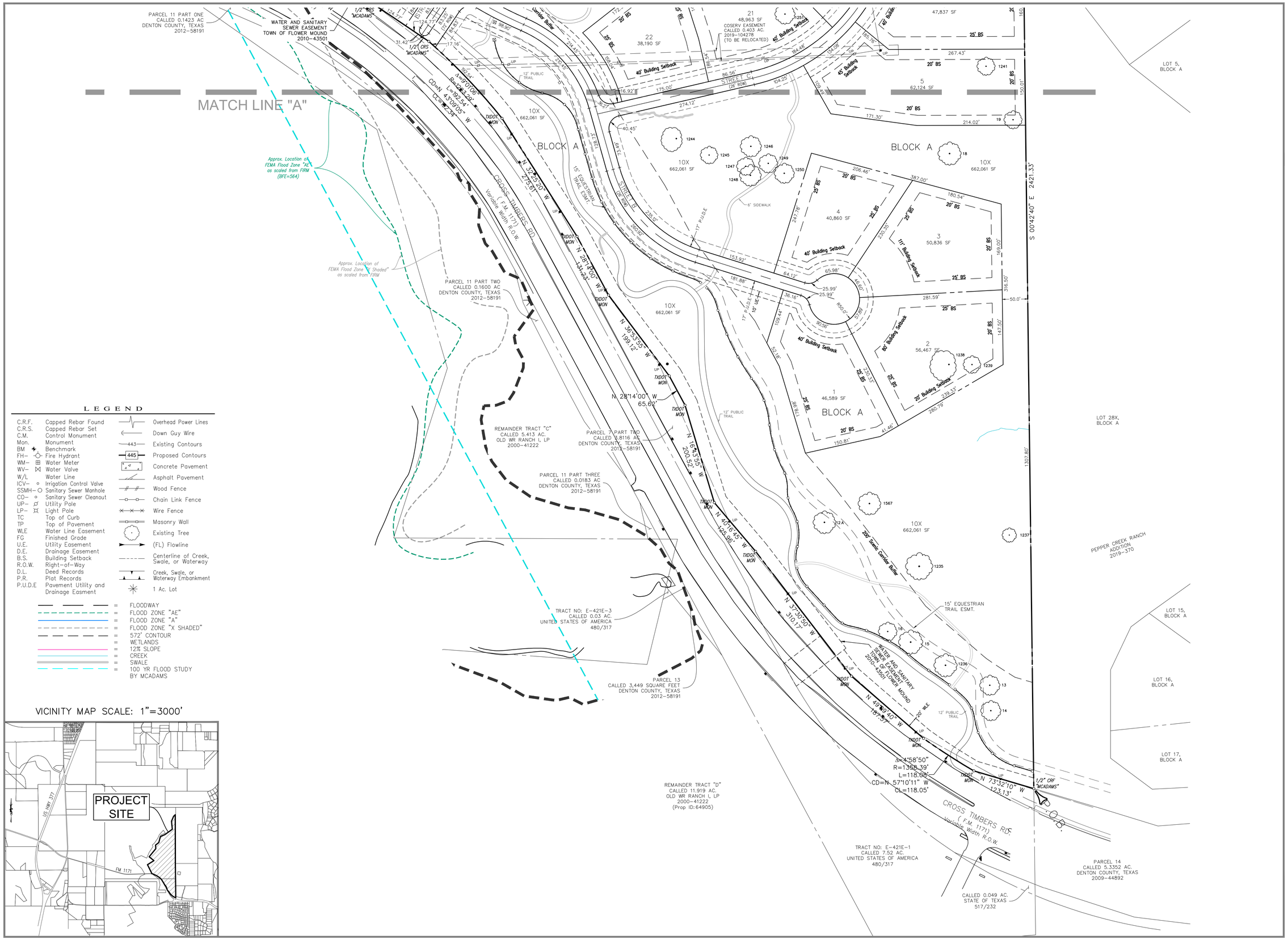

LEGEND

C.R.F.	Capped Rebar Found		Overhead Power Lines
C.R.S.	Capped Rebar Set		Down Guy Wire
C.M.	Control Monument	443	Existing Contours
Mon.	Monument	445	Proposed Contours
BM	Benchmark		Concrete Pavement
FH	Fire Hydrant		Asphalt Pavement
WM	Water Meter		Wood Fence
WV	Water Valve		Chain Link Fence
W/L	Water Line		Wire Fence
ICV	Irrigation Control Valve		Masonry Wall
SSMH	Sanitary Sewer Manhole		Existing Tree
CO	Sanitary Sewer Cleanout		(FL) Flowline
UP	Utility Pole		Centerline of Creek, Swale, or Waterway
LP	Light Pole		Creek, Swale, or Waterway Embankment
TC	Top of Curb		1 Ac. Lot
TP	Top of Pavement		
WLE	Water Line Easement		
FG	Finished Grade		
U.E.	Utility Easement		
D.E.	Drainage Easement		
B.S.	Building Setback		
R.O.W.	Right-of-Way		
D.L.	Deed Records		
P.R.	Plat Records		
P.U.D.E	Pavement Utility and Drainage Easment		

= FLOODWAY
= FLOOD ZONE "AE"
= FLOOD ZONE "A"
= FLOOD ZONE "X SHADED"
= 572' CONTOUR
= WETLANDS
= 12% SLOPE
= CREEK
= SWALE
= 100 YR FLOOD STUDY BY MCADAMS

VICINITY MAP SCALE: 1"=3000'

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www.mcadamsco.com

ZONING CONCEPT PLAN
FM 1171 CONSERVATION DEVELOPMENT
LOTS 1-9 & 10X-11X, BLOCK A, LOTS 1-19 & 20X, BLOCK B, LOTS 1-22 & 23X, BLOCK C, LOTS 1-12 & 13X, BLOCK D, LOTS 1-12 & 13X, BLOCK E, AND LOT 1X, BLOCK F,
148.008 ACRES
B.B.B. & C.R.R. CO. SURVEY, ABSTRACT NO. 187
JAMES C. MMCGOWAN AND C. G. PITCOCK SURVEY, ABSTRACT NO. 959
TOWN OF FLOWER MOUND, DENTON COUNTY, TEXAS

CLIENT

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JEFF KENNEMER

SURVEYOR

JAMES STOWELL, RPLS
111 HILLSIDE DR
LEWISVILLE, TX 75057
EMAIL: JSTOWELL@MCADAMSCO.COM

PROJECT INFORMATION

PROJECT NO.	HIN21002
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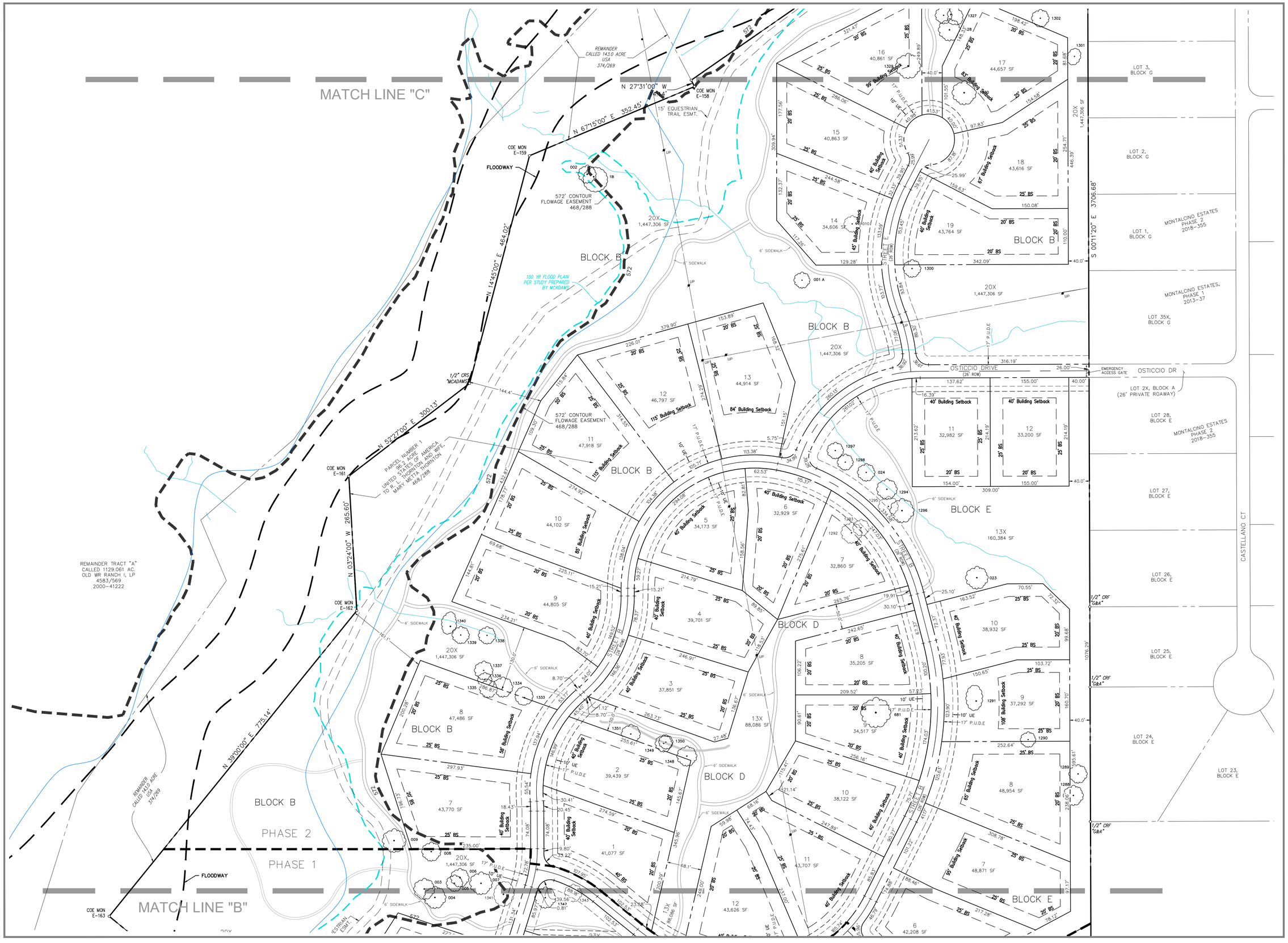

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LEGAL DESCRIPTION
148.008 ACRES

BEING all that certain lot, tract or parcel of land situated in the Buffalo Bayou, Brazos and Colorado Railroad Survey, Abstract Number 187 and the James C. McGowan and C. G. Pitcock Survey, Abstract Number 959, Town of Flower Mound, Denton County, Texas, and being part of that certain called 1,129.061 acre tract of land described as Tract "A" in deed in favor of Old WR Ranch I, L.P., recorded in Volume 4583, Page 569 of the Real Property Records of Denton County, Texas, and being more particularly described as follows:

BEGINNING at a 1/2" capped rebar found (G&A) on the east line of said 1,129.601 acre tract, said point being the southwest corner of Lot 28X, Block A of Pepper Creek Ranch Addition, an addition to the Town of Flower Mound, Denton County, Texas, according to the Record Plat thereof recorded in Document Number 2019-370 of the Plat Records of Denton County, Texas, and being the most easterly northeast corner of that certain called 3.8116 acre tract of land described as Parcel 7 Part 2 in favor of Denton County, Texas, recorded in Document Number 2012-58191 of the Real Property Records of Denton County, Texas, and being the northwest corner of that certain called 5.3352 acre tract of land described as Parcel 14 in deed in favor of Denton County, Texas, recorded in Document Number 2009-44892 of the Real Property Records of Denton County, Texas and being on the north line of F.M. 1171 as evidenced by said deeds to Denton County, Texas, from which the most southerly and easterly southeast corner of said 1,129.601 acre tract bears S 00°42'40" E, 210.5 feet;

THENCE N 73°32'10" W, 123.13 feet with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found (TXDOT MON);

THENCE continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract with the arc of a non-tangent curve to the right having a radius of 1,358.39 feet, a central angle of 04°58'50" and an arc length of 118.08 feet whose chord bears N 57°10'11" W, 118.05 feet to a Texas Department of Transportation monument found;

THENCE N 49°09'40" W, 187.57 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 37°30'50" W, 310.17 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 40°16'45" W, 125.96 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 16°43'55" W, 200.52 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 28°14'00" W, 65.62 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 36°53'55" W, 199.12 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 28°14'00" W, 131.23 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE N 32°25'20" W, 275.61 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a Texas Department of Transportation monument found;

THENCE continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract with the arc of a non-tangent curve to the left having a radius of 1,223.29 feet, a central angle of 09°49'20" and an arc length of 209.71 feet whose chord bears N 43°33'12" W, 209.45 feet to a 1/2" capped rebar set (MCADAMS);

THENCE N 55°58'50" W, 124.77 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a 1/2" capped rebar set (MCADAMS);

THENCE continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract with the arc of a non-tangent curve to the left having a radius of 1,213.29 feet, a central angle of 17°04'00" and an arc length of 361.40 feet whose chord bears N 62°50'56" W, 360.07 feet to a 1/2" rebar found;

THENCE N 60°53'15" W, 71.35 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to a 1/2" rebar found;

THENCE N 71°12'15" W, 88.03 feet continuing with the north line of said F.M. 1171 and the north line of said 3.8116 acre tract to the most westerly northwest corner of said 3.8116 acre tract, being on the southerly line of that certain called 96.2 acre tract of land described as Parcel Number 1 in quitclaim deed in favor of R. L. Thornton and wife, Mary Metta Thornton recorded in Volume 468, Page 288 of the Deed Records of Denton County, Texas, from which a Texas Department of Transportation monument found for witness bears N 74°05' W, 0.9 feet;

THENCE N 26°26'00" W, 739.42 feet with the southerly line of said 96.2 acre tract to United States Army Corps of Engineers concrete monument with brass cap stamped "E-165" found;

THENCE N 57°36'00" E, 560.75 feet continuing with the southerly line of said 96.2 acre tract to a United States Army Corps of Engineers concrete monument with brass cap stamped "E-164" found;

THENCE N 50°43'00" W, 450.77 feet continuing with the southerly line of said 96.2 acre tract to a United States Army Corps of Engineers concrete monument with brass cap stamped "E-163" found;

THENCE N 39°00'00" E, 775.14 feet continuing with the southerly line of said 96.2 acre tract to a United States Army Corps of Engineers concrete monument with brass cap stamped "E-162" found;

THENCE N 03°24'00" W, 265.60 feet continuing with the southerly line of said 96.2 acre tract to a United States Army Corps of Engineers concrete monument with brass cap stamped "E-161" found;

THENCE N 52°27'00" E, 300.13 feet continuing with the southerly line of said 96.2 acre tract to a 1/2" capped rebar set (MCADAMS);

THENCE N 14°45'00" E, 464.02 feet continuing with the southerly line of said 96.2 acre tract to a United States Army Corps of Engineers concrete monument with brass cap stamped "E-159" found;

THENCE N 67°15'00" E, 352.45 feet with the southerly line of said 96.2 acre tract to a United States Army Corps of Engineers concrete monument with brass cap stamped "E-158" found;

THENCE N 27°31'00" W, 14.14 feet to a 1/2" capped rebar set (MCADAMS);

THENCE N 55°13'20" E, 683.58 feet to a 1/2" capped rebar set (MCADAMS);

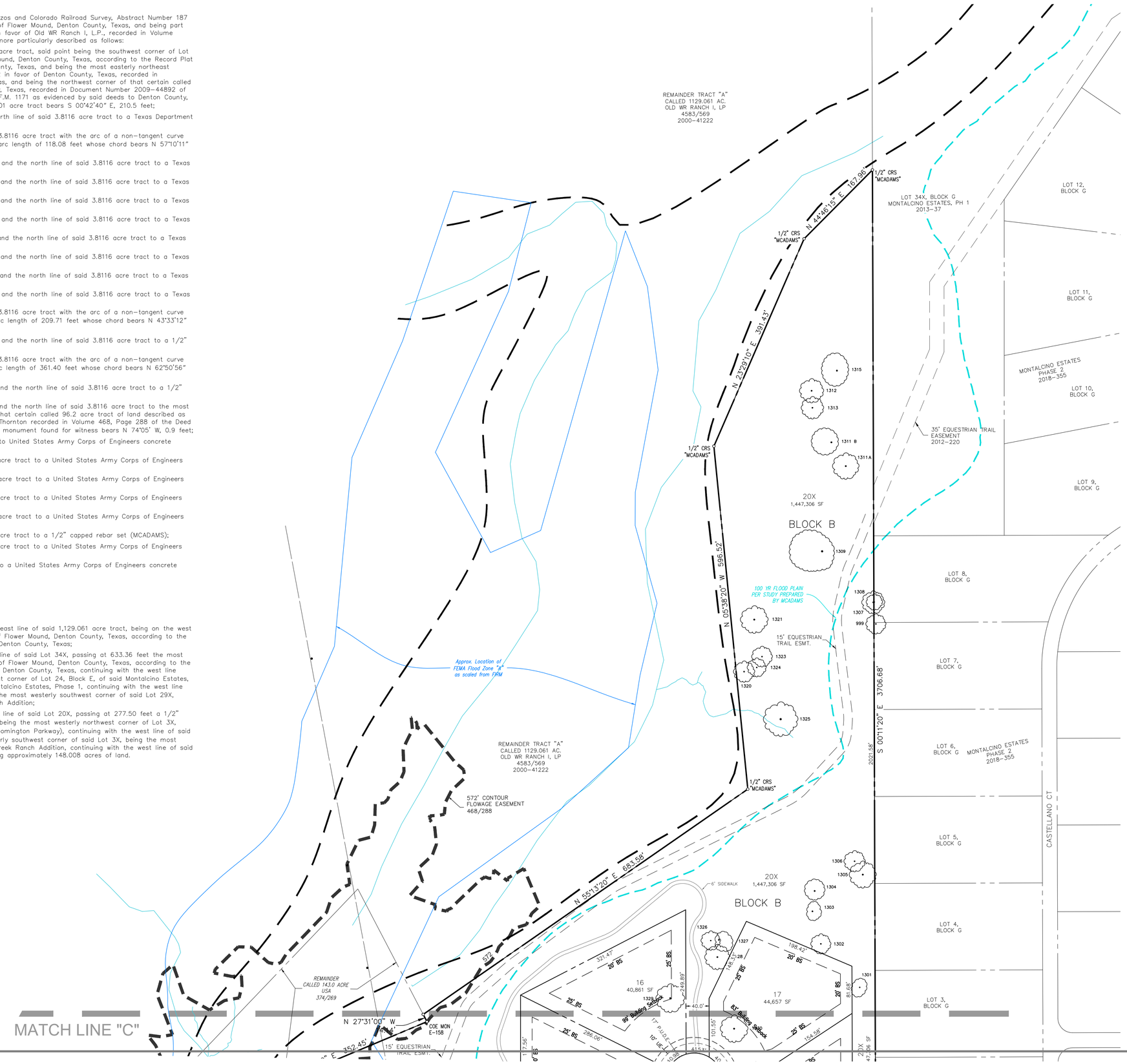
THENCE N 05°38'20" W, 596.52 feet to a 1/2" capped rebar set (MCADAMS);

THENCE N 23°29'10" E, 391.43 feet to a 1/2" capped rebar set (MCADAMS);

THENCE N 44°46'15" E, 167.96 feet to a 1/2" capped rebar set (MCADAMS) on the east line of said 1,129.061 acre tract, being on the west line of Lot 34X, Block G of Montalcino Estates, Phase 1, an addition to the Town of Flower Mound, Denton County, Texas, according to the record plat thereof recorded in Document Number 2013-37 of the Plat Records of Denton County, Texas;

THENCE S 00°11'20" E, with the east line of said 1129.061 acre tract and the west line of said Lot 34X, passing at 633.36 feet the most westerly northwest corner of Montalcino Estates, Phase 2, an addition to the Town of Flower Mound, Denton County, Texas, according to the record plat thereof recorded in Document Number 2018-355 of the Plat Records of Denton County, Texas, continuing with the west line thereof, passing at 2289.82 feet a 1/2" capped rebar found (G&A) at the southwest corner of Lot 24, Block E, of said Montalcino Estates, Phase 2, being the most westerly northwest corner of Lot 29X, Block E of said Montalcino Estates, Phase 1, continuing with the west line thereof a total distance of 3,706.68 feet to a 1/2" capped rebar found (G&A) at the most westerly southwest corner of said Lot 29X, being the northwest corner of Lot 20X, Block B of the aforesaid Pepper Creek Ranch Addition;

THENCE S 00°42'40" E, with the east line of said 1,129.061 acre tract and the west line of said Lot 20X, passing at 277.50 feet a 1/2" capped rebar found (G&A) at the most westerly southwest corner of said Lot 20X, being the most westerly northwest corner of Lot 3X, Block D of said Pepper Creek Ranch Addition (being a private roadway known as Bloomington Parkway), continuing with the west line of said Lot 3X, passing at 303.5 feet a 1/2" capped rebar found (G&A) at the most westerly southwest corner of said Lot 3X, being the most westerly northwest corner of the aforementioned Lot 28X, Block A of said Pepper Creek Ranch Addition, continuing with the west line of said Lot 28X a total distance of 2,421.33 feet to the POINT OF BEGINNING and containing approximately 148.008 acres of land.



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OPEN SPACE MANAGEMENT PLAN
Planned Development District 196 - (PD-196)
FM 1171 Conservation Development

Maintenance of Common Areas:

The Hines Conservation Subdivision has dedicated **67.57 acres** as open space, which is equivalent to **45.7%** of the gross land acreage.

The open space is divided into different classifications according to its present state or its intended or future uses. All Open Space Common Areas are to be conveyed to the Homeowners Association (HOA) by the Developer. The HOA will be established by the Developer as a Nonprofit Corporation. The members will be the Hines Conservation Subdivision Lot owners with one (1) vote for each Lot owner in all matters. A Board of Directors will be elected by the homeowners to manage and oversee the business and all other matters of the HOA, including the conservation requirements of the Town.

The structure and guidelines for the HOA will be defined by the Dedications and Restrictions (Deed Restrictions), which will be recorded by the Developer after the Final Plat is approved, as required by the Town. The Covenants Conditions and Restrictions shall set forth all enforcement guidelines.

The maintenance and management of the Common Areas will be the responsibility of the HOA Board of Directors. The Common Areas and their care will be as follows:

1. **Zone A – Wooded Natural Open Space**
    a. Description:
        i. Wooded areas with tree coverage ranging from 25-100%.
        ii. Wooded open space areas may include steep slopes, riparian habitat, and upland wooded habitat.
        iii. Wooded open space areas are comprised of approximately 27.66 acres.
    b. Maintenance:
        i. This open space will remain primarily in its natural state with all wildlife habitats virtually undisturbed.
        ii. Limited clearing and maintenance shall be performed to accommodate improvements within this open space to preserve habitats.
        iii. Limited grading may be performed to install passive amenities, including but not limited to decomposed granite trails, sidewalks, infrastructure, equestrian trails or seating areas.
        iv. Heavily treed areas will be under the supervision of an ISA certified arborist or certified forester, retained by the Developer and/or the HOA
        v. Eco-fringe (40’ max) buffer within this zone may be maintained regularly to a maximum depth of 20’ from a residential lot line.
    c. Uses:
        i. In coordination with the native open space, the wooded open space areas will contribute to the rural vistas and may be used for hiking, wildlife observation, and other passive recreation.

2. **Zone B – Native Open Space**
    a. Description:
        i. Open space within the development that lacks significant tree cover. They are not a part of the ancient Cross Timbers habitat, and therefore do not need to be maintained as they are. The plan is to over-seed and maintain the meadows with native grasses and wildflowers, which will be part of the scenic country vistas along FM 1171 and some of the interior open spaces.
        ii. Native open space areas are comprised of approximately 18.30 acres.
    b. Maintenance:
        i. Grading may be performed to install passive amenities, including but not limited to decomposed granite trails, sidewalks, infrastructure, equestrian trails or seating areas.
        ii. Bramble sprouts and under growth may be controlled by cultivation or herbicide.
        iii. Natural prairie open space will be mowed twice a year during June 15th-30th and November 1st-15th. Mow height shall not remove plant material lower than 8”. Mowing may not occur during the blooming cycle.
        iv. Natural prairie open space will over-seeded with native grasses in the spring and wildflowers in the spring or fall depending on species until such time that the wildflowers and native grasses will replace existing Bermuda grass.
        v. Eco-fringe (40’ max) buffer within this zone may be maintained regularly to a maximum depth of 20’ from a residential lot line.
    c. Uses:
        i. Scenic views are a significant function for the meadows, and may be used for passive recreation

3. **Zone C – Transition Open Space**
    a. Description:
        i. Transition open space may be located adjacent to lots, within landscape buffers, and within trail connections.
        ii. Semi-manicured open space areas comprised of approximately 15.36 acres.
    b. Maintenance:
        i. Open space area to be maintained quarterly.
        ii. Tree canopy areas may be limbed up to and clearing of understory plant material including saplings up to 4” in diameter is allowed.
        iii. All easements are to be planted or maintained with native vegetation. Bar ditches within X-lots are to be sodded with Buffalo sod.
    c. Uses:
        i. Eco-fringe (40’ max) buffer within this zone may be maintained regularly to a maximum depth of 20’ from a residential lot line.

4. **Zone D – Estate Open Space**

a. Description:
    i. Open space located along streets, adjacent to trails, within landscape buffers, between lots, and within trail connections in open space areas.
    ii. Estate open space areas comprised of approximately 6.25 acres.
b. Maintenance:
    i. Open space are to be maintained bi-weekly. Regular mowing as needed per seasonal grass growth.
    ii. Tree canopy areas may be limbed up to and clearing of understory plant material including saplings up to 4” in diameter is allowed.
    iii. Edge between Bermuda grass and native grasses to be maintained by herbicidal or mechanical means
    iv. All easements are to be planted or maintained with native vegetation. Bar ditches within X-lots are to be sodded with Buffalo sod.
    v. Supervision and maintenance of culverts
c. Uses:
    i. Pedestrian access throughout the open space for the residents and guest
    ii. Private parks and amenities
    iii. Drainage and utilities

5. Zone E – P.U.D.E.

a. Description:
    i. Open space located adjacent to the street ROW and identified on the plans.
    ii. P.U.D.E. areas are comprised of approximately 2.63 acres.
b. Maintenance:
    i. Open space are to be maintained bi-weekly. Regular mowing as needed per seasonal grass growth.
    ii. All easements are to be planted or maintained with native vegetation. Bar ditches within X-lots are to be sodded with Buffalo sod.
c. Uses:
    i. Drainage and utilities

The objective for all areas is to establish a program - which will be embraced by the members of the HOA - to restore the native settings of the meadows, and woodlands, and maintenance of grasslands and then be subject to an ongoing Conservation Program.

The husbandry by the HOA will provide an environment which will be much more than isolated and forgotten woodlands, and meadows, but rather a natural habitat to be preserved, protected and enjoyed by all. Native grasses and wildflowers shall come from species within the Native American Seed company mixes – “Blackland Prairie Mix”, “Shade-Friendly Grass Mix”, and “Native Texas Mix” are all potential options. Grasslands are the enjoyment of use by residents.

Prohibited activities include but are not limited to the removal of protected trees within the open space unless otherwise allowed by town ordinance, burning, dumping or illegal activities as listed in the Town of Flower Mound’s Code of Ordinances.

All open space areas shall be supervised by the Conservation Committee appointed by the HOA Board of Directors. The Conservation Committee will be under the supervision of an ISA certified arborist, certified forester, or by an environmental scientist or biologist to be retained by the HOA. The Conservation Committee will fulfill the conservation covenants as provided in the deed restrictions.

The HOA will be required to go before the ToFM Environmental Conservation Commission (ECC) annually to present an update on the state of the open space areas within this development.

Please refer to the open space plan, the environmental protection plan (EPP), and the Planned Development – 196 (PD-196) for additional clarification.

GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- ZONE A - WOODED NATURAL OPEN SPACE
- ZONE B - NATIVE OPEN SPACE
- ZONE C - TRANSITION OPEN SPACE
- ZONE D - ESTATE OPEN SPACE
- UPLAND WOODED HABITAT
- EXISTING TREE CANOPY
- CREEK OR STREAM
- ECO-FRINGE BUFFER
- 20 FT OFFSET INTO ECO-FRINGE BUFFER
- BAR DITCH AREA WITHIN OPEN SPACE
- LESS BAR DITCH AREA WITHIN OPEN SPACE
- P.U.D.E. AREAS

OPEN SPACE CALCULATIONS

OPEN SPACE CATEGORIES	AREA (AC)	PERCENTAGE
WOODED NATURAL OPEN SPACE	27.66	18.7%
NATIVE OPEN SPACE	18.30	12.4%
TRANSITION OPEN SPACE	15.36	10.4%
ESTATE OPEN SPACE	6.25	4.2%
TOTAL OPEN SPACE	**67.57**	**45.7%**

Notes:

1. **Parkland acreage required for this development equals 2.49 ac. The acreage of the active park designed on site equals 0.62 ac. (+/- 10%).**
2. **Areas within the floodway are to remain in their natural state.**

OPEN SPACE LOTS

LOT	BLOCK	AREA (AC)
10X	A	14.48
20X	B	31.86
23X	C	15.97
13X	D	1.95
13X	E	3.32
TOTALS		**67.57**

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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DALLAS, TEXAS 75226
972. 716. 2900
JEFF KENNEMER

HINES CONSERVATION SUBDIVISION

TOWN OF FLOWER MOUND
DENTON COUNTY, TEXAS

PRELIMINARY PLANS
THIS DOCUMENT IS FOR INTERIM REVIEW AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.
JAMESON W. PINSON LANDSCAPE ARCHITECT # 2826
DATED 8/31/2023

REGISTERED LANDSCAPE ARCHITECT
JAMESON W. PINSON
2826
STATE OF TEXAS

REVISIONS

NO.	DATE	DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-OSP.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	80 SCALE
DATE	08.31.2023

SHEET

OPEN SPACE PLAN

L3.00

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GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- ZONE A - WOODED NATURAL OPEN SPACE
- ZONE B - NATIVE OPEN SPACE
- ZONE C - TRANSITION OPEN SPACE
- ZONE D - ESTATE OPEN SPACE
- UPLAND WOODED HABITAT
- EXISTING TREE CANOPY
- CREEK OR STREAM
- ECO-FRINGE BUFFER
- 20 FT OFFSET INTO ECO-FRINGE BUFFER
- BAR DITCH AREA WITHIN OPEN SPACE
- LESS BAR DITCH AREA WITHIN OPEN SPACE
- P.U.D.E. AREAS

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

McADAMS

The John R. McAdams Company, Inc.
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Roanoke, Texas 76262

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fax 972. 436. 9715
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CLIENT

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OPEN SPACE PLAN

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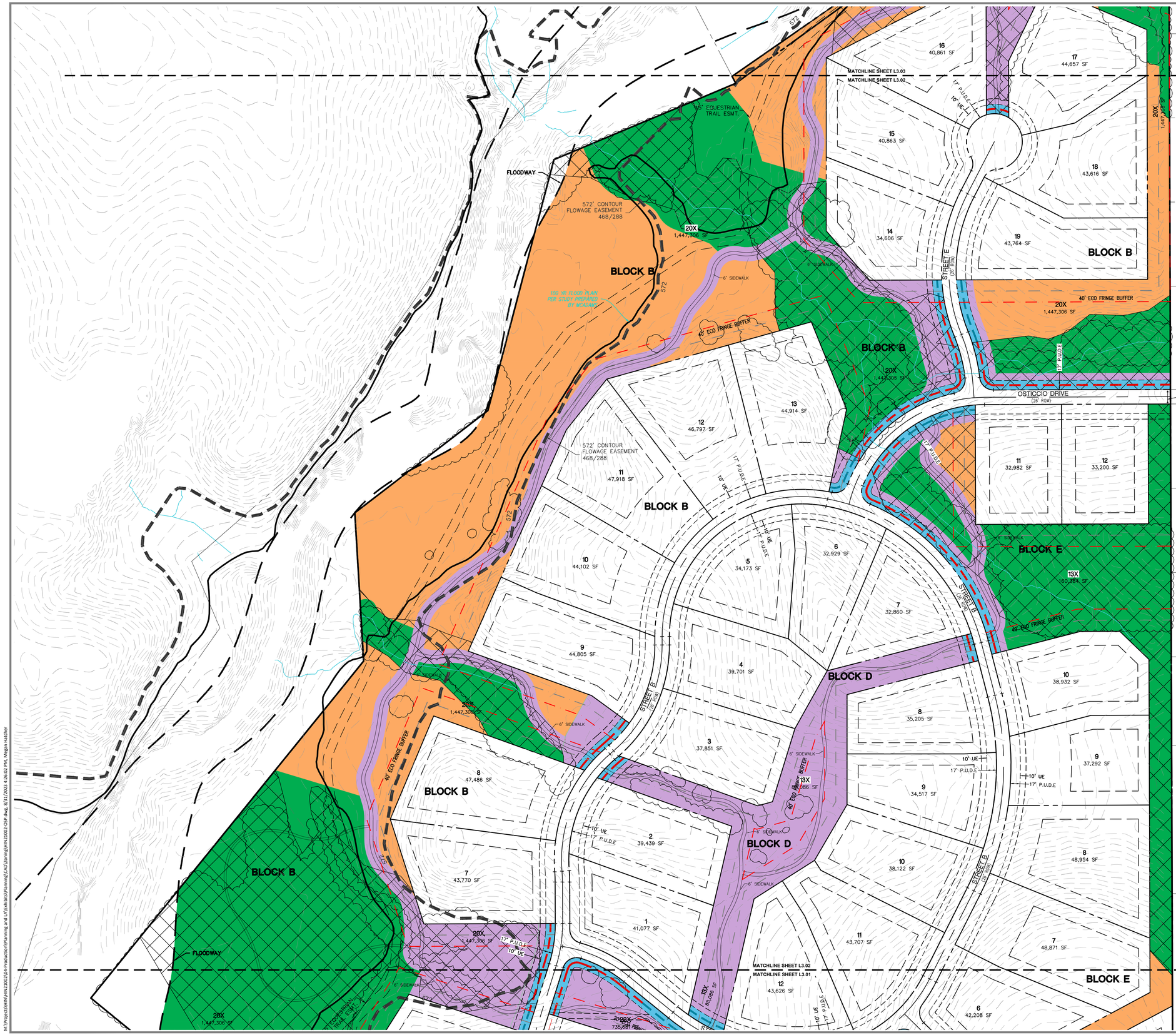

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1 inch = 80 ft.

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OPEN SPACE PLAN

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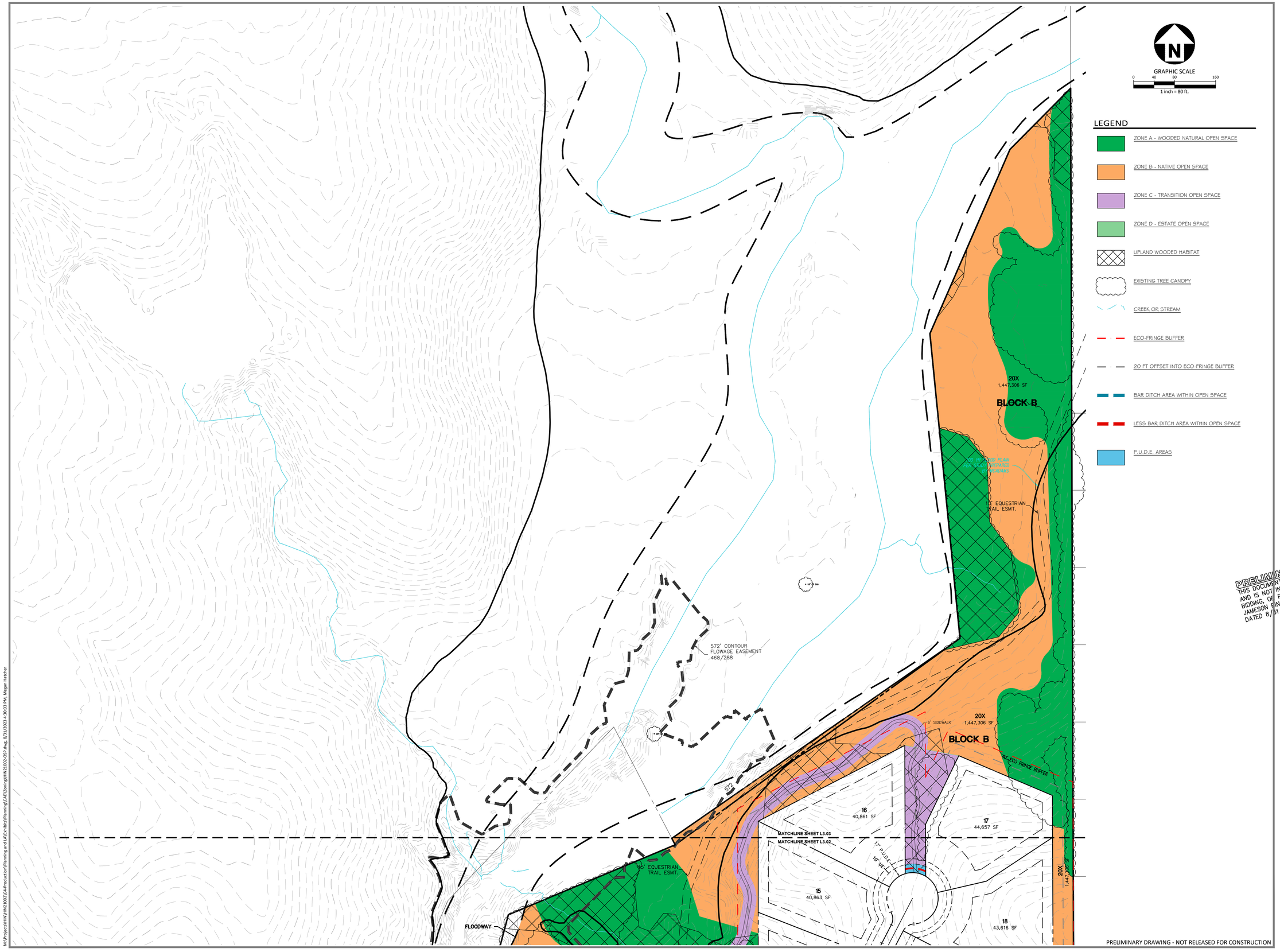

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STATE OF TEXAS

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ENVIRONMENTAL PROTECTION PLAN

FM 1171 Conservation Development EPP

9800 Cross Timbers Road, Flower Mound, Texas

August 8, 2023

Apex Job No: MCA005-0312725-22003958

Prepared for:

McAdams

111 Hillside Drive

Lewisville, TX 75057

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Appendix 4 USDA-NRCS Custom Soil Resource Report for Denton County, Texas:

Apex Companies, LLC (Apex), developed this Environmental Protection Plan (EPP) for the proposed FM 1171 Conservation Development located on approximately 148 acres of undeveloped land at 9800 Cross Timbers Road in Flower Mound, Denton County, Texas (Site). This EPP was completed to comply with Environmental Survey requirements in Section 98-149 of the Town of Flower Mound's SMARTGrowth Program (Ord. No. 41-02, §3.01.1(d)5.e., 7-15-2002). The regional location of the Site is illustrated in **Figure 1** (see **Appendix 1** for all Figures).

Environmentally Sensitive Areas (ESAs) are defined in the Town of Flower Mound SMARTGrowth Program. The Town requires the preparation of an EPP prior to certain approvals of residential and non-residential developments at properties where ESAs are identified. The purpose of the EPP is to describe the ecological setting and condition of the property, identify and map ESAs, and present best management practices (BMPs) to "protect, conserve and/or restore" ESAs at the Site. The EPP commonly also addresses other elements of the SMARTGrowth Program that include the identification of jurisdictional wetlands or waters of the U.S. (WOTUS), topographic slope protection (varying degrees of protection for slopes greater than five and 12 percent), and water impoundment protection (protection for impoundments with surface area capacity equal to or greater than 0.5 acres). The EPP also commonly addresses potential impacts to rare, threatened, and endangered species. In addition, the EPP proposes opportunities to involve and educate the public.

The Town did not publish an Environmentally Sensitive Area Survey prior to the preparation of this EPP. Apex conducted Site reconnaissance for this EPP between June 10 and 28, 2019.

ESAs identified at the Site include Waters of the State, WOTUS, Upland Habitat, Undeveloped Floodplains, and slopes that meet the topographic slope protection criteria. ESAs classified as Upland Habitat are presented in **Figure 2**. ESAs classified as aquatic features (i.e., streams, wetlands, and impoundments) are presented in **Figure 3**. Note that the potential WOTUS identified in **Figure 3** were based on rules in place prior to the Navigable Waters Protection Rule (NWPR), which went into effect on June 22, 2020, and were subsequently vacated on August 30, 2021. Floodplains identified within the Site are illustrated in **Figure 4** and protected slopes are depicted in **Figure 5**. The proposed Site Plan includes planned road and trail networks as well as planned residential lots. The proposed Site Plan is illustrated in **Figure 6**. Proposed Site Plan impacts to identified ESAs and protected slopes are illustrated in **Figures 7, 8 ,9 and 10.**

Table ES-1 provides a summary of the ESAs identified on Site and the proposed mitigation strategy to accommodate the proposed Site Plan.

Table ES-1. ESA summary table.

ESA	ESA Details	ESA Impacts and Mitigation
Water of the State (WOS)	• A total of 0.774 acres of WOS including 0.546 acres of ponds and 0.228 acres of wetlands. • 698 linear feet of swales/non-WOTUS drainage features. • 2,779 linear feet of ephemeral streams. • 0.146 acres of non-WOTUS ponds and 0.039 acres of non-WOTUS wetlands	The Site Plan includes impacts to: • 0.229 acres of WOS including 0.039 acres non-WOTUS aquatic features. • 698 linear feet of swales/non-WOTUS drainage features. • 2,635 linear feet of ephemeral stream. Impacts to Waters of the State are mitigated by incorporating their flow within the on-Site drainage plan. Mitigation of impacts to waters of the U.S. are discussed below.
Waters of the U.S. (WOTUS)	• 0.189 acres of wetlands. • 0.400-acres of on channel ponds. • 2,779 linear feet of ephemeral streams.	The Site Plan includes impacts to: • 2,635 linear feet of potentially jurisdictional ephemeral stream. • 0.189 acres of impacts to potentially jurisdictional wetlands. The project will require a Section 404 Clean Water Act permit for WOTUS impacts based on the final grading plan. Once received, the permit will be provided to Town staff. Mitigation will be in accordance with the applicable USACE permit requirements.
Floodplains	• 14.157 acres of undeveloped floodplain.	The Site Plan includes 1.473 acres impacts from proposed equestrian and pedestrian trails. Mitigation will occur through use of only permeable trail surfaces. No other floodplain impacts are proposed.
Riparian Habitat	No Riparian Habitat was identified at the Site.	N/A
Upland Habitat	33.93 acres of Upland Habitat.	The Site Plan includes impacts to 16.87 acres of Upland Habitat Mitigation of Upland Habitat impacts will occur by payment into the tree mitigation fund at $15,000 per acre for 33.935 acres.
Prairie Habitat	No Prairie Habitat was identified at the Site	N/A
Topographic Slope Protection	• 90.81 acres identified as areas with protected slopes equal to or greater than 5 percent and less than 12 percent. • 15.33 acres identified as areas with protected slopes of 12 percent and greater.	The Site Plan includes impacts to: • 61.59 acres of protected slopes between 5 percent and less than 12 percent • 6.64 acres of protected slopes of 12 percent and greater. Impacts to protected slopes 12 percent and greater will require a waiver from the Town.

ESA	ESA Details	ESA Impacts and Mitigation
		Construction activities in areas with a slope between 5 percent and less than 12 percent may proceed with limitations per the Topographic Slope Protection requirements in the SMARTGrowth plan. An exception is required from the Town for impacts to slopes between 5 percent and less than 12 percent beyond 5 feet of the footprint of proposed structures and to slopes of 12 percent or greater.
Specimen Trees	McAdams will provide a Tree Survey to the Town at a later date, during the Development Plan phase of the proposed project.	An application for specimen tree removal will be submitted to the Town for review and approval, if necessary.

The overall ecological health of the Site varies depending on the location within the Site. The eastern portion of the Site consists of relatively undisturbed wooded areas comprised of a predominant matrix of tree species identified on the Town's protected tree list. This area is largely classified as Upland Habitat. Most of the remaining property has been developed for agricultural use in improved pastures.

The Site generally slopes and drains to the west and south. The northern and western portion of the Site has several ephemeral streams draining west to the offsite perennial stream Whites Branch and its unnamed perennial tributary. In the southern portion of the Site there is a contiguous wetland system consisting of an ephemeral stream, a pond, and an adjacent wetland.

The Site does not contain any Prairie Habitat or Riparian Habitat per the Town's SMARTGrowth Program definitions.

The potential for the proposed development to impact state and federally listed threatened and endangered species or their habitat, as well as other protected species including migratory birds and bald and golden eagles, was assessed during the preparation of this EPP. A total of 45 species of concern are identified as potentially occurring in Denton County or within the boundaries of the proposed development. Of these, four species are federally listed as threatened, endangered, or candidate species and an additional five species are listed by TPWD as state threatened. The Site does not contain potentially suitable habitat or critical habitat for any federally listed species; therefore, the proposed development will have no effect on federally listed species.

With the exception of the preservation and incorporation of the identified ESAs as natural features of the proposed development to the extent practicable, no other obvious opportunities to involve and educate the public are apparent at this time.

1.0 INTRODUCTION

1.1 Introduction and Site Location

Apex Companies, LLC (Apex) developed this Environmental Protection Plan (EPP) for the 1171 Conservation Development located on approximately 148 acres of undeveloped land immediately north of Farm-to-Market (FM) Road 1171/Cross Timbers Road with a southeastern corner located at approximately 0.46-mile distance west of the FM1171 and Montalcino Boulevard in Flower Mound (Site) at proposed address 9800 Cross Timbers Road, Flower Mound, Denton County, Texas. This EPP was completed in accordance with Environmental Survey requirements in Section 98-149 of the Town of Flower Mound's SMARTGrowth Program (Ord. No. 41-02, §3.01.1(d)5.e., 7-15-2002). The regional location of the Site is illustrated in **Figure 1** (see **Appendix 1** for all Figures).

1.2 Environmental Protection Plan (EPP) Summary

The Town of Flower Mound did not publish an Environmentally Sensitive Area (ESA) Survey prior to Apex's preparation of this EPP. ESAs were identified and mapped at the Site by Apex in accordance with the Town's SMARTGrowth requirements**.** A water of the U.S (WOTUS) delineation field survey and ESA delineation was completed by Apex between June 10 and 28, 2019. Slope analysis was completed by Apex utilizing Lidar contour data provided by McAdams.

The ESAs were delineated and mapped using Geographic Information System (GIS) mapping and field verification using a sub-meter Global Positioning System (GPS). The ESAs as delineated by Apex are depicted in **Figures 2, 3, 4, and 5.** Representative photographs of the ESAs are presented in **Appendix 2**. The potential for the proposed development to impact state and federally listed threatened and endangered species or their habitat, as well as other protected species including migratory birds and bald and golden eagles, was assessed during the preparation of this EPP.

This EPP identifies the principal flora and fauna present at the Site and indicates the overall ecological integrity/health of the Site. This EPP also describes observed on-site ESAs and describes possible best management practices (BMPs) to "protect, conserve, and/or restore" ESAs for consideration during the development of the Site.

2.0 SUBJECT PROPERTY DESCRIPTION

2.1 Site Description

The Site is comprised of approximately 148 acres of undeveloped land immediately north of Farm-to-Market (FM) Road 1171/Cross Timbers Road with a southeastern corner located at approximately 0.46-mile distance west of the FM1171 and Montalcino Boulevard in Flower Mound, at proposed address 9800 Cross Timbers Road, Flower Mound, Denton County, Texas The Site is bordered by FM1171 to the south, undeveloped land to the west, light to rural residential and agricultural land to the north and west, and light residential and to the east. The Site generally slopes and drains to the west and south. The northern and western portion of the Site has several ephemeral streams draining west to the offsite perennial stream Whites Branch and its unnamed perennial tributary. The property is mapped within the Eastern Cross Timbers ecoregion of Texas.[1] Vegetation present a the Site is generally typical to this ecoregion and includes disturbed grasslands, woodlands, and open savannah areas.

2.2 Ecological Health

The overall ecological health of the Site varies depending on the location within the Site. The majority of the Site is dominated by rangeland and grasslands that have been affected by previous vegetation clearing events and by active grazing and the subsequent predominance of pioneer vegetative species. Woody species such as honey mesquite (*Prosopis glandulosa*) are invading many of the open grassland communities on the Site.

Patches of woodlands on the Site have communities with a predominant matrix of tree species identified on the Town's protected tree list. Invasive species including Chinese privet (*Ligustrum sinese*), Japanese honeysuckle (*Lonicera japonica*), and heavenly bamboo (*Nandina domestica*) have started to become established in some areas, but their establishment was observed to be light to moderate and they have not degraded or significantly altered the ecological health of the woodland areas.

2.3 Site Topography

The topography of the Site is depicted in **Figure 5**. Apex prepared **Figure 5** using Lidar contour data provided by McAdams and using ArcMap Spatial Analyst extension tools to illustrate the detailed topography of protected slope areas present at the Site.

[1] Griffith, G. E., S. A. Bryce, J. M. Omernik, J. A. Comstock, A. C. Rogers, B. Harrison, S. L. Hatch, and D. Bezanson. 2004. Ecoregions of Texas (color poster with map, descriptive text, and photographs). Map scale 1:2,500,000. U.S. Geological Survey, Reston, Virginia. Available online at: https://www.epa.gov/eco-research/ecoregion-download-files-state-region-6#pane-41.

2.4 NWI Map

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) online Wetlands Mapper service identifies three types of wetlands within the Site – Riverine (R4SBC), Open Waters (PUBHh) and Forested (PFO1Ch). **Table 2-1** provides a summary of the mapped NWI wetlands on the Site.

Table 2-1. NWI mapped on-Site wetlands.

Classification Code	Code Description	Wetland Types
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	Riverine
PUBHh	Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/ Impounded	Open Water
PFO1Ch	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded, Diked/Impounded	Forested

2.5 Soil Survey

The U.S. Department of Agriculture Web Soil Survey maps eight soil map units occurring within the Site (**Appendix 4**). The Site is dominated by clayey and loamy soils. **Table 2-2** provides a summary of the soils occuring on the Site.

Table 2-2. Soil Map Units occurring on the Site.

Map Unit Name	Acres	Percent of Site
Birome fine sandy loam, 3 to 5 percent slopes	6	4.1%
Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	19.6	13.2%
Frio clay loam, 0 to 1 percent slopes, frequently flooded	4.8	3.3%
Gasil fine sandy loam, 3 to 8 percent slopes	2.2	1.5%
Gowen clay loam, frequently flooded	16.4	11.1%
Lewisville clay loam, 1 to 3 percent slopes	7.3	5.0%
Medlin-Sanger clay, 5 to 15 percent slopes	90	60.8%
Silstid loamy fine sand, 1 to 5 percent slopes	1.6	1.1%

2.6 Floodplain Data

During consultation with the Town, it has been confirmed that a Floodplain study identifying boundaries of the 100-year floodplain prepared by qualified specialists and using updated data is accepted in lieu of a FEMA study, which for the Site is over 11 years old (FEMA FIRM map panel 48121C0510G from April 18, 2011). The current Floodplain study for Site was prepared by McAdams Water Group in August 2022. Floodplains occurring within the Site are illustrated in **Figure 4**.

2.7 Historic Records

Aerial photographs available through Google Earth dating back to 1995 show little change at that the Site. The Site has remained as primarily pasture/agricultural land with patches of natural vegetation/wooded areas throughout the Site and along stream ravines in the western portion of the Site.

2.8 Principal Flora and Fauna Observed at the Site

Principal Fauna

During the Site reconnaissance, Apex observed and identified the following principal fauna species and/or signs of these species: American crow (*Corvus brachyrhynchos*), black vulture (*Coragyps atratus*), blue jay (*Cyanocitta cristata*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and red imported fire ants (*Solenopsis invicta*). Abundant animal burrows were observed throughout the Site.

Principal Flora

The principal plant communities identified on the Site can be divided into two broad categories: Disturbed Grasslands and Eastern Cross Timbers Woodlands and Savannah. Descriptions of the plant communities are presented below, and photographs of the Site are presented in **Appendix 2.**

<u>Disturbed Grasslands</u> – The majority of the Site is characterized by a mixture of native community with opportunistic species typical for areas of disturbance. Species observed include western ragweed (*Ambrosia psilostachya*), giant ragweed (*Ambrosia trifida*), Bermudagrass (*Cynodon dactylon*), cheatgrass (*Bromus tectorum*), Johnson grass (*Sorghum halepense*), little bluestem (*Schizachyrium scoparium*), spreading hedgeparsley (*Torilis arvensis*), and Virginia wildrye (*Elymus virginicus*). Other principal species identified in these areas include honey locust (*Gleditsia triacanthos),* honey mesquite (*Prosopis glandulosa*), tall goldenrod (*Solidago altissima*), saw greenbrier (*Smilax bona-nox*), common sunflower (*Helianthus annuus*), and *Opuntia* spp.

<u>Eastern Cross Timbers Woodlands and Savannah</u> – Wooded areas that are typical of vegetation communities found in the East Cross Timbers are present in the southeastern and northern portion of the Site and along drainage features in the western portion of the Site. Predominant species include post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), cedar elm (*Ulmus crassifolia*), and eastern red cedar (*Juniperus virginiana*). Other species include American elm (*Ulmus americana*), pecan

(*Carya illinoinensis*), mulberry (*Morus rubra*), sugarberry (*Celtis occidentalis*), redbud (*Cercis canadensis*), crepe myrtle (*Lagerstroemia* spp.), flameleaf sumac (*Rhus copallina*), honey locust, honey mesquite, privet (*Ligustrum* spp.), giant ragweed, western ragweed, tall goldenrod, saw greenbriar, and muscadine (*Vitis rotundifolia*). Invasive species including Chinese privet (*Ligustrum sinese*), Japanese honeysuckle (*Lonicera japonica*), and heavenly bamboo (*Nandina domestica*) have started to become established in some areas of this community, but their establishment was observed to be light to moderate, and they have not degraded or significantly altered the ecological health of the community. Understory species observed in the more densely wooded areas include coralberry (*Symphoricarpos orbiculatus*), saw greenbrier (*Smilax bona-nox*), muscadine grape (*Vitis rotundifolia*), and inland sea oats (*Chasmanthium latifolium*). In more open savannah areas, the understory is dominated by yellow (King Ranch) bluestem, and western ragweed, with scattered woody species such as post oak, blackjack oak, honey mesquite, and prairie flameleaf sumac invading the open areas.

3.0 HABITAT EVALUATION

The "taking" of state and federally listed threatened and endangered (T&E) species is regulated by state and federal law. Additionally, most avian species native to the United States are protected under the Migratory Bird Treaty Act (MBTA), and bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are further protected under the Bald and Golden Eagle Protection Act (BGEPA). The MBTA authorizes federal regulation of the take of migratory birds. The BGEPA affords both eagles federal protections in addition to those provided by the MBTA. A habitat evaluation was conducted to assess the presence, or likely presence, of federally and state listed threatened or endangered species potentially occurring at the Site. The Site is comprised of both aquatic and terrestrial habitats. The evaluation considered the types of habitats present and habitat preferences of listed species during either reproductive, foraging, or migratory stages to identify the likelihood of protected species to inhabit the Site or be affected by the proposed project.

A list of rare, threatened, and endangered species for Denton County (last updated July 12, 2022) was obtained from the Texas Parks and Wildlife Department (TPWD) prior to the Site visit. Apex also checked the USFWS threatened and endangered species list for species with the potential to occur within the boundaries of the Site through the USFWS Initial Planning and Consultation (IPaC) website[2]. The IPaC database provides information regarding known or expected ranges of federally listed species protected under the Endangered Species Act (ESA 1973). The IPaC database also provides information about critical habitat, which are specific areas that contain the physical or biological features essential to a species' conservation. The TPWD list of rare, threatened, and endangered species for Denton County and the USFWS IPaC report for the Site are included in **Appendix 3**.

A total of 45 species of concern are identified as potentially occurring in Denton County or within the boundaries of the proposed development, including those species listed by TPWD as Species of Greater Conservation Need. Of these, seven species are federally listed as threatened, endangered, candidate and proposed for listing species and an additional four species are listed by TPWD as state threatened. State and federally listed threatened and endangered species are discussed in **Table 3-1** below.

[2] https://ipac.ecosphere.fws.gov/

Table 3-1. State and federally listed threatened and endangered species for Denton County, Texas (State list updated on July 12, 2022).

Common Name (*Scientific Name*)	Federal Status	State Status	Potential Suitable Habitat and Likelihood of Species Occurrence On-Site
Mollusks			
Louisiana pigtoe (*Pleurobema riddellii*)	NL	T	**Unlikely** – Small streams to large rivers of east Texas in slow to moderate currents in substrates of clay, mud, sand, and gravel.
Sandbank pocketbook (*Lampsilis satura*)	NL	T	**Unlikely** – Small streams to large rivers in slow to moderate currents in sandy mud to sand and gravel substrate. Modern records from Trinity River basin in Dallas County, historic records from Denton County. The proposed activity avoids direct impact to perennial streams where spces may be found.
Texas heelsplitter (*Petamoles amphichaenus*)	PE	T	**Unlikely** – Small streams to large rivers in standing to slow-flowing water, often found in soft substrates such as mud, silt, or sand. The proposed activity avoids direct impact to perennial streams where spices may be found.
Reptiles			
Texas horned lizard (*Phrynosoma cornutum*)	NL	T	**Unlikely** –Largely considered extirpated east of Interstate Highway 35 except at a few localities in deep sandy soil.
Alligator Snapping Turtle (*Macrochelys temminckii*)	PT	NL	**Unlikely**- Slow-moving, deep water of rivers, sloughs, oxbows, and canals or lakes associated with rivers
Birds			
Bald eagle[1] (*Haliaeetus leucocephalus*)	DL	SGCN	**Some Probability** – Primarily near rivers and large lakes; nests in trees or on cliffs near water. Citizen science observation data from www.ebird.org include recent observations in the vicinity of the proposed project. No nests were observed on the property. Possible migrant or transient through the area.
Black Rail (*Laterallus jamaicensis*)	NL[2]	T	**Unlikely** – Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps. Nests in or along edge of marsh. Marsh habitat is not present at the Site. Possible migrant through the area.
Piping plover (*Charadrius melodus*)	T	T	**Unlikely** – Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands, bayside sand, mud, or salt flats. Possible migrant through the area.
Red knot (*Calidris canutus rufa*)	T	T	**Unlikely** – Primarily coastal tidal flats and beaches, herbaceous wetlands, and tidal mud flats and salt marshes. Possible migrant through the area.
White-faced Ibis (*Plegadis chihi*)	NL	T	**Unlikely** –Freshwater marshes, sloughs, ponds, brackish waters; breeding habitat confined to near-coastal rookeries. Marsh habitat is not present at the Site. Possible migrant through the area.
Whooping crane (*Grus americana*)	E	E	**Unlikely** – Nests in Canada and winters in coastal marshes along the Texas coast. Breeds, migrates,

Common Name (*Scientific Name*)	Federal Status	State Status	Potential Suitable Habitat and Likelihood of Species Occurrence On-Site
			winters, and forages in a variety of wetland and other habitats including coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows, rivers, and agricultural fields. Possible migrant through the area.
Insects			
Monarch butterfly (*Danaus plexippus*)	C	NL	**Likely** – Adults are dependent on a variety of blooming nectar resources (e.g., wildflowers) for feeding. Native milkweeds (primarily *Asclepias* spp.) are obligate host plants for egg-laying and feeding during the larval stage. The Site is located within the migratory path and is within the species' spring breeding area. Potential migrant and breeding grounds through the area. ***Candidate species are not protected under the ESA***.
Mammals			
Tricolored Bat (*Perimyotis subflavus*)	PE	NL	**Some Probability-** Roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees during spring, summer, and fall. Woodland areas are present on the Site and adjacent to the Site. ***Proposed species are not protected under the ESA.***

NL = Not Listed; E = Endangered; T = Threatened; DL = Delisted; SGCN = Species of Greatest Conservation Need; C = Candidate, PE= Proposed Endangered, PT=Proposed Threatened.
[1] Bald eagle included due to consideration of BGEPA regulations.
[2] Listed as Federally Threatened on TPWD county list but not included in USFWS IPaC list.

No rare, threatened, or endangered species were observed on the Site during the June 2019 field reconnaissance event. The Site does not contain potentially suitable habitat for any state or federally listed threatened or endangered species, and critical habitat federally listed species was not identified as occurring on the Site in the IPaC inquiry. Therefore, the proposed development will have no effect on federally listed species. Furthermore, state regulations do not protect state-threatened species from incidental take or indirect impacts, indirect take, or habitat destruction resulting from otherwise lawful activities.

Bald eagles are found primarily near rivers and large lakes and nest in tall trees or on cliffs near water. Bald eagles can be found throughout Texas year-round. Review of citizen-science observation data[3] found several bald eagle observations in the general vicinity of the Site, primarily from nearby Grapevine and Lewisville Lakes. No bald eagles or suspected nests were observed at the Site during the field reconnaissance. Several species of migratory birds could be present at the Site during their

[3] https://ebird.org/home

respective nesting season. As construction will likely be conducted during the nesting and/or wintering season, pre-construction nesting surveys shall be performed prior to construction activities. Contractors and on-site field crews shall visually inspect for nesting birds immediately prior to and during disturbance. Should migratory bird nests or a bald eagle be identified or suspected within the Site, construction shall halt and USFWS be contacted for recommendations.

4.0 ENVIRONMENTALLY SENSITIVE AREAS

The Town had not conducted an Environmentally Sensitive Area survey on the property prior to Apex completing this EPP. Apex evaluated the ESAs at the Site using the definitions established by the Town of Flower Mound. Several ESAs were identified at the Site and are described below. ESA boundaries are illustrated in **Figures 2, 3, and 4**. An additional feature evaluated during the survey included topographical slope protection, which is also addressed in this section. Areas identified as protected slopes are illustrated in **Figure 5**. Details about the various ESAs as defined by the Town are presented below along with notes from observations of these ESAs.

4.1 Upland Habitat

The Town defines Upland Habitat as "Areas, a minimum of 10 acres in size, equal to or exceeding 50 trees per acre, which contain a predominant matrix of tree species identified on the Town's protected tree list. Any tree species that makes up over 30 percent of the population within a complex is considered to be the predominant species."

33.93 acres of Upland Habitat were identified on the Site, primarily in the northern, southeastern, and central-western portion of the Site. The current Site Plan includes impacts to 16.87 acres of Upland Habitat. **Figure 2** depicts areas identified as Upland Habitat, and proposed impacts to areas mapped as Upland Habitat are illustrated in **Figure 7**.

4.2 Prairie Habitat

The Town defines Prairie Habitat as “Areas designated as containing on-site predominant distributions of climax or mid-successional native grass species underlain by intact (non-eroded) prairie and savannah soil types.”

No Prairie Habitat was identified within the Site boundaries.

4.3 Riparian Habitat

The Town defines Riparian Habitat as “Areas designated within the FEMA 100-year floodplain or interconnected and adjacent to wetland, tree and understory vegetation and including significant stands of predominantly native water related habitat. These areas include wetlands.”

No Riparian Habitat was identified within the Site boundaries.

4.4 Floodplain

The Town defines Floodplain as "determined from official FEMA Flood Insurance Rate maps."

The Town further defines Developed Floodplain as "Any area defined as a floodplain within the FEMA 100-year floodplain and which has been channelized or the land within these areas have been graded, filled, or otherwise disturbed" and Undeveloped Floodplain as "Areas within the FEMA 100-year floodplain, or other floodplain that are undeveloped and in their natural state."

During consultation with the Town, it has been confirmed that a Floodplain study identifying boundaries of the 100-year floodplain prepared by qualified specialists and using updated data is accepted in lieu of a FEMA study, which for the Site is over 11 years old (FEMA FIRM map panel 48121C0510G from April 18, 2011). The Floodplain study for the Site was prepared by McAdams Water Group in August 2022 and is depicted on **Figure 4**.

14.157 acres were identified as undeveloped floodplains. The current Site Plan impacts 1.47 acres of the Floodplain as shown on **Figure 9.** All impacts are from proposed equestrian and pedestrian trails along the western boundary of the Site. Mitigation will occur by only using permeable surfaces on the trails.

4.5 Waters of the State

The Town defines Waters of the State as "Groundwater, percolating or otherwise, lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all watercourses and bodies of surface water, that are wholly or partially inside or bordering the state or inside the jurisdiction of the state."

The Waters of the State identified at the Site are illustrated in **Figure 3** and are inclusive of water features that are potentially considered waters of the U.S. (WOTUS) and other water features that are not considered WOTUS such as isolated wetlands, ponds, and swales or other drainage features that may occasionally convey water but lack a continuous ordinary high water mark (OHWM).

The ESAs that are waters of the State include wetlands (0.228 acres), impoundments (0.546 acres), swales (698 linear feet) and ephemeral streams (2,779 linear feet). Features identified as "non-

jurisdictional" are not likely considered WOTUS and not likely regulated under the Clean Water Act under the Navigable Water Protection Rule (NWPR) which took effect on June 22, 2020.

Proposed impacts to Waters of the State are illustrated in **Figure 8**. The drainage from these non-WOTUS waters will be incorporated into the on-site stormwater system.

4.6 Waters of the U.S.

The Town defines Wetlands as "Jurisdictional wetlands as defined by the federal Clean Water Act and the standards and guidelines in use by the U.S. Army Corps of Engineers, including the Federal Manual for Identifying and Delineating Jurisdictional Wetlands."

Two wetlands, one on-channel impoundment and six ephemeral streams were delineated at the Site and are depicted in **Figure 3**. Potentially jurisdictional WOTUS include 2,779 linear feet of ephemeral streams, 0.400 acres of pond and 0.189 acres of wetlands. The current Site Plan includes impacts to 2,635 linear feet of ephemeral streams and 0.189 acres of wetlands that are considered potentially jurisdictional WOTUS. Proposed impacts to WOTUS are depicted in **Figure 8**. Mitigation for impacts to streams would be conducted in accordance with a Section 404 Clean Water Act permit.

4.7 Impoundments

The Town's SMARTGrowth Program requires preservation and enhancement of impoundments greater than 0.5 acres identified at proposed developments. No impoundments of that size were identified within the Site.

4.8 Specimen Trees

The Town defines Specimen Trees based on species and trunk diameter. McAdams will provide a Specimen Tree Survey to the Town at a later date, during the Development Plan phase of the proposed project. An application for specimen tree removal will be submitted to the Town for review and approval, if necessary.

4.9 Topographic Slope Protection

The Town's SMARTGrowth requirements state the following: "No development application or project shall be approved that proposes development on any existing topographical slopes of 12 percent or greater, or that proposes to alter any existing topographical slopes that are less than 12 percent but equal to or greater than five percent (other than within five feet of the footprint of the proposed structure or structures). This criterion applies when the stated topographical slopes exist for a total

horizontal distance over 50 feet or if the total vertical rise is over six feet. The purpose of this criterion is to ensure that development is respectful of and appropriately integrated with the natural physical geography of the land in Flower Mound by requiring environmentally sensitive development techniques to eliminate 'scrape and build.'"

Based on information obtained from Lidar contour data provided by McAdams and a site-specific survey, areas of protected slopes were identified throughout the Site. A total of approximately 106.14 acres of the Site were identified as containing areas of protected slopes and includes 90.81 acres of slopes equal or greater than 5 percent and less than 12 percent, and 15.33 acres of slopes of 12 percent or greater. The current Site Plan includes impacts to 61.59 acres of protected slopes between five percent and less than 12 percent and 6.64 acres of protected slopes of 12 percent and greater. Proposed impacts to protected slopes of 12 percent or greater, as well as slopes between five and 12 percent that are beyond five feet of the footprint of a proposed structure, will require an exception from the Town. The topographic contours and areas of protected slope within the Site are depicted in **Figure 5**, and proposed impacts to areas mapped as containing protected slopes are illustrated in **Figure 10.**

5.0 PROPOSED DEVELOPMENT PLAN

The current development plan is depicted in **Figure 6**. The current plan is to construct a road and trail network and residential lots for future development. Impacts to identified ESA features are include those resulting from the construction of the road and trail network and the residential lots.

As illustrated in **Figure 7**, the current Site Plan includes impacts to 16.87 acres of Upland Habitat. McAdams will provide a Specimen Tree Survey to the Town at a later date, during the Development Plan phase of the proposed project. If necessary, an application for specimen tree removal will be submitted to the Town for review and approval prior to the removal of any specimen tree.

As depicted in **Figure 8**, the current Site Plan includes impacts to approximately 2,635 linear feet of potentially jurisdictional ephemeral streams and 0.19 acres of impacts to potentially jurisdictional wetlands. The current Site Plan also includes impacts to approximately 698 linear feet of non-jurisdictional Waters of the State.

As depicted in **Figure 9**, the current Site Plan includes impact to 1.47 acres of the on -Site Floodplain. These impacts are resulting from construction of equestrian and pedestrian trails only.

As depicted in **Figure 10**, the current Site Plan include approximately 61.59 acres of impacts to slopes equal to or greater than 5 percent and less than 12 percent, and 6.64 acres of impacts to areas with slopes of 12 percent or greater.

6.0 MITIGATION MEASURES

The following Best Management Practices (BMPs) are proposed to protect the ESAs and other Site resources:

- Structural controls designated by the civil engineer will be installed and maintained as described in the development plan's erosion control plan to reduce impacts to area water quality and protect surface waters from excessive sedimentation.
- Impacts to Waters of the State will be mitigated by incorporating their flow into the on-Site stormwater plan.
- Portions of Waters of the U.S. will be preserved by being incorporated into the Site green space. Impacts to WOTUS will be minimized to the extent practicable and mitigation will be in accordance with applicable USACE permit requirements, if necessary.
- Mitigation of Upland Habitat impacts will be accomplished by payment in the tree mitigation fund at $15,000 per acre.
- Mitigation of Floodplain impacts from equestrian and pedestrian trails will occur by using only permeable surfaces on trails. No residential lots impacts to floodplains are proposed.
- McAdams will provide a Specimen Tree Survey to the Town at a later date, during the Development Plan phase of the proposed project. If necessary, an application for specimen tree removal will be submitted to the Town for review and approval prior to removal of any specimen trees. Impacts to specimen trees will be avoided to the extent practicable.
- Grading of areas with slopes equal to or greater than 5 percent and less than 12 percent, and greater than five feet from planned structures shall require an exemption from the Town prior to construction.
- Impacts to protected slopes of 12 percent or greater will be minimized and avoided to the extent practicable. Unavoidable impacts to these protected slopes will require an exemption from the Town prior to construction.

7.0 PLAN SUMMARY

Based on the Site visits and the proposed development plan for the Site, the following conclusions have been developed:

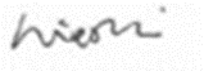
- The Site does not contain suitable habitat for any federally listed threatened or endangered species, nor does it contain critical habitat for any federally listed species. Therefore, the proposed development will have no effect on federally listed species.
- Impacts to Waters of the State will be minimized to the extent practicable and mitigated by avoidance where possible and accommodating flow in the Site's drainage plan.
- Based on the WOTUS delineation, jurisdictional determination opinion, and the proposed Site Plan, impacts to potential WOTUS will include approximately 2,635 linear feet of ephemeral streams and 0.189 acres of wetlands. The project will require a USACE CWA Section 404 permit depending on final grading plans. Once the permit is received, a copy shall be submitted to the Town of Flower Mound.
- BMPs and a Storm Water Pollution Prevention Plan (SWPPP) will be implemented by the builder to protect surface waters from excessive erosion and sedimentation.
- Approximately 33.93 acres of Upland Habitat were identified at the Site and current Site Plans include impacts to 16.87 acres of Upland.
- Approximately 14.16 acres of Undeveloped Floodplain was identified at the Site. Current Site Plans include 1.47 acres of impact to the Floodplain resulting from the construction of equestrian and pedestrian trails.
- McAdams will provide a Specimen Tree Survey to the Town at a later date, during the Development Plan phase of the proposed project. If necessary, an application for specimen tree removal will be submitted to the Town for review and approval prior to removal of any specimen tree.
- Approximately 90.81 acres were identified as areas with protected slopes between five percent and less than 12 percent, and 15.33 acres were identified as containing protected slopes of 12 percent and greater. Current Site Plans include impacts to approximately 61.59 acres of land with protected slopes between five and 12 percent and 6.64 acres of protected slopes of 12 percent and greater. Impacts to protected slopes less than 12 percent but greater than five percent that are beyond five feet of the footprint of proposed structures and protected slopes of 12 percent and greater require an exemption from the Town.

8.0 GENERAL QUALIFICATIONS

This EPP has been prepared on behalf of McAdams to provide information about ESAs and possible mitigation associated with future development of the FM 1171 Conservation Development project. The standard of care exercised for this type of project is similar to that used by other professionals currently practicing in this field at this location. No warranty, express or implied, is made regarding the environmental condition of the Site.

Sincerely

Apex Companies, LLC

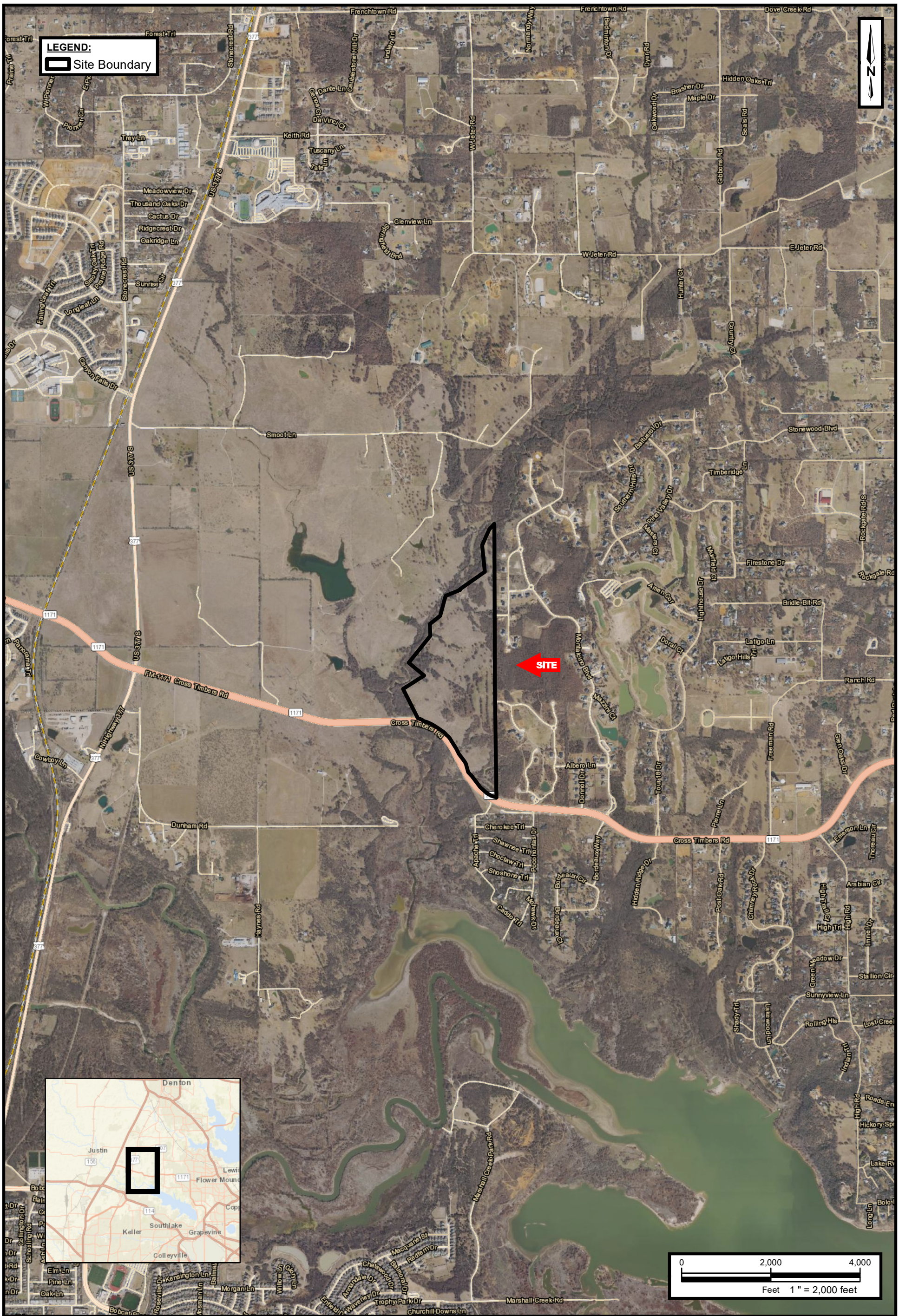


Kazik Wieski

Senior Scientist

APPENDIX 1

FIGURES



Environmental Protection Plan
FM 1171 Conservation Development
McAdams

Approximately 148-acre Site
9800 Cross Timbers Road
Flower Mound, Denton County, Texas

Project No.MCA005-0312725-23005308

Apex Companies, LLC
12012 Technology Blvd, Suite 201
Austin, TX 78727
Phone: (512) 250-2600

FIGURE 1

Site Location Map

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Z:\GIS_Repository\Austin\2022\McAdams Montalcino Ph III EPP\map\Hines\HCS Fig1 Project Location.mxd Modified 8/7/2023 by KWieski NAD 1983 2011 StatePlane Texas North Central FIPS 4202 FtUS Coordinate System

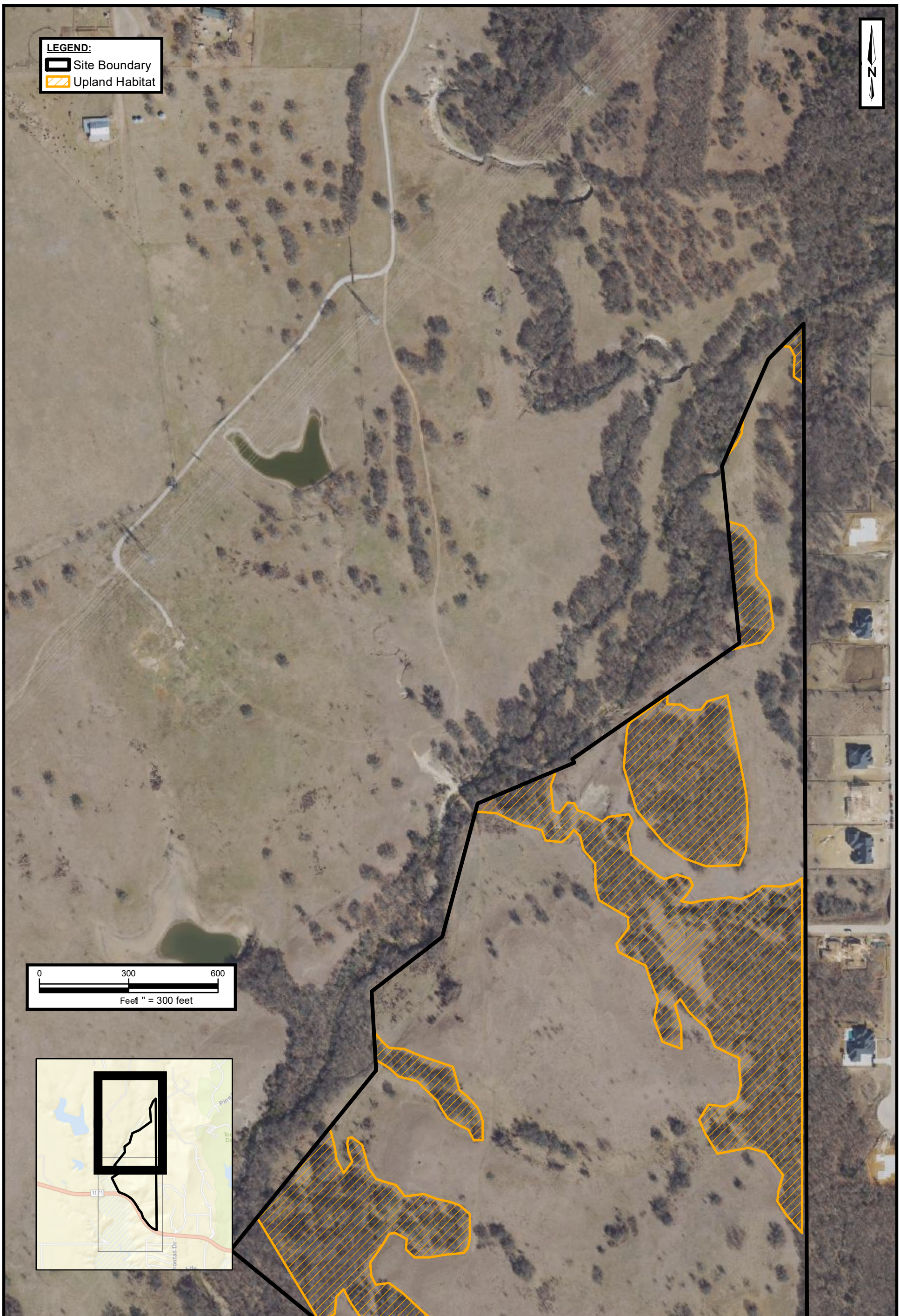

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FIGURE 2

Environmentally Sensitive Areas Map - Upland, Riparian, and Prairie Habitats
Page 1 of 2

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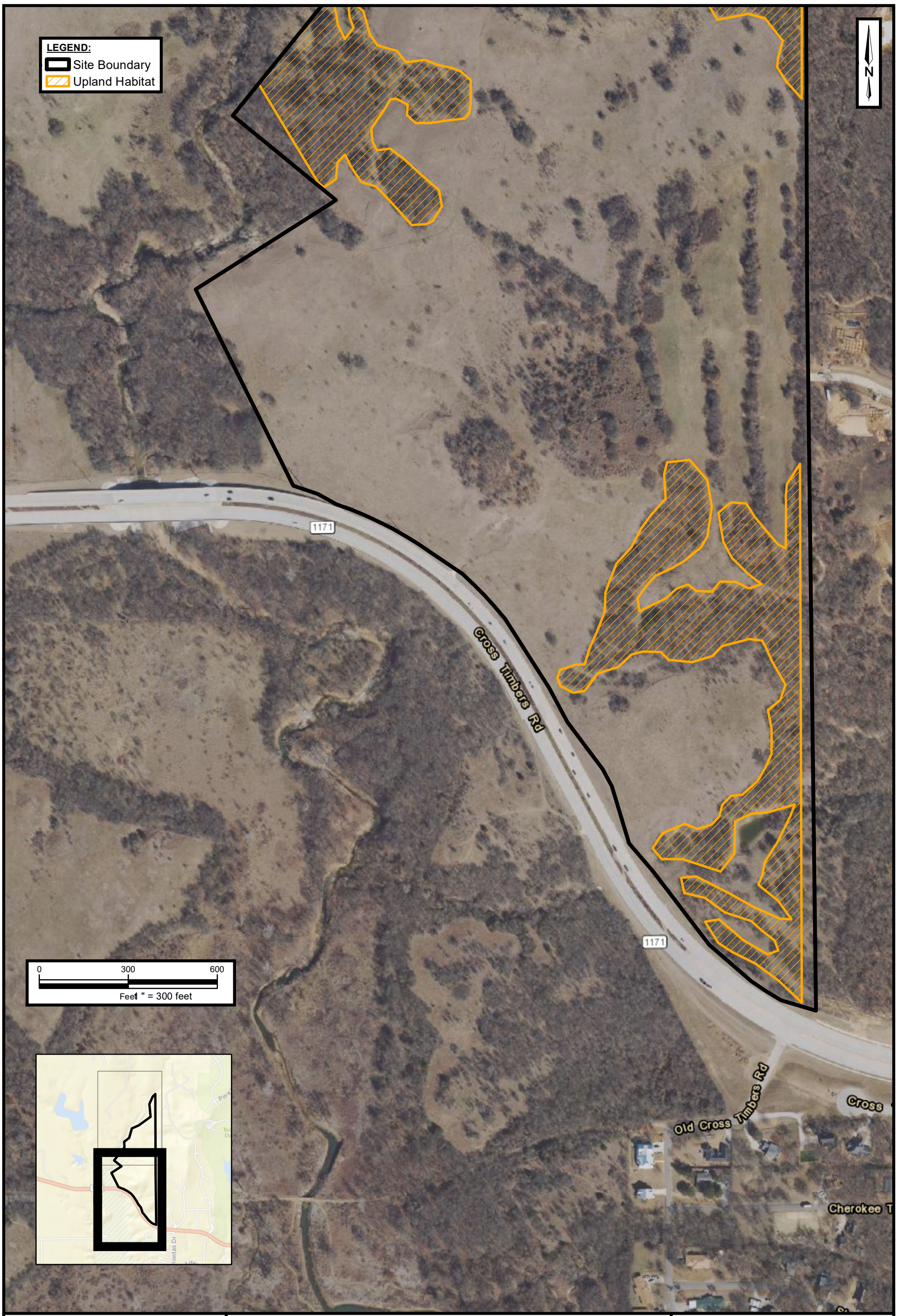

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FIGURE 2

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FIGURE 3

Environmentally Sensitive Areas Map - Waters
Page 1 of 2

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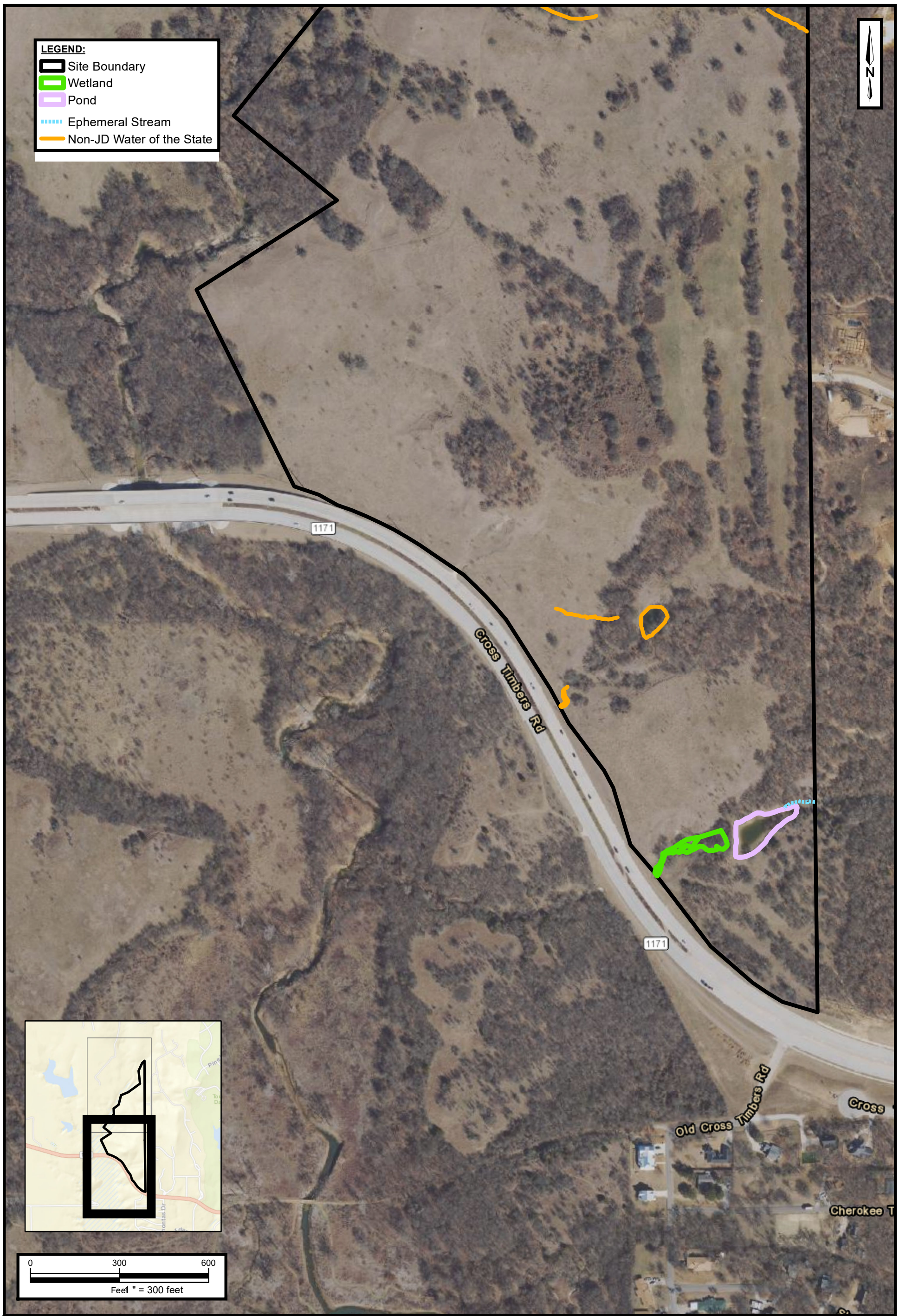

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FIGURE 3

Environmentally Sensitive Areas Map - Waters
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FIGURE 4

FEMA Floodplain Map
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FIGURE 4

FEMA Floodplain Map
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FIGURE 5

Protected Slope Map
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FIGURE 5

Protected Slope Map
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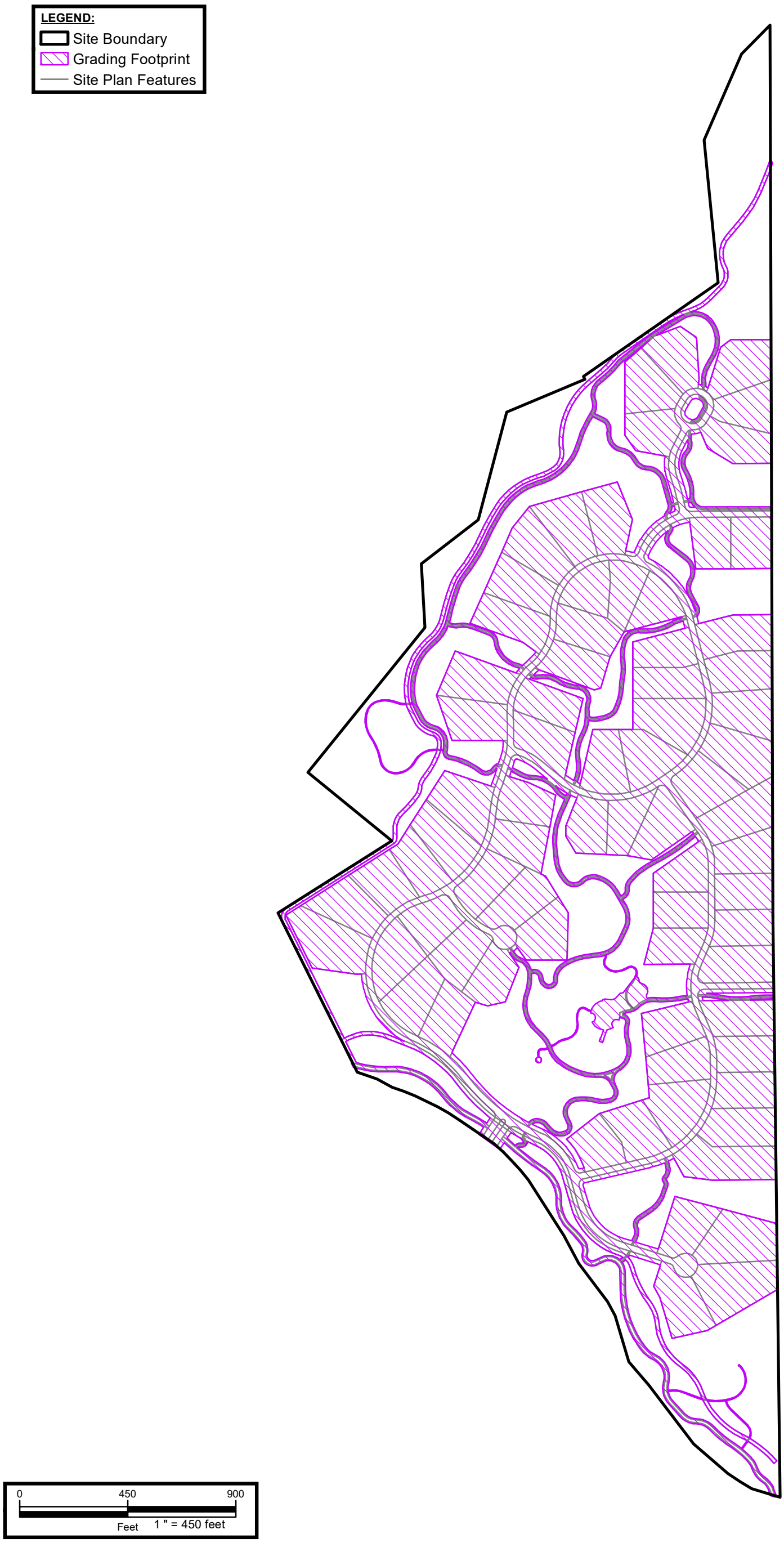

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FIGURE 6

Site Plan

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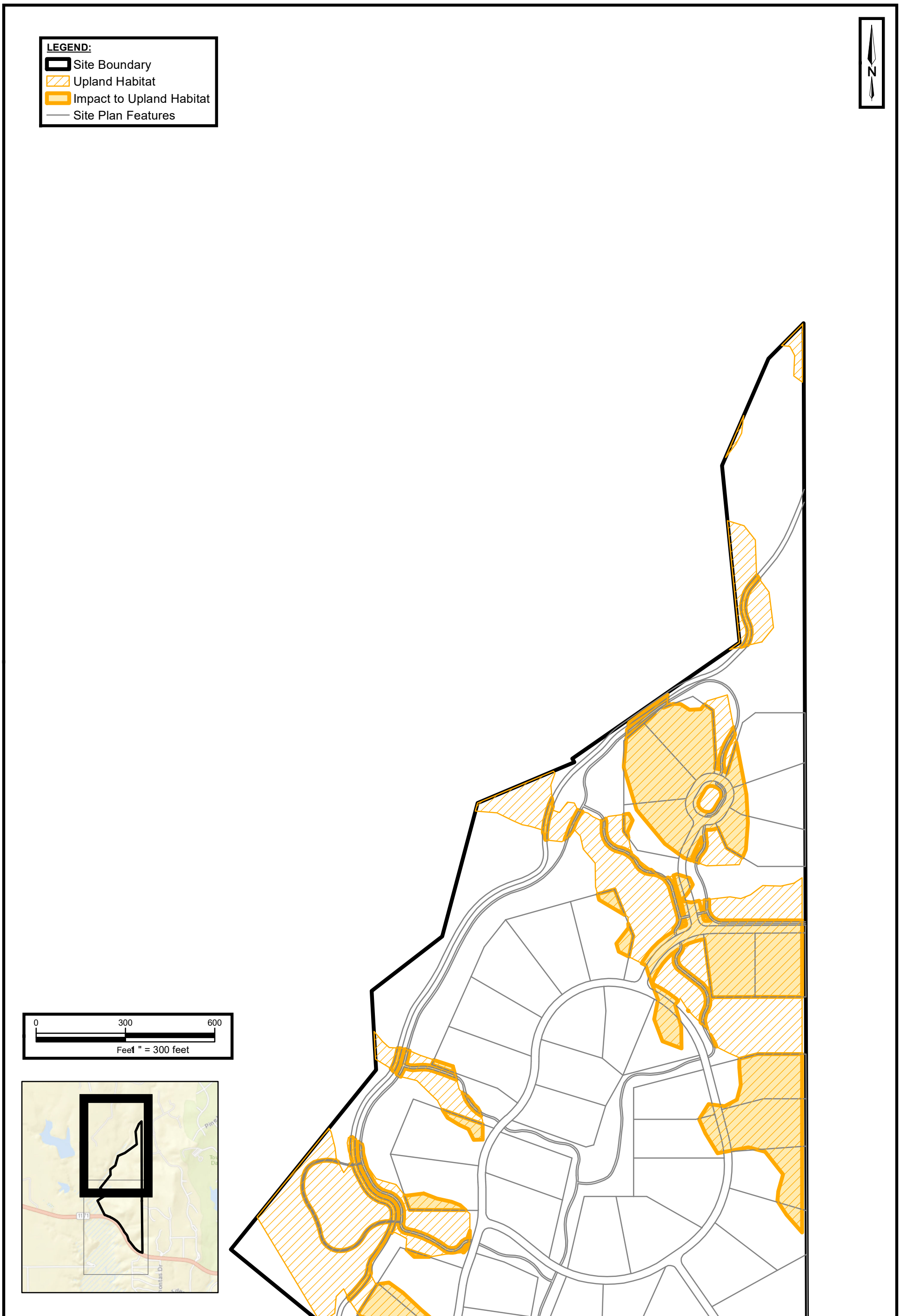

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FIGURE 7

Site Plan - Impacts to Upland, Riparian, and Prairie Habitats
Page 1 of 2

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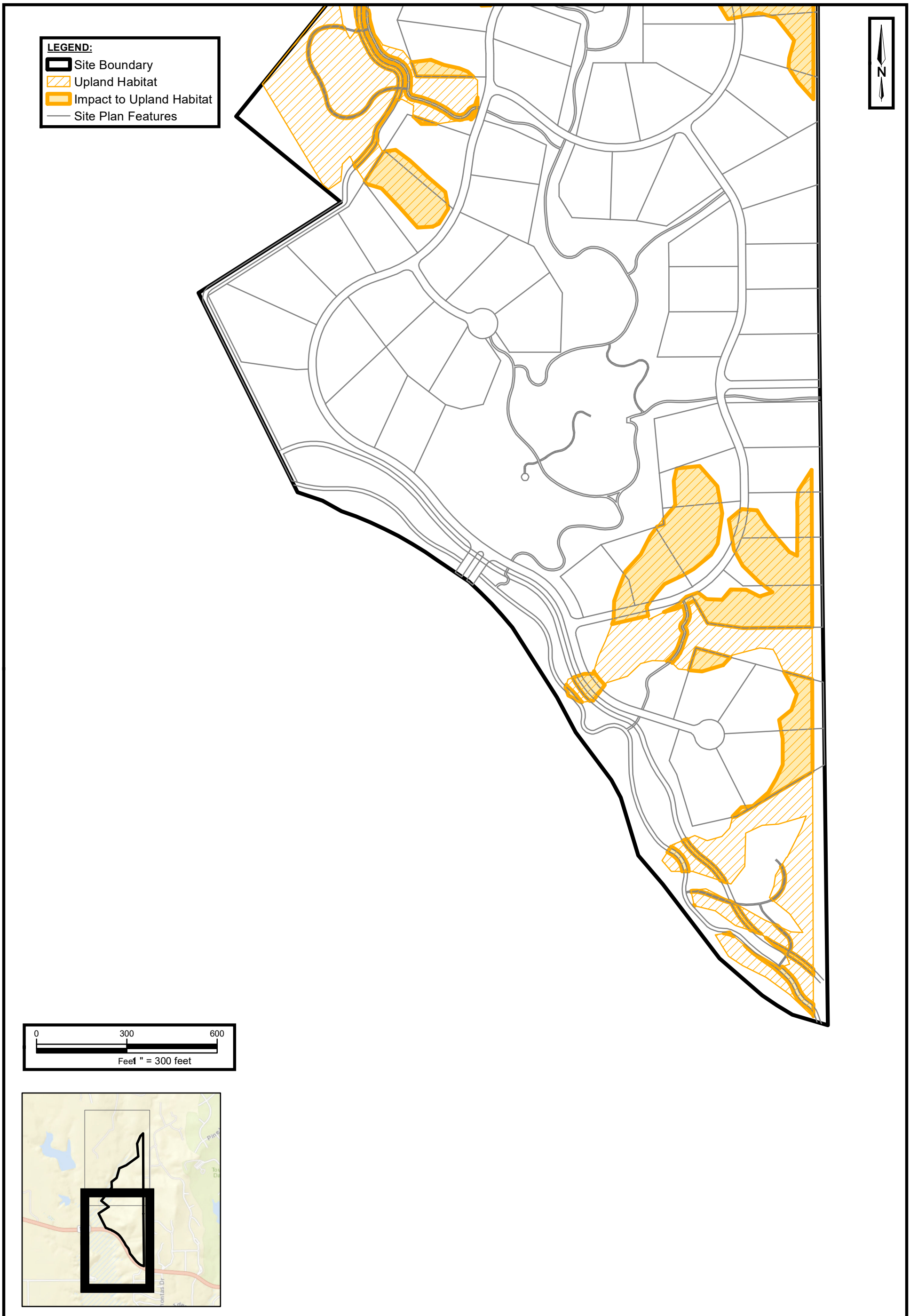

Environmental Protection Plan
FM 1171 Conservation Development
McAdams

Approximately 148-acre Site
9800 Cross Timbers Road
Flower Mound, Denton County, Texas

Project No.MCA005-0312725-23005308

Apex Companies, LLC
12012 Technology Blvd, Suite 201
Austin, TX 78727
Phone: (512) 250-2600

FIGURE 7

Site Plan - Impacts to Upland, Riparian, and Prairie Habitats Page 2 of 2

Service Layer Credits:
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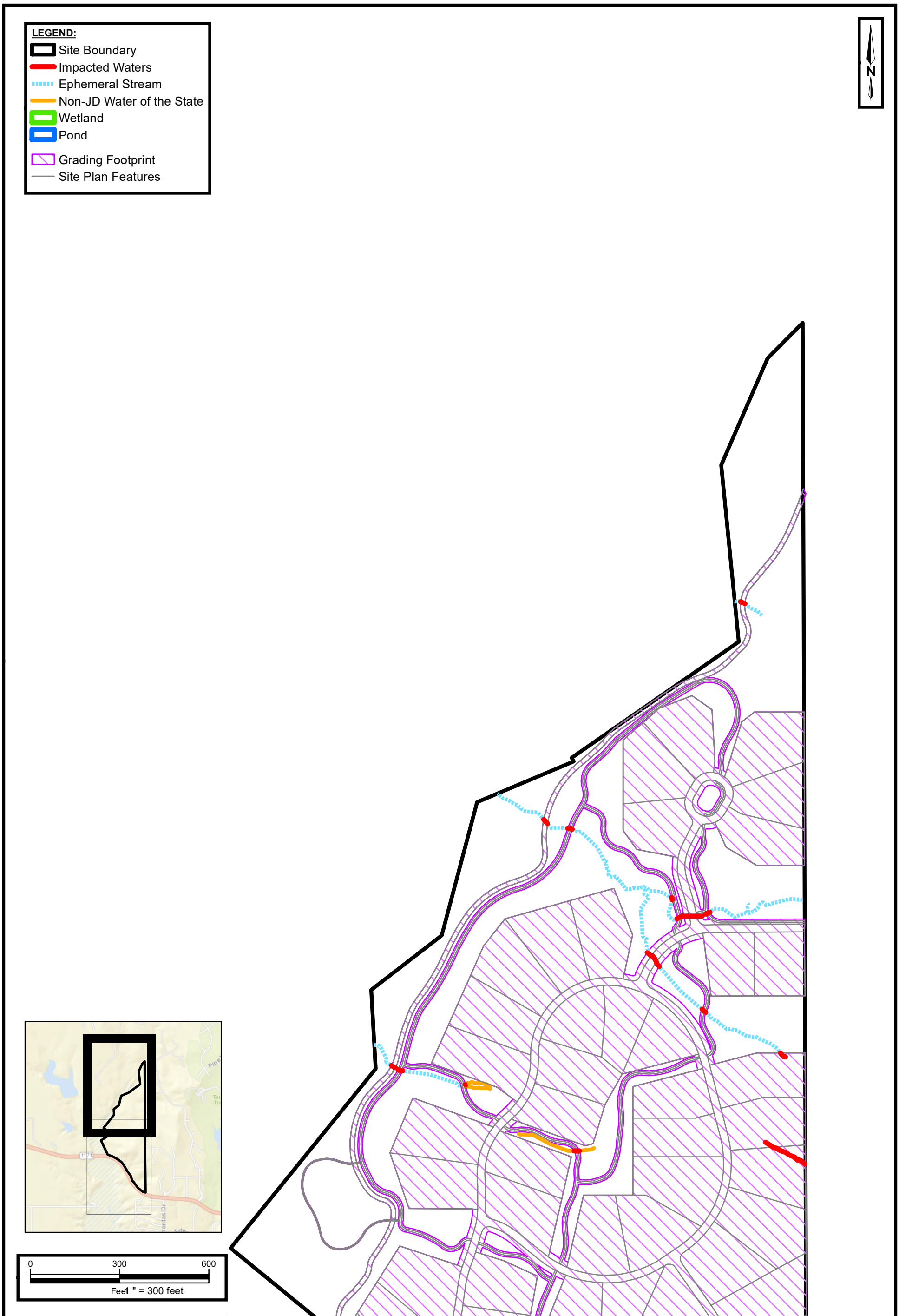

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FIGURE 8

SitePlan - Impacts to Waters
Page 1 of 2

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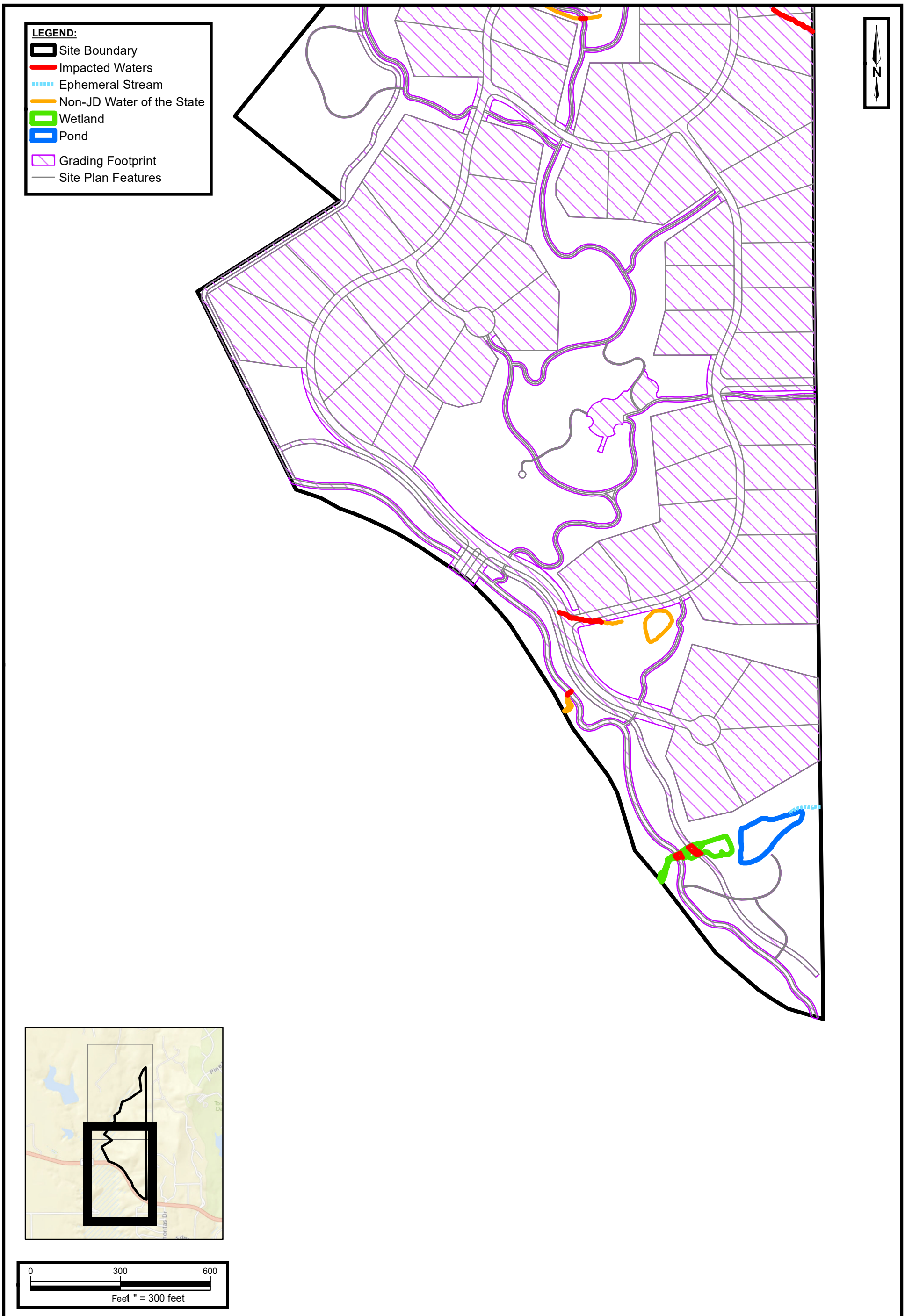

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FIGURE 8

SitePlan - Impacts to Waters
Page 2 of 2

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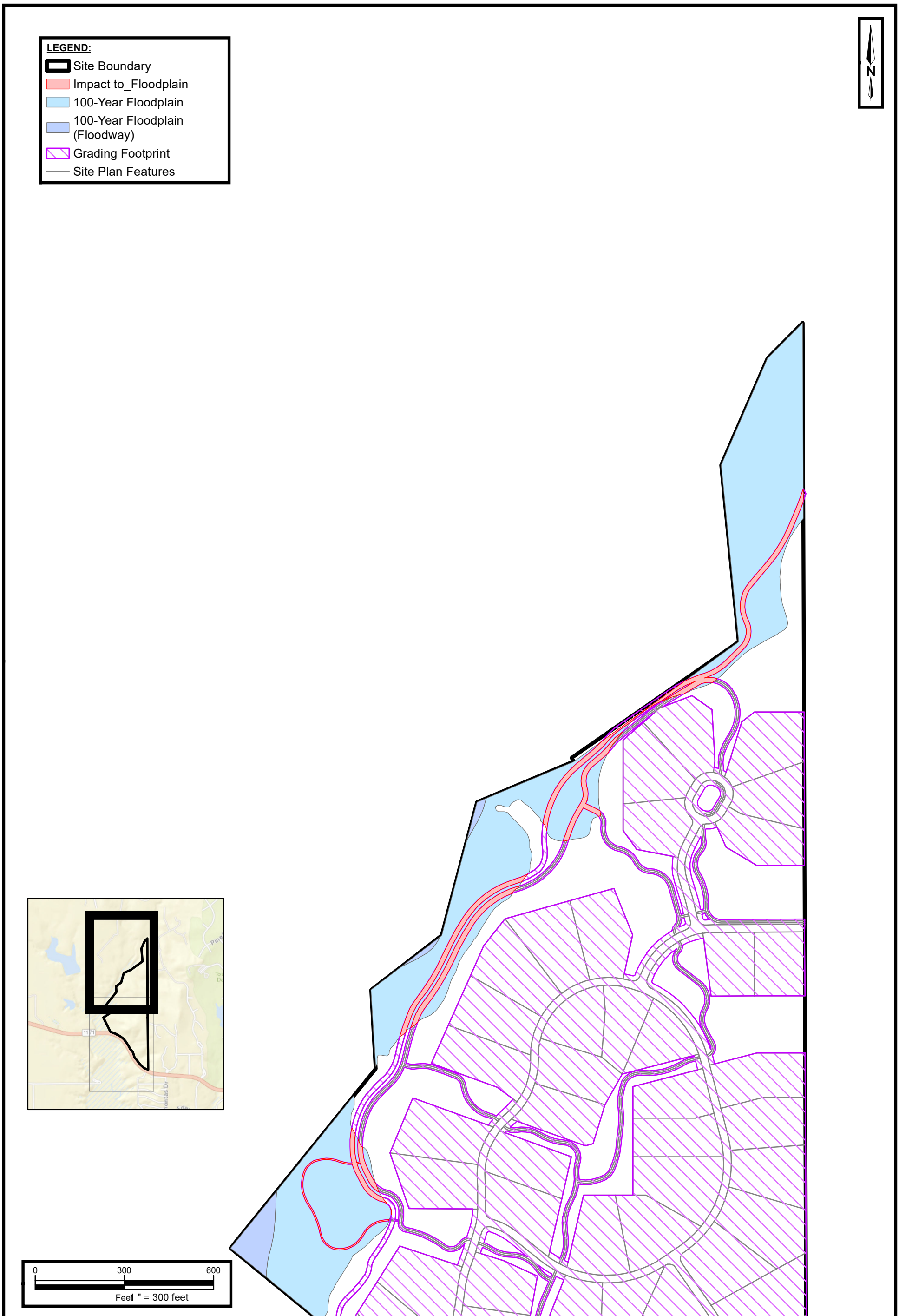

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FIGURE 9

Site Plan: Impacts to FEMA Floodplain Map
Page 1 of 2

Service Layer Credits:
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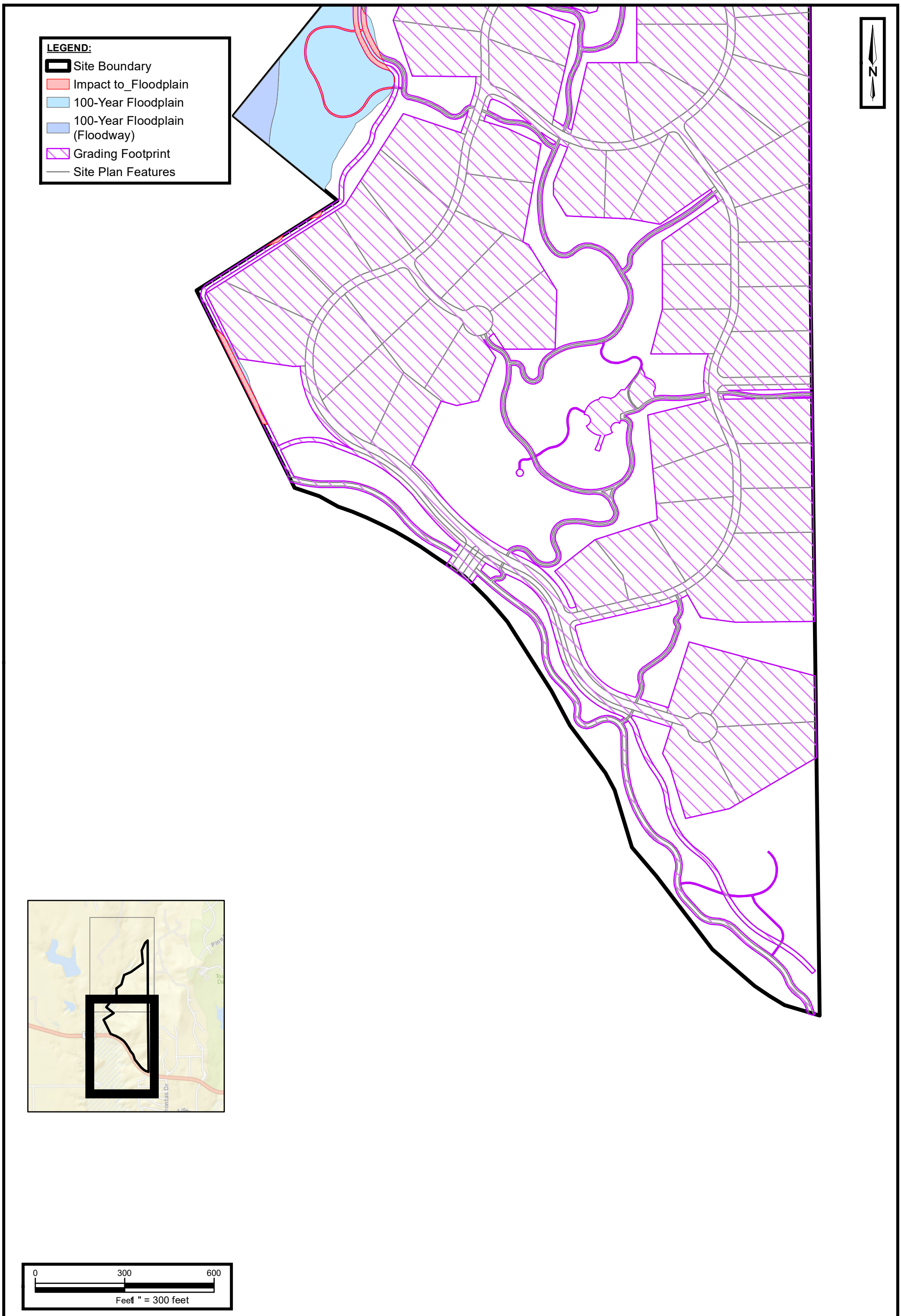

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FIGURE 9

Site Plan: Impacts to FEMA Floodplain Map Page 2 of 2

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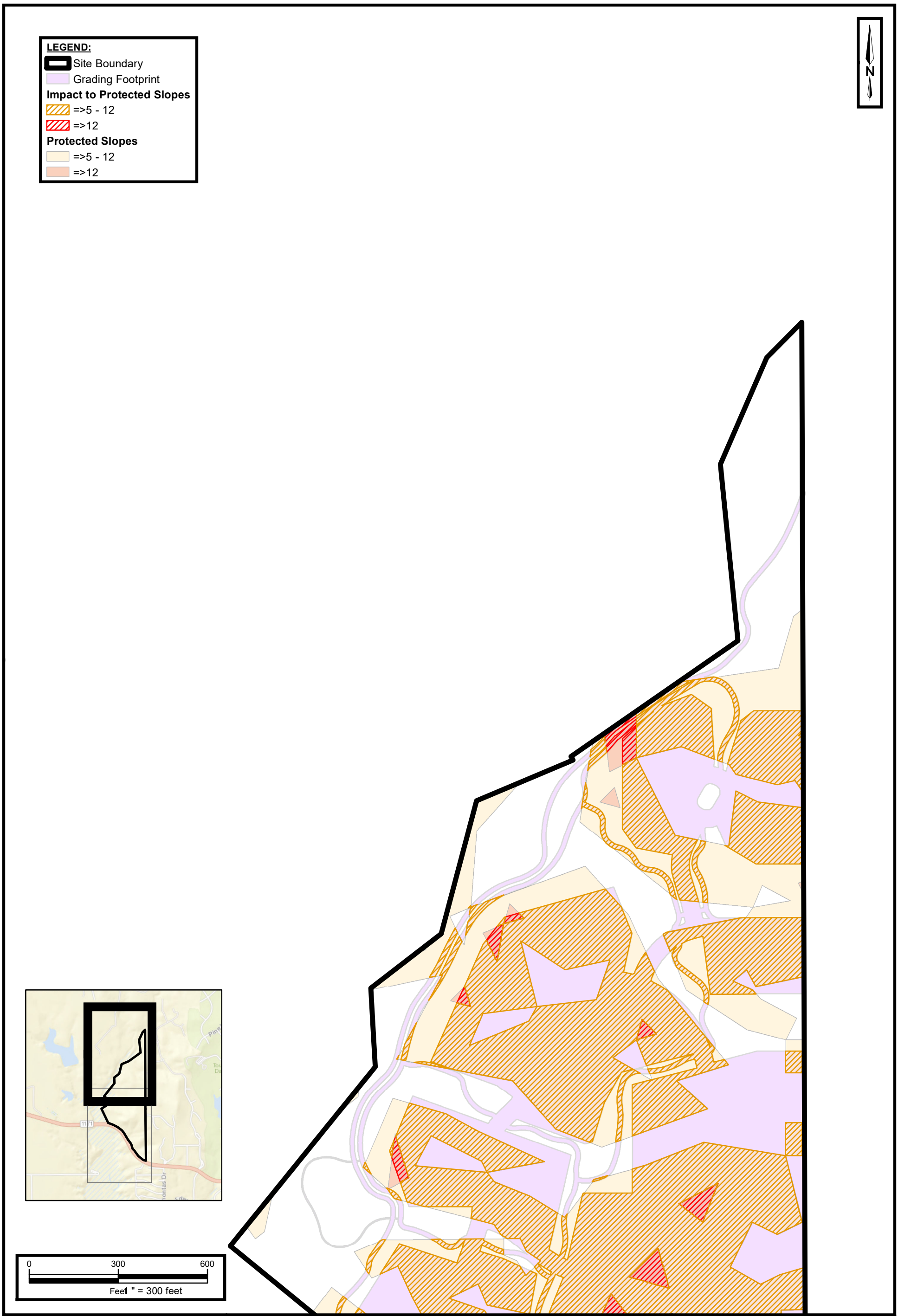

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FIGURE 10

Site Plan -
Impacts to Protected Slopes
Page 1 of 2

Service Layer Credits:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea,

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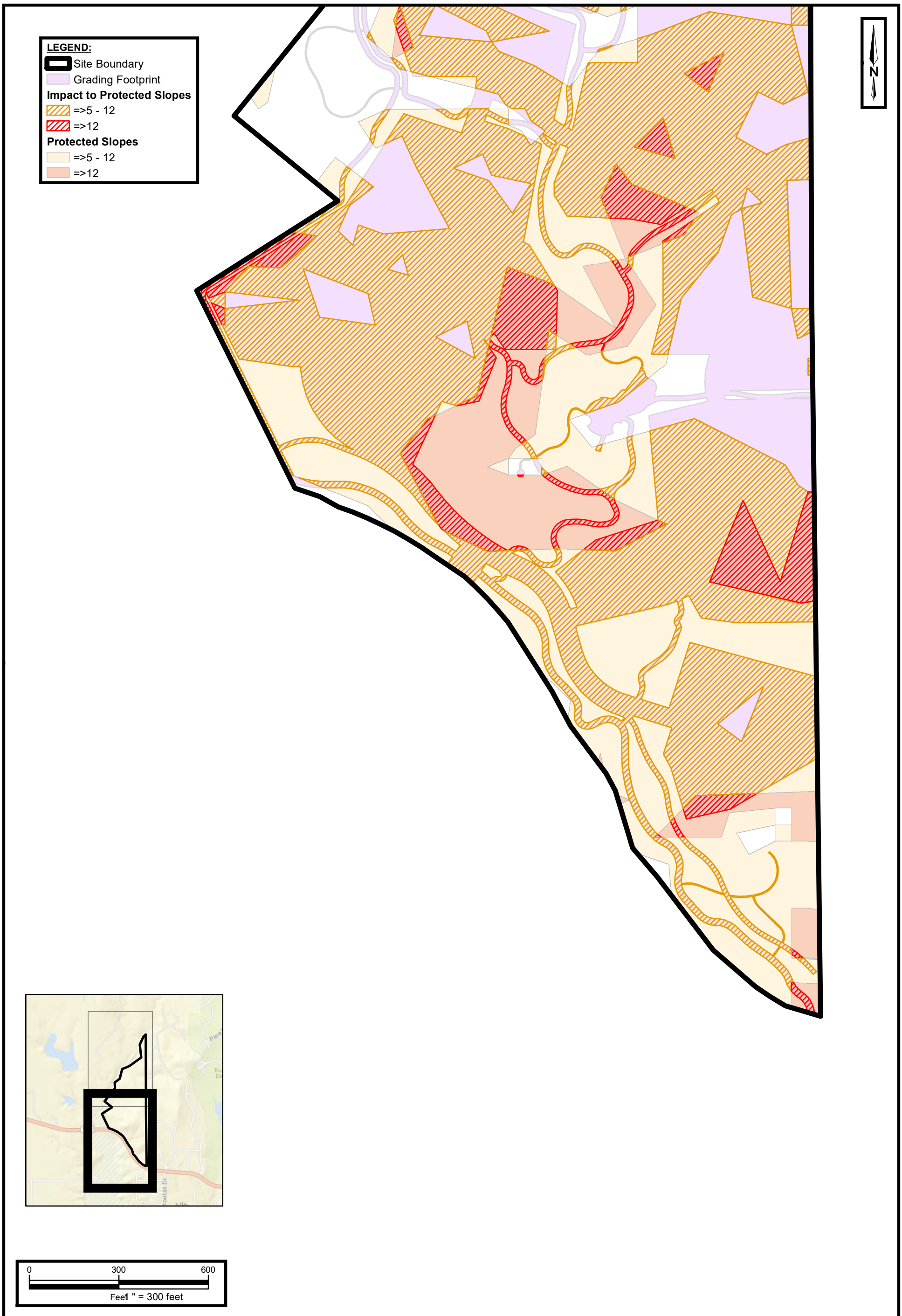

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FIGURE 10

Site Plan -
Impacts to Protected Slopes
Page 2 of 2

Service Layer Credits:
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APPENDIX 2

REPRESENTATIVE SITE PHOTOGRAPHS

APPENDIX 2

REPRESENTATIVE SITE PHOTOGRAPHS

Photo 1: Typical Upland Habitat dominated by post oaks and blackjack oaks. Date: 06/13/2019 33.058773° -97.176711°	
Photo 2: Typical ephemeral stream found at the Site Date: 06/25/2019 33.057949° -97.177674°	

Photo 3: Typical Waters of the State emergent wetland dominated with opportunistic FAC community of cocklebur. Date: 06/25/2019 33.056081° -97.179252°	
Photo 4: Typical Waters of the State swale dominated by cocklebur and curly dock.. Date: 06/25/2019 33.049889° -97.178207°	

Photo 5: Waters of the U.S. pond in the southern portion of the Site Date: 06/27/2019 33.047934° -97.176302°.	
Photo 6: Seepage area downgradient from the pond with a mixed community wetland Date: 06/27/2019 33.047805° -97.176976°.	

Photo 7: Ephemeral stream draining to the pond. Date: 06/27/2019 33.047571° -97.177387°	

APPENDIX 3

USFWS IPAC SPECIES LIST

AND

TPWD ANNOTATED COUNTY LIST OF RARE SPECIES FOR DENTON COUNTY, TEXAS

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

Denton County, Texas

Local office

Arlington Ecological Services Field Office

(817) 277-1100
(817) 277-1129
arles@fws.gov

MAILING ADDRESS

501 West Felix Street
Suite 1105
Fort Worth, TX 76115-3410

PHYSICAL ADDRESS

501 West Felix Street
Fort Worth, TX 76115-3410

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Piping Plover Charadrius melodus This species only needs to be considered if the following condition applies: • Wind Energy Projects There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot Calidris canutus rufa Wherever found This species only needs to be considered if the following condition applies: • Wind Energy Projects There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane Grus americana There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/758	Endangered

Reptiles

NAME	STATUS

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Alligator Snapping Turtle Macrochelys temminckii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

Clams

NAME	STATUS
Texas Heelsplitter Potamilus amphichaenus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/299	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

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Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Bald and Golden Eagle information is not available at this time

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

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Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory bird information is not available at this time

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

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cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to

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you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

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Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also

been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Last Update: 1/4/2023

DENTON COUNTY

AMPHIBIANS

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

black rail *Laterallus jamaicensis*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

chestnut-collared longspur *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Franklin's gull *Leucophaeus pipixcan*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

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DENTON COUNTY

BIRDS

mountain plover *Charadrius montanus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

rufa red knot *Calidris canutus rufa*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

Sprague's pipit *Anthus spragueii*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat during migration and in winter consists of pastures and weedy fields (AOU 1983), including grasslands with dense herbaceous vegetation or grassy agricultural fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3N

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

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DENTON COUNTY

BIRDS

white-faced ibis *Plegadis chihi*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

No accepted common name *Arethaea ambulator*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

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DENTON COUNTY

MAMMALS

black-tailed prairie dog *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

eastern red bat *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

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DENTON COUNTY

MAMMALS

muskrat *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

western hog-nosed skunk *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

sandbank pocketbook *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2?	State Rank: S1

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DENTON COUNTY

MOLLUSKS

Texas heelsplitter *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G3	State Rank: S1

REPTILES

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

prairie skink *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas garter snake *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T4	State Rank: S1

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DENTON COUNTY

REPTILES

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

western chicken turtle *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S2S3

western rattlesnake *Crotalus viridis*

Terrestrial: Dry desert and prairie grasslands, shrub desert rocky hillsides; edges of arid and semi-arid river breaks.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

PLANTS

Glen Rose yucca *Yucca necopina*

Grasslands on sandy soils and limestone outcrops; flowering April-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S3

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DENTON COUNTY

PLANTS

Sutherland hawthorn *Crataegus viridis var. glabriuscula*

In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above\near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T3T4	State Rank: S3

Topeka purple-coneflower *Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Apr-June

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

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APPENDIX 4

USDA-NRCS CUSTOM SOIL RESOURCE REPORT FOR DENTON COUNTY, TEXAS:

FM 1171 CONSERVATION DEVELOPMENT

United States Department of Agriculture

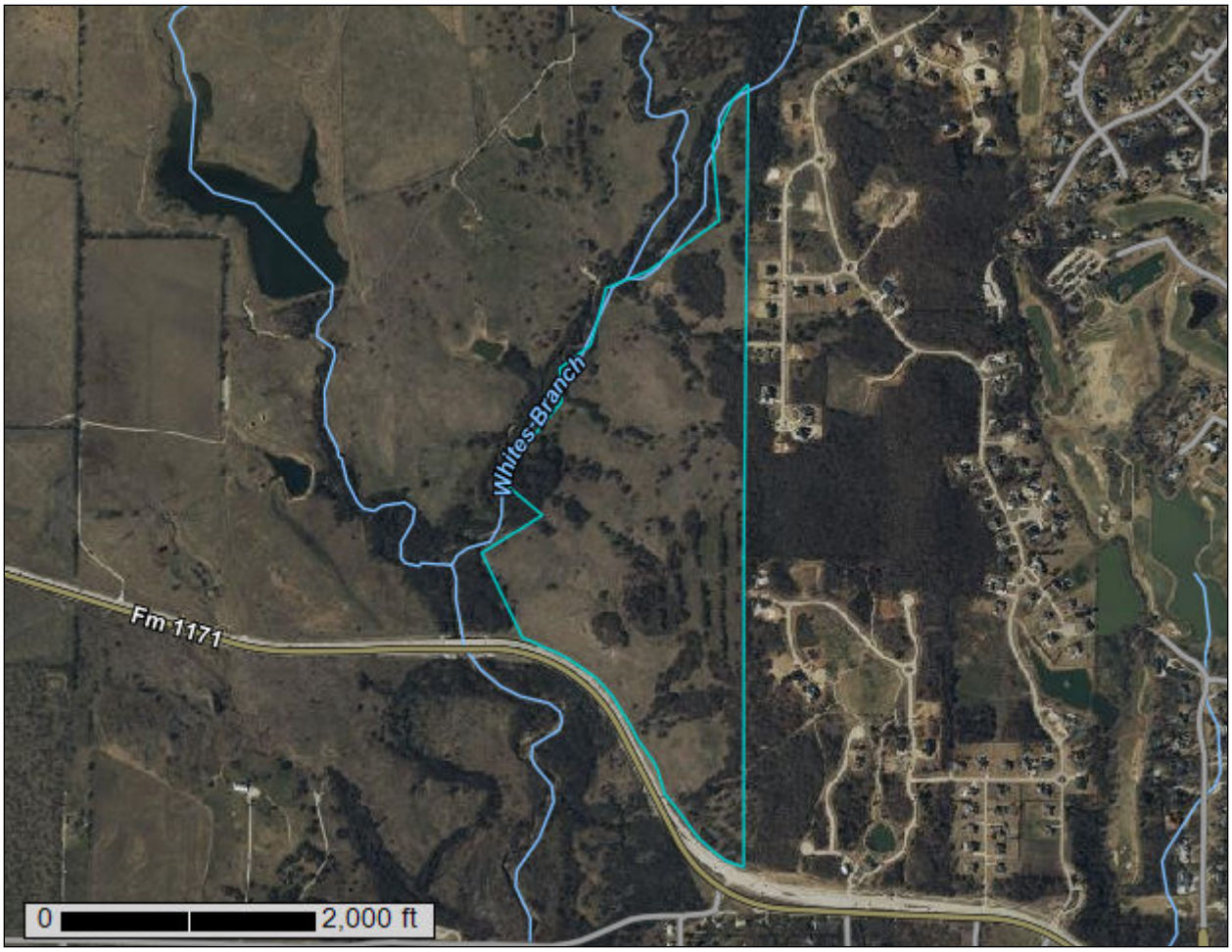
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Denton County, Texas



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

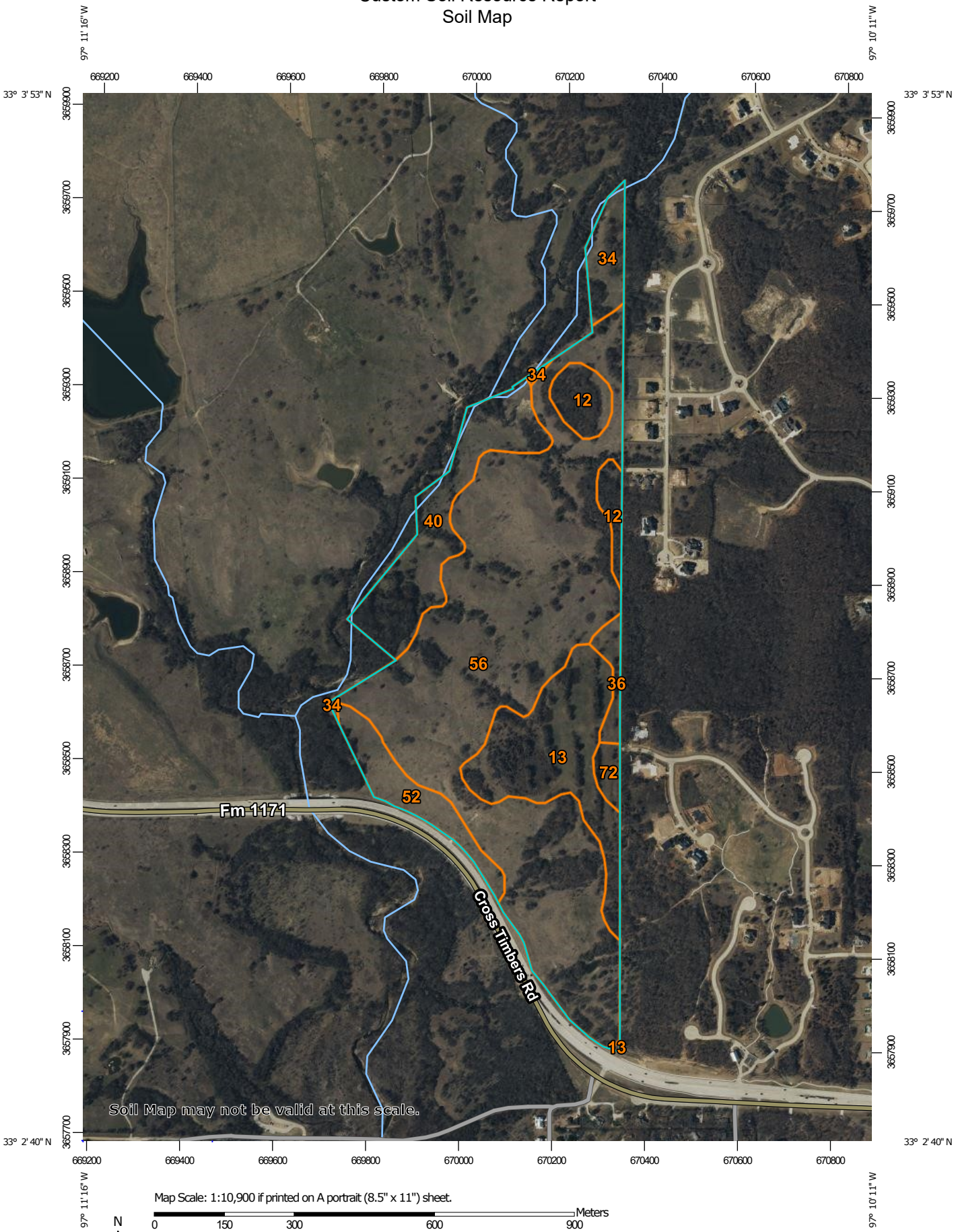
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:10,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Denton County, Texas
Survey Area Data: Version 19, Aug 24, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 3, 2022—Mar 31, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Birome fine sandy loam, 3 to 5 percent slopes	6.0	4.1%
13	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	19.6	13.2%
34	Frio clay loam, 0 to 1 percent slopes, frequently flooded	4.8	3.3%
36	Gasil fine sandy loam, 3 to 8 percent slopes	2.2	1.5%
40	Gowen clay loam, frequently flooded	16.4	11.1%
52	Lewisville clay loam, 1 to 3 percent slopes	7.3	5.0%
56	Medlin-Sanger clay, 5 to 15 percent slopes	90.0	60.8%
72	Silstid loamy fine sand, 1 to 5 percent slopes	1.6	1.1%
Totals for Area of Interest		**148.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Denton County, Texas

12—Birome fine sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: d7ry
Elevation: 400 to 1,100 feet
Mean annual precipitation: 32 to 43 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 225 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Birome and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Birome

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 27 inches: clay
H3 - 27 to 34 inches: sandy clay
H4 - 34 to 60 inches: bedrock

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R084CY194TX - Sandy Loam 37-43 PZ
Hydric soil rating: No

13—Birome-Rayex-Aubrey complex, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: d7rz
Elevation: 400 to 1,100 feet
Mean annual precipitation: 32 to 43 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 220 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Birome and similar soils: 33 percent
Rayex and similar soils: 32 percent
Aubrey and similar soils: 29 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Birome

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone

Typical profile

H1 - 0 to 8 inches: stony fine sandy loam
H2 - 8 to 31 inches: clay
H3 - 31 to 60 inches: bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R084CY194TX - Sandy Loam 37-43 PZ
Hydric soil rating: No

Description of Rayex

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 7 inches: stony fine sandy loam
H2 - 7 to 15 inches: clay
H3 - 15 to 20 inches: bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R084CY192TX - Sandstone Hill 37-43 PZ
Hydric soil rating: No

Description of Aubrey

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey residuum weathered from shale

Typical profile

H1 - 0 to 8 inches: stony fine sandy loam
H2 - 8 to 26 inches: clay
H3 - 26 to 66 inches: bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R084CY195TX - Tight Sandy Loam 37-43 PZ
Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 6 percent
Hydric soil rating: No

34—Frio clay loam, 0 to 1 percent slopes, frequently flooded

Map Unit Setting
National map unit symbol: 2zht7
Elevation: 500 to 1,200 feet
Mean annual precipitation: 32 to 38 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition
Frio, frequently flooded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frio, Frequently Flooded

Setting
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from limestone and shale

Typical profile
A - 0 to 18 inches: clay loam
Bk1 - 18 to 41 inches: clay loam
Bk2 - 41 to 80 inches: clay loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 5w
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C
Ecological site: R085AY181TX - Loamy Bottomland 30-38" PZ
Hydric soil rating: No

Minor Components

Bosque

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R085AY181TX - Loamy Bottomland 30-38" PZ
Hydric soil rating: No

Bunyan

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R085AY181TX - Loamy Bottomland 30-38" PZ
Hydric soil rating: No

Ovan

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R085AY178TX - Clayey Bottomland 30-38" PZ
Hydric soil rating: No

36—Gasil fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wn8p
Elevation: 500 to 850 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 220 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Gasil and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gasil

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone

Typical profile

A - 0 to 8 inches: fine sandy loam
E - 8 to 17 inches: fine sandy loam
Bt - 17 to 80 inches: sandy clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R084CY194TX - Sandy Loam 37-43 PZ
Hydric soil rating: No

Minor Components

Crosstell

Percent of map unit: 8 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R084CY195TX - Tight Sandy Loam 37-43 PZ
Hydric soil rating: No

Birome

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R084CY194TX - Sandy Loam 37-43 PZ
Hydric soil rating: No

Heaton

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R084CY193TX - Sandy 37-43 PZ
Hydric soil rating: No

40—Gowen clay loam, frequently flooded

Map Unit Setting

National map unit symbol: d7sy
Elevation: 200 to 950 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Gowen and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gowen

Setting

Landform: Flood plains

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 37 inches: clay loam
H2 - 37 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B
Ecological site: R084CY191TX - Loamy Bottomland 37-43 PZ
Hydric soil rating: No

52—Lewisville clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wn9n
Elevation: 400 to 1,800 feet
Mean annual precipitation: 29 to 39 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 230 to 245 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lewisville and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lewisville

Setting

Landform: Stream terraces, hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear

Across-slope shape: Linear, convex
Parent material: Calcareous loamy alluvium and/or slope alluvium derived from limestone and shale

Typical profile

Ap - 0 to 16 inches: clay loam
Bk - 16 to 42 inches: clay loam
BCk - 42 to 80 inches: clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: R085AY479TX - Loamy Swale 30-38
Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 7 percent
Landform: Hillslopes, stream terraces
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R085AY279TX - Clayey Swale 30-38
Hydric soil rating: No

Bosque

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R085AY181TX - Loamy Bottomland 30-38" PZ
Hydric soil rating: No

56—Medlin-Sanger clay, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: d7th
Elevation: 500 to 1,500 feet
Mean annual precipitation: 26 to 34 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 220 to 265 days
Farmland classification: Not prime farmland

Map Unit Composition

Medlin and similar soils: 60 percent
Sanger and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Medlin

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey residuum weathered from marl

Typical profile

H1 - 0 to 30 inches: clay
H2 - 30 to 49 inches: silty clay
H3 - 49 to 70 inches: silty clay

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R085AY177TX - Blackland 30-38" PZ

Hydric soil rating: No

Description of Sanger

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey residuum weathered from shale

Typical profile

H1 - 0 to 19 inches: clay
H2 - 19 to 55 inches: clay
H3 - 55 to 80 inches: clay

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R085AY177TX - Blackland 30-38" PZ
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

72—Silstid loamy fine sand, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: d7v2
Elevation: 300 to 800 feet
Mean annual precipitation: 28 to 38 inches

Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 225 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Silstid and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Silstid

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy residuum weathered from sandstone woodbine formation

Typical profile

H1 - 0 to 30 inches: loamy fine sand
H2 - 30 to 72 inches: loamy fine sand
H3 - 72 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: R084CY193TX - Sandy 37-43 PZ
Hydric soil rating: No

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ENVIRONMENTAL CONSERVATION COMMISSION AGENDA H.4. REGULAR ITEM(S)

DATE: October 3, 2023
FROM: James Hoefert, Environmental Review Analyst
ITEM: **Consider an application for a tree removal permit (TRP23-0017) for eighteen (18) specimen trees on property proposed for development as Hines Conservation. The property is generally located north of Cross Timbers Road and west of Kimball Xing.**

BACKGROUND: The Hines Conservation development is generally located north of Cross Timbers Road and east of Highway 377. The site is approximately 148 acres in size. The site is currently zoned for Interim Holding and Agricultural uses and master planned for Cross Timbers Conservation Development District. The applicant is requesting to rezone the property to Planned Development District No. 196 (PD-196) for a conservation development. According to the tree survey for the project, the site contains one hundred thirty-five (135) specimen trees. The applicant is requesting to remove eighteen (18) specimen trees from the site to build a residential subdivision. The specimen trees proposed for removal are all in good condition and are located within the proposed buildable area.

The Town's tree ordinance requires that specimen trees removed from the site be replaced at a rate of two times their caliper inches. Based on their size, 818" of replacement trees, equaling 273 three-inch caliper trees, will be required for the removal of the eighteen (18) specimen trees on this site. In addition, protected trees removed from the buildable area will also require replacement at a tree-for-tree rate. Protected tree mitigation / replacement will be determined with the record plat application – once final engineering has been completed for the project. The developer is proposing to preserve a significant number of existing protected trees and specimen trees on the site, so there will be credits available for the preservation of those trees.

BOARD REVIEW/CITIZEN FEEDBACK: As of September 29, 2023, staff has not received feedback related to this item.

ALTERNATIVES: N/A

FISCAL IMPACT: N/A

LEGAL REVIEW: N/A

ATTACHMENTS:
1. Letter of Intent
2. Specimen tree removal permit application
3. Photographs of the specimen trees proposed for removal
4. Photograph of approved signage onsite
5. Tree Survey without aerial
6. Tree Survey with aerial

DRAFT MOTION: Move to recommend approval or denial of the requested permit for the removal of eighteen (18) specimen trees on property proposed for development as Hines Conservation. The property is generally located north of Cross Timbers Road and west of Kimball Xing.

August 30, 2023

Jimmy Hoefert, Environmental Review Analyst
Town of Flower Mound
Environmental Services Division
2121 Cross Timbers Road
Flower Mound, Texas 75028

Reference: Specimen Tree Removal Permit Application
FM 1171 Conservation Development
Approximately 148 Acres
Town of Flower Mound
Denton County, Texas

Dear Mr. Hoefert,

On behalf of the developer on the aforementioned property, we are requesting permission to remove (18) specimen trees (as outlined in the attached tree survey), as defined in the Town of Flower Mound Tree Preservation Code. The trees being requested to be removed are due to site conditions and staff request, which thereby means the subject property cannot reasonably be developed without removal of the trees included in the permit application.

TREE TABULATIONS FROM THE SPECIMEN TREE SURVEY

Total specimen trees	135 trees
Specimen trees to be removed	18 trees

Due to a culmination of preexisting conditions, Town of Flower Mound Engineering Standards, Code requirements, and Environmental Staff requests, the (18) specimen trees are not able to be saved. The site plan presented appears to be the most beneficial after considering all the site constraints and opportunities. The Town has instructed the applicant to request permission to remove all of these specimen trees at one time in lieu of making the final determination during individual lot grading plans.

The following specimen trees are requested to be removed due to site constraints:

1	Tree #10	22” Post Oak
2	Tree #20	22” Blackjack Oak
3	Tree #632	27” Post Oak
4	Tree #1243	22” Post Oak
5	Tree #1254	22” Post Oak
6	Tree #1263	27” Post Oak
7	Tree #1270	22” Post Oak
8	Tree #1274	22” Post Oak
9	Tree #1275	22” Post Oak
10	Tree #1276	20” Blackjack Oak

11	Tree #1277	27” Post Oak
12	Tree #1279	22” Post Oak
13	Tree #1292	20” Cedar Elm
14	Tree #1293	19” Cedar Elm
15	Tree #1295	26” Post Oak
16	Tree #1341	25” Cedar Elm
17	Tree #1343	19” Cedar Elm
18	Tree #1353	23” Cedar Elm

Based on the data, I respectfully ask that the trees enumerated above be allowed to be removed from the site.

Sincerely,

Jameson Pinson, RLA
Landscape Architect, TX #2826

Town of Flower Mound Environmental Services
Mailing Address: 2121 Cross Timbers Road, Flower Mound, TX 75028
Telephone: 972-874-6340 Website: www.flower-mound.com

TREE REMOVAL PERMIT

(Effective for Developments submitted 10/6/08 - present)

Check one: ___**Protected Tree** ✓**Specimen Tree** ___**Historic Tree**

This application is required to be submitted 30 days prior to the next available ECC hearing.

1. Applicant- Note: Must be an ISA certified arborist, certified forester, or a registered landscape architect.

Name:
Jameson Pinson

Address:
201 Country View Drive, Roanoke, TX 76262

Phone:
940-240-1012

Applicant's Legal Interest in the Property:
Landscape Architect for Hines Land Development

2. Property Owner(s)

Name(s): Robert W. Witte
Address: 2700 Commerce Street, Suite 1600
Dallas, TX 75226

3. Location and Legal Description of Property:
FM 1171 Conservation Development
9800 Cross Timbers Road, Flower Mound, TX
Lots 1-9 & 10X-11X, Block A, Lots 1-19 & 20X, Block B, Lots 1-22 & 23X, Block C, Lots 1-12 & 13X, Block D, Lots 1-12 &13X, Block E, and Lot 1X, Block F, 148.008 Acres

4. Owner's Authorization of Representation

I, Robert W. Witte, the owner of the above described real property, do hereby authorize Jameson Pinson to represent my interests and to file an Application for Tree Removal Permit for said real property, pursuant to the terms and provisions of Chapter 94 (Trees), of the Land Development Regulations of the Town of Flower Mound, Texas Code of Ordinances.

see attached

Signature of Owner

SUSAN HEINEN
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 11/15/26
NOTARY ID 12543907-9

Given Under My Hand and Seal of Office
This the 3 Day of August, 20 23

Susan Heinen

Notary Public
In and For Dallas County, Texas.

5. Applicants Affidavit- Note: Applicant must be an ISA certified arborist, certified forester, or a registered landscape architect.

Subject to criminal penalties contained in Subpart B, the Land Development Regulations of the Town of Flower Mound, Texas Code of Ordinances, I Jameson Pinson, do hereby swear or affirm that all of the Information contained herein and submitted herein is, to the best of my knowledge, true, correct and complete and that no false, misleading or incomplete information has been intentionally provided or submitted with this Application for a Tree Removal Permit.

Signature of Applicant

MANDY DENEA MARMON
NOTARY PUBLIC
ID# 133364857
State of Texas
Comm. Exp. 09-30-2025

Landscape Architect License No. 2826
State of Licensure Texas
Or ISA Certified Arborist No.
Or Certified Forester No.

Given Under My Hand and Seal of Office
This the 4 Day of August, 20 23

Mandy Marmon

Notary Public
In and For Denton County, Texas

6. Received by Town of Flower Mound on (Date) 8/4/2023 by (initials) JRH.

FURST RANCH I INVESTORS LP
a Delaware limited partnership

By: Furst Ranch I Investors GP LLC,
its general partner

By: Hines Furst Ranch I Associates LP,
its sole member

By: Hines Furst Ranch I GP LLC,
its sole general partner

By: Hines Interests Limited Partnership,
its sole member

By:_____
Name: Robert W. Witte
Title: Senior Managing Director

Hines Conservation -
Specimen trees proposed for removal

Tree #1254 – 22” post oak

Tree #1263 – 27” post oak

Tree #1270 – 22” post oak

Tree #1274 – 22” post oak

Tree #1275 – 22” post oak

Tree #1276 – 20” blackjack oak

Tree #1277 – 27” post oak

Tree #1279 – 22” post oak

Tree #1292 – 20” cedar elm

Tree #1293 – 19” cedar elm

Tree #1295 – 26” post oak

Tree #1341 – 25” cedar elm

Tree #1343 – 19” cedar elm

Tree #1353 – 23” cedar elm

Tree Removal Request Signage

One of five signs posted along Cross Timbers Rd.

GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:

1. When required, all franchise utilities to be installed within 5ft of the edge of a specimen tree canopy are to be bored and sleeved at required depths per state regulations.

MCADAMS

The John R. McAdams Company, Inc.
201 Country View Drive
Roanoke, Texas 76262

phone 940. 240. 1012
fax 972. 436. 9715
TBPE: 19762 TBPLS: 10194440

www.mcadamsco.com

CLIENT

HINES
2700 COMMERCE STREET, STE 1600
DALLAS, TEXAS 75226
972. 716. 2900
JEFF KENNEMER

HINES CONSERVATION SUBDIVISION

TOWN OF FLOWER MOUND
DENTON COUNTY, TEXAS

REGISTERED LANDSCAPE ARCHITECT
JAMESON R. PARSONS
2826
STATE OF TEXAS

8/31/2023

REVISIONS

NO.	DATE	DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	80 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE SURVEY

L1.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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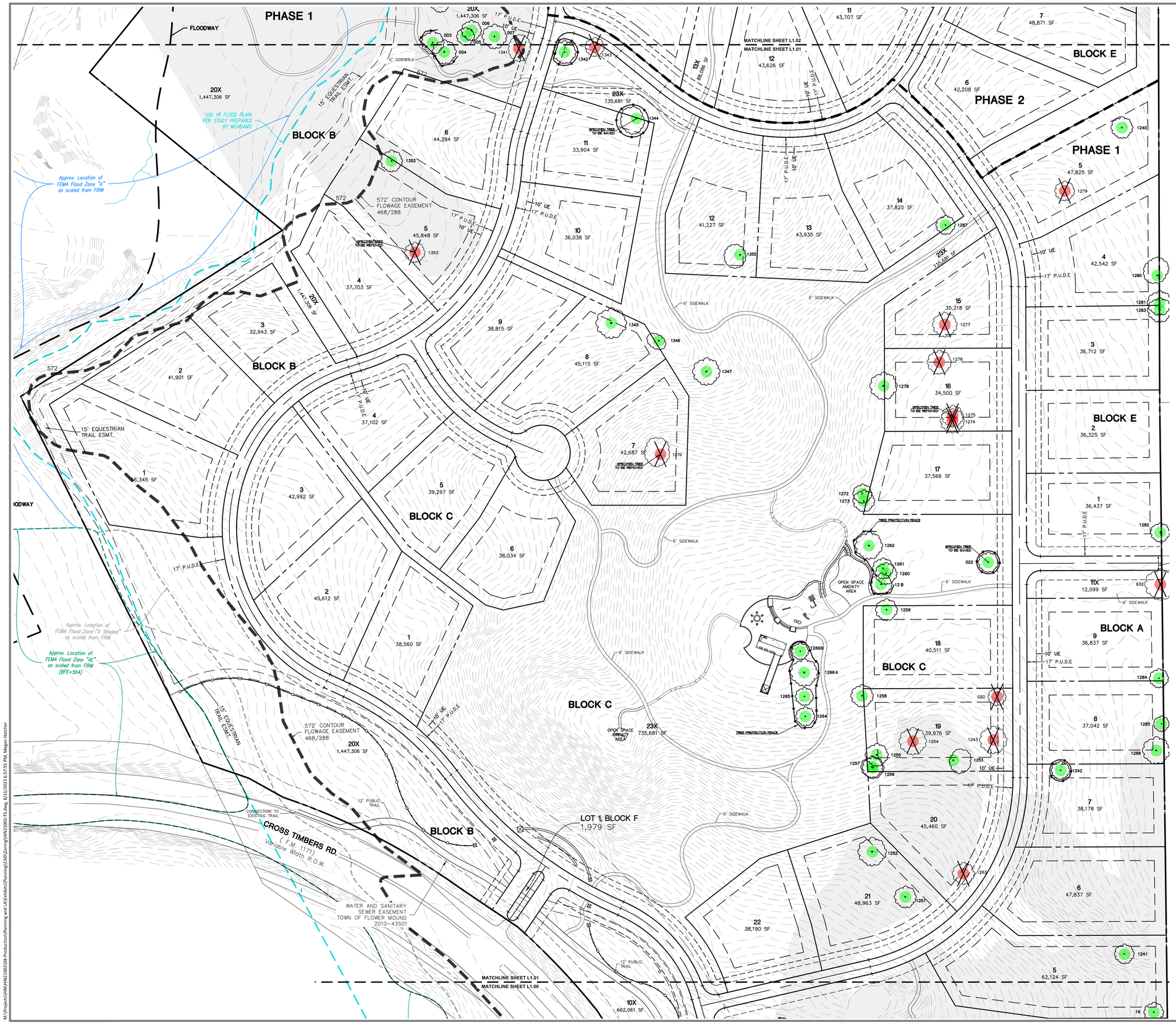

GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:

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STATE OF TEXAS

8/31/2023

REVISIONS

NO.	DATE	DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	80 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE SURVEY

L1.01

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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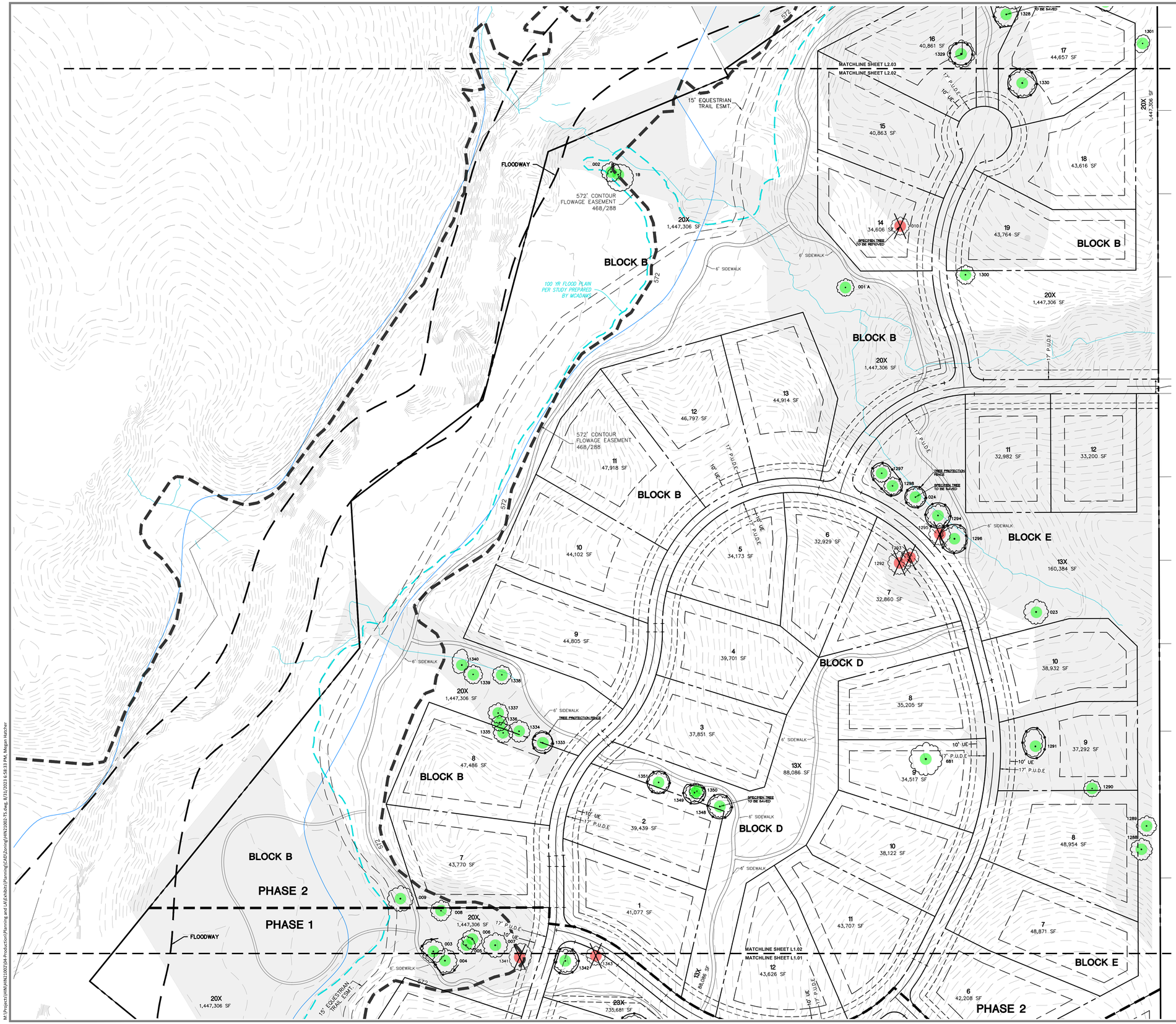

GRAPHIC SCALE
0 40 80 160
1 inch = 80 ft.

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:
1. When required, all franchise utilities to be installed within 5ft of the edge of a specimen tree canopy are to be bored and sleeved at required depths per state regulations.

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STATE OF TEXAS
8/31/2023

REVISIONS

NO.	DATE	DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	80 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE SURVEY

L1.02

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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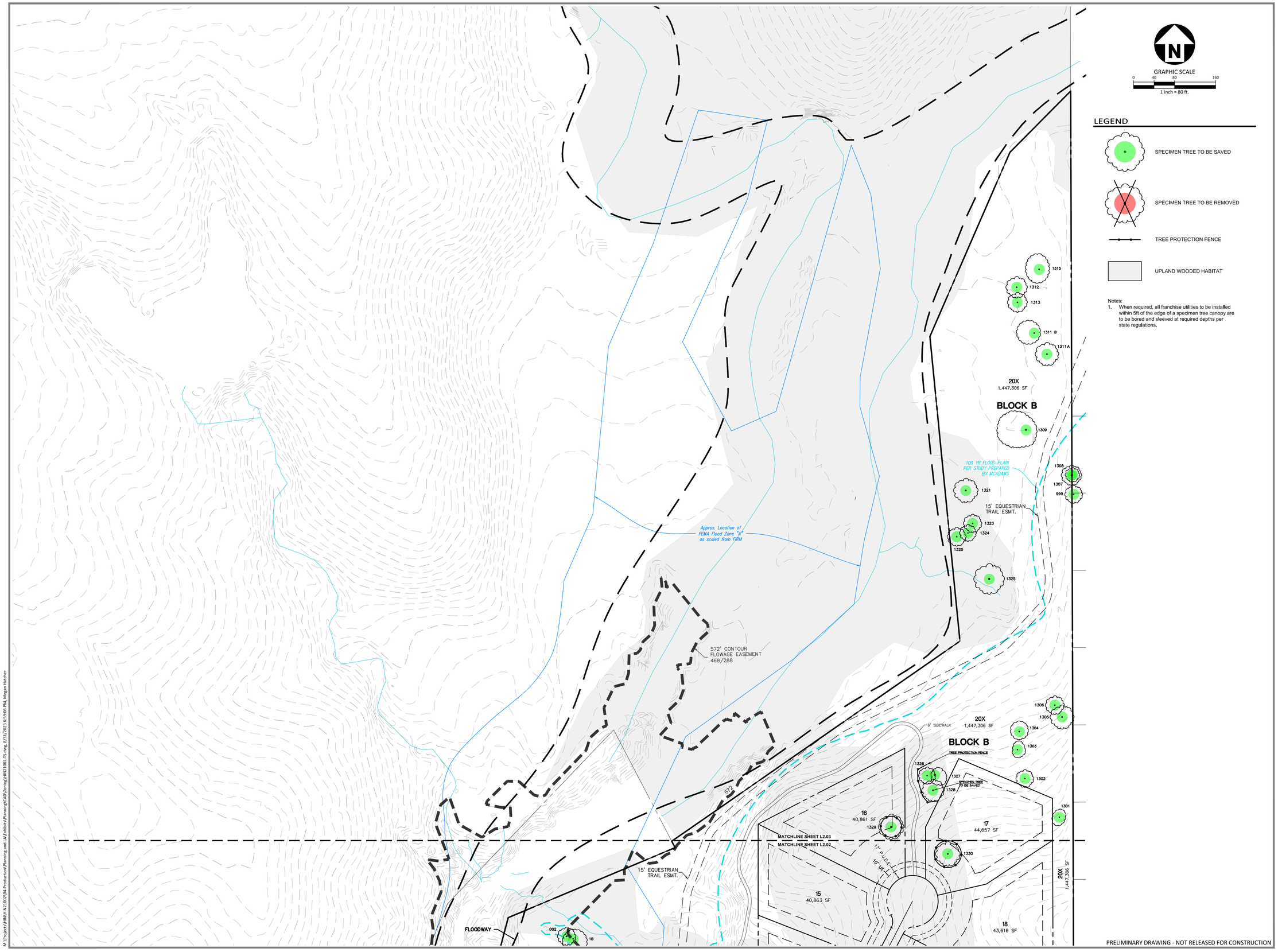

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8/31/2023

REVISIONS

NO.	DATE	DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	80 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE SURVEY

L1.03

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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TREE CHART

LIST #	TAG #	CALIPER "	COMMON NAME	BOTANICAL NAME	REMOVED	MITIGATION	UWH	CONDITION
1	1 A	21	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
2	1 B	24	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
3	2	24	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
4	3	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
5	4	22	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
6	5	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
7	6	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
8	7	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
9	8	24	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
10	9	29	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
11	10	22	POST OAK	Quercus stellata	YES	22	YES	GOOD
12	12 A	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
13	12 B	22	POST OAK	Quercus stellata	NO		NO	GOOD
14	13	22	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
15	14	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
16	15	19	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
17	16	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
18	18	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
19	19	24	POST OAK	Quercus stellata	NO		YES	POOR-CAVITY, 30% DEAD
20	20	22	BLACK JACK OAK	Quercus marilandica	YES	22	NO	GOOD
21	22	22	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
22	23	24	POST OAK	Quercus stellata	NO		YES	GOOD
23	24	20	POST OAK	Quercus stellata	NO		YES	GOOD
24	632	27	POST OAK	Quercus stellata	YES	27	NO	GOOD
25	681	22	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
26	999	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
27	1235	30	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
28	1236	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
29	1237	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
30	1238	28	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
31	1239	20	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
32	1240	26	POST OAK	Quercus stellata	NO		NO	GOOD
33	1241	22	POST OAK	Quercus stellata	NO		YES	GOOD
34	1242	20	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
35	1243	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
36	1244	26	POST OAK	Quercus stellata	NO		YES	GOOD
37	1245	20	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
38	1246	25	POST OAK	Quercus stellata	NO		YES	GOOD
39	1247	24	POST OAK	Quercus stellata	NO		YES	GOOD
40	1248	27	POST OAK	Quercus stellata	NO		YES	GOOD
41	1249	22	POST OAK	Quercus stellata	NO		YES	GOOD
42	1250	24	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
43	1251	22	POST OAK	Quercus stellata	NO		YES	GOOD
44	1252	32	POST OAK	Quercus stellata	NO		YES	GOOD
45	1253	24	POST OAK	Quercus stellata	NO		YES	GOOD
46	1254	22	POST OAK	Quercus stellata	YES	22	YES	GOOD
47	1255	25	POST OAK	Quercus stellata	NO		NO	GOOD
48	1256	22	POST OAK	Quercus stellata	NO		NO	GOOD
49	1257	22	POST OAK	Quercus stellata	NO		NO	GOOD
50	1258	25	POST OAK	Quercus stellata	NO		NO	GOOD
51	1259	24	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
52	1260	23	POST OAK	Quercus stellata	NO		NO	GOOD
53	1261	22	POST OAK	Quercus stellata	NO		NO	GOOD
54	1262	29	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
55	1263	27	POST OAK	Quercus stellata	YES	27	YES	GOOD
56	1264	22	POST OAK	Quercus stellata	NO		NO	GOOD
57	1265	21	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
58	1266 A	20	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
59	1266 B	20	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
60	1270	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
61	1272	19	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
62	1273	22	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
63	1274	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
64	1275	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
65	1276	20	BLACK JACK OAK	Quercus marilandica	YES	20	NO	GOOD
66	1277	27	POST OAK	Quercus stellata	YES	27	NO	GOOD
67	1278	30	TEXAS ASH	Fraxinus texensis	NO		NO	GOOD
68	1279	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
69	1280	22	POST OAK	Quercus stellata	NO		NO	GOOD
70	1281	24	POST OAK	Quercus stellata	NO		NO	GOOD
71	1282	22	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
72	1283	23	POST OAK	Quercus stellata	NO		NO	GOOD
73	1284	19	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
74	1285	19	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
75	1286	26	POST OAK	Quercus stellata	NO		NO	GOOD
76	1287	19	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
77	1288	22	POST OAK	Quercus stellata	NO		YES	GOOD
78	1289	24	POST OAK	Quercus stellata	NO		YES	GOOD
79	1290	20	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
80	1291	22	POST OAK	Quercus stellata	NO		YES	GOOD
81	1292	20	CEDAR ELM	Ulmus crassifolia	YES	20	YES	GOOD
82	1293	19	CEDAR ELM	Ulmus crassifolia	YES	19	YES	GOOD
83	1294	23	POST OAK	Quercus stellata	NO		YES	GOOD
84	1295	26	POST OAK	Quercus stellata	YES	26	NO	GOOD
85	1296	27	POST OAK	Quercus stellata	NO		YES	GOOD
86	1297	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
87	1298	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
88	1300	23	POST OAK	Quercus stellata	NO		NO	GOOD
89	1301	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
90	1302	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
91	1303	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
92	1304	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
93	1305	27	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
94	1306	20	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
95	1307	24	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
96	1308	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
97	1309	40	PECAN	Carya illinoinensis	NO		NO	GOOD
98	1311 A	30	PECAN	Carya illinoinensis	NO		NO	GOOD
99	1311 B	30	PECAN	Carya illinoinensis	NO		NO	GOOD
100	1312	26	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
101	1313	24	PECAN	Carya illinoinensis	NO		NO	GOOD
102	1315	30	PECAN	Carya illinoinensis	NO		NO	GOOD
103	1320	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
104	1321	32	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
105	1323	31	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
106	1324	32	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
107	1325	35	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
108	1326	22	POST OAK	Quercus stellata	NO		YES	GOOD
109	1327	24	POST OAK	Quercus stellata	NO		YES	GOOD
110	1328	26	POST OAK	Quercus stellata	NO		YES	GOOD
111	1329	23	POST OAK	Quercus stellata	NO		YES	GOOD
112	1330	30	POST OAK	Quercus stellata	NO		YES	POOR-MAIN TRUNK GONE
113	1333	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
114	1334	24	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
115	1335	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
116	1336	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
117	1337	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
118	1338	23	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
119	1339	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
120	1340	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
121	1341	25	CEDAR ELM	Ulmus crassifolia	YES	25	YES	GOOD
122	1342	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
123	1343	19	CEDAR ELM	Ulmus crassifolia	YES	19	NO	GOOD
124	1344	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
125	1345	30	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
126	1346	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
127	1347	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
128	1348	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
129	1349	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
130	1350	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
131	1351	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
132	1352	24	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
133	1353	23	CEDAR ELM	Ulmus crassifolia	YES	23	YES	GOOD
134	1355	22	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
135	1567	20	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
						409		

MITIGATION CALCULATIONS	
Total # of specimen trees:	135
Specimen trees to be removed:	18
Specimen tree cal. Inches removed:	409
Specimen tree mitigation (2x cal. Inches removed):	818

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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TOWN OF FLOWER MOUND
DENTON COUNTY, TEXAS

REGISTERED LANDSCAPE ARCHITECT
JAMESON P. PINKOSKI
2826
STATE OF TEXAS
8/31/2023

REVISIONS

NO. DATE DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	40 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE CHART

L1.04

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TREE PRUNING, REMOVAL AND PROTECTION MEASURES

A. QUALITY ASSURANCE
1) Comply with applicable Federal, state, county and local regulations governing landscape work.
2) employ only experienced personnel. Provide adequate supervision by qualified foreman.

B. JOB CONDITIONS
1) Coordination: Coordinate and cooperate with other contractors to enable the work to proceed as rapidly and efficiently as possible.
2) In order to minimize conflict, secure from the Construction Manager copies of layout drawings showing the location of all underground utility lines and other structures

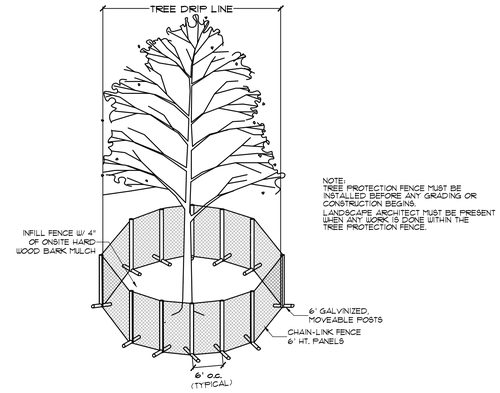
C. PRODUCTS
1) MULCH: Double shredded hardwood mulch free of sticks, dirt and other debris and derived from the site clearing.

D. DEFINITIONS
1) CRZ: Critical Root Zone: The soil space directly under the canopy of any tree, extending out at least 7 feet from the trunk or 2/3 the distance to the drip–line, whichever is greater.
2) TPZ: Tree Protection Zone: The entire soil space located directly under the drip–line of any tree (the entire drip–line).
3) CRS: Complete Root System: The soil space directly under the drip–line of any tree and an additional 7 feet beyond said drip–line.
4) TPF: Tree Protection Fence: The orange safety barrier netting that shall extend around the entire circumference of the tree at the TPZ.

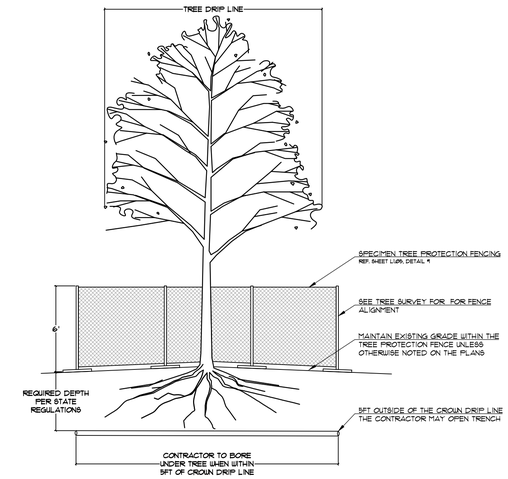
E. PRE–CONSTRUCTION TREE PRUNING
1) Personnel Qualifications: All pruning shall be performed under the supervision of an international Society of Arboriculture (ISA) Certified Arborist.
2) All trees within the project area shall be pruned to:
   (i) Clear the crown of diseased, crossing, weak and dead wood to a minimum of 1 ½ inches in diameter
   (ii) Provide 14 feet of vertical clearance over streets and 8 feet over sidewalks.
   (iii) Remove stubs, cutting outside the wound–wood tissue that has formed around the branch.
   (iv) Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 2 to 3 inches, near the ends of the scaffolds.
3) Pruning cuts shall be made in accordance with ANSI 300 Pruning Standard and work shall be performed in accordance with ANSI Z133.1 Safety Standards. Pruning shall be in accordance with ISA's Best Management Practices: Tree Pruning
4) No more than 20 percent of live foliage shall be removed from any tree.
5) Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 4 inches, leaving the trunk clear of mulch.

F. TREE REMOVAL
1) Trees preservation requires a commitment to preserving and maintaining retained trees, as well as removal of any unsuited trees within the Project Area.
2) All wood debris from all tree removals at the Project Site is to be chipped and stored on site for use in the tree preservation efforts at the discretion of the Landscape Architect.
3) The limits of all tree protection zones shall be staked in the field and observed by all contractors,
4) Any brush clearing required within the tree protection zone shall be accomplished with hand operated equipment.
5) Trees to be removed from within the tree protection zone shall be removed under the supervision of a Certified Arborist. The trees shall be cut near ground level and the stump ground out.

G. TREE PROTECTION
1) Before beginning work, the Project Manager, Landscape Architect and/or Owner or their agents are required to meet at the site to review all work procedures, access routes, storage areas, and tree protection measures. Any intended construction activities inside the TPZ shall be clearly outlines.
2) Fences shall be erected to protect trees to be preserved prior to construction equipment arriving on the Project Site. Fences will define the specific protection zone for each tree or group trees.
3) Fences are to be maintained and remain until all site work has been completed and final landscape operations begin. Fences may not be relocated or removed without written permission from the Landscape Architect. Fences may be constructed from 6 "T" stakes and orange web fence material
4) All trees to be preserved shall have 4 inches of hardwood mulch applied inside the tree protection zone. This hardwood mulch shall be replenished as necessary to maintain a 4 inch depth.
5) Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
6) Tree roots extend out in a straight, radial direction from the tree much like spokes on a wheel (to a depth generally not exceeding 24"). All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. Trenches "airdug" with Air Spade (registered trademark) or similar technology are the exceptions. Irrigation line may routed in any direction outside the dripline of retained trees. Irrigation lines inside the drip–line must be in a straight, radial direction towards the tree trunk and terminate in a dead end sprinkler head no grater than 7 feet from a tree trunk (irrigation lines shall not in any way bisect and therefore damage the "spoke–like" root system).
7) No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone.
8) If unintentional injury should occur to any tree during construction, it shall be reported to the Landscape Architect within six hours so that remedial action can be taken, Timeliness is critical to tree health. The cost of any remedial treatments will become the burden of the offending contracting company.
9) Any grading, construction, demolition, or other work that in expected to encounter tree roots must be monitored by the Landscape Architect. Specific locations or tree tag numbers should be identified



1. SPECIMEN TREE PROTECTION FENCING
NTS



2. BORING UNDER EXISTING TREE
1"=5'

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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REGISTERED LANDSCAPE ARCHITECT
JAMESON P. PARSONS
2826
STATE OF TEXAS
8/31/2023

REVISIONS

NO.	DATE	DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	40 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE NOTES & DETAILS

L1.05

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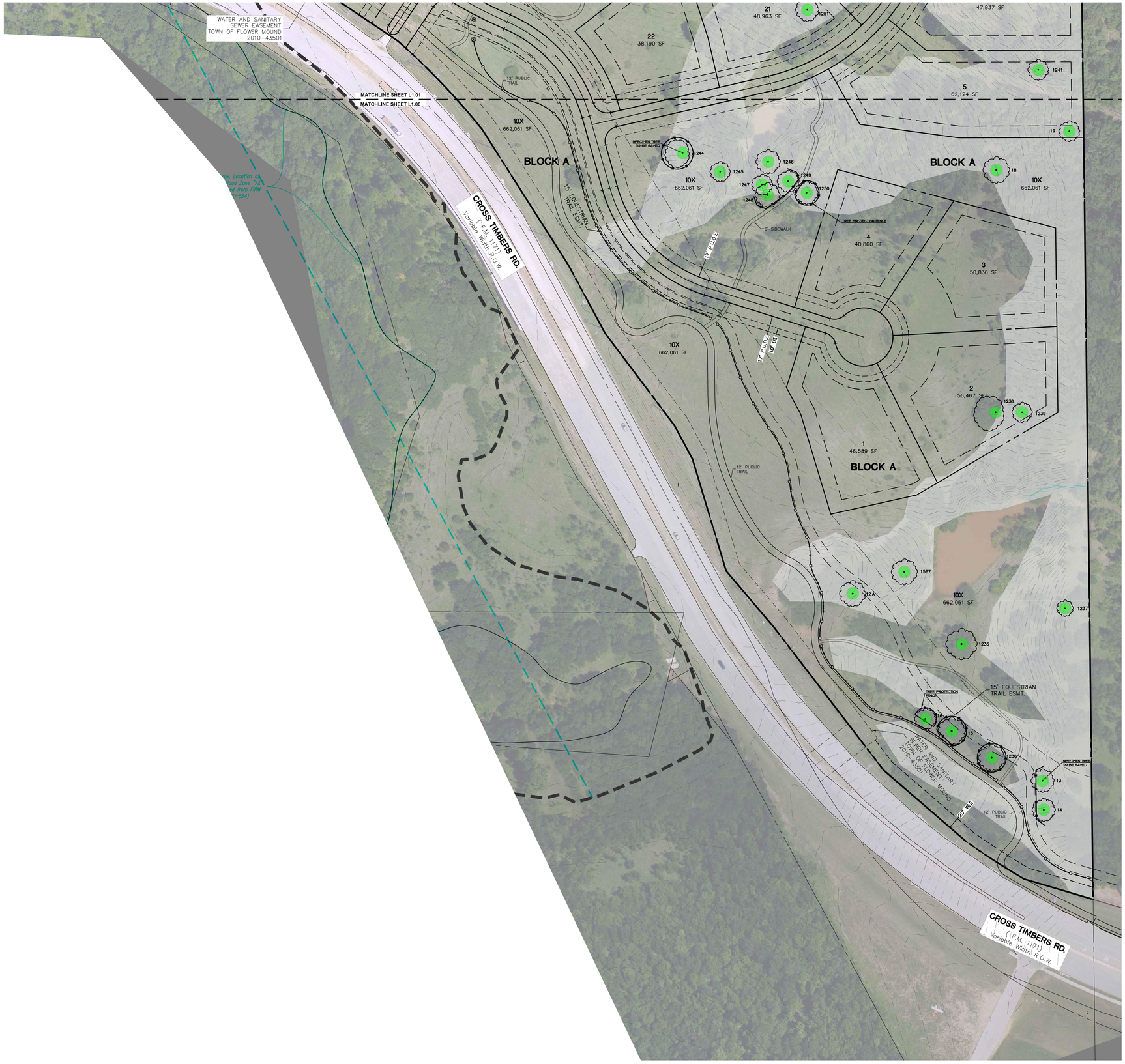

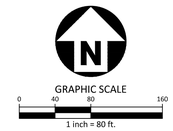

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:
1. When required, all franchise utilities to be installed within 5ft of the edge of a specimen tree canopy are to be bored and sleeved at required depths per state regulations.

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DENTON COUNTY, TEXAS

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JAMESON R. PARKER
2826
STATE OF TEXAS
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PLAN INFORMATION

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FILENAME	HIN21002-TS.DWG
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DRAWN BY	MAH
SCALE	80 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE SURVEY

L1.00

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GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:

1. When required, all franchise utilities to be installed within 5ft of the edge of a specimen tree canopy are to be bored and sleeved at required depths per state regulations.

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STATE OF TEXAS

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SPECIMEN TREE SURVEY

L1.01

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GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:

1. When required, all franchise utilities to be installed within 5ft of the edge of a specimen tree canopy are to be bored and sleeved at required depths per state regulations.

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REGISTERED LANDSCAPE ARCHITECT
JAMESON R. PINSON
2826
STATE OF TEXAS

8/31/2023

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DATE	08.31.2023

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SPECIMEN TREE SURVEY

L1.02

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GRAPHIC SCALE

0 40 80 160

1 inch = 80 ft.

LEGEND

- SPECIMEN TREE TO BE SAVED
- SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- UPLAND WOODED HABITAT

Notes:

1. When required, all franchise utilities to be installed within 5ft of the edge of a specimen tree canopy are to be bored and sleeved at required depths per state regulations.

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SPECIMEN TREE SURVEY

L1.03

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TREE CHART

LIST #	TAG #	CALIPER "	COMMON NAME	BOTANICAL NAME	REMOVED	MITIGATION	UWH	CONDITION
1	1 A	21	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
2	1 B	24	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
3	2	24	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
4	3	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
5	4	22	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
6	5	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
7	6	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
8	7	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
9	8	24	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
10	9	29	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
11	10	22	POST OAK	Quercus stellata	YES	22	YES	GOOD
12	12 A	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
13	12 B	22	POST OAK	Quercus stellata	NO		NO	GOOD
14	13	22	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
15	14	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
16	15	19	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
17	16	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
18	18	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
19	19	24	POST OAK	Quercus stellata	NO		YES	POOR-CAVITY, 30% DEAD
20	20	22	BLACK JACK OAK	Quercus marilandica	YES	22	NO	GOOD
21	22	22	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
22	23	24	POST OAK	Quercus stellata	NO		YES	GOOD
23	24	20	POST OAK	Quercus stellata	NO		YES	GOOD
24	632	27	POST OAK	Quercus stellata	YES	27	NO	GOOD
25	681	22	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
26	999	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
27	1235	30	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
28	1236	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
29	1237	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
30	1238	28	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
31	1239	20	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
32	1240	26	POST OAK	Quercus stellata	NO		NO	GOOD
33	1241	22	POST OAK	Quercus stellata	NO		YES	GOOD
34	1242	20	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
35	1243	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
36	1244	26	POST OAK	Quercus stellata	NO		YES	GOOD
37	1245	20	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
38	1246	25	POST OAK	Quercus stellata	NO		YES	GOOD
39	1247	24	POST OAK	Quercus stellata	NO		YES	GOOD
40	1248	27	POST OAK	Quercus stellata	NO		YES	GOOD
41	1249	22	POST OAK	Quercus stellata	NO		YES	GOOD
42	1250	24	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
43	1251	22	POST OAK	Quercus stellata	NO		YES	GOOD
44	1252	32	POST OAK	Quercus stellata	NO		YES	GOOD
45	1253	24	POST OAK	Quercus stellata	NO		YES	GOOD
46	1254	22	POST OAK	Quercus stellata	YES	22	YES	GOOD
47	1255	25	POST OAK	Quercus stellata	NO		NO	GOOD
48	1256	22	POST OAK	Quercus stellata	NO		NO	GOOD
49	1257	22	POST OAK	Quercus stellata	NO		NO	GOOD
50	1258	25	POST OAK	Quercus stellata	NO		NO	GOOD
51	1259	24	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
52	1260	23	POST OAK	Quercus stellata	NO		NO	GOOD
53	1261	22	POST OAK	Quercus stellata	NO		NO	GOOD
54	1262	29	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
55	1263	27	POST OAK	Quercus stellata	YES	27	YES	GOOD
56	1264	22	POST OAK	Quercus stellata	NO		NO	GOOD
57	1265	21	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
58	1266 A	20	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
59	1266 B	20	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
60	1270	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
61	1272	19	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
62	1273	22	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
63	1274	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
64	1275	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
65	1276	20	BLACK JACK OAK	Quercus marilandica	YES	20	NO	GOOD
66	1277	27	POST OAK	Quercus stellata	YES	27	NO	GOOD
67	1278	30	TEXAS ASH	Fraxinus texensis	NO		NO	GOOD
68	1279	22	POST OAK	Quercus stellata	YES	22	NO	GOOD
69	1280	22	POST OAK	Quercus stellata	NO		NO	GOOD
70	1281	24	POST OAK	Quercus stellata	NO		NO	GOOD
71	1282	22	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
72	1283	23	POST OAK	Quercus stellata	NO		NO	GOOD
73	1284	19	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
74	1285	19	BLACK JACK OAK	Quercus marilandica	NO		NO	GOOD
75	1286	26	POST OAK	Quercus stellata	NO		NO	GOOD
76	1287	19	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
77	1288	22	POST OAK	Quercus stellata	NO		YES	GOOD
78	1289	24	POST OAK	Quercus stellata	NO		YES	GOOD
79	1290	20	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
80	1291	22	POST OAK	Quercus stellata	NO		YES	GOOD
81	1292	20	CEDAR ELM	Ulmus crassifolia	YES	20	YES	GOOD
82	1293	19	CEDAR ELM	Ulmus crassifolia	YES	19	YES	GOOD
83	1294	23	POST OAK	Quercus stellata	NO		YES	GOOD
84	1295	26	POST OAK	Quercus stellata	YES	26	NO	GOOD
85	1296	27	POST OAK	Quercus stellata	NO		YES	GOOD
86	1297	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
87	1298	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
88	1300	23	POST OAK	Quercus stellata	NO		NO	GOOD
89	1301	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
90	1302	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
91	1303	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
92	1304	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
93	1305	27	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
94	1306	20	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
95	1307	24	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
96	1308	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
97	1309	40	PECAN	Carya illinoinensis	NO		NO	GOOD
98	1311 A	30	PECAN	Carya illinoinensis	NO		NO	GOOD
99	1311 B	30	PECAN	Carya illinoinensis	NO		NO	GOOD
100	1312	26	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
101	1313	24	PECAN	Carya illinoinensis	NO		NO	GOOD
102	1315	30	PECAN	Carya illinoinensis	NO		NO	GOOD
103	1320	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
104	1321	32	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
105	1323	31	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
106	1324	32	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
107	1325	35	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
108	1326	22	POST OAK	Quercus stellata	NO		YES	GOOD
109	1327	24	POST OAK	Quercus stellata	NO		YES	GOOD
110	1328	26	POST OAK	Quercus stellata	NO		YES	GOOD
111	1329	23	POST OAK	Quercus stellata	NO		YES	GOOD
112	1330	30	POST OAK	Quercus stellata	NO		YES	POOR-MAIN TRUNK GONE
113	1333	21	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
114	1334	24	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
115	1335	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
116	1336	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
117	1337	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
118	1338	23	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
119	1339	23	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
120	1340	19	CEDAR ELM	Ulmus crassifolia	NO		YES	GOOD
121	1341	25	CEDAR ELM	Ulmus crassifolia	YES	25	YES	GOOD
122	1342	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
123	1343	19	CEDAR ELM	Ulmus crassifolia	YES	19	NO	GOOD
124	1344	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
125	1345	30	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
126	1346	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
127	1347	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
128	1348	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
129	1349	20	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
130	1350	19	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
131	1351	21	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
132	1352	24	CEDAR ELM	Ulmus crassifolia	NO		NO	FAIR
133	1353	23	CEDAR ELM	Ulmus crassifolia	YES	23	YES	GOOD
134	1355	22	CEDAR ELM	Ulmus crassifolia	NO		NO	GOOD
135	1567	20	CEDAR ELM	Ulmus crassifolia	NO		YES	FAIR
						409		

MITIGATION CALCULATIONS	
Total # of specimen trees:	135
Specimen trees to be removed:	18
Specimen tree cal. Inches removed:	409
Specimen tree mitigation (2x cal. Inches removed):	818

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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TOWN OF FLOWER MOUND
DENTON COUNTY, TEXAS

REGISTERED LANDSCAPE ARCHITECT
JAMESON P. PINKOSKI
2826
STATE OF TEXAS
8/31/2023

REVISIONS

NO. DATE DESCRIPTION

PLAN INFORMATION

PROJECT NO.	HIN21002
FILENAME	HIN21002-TS.DWG
CHECKED BY	XXX
DRAWN BY	MAH
SCALE	40 SCALE
DATE	08.31.2023

SHEET

SPECIMEN TREE CHART

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TREE PRUNING, REMOVAL AND PROTECTION MEASURES

A. QUALITY ASSURANCE
1) Comply with applicable Federal, state, county and local regulations governing landscape work.
2) employ only experienced personnel. Provide adequate supervision by qualified foreman.

B. JOB CONDITIONS
1) Coordination: Coordinate and cooperate with other contractors to enable the work to proceed as rapidly and efficiently as possible.
2) In order to minimize conflict, secure from the Construction Manager copies of layout drawings showing the location of all underground utility lines and other structures

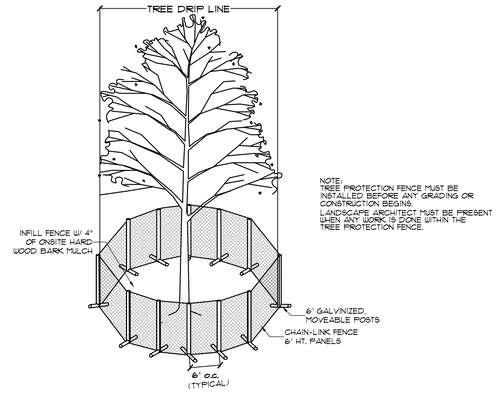
C. PRODUCTS
1) MULCH: Double shredded hardwood mulch free of sticks, dirt and other debris and derived from the site clearing.

D. DEFINITIONS
1) CRZ: Critical Root Zone: The soil space directly under the canopy of any tree, extending out at least 7 feet from the trunk or 2/3 the distance to the drip–line, whichever is greater.
2) TPZ: Tree Protection Zone: The entire soil space located directly under the drip–line of any tree (the entire drip–line).
3) CRS: Complete Root System: The soil space directly under the drip–line of any tree and an additional 7 feet beyond said drip–line.
4) TPF: Tree Protection Fence: The orange safety barrier netting that shall extend around the entire circumference of the tree at the TPZ.

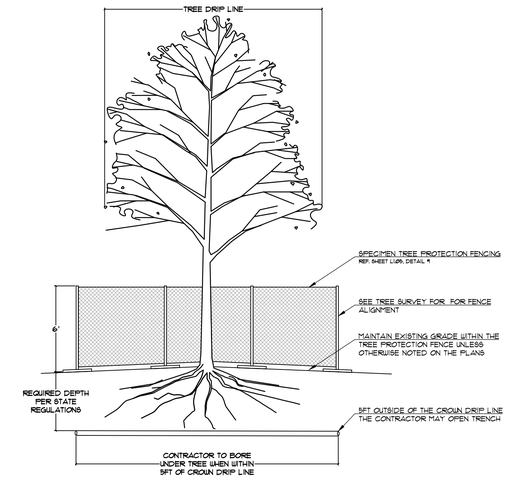
E. PRE–CONSTRUCTION TREE PRUNING
1) Personnel Qualifications: All pruning shall be performed under the supervision of an international Society of Arboriculture (ISA) Certified Arborist.
2) All trees within the project area shall be pruned to:
   (i) Clear the crown of diseased, crossing, weak and dead wood to a minimum of 1 ½ inches in diameter
   (ii) Provide 14 feet of vertical clearance over streets and 8 feet over sidewalks.
   (iii) Remove stubs, cutting outside the wound–wood tissue that has formed around the branch.
   (iv) Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 2 to 3 inches, near the ends of the scaffolds.
3) Pruning cuts shall be made in accordance with ANSI 300 Pruning Standard and work shall be performed in accordance with ANSI Z133.1 Safety Standards. Pruning shall be in accordance with ISA's Best Management Practices: Tree Pruning
4) No more than 20 percent of live foliage shall be removed from any tree.
5) Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 4 inches, leaving the trunk clear of mulch.

F. TREE REMOVAL
1) Trees preservation requires a commitment to preserving and maintaining retained trees, as well as removal of any unsuited trees within the Project Area.
2) All wood debris from all tree removals at the Project Site is to be chipped and stored on site for use in the tree preservation efforts at the discretion of the Landscape Architect.
3) The limits of all tree protection zones shall be staked in the field and observed by all contractors,
4) Any brush clearing required within the tree protection zone shall be accomplished with hand operated equipment.
5) Trees to be removed from within the tree protection zone shall be removed under the supervision of a Certified Arborist. The trees shall be cut near ground level and the stump ground out.

G. TREE PROTECTION
1) Before beginning work, the Project Manager, Landscape Architect and/or Owner or their agents are required to meet at the site to review all work procedures, access routes, storage areas, and tree protection measures. Any intended construction activities inside the TPZ shall be clearly outlines.
2) Fences shall be erected to protect trees to be preserved prior to construction equipment arriving on the Project Site. Fences will define the specific protection zone for each tree or group trees.
3) Fences are to be maintained and remain until all site work has been completed and final landscape operations begin. Fences may not be relocated or removed without written permission from the Landscape Architect. Fences may be constructed from 6 "T" stakes and orange web fence material
4) All trees to be preserved shall have 4 inches of hardwood mulch applied inside the tree protection zone. This hardwood mulch shall be replenished as necessary to maintain a 4 inch depth.
5) Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
6) Tree roots extend out in a straight, radial direction from the tree much like spokes on a wheel (to a depth generally not exceeding 24"). All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. Trenches "airdug" with Air Spade (registered trademark) or similar technology are the exceptions. Irrigation line may routed in any direction outside the dripline of retained trees. Irrigation lines inside the drip–line must be in a straight, radial direction towards the tree trunk and terminate in a dead end sprinkler head no grater than 7 feet from a tree trunk (irrigation lines shall not in any way bisect and therefore damage the "spoke–like" root system).
7) No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone.
8) If unintentional injury should occur to any tree during construction, it shall be reported to the Landscape Architect within six hours so that remedial action can be taken, Timeliness is critical to tree health. The cost of any remedial treatments will become the burden of the offending contracting company.
9) Any grading, construction, demolition, or other work that in expected to encounter tree roots must be monitored by the Landscape Architect. Specific locations or tree tag numbers should be identified



1. SPECIMEN TREE PROTECTION FENCING
NTS



2. BORING UNDER EXISTING TREE
1"=5'

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SHEET

SPECIMEN TREE NOTES & DETAILS

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