

Planning Commission Minutes  
March 13, 2025

(The agenda was filed with the City Clerk of The City of Oklahoma City at 7:41 a.m. on March 10, 2025)

19. (SPUD-1718) Application by Knox Farm Land Fund, LLC to rezone 4036 NW 178th Street from PUD-1768 Planned Unit Development District to SPUD-1718 Simplified Planned Unit Development District. Ward 8.

**Technical Evaluation:**

1. Modify the setback and screening requirements to be per Code on the west unless developed as personal storage.

The applicant was present. There were no protesters present.

**RECOMMENDED APPROVAL SUBJECT TO TECHNICAL EVALUATION.**

MOVED BY NOBLE, SECONDED BY MEEK

AYES: CLAIR, POWERS, MEEK, PRIVETT, NEWMAN, GOVIN, PENNINGTON,  
NOBLE, LAFORGE



**STAFF REPORT**  
**The City of Oklahoma City**  
**Planning Commission**  
**March 13, 2025**

**Item No. IV. 19.**

**(SPUD-1718) Application by Knox Farm Land Fund, LLC to rezone 4036 NW 178<sup>th</sup> Street from PUD-1768 Planned Unit Development District to SPUD-1718 Simplified Planned Unit Development District. Ward 8.**

**I. GENERAL INFORMATION**

**A. Contacts**

**1. Applicant Representative**

Name	David Box
Company	Box Law Group, PLLC
Phone	405-652-0099
Email	david@boxlawgroup.com

**B. Case History**

This is a new application.

**C. Reason for Request**

The purpose of this application is to allow commercial development, specifically a personal storage facility.

**D. Existing Conditions**

**1. Size of Site:** 4.9367 Acres

**2. Zoning and Land Use**

	<b>Subject Site</b>	<b>North</b>	<b>East</b>	<b>South</b>	<b>West</b>
<b>Zoning</b>	PUD-1768	PUD-1895	PUD-1768	PUD-1768	R-1
<b>Land Use</b>	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Residential

**3. Comprehensive Plan Land Use Typology Area:** Urban – Low Intensity (UL)

UL applies to the least intensively developed areas of the city that still receive urban water, sewer, police, park and fire services. Development in this area should provide horizontal integration of land uses, connectivity within and between individual developments, and design that facilitates pedestrian and bicycle transportation.

**II. SUMMARY OF SPUD APPLICATION**

1. This site will be developed in accordance with the regulation of the **C-3 Community Commercial District** (OKC Zoning Ordinance, 2020, as amended), except that the following restrictions will apply:

The following use(s) will be the only use(s) permitted on this site:

8300.1	Administrative and Professional Offices
8300.23	Building Maintenance Services
8250.3	Community Recreation: Property Owners Association
8300.32	Convenience Sales and Personal Services
8250.13	Light Public Protection and Utility: Restricted
8250.14	Low Impact Institutional: Neighborhood-Related
8300.58	Personal Services: General
8300.59	Personal Services: Restricted
8300.60	Personal Storage
8300.61	Repair Services: Consumer

**2. Maximum Building Height:**

The maximum building height shall be one (1) story.

**3. Maximum Building Size:**

The maximum building size shall be 24,000 square feet.

**4. Maximum Number of Buildings:**

There shall be a maximum of ten buildings.

**5. Building Setback Lines**

North:	25 feet
South:	40 feet
East:	0 feet
West:	0 feet

**6. Sight-Proof Screening:**

No less than a six-foot and no greater than an eight-foot-high fence shall be required along the boundary of this parcel where it is adjacent to any residential use. Buildings may be utilized for screening. Where buildings are not utilized for screening, a fence or wall constructed of brick, stone, wood, and/or any combination thereof shall be required. If the project is constructed in phases, a temporary chain link fence shall be allowed.

**7. Landscaping:**

Landscaping shall be in accordance with Exhibit D.

**8. Signs:**

All signage shall be in accordance with the base zoning district regulations, except that Off-Premise / Billboard and EMD signs are prohibited.

**9. Access:**

Access may be taken from NW 178<sup>th</sup> St.

**10. Sidewalks**

Shall be in accordance with the base zoning district regulations.

**II. Other Development Regulations:**

**1. Architecture:**

Exterior building wall finish on all main structures, exclusive of windows and doors, shall consist of a minimum 70% brick veneer, architectural metal, rock or stone masonry, stucco, and cementitious siding (including, but not limited to, the brand commonly known as James Hardie). No more than 30% EIFS (Exterior Insulation Finish System) shall be permitted. Exposed concrete block buildings shall not be permitted.

**2. Open Space:**

Open space shall be in accordance with the base zoning district.

**3. Street Improvements:**

N/A.

**4. Site Lighting:**

The site lighting in this SPUD shall be in accordance with Chapter 59, Article XII, Section 59-12350 of the Oklahoma City Municipal Code, 2020, as amended.

**5. Dumpsters:**

Dumpsters shall be located within an area screened by a fence or masonry wall of sufficient height that screens the dumpster from public streets and residences and shall be placed no closer than 50 feet from all property lines adjacent to residential zoning district or use.

Trash collection facilities in this SPUD shall be in accordance with Chapter 49 of the Oklahoma City Municipal Code, 2020, as amended.

**6. Parking:**

The minimum number of parking spaces for the storage facility use required by this SPUD shall be five, including one ADA space, and shall otherwise follow the design requirements of Chapter 59, Article X of the Oklahoma City Municipal Code, 2020, as amended.

**7. Maintenance:**

Maintenance of the common areas, private drainage easements, private drives, and islands / medians in the development shall be the responsibility of the property owner or Property Owners Association. No structures, storage of material, grading, fill, or other obstructions, including fences, either temporary or permanent, that shall cause a blockage of flow or an adverse effect on the functioning of the storm water facility, shall be placed within the common areas intended for the use of conveyance of storm water, and/or drainage easements shown. Certain amenities such as, but not limited to, walks, benches, piers, and docks, shall be permitted if installed in a manner to meet the requirements specified above.



**8. Drainage:**

Development of this parcel will comply with Chapter 16 of the Oklahoma City Municipal Code, 2020, as amended.

**III. Supporting Documents**

Exhibit A: Legal Description  
Exhibit B: Conceptual Site Plan  
Exhibit C: Drainage Report  
Exhibit D: Landscape Plan

**III. REVIEW COMMENTS**

This application was submitted to the following agencies, departments, and/or divisions for review and comment. An asterisk \* indicates that the agency, department, and/or division responded with no adverse comments.

**A. Outside Agencies**

- 1. Oklahoma City-County Health Department (OCCHD)**
- 2. Oklahoma City Urban Renewal Authority (OCURA)**
- 3. Oklahoma Gas and Electric (OGE)**
- 4. Oklahoma Natural Gas (ONG)**
- 5. Oklahoma Water Resources Board (OWRB)**
- 6. School District(s) Deer Creek**
- 7. Oklahoma Department of Transportation (ODOT)**

**B. City Departments**

- 1. Airports**
- 2. Central Oklahoma Transportation and Parking Authority (COTPA)**
- 3. Fire**
- 4. Information Technology/Geographic Support**
- 5. Parks and Recreation**
- 6. Police**
- 7. Public Works**
  - a. Engineering**

**Storm Sewer Availability**

- 1) The Public Works Drainage Division staff has reviewed the subject application. All development, new construction, and/or substantial improvements planned within the proposed area shall be subject to chapter 16 of the Oklahoma City Municipal Code.
- 2) Storm sewers in accordance with the City's Drainage Ordinance will be required. Development abutting section line roads with drainage flows that exceed the capacity of OKC standard ditch detail (D-100) will necessitate the installation of enclosed storm sewer and/or concrete channel. These improvements shall be placed to provide a minimum of 35' clearance distance from the centerline of the section. Concrete channels must be entirely outside public right-of-way.
- 3) A flood and/or drainage study will be required to establish finished floor elevations, common lot areas or private drainage easements. A final plat should not be submitted until the study has been reviewed and approved by the Public Works Department.
- 4) Flood Study will be required to show no rise in FEMA Q 100 and the City of Oklahoma City Q 100 water surface elevation, compared pre-and post-development.
- 5) A portion of subject property is situated within a F.E.M.A. Flood Plain. Therefore, the establishment of Minimum Finish Floor Elevation for each lot within the flood plain will be required (100-year) frequency plus 1'. The Public Works Department Engineering staff shall approve these elevations prior to the filing of the final plat.
- 6) A floodplain activity permit must be submitted for any work contemplated in The Waters of the United States.
- 7) A Corps of Engineers 404 permit must be submitted with plans for any work contemplated within the floodplain, creek, or channel (waters of the United States) included in the case limits.
- 8) Plans for drainage improvements within the private drainage reserves and/or common areas must be submitted for review, and payment of inspection fees shall be made prior to construction. Building permits will not be issued until construction is complete. If a subdivision abuts a stream, the private drainage easements and/or common area along stream shall extend to flow line of stream at a minimum.
- 9) Place the following note on the plat and construction plans: Maintenance of the Common Areas and/or Private Drainage Easements shall be the responsibility of the property owner. No structures, storage of material, grading, fill or other obstructions, including fences, either temporary or permanent shall be placed within the common areas and/or drainage easements shown.
- 10) Drainage easements shall be clearly denoted as public or private in owner's dedication, on the plat, and/or in the plat notes.
- 11) Construction within the limits of this SPUD will require an erosion control plan in accordance with EPA Storm Water Discharge permitting: CFR Vol. 57, No. 175, September 9, 1992. A copy of the EPA Notice of Intent (NOI) will be required prior

to the issuance of work orders or permits for construction activities disturbing an area of 1/2 acre or greater.

- 12) Sidewalk shall be installed for all new construction and/or at the time of a residential use to a more intense use on all lots having frontage on public streets classified as a major or minor arterial.
- 13) All private roads /streets will have private storm sewer systems.
- 14) Engineer/developers will be contacting PW for detention determination before they submit their final plat and plans.

**b. Stormwater Quality Management**

**c. Traffic Services \***

**8. Utilities**

**a. Engineering**

**b. Solid Waste Management**

- 1) The City cannot provide service, contact private hauler.

**c. Water/Wastewater Quality**

**Water Availability**

1. An existing 12-inch water main(s) is within the required distance to the subject site and the developer will be required to extend a 12-inch or larger water main along street frontage and will be required to extend the water system to each lot or site within the development in accordance with City Standard Specifications and Private Development Design Manual.
2. A 12-inch water main is required to be looped through the development to provide adequate water supply and fire flow protection. Connection to two (2) separate active water mains is required to prevent partial or total shut-off of water supply when a pipeline failure occurs.
3. Minimum ten (10) feet horizontal separation required from wastewater mains and five (5) feet for other utilities. Minimum two (2) foot vertical separation required for all utility crossings. All water mains must have a minimum cover of five (5) feet along section line roads and four (4) feet elsewhere.
4. Proposed and/or existing water mains must be located centrally within a twenty (20) feet wide or larger utility easement or right-of-way. No trees, signs, dumpster, fence, and/or structures shall be permitted over any proposed or existing utility main. An approved revocable permit must be obtained to have any private improvement located within any utility easement and/or right-of-way.

5. Dead-end water mains must be avoided when possible. All existing unused water services must be capped and abandoned at the water main in accordance with the City Standard Specifications.
6. In accordance with ODEQ regulations, the City provides water at a minimum pressure of 25 psi. The developer is responsible for designing and construction of all fixtures to provide adequate domestic and fire protection under minimum pressure conditions. The developer will be responsible for any failure of domestic or fire protection systems which require water pressure more than 25 psi. The developer is responsible for installing pressure reducers if necessary for protection of developer's service lines, plumbing, and fixtures.
7. All existing and/or proposed water meters must be located in the right-of-way and/or utility easement within grassy areas outside of sidewalks, driveways, streets, and paving.
8. All domestic and fire suppression services must have a separate water service connection. Fire hydrant spacing shall not exceed 500 feet and must be located within ten (10) of a hard surface (i.e. sidewalk, street, paving).
9. Supply capacity for development is not guaranteed and will be reviewed at time of review of construction documents.
10. System will be master metered.

**Wastewater Availability**

1. An existing 12-inch wastewater main(s) is located adjacent to the subject site(s).
2. Line capacity is not guarantee and must be checked by the Engineer of Record and reviewed by the City.
3. The developer will be required to extend the City wastewater collection system to and across each lot or site within the subdivision in accordance with the City Standard Specifications and Private Development Design Manual.
4. Minimum ten (10) feet horizontal separation is required from water mains and five (5) feet for other utilities. Minimum two (2) feet vertical separation required for all crossings. All wastewater mains must have a minimum cover of four (4) feet and depth no greater than eighteen (18) feet. Developer is responsible for remediating any failure to maintain the minimum four (4) feet of cover.
5. Wastewater main(s) must be centrally located in a twenty (20) feet wide easement or larger if necessary. No trees, signs, dumpster, fence, and/or structures shall be permitted over any proposed or existing utility main. An approved revocable permit must be obtained to have any private improvement located within any utility easement and/or right-of-way.
6. All existing unused private wastewater service connections must be abandoned and capped at the main in accordance with City Standard Specifications and Private Development Design Manual.

7. Plat may be revised after review and approval of utility plans.
8. Will be mastered meter and system internal to property will be private.

**9. Planning**

**a. Comprehensive Plan Considerations**

**1) LUTA Development Policies:**

Site Design:

- Avoid developing within or modification of 100-year floodplains or floodways.
- Where possible, provide a continuous system of open space along stream corridors or other appropriate areas that link neighborhoods and park lands.
- Utilize Best Management Practices (BMP) for stormwater whenever possible.
- Developments should be served by urban water and sewer utility systems.

*A stream flows along the southern boundary of the subject site. Floodplain may be present but would require study to confirm. National, state, and local permitting require basic best management practices for stormwater management. The SPUD regulations require a 40-foot building setback from the southern boundary, encompassing most of the area around the stream. Public water and sewer are available.*

Location:

- Locate uses that generate high traffic volumes along arterial streets, frontage roads, and interstates.

*The subject site is located along the south side of NW 178th Street, an arterial street in the Urban Low Intensity LUTA.*

Density: The Urban Low Intensity LUTA outlines a floor to area ratio (FAR) of 0.2 to 1.0 for non-residential developments. *The SPUD regulations could provide for a FAR within the Urban Low Intensity LUTA range.*

Automobile Connectivity:

- Maintain, create, and enhance a street network that is highly connected to increase number of viable commercial locations and the effectiveness of the transportation system.
- Limit number of dead-end streets and cul-de-sacs.
- Protect existing traditional street grid and reconnect it where possible.
- Limit curb cuts on arterial streets, and where possible concentrate access at shared entrance points.
- Development fronting arterials should take access from intersecting streets where possible.
- Provide vehicular connectivity between adjacent developments.
- Horizontally mixed-use developments should have connectivity between land uses.

*The subject site is located along the south side of NW 178th Street, an arterial street in the Urban Low Intensity LUTA. The site does not currently have improved access. The SPUD proposes access from NW 178th Street, but does not specify a*

*quantity or location. The conceptual plan for the development illustrates one access along NW 178th Street, near the northeast corner of the site.*

Pedestrian Connectivity:

- Provide sidewalk connections to adjacent development.
- Within parking lots, provide pedestrian access ways separated from vehicle aisles.
- Horizontally mixed-use developments should have public sidewalk connectivity between land uses.

*Sidewalks are not currently available on the subject site. The SPUD proposes utilizing the base C-3 District regulations for sidewalks.*

- 2) **Compatibility:** The comprehensive plan includes a land use compatibility matrix used to identify potential conflicts between major land use categories. When locating the proposed uses adjacent to existing residential uses or zoning, “Building Scale and Site Design”, “Traffic”, and “Operational Impact” are potential compatibility issues identified by the comprehensive plan.

Building Scale and Site Design: The comprehensive plan calls for mitigation measures for new projects if setbacks are significantly deeper or more shallow than the predominant character of adjacent development; the building’s orientation to the street differs from the predominant character of adjacent development; building size or street frontage dramatically differs from that of adjacent uses, the lot coverage (including buildings and paved areas) dramatically exceeds that of adjacent uses, or if buildings within 40 ft. of a single-family residential structure exceed a 3:1 ratio in height. *The SPUD proposes a modified C-3 base with limited uses. The SPUD allows a maximum of 10 buildings, each allowing a maximum building size of 24,000 square feet. The SPUD regulations maintain the 25-foot setback on the north but varies the required 15-foot setback with 5-foot landscaped buffer strip on the west boundary to zero. The setback on the south would typically be 15-foot with a 5-foot landscape buffer and has been increased to 40 feet. The SPUD reduces the allowed building height to a maximum of one story.*

Traffic: Mitigation measures should be used if the development is inconsistent with the Street Typology or would substantially exceed the average daily traffic of existing, adjacent uses. *The subject site is located along the south side of NW 178th Street, an arterial street in the Urban Low Intensity LUTA. No triggers requiring mitigation measures related to traffic were identified.*

Operational Impact: The comprehensive plan calls for mitigation measures if new projects propose uses that generate noise levels above those found in typical residential settings, have detectable odors, spill light above that found in typical residential settings, or operate after 10 p.m. within proximity to residential uses. When located near residential uses, the comprehensive plan calls for containing operating effects (including noise and odor) within building walls, using vertical screening to block any mechanical equipment and service areas, and directing light away from adjacent residential areas. *The SPUD proposes a modified C-3 base with limited uses. The SPUD requires no less than a six-foot and no greater than an*

*eight-foot-high fence along any boundary adjacent to a residential use. The SPUD offers a south setback of 40 feet, increasing the area between the site and proposed residential development, along with the abutting stream. The SPUD regulations include a full landscape plan, illustrating new landscaping and retention of existing trees along the southern boundary.*

**3) Service Efficiency:**

- Water: *Close to Service*
- Sewer: *Open Sewer Sheds or Served*
- Fire Service: *Rural Response*

**4) Environmentally Sensitive Areas:** The following apply to the proposed development site:

- Riparian Areas: Riparian areas are vegetated areas adjacent to streams, lakes, ponds, and wetlands that are composed of a mixture of trees, shrubs, and grasses. These areas may also contain floodplain. The comprehensive plan recommends a 100-foot buffer from stream banks. *Riparian area is present on the subject site in the form of a stream that flows along the southern boundary of the site. Floodplain may be present but would require study to confirm. National, state, and local permitting require basic best management practices for stormwater management. The SPUD regulations require a 40-foot building setback from the southern boundary, encompassing most of the area around the stream.*
- Upland Forests: N/A
- Vulnerable Aquifers: N/A

**5) Transportation System:** This site is located along the south side of NW 178th Street, a Major Arterial Street in the Urban Low LUTA. Transit (bus) service is not available nearby.

**6) Other Development Related Policies**

- Require sidewalks on both sides of all streets in urban LUTAs. (C-7)
- Improve the functionality and efficiency of the street network by:
  - Providing direct connections from residential developments to nearby places and to each other.
  - Providing street and sidewalk stubs to adjacent vacant land in anticipation of future development.
  - Connecting new development to existing street and sidewalk stubs, and to existing trail, open space, and bicycle networks.
  - Reducing block sizes and use of dead-end streets.
  - Maintaining the existing street grid to preserve connectivity and mobility options. (C-11)
- Limit driveways on arterials and collectors and increase connections between uses to improve safety and traffic efficiency. (C-30)
- Share parking between contiguous developments. (C-31)
- Avoid under-grounding streams to the greatest extent possible. Where feasible, encourage the re-surfacing of buried streams. Limit the use of culverts or other

structures that alter natural streams, and require designs that minimize impacts to stream health and function. (G-11)

- Preserve mature, healthy trees and incorporate them into the design of new development or redevelopment projects to the greatest extent possible. (G-26)
- Incorporate natural features (such as ponds, lakes, streams, rock outcroppings, stands of mature trees, and/or sizeable individual trees) into the design of all residential, commercial, and industrial projects rather than eliminating, hiding, or limiting access to those features. (E-31)
- Encourage unified planning for all adjoining land owned or controlled by a project's developer to ensure proper circulation and land use relationships (SU-47)

**b. Plan Conformance Considerations**

The subject site is located along the south side of NW 178th Street, west of North Portland Avenue. The site is undeveloped and is zoned, along with land to the east and south, as part of PUD-1768. The land to the east and south would remain zoned as part of PUD-1768, which was approved in 2020 for commercial and multi-family residential along NW 178th Street, with single-family residential to the south. Abutting the site to the west is a single-family residence zoned R-1. Across NW 178th Street, to the north, is a multi-tract development zoned PUD-1895 which allows single-family residential, commercial development, and a tract specifically for mini storage.

The SPUD proposes a modified C-3 base with limited uses. The SPUD allows a maximum of 10 buildings, each allowing a maximum building size of 24,000 square feet. The intended use of the property is a personal storage facility, which is not an allowed use in the existing PUD. The SPUD requires no less than a six-foot and no greater than an eight-foot-high fence along any boundary adjacent to a residential use. The SPUD offers a south setback of 40 feet, increasing the area between the site and proposed residential development, along with the abutting stream. The SPUD regulations include a full landscape plan, illustrating new landscaping along the arterial frontage and retention of existing trees along the southern boundary. Riparian area is present on the subject site in the form of a stream that flows along the southern boundary of the site. Floodplain may be present but would require study to confirm. National, state, and local permitting require basic best management practices for stormwater management. The SPUD proposes a zero setback on the west where adjacent to an R-1 zoned property, and that the buildings can serve as screening, which would eliminate any landscape buffer. If approved, the proposed setback and screening should apply only to the personal storage use, otherwise should be per the base zoning regulations.

**IV. STAFF RECOMMENDATION**

*Staff recommendations are advisory only and do not constitute Planning Commission decisions. Staff recommendations are based on a technical evaluation of information submitted at the time of review. Determination of conformance with policies contained in the comprehensive plan is*



*the purview of the Planning Commission. Planning Commission decisions require a vote of five members to approve or deny an item. The Planning Commission may consider in its decision-making process any additional relevant information presented at the public hearing by the public, applicant, and/or City departments.*

**Approval of the application subject to the following Technical Evaluation:**

1. Modify the setback and screening requirements to be per Code on the west unless developed as personal storage.

All Engineering Division and Water/Wastewater Utilities Division requirements must be met. Additional changes to the SPUD may be required during either Divisions review of construction plans and prior to City Council approval.

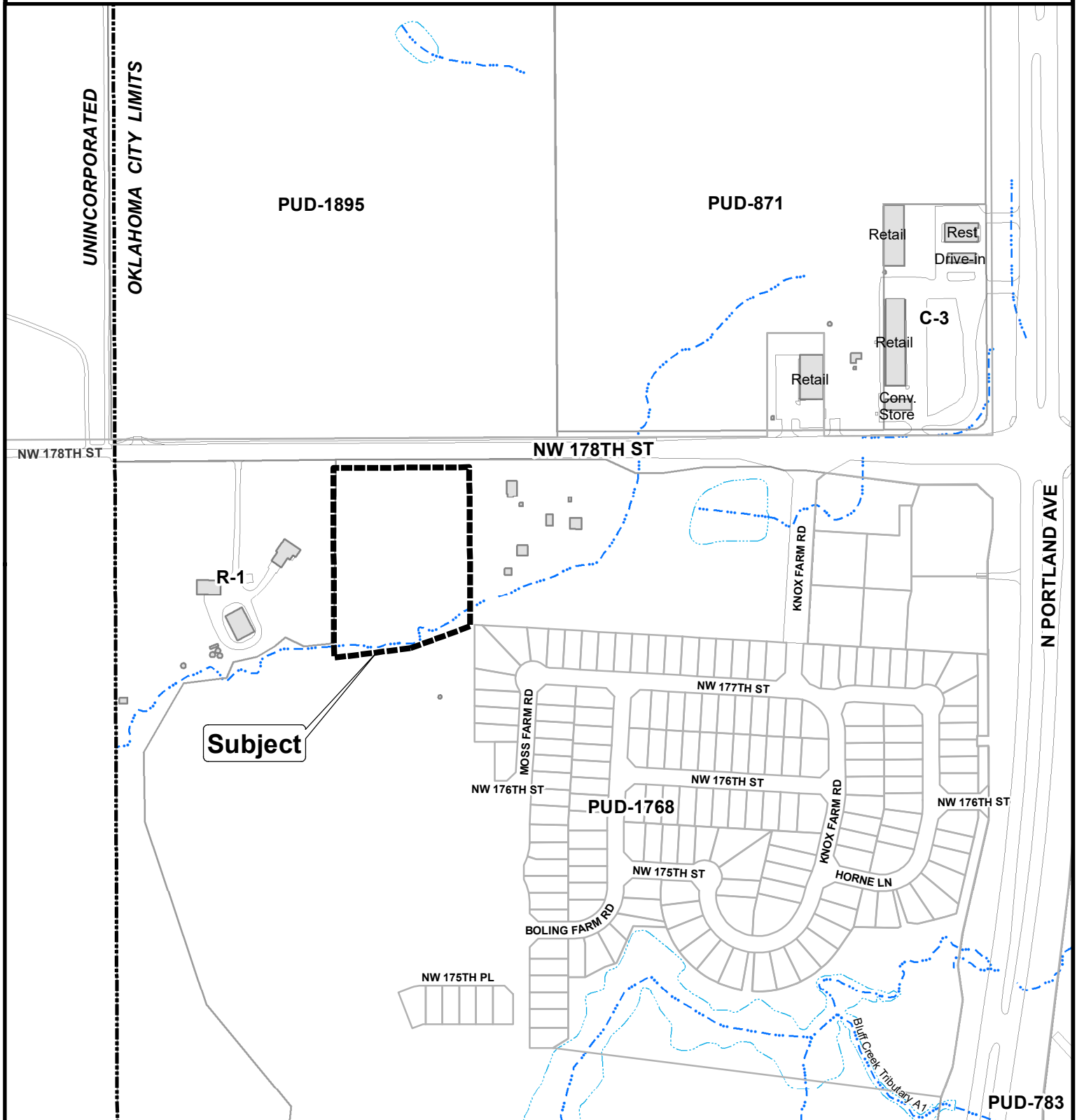
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**Case No: SPUD-1718**

**Applicant: Knox Farm Land Fund, LLC**

**Existing Zoning: PUD-1768**

**Location: 4036 NW 178th St.**

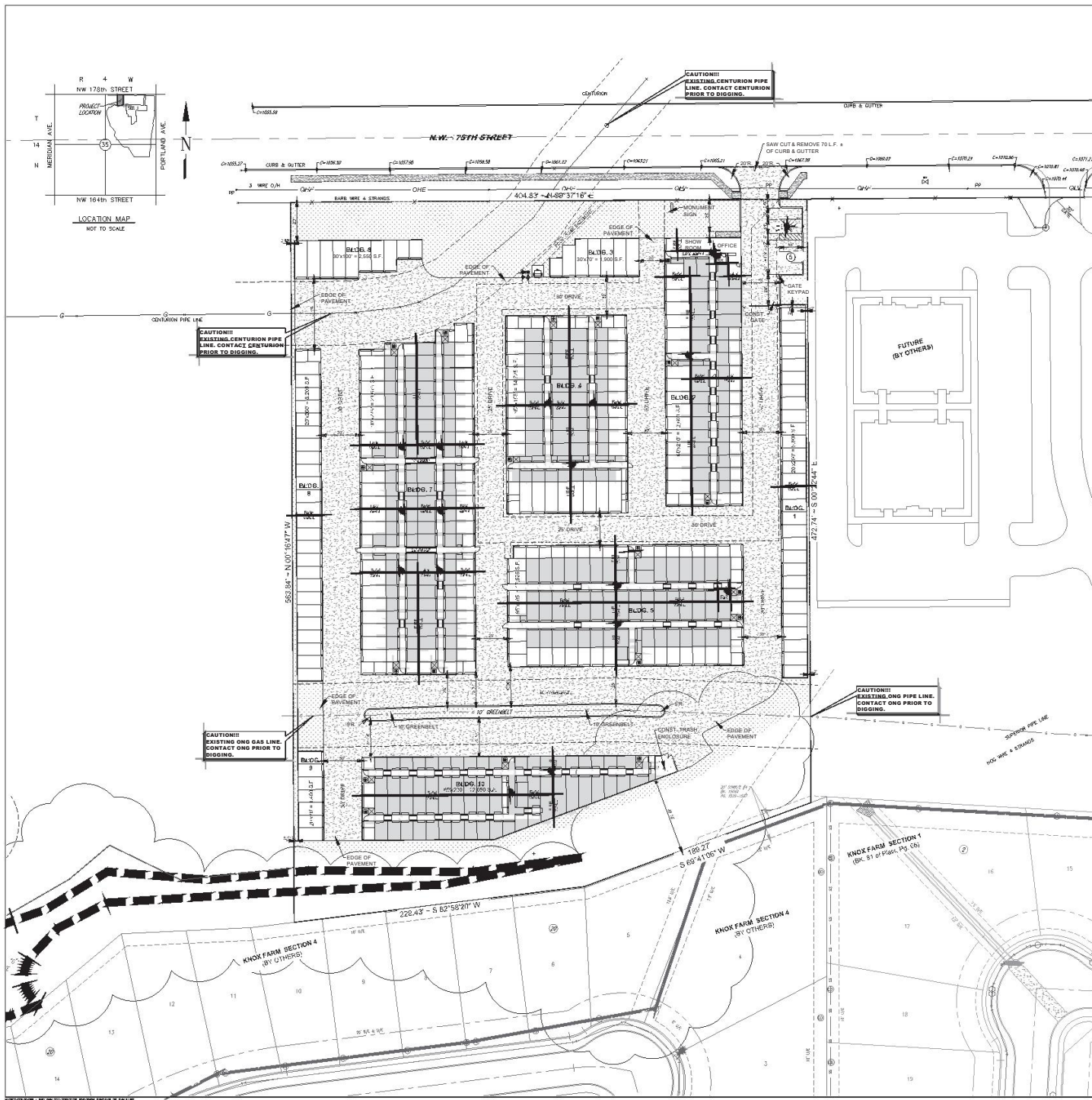


The City of  
OKLAHOMA CITY

## Simplified Planned Unit Development



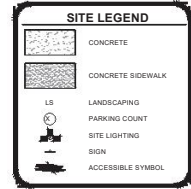
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NOTES:

- UPON COMPLETION OF PAVING OPERATIONS THE CONTRACTOR SHALL INSTALL THE PAVEMENT STRIPES AND PAVEMENT MARKINGS AS SHOWN HEREON. ON-SITE PARKING STALL STRIPES SHALL BE 4" WIDE AND WHITE IN COLOR. HANDICAP STALL SHALL BE PAINTED AND SIGNED PER FEDERAL, STATE, AND LOCAL REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE TO MEET AND MATCH NEW PAVEMENT WITH EXISTING ADJACENT PAVEMENT AREAS. THE TRANSITION BETWEEN THIS SITE AND ADJACENT SITES MUST BE SMOOTH AND MONOLITHIC.
- UNLESS OTHERWISE NOTED, ALL RADI ON PARKING ISLANDS SHALL BE 7'.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS, SERVICE AREA DIMENSIONS AND ELEVATIONS. REFERENCE W.E.P. FOR EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
- THE DISPOSAL OF DEMOLISHED ITEMS SHALL COMPLY TO ALL STATE AND LOCAL REQUIREMENTS.
- HANDICAPPED PARKING AREAS PROVIDED PER CITY STANDARDS AND SHALL COMPLY WITH REQUIREMENTS OF THE CURRENT, ADOPTED UNIFORM BUILDING CODE.
- MECHANICAL UNITS, DUMPSTERS AND TRASH COMPACTORS SHALL BE SCREENED IN ACCORDANCE WITH THE CITY OF OKLAHOMA CITY ZONING ORDINANCE.
- ALL SIGNAGE CONTINGENT UPON APPROVAL BY THE BUILDING INSPECTION DEPARTMENT.
- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH STANDARD SPECIFICATIONS OF THE CITY OF OKLAHOMA CITY.
- FIRE LANE STRIPING: NO PARKING FIRE LANE MARKING SHALL CONSIST OF A SIX (6) INCH WIDE RED STRIPING THE CURB ON ALL SIDES OF THE BUILDING. THE MARKING AND PARKING FIRE LANE SHALL BE MARKED ON THE STREET. MARKING SHALL BE HIGH WHITE LETTERS AT 25 FT. MAXIMUM INTERVALS. STRIPING AND LETTERS SHALL BE APPLIED TO THE CITY OF OKLAHOMA CITY. FIRE LANE PROTECTION MUST BE APPROVED BY THE FIRE MARSHAL PRIOR TO BUILDING PERMIT BEING ISSUED. CONTRACTOR SHALL COORDINATE ALL FIRE LANE MARKINGS WITH THE OKLAHOMA CITY FIRE MARSHAL.
- SIGN OWNERS ASSUMES ALL LIABILITY AND REPLACEMENT RESPONSIBILITY FOR ANY DAMAGE TO SIGNS PLACED IN UTILITY EASEMENTS. ALL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE ZONING ORDINANCE.
- PROPERTY OWNER(S) ASSUMES ALL LIABILITY AND REPLACEMENT RESPONSIBILITIES FOR ANY DAMAGE TO LIGHT POLES PLACED IN UTILITY EASEMENTS.
- ALL DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF OKLAHOMA CITY AND OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARDS.
- ALL STOP BARS WILL BE INSTALLED WITH STOP SIGNS.
- ALL DIMENSIONS ARE MEASURED FROM FACE OF CURB TO FACE OF CURB, UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL REFER TO PHOTOMETRIC PLAN FOR ALL SITE LIGHTING CONSTRUCTION DETAILS. REQUIREMENTS AND FINAL POLE LOCATIONS. POLE LOCATIONS ARE SHOWN ON THIS SHEET FOR REFERENCE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY ADJUSTMENTS TO POLE LOCATIONS AS NECESSARY TO AVOID OBSTRUCTIONS (i.e. UNDERGROUND UTILITIES, SIDEWALKS, ETC.).
- CONTRACTOR SHALL NOT HIDE EACH LOCATION WHERE A NEW LIGHT POLE, BOLLARDS OR SIGNS ARE TO BE PLACED PRIOR TO CONSTRUCTION TO VERIFY THERE ARE NO CONFLICTS WITH EXISTING AND NEW UTILITIES. IF CONTRACTOR DAMAGES EXISTING AND NEW UTILITIES HE/SHOULD REPLACE/REPAIR AT HIS/HER OWN EXPENSE.

ACCESSIBLE ROUTES ARE NOT TO EXCEED 1:20 RUNNING SLOPE AND 2% CROSS SLOPE. ACCESSIBLE PARKING AND AISLES NOT TO EXCEED 2% SLOPE IN ANY DIRECTION. CONTRACTOR ACCESSIBLE RAMP PER DETAIL TO COMPLY WITH THE AMERICANS WITH DISABILITY ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.



**SITE DATA**

SITE AREA	22,222 S.F.
ZONING	17,777 S.F.
USAGE	222
BLDG. AREA	22,222 S.F.
IMPERVIOUS AREA	22,222 S.F.
PERVIOUS AREA	22,222 S.F.

**PARKING SUMMARY**

LOT NO.	BLDG. USE & PARKING CALCULATIONS	PARKING REQUIRED	PARKING PROVIDED
22	BLDG. USE & PARKING CALCULATIONS	BLDG. USE & PARKING CALCULATIONS	BLDG. USE & PARKING CALCULATIONS
TOTAL	BLDG. USE & PARKING CALCULATIONS	BLDG. USE & PARKING CALCULATIONS	BLDG. USE & PARKING CALCULATIONS
ACCESSIBLE SPACES:		BLDG. USE & PARKING CALCULATIONS	BLDG. USE & PARKING CALCULATIONS
COMPACT SPACES:		BLDG. USE & PARKING CALCULATIONS	BLDG. USE & PARKING CALCULATIONS
NOTE: ACCESSIBLE AND COMPACT SPACE COUNTS ARE INCLUDED IN PARKING PROVIDED			

**OWNER'S ADDRESS**  
 OWNER: [Name]  
 STREET: [Address]  
 CITY, STATE ZIP CODE: [Address]  
 PH. (XXX) XXX-XXX

**NOT FOR CONSTRUCTION**  
 PRELIMINARY  
 NOT FOR CONSTRUCTION

**KNOX FARM SELF-STORAGE**  
 N.W. 17TH ST. & N. PORTLAND AVE.  
 OKLAHOMA CITY, OKLAHOMA

**SMC**  
 SMC CONSULTING ENGINEERS, P.C.  
 1000 N. W. 17TH ST., SUITE 200  
 OKLAHOMA CITY, OKLAHOMA 73109  
 PHONE: (405) 555-1234  
 FAX: (405) 555-1235  
 E-MAIL: SMC@SMCENGINEERS.COM  
 P.E. NAME: [Name]

**SITE PLAN**  
 SHEET NO. C-10

Knox Farm Addition  
City of Oklahoma City

LETTER OF MAP REVISION  
HYDRAULIC REPORT  
Bluff Creek



*Utley & Associates LLC*

*for*

SMC CONSULTING ENGINEERS PC

**APPROVED**

Checked By  Date 11.13.2024

City Engineer  Date 11/18/2024  
for

August 20, 2024  
Revised October 11, 2024

**Knox Farm Addition  
City of Oklahoma City**

**LETTER OF MAP REVISION  
HYDRAULIC REPORT  
Bluff Creek**

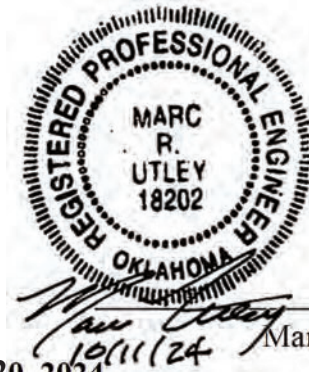
**PREPARED BY:**



P.O. BOX 14294; OKLAHOMA CITY, OKLAHOMA 73113  
(405) 213-0529 • E-MAIL marc @ utleyengr.com  
CA NO. 4202 EXP. 06/30/2025

*for*

**SMC CONSULTING ENGINEERS PC**  
815 WEST MAIN STREET  
OKLAHOMA CITY, OKLAHOMA 73106



August 20, 2024  
Revised October 11, 2024

Marc R. Utley, P.E. #18202

**LETTER OF MAP REVISION  
HYDRAULIC REPORT**  
Knox Farm Addition to the City of Oklahoma City

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# **LETTER OF MAP REVISION HYDRAULIC REPORT**

## **Knox Farm Addition to the City of Oklahoma City**

### **I. INTRODUCTION**

This report contains the narrative description for the hydraulic analysis supporting a request for a Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (FEMA). The LOMR request is based fill associates with the construction of the Knox Farm Addition to the City of Oklahoma City. The next page is an excerpt from a USGS Quad map denoting the project area. The site is located within Section 35, Township 14 North (T-14-N), and Range 3 West (R-4-W) within the City of Oklahoma City, Oklahoma.

### **II. FLOWS**

The design flows have been taken directly from the effective flood insurance study modeling. The relevant flow rates are shown (in cfs) in the following table.

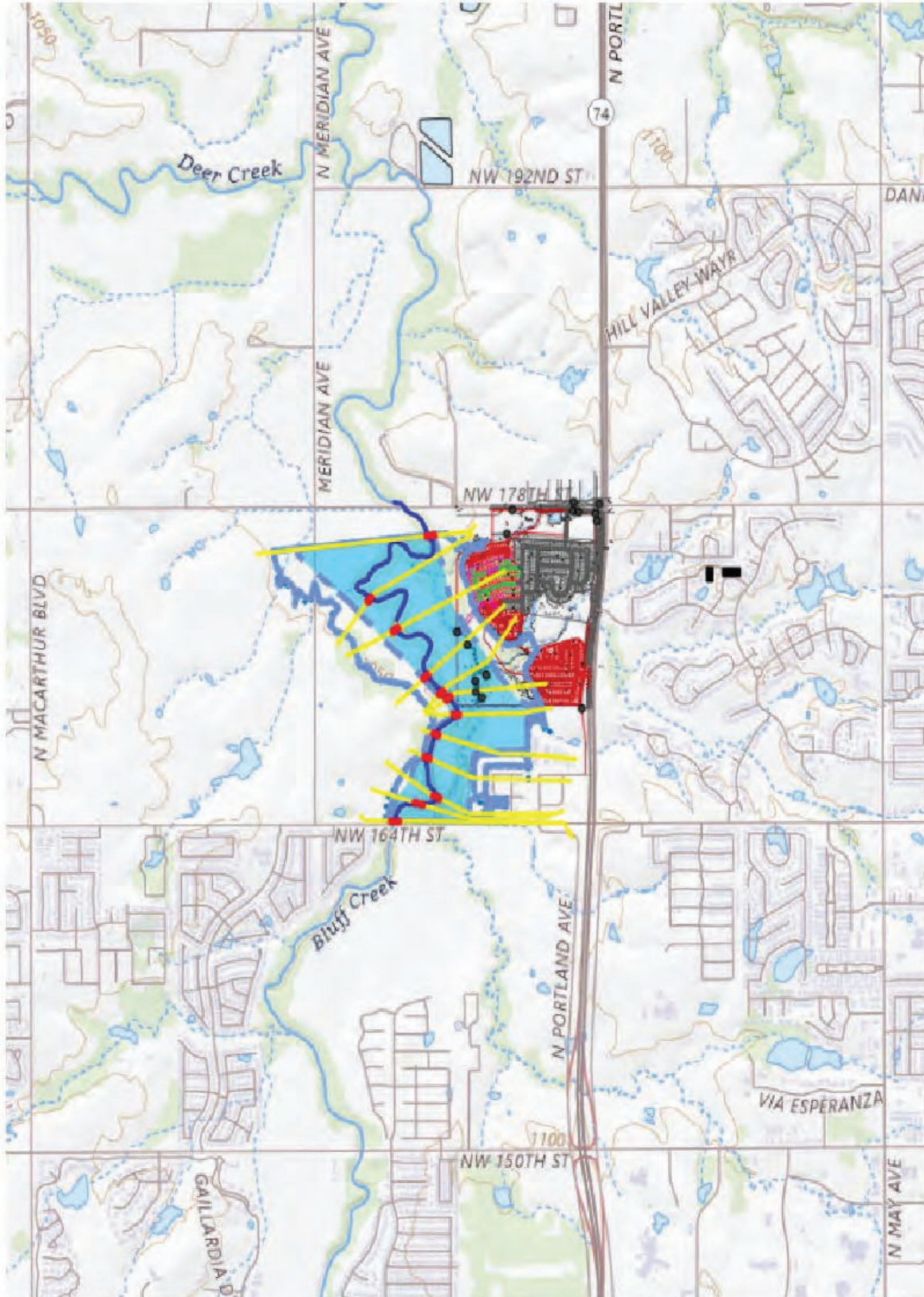
Location	Q <sub>10</sub>	Q <sub>50</sub>	Q <sub>100</sub>	Q <sub>500</sub>
At Northwest 192 <sup>nd</sup> Street	13,380	19,250	22,940	29,700
726 feet downstream of Northwest 164 <sup>th</sup> Street	12,580	18,140	21,300	28,000

### **III. HYDRAULIC ANALYSIS**

The hydraulic analysis for this site employs the U.S. Army Corps of Engineers water surface profile program HEC-RAS version 6.5. The topographic data used in the model was derived from a combination of the 2018 USGS Lidar and on-site survey data collected as part of this project. New geometric data was used for sections upstream of 2.050 and downstream of 3.696. The geometry data for section 2.050 was taken from the effective HEC-2 model. Geometry data for sections 3.696 and 3.835 was taken from the effective LOMR (Case No.: 21-06-2787P). The LOMR HEC-RAS model was provided by the City of Oklahoma City. Four models have been developed: Corrected Effective and Corrected Effective Floodway, As-Built and As-Built Floodway.



## Project Location Map





The corrected effective model was developed from the effective data upstream and downstream of the subject site. New cross sections have been created in the vicinity of the project, resulting in some effective cross sections being removed. The new sections geometry was based on a pre-project survey of the site (Along with USGS LIDAR). The As-Built model was developed by modifying the corrected effective model to reflect the surveyed As-Built conditions. The results of the corrected effective models are summarized in the following sections and appear as Appendices B and C. The results of the as-built models are summarized in the following sections and appear as Appendices D and E

#### IV. COMPLETED WORK

The completed work consists of the fill placement necessary to construct the Knox Farm Subdivision.

#### V. RESULTS

The modeling indicates that the fill placed in the flood fringe will result in no-rise to the Base Flood Elevation. All backwater is based on the Corrected Effective model. The tables on the following pages compare the results of the Effective, Corrected Effective and Proposed models including floodway analysis.

ID	Station	Base Flood Elevation						
		Effective	Duplicate	Dup-Eff	Corrected	Corr-Dup	As-Built	AsBlt-Corr
E	2.050	1045.1	1045.16	0.1	1045.16	0.00	1045.16	0.00
	2.547				1048.39		1048.39	0.00
F	2.72	1048.8	1048.78	0.0				
	2.817				1049.79		1049.79	0.00
	3.071				1051.04		1051.03	-0.01
	3.174				1052.62		1052.61	-0.01
	3.239				1053.26		1053.26	0.00
G	3.25	1052.0	1052.02	0.0				
	3.432				1054.08		1054.08	0.00
	3.513				1055.05		1055.05	0.00
H	3.635	1056.4	1056.54	0.1	1057.28	0.74	1057.28	0.00
	3.696				1057.37		1057.38	0.01
I	3.835	1059.1	1059.14	0.0	1058.94	-0.20	1058.94	0.00

Note the apparent rise in section 3.696 is due to internal rounding. The difference taken with 3 decimal places is less than 0.01’.

ID	Station	Floodway Width						
		Effective	Duplicate	Dup-Eff	Corrected	Corr-Dup	As-Built	AsBlt-Corr
E	2.050	2566	2566	0	2566	0	2566	0
	2.547				1815		1815	0
F	2.720	1518	1518	0				
	2.817				1430		1430	0
	3.071				1149		1149	0
	3.174				1244		1244	0
	3.239				1427		1427	0
G	3.250	1062	1139	77				
	3.432				1177		1177	0
	3.513				999		999	0
H	3.635	1234	1234	0	1234	0	1234	0
	3.696				1339		1339	0
I	3.835	1605	1605	0	1605	0	1605	0

The results of the floodway analysis indicate that the constructed fill associated with the Knox Farm development will have no effect on the regulatory floodway. No work has been performed in the regulatory floodway.

## VI. CONCLUSION

The As-Built conditions of the Knox Farm addition to the City of Oklahoma City will result in no-rise to the Base Flood Elevation. No work was performed in the regulatory floodway.

# **APPENDIX ‘A’**

**HEC-RAS model**

**Effective Data**

Follows Conditional Case No.: 14-06-2595R



## Federal Emergency Management Agency

Washington, D.C. 20472

### LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Oklahoma County Oklahoma (Unincorporated Areas)	FILL	FLOODWAY 1D HYDRAULIC ANALYSIS UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 400466		
IDENTIFIER	Lone Oak	APPROXIMATE LATITUDE & LONGITUDE: 35.640, -97.596 SOURCE: Other      DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM*      NO.: 40109C0040H      DATE: December 18, 2009		DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2009  PROFILES: 10P, 14P FLOODWAY DATA TABLE: 6	

Enclosures reflect changes to flooding sources affected by this revision.

\* FIRM - Flood Insurance Rate Map;

#### FLOODING SOURCE(S) AND REVISED REACH(ES)

See Page 2 for Additional Flooding Sources

Bluff Creek - From approximately 1,060 feet downstream of Northwest 164th Street to approximately 280 feet upstream of Northwest 150th Street

#### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Bluff Creek	Zone AE	Zone AE	YES	YES
	BFEs*	BFEs	YES	NONE
	Floodway	Floodway	YES	YES
	Zone X (shaded)	Zone X (shaded)	YES	YES

\* BFEs - Base Flood Elevations

#### DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

Patrick "Rick" F. Sacibit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration

21-06-2787P

102-I-A-C



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### OTHER FLOODING SOURCES AFFECTED BY THIS REVISION

#### FLOODING SOURCE(S) AND REVISED REACH(ES)

Bluff Creek Tributary A - From approximately 460 feet downstream of Northwest 164th Street to approximately 890 feet downstream of Portland Avenue

#### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Bluff Creek Tributary A	BFEs*	BFEs	YES	NONE
	Floodway	Floodway	YES	NONE
	Zone AE	Zone AE	NONE	YES

\* BFEs - Base Flood Elevations

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

Patrick "Rick" F. Sacbabit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration

21-06-2787P

102-I-A-C



Federal Emergency Management Agency  
Washington, D.C. 20472

LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

**CID Number:** 405378      **Name:** City of Oklahoma City, Oklahoma

AFFECTED MAP PANELS

TYPE: FIRM\*    NO.: 40109C0040H    DATE: December 18, 2009  
TYPE: FIRM\*    NO.: 40109C0155H    DATE: December 18, 2009

AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT

DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2009  
PROFILE(S): 10P, 11P, 14P, 15P  
FLOODWAY DATA TABLE: 6

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

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Engineering Services Branch  
Federal Insurance and Mitigation Administration

21-06-2787P

102-I-A-C



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### COMMUNITY INFORMATION

#### APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

#### COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

A handwritten signature in black ink, appearing to read "Rick F. Sacbibt".

Patrick "Rick" F. Sacbibt, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This revision has met our criteria for removing an area from the 1-percent-annual-chance floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base (1-percent-annual-chance) Flood Elevation.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Sandy Keefe  
Director, Mitigation Division  
Federal Emergency Management Agency, Region VI  
Federal Regional Center, Room 202  
800 North Loop 288  
Denton, TX 76209  
(940) 898-5127

### STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

Patrick "Rick" F. Sacbabit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration





# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at [https://www.floodmaps.fema.gov/fhm/bfe\\_status/bfe\\_main.asp](https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp)

#### LOCAL NEWSPAPER

Name: *The Journal Record*

Dates: March 16, 2022 and March 23, 2022

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

A handwritten signature in black ink, appearing to read "Rick F. Sacbibit".

Patrick "Rick" F. Sacbibit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Bluff Creek								
					DATA REVISED BY LOMR EFFECTIVE APRIL 26, 2016			
A	0.750	1,626	8,238	2.8	1,038.4	1,037.4 <sup>2</sup>	1,038.3 <sup>2</sup>	0.9
B	1.570	1,403	8,647	2.7	1,042.0	1,042.0	1,043.0	1.0
C	1.931	1,869	7,369	3.1	1,043.7	1,043.7	1,044.7	1.0
D	1.943	2,175	5,669	4.0	1,043.7	1,043.7	1,044.7	1.0
E	2.050	2,566	7,800	2.9	1,045.1	1,045.1	1,045.6	0.5
F	2.720	1,518	5,937	3.9	1,048.8	1,048.8	1,049.4	0.6
G	3.250	1,062	5,692	4.0	1,052.0	1,052.0	1,053.0	1.0
H	3.635	1,234	5,115	4.2	1,056.4	1,056.4	1,056.5	0.1
I	3.835	1,605	4,907	8.1	1,059.1	1,059.1	1,059.1	0.0
J	3.852	1,766	6,808	4.0	1,060.2	1,060.2	1,060.8	0.6
K	4.090	840	5,951	4.1	1,060.6	1,060.6	1,061.1	0.5
L	4.843	1,524	5,709	5.8	1,067.7	1,067.7	1,067.7	0.0
M	5.131	1,874	5,475	7.4	1,070.5	1,070.5	1,070.5	0.0
N	5.143	1,251	3,006	12.1	1,070.7	1,070.7	1,070.7	0.0
O	5.571	972	5,551	3.8	1,074.5	1,074.5	1,074.8	0.3
P	5.900	725	3,387	6.6	1,077.3	1,077.3	1,078.2	0.9
Q	6.340	321	3,802	3.0	1,079.7	1,079.7	1,080.3	0.6
R	6.431	317	6,173	1.9	1,080.3	1,080.3	1,080.4	0.1
S	6.442	273	5,995	1.9	1,080.3	1,080.3	1,080.9	0.6
T	6.443	273	7,464	1.6	1,082.0	1,082.0	1,082.8	0.8
U	6.501	273	4,825	2.4	1,082.0	1,082.0	1,082.8	0.8
V	6.573	804	5,291	2.2	1,083.1	1,083.1	1,084.1	1.0
W	6.870	173	1,901	6.3	1,084.4	1,084.4	1,085.3	0.9
X	7.470	164	1,131	2.8	1,088.1	1,088.1	1,089.0	0.9

<sup>1</sup>Miles above confluence with Deer Creek.

<sup>2</sup>Elevations computed without consideration of backwater effects from Deer Creek.

REVISED DATA

DATA REVISED BY LOMR  
EFFECTIVE FEBRUARY 22, 2017

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

**OKLAHOMA COUNTY, OK**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**BLUFF CREEK**

REVISED TO  
REFLECT LOMR  
EFFECTIVE: July 21, 2022

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION				
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)	
Bluff Creek Tributary A									
	A	1.641	709	1,389	3.2	1,060.3	1,059.2 <sup>2</sup>	1,059.8 <sup>2</sup>	0.6
	B	1.796	730	1,011	4.9	1,060.3	1,060.1 <sup>2</sup>	1,061.1 <sup>2</sup>	1.0
	C	1.953	87	607	5.4	1,063.6	1,063.6	1,064.5	0.9
	D	2.141	206	769	9.9	1,066.2	1,066.2	1,066.5	0.3
	E	2.463	242	868	6.7	1,071.3	1,071.3	1,071.4	0.1
	F	2.694	281	1,234	4.3	1,072.9	1,072.9	1,073.7	0.8
	G	2.851	261	500	9.4	1,076.2	1,076.2	1,076.6	0.4
	H	3.138	154	646	6.6	1,079.7	1,079.7	1,080.6	0.9
	I	3.239	165	737	5.8	1,082.0	1,082.0	1,083.0	1.0
	J	3.258	200	502	6.2	1,084.7	1,084.7	1,084.8	0.1
	K	3.468	223	460	6.8	1,086.3	1,086.3	1,087.0	0.7
	L	3.638	249	783	4.0	1,089.6	1,089.6	1,090.6	1.0
				REVISED DATA					

REVISED DATA

<sup>1</sup>Miles above confluence with Bluff Creek.

<sup>2</sup>Elevations computed without consideration of backwater effects from Bluff Creek.

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

**OKLAHOMA COUNTY, OK**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

REVISED TO  
REFLECT LOMR  
EFFECTIVE: July 21, 2022

**BLUFF CREEK TRIBUTARY A**

OVER

NW 192ND ST

NW 178TH ST

CONFLUENCE OF  
BLUFF CREEK  
TRIBUTARY A

REVISED BY LOMR EFFECTIVE  
APRIL 26, 2016

REVISED BY LOMR EFFECTIVE  
JULY 11, 2013

REVISED REACH

NW 164TH ST

OKLAHOMA COUNTY  
CITY OF OKLAHOMA CITY

Revised Station '4.594' =  
Effective Station '4.806'

REVISED BY LOMR  
APRIL 26, 2016

LEGEND

0.2% ANNUAL CHA

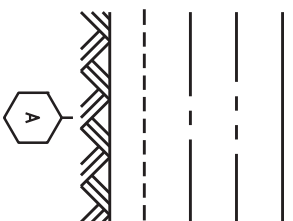
1% ANNUAL CHAN

2% ANNUAL CHAN

10% ANNUAL CHA

STREAM BED

CROSS SECTION



A

B

C

D

E

F

G

H

I

J

K

CONFLUENCE OF  
BLUFF CREEK  
TRIBUTARY A-1

NW 164TH ST

MIR EFFECTIVE

REVISED REACH

- A
- B
- C
- D

LEGEND

- 0.2% ANNUAL CHAN
- 1% ANNUAL CHAN
- 2% ANNUAL CHAN
- 10% ANNUAL CHAN
- STREAM BED
- CROSS SECTION

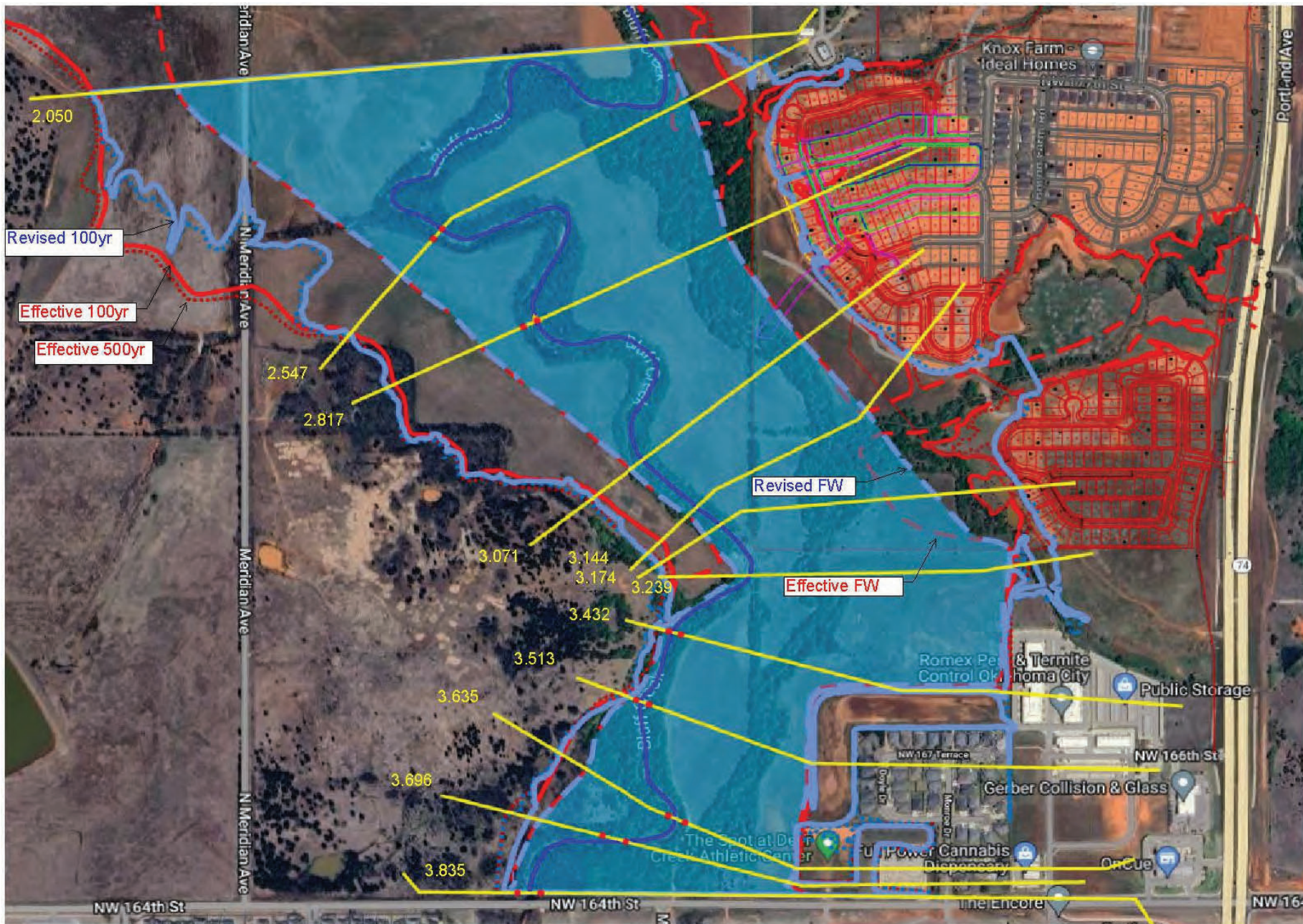


# **APPENDIX ‘B’**

## **HEC-RAS model**

### **Corrected Effective (Multi-Profile)**

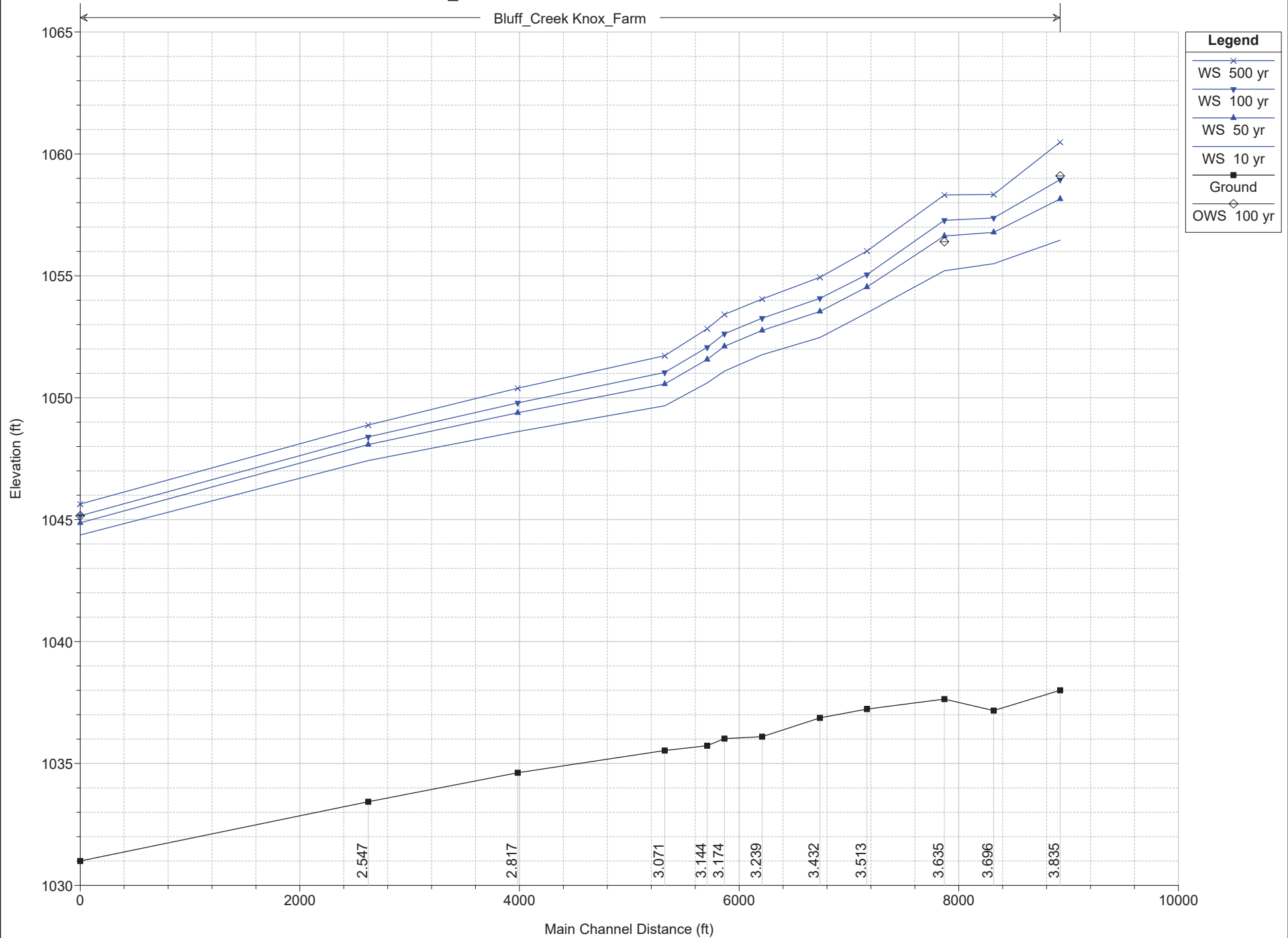






# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Bluff\_Creek Knox\_Farm



HEC-RAS Plan: CEff River: Bluff\_Creek Reach: Knox\_Farm

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Knox_Farm	3.835	10 yr	12580.00	1038.00	1056.46	1053.33	1057.71	0.003709	9.58	1824.33	1663.76	0.55
Knox_Farm	3.835	50 yr	18140.00	1038.00	1058.15	1057.25	1059.17	0.002914	9.47	3166.92	1988.22	0.50
Knox_Farm	3.835	100 yr	21300.00	1038.00	1058.94	1057.81	1059.87	0.002612	9.39	3911.48	2196.76	0.48
Knox_Farm	3.835	500 yr	28000.00	1038.00	1060.49	1058.63	1061.18	0.001924	8.74	5721.98	2725.53	0.42
Knox_Farm	3.696	10 yr	12580.00	1037.17	1055.50	1046.60	1056.08	0.001391	6.33	2497.18	1484.06	0.29
Knox_Farm	3.696	50 yr	18140.00	1037.17	1056.79	1048.87	1057.67	0.001972	7.97	3240.83	1703.29	0.35
Knox_Farm	3.696	100 yr	21300.00	1037.17	1057.37	1050.00	1058.39	0.002229	8.69	3660.92	1817.94	0.38
Knox_Farm	3.696	500 yr	28000.00	1037.17	1058.34	1052.23	1059.62	0.002771	10.06	5041.05	2054.58	0.43
Knox_Farm	3.635	10 yr	12580.00	1037.64	1055.21		1055.48	0.000950	5.36	3855.86	1251.91	0.28
Knox_Farm	3.635	50 yr	18140.00	1037.64	1056.63		1056.90	0.000922	5.72	5764.67	1424.94	0.28
Knox_Farm	3.635	100 yr	21300.00	1037.64	1057.28		1057.55	0.000926	5.92	6705.92	1498.00	0.29
Knox_Farm	3.635	500 yr	28000.00	1037.64	1058.32		1058.62	0.001013	6.52	8330.27	1708.20	0.30
Knox_Farm	3.513	10 yr	12580.00	1037.23	1053.48		1054.43	0.002709	9.29	2058.72	739.78	0.47
Knox_Farm	3.513	50 yr	18140.00	1037.23	1054.55	1053.05	1055.77	0.003464	11.10	2834.21	1105.30	0.54
Knox_Farm	3.513	100 yr	21300.00	1037.23	1055.05	1053.92	1056.39	0.003779	11.89	3314.37	1226.63	0.56
Knox_Farm	3.513	500 yr	28000.00	1037.23	1056.02		1057.39	0.003948	12.71	4314.19	1266.89	0.58
Knox_Farm	3.432	10 yr	12580.00	1036.87	1052.47		1053.01	0.002676	8.06	2846.57	1067.36	0.44
Knox_Farm	3.432	50 yr	18140.00	1036.87	1053.54		1054.08	0.002686	8.61	4148.38	1284.72	0.45
Knox_Farm	3.432	100 yr	21300.00	1036.87	1054.08		1054.60	0.002612	8.75	4847.48	1308.32	0.44
Knox_Farm	3.432	500 yr	28000.00	1036.87	1054.94		1055.51	0.002764	9.43	6015.07	1461.18	0.46
Knox_Farm	3.239	10 yr	13380.00	1036.10	1051.76	1049.75	1051.95	0.000975	5.18	5028.48	1640.80	0.28
Knox_Farm	3.239	50 yr	19250.00	1036.10	1052.76	1050.41	1052.96	0.001050	5.54	6673.64	1820.97	0.29
Knox_Farm	3.239	100 yr	22940.00	1036.10	1053.26	1050.74	1053.48	0.001097	5.83	7556.69	1910.97	0.30
Knox_Farm	3.239	500 yr	29700.00	1036.10	1054.05	1051.28	1054.29	0.001190	6.34	9002.85	1981.83	0.31
Knox_Farm	3.174	10 yr	13380.00	1036.02	1051.09	1048.51	1051.45	0.001596	6.91	4260.69	1710.11	0.36
Knox_Farm	3.174	50 yr	19250.00	1036.02	1052.11	1050.49	1052.44	0.001591	7.20	6180.88	1996.13	0.36
Knox_Farm	3.174	100 yr	22940.00	1036.02	1052.62	1050.94	1052.95	0.001589	7.38	7212.36	2028.74	0.36
Knox_Farm	3.174	500 yr	29700.00	1036.02	1053.42	1051.52	1053.75	0.001605	7.72	8839.19	2070.13	0.37
Knox_Farm	3.144	10 yr	13380.00	1035.73	1050.61		1050.87	0.001514	6.36	4545.12	1737.00	0.34
Knox_Farm	3.144	50 yr	19250.00	1035.73	1051.57		1051.83	0.001557	6.68	6349.37	1982.51	0.35
Knox_Farm	3.144	100 yr	22940.00	1035.73	1052.07		1052.33	0.001573	6.90	7358.16	2089.23	0.35
Knox_Farm	3.144	500 yr	29700.00	1035.73	1052.83		1053.11	0.001623	7.30	8992.03	2193.64	0.36
Knox_Farm	3.071	10 yr	13380.00	1035.53	1049.67		1050.04	0.001964	7.15	4015.65	1479.05	0.39
Knox_Farm	3.071	50 yr	19250.00	1035.53	1050.56		1050.93	0.002180	7.55	5422.24	1694.14	0.41

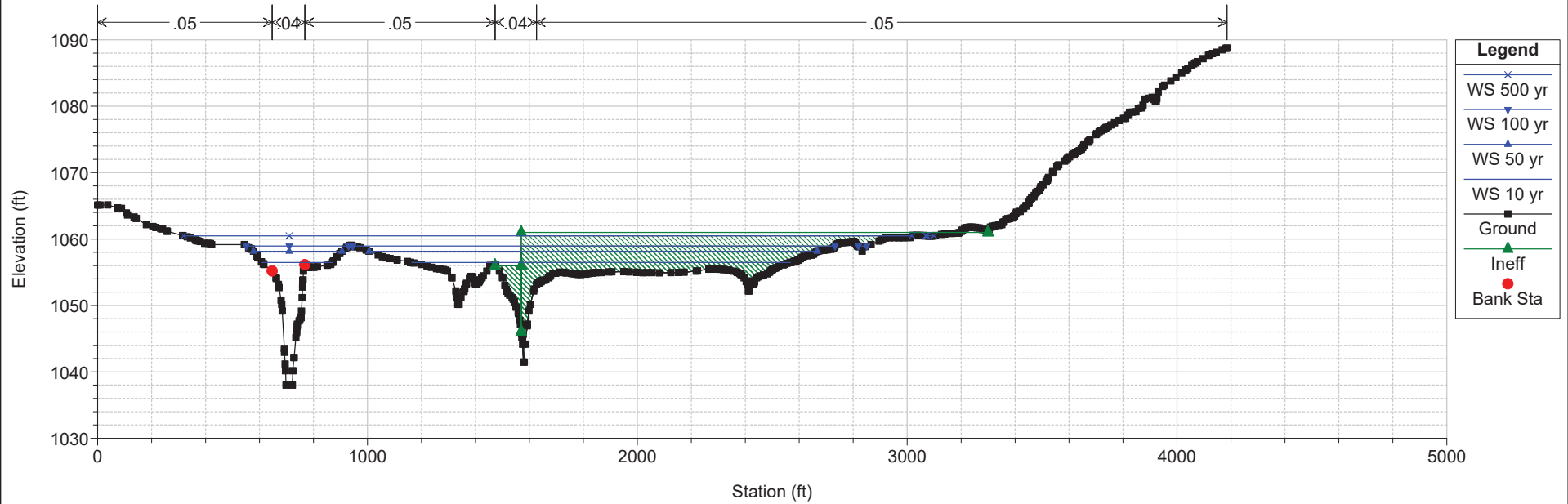
HEC-RAS Plan: CEff River: Bluff\_Creek Reach: Knox\_Farm (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Knox_Farm	3.071	100 yr	22940.00	1035.53	1051.04		1051.41	0.002248	7.75	6286.93	1933.88	0.42
Knox_Farm	3.071	500 yr	29700.00	1035.53	1051.73		1052.13	0.002449	8.38	7698.15	2133.37	0.44
Knox_Farm	2.817	10 yr	13380.00	1034.62	1048.61		1048.75	0.000925	4.94	6287.05	2261.90	0.27
Knox_Farm	2.817	50 yr	19250.00	1034.62	1049.38		1049.52	0.001071	5.16	8127.63	2519.57	0.29
Knox_Farm	2.817	100 yr	22940.00	1034.62	1049.79		1049.93	0.001165	5.26	9220.78	2882.57	0.30
Knox_Farm	2.817	500 yr	29700.00	1034.62	1050.39		1050.55	0.001256	5.65	11020.56	3031.86	0.31
Knox_Farm	2.547	10 yr	13380.00	1033.43	1047.42	1046.05	1047.63	0.001628	5.96	5385.92	2447.34	0.35
Knox_Farm	2.547	50 yr	19250.00	1033.43	1048.08		1048.29	0.001825	6.46	7028.28	2594.19	0.37
Knox_Farm	2.547	100 yr	22940.00	1033.43	1048.39		1048.62	0.001951	6.82	7852.73	2651.64	0.39
Knox_Farm	2.547	500 yr	29700.00	1033.43	1048.88		1049.14	0.002168	7.43	9182.53	2792.67	0.41
Knox_Farm	2.050	10 yr	13380.00	1031.00	1044.37	1043.30	1044.48	0.002841	3.58	5363.82	2832.65	0.26
Knox_Farm	2.050	50 yr	19250.00	1031.00	1044.87	1043.61	1045.00	0.003008	3.88	6864.38	3152.78	0.27
Knox_Farm	2.050	100 yr	22940.00	1031.00	1045.16	1043.76	1045.30	0.002933	3.95	7789.13	3212.71	0.27
Knox_Farm	2.050	500 yr	29700.00	1031.00	1045.64	1043.93	1045.80	0.002780	4.02	9351.72	3299.02	0.26

# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

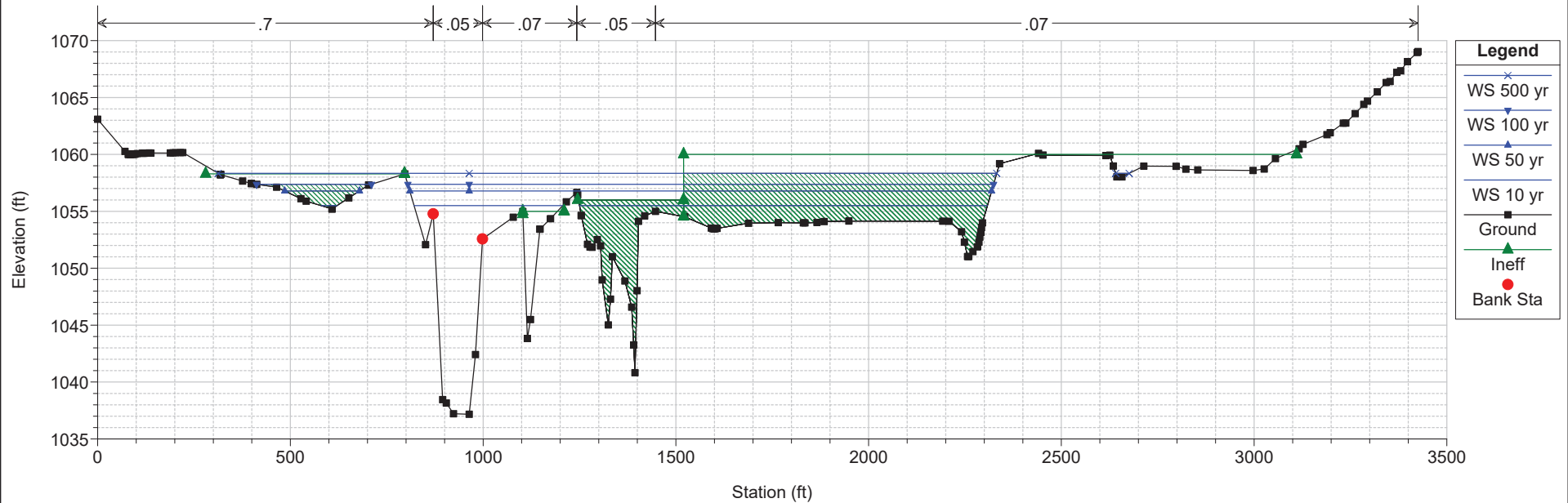
RS = 3.835



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

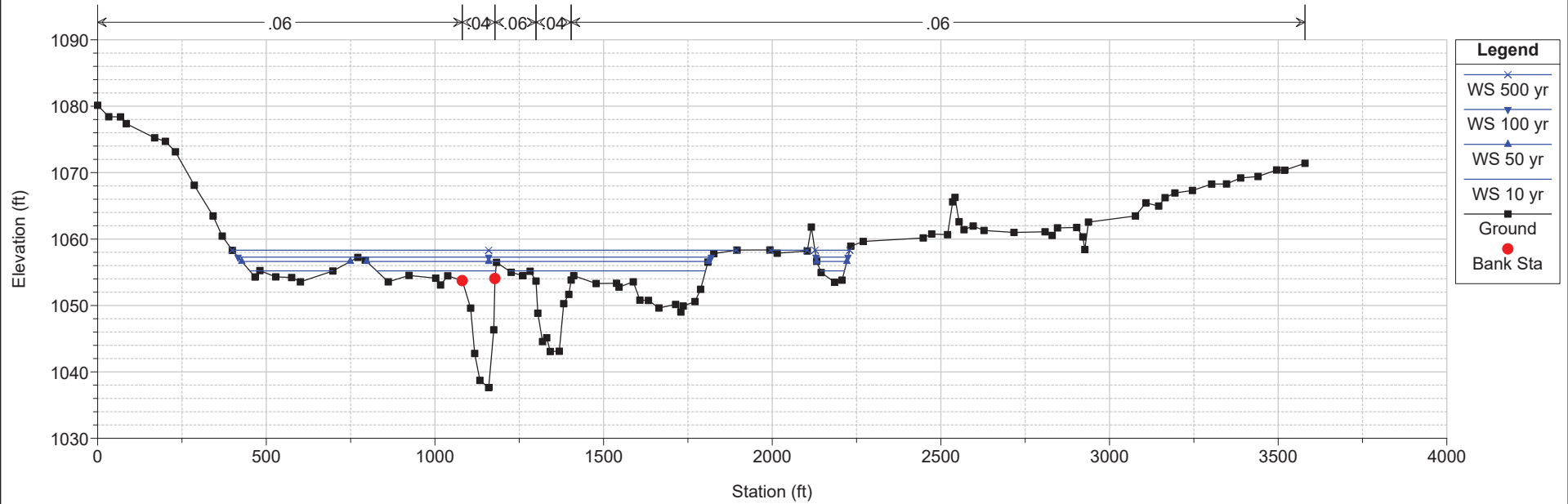
RS = 3.696



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

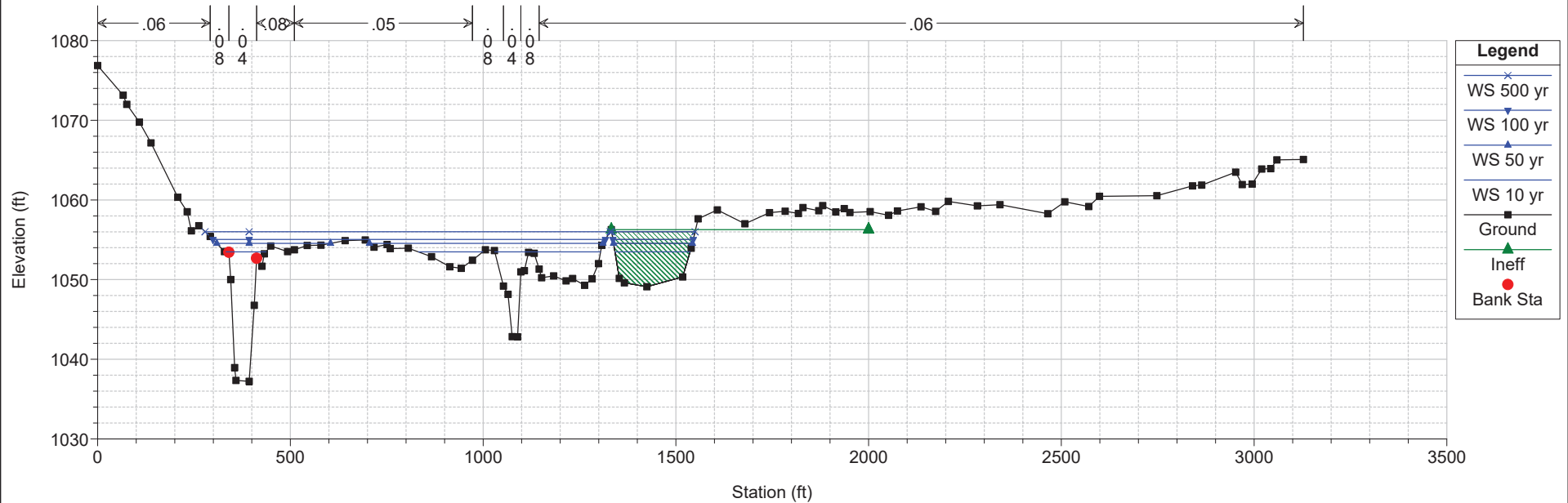
RS = 3.635



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

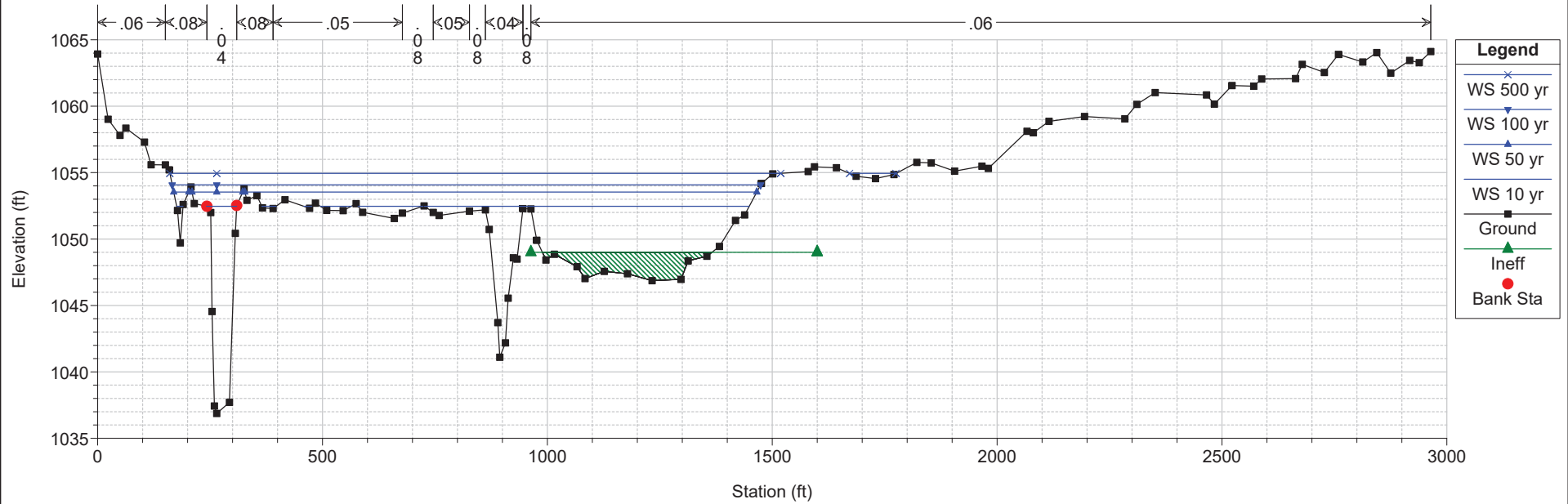
RS = 3.513



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

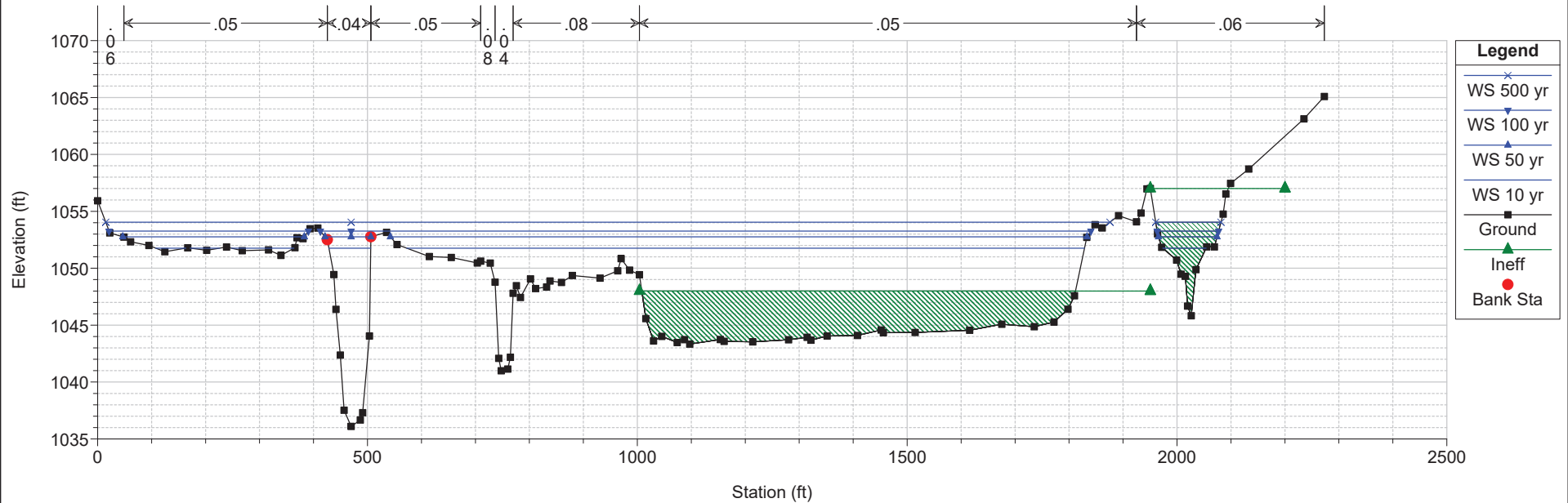
RS = 3.432



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

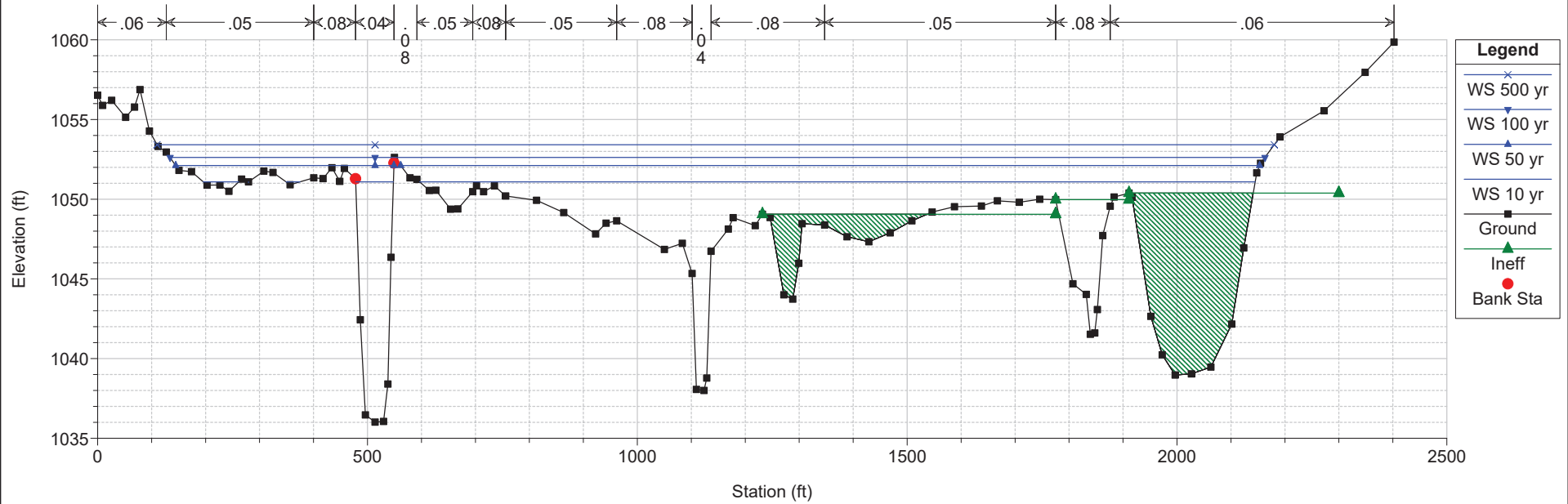
RS = 3.239



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

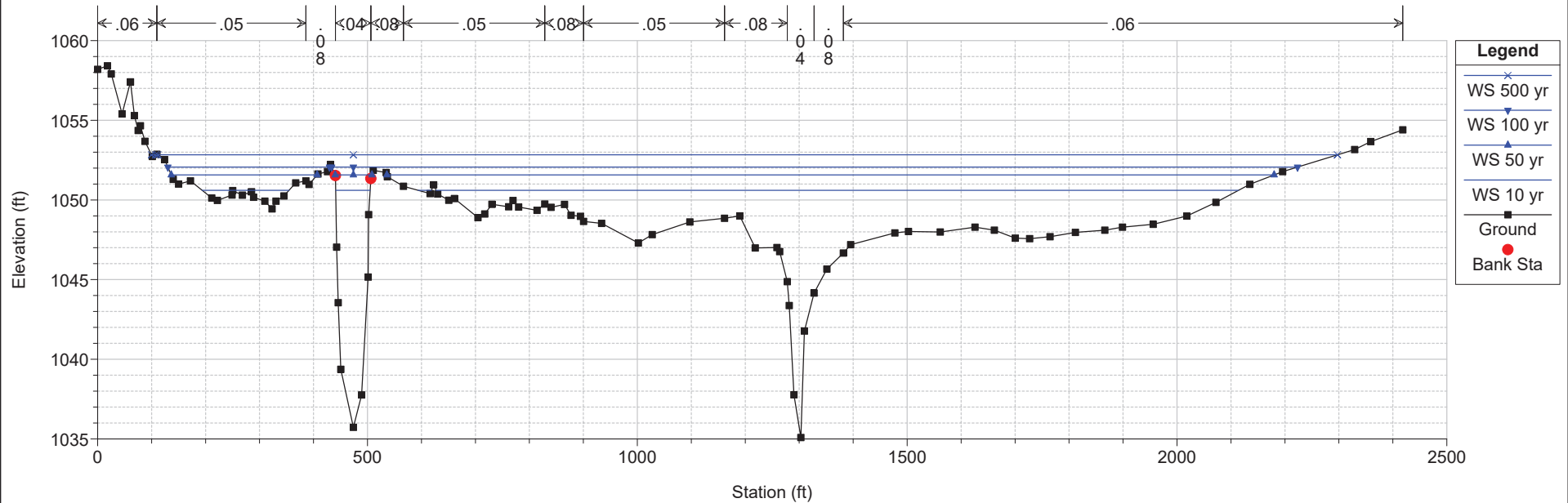
RS = 3.174



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

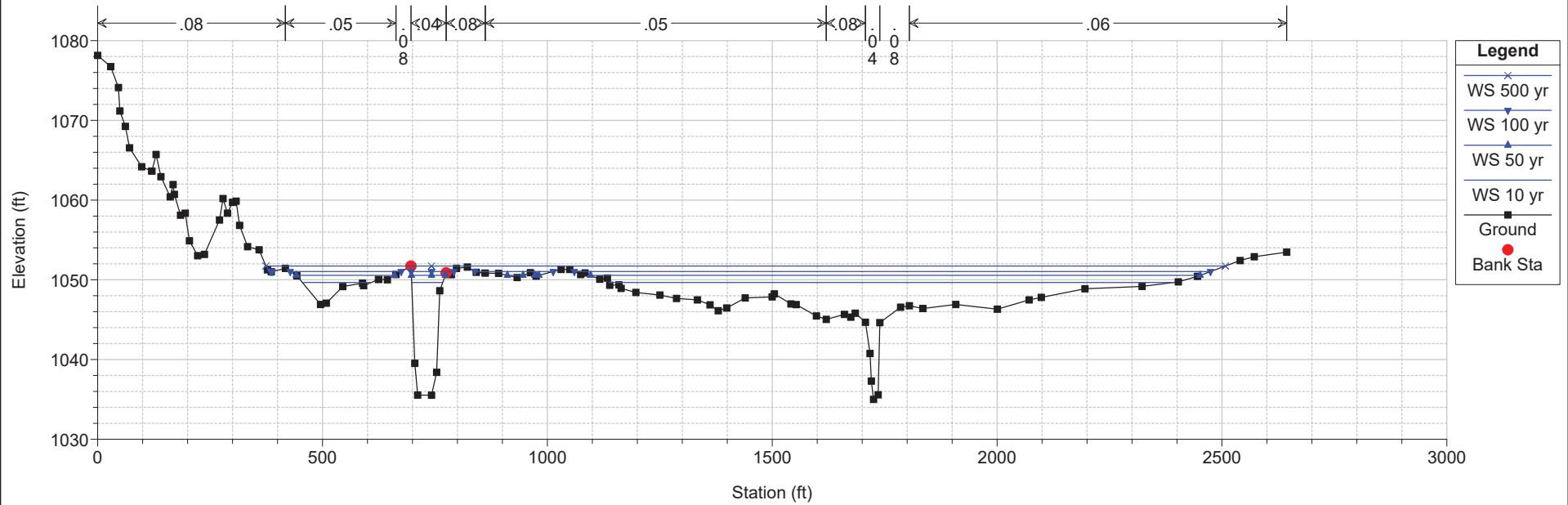
RS = 3.144



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

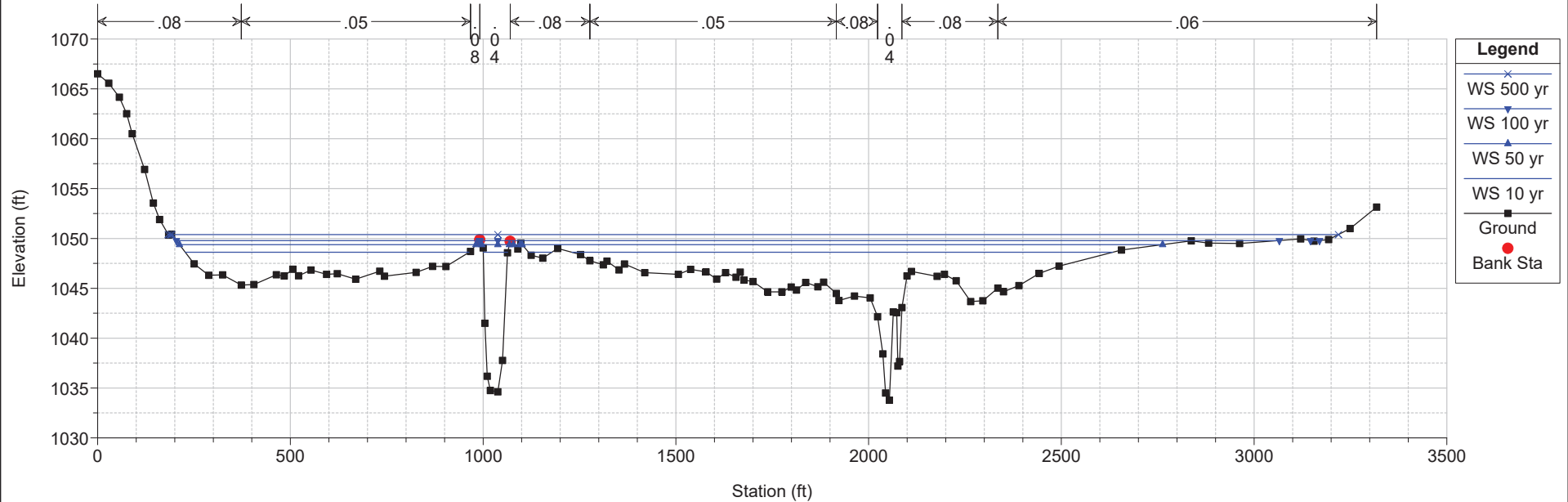
RS = 3.071



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

RS = 2.817

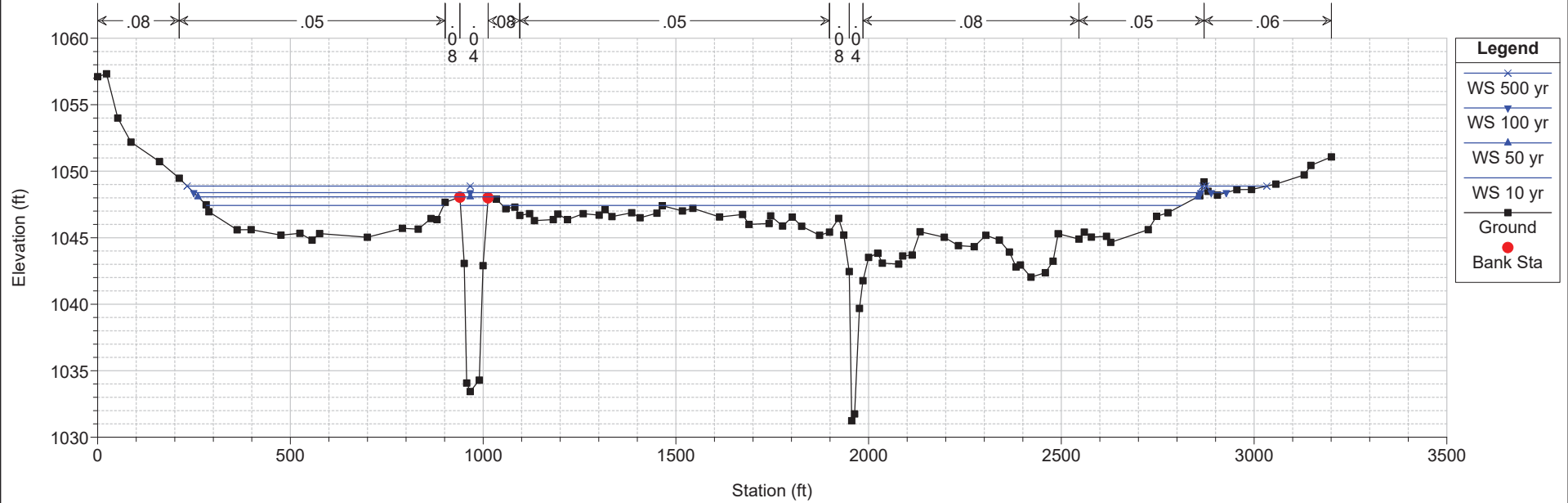




# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

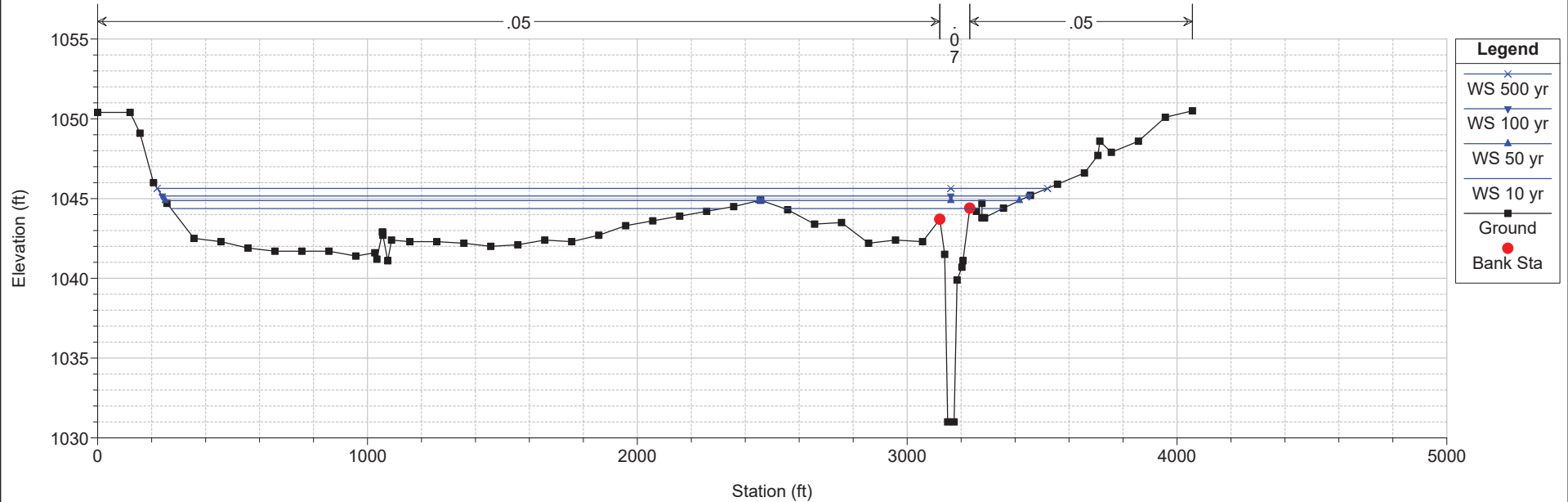
RS = 2.547



# Knox\_Farm Plan: Corrected Effective Model 8/5/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Multi

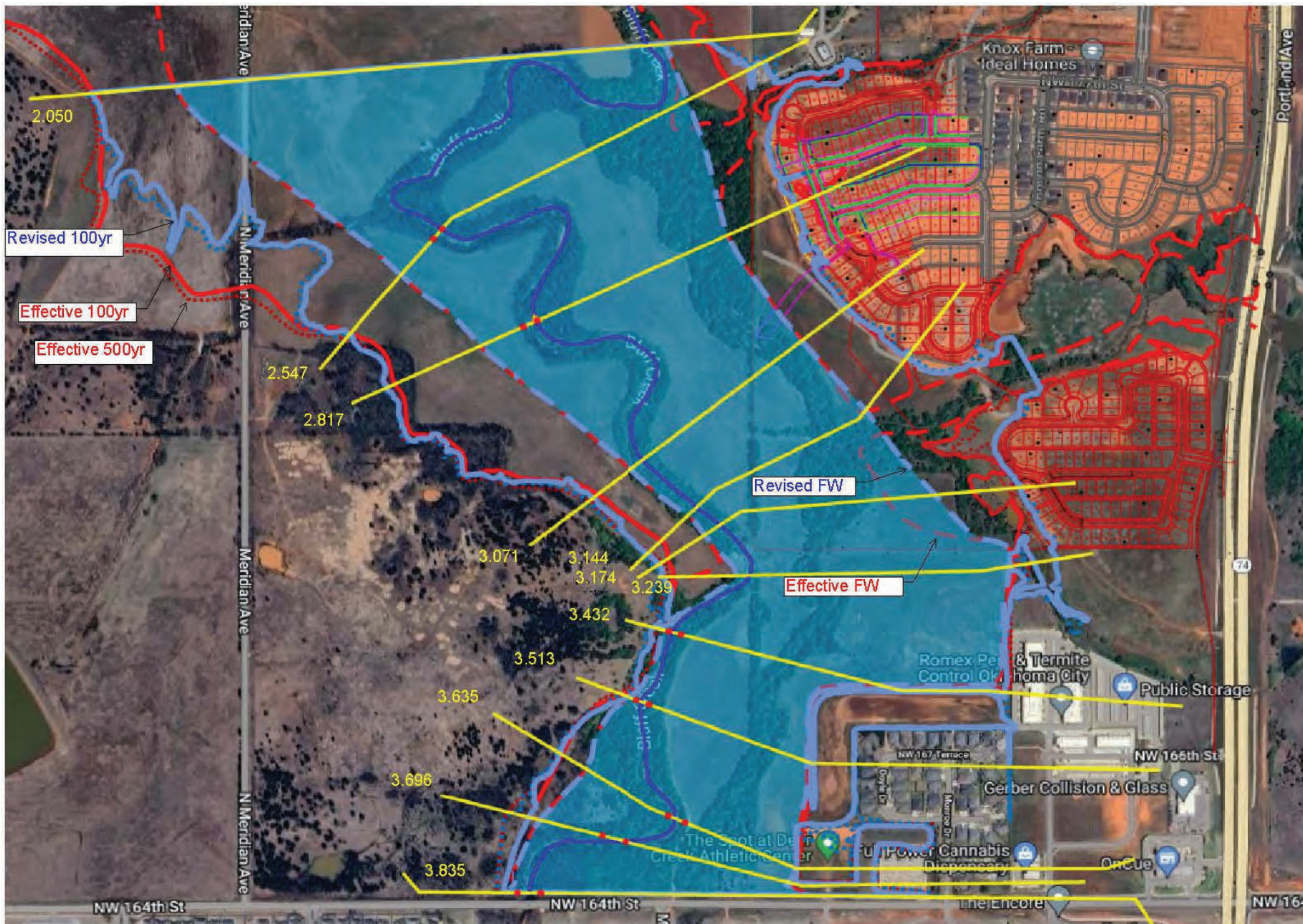
RS = 2.050



# **APPENDIX ‘C’**

## **HEC-RAS model**

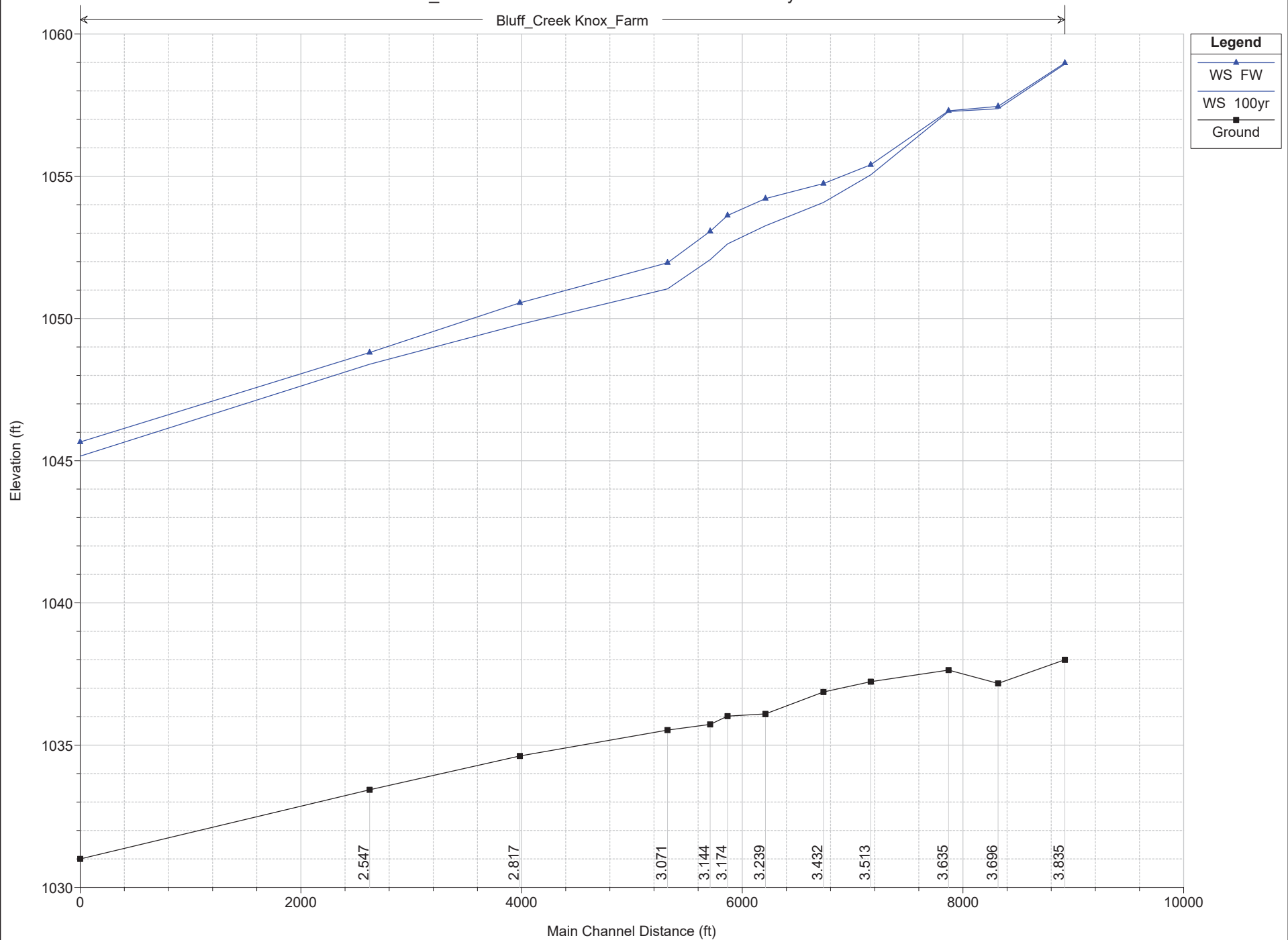
### **Corrected Effective Floodway**





# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Bluff\_Creek Knox\_Farm



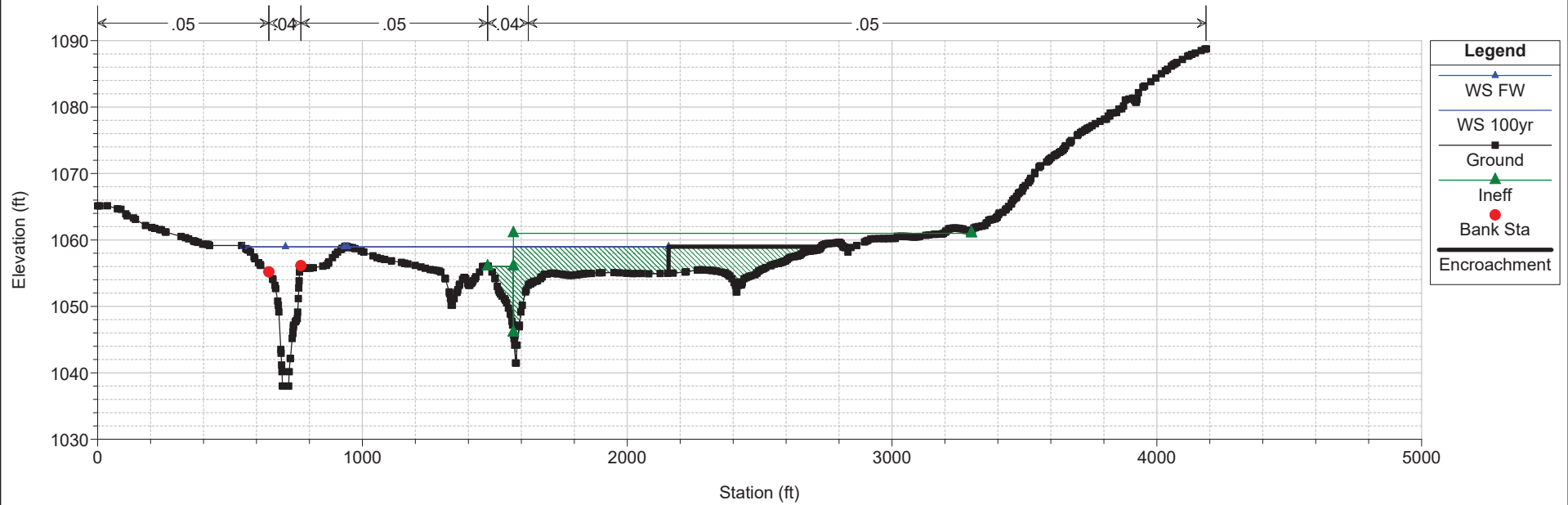
HEC-RAS Plan: CEffFW River: Bluff\_Creek Reach: Knox\_Farm

Reach	River Sta	Profile	W.S. Elev (ft)	Prof Delta WS (ft)	E.G. Elev (ft)	Top Wdth Act (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Enc Sta L (ft)	Ch Sta L (ft)	Ch Sta R (ft)	Enc Sta R (ft)
Knox_Farm	3.835	100yr	1058.94		1059.87	1003.56	417.33	13535.37	7347.30		646.59	767.75	
Knox_Farm	3.835	FW	1058.98	0.04	1059.89	1006.41	426.65	13462.83	7410.52	551.04	646.59	767.75	2156.00
Knox_Farm	3.696	100yr	1057.37		1058.39	715.35	42.18	18218.24	3039.59		870.65	998.36	
Knox_Farm	3.696	FW	1057.46	0.08	1058.45	716.08	43.20	18115.16	3141.64	541.00	870.65	998.36	1880.00
Knox_Farm	3.635	100yr	1057.28		1057.55	1498.00	2315.00	7581.39	11403.61		1081.19	1177.88	
Knox_Farm	3.635	FW	1057.30	0.02	1057.61	1234.00	1919.56	7848.57	11531.88	572.00	1081.19	1177.88	1806.00
Knox_Farm	3.513	100yr	1055.05		1056.39	1018.24	46.71	11825.56	9427.73		340.46	412.47	
Knox_Farm	3.513	FW	1055.40	0.35	1056.50	999.00	70.11	11202.97	10026.91	299.00	340.46	412.47	1298.00
Knox_Farm	3.432	100yr	1054.08		1054.60	1308.32	134.61	7012.16	14153.23		242.97	309.44	
Knox_Farm	3.432	FW	1054.74	0.67	1055.13	1177.00	66.22	6373.17	14860.61	219.00	242.97	309.44	1396.00
Knox_Farm	3.239	100yr	1053.26		1053.48	1797.03	650.65	5577.43	16711.93		425.70	506.35	
Knox_Farm	3.239	FW	1054.21	0.95	1054.37	1427.00	15.41	5065.52	17859.07	413.00	425.70	506.35	1840.00
Knox_Farm	3.174	100yr	1052.62		1052.95	2028.74	574.87	6858.42	15506.71		478.03	549.19	
Knox_Farm	3.174	FW	1053.62	1.00	1053.97	1244.00	119.16	7218.10	15602.74	423.00	478.03	549.19	1667.00
Knox_Farm	3.144	100yr	1052.07		1052.33	2089.23	644.14	5450.56	16845.31		440.63	506.39	
Knox_Farm	3.144	FW	1053.06	1.00	1053.41	1110.00	9.20	6193.38	16737.42	430.00	440.63	506.39	1540.00
Knox_Farm	3.071	100yr	1051.04		1051.41	1933.83	951.24	6503.46	15485.29		696.71	775.11	
Knox_Farm	3.071	FW	1051.96	0.92	1052.47	1149.00	4.65	7645.09	15290.26	680.00	696.71	775.11	1829.00
Knox_Farm	2.817	100yr	1049.79		1049.93	2882.47	4902.47	3960.41	14077.12		991.19	1070.22	
Knox_Farm	2.817	FW	1050.55	0.76	1050.79	1430.00	1954.54	4874.25	16111.21	746.00	991.19	1070.22	2176.00
Knox_Farm	2.547	100yr	1048.39		1048.62	2651.52	4484.62	4814.89	13640.49		939.62	1012.89	
Knox_Farm	2.547	FW	1048.80	0.41	1049.14	1815.00	2126.98	5670.15	15142.88	677.00	939.62	1012.89	2492.00
Knox_Farm	2.050	100yr	1045.16		1045.30	3212.71	19750.78	2982.38	206.83		3121.00	3232.00	
Knox_Farm	2.050	FW	1045.66	0.50	1045.80	2566.00	19740.08	3052.29	147.63	724.00	3121.00	3232.00	3290.00

# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

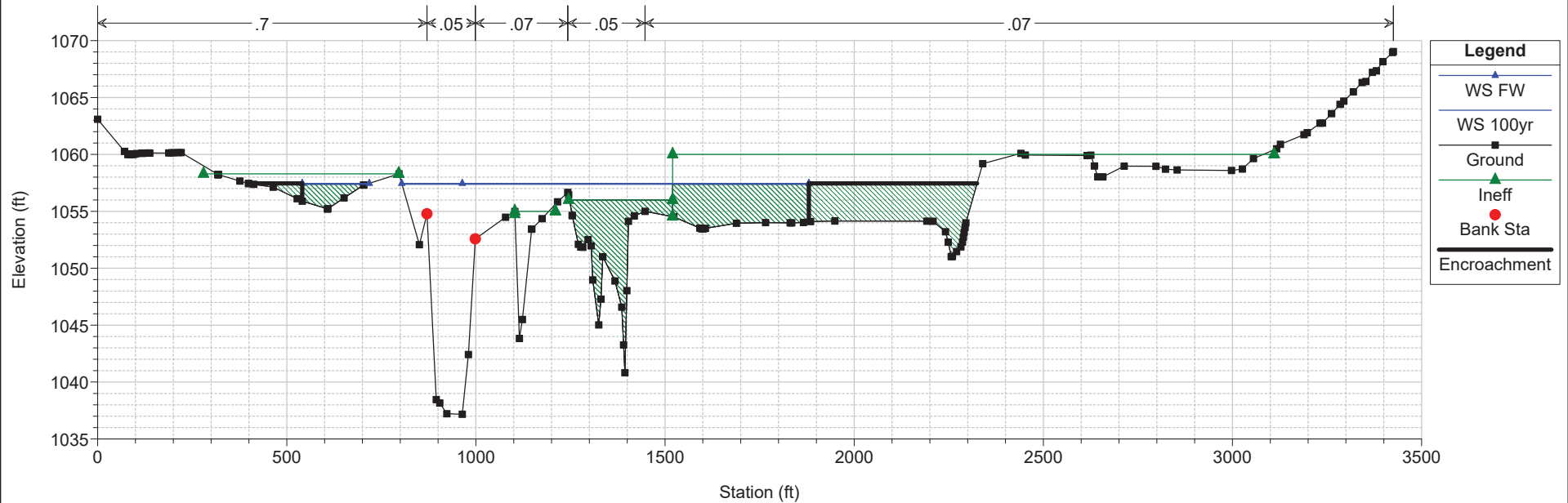
RS = 3.835



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

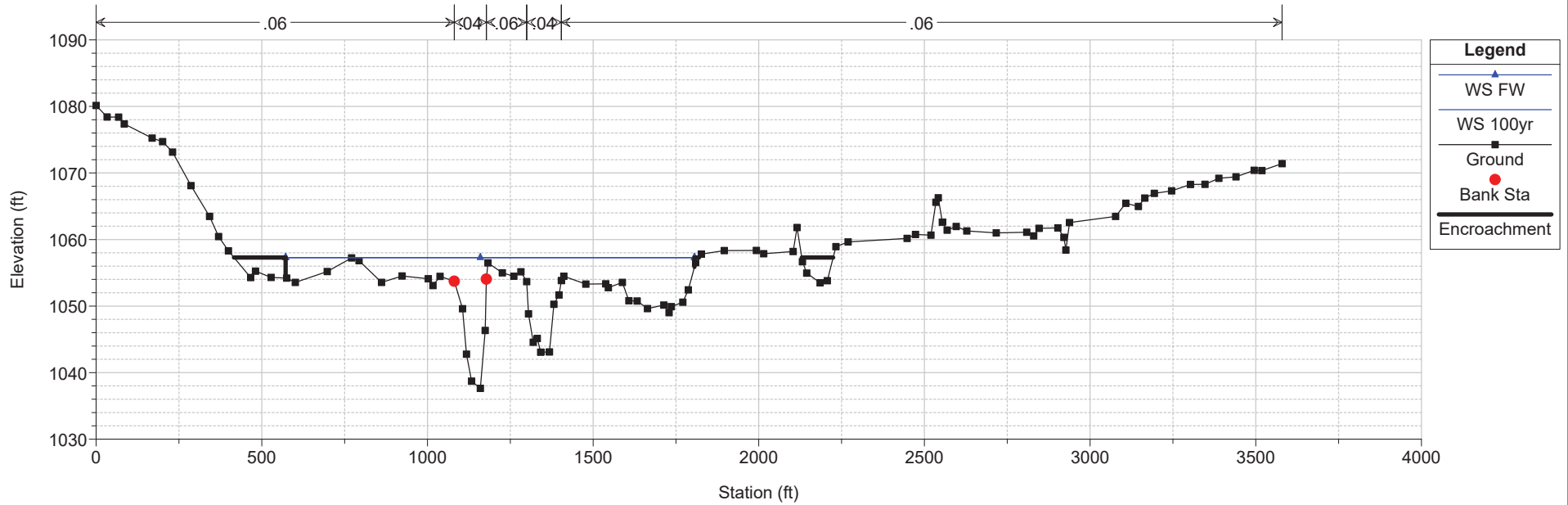
RS = 3.696



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

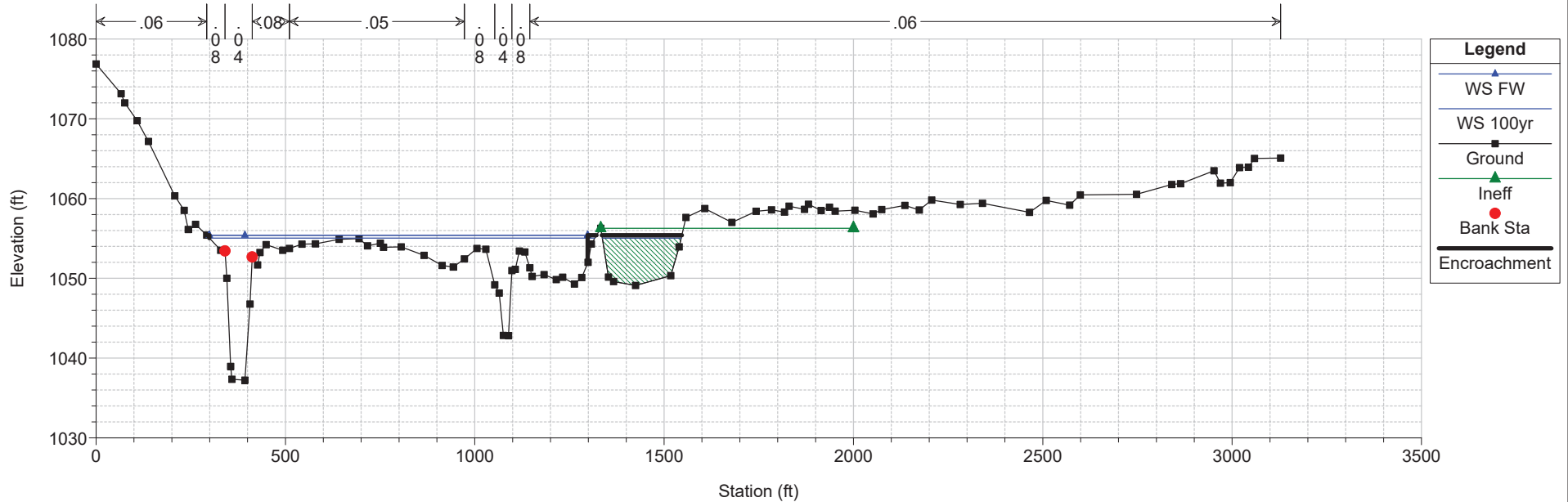
RS = 3.635



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

RS = 3.513

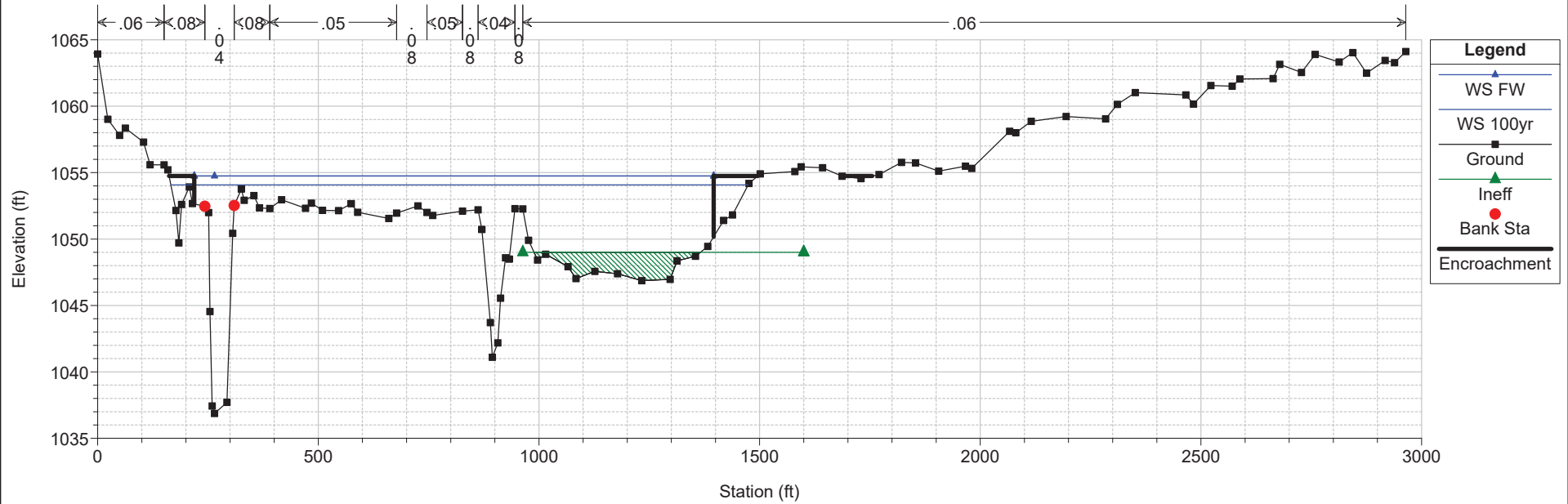




# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

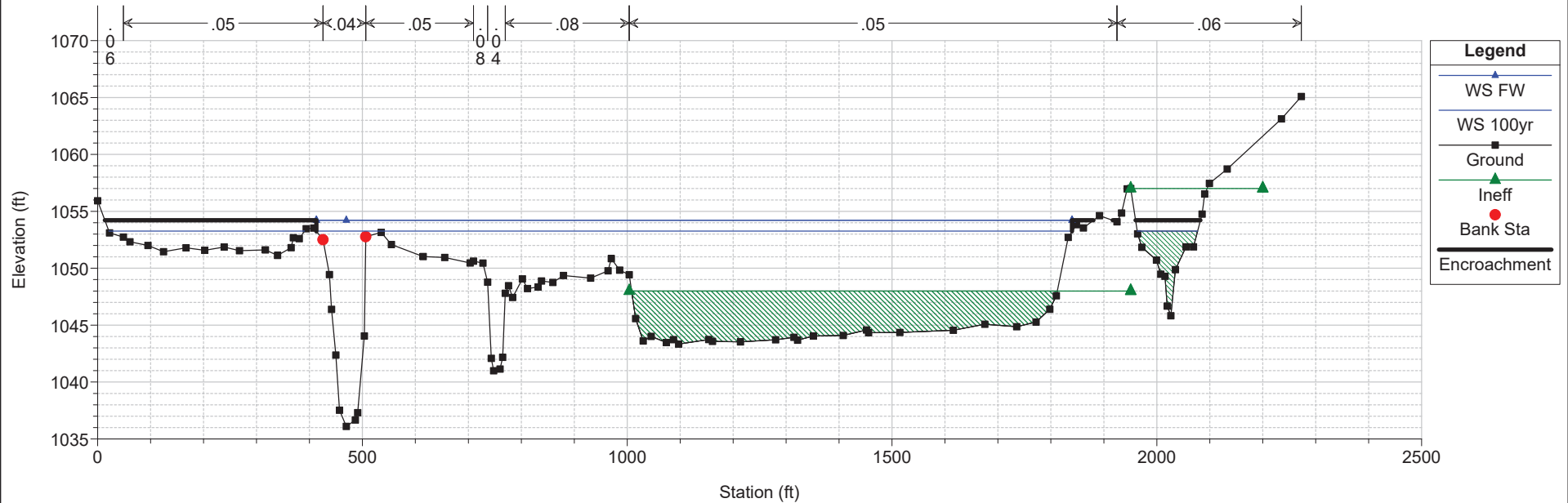
RS = 3.432



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

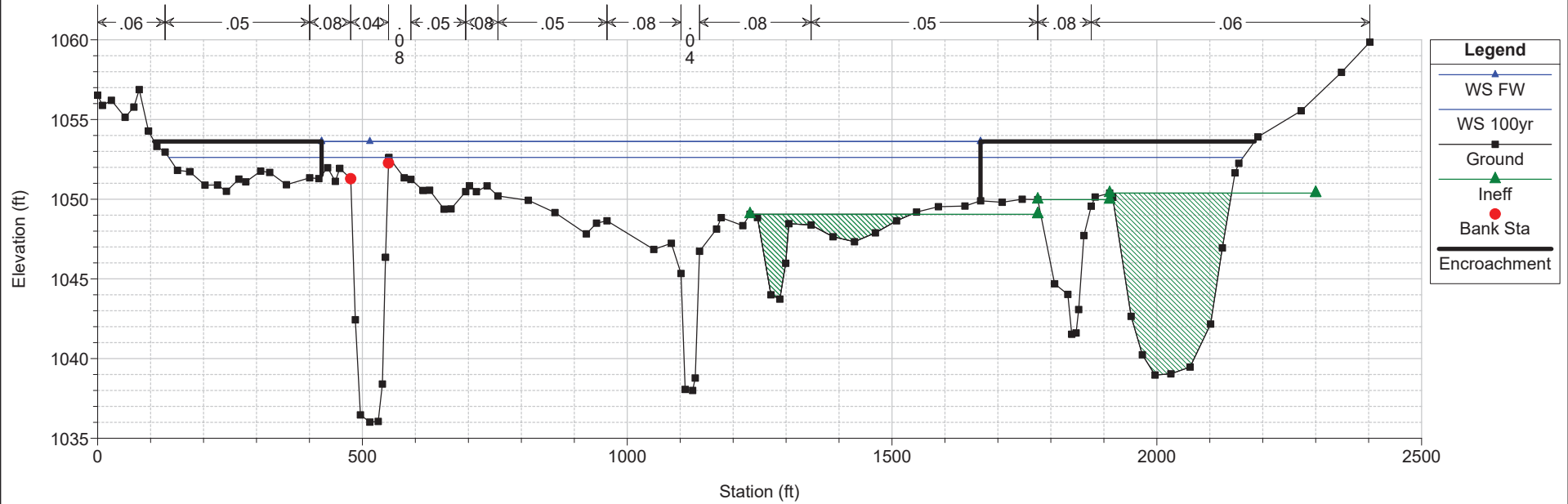
RS = 3.239



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

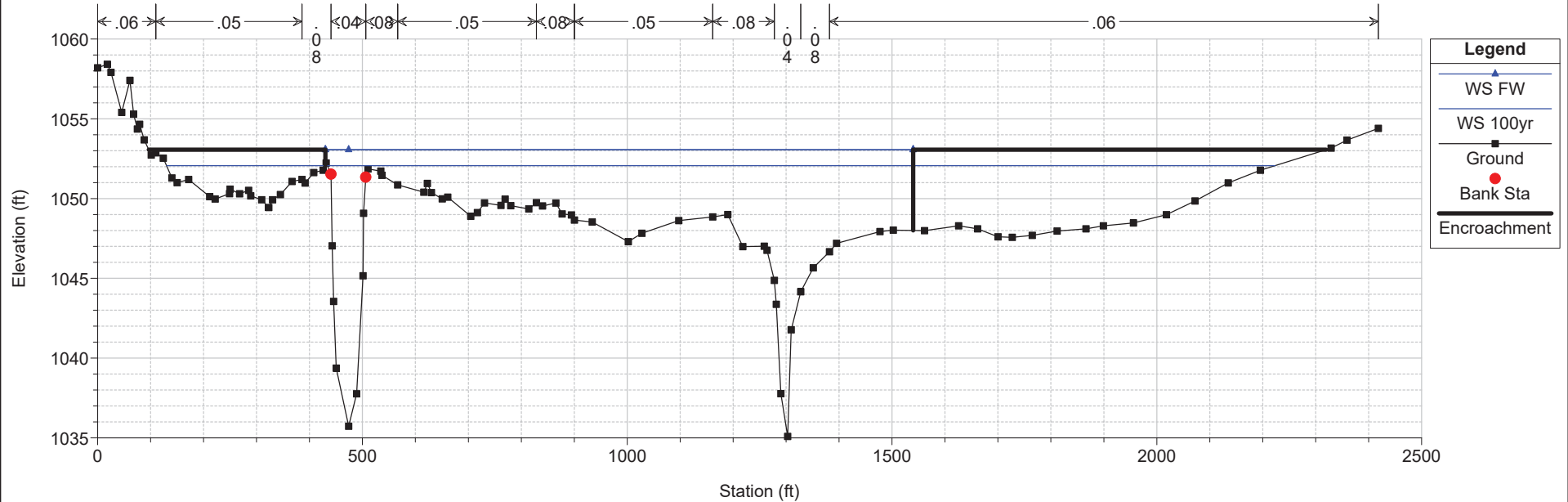
RS = 3.174



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

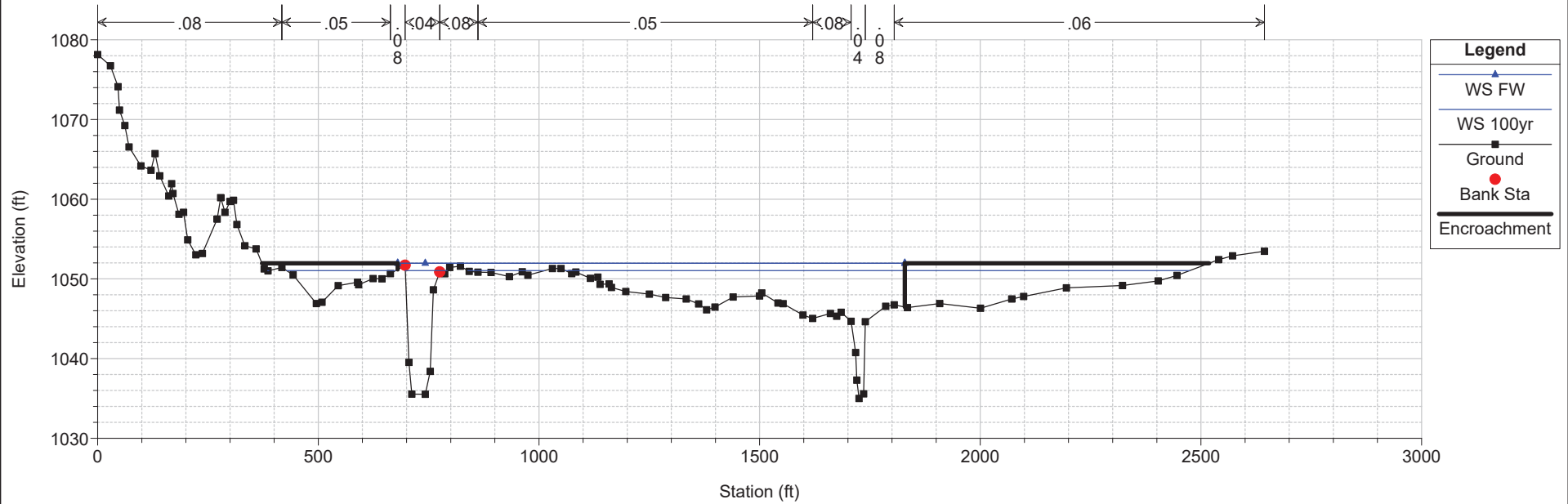
RS = 3.144



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

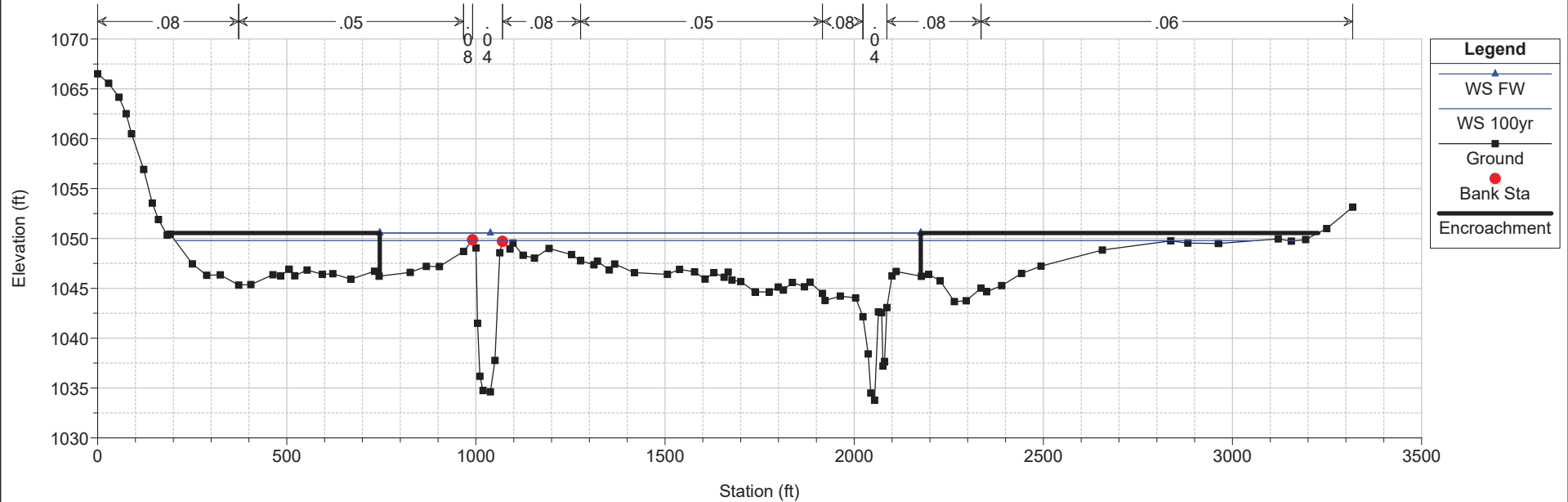
RS = 3.071



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

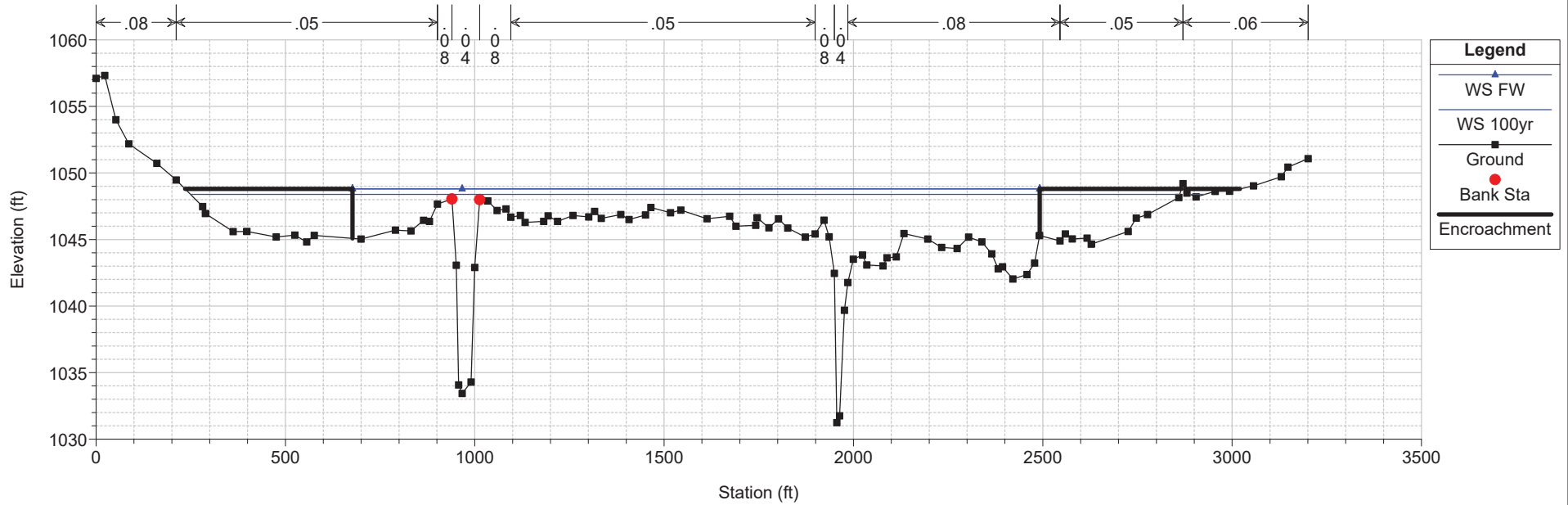
RS = 2.817



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

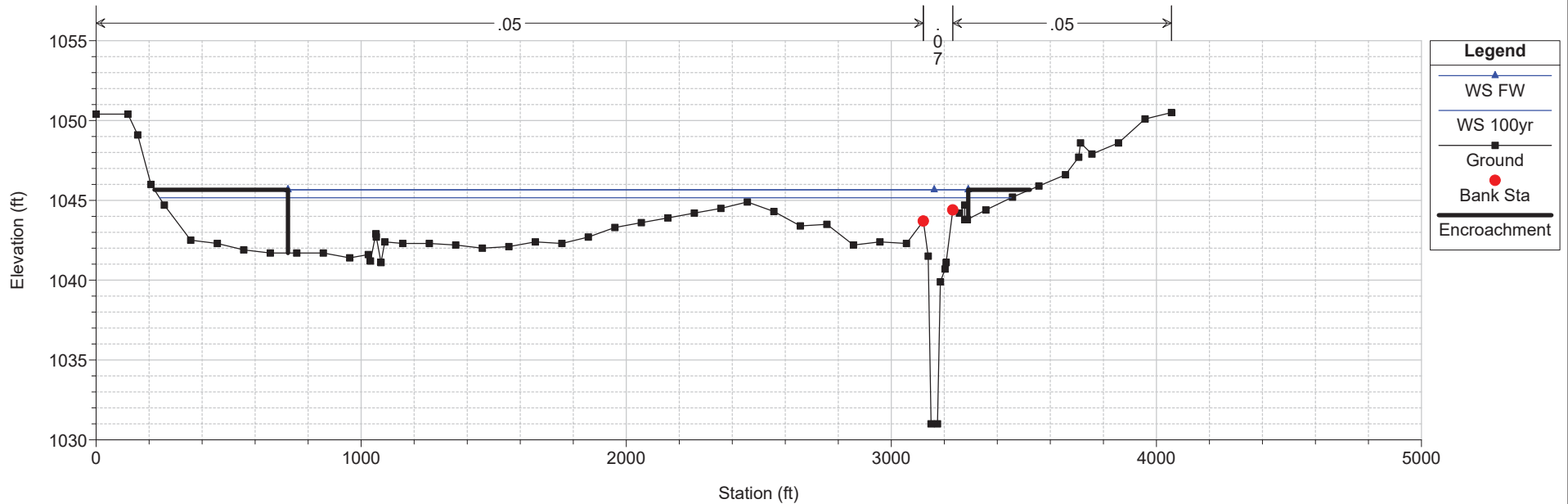
RS = 2.547



# Knox\_Farm Plan: Corrected Effective Floodway 8/19/2024

Geom: Corrected Effective Geometry Flow: FIS Flows Corrected Effective FW

RS = 2.050

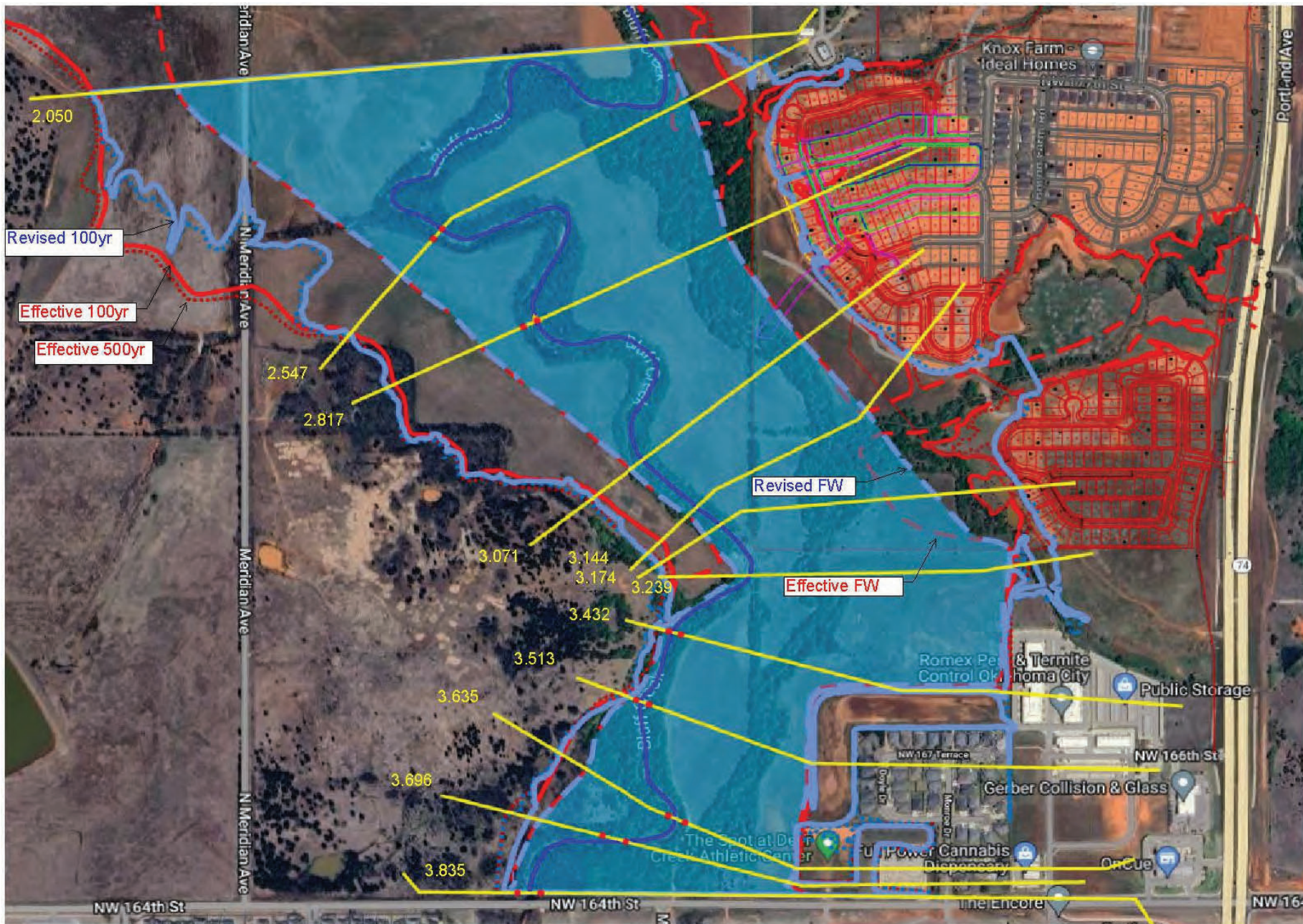


# **APPENDIX ‘D’**

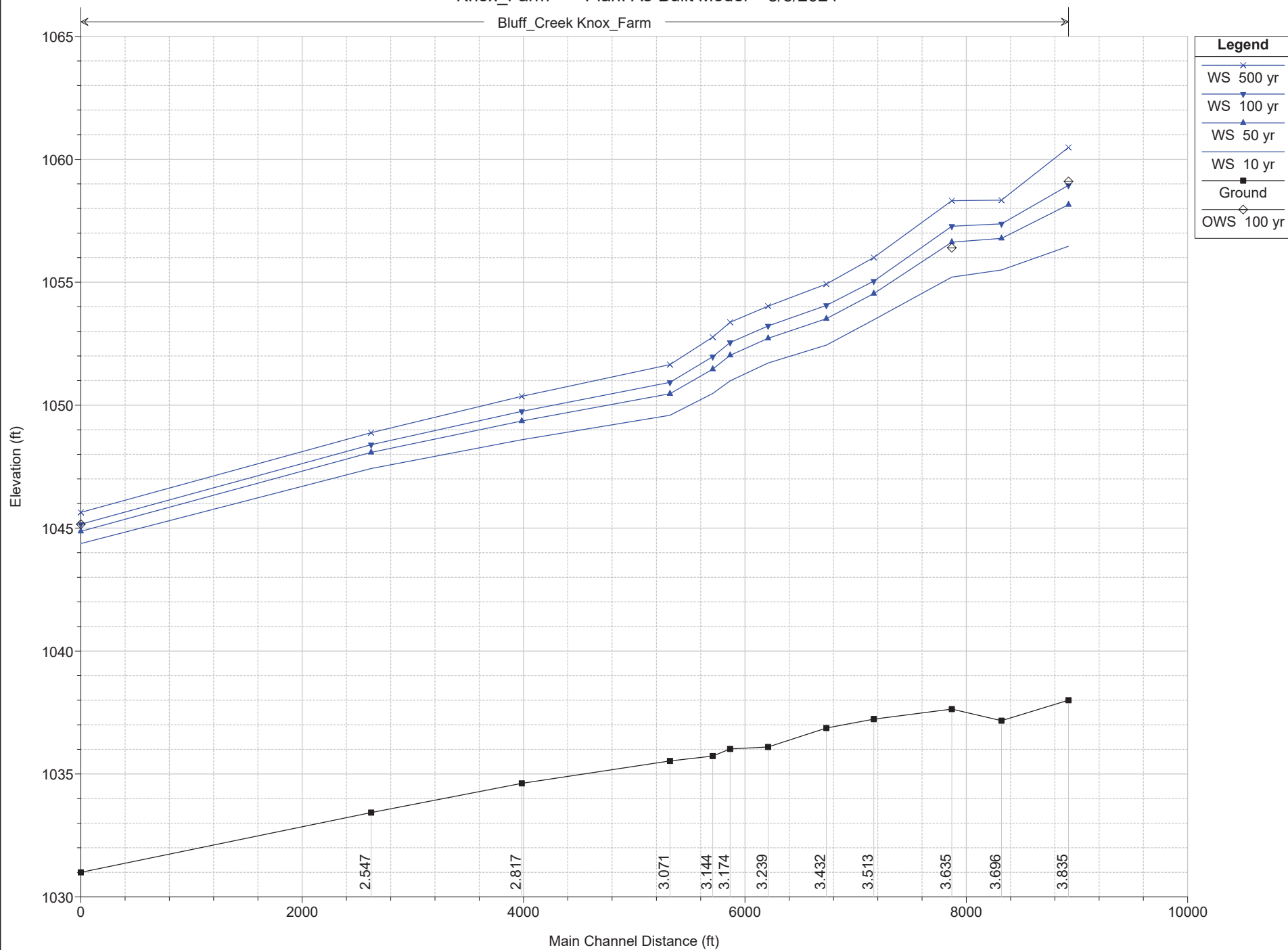
**HEC-RAS model**

**AS-BUILT (Multi-Profile)**





Bluff\_Creek Knox\_Farm





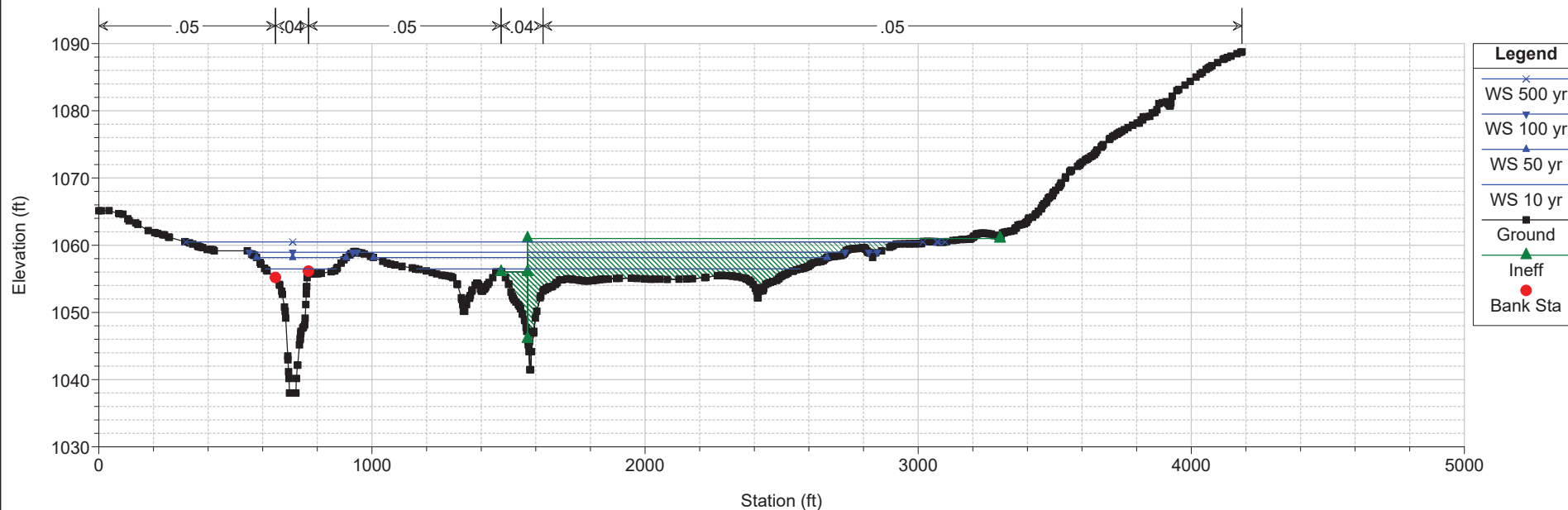
HEC-RAS Plan: AsBlt River: Bluff\_Creek Reach: Knox\_Farm

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Knox_Farm	3.835	10 yr	12580.00	1038.00	1056.46	1053.33	1057.71	0.003712	9.58	1823.19	1663.36	0.55
Knox_Farm	3.835	50 yr	18140.00	1038.00	1058.15	1057.25	1059.17	0.002914	9.48	3166.59	1988.17	0.50
Knox_Farm	3.835	100 yr	21300.00	1038.00	1058.94	1057.81	1059.87	0.002613	9.39	3911.12	2196.68	0.48
Knox_Farm	3.835	500 yr	28000.00	1038.00	1060.49	1058.63	1061.18	0.001924	8.74	5721.98	2725.53	0.42
Knox_Farm	3.696	10 yr	12580.00	1037.17	1055.50	1046.60	1056.08	0.001392	6.33	2496.33	1483.63	0.29
Knox_Farm	3.696	50 yr	18140.00	1037.17	1056.79	1048.87	1057.67	0.001972	7.97	3240.48	1703.23	0.35
Knox_Farm	3.696	100 yr	21300.00	1037.17	1057.37	1050.00	1058.39	0.002229	8.69	3660.58	1817.79	0.38
Knox_Farm	3.696	500 yr	28000.00	1037.17	1058.34	1052.23	1059.62	0.002771	10.06	5041.05	2054.58	0.43
Knox_Farm	3.635	10 yr	12580.00	1037.64	1055.21		1055.47	0.000952	5.36	3852.34	1251.38	0.28
Knox_Farm	3.635	50 yr	18140.00	1037.64	1056.63		1056.90	0.000922	5.72	5763.80	1424.88	0.28
Knox_Farm	3.635	100 yr	21300.00	1037.64	1057.28		1057.55	0.000927	5.92	6705.19	1497.98	0.29
Knox_Farm	3.635	500 yr	28000.00	1037.64	1058.32		1058.62	0.001013	6.52	8330.27	1708.20	0.30
Knox_Farm	3.513	10 yr	12580.00	1037.23	1053.47		1054.42	0.002720	9.30	2053.94	737.49	0.47
Knox_Farm	3.513	50 yr	18140.00	1037.23	1054.54	1053.05	1055.77	0.003473	11.11	2829.26	1104.33	0.54
Knox_Farm	3.513	100 yr	21300.00	1037.23	1055.04	1053.92	1056.38	0.003791	11.90	3308.16	1226.38	0.56
Knox_Farm	3.513	500 yr	28000.00	1037.23	1056.01	1055.39	1057.39	0.003970	12.74	4302.78	1266.43	0.58
Knox_Farm	3.432	10 yr	12580.00	1036.87	1052.44		1052.99	0.002718	8.13	2817.58	1053.52	0.44
Knox_Farm	3.432	50 yr	18140.00	1036.87	1053.52		1054.06	0.002724	8.66	4121.42	1283.42	0.45
Knox_Farm	3.432	100 yr	21300.00	1036.87	1054.06		1054.59	0.002646	8.80	4820.97	1307.88	0.45
Knox_Farm	3.432	500 yr	28000.00	1036.87	1054.93		1055.50	0.002772	9.43	5996.21	1453.83	0.46
Knox_Farm	3.239	10 yr	13380.00	1036.10	1051.72	1049.75	1051.91	0.001007	5.26	4954.21	1626.06	0.28
Knox_Farm	3.239	50 yr	19250.00	1036.10	1052.72	1050.41	1052.92	0.001077	5.60	6603.72	1820.68	0.29
Knox_Farm	3.239	100 yr	22940.00	1036.10	1053.22	1050.74	1053.44	0.001124	5.89	7486.31	1913.09	0.30
Knox_Farm	3.239	500 yr	29700.00	1036.10	1054.03	1051.28	1054.27	0.001205	6.37	8958.11	1984.59	0.32
Knox_Farm	3.174	10 yr	13380.00	1036.02	1050.99	1048.51	1051.38	0.001715	7.15	4065.08	1647.35	0.37
Knox_Farm	3.174	50 yr	19250.00	1036.02	1052.03	1050.48	1052.38	0.001685	7.39	5952.31	1948.39	0.37
Knox_Farm	3.174	100 yr	22940.00	1036.02	1052.55	1050.93	1052.90	0.001668	7.53	6973.19	1972.50	0.37
Knox_Farm	3.174	500 yr	29700.00	1036.02	1053.37	1051.53	1053.72	0.001649	7.80	8605.91	2003.65	0.37
Knox_Farm	3.144	10 yr	13380.00	1035.73	1050.47		1050.77	0.001591	6.49	3867.94	1472.75	0.35
Knox_Farm	3.144	50 yr	19250.00	1035.73	1051.46		1051.76	0.001574	6.67	5446.42	1694.71	0.35
Knox_Farm	3.144	100 yr	22940.00	1035.73	1051.97		1052.27	0.001563	6.84	6320.58	1767.09	0.35
Knox_Farm	3.144	500 yr	29700.00	1035.73	1052.77		1053.08	0.001564	7.15	7755.60	1817.18	0.35
Knox_Farm	3.071	10 yr	13380.00	1035.53	1049.59		1049.95	0.001837	6.92	3660.68	1184.68	0.37
Knox_Farm	3.071	50 yr	19250.00	1035.53	1050.47		1050.86	0.002127	7.46	4749.46	1326.57	0.40

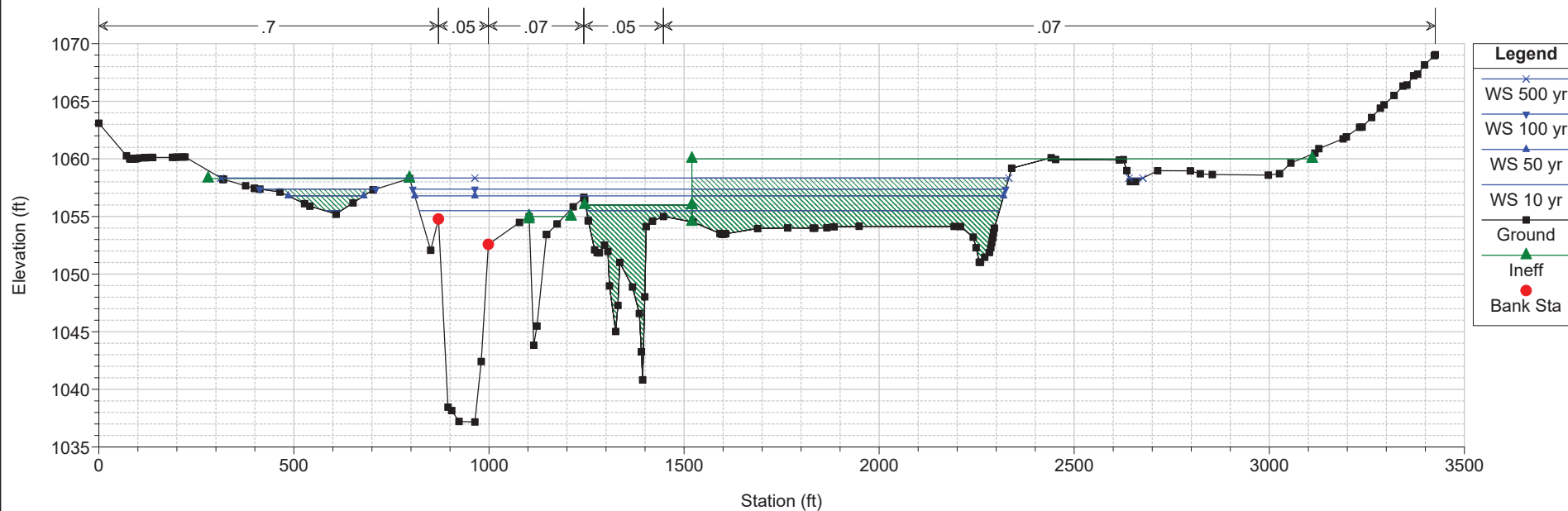
HEC-RAS Plan: AsBlit River: Bluff\_Creek Reach: Knox\_Farm (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Knox_Farm	3.071	100 yr	22940.00	1035.53	1050.93		1051.34	0.002270	7.74	5407.64	1553.73	0.42
Knox_Farm	3.071	500 yr	29700.00	1035.53	1051.65		1052.11	0.002498	8.43	6616.20	1762.70	0.44
Knox_Farm	2.817	10 yr	13380.00	1034.62	1048.59		1048.73	0.000894	4.85	6197.37	2170.17	0.26
Knox_Farm	2.817	50 yr	19250.00	1034.62	1049.35		1049.49	0.001029	5.07	7907.72	2309.67	0.28
Knox_Farm	2.817	100 yr	22940.00	1034.62	1049.75		1049.89	0.001108	5.13	8828.69	2353.32	0.29
Knox_Farm	2.817	500 yr	29700.00	1034.62	1050.36		1050.53	0.001228	5.58	10275.01	2380.66	0.31
Knox_Farm	2.547	10 yr	13380.00	1033.43	1047.42	1046.05	1047.63	0.001628	5.96	5385.92	2447.34	0.35
Knox_Farm	2.547	50 yr	19250.00	1033.43	1048.08		1048.29	0.001825	6.46	7028.28	2594.19	0.37
Knox_Farm	2.547	100 yr	22940.00	1033.43	1048.39		1048.62	0.001951	6.82	7852.73	2651.64	0.39
Knox_Farm	2.547	500 yr	29700.00	1033.43	1048.88		1049.14	0.002168	7.43	9182.53	2792.67	0.41
Knox_Farm	2.050	10 yr	13380.00	1031.00	1044.37	1043.30	1044.48	0.002841	3.58	5363.82	2832.65	0.26
Knox_Farm	2.050	50 yr	19250.00	1031.00	1044.87	1043.61	1045.00	0.003008	3.88	6864.38	3152.78	0.27
Knox_Farm	2.050	100 yr	22940.00	1031.00	1045.16	1043.76	1045.30	0.002933	3.95	7789.13	3212.71	0.27
Knox_Farm	2.050	500 yr	29700.00	1031.00	1045.64	1043.93	1045.80	0.002780	4.02	9351.72	3299.02	0.26

Knox\_Farm Plan: As-Built Model 8/5/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Multi  
RS = 3.835



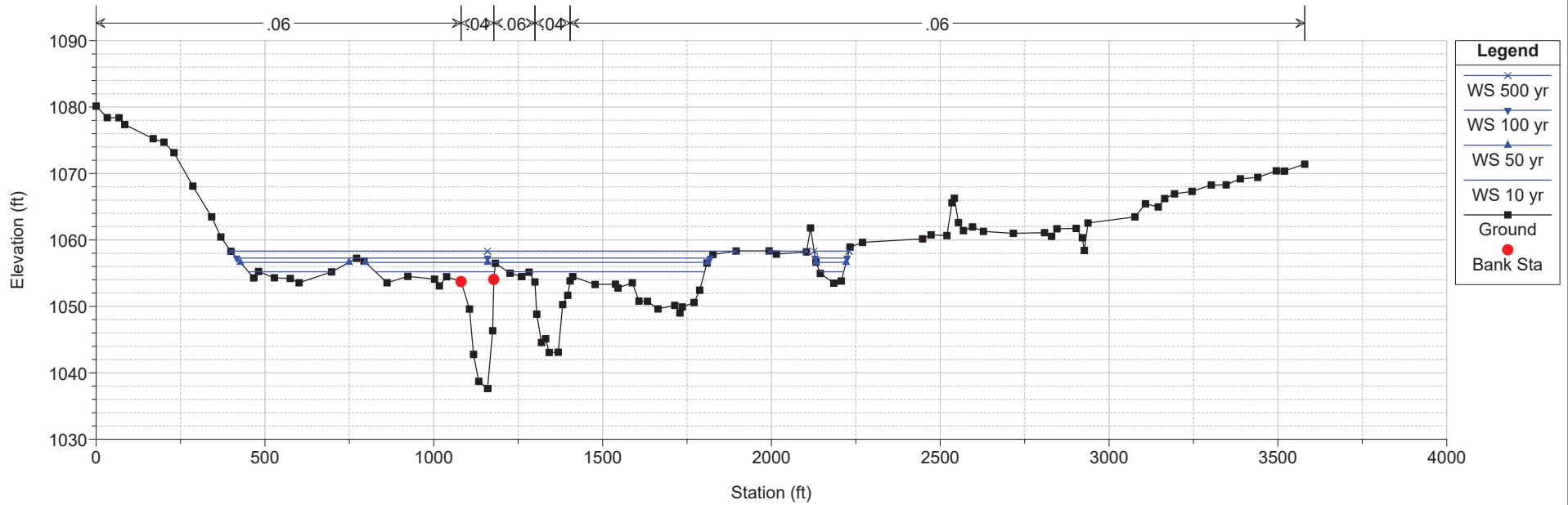
Knox\_Farm Plan: As-Built Model 8/5/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Multi  
RS = 3.696



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

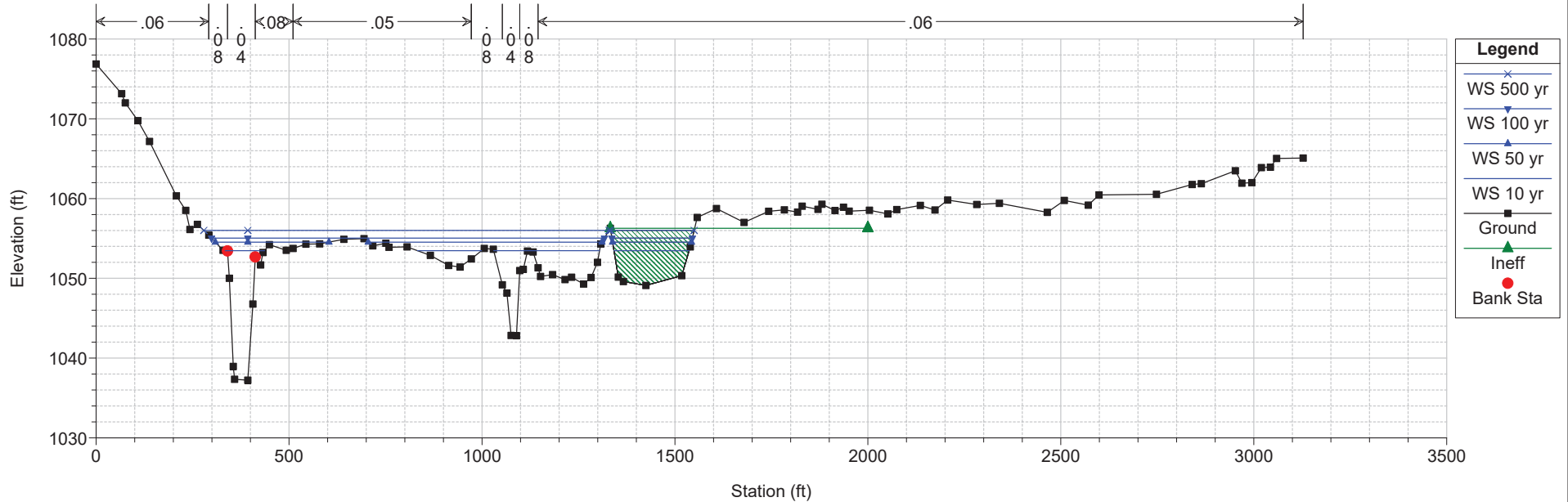
RS = 3.635



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

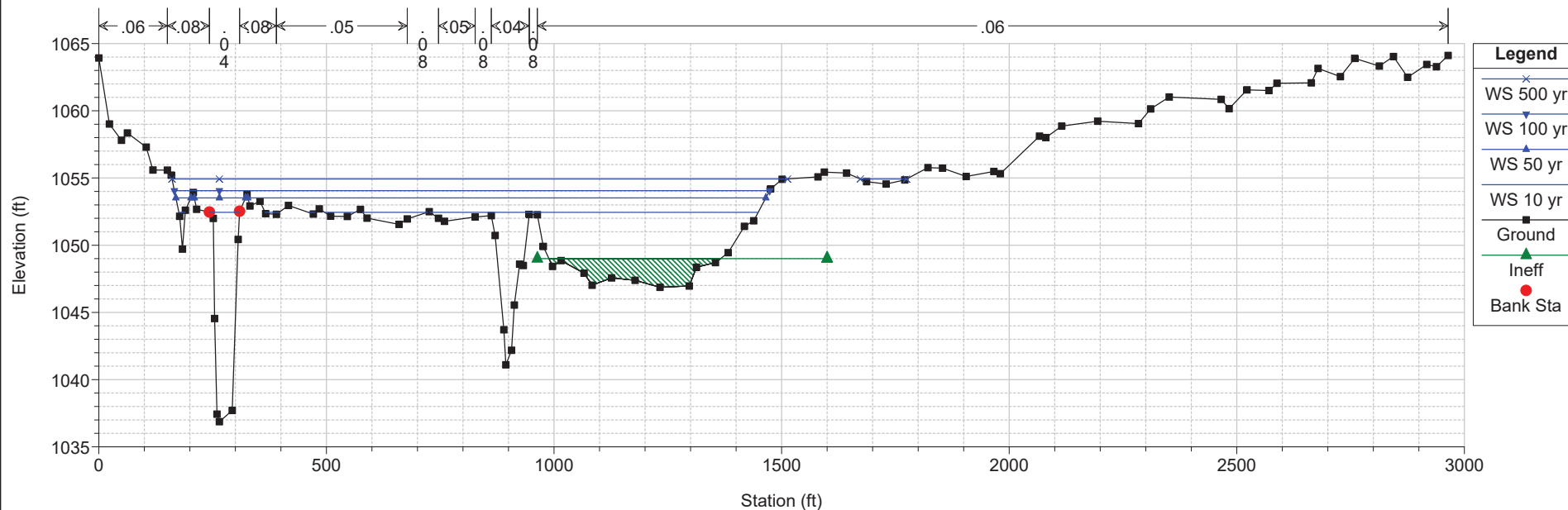
RS = 3.513



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

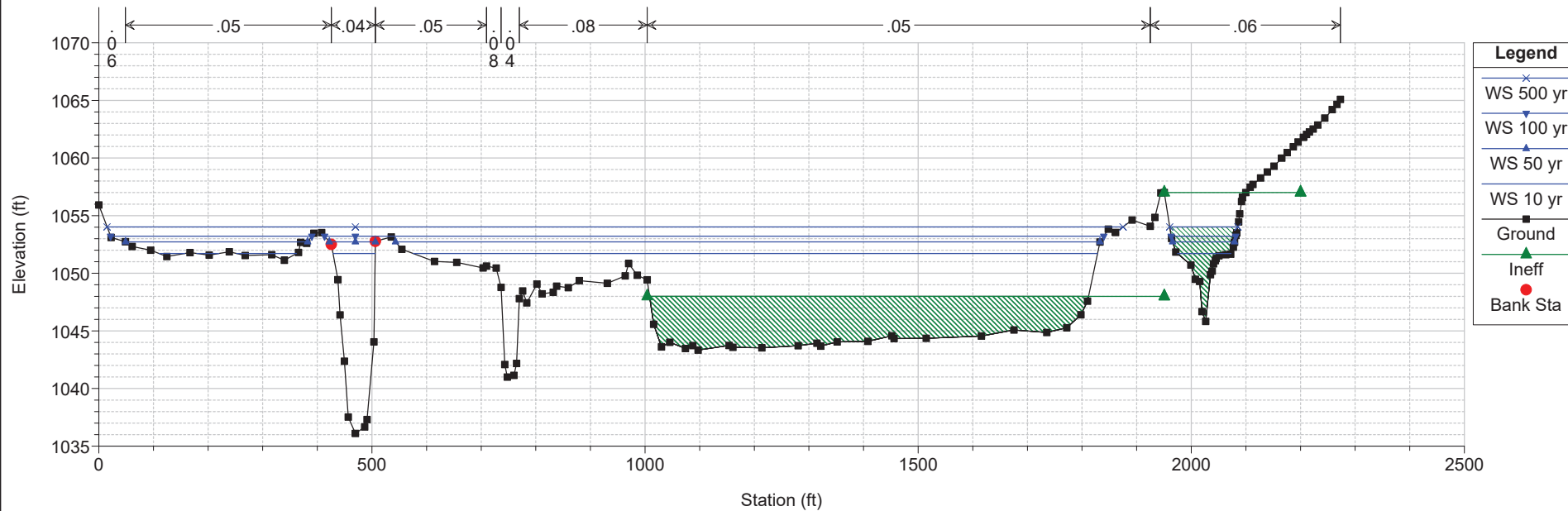
RS = 3.432



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

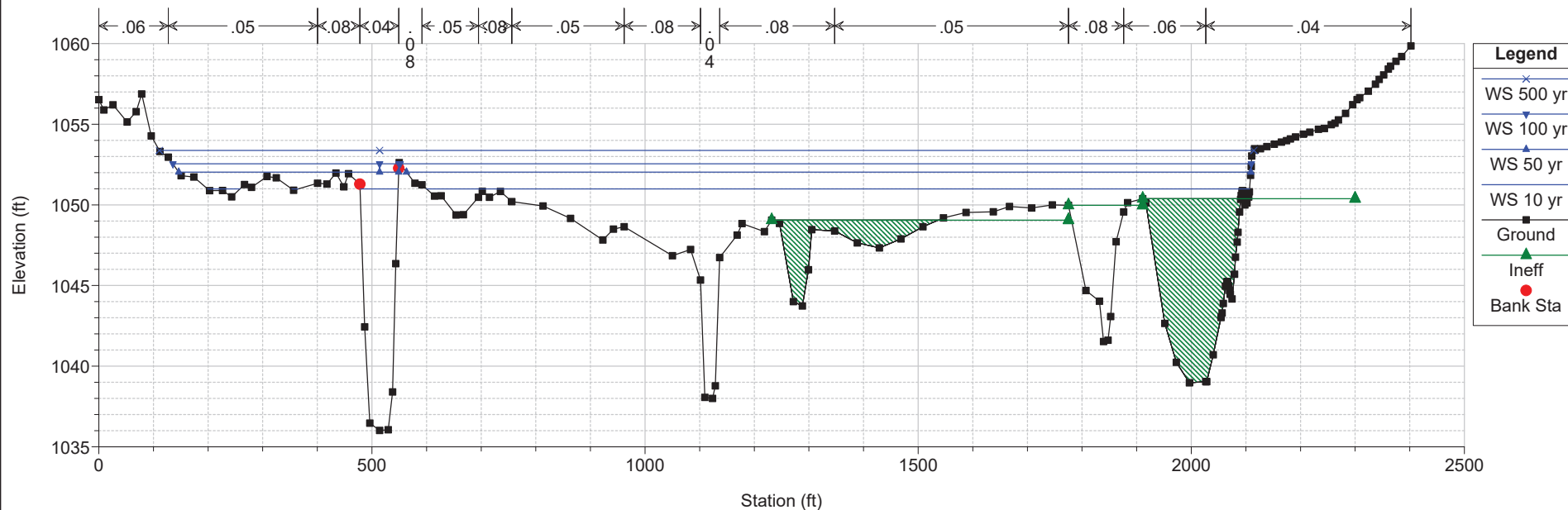
RS = 3.239



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

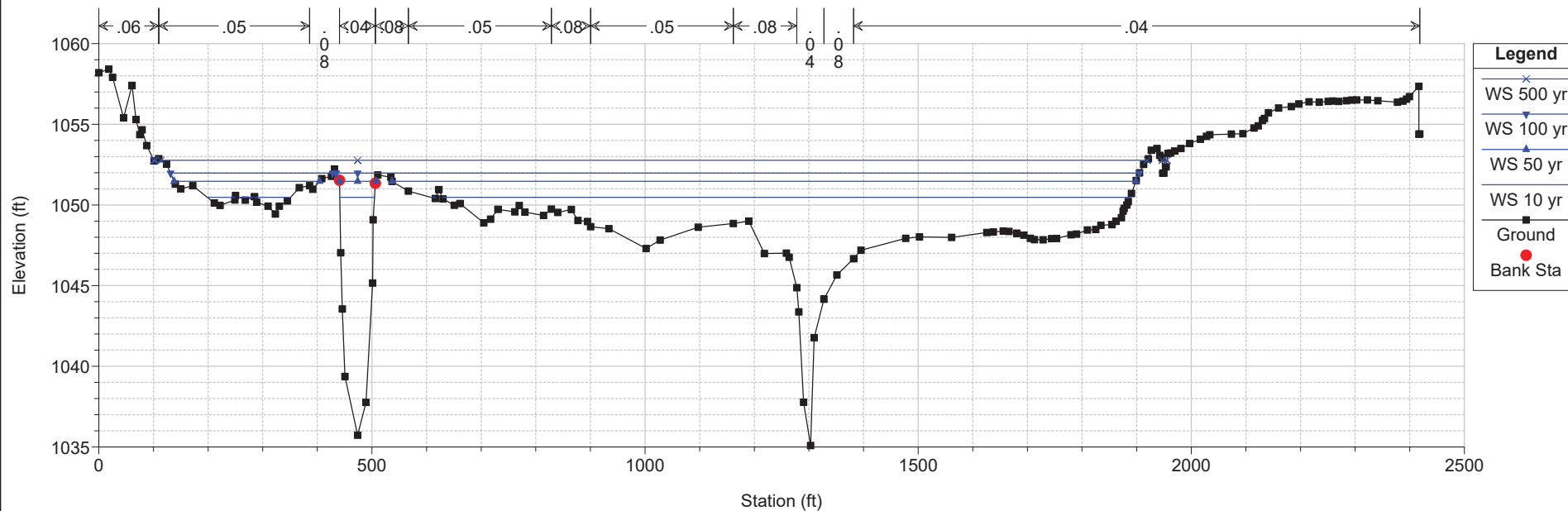
RS = 3.174



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

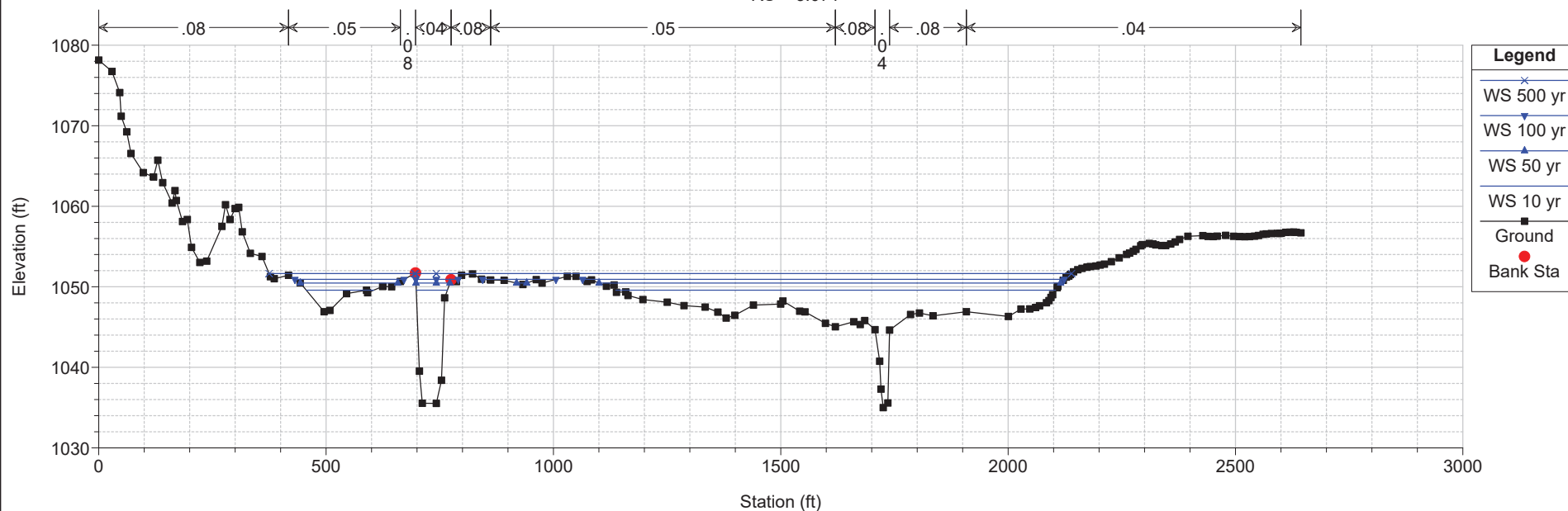
RS = 3.144



Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

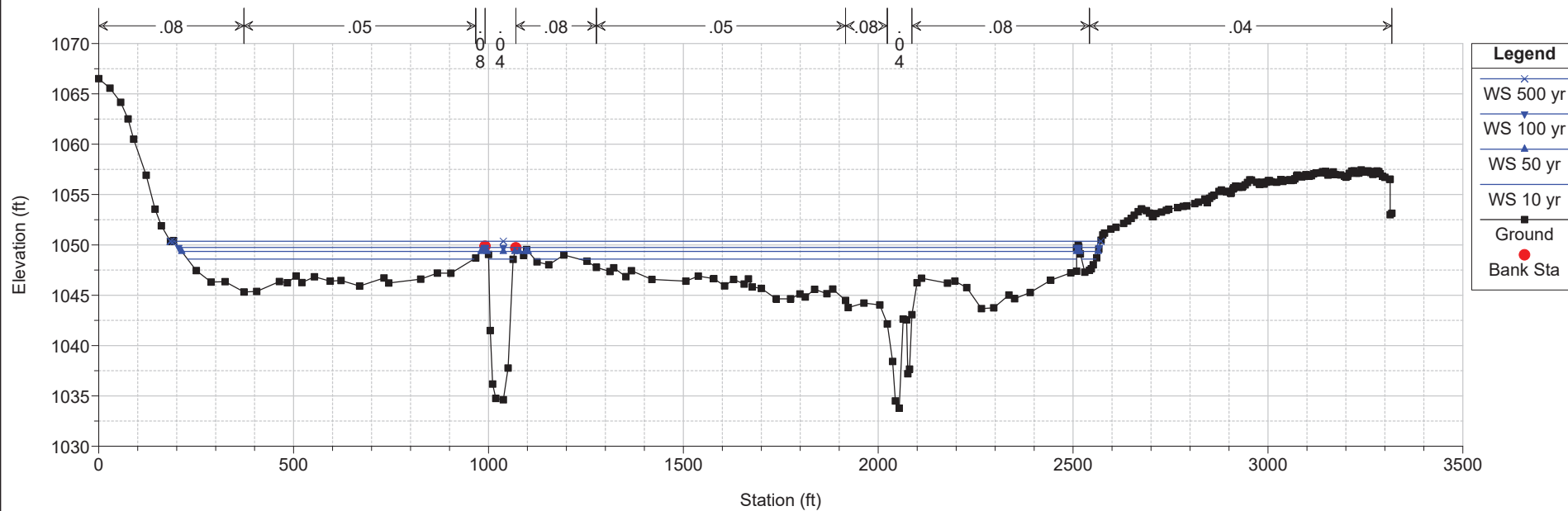
RS = 3.071



Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

RS = 2.817

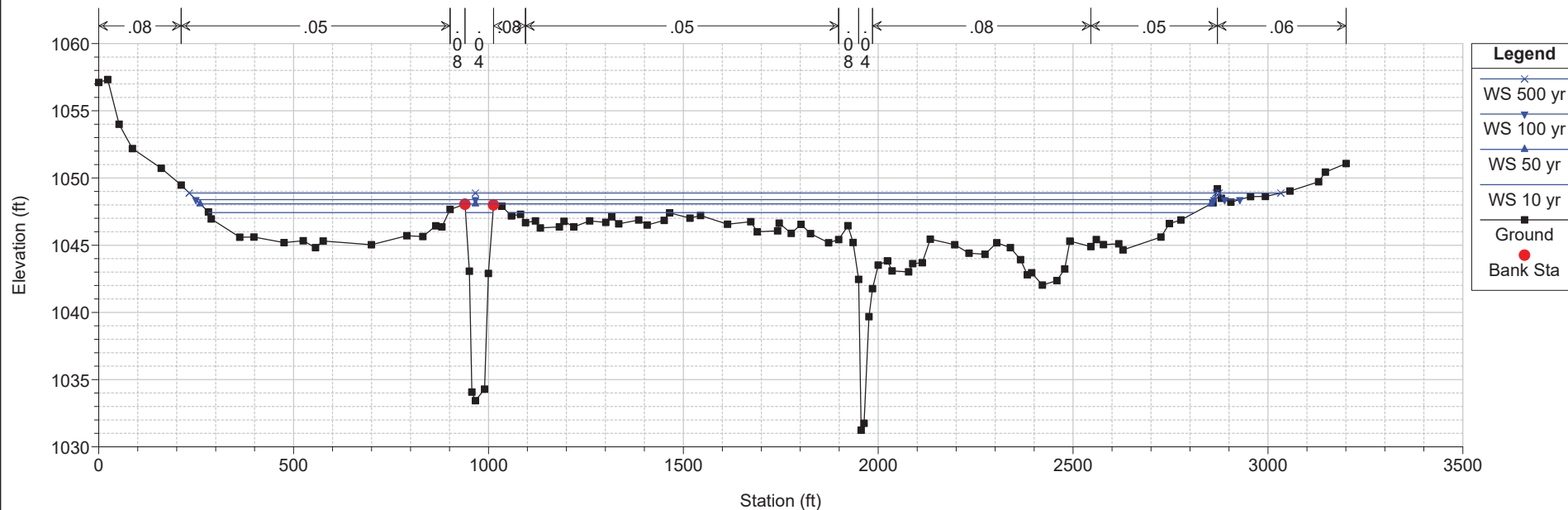




# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

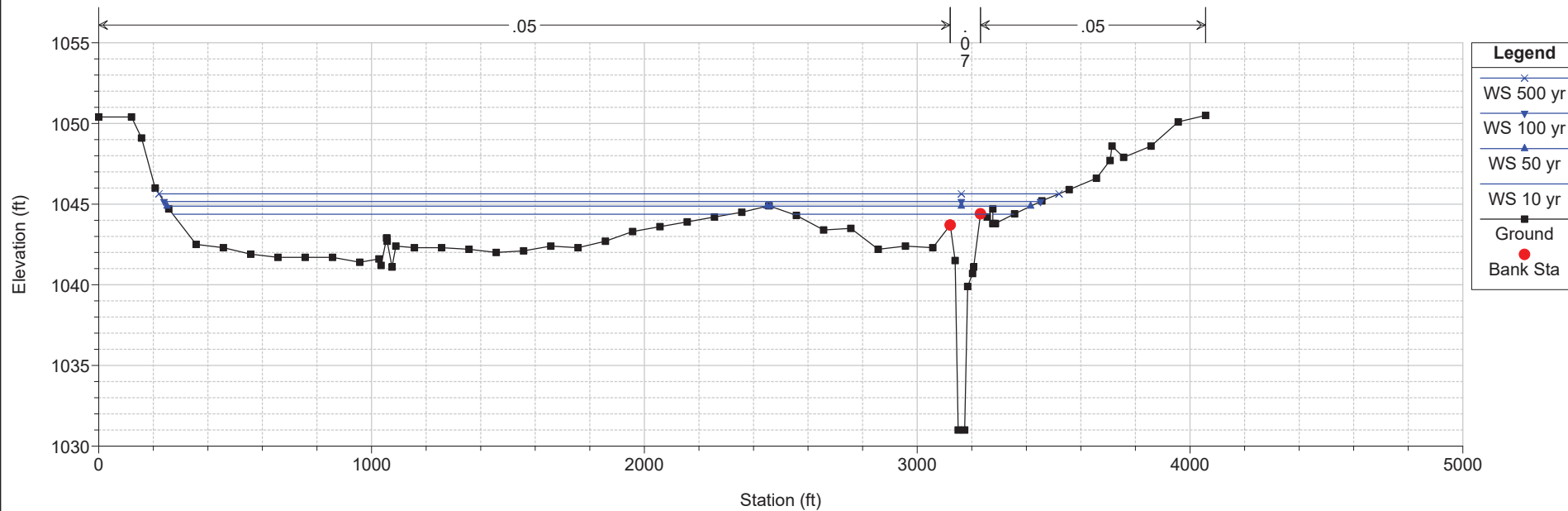
RS = 2.547



# Knox\_Farm Plan: As-Built Model 8/5/2024

Geom: As-Built Geometry Flow: FIS Flows Corrected Multi

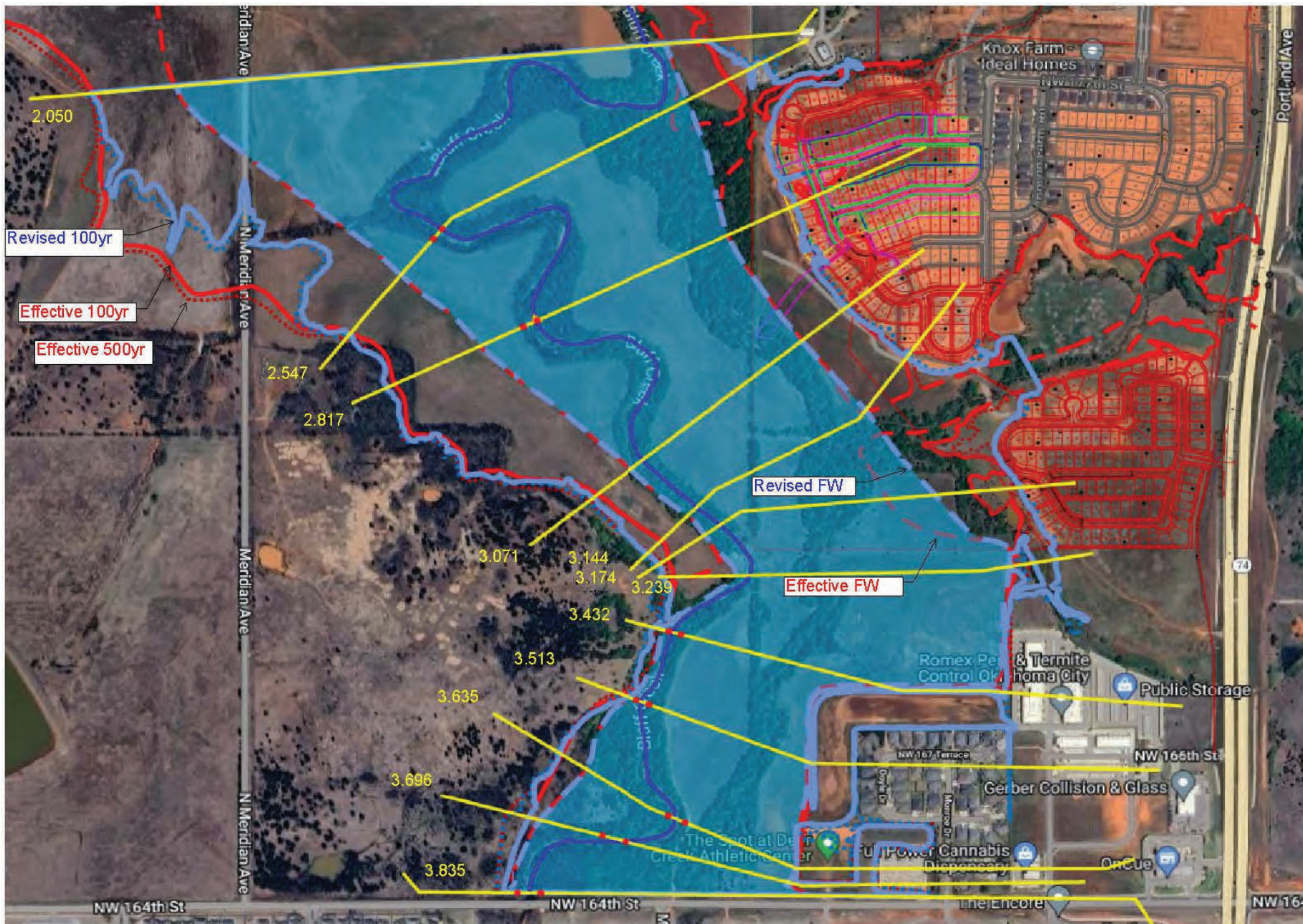
RS = 2.050



# **APPENDIX ‘E’**

**HEC-RAS model**

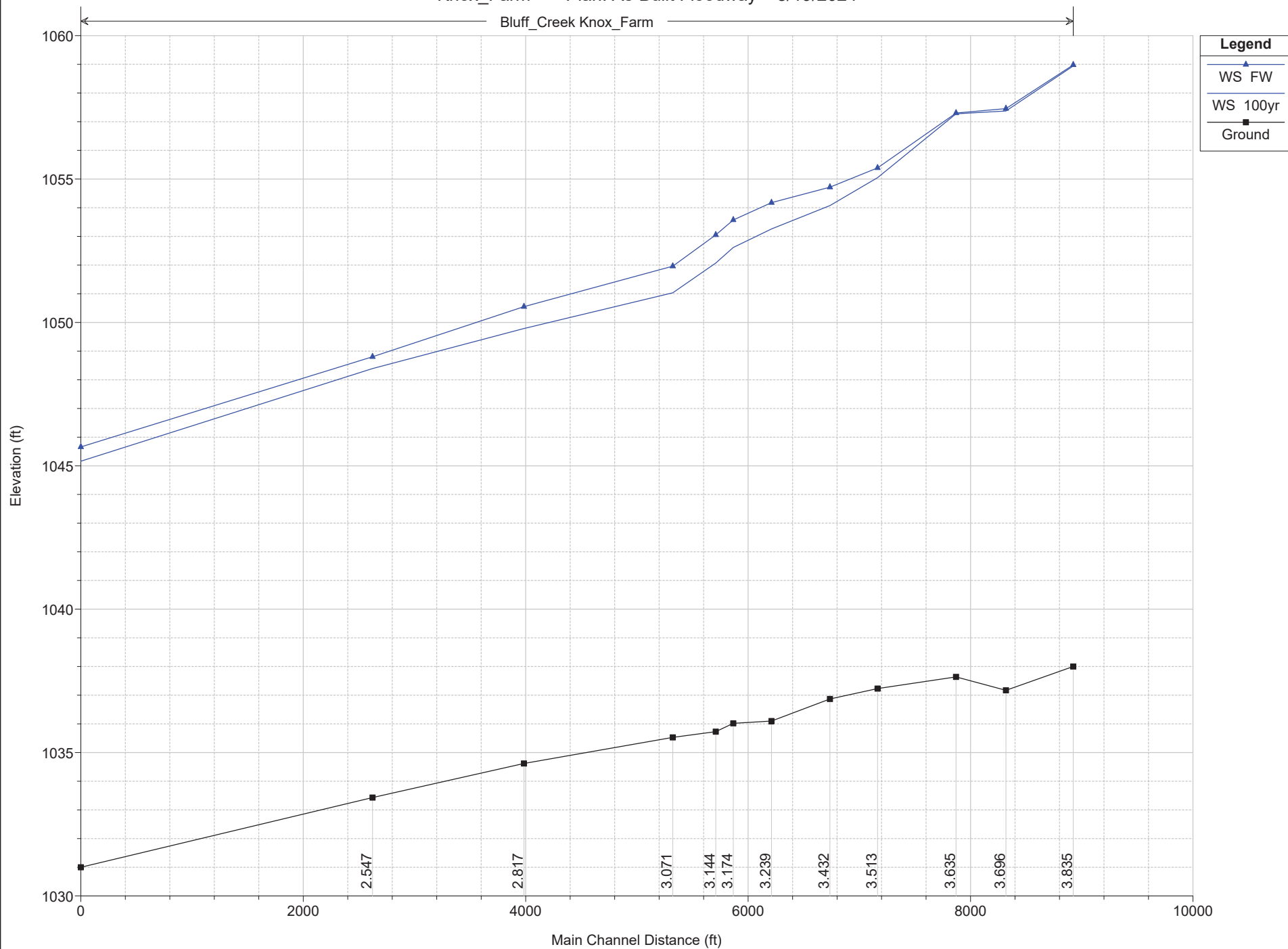
**AS-BUILT Floodway**





# Knox\_Farm Plan: As-Built Floodway 8/19/2024

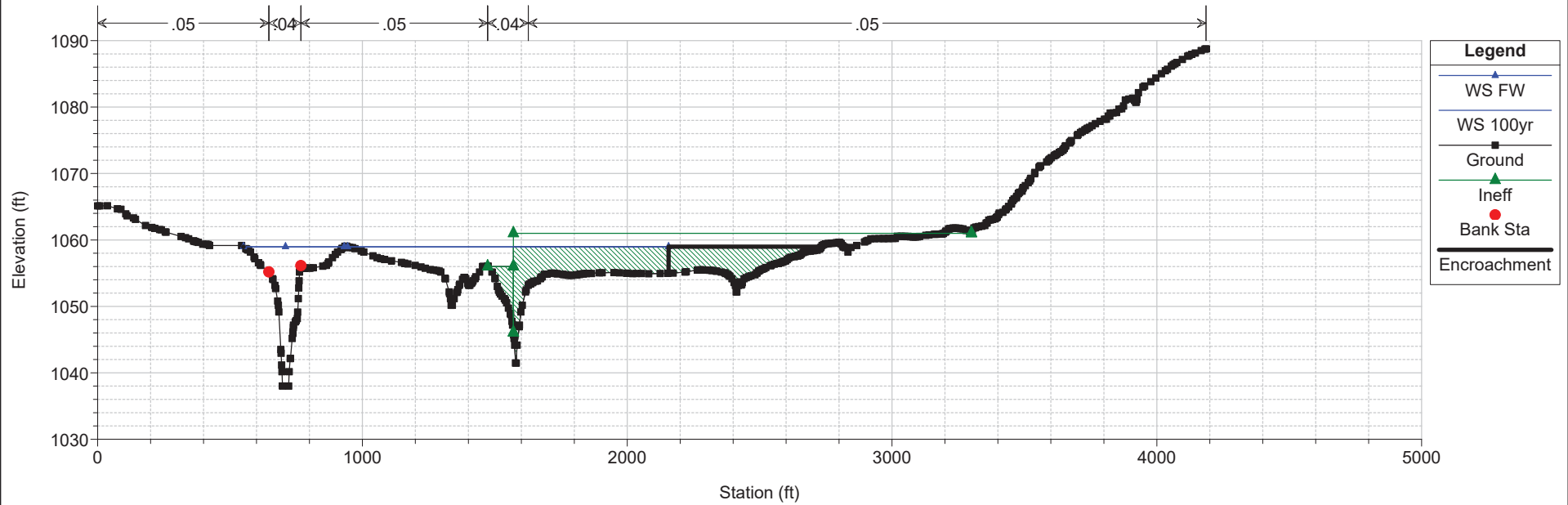
Bluff\_Creek Knox\_Farm



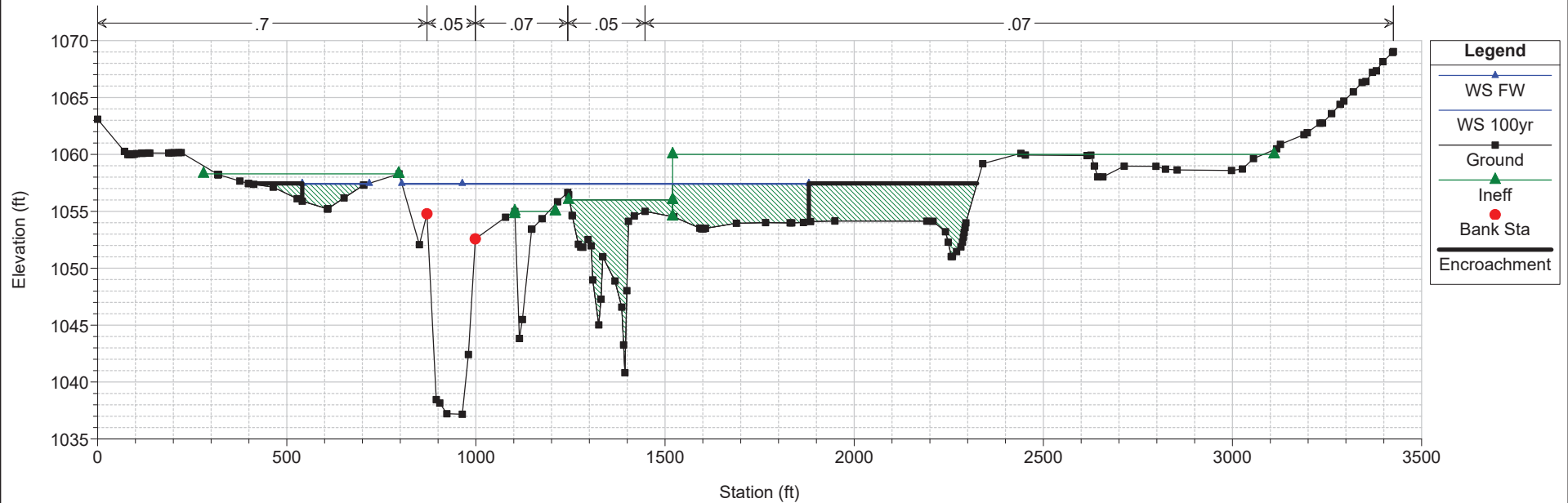
HEC-RAS Plan: AsBltFW River: Bluff\_Creek Reach: Knox\_Farm

Reach	River Sta	Profile	W.S. Elev (ft)	Prof Delta WS (ft)	E.G. Elev (ft)	Top Wdth Act (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Enc Sta L (ft)	Ch Sta L (ft)	Ch Sta R (ft)	Enc Sta R (ft)
Knox_Farm	3.835	100yr	1058.94		1059.87	1003.54	417.31	13535.60	7347.08		646.59	767.75	
Knox_Farm	3.835	FW	1058.98	0.04	1059.89	1006.36	426.50	13463.99	7409.51	551.04	646.59	767.75	2156.00
Knox_Farm	3.696	100yr	1057.38		1058.39	715.35	42.18	18218.09	3039.73		870.65	998.36	
Knox_Farm	3.696	FW	1057.46	0.08	1058.44	716.06	43.18	18117.11	3139.71	541.00	870.65	998.36	1880.00
Knox_Farm	3.635	100yr	1057.28		1057.55	1498.00	2315.11	7581.27	11403.61		1081.19	1177.88	
Knox_Farm	3.635	FW	1057.30	0.02	1057.61	1234.00	1918.12	7850.15	11531.73	572.00	1081.19	1177.88	1806.00
Knox_Farm	3.513	100yr	1055.05		1056.39	1018.22	46.68	11826.39	9426.93		340.46	412.47	
Knox_Farm	3.513	FW	1055.39	0.34	1056.49	999.00	69.02	11229.58	10001.40	299.00	340.46	412.47	1298.00
Knox_Farm	3.432	100yr	1054.08		1054.60	1308.29	134.46	7013.98	14151.57		242.97	309.44	
Knox_Farm	3.432	FW	1054.72	0.64	1055.10	1177.00	65.39	6399.80	14834.81	219.00	242.97	309.44	1396.00
Knox_Farm	3.239	100yr	1053.26		1053.47	1796.89	649.27	5579.74	16711.00		425.70	506.35	
Knox_Farm	3.239	FW	1054.18	0.92	1054.33	1427.00	14.87	5088.18	17836.95	413.00	425.70	506.35	1840.00
Knox_Farm	3.174	100yr	1052.61		1052.95	1975.53	570.38	6867.14	15502.48		478.03	549.19	
Knox_Farm	3.174	FW	1053.57	0.96	1053.93	1244.00	115.64	7270.22	15554.14	423.00	478.03	549.19	1667.00
Knox_Farm	3.144	100yr	1052.07		1052.35	1775.54	621.79	5252.43	17065.79		440.63	506.39	
Knox_Farm	3.144	FW	1053.05	0.98	1053.38	1110.00	8.60	5882.15	17049.25	430.00	440.63	506.39	1540.00
Knox_Farm	3.071	100yr	1051.03		1051.45	1582.23	960.77	6600.25	15378.98		696.71	775.11	
Knox_Farm	3.071	FW	1051.96	0.93	1052.47	1149.00	4.73	7681.15	15254.13	680.00	696.71	775.11	1829.00
Knox_Farm	2.817	100yr	1049.79		1049.93	2356.29	4902.73	3966.58	14070.69		991.19	1070.22	
Knox_Farm	2.817	FW	1050.55	0.77	1050.79	1430.00	1954.54	4874.25	16111.21	746.00	991.19	1070.22	2176.00
Knox_Farm	2.547	100yr	1048.39		1048.62	2651.52	4484.62	4814.89	13640.49		939.62	1012.89	
Knox_Farm	2.547	FW	1048.80	0.41	1049.14	1815.00	2126.98	5670.15	15142.88	677.00	939.62	1012.89	2492.00
Knox_Farm	2.050	100yr	1045.16		1045.30	3212.71	19750.78	2982.38	206.83		3121.00	3232.00	
Knox_Farm	2.050	FW	1045.66	0.50	1045.80	2566.00	19740.08	3052.29	147.63	724.00	3121.00	3232.00	3290.00

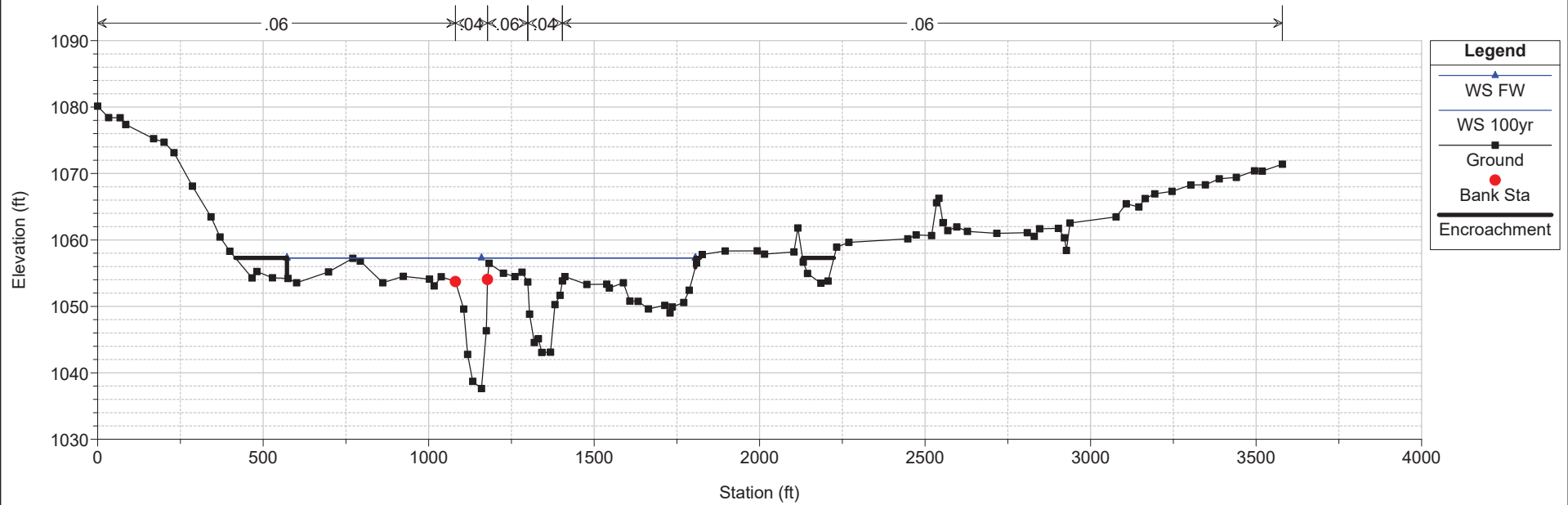
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.835



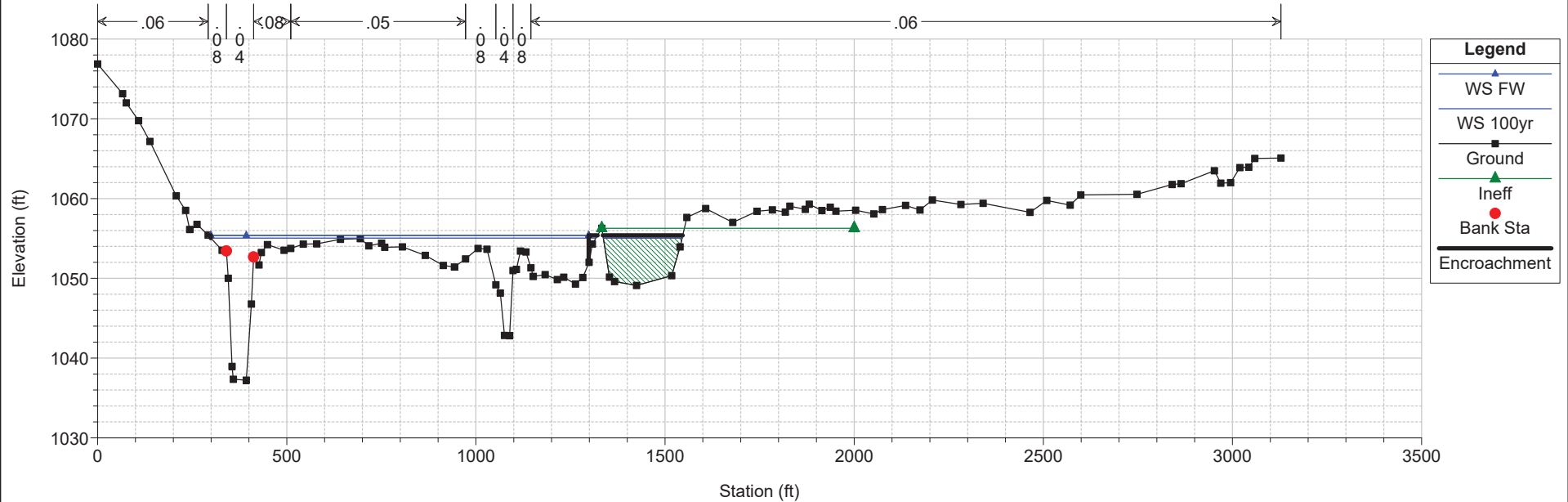
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.696



Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.635

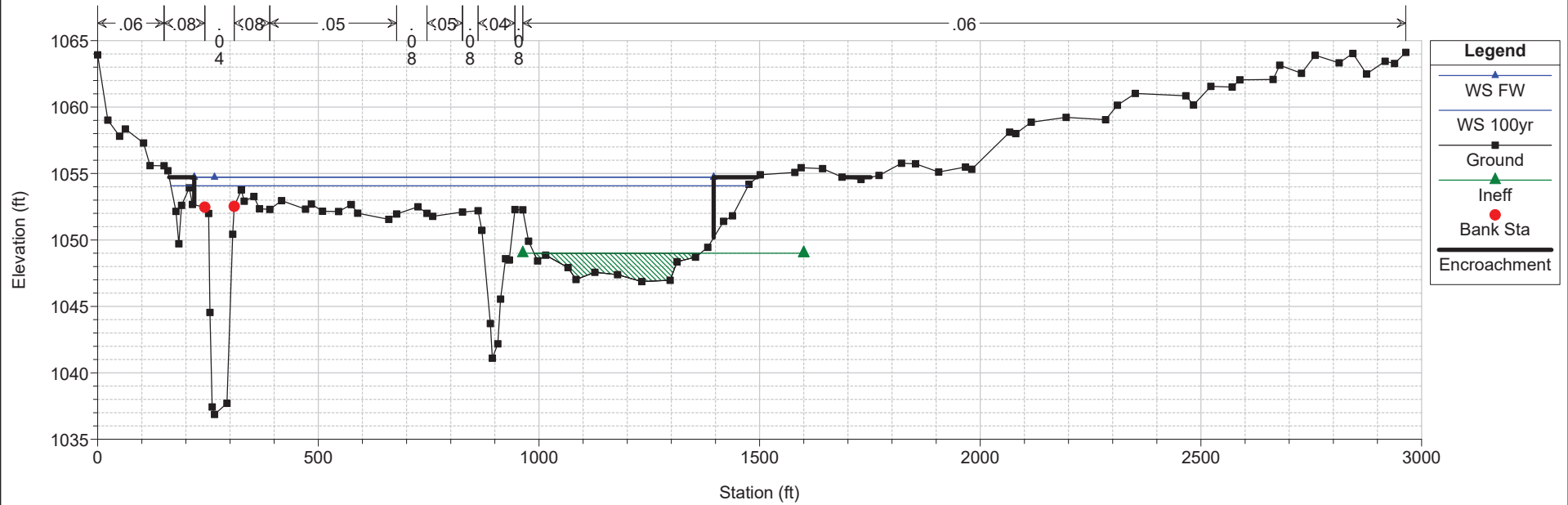


Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.513

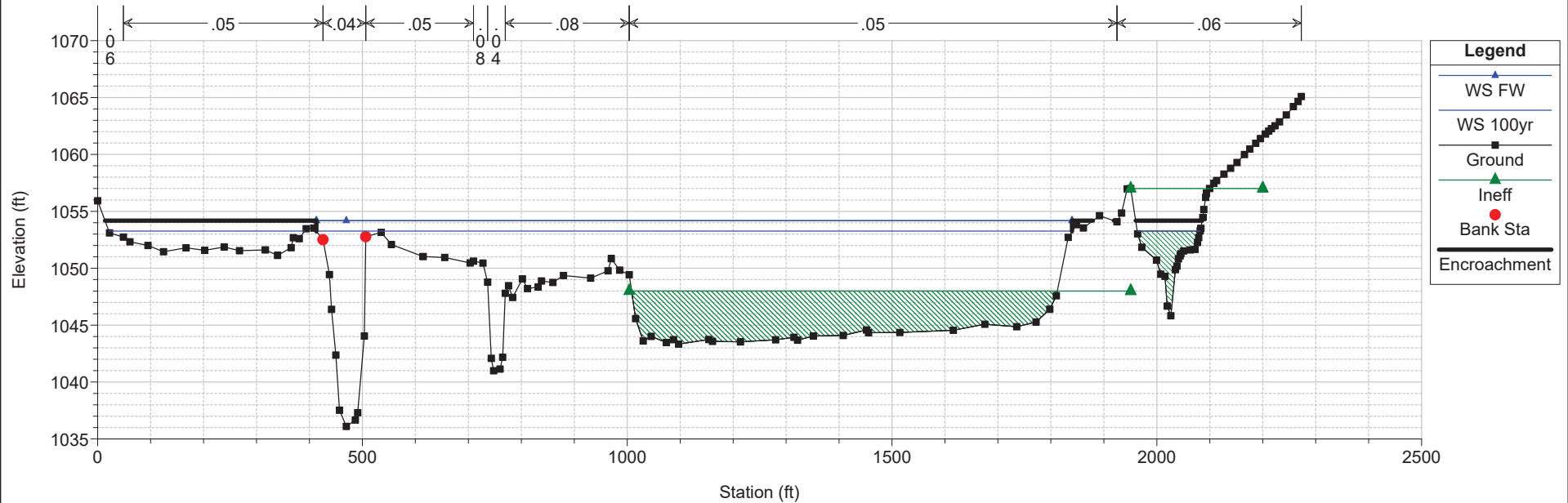




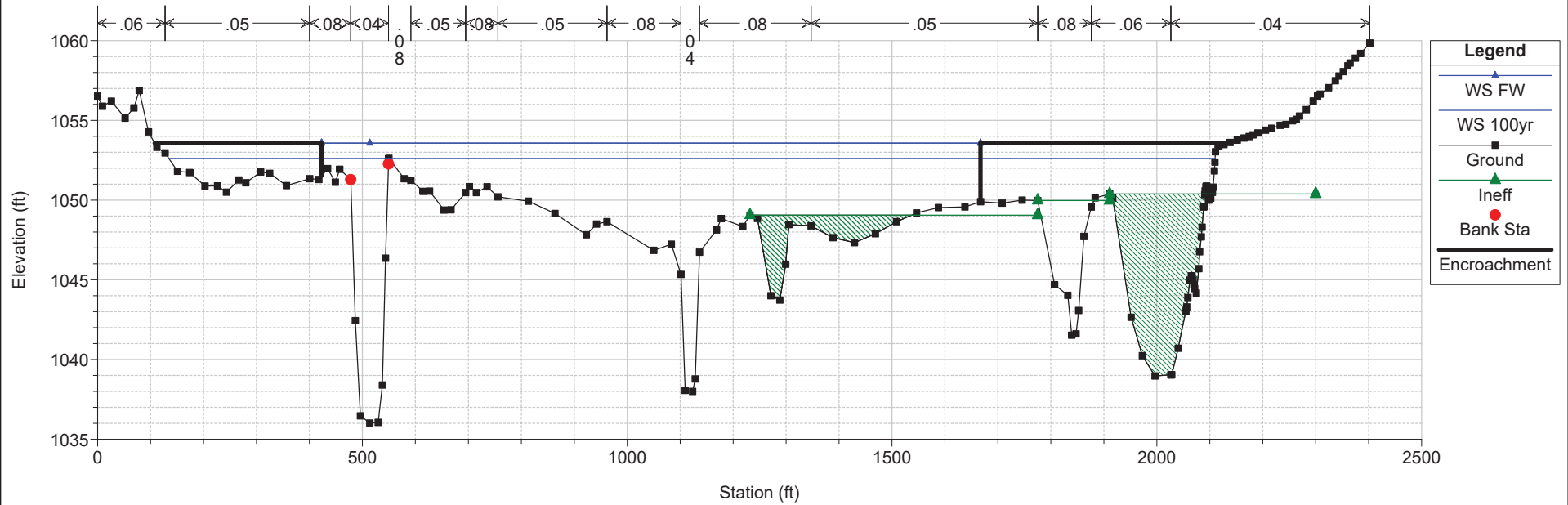
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.432



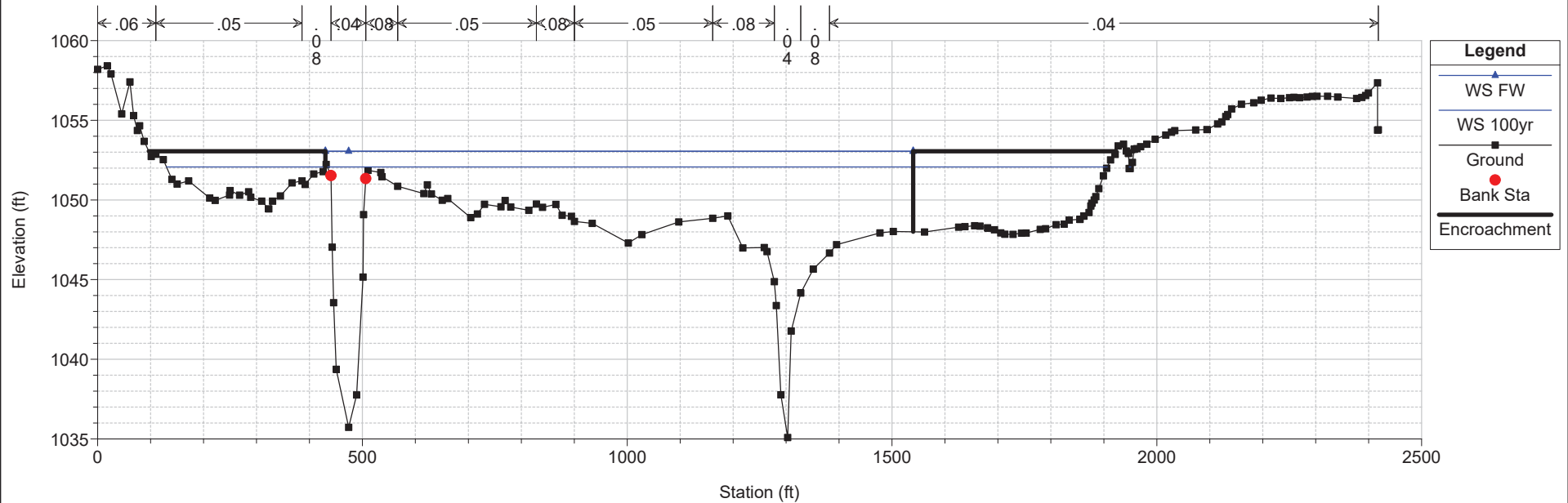
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.239



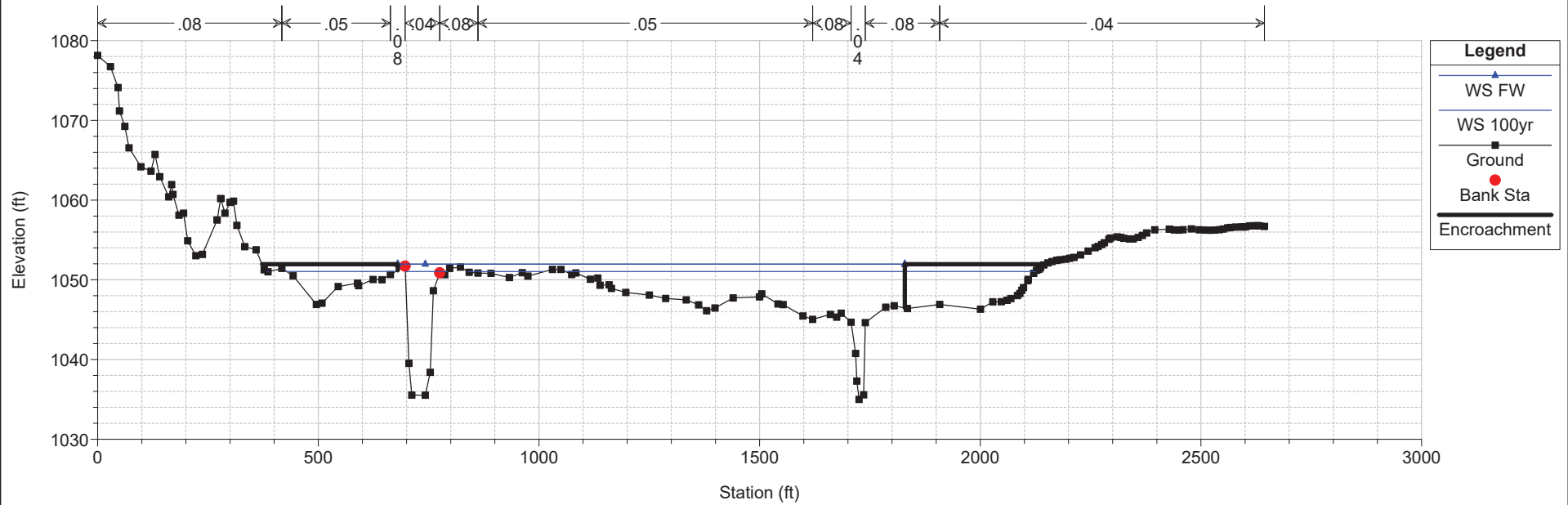
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.174



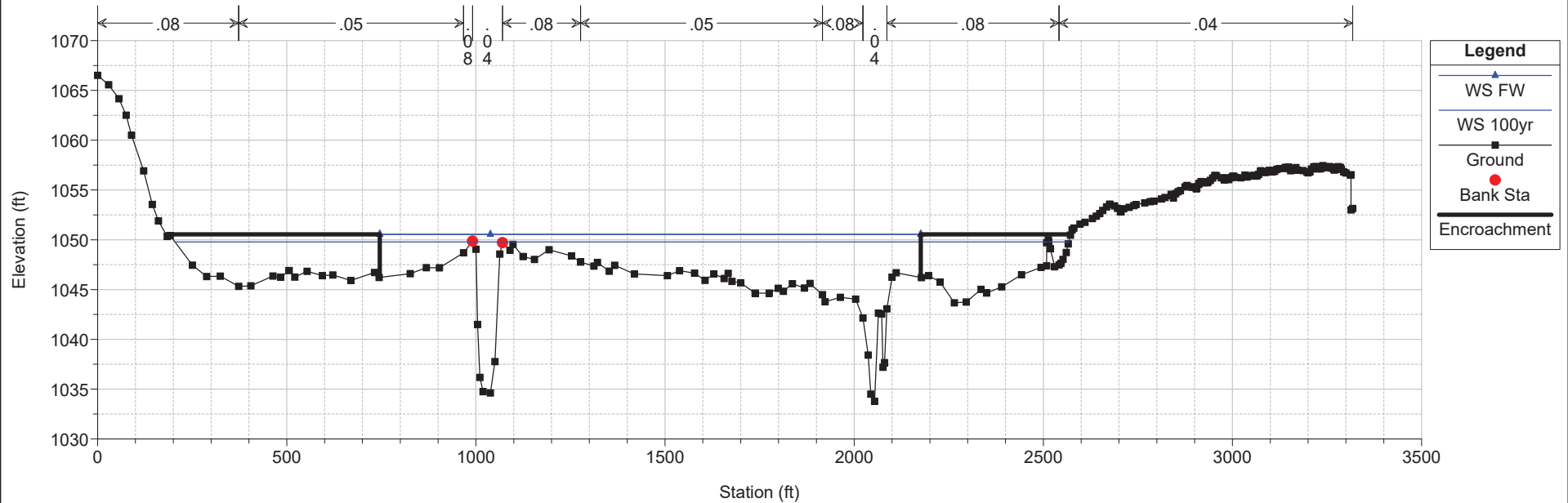
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.144



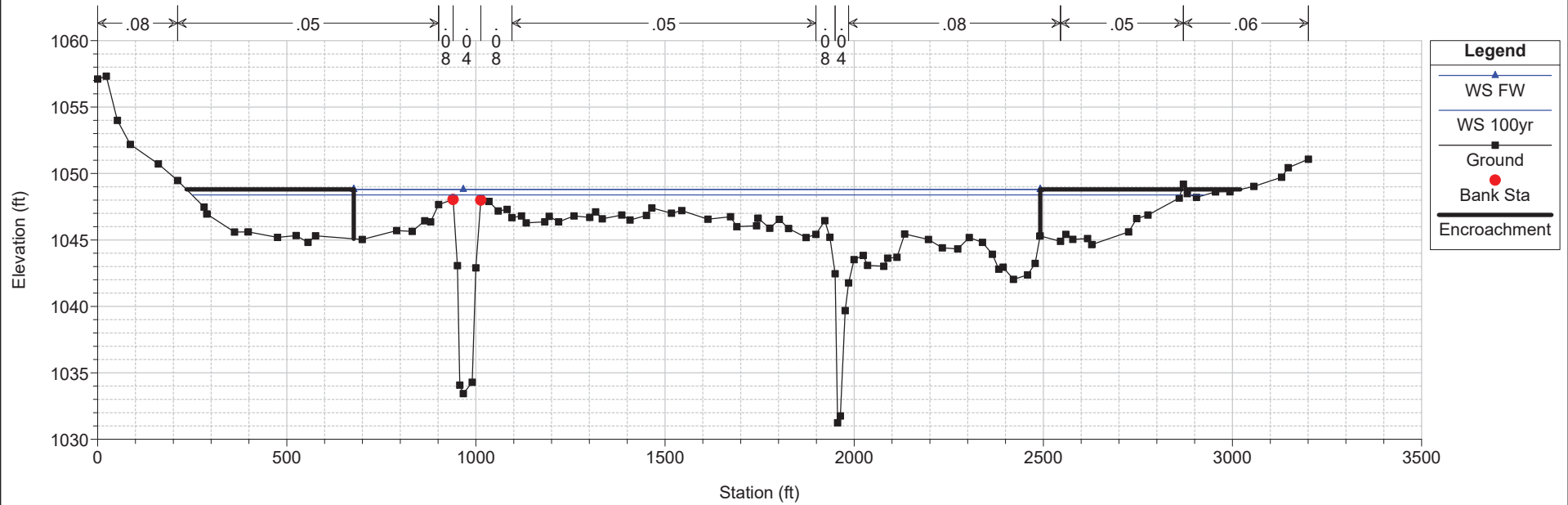
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 3.071



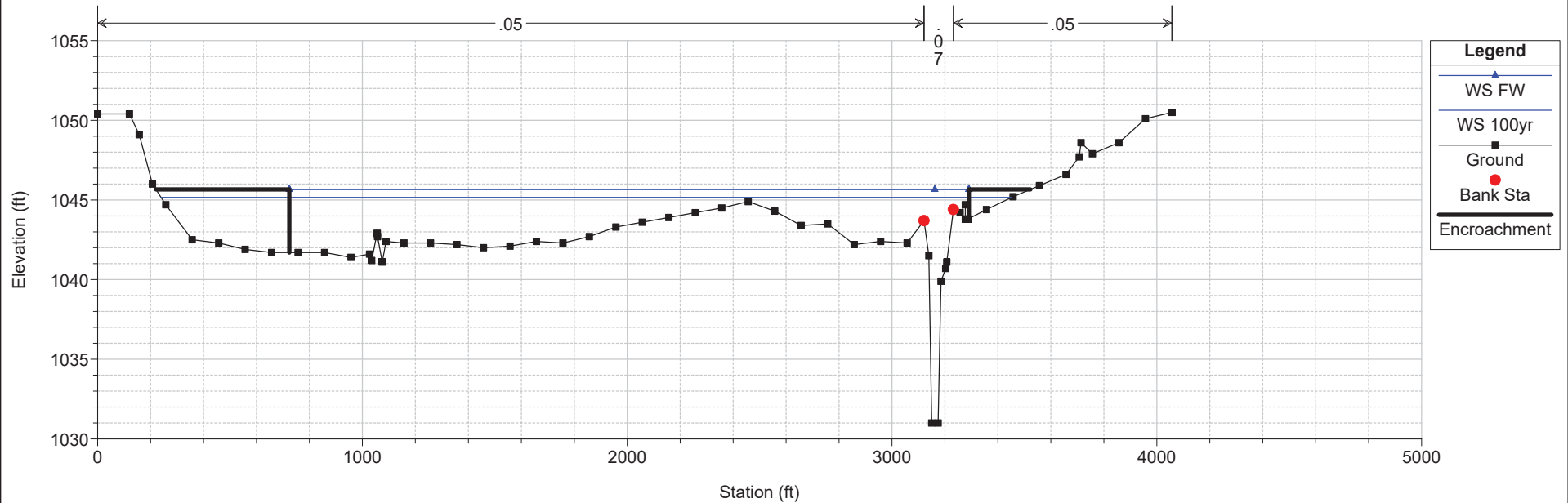
Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 2.817



Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 2.547



Knox\_Farm Plan: As-Built Floodway 8/19/2024  
Geom: As-Built Geometry Flow: FIS Flows Corrected Effective FW  
RS = 2.050



# **APPENDIX ‘F’**

## **FEMA Forms**



DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
**OVERVIEW & CONCURRENCE FORM**

OMB Control Number: 1660-0016  
Expiration: 1/31/2024

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472 , Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

**PRIVACY ACT STATEMENT**

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

**A. REQUESTED RESPONSE FROM DHS-FEMA**

This request is for a (check one):

☐ **CLOMR:** A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72). All CLOMRs require documentation of compliance with the Endangered Species Act. Refer to the Instructions for details.

☒ **LOMR:** A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72).

**B. OVERVIEW**

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
405378	City of Oklahoma City	OK	40109C	0040H	12/18/2009

2. a. Flooding Source:

b. Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH)  
☐ Alluvial Fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier:

4. FEMA zone designations (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

a. Effective:

b. Revised:



5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

- ☒ Physical Change    ☐ Improved Methodology/Data    ☐ Regulatory Floodway Revision    ☐ Base Map Changes  
☐ Coastal Analysis    ☒ Hydraulic Analysis    ☐ Hydrologic Analysis    ☐ Corrections  
☐ Weir-Dam Changes    ☐ Levee Certification    ☐ Alluvial Fan Analysis    ☐ Natural Changes  
☒ New Topographic Data    ☐ Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

- Structures:    ☐ Channelization    ☐ Levee/Floodwall    ☐ Bridge/Culvert  
☐ Dam    ☒ Fill    ☐ Other (Attach Description)

6. ☐ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included?    ☒ Yes    Fee amount: \$ 8,000  
☐ No, Attach Explanation

- Please see the DHS-FEMA Web site at <http://www.fema.gov/forms-documents-and-software/flood-map-related-fees> for Fee Amounts and Exemptions.

D. SIGNATURES

1. REQUESTOR'S SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: <u>HAYDEN WELCH</u>	Company: <u>IDEAL HOMES OF NORMAN</u>	
Mailing Address: <u>1320 N. PORTER AVE, NORMAN, OK 73071</u>	Daytime Telephone: <u>405-364-1152</u>	Fax No.:
	E-mail Address: <u>HWELCH@IDEAL-HOMES.COM</u>	
	Date: <u>09/09/2024</u>	

Signature of Requestor (required): Hayden Welch

2. COMMUNITY CONCURRENCE

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: <u>Debbie Miller, P.E., Director of Public Works / City Engineer</u>		
Mailing Address: <u>420 W. Main Street, 7th Floor Oklahoma City, OK 73102</u>	Community Name: <u>City of Oklahoma City</u>	
	Daytime Telephone: <u>405.297.2581</u>	Fax No.:
	E-mail Address: <u>debbie.miller@okc.gov</u>	
Community Official's Signature (required): <u>Debbie Miller</u>		Date: <u>12/09/2024</u>



**3. CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR**

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Marc R. Utley, P.E., CFM		License No.: 18202	Expiration Date: 03/31/2025
Company Name: Utley & Associates LLC		Mailing Address: PO BOX 14249 Oklahoma City, OK 73113	
Telephone No.: 405.620.6441	Fax No.: n/a		
E-mail Address: marc@utleyengr.com			
Signature: <i>Marc R. Utley</i>			Date: 8/19/24

Ensure the forms that are appropriate to your revision request are included in your submittal.

**Form Name and (Number)****Required If...**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations   |
| <input type="checkbox"/> Riverine Structures Form (Form 3)                          | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| <input type="checkbox"/> Coastal Analysis Form (Form 4)                             | New or revised coastal elevations   |
| <input type="checkbox"/> Coastal Structures Form (Form 5)                           | Addition/revision of coastal structure  |
| <input type="checkbox"/> Alluvial Fan Flooding Form (Form 6)                        | Flood control measures on alluvial fans   |



DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
**RIVERINE HYDROLOGY & HYDRAULICS FORM (FORM 2)**

OMB Control Number: 1660-0016  
Expiration: 1/31/2024

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

**PRIVACY ACT STATEMENT**

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: Bluff Creek

**Note:** Fill out one form for each flooding source studied

**A. HYDROLOGY**

1. Reason for New Hydrologic Analysis (check all that apply):

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Not revised (skip to section B) | <input type="checkbox"/> No existing analysis        | <input type="checkbox"/> Improved data                           |
| <input type="checkbox"/> Alternative methodology                    | <input type="checkbox"/> Proposed Conditions (CLOMR) | <input type="checkbox"/> Changed physical condition of watershed |

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
----------	-------------------------	---------------------	---------------

3. Methodology for New Hydrologic Analysis (check all that apply)

- ☐ Precipitation/Runoff Model → Specify Model: \_\_\_\_\_ Duration: \_\_\_\_\_ Rainfall Amount: \_\_\_\_\_
- ☐ Statistical Analysis of Gage Records
- ☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

4. HEC-RAS File Description\*\*:

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? ☐ Yes ☐ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation.

## B. HYDRAULICS

### 1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevation (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	600' US NW 178th Street	2.050	1045.1	1045.16
Upstream Limit*	DS Face NW 164th Street	3.835	1059.1	1058.94

\*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

### 2. Hydraulic Method/Model Used: HEC-RAS version 6.5

☒ Steady State    ☐ Unsteady State    ☒ One-Dimensional    ☐ Two-Dimensional

### 3. Pre-Submittal Review of Hydraulic Models\*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

### 4. HEC-RAS File Description\*\*:

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
		DEff		DEffFW	
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
		CEff		CEffFW	
Existing or Pre-Project Conditions Model	File Name:	Plan Name:	File Name:	Plan Name:	
Revised or Post-Project Conditions Model	File Name:	Plan Name:	File Name:	Plan Name:	
		AsBlt		AsBltFW	
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

\* For details, refer to the corresponding section of the instructions.

\*\*See instructions for information about modeling other than HEC-RAS. ☒ Digital Models Submitted? (Required)

## C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☒ Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information:

Source: On Site As-Built Survey

Date: 12/11/2023

Vertical Datum: NAVD88

Spatial Projection: HARN/OK.OK-NF

Accuracy: 3rd Order or better

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a **copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

☒ Annotated FIRM and/or FBFM (Required)

#### D. COMMON REGULATORY REQUIREMENTS\*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) or Special Flood Hazard Areas (SFHAs) increase compared to the effective BFEs? ☐ Yes ☒ No

If Yes, please attach **proof of property owner notification**. Examples of property owner notifications can be found in the MT-2 Form 2 Instructions.

2. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:

- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
- The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.

3. Does the request involve the placement or proposed placement of fill? ☒ Yes ☐ No

If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

4. Does the request involve the placement or proposed placement of fill? ☐ Yes ☒ No

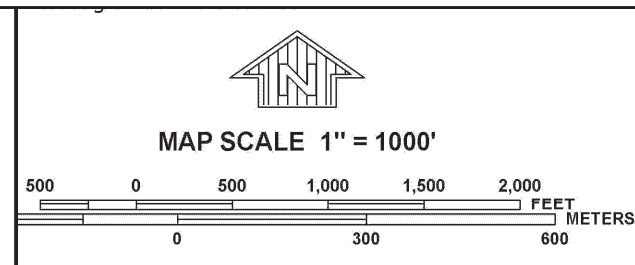
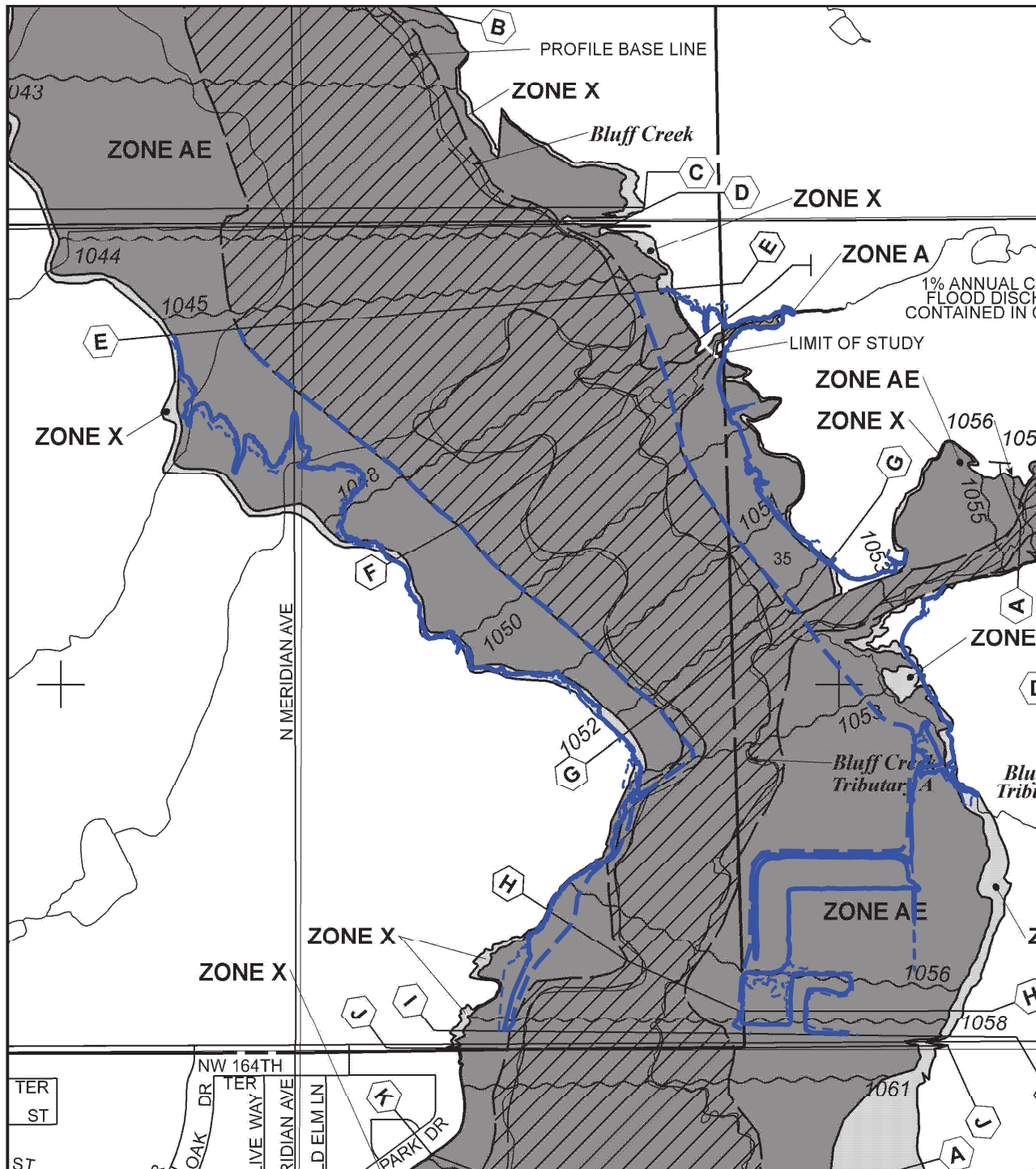
If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.

5. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA). For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

# **APPENDIX ‘G’**

## **Exhibits**





**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0040H**

## FIRM


**FLOOD INSURANCE RATE MAP**  
**OKLAHOMA COUNTY,**  
**OKLAHOMA**  
**AND INCORPORATED AREAS**

**PANEL 40 OF 370**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OKLAHOMA CITY, CITY OF	405378	0040	H
OKLAHOMA COUNTY	400466	0040	H
UNINCORPORATED AREAS			

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



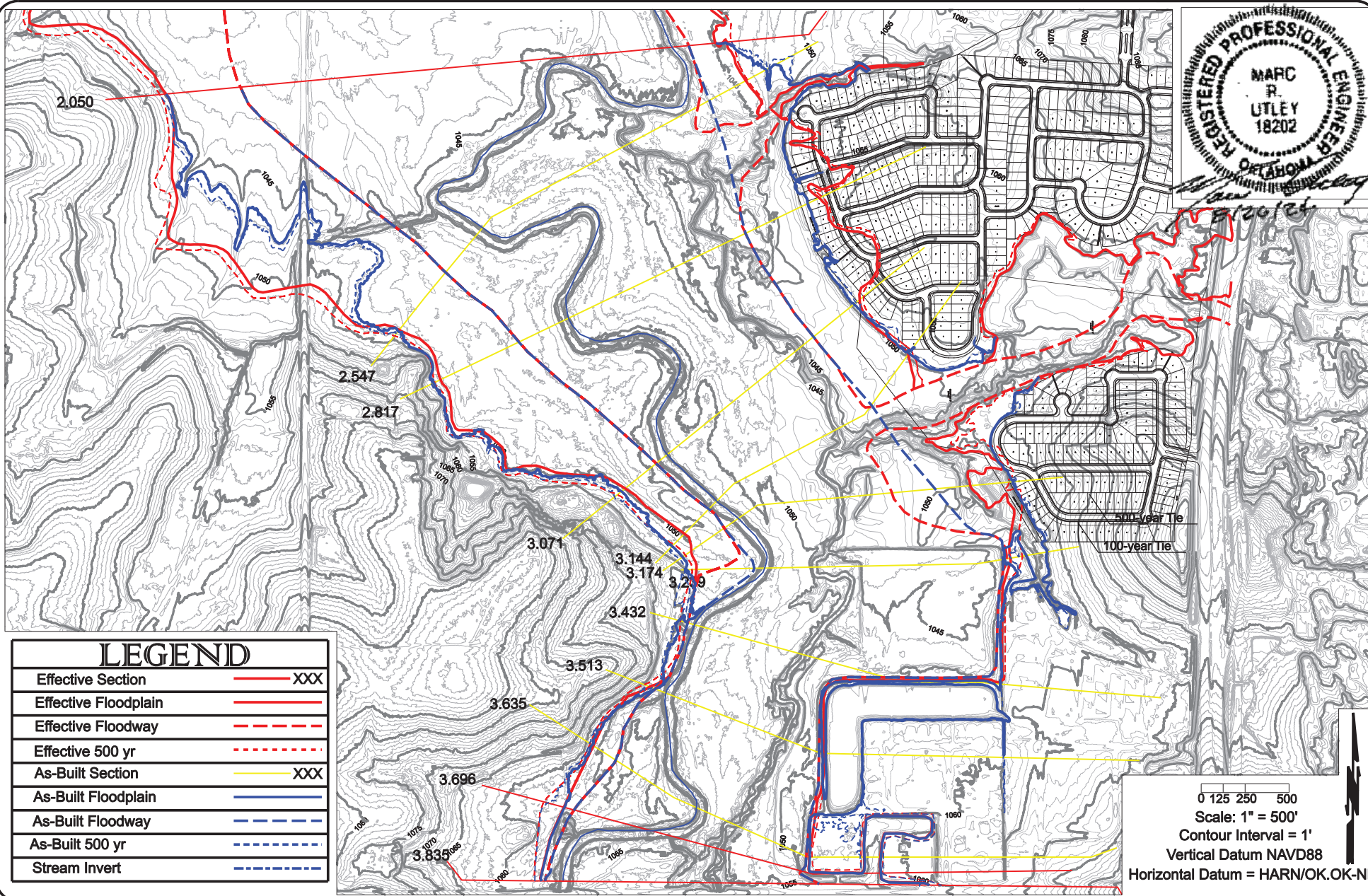
**MAP NUMBER**  
**40109C0040H**

**REVISED DATE**  
**DECEMBER 18, 2009**

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





**Knox Farm LOMR**  
 City of Oklahoma City, Oklahoma

**Utley & Associates LLC**  
 E.M. No. 4002  
 Exp. 04/30/2025







**Case No: SPUD-1718**

**Applicant: Knox Farm Land Fund, LLC**

**Existing Zoning: PUD-1768**

**Location: 4036 NW 178th St.**



Aerial Photo from 2/2022



The City of  
OKLAHOMA CITY

## Simplified Planned Unit Development



0 200 400  
Feet