APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): November 9, 2021

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: SWT-2021-00549

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Oklahoma County/parish/borough: Mayes City: Pryor
Center coordinates of site (lat/long in degree decimal format): Lat. 36.2180° **N**, Long. -95.2902° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Chouteau Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Neosho River
Name of watershed or Hydrologic Unit Code (HUC): 1107020907
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 25 October 2021
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are and are not** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 9,410 linear feet: 4.2 width (ft) and/or 1.54 acres.
      Wetlands: 0.78 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **There are two isolated wetlands (EW-8 and EW-9) that lack adjacency or a link to navigable waters or interstate commerce**.

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 36.2 **square miles**
Drainage area: 415 **acres**
Average annual rainfall: 45.8 inches
Average annual snowfall: 8.9 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **5-10** river miles from TNW.
Project waters are **1-2** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1-2** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: N/A.

Identify flow route to TNW[5]: The unnamed tributaries of Chouteau Creek, IS-1 and IS-2 flow into Chouteau Creek which flows into the Neosho River, a Traditionally Navigable Water.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 11.94 feet
Average depth: 1.5 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: Herbaceous 65%	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The banks of the ephemeral channels are relatively stable, sloughing was identified during the consultant's field investigation in various segments throughout. .
Presence of run/riffle/pool complexes. Explain: N/A.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-3 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: IS-1 and IS-2 exhibit intermittent, seasonal flow. The tributaries receives flow from several ephemeral channels identified as ES-1, ES-2, ES-3, ES-4, ES-5, ES-6, ES-7, ES-8, ES-9, ES-10, and ES-11 and adjacent and abutting wetlands located upstream. The tributaries are fed by a drainage area of approximately 415 acres.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: Surface flow is typically confined to the stream channel of IS-1 and IS-2. Stream flow may exceed the banks during periods of high precipitation. The ephemeral channels listed above may experience flow exceeding the banks during periods of heavy rainfall.

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☒ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☒ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: RPW'S IS-1 and IS-2 and Non-RPW are located in a densely vegetated area, downstream of ephemeral channels ES-1, ES-2, ES-3, ES-4, ES-5, ES-6, ES-7, ES-8, ES-9, ES-10, and ES-11, as well as adjacent and abutting forested and emergent wetlands. The aquatic resources provide sediment filtering and allow nutrient recycling to occur.
Identify specific pollutants, if known: Unknown.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): The tributary system is located in a densely forested area consisting of herbaceous understory cover and a mature canopy of native tree species. Riparian corridor width ranges from 150 linear feet to several thousand linear feet.

☐ Wetland fringe. Characteristics: .

☐ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: Frogs, crayfish, and other macro invertebrates likley inhabit the stream channels identified within the review area.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:0.799 acres

Wetland type. Explain:The review area consists of multiple forested and emergent wetlands and one scrub-shrub wetland within the review area. FW-1 and FW-2 are adjacent to IS-1. EW-1, EW-2, and EW-3 form a wetland complex near the southwestern property boundary directly abutting both sides of IS-1. FS-4 is located adjacent to IS-1. SS-1 is connected to IS-1 by an ephemeral channel along the western boundary of the review area. EW-5 is adjacent to an ephemeral channel which becomes IS-2 downstream. EW-6 is abutting an ephemeral channel which contributes downstream flow to the RPW. EW-7 is located on channel of two ephemeral channels which contribute flow to an RPW. FW-3 is located on channel of an ephemeral stream that contributes flow to the RPW within the review area. Each adjacent or abutting wetland identified in this paragraph was determined to exhibit hydric soils, hydrophtyic vegetation, and hydrology.

Wetland quality. Explain: The site is mostly forested with no prior development. The site has not been effected by cattle grazing or agricultural activity. Wetland quality is presumed to be moderate and fully functioning.

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain: Forested wetlands FW-1 and FW-2 each exhibited characteristics of recent inundation at the time the delineation was completed. FW-1 and FW-2 likely lack a continuous, direct hydrologic connection to intermittent stream IS-2. FW-1 and FW-2 are adjacent wetlands that provide an ecological connectivity to the RPW. Emergent wetlands EW-1, EW-2, and EW-3 directly abut intermittent stream IS-1 and each exhibited characteristics of recent inundation. EW-1, EW-2, and EW-3, likely experience ephemeral flow during periods of heavy perciptation at times when flows of IS-1 exceed its ordinary high water mark. EW-4 is a depressional area near the low-elevation fringe of IS-2. Though not directly abutting IS-2, EW-4 likely contributes ephemeral flow during periods of heavy precipitation and when IS-2 stream flow exceeds its banks. In addition to the hydrologic connection of adjacent wetland EW-4, an ecological connection likely exists as well. Like EW-4, EW-5 is a depressional wetland located approximately 45 feet from Non-RPW ES-11. EW-5 likely contributes ephemeral flow during periods of heavy precipitation. In addition to the infrequent. EW-6 directly abuts ES-11 and exhibited signs of recent inundation. EW-7 is located on-channel of Non-RPWs ES-8 and ES-12. EW-7 contributes a direct hydrologic connection downstream during and immediately following rain events. FW-3 exhibits a direct hydrologic connect to Non-RPW ES-9 which contributes flow to the downstream RPW. SS-1 exhibits a direct hydrologic connection to Non-RPW ES-1 which flows into IS-1, an RPW.

Surface flow is**: Discrete**

Characteristics: Surface flow is likely prevalent during and immediately following a rain event. Flow from the wetlands discussed above likely contribute to the RPW during high flow events.

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: EW-4 likely contributes a discrete hydrologic connection during precipitation events.

☒ Ecological connection. Explain: FW-1 and FW-2 are located approximately 50-75 feet from the right descending bank of IS-1. During periods of inundation, frogs, crayfish, and other macro invertebrates likely inhabit the forested wetlands. During periods of dry weather these aquatic species may relocate to areas within or near IS-1 given the close proximity. EW-5 is located approximately 45 feed from the right descending bank of Non-RPW ES-11. ES-11 flows directly into IS-2, an RPW. EW-5 likely serves as habitat for frogs, crayfish, and other macro invertebrates during periods of inundation.

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **5-10** river miles from TNW.

Project waters are **1-2** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: The wetlands identified above each exhibited characteristics of recent inundation at the time of the field investigation.

Identify specific pollutants, if known: Unknown.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): Each of the wetlands identified above are located within a heavily forested area. Emergent wetlands SS-1 is located in an area that has previously been grubbed of vegetation. EW-1 through EW-4 are located in areas along the intermittent stream channel. The riparian buffer of FW-1 and FW-2 ranges from approximately 30 feet along the western boundary to approximately 40 to 60 feet on the eastern side before meeting IS-1. EW-1, EW-2, and EW-3, EW-5, EW-6, EW-7, and FW-3 are located in a heavily forested area.

☒ Vegetation type/percent cover. Explain: 75-85% cover consisting of densely vegetated herbeaceous understory with many native tree species creating canopy in the mature forest making up the project area.

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: The wetlands identified above likely serve as wildlife habitat. Frogs, crayfish, and other macro invertebrates likely inhabit the identified wetlands within the project boundary.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **6**

Approximately (0.799) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y	0.035	N	0.002
Y	0.032	N	0.029
Y	0.016	N	0.108
N	0.091	Y	0.024
Y	0.292	Y	0.076
Y	0.094		

Summarize overall biological, chemical and physical functions being performed: The eleven wetlands identified above consist of FW-1, FW-2, FW-3, EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, EW-7, and SS-1 which are located within the watershed of the jurisdictional determination area and adjacent/abutting an RPW or Non-RPW within the proposed project area, within the catchment. The wetlands provide habitat for wildlife within the riparian corridor of the subject streams. They also provides limited flood storage and limited runoff control.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: The unnamed tributaries of Neosho Creek, ES-2, ES-3, ES-4, and ES-5 contribute to the transport of dissolved and suspended organic materials (e.g. woody debris and leaf fragments) from terrestrial habitats vital to supporting food webs in downstream waters. This was determined by the OHWM indicators, adjacent riparian area, and observation of organic material within the stream channel. The same ability to convey dissolved and suspended organic materials also results in the potential to carry environmental pollutants (or nutrients in overabundance) to navigable waters. For example, “stream channels have a natural dendritic design that has an intrinsic role in transporting various pollutants from widely dispersed upstream sources and concentrating them in downstream waters. Hyporheic zones of streams also play a key role in nitrogen transformations (uptake and cycling) and permanent removal (i.e., denitrification) as nitrogen is exposed to reactive benthic surfaces during transport (Alexander et al., 2007.) The adjacent riparian area also assists in maintenance of natural stream temperatures, trapping and filtering potential pollutants, slowing/storing flood waters, and helps maintain water quality through nutrient and contaminant uptake. “The influence of headwaters on downstream systems emerges from their attributes that meet unique habitat requirements of residents and migrants by: offering a refuge from temperature and flow extremes, competitors, predators, and introduced species; serving as a source of colonists; providing spawning sites and rearing areas; being a rich source of food; and creating migration corridors throughout the landscape. Degradation and loss of headwaters and their connectivity to ecosystems downstream threaten the biological integrity of entire river

networks," (Meyer et al., 2007). Additionally, due to the proximity (< 6 miles) to the Neosho River, the 324 lf (ES-2), 102 lf (ES-3), 384 lf (ES-4), and 267 lf (ES-5) linear foot unnamed tributaries, has been determined to have more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of the Neosho River, a TNW.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: The subject ephemeral tributaries ES-1, ES-6, ES-7, ES_8, ES-9, ES-11 and ES-12 each provide storage and filtration during precipitation events for adjacent or on-channel wetlands. It has been determined that the ephemeral non-Relatively Permanent Waters (non-RPWs) possess a hydrologic connectivity to the Neosho River (Traditional Navigable Water) into which it indirectly flows. Hydrologic connectivity refers to the flow that transports organic matter and nutrients, energy, and aquatic organisms throughout the system (Freeman et al. 2007). Evidence of this connection and, consequently, a significant nexus is supported by the observations and scientific literature in the following paragraphs. The non-RPWs consist of ephemeral tributaries with a defined bed and bank. Average onsite dimensions are 2.3 feet wide and 1-2 feet deep. Solid Organic Matter (OM), such as leaves and other detrital material, is processed by a feeding group referred to as "shredders", which includes crayfish, larvae of craneflies, caddisflies, and nymphs of stoneflies. Shredders break down this coarse material, and allow the material to be utilized by a secondary group known as "collectors". Collectors further process the OM and produce dissolved OM and fine particulate matter, which flow downstream. Generally, as the solid OM identified on the subject property is processed and translocated downstream, so are the microorganisms and invertebrates which utilize the material (Smith and Smith 2001). As such, headwater tributaries like this ephemeral streams identified in this paragraph represent the base of the food chain and, therefore, comprise one of the most important components of a watershed (Meyer et al. 2007). That is, the diversity of aquatic fauna in this headwater stream contributes to the biodiversity of the Neosho River by fitting into the complex foodweb of the river basin. Furthermore, the frequency of major rainfall events in the watershed results in pulsating hydrology, which sustains the local waterways, and subsequently, the Neosho River system. This influences the chemistry of the Neosho River basin via the transport of sediments and nutrients and geochemical cycling which occur during these pulses. Various pollutants are likely present since this stream is located in close proximity to roads and ranches. Typical pollutants, such as oil, become suspended in storm water and, without adequate filtration, are transported downstream. At times, after water is conveyed through the tributary, drying occurs in the headwater stream. This process of drying produces natural chemical and physical changes in the headwater stream. According to Izbicki (2007), even while headwater streams are drying, they remain an integral part of the overall stream because of this influence on the chemistry of the river downstream. Finally, headwater streams, such as the subject tributaries, have been documented as providing necessary habitat for birds, mammals, reptiles, and amphibian populations (Meyer 2007). The small catchment area of headwater streams results in some of the most diverse habitats within a lotic system. Since the channels are greatly affected by precipitation events, the physical and chemical state of the stream changes rapidly and frequently which allows the habitat to be utilized by a large variety of species. Headwater streams are utilized not only by species which are unique to headwater streams, but also by animals which depend on such an environment for certain stages of their life cycles and those which migrate between headwater environments and larger waters. The non-RPWs ((ES-1), (ES-6), (ES-7), (ES-8), (ES-9), (ES-11) and (ES-12)) and their adjacent wetlands ((SSW-1), (EW-5), (EW-6), (EW-7), and (FW-3)) possess a hydrologic connection to the Neosho River through an open and defined channel. Due to this hydrologic connection, the tributaries have the capacity to contribute hydrology, carry pollutants, provide habitat for aquatic life cycles, and provide food in the form of organic matter to waters downstream, all of which illustrates that the non-RPWs and the adjacent wetlands possess a significant nexus to the Neosho River.

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: The subject tributaries, IS-1 and IS-2 provides storage and filtration during precipitation events. It has been determined that the tributaries possesses a hydrologic connectivity to the Neosho River (Traditional Navigable Water) into which it indirectly flows. Hydrologic connectivity refers to the flow that transports organic matter and nutrients, energy, and aquatic organisms throughout the system (Freeman et al. 2006). Evidence of this connection and, consequently, a significant nexus is supported by observations and scientific literature. Solid OM, such as leaves and other detrital material, is processed by a feeding group referred to as "shredders", which includes crayfish, larvae of craneflies, caddisflies, and nymphs of stoneflies. Shredders break down this coarse material, and allow the material to be utilized by a secondary group known as "collectors". Collectors further process the OM and produce dissolved OM and fine particulate matter, which flow downstream. Generally, as the solid OM identified on the subject property is processed and translocated downstream, so are the microorganisms and invertebrates which utilize the material (Smith and Smith 2001). As such, headwater tributaries represent the base of the food chain and, therefore, comprise one of the most important components of a watershed (Meyer et al. 2007). That is, the diversity of aquatic fauna in this headwater stream contributes to the biodiversity of the Neosho River by fitting into the complex foodweb of the river basin. Furthermore, the frequency of major rainfall events in the watershed results in pulsating hydrology, which sustains the local waterways, and subsequently, the Neosho River system. This influences the chemistry of the Neosho River basin via the transport of sediments and nutrients and geochemical cycling which occur during these pulses. Various pollutants are likely present since this stream is located in close proximity to a developed area. Typical pollutants, such as oil, become suspended in storm water and, without adequate filtration, are transported downstream. After water is conveyed through the tributary, drying occurs in the headwater stream. This process of drying produces natural chemical and physical changes in the headwater stream. According to Izbicki (2007), even while headwater streams are drying, they remain an integral part of the overall stream because of this influence on the chemistry of the river downstream. Finally, headwater streams, such as the subject tributary, have been documented as providing necessary habitat for birds, mammals, reptiles, and amphibian populations (Meyer 2007). The small catchment area of headwater streams results in some of the most diverse habitats within a lotic system. Since the channel is greatly affected by precipitation events, the physical and chemical state of the stream changes rapidly and frequently which allows the habitat to be

utilized a large variety of species. Headwater streams are utilized not only by species which are unique to headwater streams, but also by animals which depend on such an environment for certain stages of their life cycles and those which migrate between headwater environments and larger waters. Wetlands have been documented as having the capability of providing a longterm sink for nutrients present within waste, pesticides and fertilizers, primarily through their biogeochemical cycling (Walbridge and Lockaby 1994, Axt and Walbridge 1999). Due to this function, wetlands have long been termed the "kidneys of the landscape", due to their capacity to assist with pollutant filtration (Mitsch and Gosselink 2000). FW-1, FW-2, and EW-4 do not exhibit a hydrologic connection to IS-1 or IS-2, both jurisdictional RPWs located within the review area. These features are located relatively close to the jurisdictional RPW and would be considered neighbording wetlands.FW-1, FW-2, and EW-4 function as a sediment and pollutant trap, in addition to providing habitat to aquatic organisms. The wetland functions of these features in conjuction with other wetlands located within the review area improve the chemical and physical integrity of downstream waters and the receiving TNW. Thus,FW-1, FW-2, and EW-4 located within the review area have been determined to have a significant nexus to the downstream TNW. Because of the wetland's fluctuating hydrologic conditions, they likely hosts a variety of organisms dependent upon this type of system. The wetlands have the capacity to affect the conditions of the RPWs through their ability to store storm water in times of heavy rain events and their habitat contributions. By reducing the volume and velocity of storm water entering the unnamed tributaries, the wetlands minimize the erosive forces of the storm water. By reducing the volume and velocity of flow, erosion potentials decrease and sediment transport downstream becomes minimized. This affects the Neosho River by reducing sediment input within these waters. The subject tributaries possess a hydrologic connection to the Neosho River through an open and defined channel. Due to this hydrologic connection, the subject tributaries, IS-1 and IS-2 have the capacity to contribute hydrology, carry pollutants, provide habitat for aquatic life cycles, and provide food in the form of organic matter to waters downstream, all of which illustrates that the subject tributary and its associated wetlands possess a significant nexus to the Neosho River

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Freeman, M. C., C. M. Pringle, and C. R. Jackson. 2007. Hydrologic Connectivity and the Contribution of Stream Headwaters to Ecological Integrity at Regional Scales. Journal of the American Water Resources Association. 43: 5-14.
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Meyer, J. L., D. L.Strayer, J. B. Wallace, S. L. Eggert, G. S. Helfman, and N. E. Leonard. 2007. The Contribution of Headwater Streams to Biodiversity in River Networks. Journal of the American Water Resources Association. 43: 86-103.
Mitsch, W.J. and J.G. Gosselink. 2000. Wetlands. John Wiley and Sons, Inc. New York, New York. Smith, R. L. and T. M. Smith. 2001. Ecology and Field Biology. Benjamin Cummings, New York. Pp. 644-650.
Walbridge, M.R. and B.G. Lockaby. 1994. Effects of forest management on biogeochemical functions in southern forested wetlands. Wetlands 14:10-17.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:
- ☐ TNWs: linear feet width (ft), Or, acres.
- ☐ Wetlands adjacent to TNWs: acres.

2. RPWs that flow directly or indirectly into TNWs.
- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
- ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: The unnamed tributaries of Chouteau Creek, IS-1 and IS-2, are identified on the USGS 7.5 Minute Chouteau, Oklahoma Quadrangle as intermittent stream channels. IS-1 and IS-2 both exhibit wet conditions in 4 of 5 aerial images ranging from October 2016 to October of 2021. IS-1 exhibited flow during the environmental consultants field visit in July of 2021.

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **2,968** linear feet **10.5** width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
- ☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

[8]See Footnote # 3.

☒ Tributary waters: **6,124** linear feet **3.06** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Emergent wetlands, EW-1, EW-2, and EW-3 form a wetland complex contributing a direct hydrologic connectivity to intermittent stream IS-1. This wetland complex directly abuts intermittent stream IS-1 and each exhibited characteristics of recent inundation. EW-1, EW-2, and EW-3, likely experience ephemeral flow during periods of heavy perciptation at times when flows of IS-1 exceed its ordinary high water mark..

Provide acreage estimates for jurisdictional wetlands in the review area: **0.083** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: **0.139** acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☒ Wetlands: 0.134 acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☒ Non-wetland waters (i.e., rivers, streams): **318** linear feet, **0.030** width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: AJD Request Report, South Ridgeline, Mayes County, OK.

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☒ U.S. Geological Survey Hydrologic Atlas: Chouteau-Spring Creeks 110702090702.

☒ USGS NHD data.

☒ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: USGS 7.5 Minute Chouteau, OK Quadrangle.

☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .

☒ National wetlands inventory map(s). Cite name: USFWS NWI Wetlands Mapper.

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): Google Earth & Digital Globe 1995-2021.
or ☒ Other (Name & Date):AJD Request Report - September 2, 2021.

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The project area includes two isolated emergent wetlands that lack connectivity to jurisdictional waters of the U.S. The non-jurisdictional wetlands are approximately 0.186 and 0.134 acre in size and also lack a link to navigable waters or interstate commerce. There is one ephemeral stream channel within the review area that is isolated, lacking connectivity to a jurisdictional water of the U.S. ES-10 was identified as approximately 318 linear feet.