# PRELIMINARY ENGINEERING REPORT

# SH-123 over the Caney River

Washington County, OK



# Prepared for

Oklahoma Department of Transportation 200 NE 21st St. Oklahoma City, OK 73104 ODOT Project No. JP 24348(10)

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PEC Project No. 11K12-003







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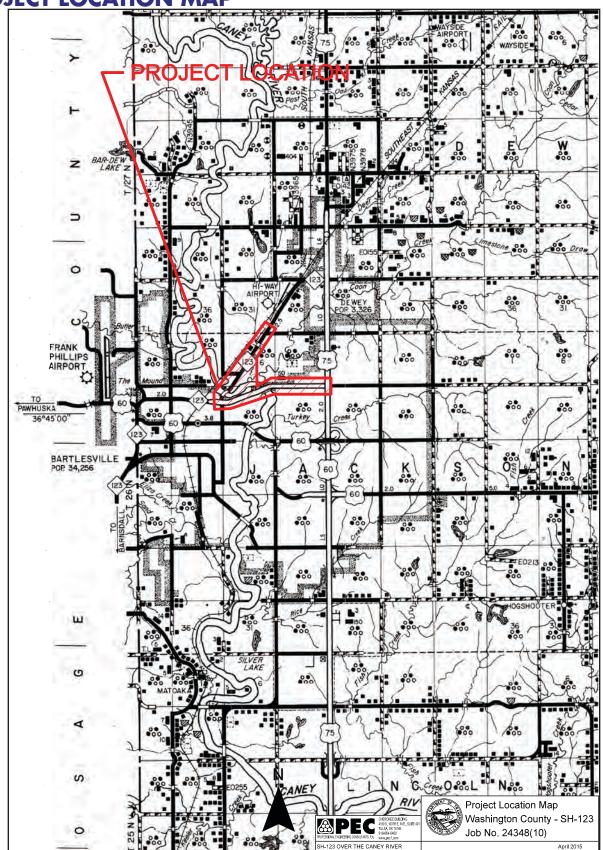


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# **PROJECT LOCATION MAP**





#### INTRODUCTION

This report is a summary of the findings of an alignment study for the Oklahoma Department of Transportation for improvement of SH-123 over the Caney River in Bartlesville, Washington County, OK. In this location, the Caney River makes a sharp 180 degree bend which forms a narrow peninsula between the banks of the river meanders. The existing roadway is located on this peninsula with the bridge situated at the very southern tip. The bridge is in need of repair or replacement for a number of reasons. A preliminary study dated September 10, 2012 provided estimated construction costs, and summary of impacts to utilities and right of way for three alignment options for replacement of the bridge over the Caney River with minimal reconstruction of the bridge approaches.

The preliminary alignment options are as follows:

- Option A: Reconstruct on the Existing Centerline
- Option E: Construct on New Alignment East of Existing
- Option W: Construct on New Alignment West of Existing

Each of the alignment options presented in the preliminary study are located near the existing bridge and tie into the existing centerline within a short distance from the bridge. The roadway north of the bridge is within a FEMA floodplain and is subject to overtopping. Located in close proximity to the project are several items that are designated as 4(f) and 6(f) resources. In conjunction with the preliminary alignment study, ODOT conducted separate independent studies to evaluate the environmental impacts associated with these alternatives and a detailed study to examine the structural condition of the existing bridge and to determine cost estimates for repair and rehabilitation of the existing bridge. Those studies are referenced in this report.

A project review meeting was held at the ODOT Division 8 Office on August 21, 2014 to review the findings of the preliminary study and the related independent studies. It was determined that Option W was not a feasible option because of the close proximity to Johnstone Park and that other alignment options must be considered that would move the bridge and roadway away from the existing location because of 4(f) requirements.

The additional alignment options are as follows:

- Option F: Construct on New Alignment about 1,200 ft East of Existing
- Option G: Reroute SH-123 along Tuxedo Boulevard and US-75

This study provides the following information for evaluation of the study options:

- 1. Estimated cost of construction
- 2. Estimated impacts to utilities
- 3. Estimated right-of-way required
- 4. Summary of the environmental impacts
- 5. Summary of the structural analysis of the existing bridge

The estimated environmental impacts are presented in the separate study provided by ODOT. An Environmental Impact Summary Matrix is included here for reference. Detailed analysis and options for rehabilitation of the existing bridge are presented in the separate study provided by ODOT. A summary of the results of that study are referenced here as well



# **PROJECT INFORMATION & FINDINGS**

#### **PROJECT PURPOSE**

The purpose of this project is to determine and implement an appropriate solution to address the deficiencies of the existing bridge on SH-123 over the Caney River in Washington County just north of downtown in the City of Bartlesville. The existing bridge over the Caney River is a mixed truss type bridge constructed in 1937. The bridge is included in the Oklahoma Historic Bridge Survey Phase 1 conducted by the ODOT Planning and Research Division in May 2007 in the list of National Register-Eligible Bridges.





#### **EXISTING CONDITIONS**

# **Existing Centerlines**

SH-123 connects with SH-11 just east of Barnsdall in Osage County and runs northeasterly into Washington Bartlesville County through Dewey where it terminates at US-75. It is approximately 17 miles from SH-11 to Bartlesville where SH-123 connects with Western Street. Through Bartlesville, SH-123 follows Western Street about 1 mile north to Hensley Boulevard where it curves and follows Hensley Boulevard about 1.5 miles east to Cherokee Avenue. The intersection of Hensley Boulevard and Cherokee Avenue is a 5 leg intersection with SH-123 forming the northeast leg. From



this intersection, SH-123 runs northeasterly across the Caney River and continues northeasterly about 3 miles to Durham Road and then runs east along Durham Road about 0.5 miles to US-75. Woolaroc Museum and Wildlife Preserve is located on SH-123 about 10 miles southwest of Bartlesville.



Hensley Boulevard runs generally east-west through the north part of the City of Bartlesville. About 600 feet east of Cherokee Avenue, Hensley Boulevard splits at a Y. Hensley Boulevard continues east about a half mile where it terminates just east of Comanche Avenue. Tuxedo Boulevard begins at the northeast leg of the Y. It runs northeast about 1 mile where it turns east and follows the line between Sections 5 and 8 T26N, R13E to US-75. Tuxedo Boulevard continues past US-75 about 5 miles where it terminates at N4020 Road.



# **Typical Section**

Within the limits of the existing bridge and approaches, SH-123 is a two lane road with remnants of curb and gutter and sidewalks. From there to the Dewey City Limits it is a two lane road with no shoulders.

The existing pavement section on Tuxedo Boulevard is a four lane roadway with curb and gutter. Throughout the study limits the lane width varies. Beginning at the Cherokee Avenue intersection, the roadway is 48 feet wide. About a half mile east, near Quapaw Avenue, the roadway narrows to a 47 feet. The roadway width narrows again about a mile east of Cherokee Avenue, near Pine Avenue, to 46 feet and continues east past US-75.



#### **Traffic Volumes**

Traffic volumes on SH-123 in this location are 4,700 vpd for 2012. The volume is projected to increase to 6,600 vpd for 2032. The truck volume is 10% of AADT and T3 is 5% of AADT.

Traffic volumes on Tuxedo Boulevard within the study limits increase from west to east. Traffic volumes from 2011 for the City of Bartlesville provided by ODOT show that west of the Caney River bridge, the traffic volume is 8,942 vpd. East of the Caney River bridge the volume is 9,256 vpd. Approaching the US-75 intersection, the volume is 10,958 vpd.

# **Posted Speed Limits**

The posted speed limit on SH-123 is 25 mph near the intersection with Hensley Boulevard, 35 mph on the bridge and approaches, 45 mph just north of the Bartlesville City Limits and 55 mph from there north to the Dewey City Limits.

On Hensley Boulevard west of Cherokee Avenue, the posted speed limit is 30 mph and continues to the Y where Tuxedo Boulevard begins. On Tuxedo Boulevard, the posted speed limit is 40 mph about 400 feet east of Cherokee Avenue. The speed limit remains 40 mph for about 1.5 miles where it reduces to 35 mph. The speed limit continues at 35 mph for about a mile past US-75 where it increases to 40 mph.





# **Existing Bridges**

The existing bridge on SH-123 is about 600 feet northeast of the intersection of Hensley Boulevard and Cherokee Avenue. This bridge is a 210' Hi Truss and 2-100' Pony Truss Spans with 4' sidewalks on both sides. The bridge is included in the Oklahoma Historic Bridge Survey Phase 1 conducted by the ODOT Planning and Research Division in May 2007 in the list of National Register-Eligible Bridges. The Structure Number is 7413 0165 X and the NBI number is 05521. This bridge is rated as Functionally Obsolete and Structurally Deficient with a Sufficiency Rating of 33.6. This bridge is also classified as Fracture Critical. The curved



vertical profile of the bridge is considered an important and unique feature of its historical significance. It is considered by some as an extension of the surrounding Park. The bridge is eligible for NRHP.



Under the existing bridge, there is a dam across the Caney River which creates a small reservoir within the normal channel of the river. This area serves as a secondary source for the public water supply of the City of Bartlesville and is a favorite destination point for local fishermen. The dam is considered a contributing element to the historical significance of the NRHP bridge.

There is a second bridge crossing on SH-123 about 1.25 miles north of the Caney River. This bridge intersects an unnamed creek. The bridge is a triple cell (12'-14'-12') RCB bridge with 9 foot tall cells and a total width of 38 feet. The NBI Number is 10508. A recent rehabilitation of this bridge improved the Sufficiency Rating to 95.9. The bridge is rated as Not Deficient.







There are four bridges on Tuxedo Boulevard within the study limits. The first bridge is about 3,700 feet east of Cherokee Avenue. This bridge is a culvert with 4-8.5' diameter corrugated galvanized steel pipe (CGSP). The NBI Number is 20708. The bridge is rated as Not Deficient with a Sufficiency Rating of 78.9.



About a mile east of Cherokee Avenue, Tuxedo Boulevard crosses the Caney River. At this crossing, there is a pair of twin bridges. The north bridge is the original bridge on Tuxedo Boulevard constructed in 1958. This is a four span steel I-Beam bridge with a span combination of 51'-80'-100'-80'. The NBI Number is 14187. The bridge is rated as Functionally Obsolete because of the deck geometry. The bridge is also at risk of becoming Structurally Deficient with a Sufficiency Rating of 51.8. The south bridge was constructed in 1985 as part of the expansion of Tuxedo Boulevard from a 2 lane roadway to a 4 lane roadway. This bridge is a four span precast concrete beam bridge with a span combination of 51'-80'-100'-80'. The NBI Number is 21121. The bridge is rated as Functionally Obsolete because of the deck geometry. The bridge is also at risk of becoming Structurally Deficient with a Sufficiency Rating of 53.3.





The fourth bridge is located about 500 feet east of the twin bridges over the Caney River. This bridge is a three 50 foot span I-Beam bridge carrying four lanes of traffic. The NBI Number is 21083. The bridge is rated as Not Deficient with a Sufficiency Rating of 68.6.

All of the Bridge Inspection Reports can be found in Exhibit F of this report.





# **Surrounding Area**

The most dominating natural feature in the area is the Caney River. It makes a sharp 180 degree bend about 600 feet north of Hensley Boulevard. The highway crosses the river at the bend and then runs northeasterly within the peninsula created by the river meanders. This area is entirely within a FEMA Zone AE of the National Flood Insurance Program.

Along the north side of the Caney River, there is a large area of potential wetlands and hydric soils. This area extends along the east side of SH-123 from the north bank of the Caney River to about a mile north of the SH-123 Bridge. This area is covered with dense trees and shrubs.





About 1,800 feet north of the Caney River bridge is the location of the Carr-Bartles Mill historical site. Under Section 106 Coordination, the Delaware Tribe stated that this feature is an important part of their tribal history. This archeological site is outside of the proposed project limits for any of the proposed alternatives.

The property adjacent to the existing highway near the Caney River is part of Johnstone Park, a public park owned and maintained by the City of Bartlesville. Within Johnstone Park there are tennis courts, a skate park, playground, picnic shelters, and Bartlesville Kiddie Park which contains 18 rides including

a miniature train ride. Also within Johnstone Park is the site of the first commercial oil well in Oklahoma, which was completed on April 15, 1897. The well was named Nellie Johnstone No. 1 after the daughter of

local businessman William Johnstone. A reproduction of the original derrick made with redwood timbers stands on the south bank of the Caney River just west of SH-123. This structure is listed as NR72001077 on the National Register of Historic Places. Johnstone Park is not considered to be historical because many elements of the park have changed over time, but it is still Section 4(f) eligible because of its recreational nature.







Also along the south bank of the Caney River from Johnstone Park running south through the City of Bartlesville is a hike and bike trail called Pathfinder Parkway. This feature is Section 6(f) eligible. Any proposed improvement that crosses or impacts Pathfinder Parkway must be developed in a way that preserves the integrity of this resource.

East of Johnstone Park, along the south bank of the Caney River between Seneca Avenue and Quapaw Avenue, is the City of Bartlesville Wastewater Treatment Plant. All feasible alignment options for SH-123 must avoid impact to this plant, including the vacant land east of the plant which is reserved for future expansion.



# **Existing Right-of-Way**

The existing right-of-way was acquired in 1936 for Project WPMS 550-A as 150 feet in width, 75 feet on each side of the centerline of the highway except for a 50 ft long section that begins about 750 feet north of Hensley Boulevard and is 100 feet long and 50 feet wide on the west side. North of the peninsula, the existing right of way approximately 60 feet wide, 30 feet on each side of the centerline, based on the location of the existing fence.



The existing right-of-way for Tuxedo Boulevard was acquired when the City of Bartlesville widened the roadway in 1985. The existing right-of-way varies throughout this two mile section. From Cherokee Avenue, the right-of-way is 50 feet on each side of the centerline and continues through the first mile with some areas of varying widths near the horizontal curves. Where Tuxedo Boulevard crosses the Caney River, the right-of-way increases to 60 feet on each side of the centerline. After the river crossing, the existing right-of-way narrows to 30 feet on each side of centerline and this continues to US-75.



# **Existing Utilities**

Along the current roadway, there are a number of existing utilities. A summary of those utilities and their approximate locations is listed below:

American Electric Power (AEP/PSO): There are overhead electric lines along Hensley Boulevard and along Cherokee Avenue. There are crossings on SH-123 about 450 feet, 700 feet, and 2,250 feet north of the intersection. There is a light pole circuit along the south approach to the bridge. There are various crossings along Tuxedo Boulevard east of the intersection.

About 3,300 feet east of Cherokee Avenue, there are three transmission lines that cross Tuxedo Boulevard. These transmission lines run north and south beyond the project limits.





- Verdigris Valley Electric Coop: There are overhead electric lines that run parallel with the centerline of Tuxedo Boulevard from the Caney River to US-75. There are also multiple crossings of Tuxedo Boulevard throughout this area.
- AT&T: There is an underground telephone line that crosses SH-123 about 2,200 feet north of Hensley Boulevard. On Tuxedo Boulevard, there are various crossings at about 2,000 and 3,000 feet east of Cherokee Avenue. There is an underground telephone line that connects these two crossings along the north side of Tuxedo Boulevard. A fiber optic line runs along the north side of Tuxedo Boulevard from about a half mile west of US-75 and continuing east past US-75.
- Oklahoma Natural Gas: ONG has a natural gas line along the north side of Tuxedo Blvd. from about a half mile east of Cherokee Avenue extending west about 2,000 feet. Another natural gas line runs along the south side of Tuxedo Boulevard from 900 feet east of the Caney River to about 3,000 feet west of US-75. From this point to about 300 feet west of US-75 there are natural gas lines on the north and south side of Tuxedo Boulevard.





City of Bartlesville Water: For the first half mile of the study area there are a couple of water line crossings along Tuxedo Boulevard. The next mile and half has a water line that runs along the north side of Tuxedo Boulevard. In this area, there are about ten waterline crossings. There are not any waterline crossings on existing SH-123 north of Hensley Boulevard.



City of Bartlesville Sanitary Sewer: The City wastewater treatment plant is located on the south bank of the Caney River at the north end of Chickasaw Avenue, about 6 blocks east and 3 blocks north of the Hensley Boulevard and Cherokee Avenue intersection. There are numerous sanitary sewer lines in the project area. The majority of these lines run between the south bank of the Caney River and the north side of Tuxedo Boulevard until it reaches the wastewater treatment plant. There are no sanitary sewer lines north of the Caney River. Along Tuxedo Boulevard, east of Cherokee Avenue, there are about eight crossings that provide service to the adjacent neighborhoods.

#### **BRIDGE IMPROVEMENT STRATEGIES**

The existing bridge over the Caney River is a mixed truss type bridge constructed in 1937 including a 210' Hi Truss and 2-100' Pony Truss Spans with 4' sidewalks on both sides. This bridge is listed as a National Register-Eligible Bridge according to the Oklahoma Historic Bridge Survey dated May 2007. The Structure Number is 7413 0165 X and the NBI number is 05521.



This bridge is rated as Functionally Obsolete due to the substandard width and vertical clearance of the bridge. The existing roadway width is 24 feet and the existing vertical clearance is 15 feet 6 inches. The current standards are 32 feet and 16 feet respectively for a new bridge. The bridge is also rated as Structurally Deficient because of the bridge superstructure.





A report by TranSystems and Infrastructure Engineers titled "Design Support for Section 4(f) Analysis for Historic Bridges" contains a complete evaluation of the existing condition of this bridge and provides several strategies for rehabilitation of this bridge as follows:

- Alternative 1: Do Nothing
- Alternative 2: Rehabilitation Without Affecting the Historic Integrity of the Bridge
  - Alternative 2(a): Bridge remains fracture critical
  - Alternative 2(b): Fracture critical aspect is removed
- Alternative 3: Build on new Location
  - Alternative 3(a): Retain the bridge in vehicular service as part of a one-way couplet and the bridge remains fracture critical.
  - Alternative 3(b): Retain the bridge in vehicular service as part of a one-way couplet and the fracture critical aspect of the bridge is removed.
  - Alternative 3(c): Leave the bridge in place for pedestrian use or as an historical monument.

These bridge improvement strategies were developed independently from the proposed improvement options presented in this report. These two reports are intended to be complementary. The findings of this report should be considered together with the various bridge improvements strategies for the existing bridge in order to determine the selected improvement option for this project.





# RECONSTRUCTION OPTION A: RECONSTRUCT ON EXISTING ALIGNMENT

#### **PROPOSED DESIGN**

# **Horizontal & Vertical Alignments**

The proposed horizontal alignment for Option A will follow the existing centerline of SH-123. The existing centerline of SH-123 within the project limits begins at the intersection of Cherokee Avenue and Hensley Boulevard then goes in a northeast direction for about 1,050 feet. SH-123 then follows a reverse curve with a radius of 716.34 feet (8 degrees) with approximately 350 feet of tangent between the curves. The alignment continues in this northeasterly direction until it reaches the SKOL Railroad where it makes a slight curve and then parallels the railroad.



The vertical alignment will be raised approximately 5 feet in order to provide adequate vertical clearance between the low chord of the new bridge and the water surface elevation for design year storm. The vertical alignment will meet the minimum design standards in accordance with "A Policy on Geometric Design of Highways and Streets" AASHTO 2011.

# **Typical Section**

The proposed section for SH-123 is a 28 foot wide roadway with two 12 foot lanes with curb and gutter and sidewalks on both sides. The sidewalks will be terminated about 700 feet north of the bridge, where the existing sidewalks terminate. The recommended clear zone for a 45 mph design with the traffic volumes in this area is 26 feet with 1:4 sideslopes or 16 feet with 1:6 sideslopes.



# **Proposed Design Speeds**

The proposed design speed for SH-123 is 35 mph through most of the length of the project. Near the intersection with Hensley Blvd., the design speed is 25 mph. The design speed will be 45 mph over the bridge to provide for better sight distances. From the end of the reverse curve north of the bridge the design speed is 55mph.



# **Proposed Bridge**

The proposed bridge on SH-123 over the Caney River is a 165-220-165 three span welded plate girder bridge with a total length of 550 feet. The clear roadway width will be 28 feet with 8 foot sidewalks on both sides providing a total out to out width of 48.7 feet. The 32 foot clear roadway, referred to in the report by TranSystems and Infrastructure Engineers mentioned earlier, is the required width for a bridge that is less than 200 feet long. A clear roadway width of 28 feet is the minimum width allowable for a bridge over 200 feet in length and with traffic volumes over 5,000 vpd.

# **Existing Bridge Considerations**

Reconstruction along the existing centerline will require the existing bridge to be impacted. For Option A the existing bridge will be removed and replaced. Replacing the bridge would have some impact to the surrounding park and pathways. The functionality of the dam under the existing bridge would not be



impacted with either of these options, however, the historical significance on the dam may be reduced with a bridge replacement. Another feasible alternative is to rehabilitate the bridge to a non-Structurally Deficient rating. Rehabilitating the bridge will not remove the Functionally Obsolete rating or the Fracture Critical structural element. The different solutions of the existing bridge are further explained in the report by TranSystems and Infrastructure Engineers titled "Design Support for Section 4(f) Analysis for Historic Bridges". The selected improvement action to the existing bridge must be considered as an integral part of the overall improvement alternative.

#### **CONSTRUCTION SEQUENCE & TRAFFIC CONTROL**

During construction, SH-123 will be closed to traffic while the existing bridge is removed and the new bridge and roadway is constructed. This will require a detour of SH-123 along US-60 about 3.5 miles to US-75 and then along US-75 about 3 miles to Durham Road for a total of about 6.5 miles. The route between the same points along SH-123 is about 6.0 miles so the total length of adverse travel for through traffic is about 0.5 miles.

#### TRAFFIC CONSIDERATIONS

With Option A, the width of the existing embankment will be increased to accommodate the higher road profile for the new bridge. This will create a conflict with the north leg of the existing 5 leg intersection at Hensley Boulevard and Cherokee Avenue. It is recommended that the north leg of the intersection be closed and that access to Johnstone Park be provided via existing city streets on Osage Avenue and First Drive, just to the west of the intersection.



#### ANTICIPATED IMPACTS

# **Right-of-Way Required**

Within the project limits, the embankment would be widened to provide the recommended clear zone and to raise the elevation of the roadway approaches. This widening will require the acquisition of about 0.9 acres of new right-of-way. This acquisition occurs entirely inside of existing public park property. To reduce the impact to the park property, retaining walls could be placed near the existing right of way line. This would eliminate the need to purchase new right-of-way on the existing park property that is Section 4(f) and Section 6(f) eligible. The existing right-of-way is about 7 acres including 6.7 acres of highway, and 0.3 acres of platted street right-of-way.

# **Utility Impacts**

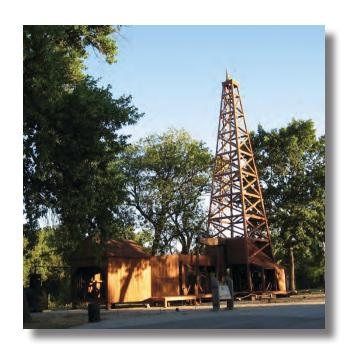
The estimated utility impact with Option A is as follows:

- Street light poles along SH-123 will be relocated
- New storm sewer construction on the east side of SH-123
- Adjust the existing storm sewer and sanitary sewer manhole rim elevations
- Sanitary sewer pipes running under the existing highway may need protective casings
- Overhead electric crossings may have to be raised or the poles relocated
- City waterlines will not be in conflict

#### **Environmental Concerns**

Johnstone Park surrounds the existing right-of-way on both sides of SH-123. The proposed right-of-way will impact this park property. Access to areas of interest around the river and dam will be preserved. The proposed improvements will have no adverse impact to Nellie Johnstone No. 1, a Structure on the National Register of Historic Places.

Pathfinder Parkway is a paved trail about 8 feet wide that runs throughout the City of Bartlesville. This multi-use path is about 11 miles long and runs along the Caney River and Turkey Creek to connect Johnstone, Robinwood, Sooner, and Jo Allyn Lowe parks. Any new construction must be designed so that there is no adverse impact to this pathway.





Johnstone Park was determined to be not historic, but is still Section 4(f) eligible, due to its recreational nature. The existing bridge and dam were found to be eligible for the National Register of Historic Places – therefore is also Section 4(f) eligible. Additionally, Pathfinder Parkway was found to be both Section 4(f) and Section 6(f) eligible.

A complete Environmental Assessment to determine other impacts such as wetlands, threatened and endangered species, cultural resources, hazardous waste, etc. was conducted through the ODOT Environmental Services Division by Able Consulting.

Environmental impacts are summarized in Exhibit D.

#### **ESTIMATED CONSTRUCTION COST**

The estimated construction cost for Option A is shown in Exhibit C attached.



# RECONSTRUCTION OPTION E: REALIGNMENT EAST OF EXISTING

#### PROPOSED DESIGN

# **Horizontal & Vertical Alignments**

The proposed horizontal alignment for Option E ties into Hensley Boulevard at Delaware Avenue, one block east of the existing intersection and ties into existing SH-123 just north of the existing reverse curve. The proposed alignment has a single 1,650 foot radius curve about 1,100 feet long across the Caney River.

New embankment would be required for the entire length of the project. It would be constructed to provide the recommended clear zone for this section of roadway and



adequate vertical clearance between the low chord of the new bridge and the 100-year flood elevation.

The majority of the project is within the FEMA floodway, and would require demonstration, through hydrologic and hydraulic analysis, either that the proposed improvement would not result in any increase of flood levels, or meets the FEMA requirements for a floodway revision. This would be done by balancing the size of the new bridge opening and the elevation of the roadway overtopping.



Relocating the SH-123 intersection about one block east to Delaware Avenue, will require the reconstruction of Hensley Boulevard from Cherokee Avenue to the new intersection of SH-123. This section of Hensley Boulevard is a straight tangent, generally in an east-west direction.

# **Typical Section**

The proposed typical section for SH-123 is a 12 foot lane and an 8 foot shoulder in each direction. Sidewalk will be provide along the west embankment from Hensley Boulevard to the Pathfinder Parkway. At the tie-in location to the existing SH-123 alignment, the shoulders will be terminated



# **Proposed Design Speeds**

Near the intersection with Hensley Boulevard, the design speed is 25 mph. The design speed across the bridge is 45 mph and north of the bridge the design speed is 55mph. These speeds are the same as the design speeds in Option A.

# **Proposed Bridge**

The proposed bridge on SH-123 over the Caney River is a three span 165-220-165 welded plate girder bridge with a total length of 550 feet. The clear roadway width will be 40 feet with TR-4 railing. The bridge will be on a horizontal curve and in full superelevation cross slope.

# **Existing Bridge Considerations**

Some action will be required on the existing bridge on SH-123 over the Caney River. The report prepared by TranSystems and Infrastructure Engineers titled "Design Support for Section 4(f) Analysis for Historic Bridges" discusses multiple solutions. One solution is to rehabilitate the bridge, remove the roadway approaches, and leave the bridge in place as a historical monument. Another solution would be to rehabilitate the bridge, remove the roadway approaches, and put into service as a pedestrian crossing for the Caney River and no longer carry highway traffic. Lastly, the existing bridge could



be removed. Rehabilitating the bridge is not anticipated to have an impact on the surrounding park and pathways. The dam under the existing bridge will be unaffected and the historical significance would not be impacted. Removing the bridge will not have an impact to the functionality of the surrounding features but will have some impact to the historical significance of the surrounding park, pathways, and the dam under bridge. The selected improvement action to the existing bridge must be considered as an integral part of the overall improvement alternative.

#### **CONSTRUCTION SEQUENCE & TRAFFIC CONTROL**

During construction, SH-123 will remain open to traffic while the new bridge and roadway is constructed. At the tie-in locations on Hensley Boulevard and SH-123, construction will be phased to maintain traffic flow. Hensley Boulevard is to be reconstructed in phases with one lane of traffic open in each direction at all times.



#### TRAFFIC CONSIDERATIONS

The intersection of Delaware Avenue and Hensley Boulevard will be reconstructed to provide the configuration necessary for the new intersection with SH-123. A traffic study should be conducted to determine if the existing traffic signal at Cherokee Avenue should be removed, and to determine the appropriate configuration of the new intersection and associated traffic signals. The intersection at Cherokee Avenue would be reconstructed to preclude inadvertent access to old SH-123. Access to Johnstone Park would remain as it is today on the north leg of the intersection.

#### ANTICIPATED IMPACTS

# **Right-of-Way Required**

The relocation of SH-123 will require approximately 5.0 acres of additional right-of-way to construct the proposed improvements. This right-of-way includes 4.9 acres of City owned park property and 0.1 acres of private property. The existing right-of-way is about 8.5 acres including 6.6 acres of highway right-of-way and 1.9 acres of platted street right-of-way. This park property is not contiguous with the active park property on the west side of SH-123.

# **Utility Impacts**

The estimated utility impact with Option E is as follows:

- New storm sewer construction on the south side of the Caney River
- Adjust the existing storm sewer and sanitary sewer manhole rim elevations
- Sanitary sewer pipe along the center of Delaware Avenue will be relocated
- Sanitary sewer pipes running under Delaware Avenue may need protective casings
- Overhead electric crossings may have to be raised or the poles relocated
- City waterlines will not be in conflict





#### **Environmental Concerns**

The proposed right-of-way will require acquisition of about 5 acres of the City owned Johnstone Park property. As mentioned earlier, the construction of the new embankment and bridge will not have an adverse effect on Nellie Johnstone No. 1, or the Pathfinder Parkway.

A complete Environmental Assessment to determine other impacts such as wetlands, threatened and endangered species, cultural resources, hazardous waste, etc. was conducted through the ODOT Environmental Services Division by Able Consulting.

Environmental impacts are summarized in Exhibit D.



# **ESTIMATED CONSTRUCTION COST**

The estimated construction cost for Option E is shown in Exhibit C.



# RECONSTRUCTION OPTION F: NEW ALIGNMENT LOCATED APPROXIMATELY 2,700 FEET EAST OF THE EXISTING SH-123 BRIDGE

#### PROPOSED DESIGN

#### **Horizontal & Vertical Alignments**

The proposed horizontal alignment for Option F ties into Tuxedo Blvd. at Comanche Ave. (approximately 3,200 feet east of Cherokee Avenue) and ties into existing SH-123 approximately one mile north of the existing SH-123 bridge over the Caney River (approximately a half mile south of Minnesota Street or EW 0170 Road).



The intersection with Tuxedo Boulevard will be a "T" intersection. The east-west alignment will be reconstructed to provide a flatter curve through the intersection and improve the sight distance. The new centerline going north would have a slight curve to the left and then be tangent crossing the Caney River and then curve to the right to tie into existing SH-123.

Hensley Boulevard and Tuxedo Boulevard will be reconstructed from Cherokee Avenue to the new intersection about 3,200 feet east. This reconstruction will be along the existing centerline and within the existing right-of-way.

The vertical alignment of new SH-123 going north would be designed to meet design criteria for 35 mph near the intersection, 45 mph over the bridge, and 55 mph from the bridge to the north tie-in. The bridge over the Caney River would be set at an elevation so that the low chord is above the 100 year flood elevation. North of the river, the road traverses the FEMA floodplain. The road profile through here must be high enough to provide the maximum benefit of protection from overtopping, without resulting in any increase in flood levels.

The majority of the project is within the FEMA floodway, and would require demonstration, through hydrologic and hydraulic analysis, either that the proposed improvement would not result in any increase of flood levels, or meets the FEMA requirements for a floodway revision.





# **Typical Section**

The proposed typical section of Tuxedo Boulevard, from Cherokee Avenue to the east end of the project, would be increased to a total width of 53.33 feet – as shown in Exhibit B, to meet the design criteria for Table 12-9 (Geometric Design Criteria for Urban Other Arterials) of the ODOT Roadway Design Manual.

The proposed typical section for SH-123 would be the same as Option E.



# **Proposed Design Speeds**

Near the intersection with Tuxedo Boulevard, the design speed is 35 mph. The design speed across the bridge is 45 mph and north of the bridge the design speed is 55mph. These speeds are the same as the design speeds in Option E.

The design speeds along Hensley and Tuxedo Boulevard will match the posted speed limits as mentioned previously.

# **Proposed Bridge**

The proposed bridge on SH-123 over the Caney River is a three span 165-220-165 welded plate girder bridge with a total length of 550 feet. The clear roadway width will be 40 feet with TR-4 railing. The bridge will be on a horizontal tangent and have normal cross slope.





# **Existing Bridge Considerations**

Some action will be required on the existing bridge on SH-123 over the Caney River. The report prepared by TranSystems and Infrastructure Engineers titled "Design Support for Section 4(f) Analysis for Historic Bridges" discusses multiple solutions. One solution is to rehabilitate the bridge, remove the roadway approaches, and leave the bridge in place as a historical monument. Another solution would be to rehabilitate the bridge, remove the roadway approaches, and put into service as a pedestrian crossing for the Caney River and no longer carry highway traffic. Lastly, the existing bridge could be removed. Rehabilitating the bridge is not anticipated to have an impact on the surrounding park and pathways. The dam under the



existing bridge will be unaffected and the historical significance would not be impacted. Removing the bridge will not have an impact to the functionality of the surrounding features but will have some impact to the historical significance of the surrounding park, pathways, and the dam under bridge. The selected improvement action to the existing bridge must be considered as an integral part of the overall improvement alternative

#### **CONSTRUCTION SEQUENCE & TRAFFIC CONTROL**

During construction, SH-123 will remain open to traffic while the new bridge and roadway is constructed. At the tie-in locations on Hensley Boulevard and SH-123, construction will be phased to maintain traffic flow.

Hensley Boulevard and Tuxedo Boulevard are to be reconstructed in phases with one lane of traffic open in each direction at all times.

#### TRAFFIC CONSIDERATIONS

Near the relocated intersection with the proposed SH-123 alignment, Tuxedo Boulevard would be reconstructed to increase the radius of the curve along Tuxedo to provide improved sight distance through the new intersection. The connection of Tuxedo Boulevard to the diagonal road, which runs between Tuxedo Boulevard and Quapaw Avenue will be eliminated.

A traffic study should be conducted to determine if the existing traffic signal at Cherokee Avenue should be removed, and to determine the appropriate configuration of the new intersection and associated traffic signals. The intersection at Cherokee Avenue would be reconstructed to preclude inadvertent access to old SH-123. Access to Johnstone Park would remain as it is today on the north leg of the intersection.



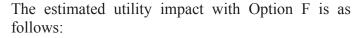
#### **ANTICIPATED IMPACTS**

# **Right-of-Way Required**

The relocation of SH-123 will require approximately 15.9 acres of additional right-of-way to construct the proposed improvements, all of it being on private property. The existing right-of-way is about 9.6 acres including 5.6 acres of highway right-of-way near the north tie-in, and 4.0 acres of platted street right-of-way along Tuxedo Boulevard.

# **Utility Impacts**

The proposed horizontal alignment for SH-123 avoids three high-voltage transmission lines just east of the proposed centerline. The proposed horizontal alignment is also far enough east of the WWTP to allow space for future expansion of the WWTP.





- New storm sewer construction on the south side of the Caney River
- Adjust the existing storm sewer and sanitary sewer manhole rim elevations
- Sanitary sewer pipes running across the proposed centerline may need protective casings
- Overhead electric line on the north side of the road at the new intersection to be relocated
- Overhead electric crossings may have to be raised or the poles relocated
- Fiber optic communication lines near the new intersection to be relocated
- Natural Gas line near the new intersection to be relocated
- City waterlines near the new intersection may need to be relocated
- City waterline valves will be adjusted

#### **Environmental Concerns**

The proposed right-of-way will require acquisition of about 10.5 acres land north of the Caney River. Some of this has potential to be wetlands. On the north side of the Caney River and east of the transmission lines there is an old landfill that will not be impacted. Near the north tie-in location there is an oil or gas above ground tank and no impacts are anticipated. As mentioned earlier, the construction of the new embankment and bridge will not have an adverse impact on Nellie Johnstone No. 1 or Pathfinder Parkway.

A complete Environmental Assessment to determine other impacts such as wetlands, threatened and endangered species, cultural resources, hazardous waste, etc. was conducted through the ODOT Environmental Services Division by Able Consulting.

Environmental impacts are summarized in Exhibit D.

#### **ESTIMATED CONSTRUCTION COST**

The estimated construction cost for Option F is shown in Exhibit C.



# RECONSTRUCTION OPTION G: RE-ROUTE SH-123 ON E TUXEDO BLVD TO US 75

#### **PROPOSED DESIGN**

# **Horizontal & Vertical Alignments**

The proposed horizontal and vertical alignments for Option G follow the existing alignments of Hensley Boulevard and Tuxedo Boulevard which would generally remain unchanged.

# **Typical Section**

The proposed typical pavement section would be increased to a total width of 53.33 feet – as shown in Exhibit B, to meet the design criteria for Table 12-9 (Geometric Design Criteria for Urban Other Arterials) of the ODOT Roadway Design Manual.

# **Proposed Design Speeds**

The proposed design speed for resigning SH-123 along Tuxedo Boulevard is generally 40 mph. Reconstructing Tuxedo Boulevard will include improving the existing horizontal curves to current standards. This can be accomplished by cross slope superelevation while maintaining the existing curve radius and avoid the acquisition of additional right-of-way. The posted speed limit will be the same as the current posted speed along Tuxedo Boulevard.

# **Proposed Bridge**

Realigning SH-123 onto Tuxedo Boulevard will take two existing bridges off of the State Highway Systems: the truss bridge over the Caney River and the RCB bridge about 1.25 miles north of the Caney River. Four bridges will be added to the system along Tuxedo Boulevard. All of these bridges will need to be fully evaluated for highway loading. The current inspection reports show that three of these bridges are at risk of becoming Structurally Deficient. For the purposes of this study, the four existing bridges on Tuxedo Boulevard would require replacement within the expected design life of this project and are included for replacement as part of this project.







# **Existing Bridge Considerations**

Some action will be required on the existing bridge on SH-123 over the Caney River. The report prepared by TranSystems and Infrastructure Engineers titled "Design Support for Section 4(f) Analysis for Historic Bridges" discusses multiple solutions. One solution is to rehabilitate the bridge, remove the roadway approaches, and leave the bridge in place as a historical monument. Another solution would be to rehabilitate the bridge, remove the roadway approaches, and put into service as a pedestrian crossing for the Caney River and no longer carry highway traffic. Lastly, the existing bridge could be removed. Rehabilitating the bridge is not anticipated to have an impact on the surrounding park and pathways. The dam under the existing bridge will be unaffected and the historical



significance would not be impacted. Removing the bridge will not have an impact to the functionality of the surrounding features but will have some impact to the historical significance of the surrounding park, pathways, and the dam under bridge. The selected improvement action to the existing bridge must be considered as an integral part of the overall improvement alternative.

# **CONSTRUCTION SEQUENCE & TRAFFIC CONTROL**

The bridge replacement and roadway reconstruction along Hensley Boulevard and Tuxedo Boulevard are to be completed in phases with one lane of traffic open in each direction at all times.

#### TRAFFIC CONSIDERATIONS

A traffic study should be conducted to determine if the existing traffic signal at Cherokee Avenue should be removed. With Option G, the existing bridge over the Caney River is to be removed. The intersection at Cherokee Avenue would be reconstructed to preclude inadvertent access to old SH-123. Access to Johnstone Park would remain as it is today on the north leg of the intersection.

Option G is currently being designed to remove the existing bridge on SH-123 over the Caney River and reroute SH-123 on to Tuxedo Boulevard. Removing the bridge and rerouting SH-123 will increase the traffic volume on Tuxedo Boulevard by the volume on SH-123. A highway capacity analysis, using HCS 2010 (release 6.5), indicated that SH-123 and Tuxedo Boulevard operate at a Level of Service (LOS) C for the projected traffic volumes with the current configuration. An arterial planning analysis was performed, using ARTPLAN 2012, to project the level of service that Tuxedo Boulevard would operate at with the additional SH-123 traffic. This analysis indicates that the current traffic volumes on Tuxedo Boulevard, with the additional SH-123 current traffic volume, will operate that the same level of service that Tuxedo Boulevard is currently operating at, LOS C. When these volumes are projected out 20 years, Tuxedo Boulevard, with the additional SH-123 traffic, will operate at a downgraded level of service, LOS D. The results of these analysis are presented in the table on the following page.



#### Level of Service Comparison Table

Level of Service Comparison					
Route	AADT: Options A, E, and F	LOS: Options A, E, and F	AADT: Option G	LOS: Option G	
SH-123	4700 (2012 AADT)	В	N/A	N/A	
SH-123	6600 (2032 AADT)	С	N/A	N/A	
Tuxedo Blvd.	10958(2011 AADT)	C	15658	C	
Tuxedo Blvd.	15355 (2031 AADT)	С	21955	D	

#### **ANTICIPATED IMPACTS**

# **Right-of-Way Required**

No additional right-of-way would initially be required to designate and sign SH-123 along Tuxedo Boulevard. However, reconstruction and widening of the pavement in order to meet the Geometric Design Criteria outlined in the ODOT Roadway Design Manual, may require additional right-of-way in areas of steep side slopes and in areas of existing retaining walls. The reconstruction will also require the improvement of the existing sidewalks and wheelchair ramps to be reconstructed to current ADA Standards. This reconstruction may have an impact on the existing right-of-way. It may be feasible to eliminate the need for additional right-of-way by using retaining walls in these areas.

# **Utility Impacts**

Overhead electric lines and fiber optic lines along and near the back of the curb of Tuxedo Blvd. in the eastern portion of the project will require relocation due to the pavement widening. Sanitary sewer manhole rims in the existing pavement would require adjustment.

#### **Environmental Concerns**

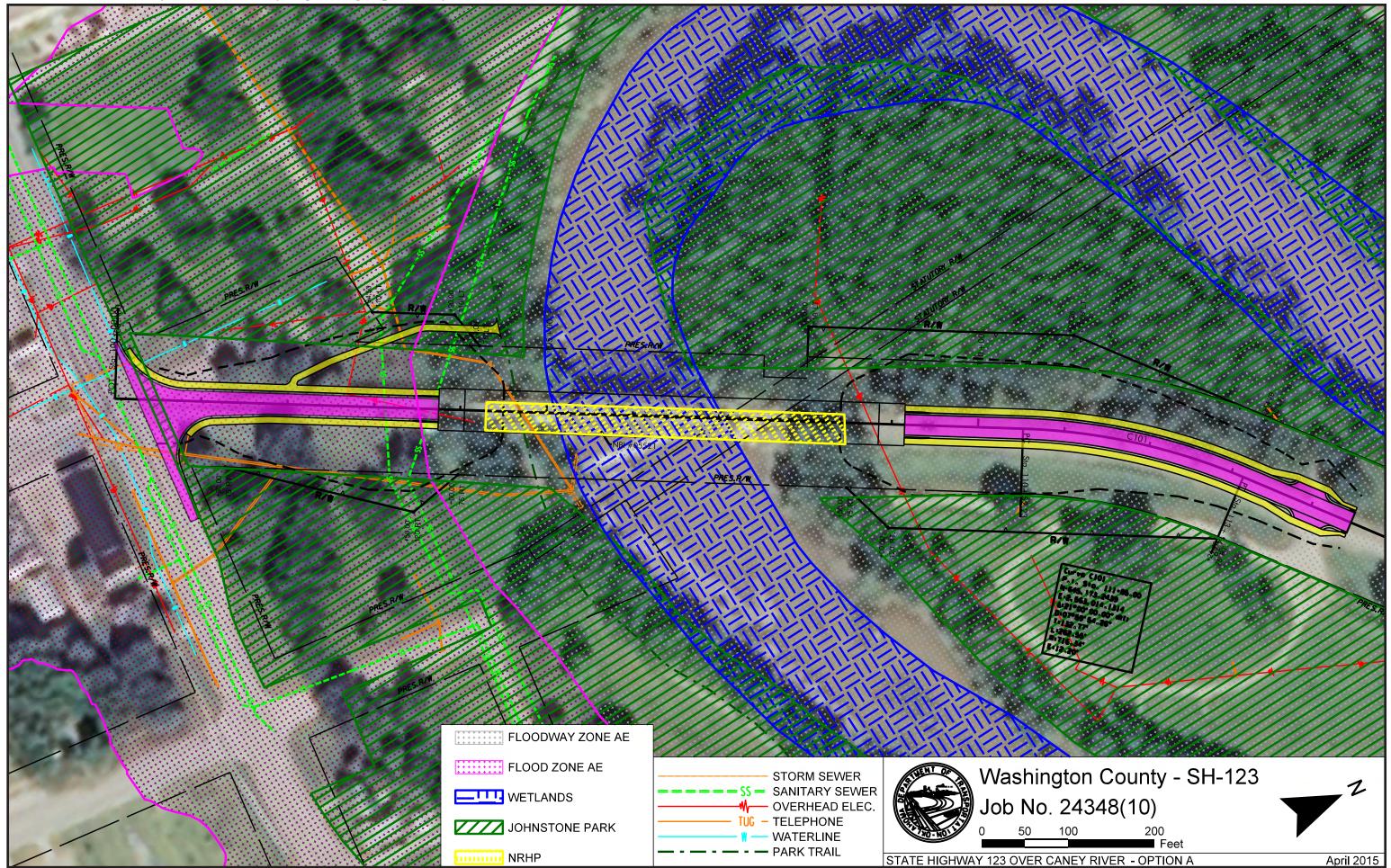
The adjacent features along Tuxedo Boulevard that have environmental concerns are the NWI wetlands, multiple underground storage tanks, Johnstone Park, Tuxedo Park, Bartlesville Price Fields, and Pathfinder Parkway. There are not any impacts anticipated to these features with the reconstruction of the pavement being contained inside of the existing right-of-way.

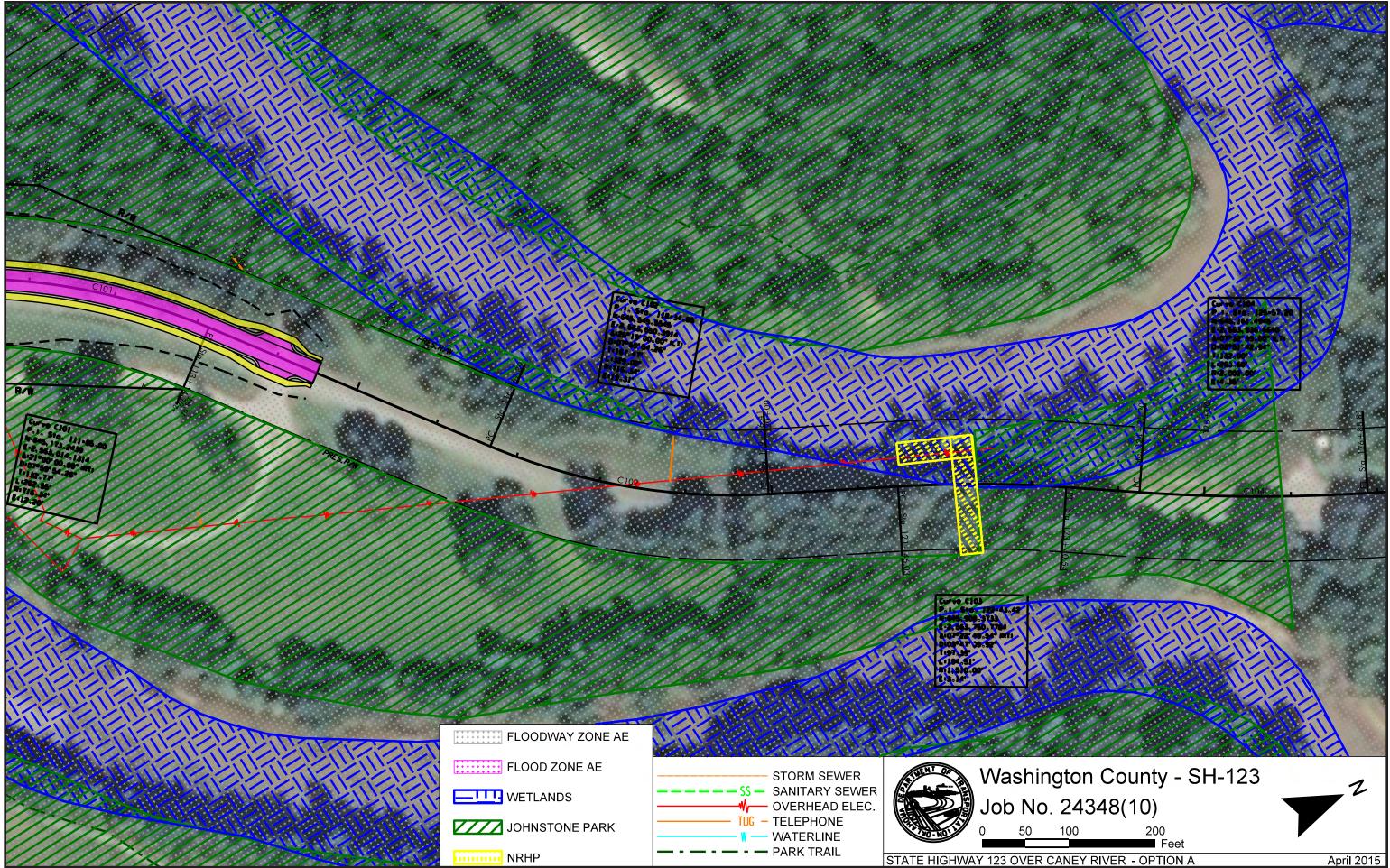


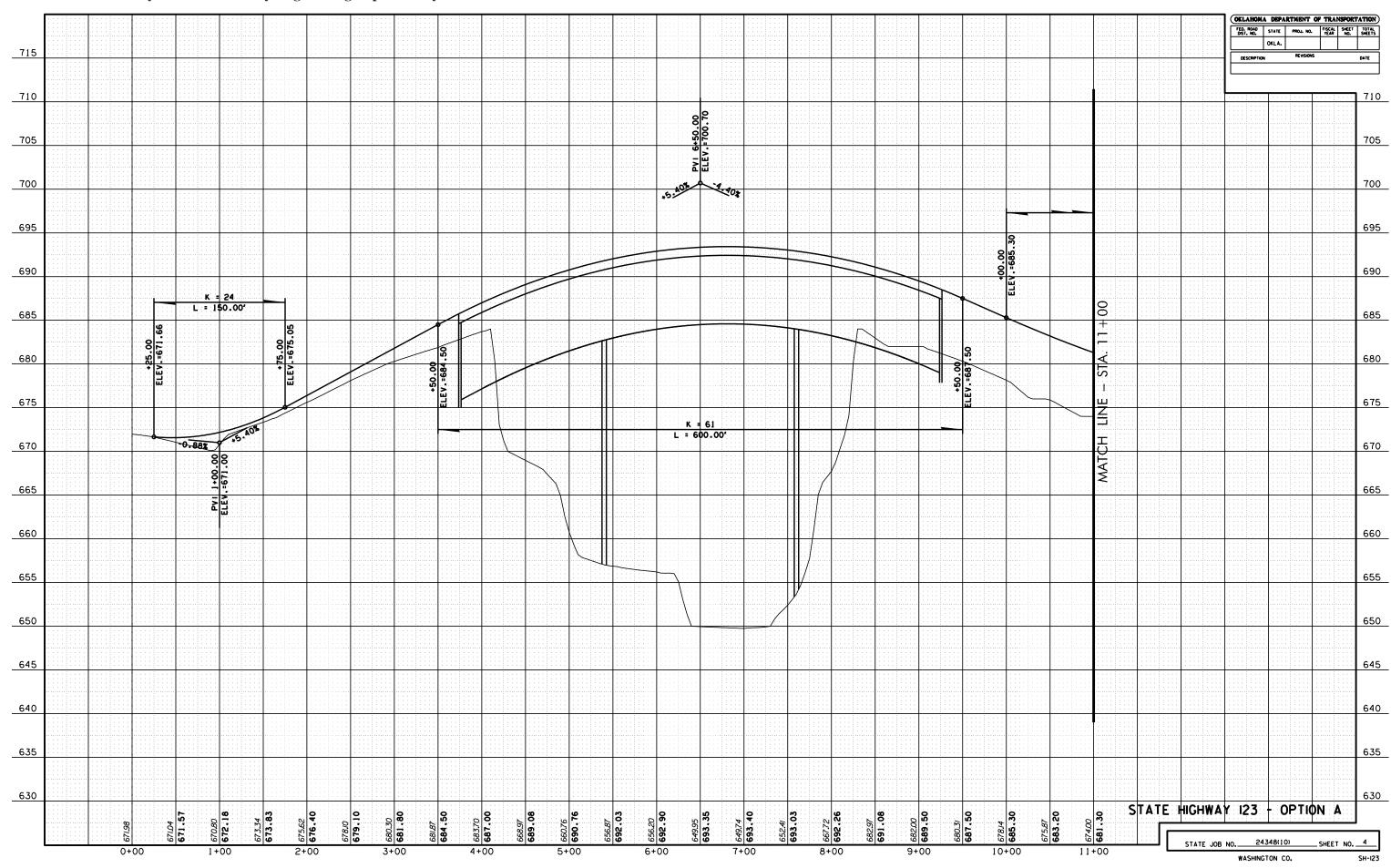
A complete Environmental Assessment to determine other impacts such as wetlands, threatened and endangered species, cultural resources, hazardous waste, etc. was conducted through the ODOT Environmental Services Division by Able Consulting. Environmental impacts are summarized in Exhibit D.

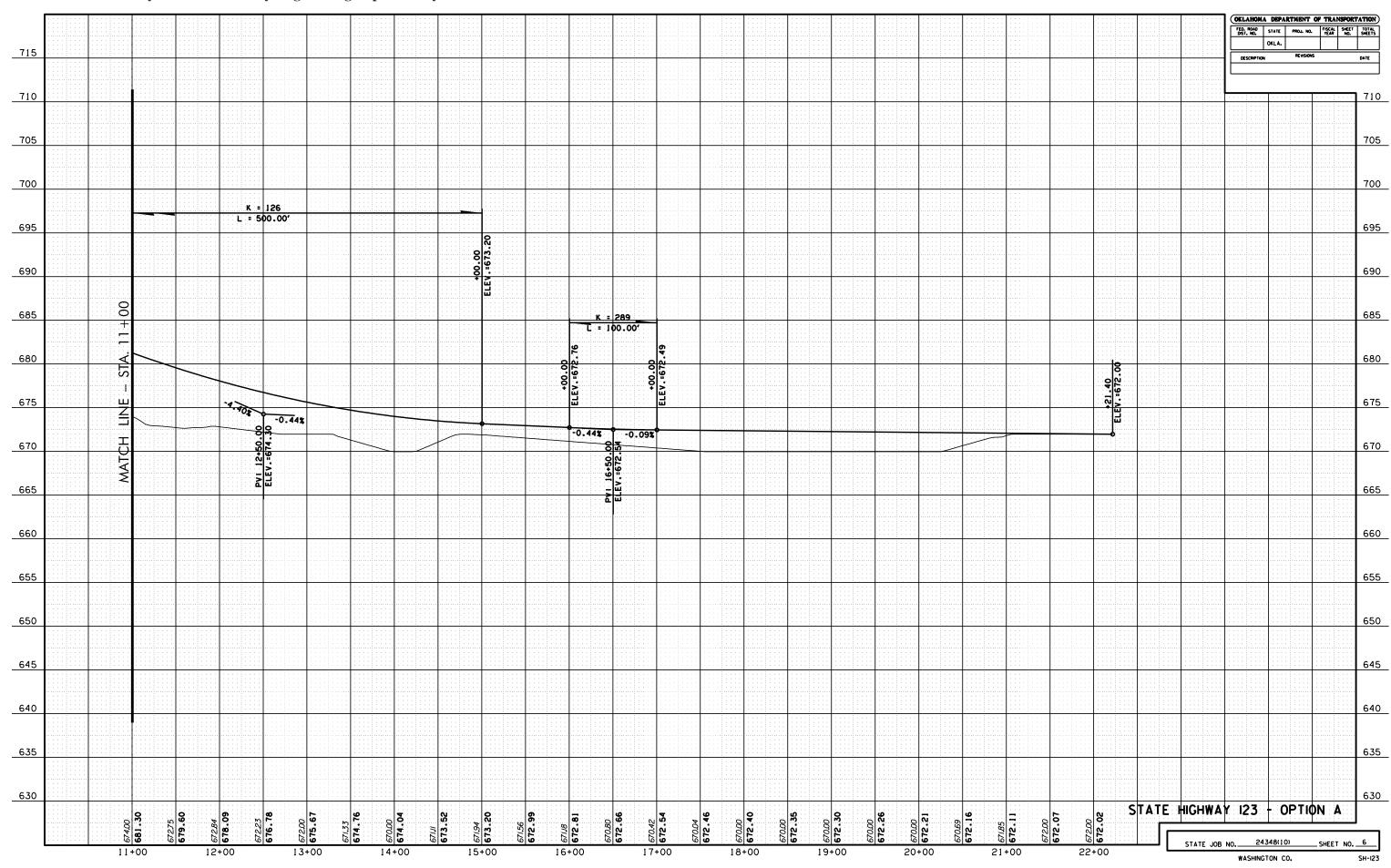
#### **ESTIMATED CONSTRUCTION COST**

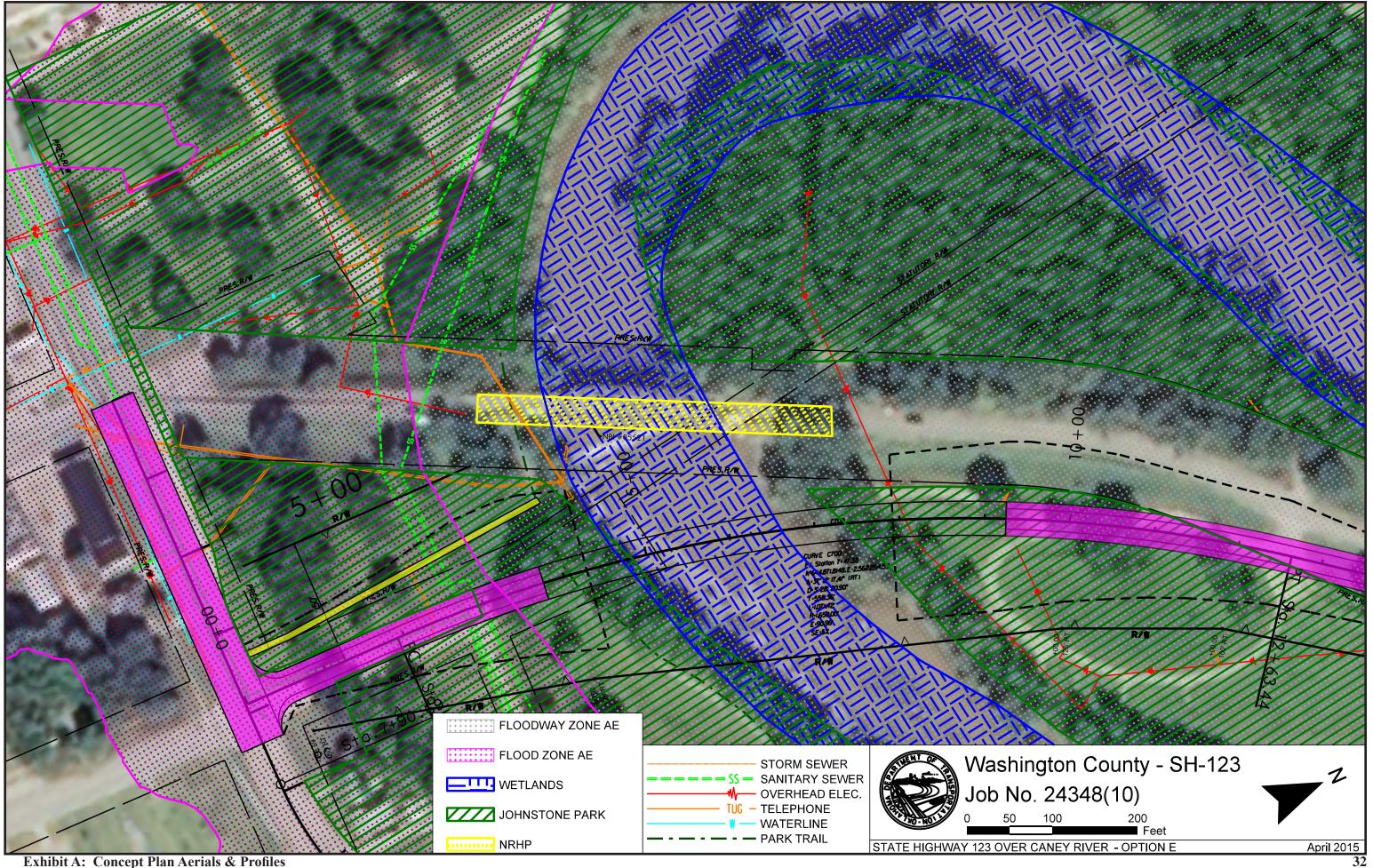
The estimated construction cost for Option G is shown in Exhibit C.



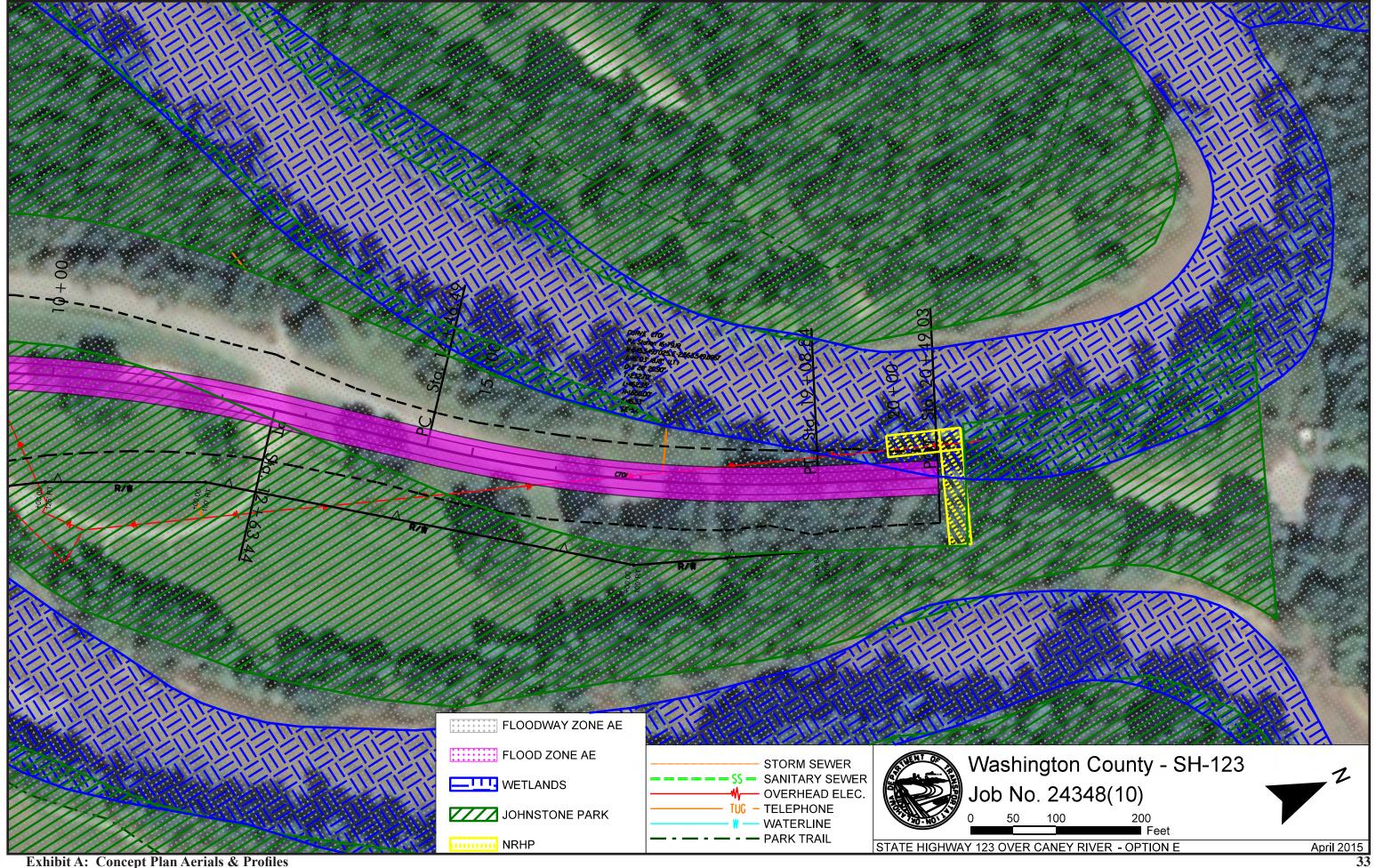




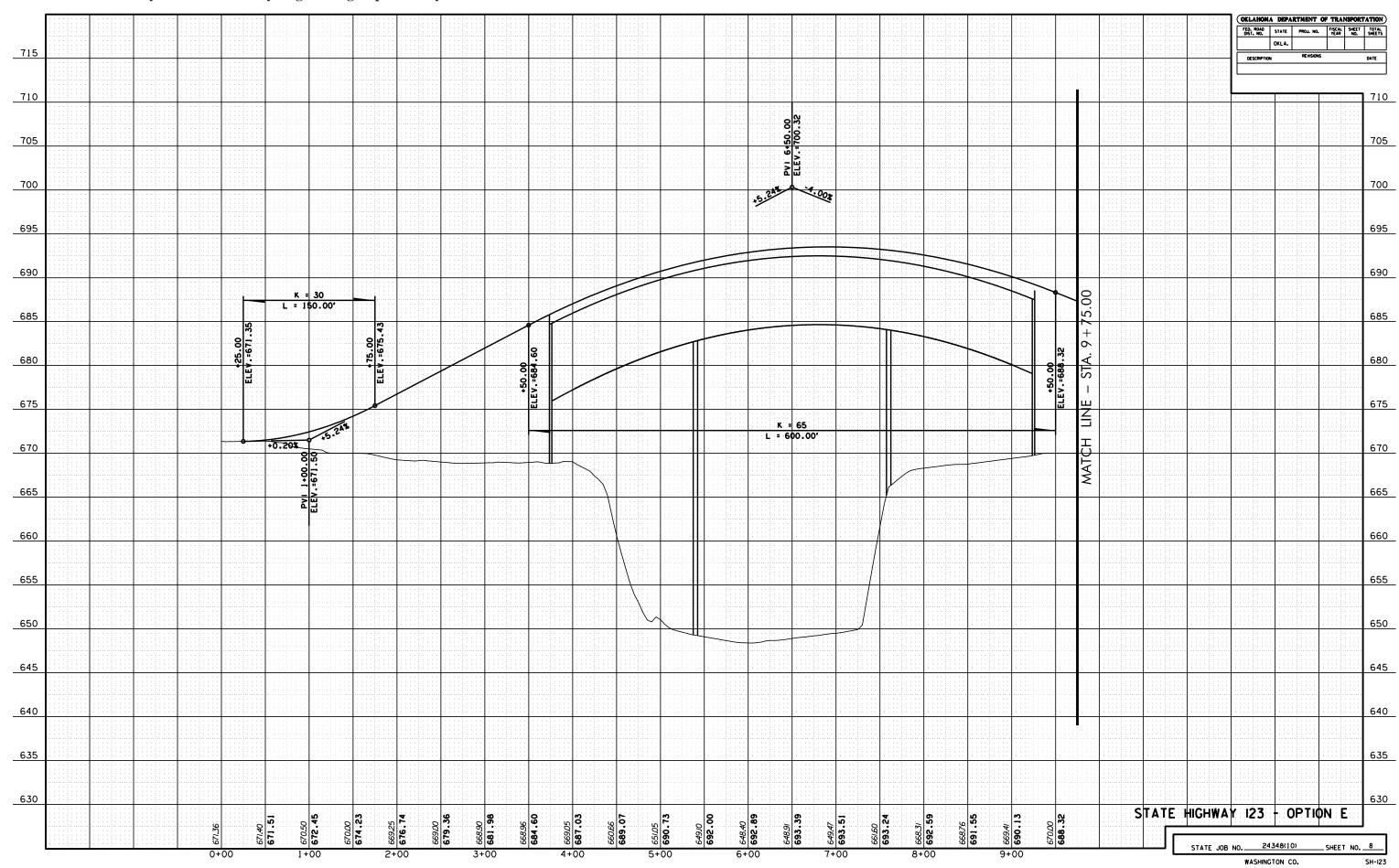


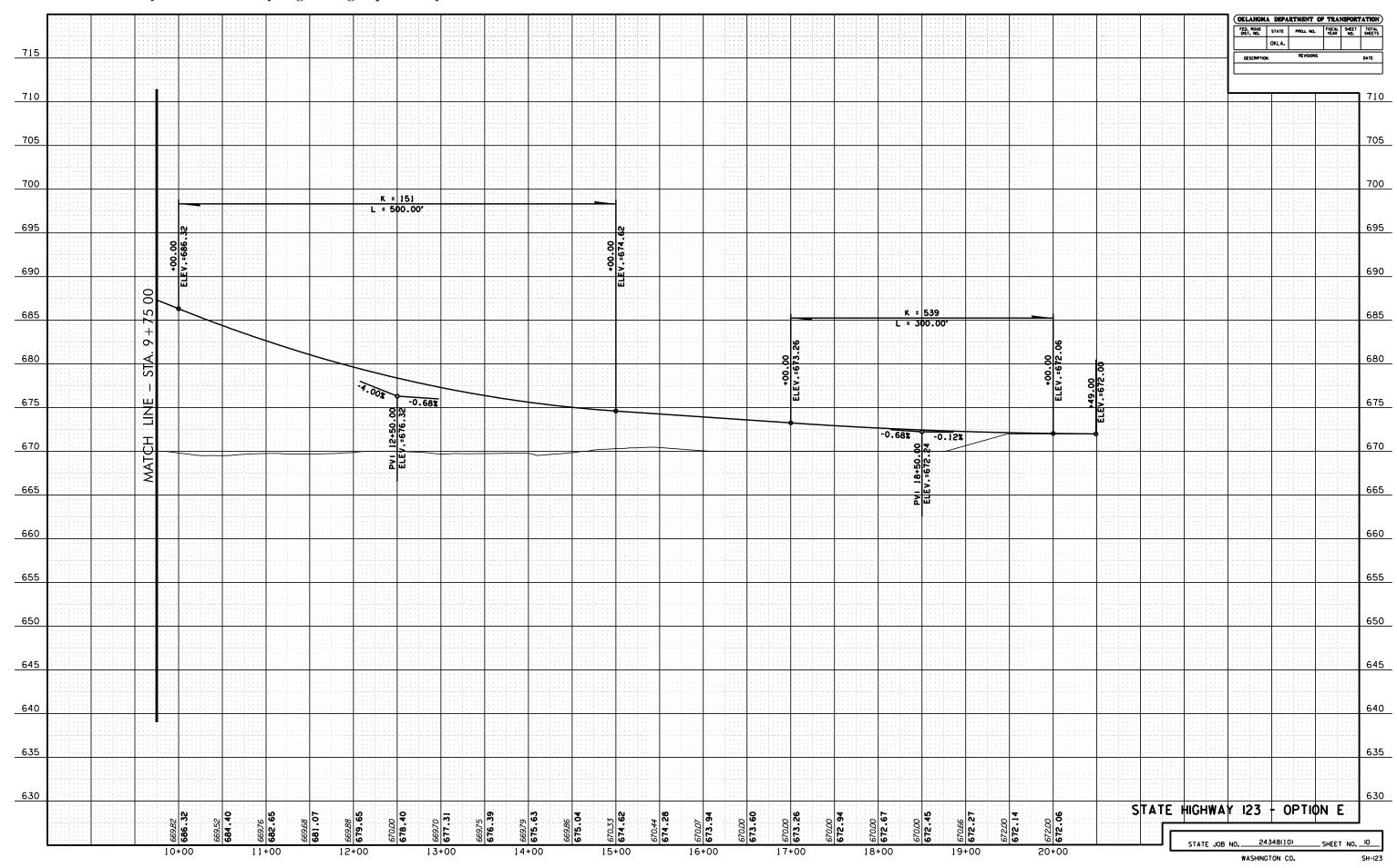


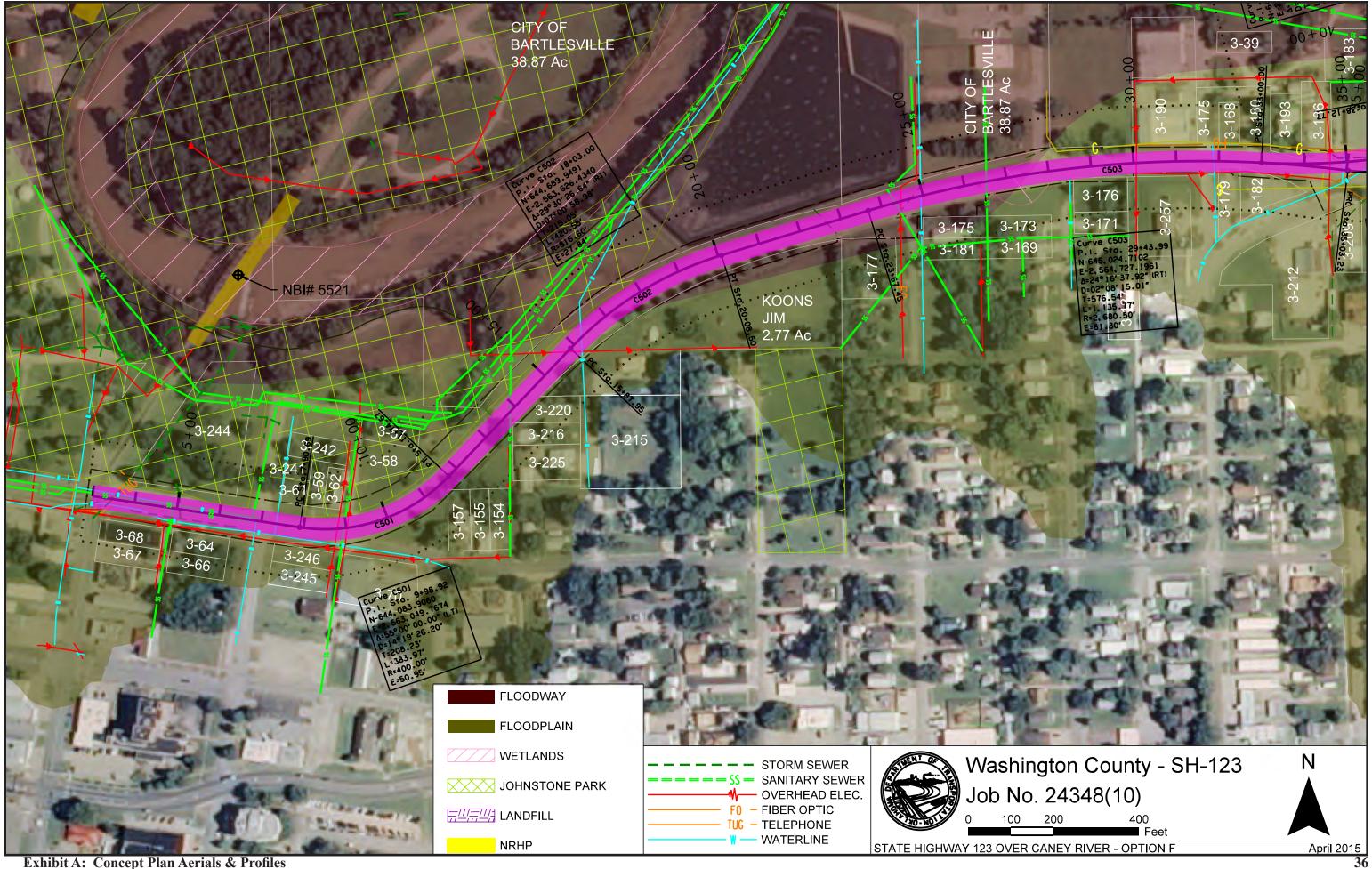
**Exhibit A: Concept Plan Aerials & Profiles** 



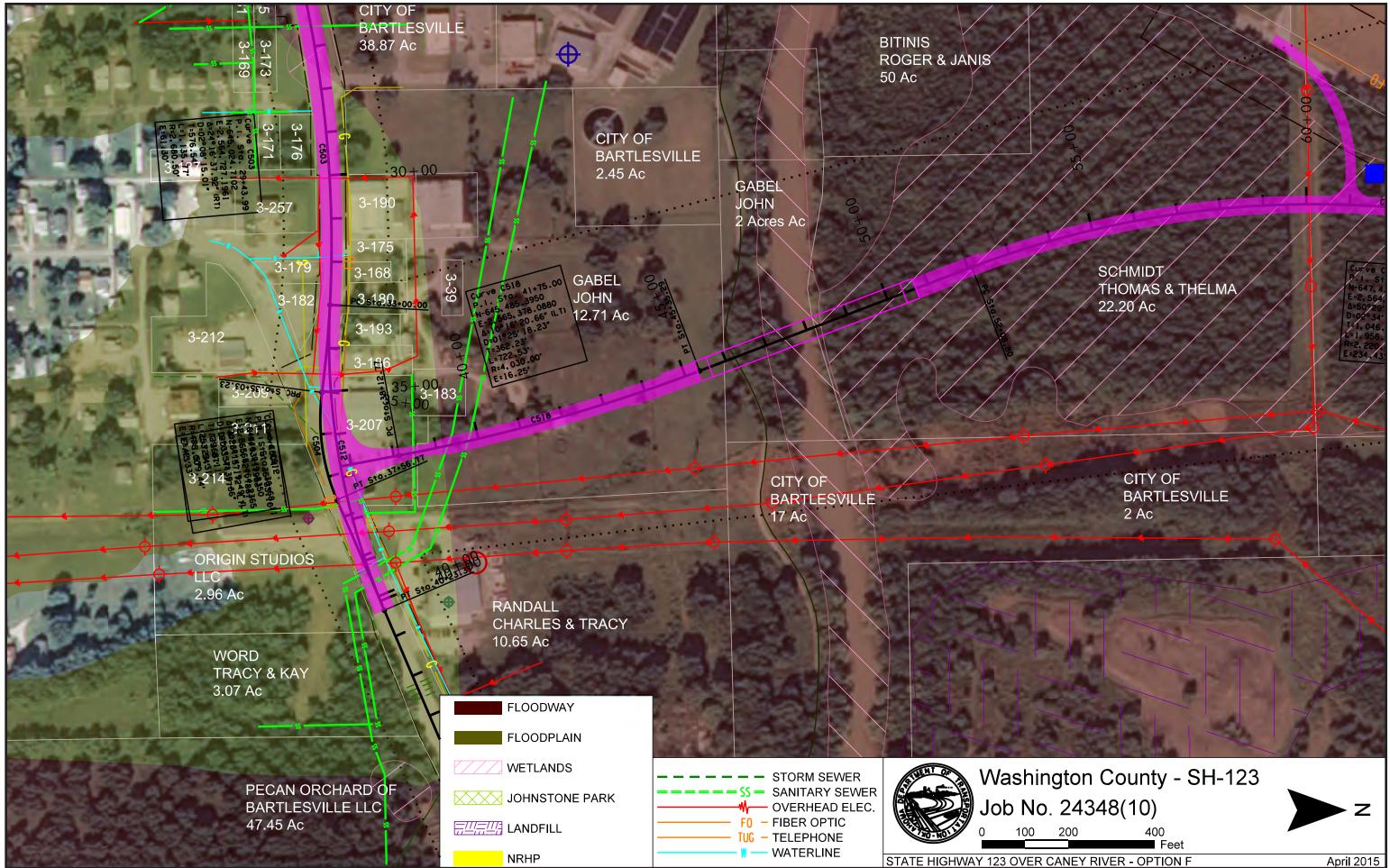
**Exhibit A: Concept Plan Aerials & Profiles** 

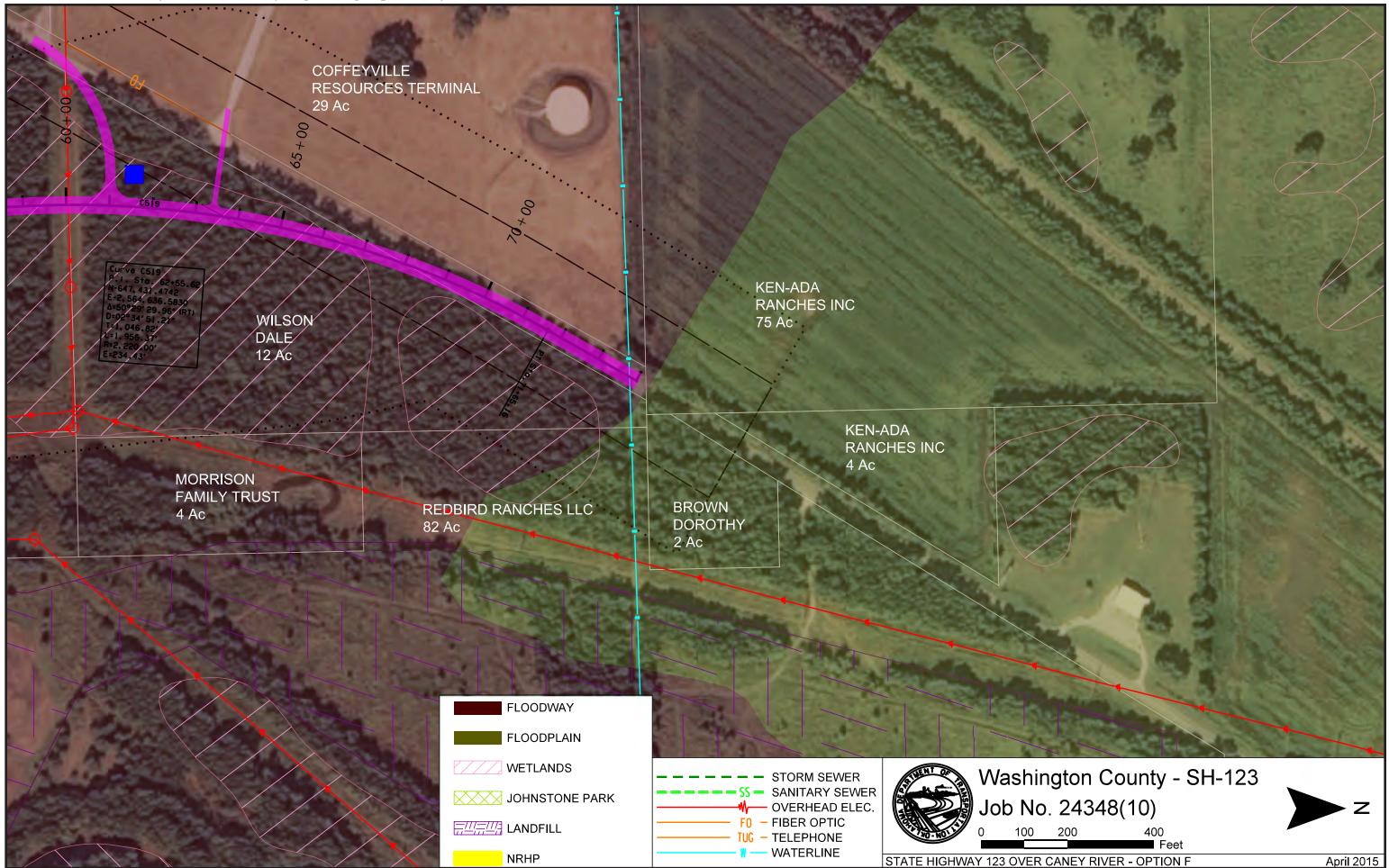


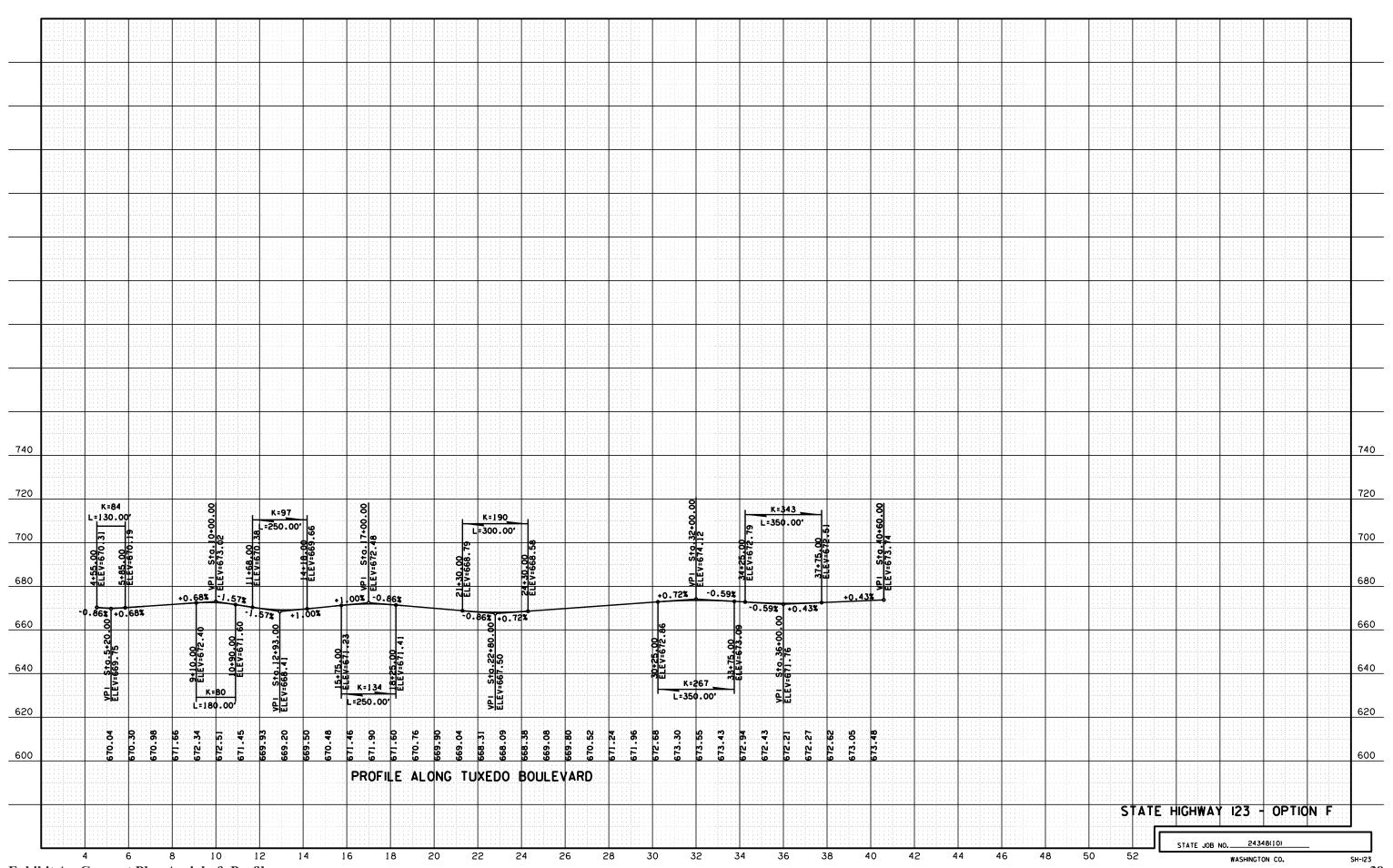


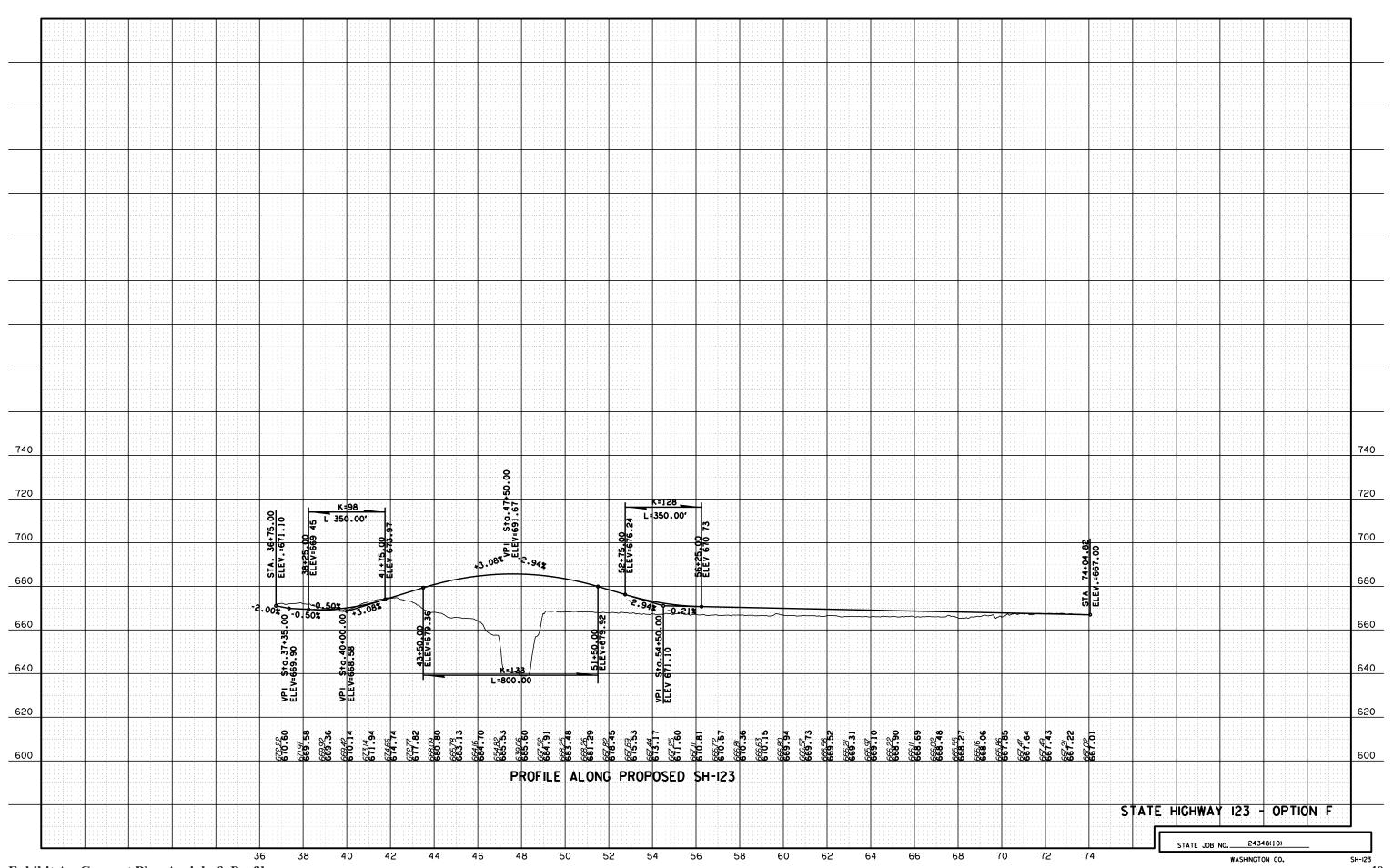


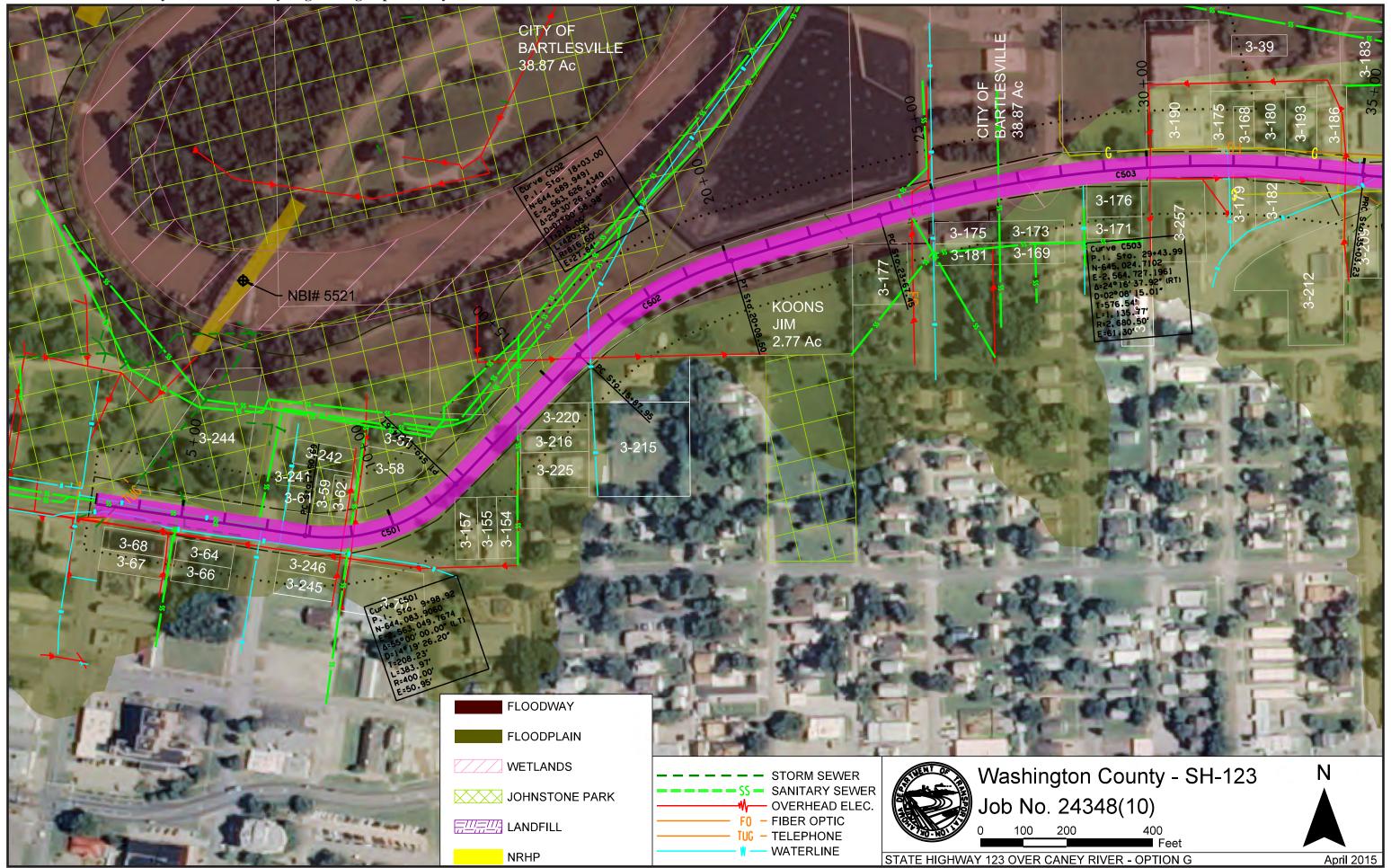
SH-123 over the Caney River Preliminary Engineering Report - May 2015

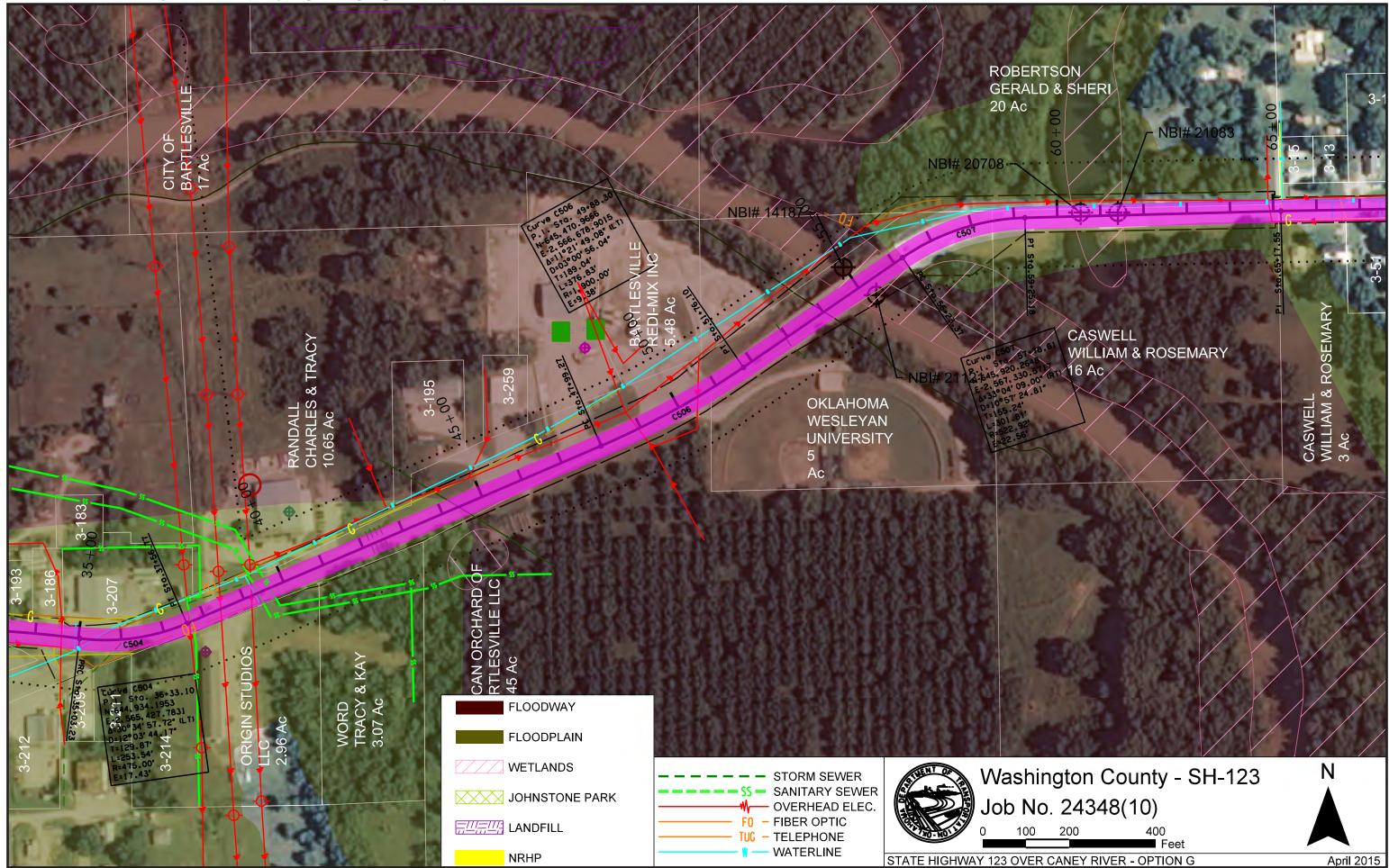


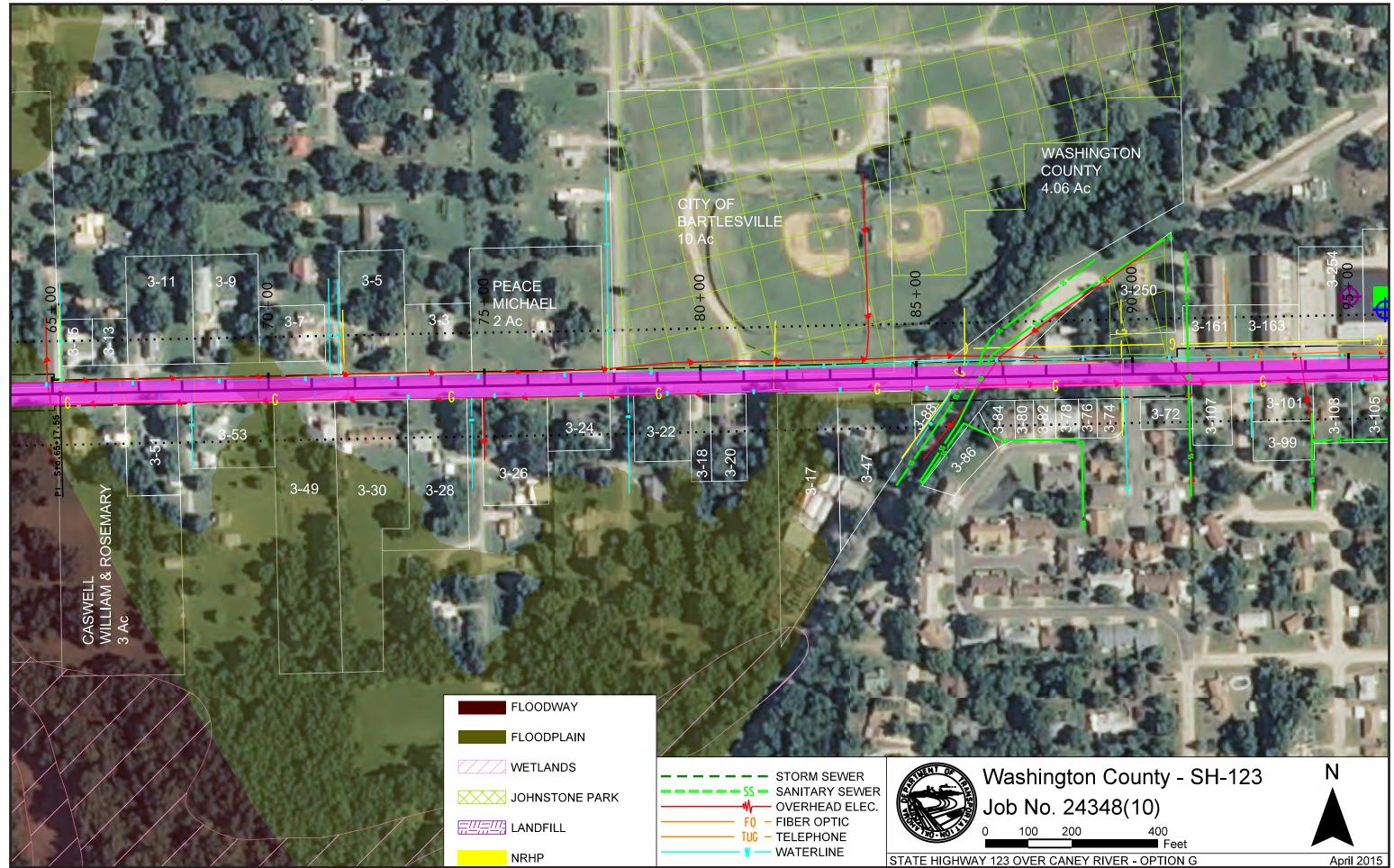


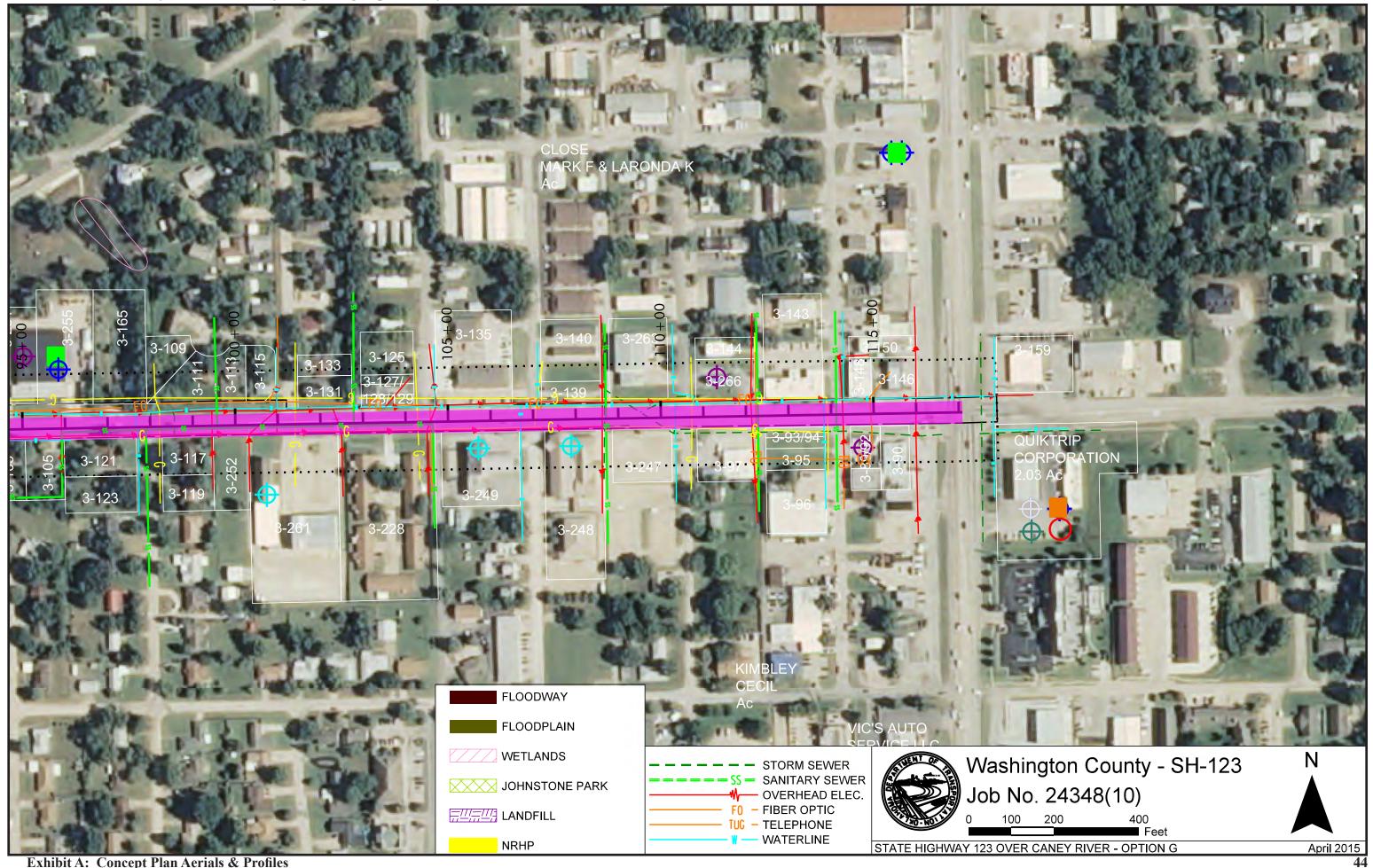


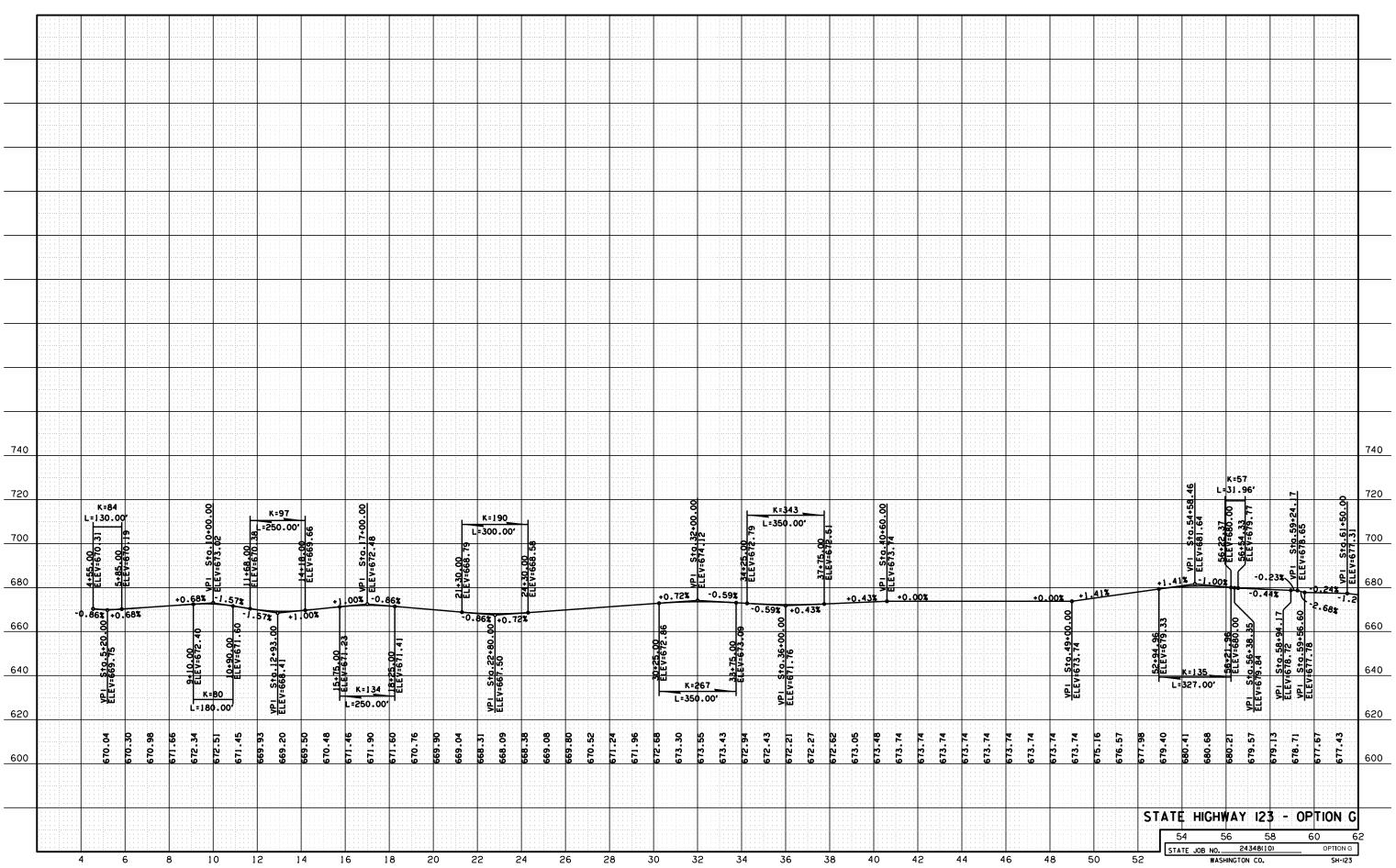


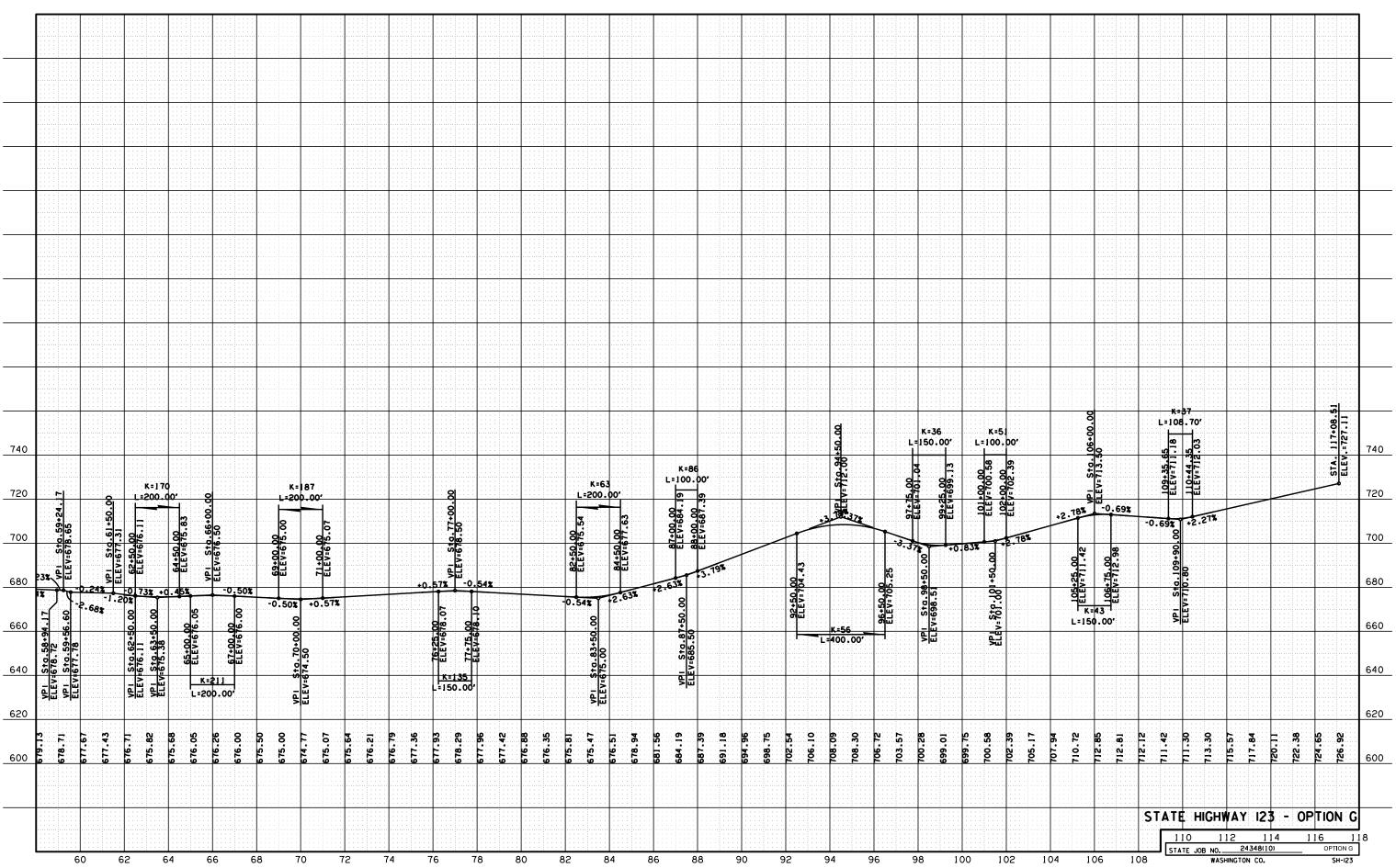


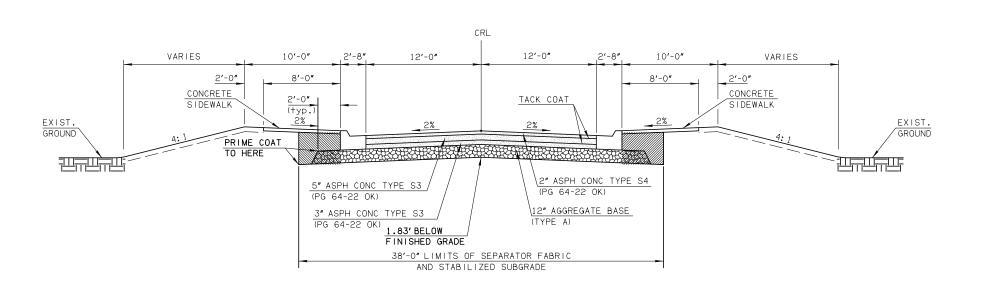












TYPICAL NO. 1 - SH-123

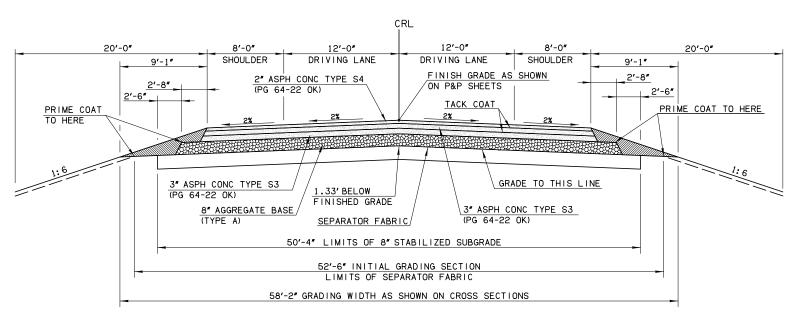
SCALE: 1"=10'

**47** 

Exhibit: B (Option A)
SH-123 OVER CANEY RIVER, 1.68 MI.
NORTH OF SH-123/US-60 JCT.
Washington County
Job No. 24348(10)
April 2015



Exhibit B: Concept Typical Sections

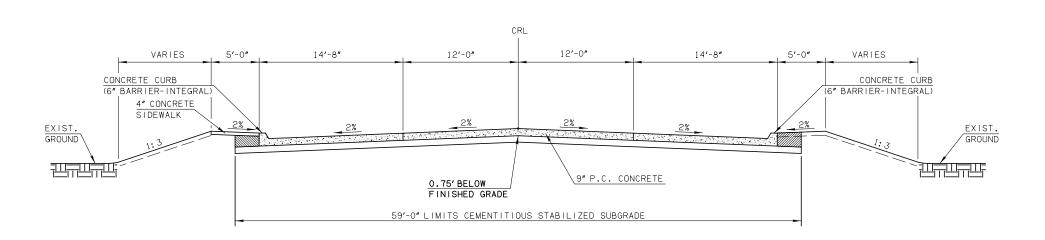


TYPICAL NO. 1 - SH-123

SCALE: 1"=10'

Exhibit: B (Option E and F)
SH-123 OVER CANEY RIVER, 1.68 MI.
NORTH OF SH-123/US-60 JCT.
Washington County
Job No. 24348(10)
April 2015





TYPICAL NO. 2 - TUXEDO BLVD.

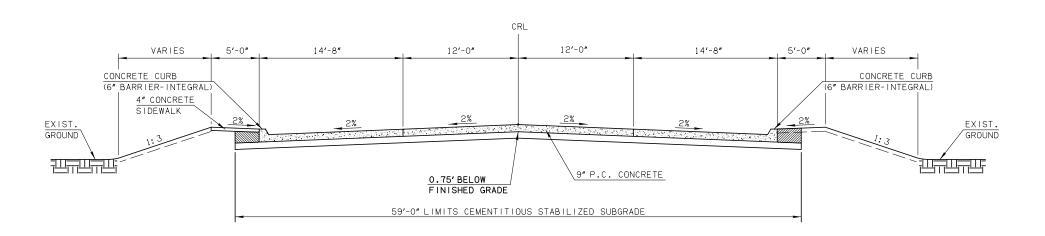
SCALE: 1"=10'

**49** 

Exhibit: B (Option E and F)
SH-123 OVER CANEY RIVER, 1.68 MI.
NORTH OF SH-123/US-60 JCT.
Washington County
Job No. 24348(10)
April 2015



Exhibit B: Concept Typical Sections



TYPICAL NO. 1 - TUXEDO BLVD.

SCALE: 1"=10'

Exhibit: B (Option G)
SH-123 OVER CANEY RIVER, 1.68 MI.
NORTH OF SH-123/US-60 JCT.
Washington County
Job No. 24348(10)
April 2015



Exhibit B: Concept Typical Sections



Oklahoma Department of Transportation State Job No.

Professional Engineering Consultants, P.A. 4150 S. 100th E. Ave., Suite 401 Tulsa, Oklahoma 74146 918-664-5400

PEC Proj. No. 432-11K12-003-5780

4/30/2015

#### **SH-123 OVER CANEY RIVER**

#### **CONCEPT STUDY ESTIMATE - OPTION A**

JP 24348(10)

						JP 24348(10)
ITEM NO.	CODE NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENSION
	ROADW	AV				
			1.01114	4.0	45.000.00	<b>A. A. F. O.</b> O. O. O.
201(A)	0102	CLEARING AND GRUBBING	LSUM	1.0	15,000.00	\$ 15,000.00
202(A)	0183	UNCLASSIFIED EXCAVATION	CY	725.0	10.00	\$ 7,250.00
202(D)	0184	UNCLASSIFIED BORROW	CY	20103.0	10.00	\$ 201,030.00
205(A)	4229	TYPE - A SALVAGED TOPSOIL	LSUM	1.0	40,000.00	\$ 40,000.00
221(C)	2801	TEMPORARY SILT FENCE	LF	2200.0	2.00	\$ 4,400.00
221(D)	2803	TEMPORARY SEDIMENT FILTER	EA	9.0	225.00	\$ 2,025.00
230(A)	2806	SOLID SLAB SODDING	SY	7681.0	3.00	\$ 23,043.00
232(A)	2813	SEEDING METHOD A	AC	2.0	300.00	\$ 600.00
233(A)	2817	VEGETATIVE MULCHING	AC	2.0	250.00	\$ 500.00
241	2832	MOWING	AC	8.0	65.00	\$ 520.00
303(A)	2100	AGGREGATE BASE TYPE B	CY	1130.0	50.00	\$ 56,500.00
307(K)	4300	STABILIZED SUBGRADE	SY	3749.0	6.00	\$ 22,494.00
325	5271	SEPARATOR FABRIC	SY	3781.0	2.00	\$ 7,562.00
402(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE E	TON	346.0	30.00	\$ 10,380.00
407(B)	0250	TACK COAT	GAL	396.0	3.00	\$ 1,188.00
408	5774	PRIME COAT	GAL	1256.0	7.00	\$ 8,792.00
411(B)	5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	TON	789.0	85.00	\$ 67,065.00
411(C)	5960	SUPERPAVE, TYPE S4 (PG 64-22 OK)	TON	263.0	95.00	\$ 24,985.00
609(B)	1525	2'-8" COMB. CURB AND GUTTER (6" BARRIER)	LF	1634.0	25.00	\$ 40,850.00
610(A)	0602	4" CONCRETE SIDEWALK	SY	1751.0	55.00	\$ 96,305.00
611(A)	2657	MANHOLE (4' DIAMETER)	EA	5.0	1,500.00	\$ 7,500.00
611(G)	6000	INLET (SMD-TYPE 1)	EA	1.0	2,000.00	\$ 2,000.00
611(G)	5115	INLET CI DES 2 (D)	EA	8.0	3,000.00	\$ 24,000.00
613(A)	0400	12" R.C. PIPE CLASS III	LF	102.0	35.00	\$ 3,570.00
613(A)	0403	15" R.C. PIPE CLASS III	LF	361.0	40.00	\$ 14,440.00
613(A)	0491	18" R.C. PIPE CLASS III	LF	188.0	50.00	\$ 9,400.00
613(A)	0492	24" R.C. PIPE CLASS III	LF	32.0	55.00	\$ 1,760.00
613(L)	5730	24" PREFAB. CULVERT END SEC., ROUND	EA	1.0	650.00	\$ 650.00
613(V)	1180	TRENCH EXCAVATION	CY	348.0	20.00	\$ 6,960.00
613(S)	1186	STANDARD BEDDING MATERIAL	CY	267.0	40.00	\$ 10,680.00
619(A)	0920	REMOVAL OF STRUCTURES AND OBSTR.	LSUM	1.0	10,000.00	\$ 10,000.00
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	SY	2347.0	3.00	\$ 7,041.00
619(C)	0924	SAWING PAVEMENT	LF	102.0	3.50	\$ 357.00

Continued on next page



Oklahoma Department of Transportation

State Job No.

Professional Engineering Consultants, P.A. 4150 S. 100th E. Ave., Suite 401 Tulsa, Oklahoma 74146 918-664-5400

PEC Proj. No. 432-11K12-003-5780

4/30/2015

#### **SH-123 OVER CANEY RIVER**

#### **CONCEPT STUDY ESTIMATE - OPTION A** JP 24348(10) ITEM CODE QUANTITY **UNIT COST EXTENSION DESCRIPTION UNIT** NO. NO. 0200 BRIDGE BRIDGE REPLACEMENT 1.00 2,810,000.00 2,810,000.00 BRIDGE REMOVAL LSUM 1.00 110,000.00 110,000.00 0300 TRAFFIC TRAFFIC SIGNAL MODIFICATION LSUM 60,000.00 60,000.00 TRAFFIC CONTROL LSUM 25,000.00 25,000.00 MARKING AND SIGNING LSUM 20,000.00 \$ 20,000.00 1 0600 STAKING 642(A) 0095 CONSTRUCTION STAKING LEVEL 1 LSUM 1.00 50,000.00 50,000.00 0640 CONSTRUCTION 640(A) 1426 FIELD OFFICE EΑ 1.00 20.00 \$ 20.00 1552 MOBILIZATION LSUM 1.00 302,700.00 302,700.00 641 \$ SWPPP DOCUMENTATION AND MANAGEMENT LSUM 220 2800 1.00 20,000.00 \$ 20,000.00 **UTILITY RELOCATION** CITY OF BARTLESVILLE - SANITARY SEWER MANHOLES 1,500.00 3,000.00 EΑ LF PSO - OVERHEAD POWER 805 15.00 \$ 12,075.00 **RIGHT-OF-WAY** RIGHT-OF-WAY ACQUISITION AC 0.90 30,000.00 \$ 27,000.00 PROPERTY RELOCATION PROPERTY RELOCATION AND DISPLACEMENT EΑ 0 300,000.00 \$ 0.00 Subtotal Roadway = 728,847.00 Subtotal Bridge = \$ 2,920,000.00 Subtotal Traffic = \$ 105,000.00 Subtotal Staking = 50,000.00 \$ Subtotal Construction = 322,720.00 \$ \$ SUBTOTAL = 4,126,567.00 20% CONTINGENCY (ROADWAY) = \$ 241,314.00

Subtotal Utility Relocation = \$ 15,075.00 Subtotal Right-of-Way = \$ 27,000.00 Subtotal Property Relocation = \$ 0.00

\$

584,000.00

4,951,881.00

Total Estimate of Project Cost (ODOT Portion) = \$ 4,993,956.00

20% CONTINGENCY (BRIDGE) =

Total Estimate of Construction Costs =



Oklahoma Department of Transportation

PEC Proj. No. 432-11K12-003-5780

Proj. No.

State Job No. J/P 24348(10)

Professional Engineering Consultants, P.A. 4150 S. 100th E. Ave., Suite 401 Tulsa, Oklahoma 74146 918-664-5400

4/30/2015

## **SH-123 OVER CANEY RIVER**

#### **CONCEPT STUDY ESTIMATE - OPTION E**

JP 24348(10)

							JP 24348(10)
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXT	ENSION
NO.	NO.						
0100	ROADW	AY					
201	0102	CLEARING AND GRUBBING	LSUM	1	30,000.00	\$	30,000.00
202(A)	0183	UNCLASSIFIED EXCAVATION	CY	550	10.00	\$	5,500.00
202(D)	0184	UNCLASSIFIED BORROW	CY	43,500	10.00	\$	435,000.00
205(A)	4229	TYPE - A SALVAGED TOPSOIL	LSUM	1	25,000.00	\$	25,000.00
221(C)	2801	TEMPORARY SILT FENCE	LF	3,000	2.00	\$	6,000.00
230(A)	2806	SOLID SLAB SODDING	SY	21,000	2.00	\$	42,000.00
232(A)	2813	SEEDING METHOD A	AC	4	300.00	\$	1,200.00
233(A)	2817	VEGETATIVE MULCHING	AC	4	250.00	\$	1,000.00
241	2832	MOWING	AC	17	65.00	\$	1,105.00
303(A)	2100	AGGREGATE BASE TYPE A	CY	1,629	40.00	\$	65,160.00
307(K)	4300	STABILIZED SUBGRADE	SY	8,662	6.00	\$	51,972.00
325	5271	SEPARATOR FABRIC	SY	7,995	2.00	\$	15,990.00
407(B)	0250	TACK COAT	GAL	1,999	3.00	\$	5,997.00
408	5774	PRIME COAT	GAL	4,431	7.00	\$	31,017.00
411(B)	5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	TON	2,239	85.00	\$	190,315.00
411(C)	5955	SUPERPAVE, TYPE S4 (PG 70-28 OK)	TON	833	95.00	\$	79,135.00
414(A)	0210	P.C. CONCRETE PAVEMENT (PLACEMENT)	SY	2,723	20.00	\$	54,460.00
414(G)	5275	P.C. CONCRETE FOR PAVEMENT	CY	681	90.00	\$	61,290.00
609(A)	0300	CONCRETE CURB (6" BARRIER-INTEGRAL)	LF	980	20.00	\$	19,600.00
610(A)	0602	4" CONCRETE SIDEWALK	SY	578	55.00	\$	31,790.00
619(A)	0920	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LSUM	1	20,000.00	\$	20,000.00
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	SY	3,900	3.00	\$	11,700.00
619(C)	0924	SAWING PAVEMENT	LF	120	3.50	\$	420.00
623(A)	0932	BEAM GUARDRAIL W-BEAM SINGLE	LF	225	25.00	\$	5,625.00
623(I)	8690	GUARDRAIL BRIDGE CONN-THRIE (31")	EA	4	2,500.00	\$	10,000.00
623(G)	8590	GUARDRAIL END TREATEMENT (31")	EA	4	2,000.00	\$	8,000.00
		STORMWATER/DRAINAGE IMPROVEMENTS	LSUM	1	50,000.00	\$	50,000.00

Continued on next page



Oklahoma Department of Transportation

Proj. No.

State Job No. J/P 24348(10)

Professional Engineering Consultants, P.A. 4150 S. 100th E. Ave., Suite 401 Tulsa, Oklahoma 74146 918-664-5400

PEC Proj. No. 432-11K12-003-5780

4/30/2015

#### SH-123 OVER CANEY RIVER

		SH-123 OVER CAN					
		CONCEPT STUDY ESTIM	ATE - (	OPTION E			JP 24348(10)
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY	UNIT COST		EXTENSION
NO.	NO.	<u> </u>					
02	טט אואם טט	BRIDGE REPLACEMENT (165'-220'-165')	LSUM	1	2,425,500.00	\$	2,425,500.00
		BRIDGE REMOVAL	LSUM	1	110,000.00	\$	110,000.00
030	00 TRAFF		LOUIVI	'	110,000.00	φ	110,000.00
	, , , , , , , , , , , , , , , , , , ,	TRAFFIC SIGNAL MODIFICATION	LSUM	1	150,000.00	\$	150,000.00
		TRAFFIC CONTROL	LSUM	1	40,000.00	\$	40,000.00
		MARKING AND SIGNING	LSUM	1	20,000.00	\$	20,000.00
060	00 STAKIN		LOOW		20,000.00	Ψ	20,000.00
642(A)	0095	CONSTRUCTION STAKING LEVEL 1	LSUM	1	50,000.00	\$	50,000.00
	40 CONST	RUCTION			,		
640(A)	1426	FIELD OFFICE	EA	1	20,000.00	\$	20,000.00
641	1552	MOBILIZATION	LSUM	1	319,250.00	\$	319,250.00
220	2800	SWPPP DOCUMENTATION AND MANAGEMENT	LSUM	1	20,000.00	\$	20,000.00
UT	ILITY REL	OCATION			,		· · · · · · · · · · · · · · · · · · ·
		CITY OF BARTLESVILLE - SANITARY SEWER	LF	300	60.00	\$	18,000.00
		CITY OF BARTLESVILLE - SANITARY SEWER MANHOLES	EA	4	1,500.00	\$	6,000.00
		PSO - OVERHEAD POWER	LF	805	15.00	\$	12,075.00
RIC	3HT-OF-W	VAY					
		RIGHT-OF-WAY ACQUISITION	AC	4.93	30,000.00	\$	147,900.00
PR	OPERTY	RELOCATION					
		PROPERTY RELOCATION AND DISPLACEMENT	EA	0	300,000.00	\$	0.00
			S	Subtotal Roadway	=	\$	1,259,276.00
				Subtotal Bridge	=	\$	2,535,500.00
				Subtotal Traffic	=	\$	210,000.00
				Subtotal Staking	=	\$	50,000.00
			Subt	total Construction	=	\$	359,250.00
				OLIDTOTAL		Φ	4 44 4 000 00
		200/ COM	TINICENIC	SUBTOTAL		\$	4,414,026.00
20% CONTINGENCY (ROADWAY) 20% CONTINGENCY (BRIDGE)						\$	375,706.00
		Total Estimate				\$ \$	507,100.00 <b>5,296,832.00</b>
		Total Estillate	oi Consti	uction costs	_	Φ	3,290,032.00
			Subtotal	Utility Relocation	=	\$	36,075.00
				otal Right-of-Way		\$	147,900.00
		:	Subtotal Pro	operty Relocation	=	\$	0.00
		Total Estimate of Projec	t Cost (O	DOT Portion)	=	\$	5,480,807.00



Oklahoma Department of Transportation

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PEC Proj. No. 432-11K12-003-5780

4/30/2015

#### **SH-123 OVER CANEY RIVER**

#### **CONCEPT STUDY ESTIMATE - OPTION F**

		CONCEPT STUDY EST	IIVIA I E - (	JE HON E			JP 24348(10)
ITEM	CODE	DESCRIPTION	UNIT	QUANTITY	UNIT COST	F	EXTENSION
NO.	NO.	DESCRIPTION	UNIT	QUANTITI	ONIT COST		ZATENSION
010	0 ROADW	AY					
201	0102	CLEARING AND GRUBBING	LSUM	1	40,000.00	\$	40,000.00
202(A)	0183	UNCLASSIFIED EXCAVATION	CY	25,000	10.00	\$	250,000.00
202(D)	0184	UNCLASSIFIED BORROW	CY	11,500	10.00	\$	115,000.00
205(A)	4229	TYPE - A SALVAGED TOPSOIL	LSUM	1	40,000.00	\$	40,000.00
221(C)	2801	TEMPORARY SILT FENCE	LF	3,000	2.00	\$	6,000.00
221(D)	2803	TEMPORARY SEDIMENT FILTER	EA	20	220.00	\$	4,400.00
221(F)	0100	TEMPORARY SILT DIKE	LF	300	8.00	\$	2,400.00
230(A)	2806	SOLID SLAB SODDING	SY	55,000	2.00	\$	110,000.00
232(A)	2813	SEEDING METHOD A	AC	6	300.00	\$	1,800.00
233(A)	2817	VEGETATIVE MULCHING	AC	6	250.00	\$	1,500.00
241	2832	MOWING	AC	23	65.00	\$	1,495.00
303(A)	2100	AGGREGATE BASE TYPE A	CY	3,512	40.00	\$	140,480.00
307(K)	4300	STABILIZED SUBGRADE	SY	18,258	6.00	\$	109,548.00
325	5271	SEPARATOR FABRIC	SY	17,556	2.00	\$	35,112.00
402(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE E	TON	1,106	25.00	\$	27,650.00
407(B)	0250	TACK COAT	GAL	4,214	3.00	\$	12,642.00
408	5774	PRIME COAT	GAL	10,253	7.00	\$	71,771.00
411(B)	5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	TON	4,719	80.00	\$	377,520.00
411(C)	5955	SUPERPAVE, TYPE S4 (PG 70-28 OK)	TON	1,658	90.00	\$	149,220.00
414(A)	0210	P.C. CONCRETE PAVEMENT (PLACEMENT)	SY	20,973	20.00	\$	419,460.00
414(G)	5275	P.C. CONCRETE FOR PAVEMENT	CY	5,244	90.00	\$	471,960.00
509(D)	0325	CLASS C CONCRETE	CY	35	400.00	\$	14,000.00
609(A)	0300	CONCRETE CURB (6" BARRIER-INTEGRAL)	LF	7,550	15.00	\$	113,250.00
610(A)	0602	4" CONCRETE SIDEWALK	SY	3,000	55.00	\$	165,000.00
610(B)	0604	6" CONCRETE DRIVEWAY	SY	2,000	50.00	\$	100,000.00
611(A)	2657	MANHOLE (4' DIAMETER)	EA	8	2,500.00	\$	20,000.00
611(G)	5112	INLET CI DES 2(STD)	EA	8	3,000.00	\$	24,000.00
611(G)	5119	INLET CI DES 2(2D)	EA	4	8,000.00	\$	32,000.00
611(G)	5120	INLET CI DES 3(STD)	EA	12	6,000.00	\$	72,000.00
613(A)	0491	18" R.C. PIPE CLASS III	LF	200	60.00	\$	12,000.00
613(A)	0492	24" R.C. PIPE CLASS III	LF	600	70.00	\$	42,000.00
613(A)	0494	36" R.C. PIPE CLASS III	LF	120	100.00	\$	12,000.00
613(L)	5730	24" PREFAB. CULVERT END SEC., ROUND	EA	4	450.00	\$	1,800.00
613(L)	5734	36" PREFAB. CULVERT END SEC., ROUND	EA	2	1,500.00	\$	3,000.00
613(T)	1187	STANDARD BEDDING MATERIAL, CLASS C	CY	800	40.00	\$	32,000.00
613(V)	1180	TRENCH EXCAVATION	CY	200	15.00	\$	3,000.00
619(A)	0920	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LSUM	1	35,000.00	\$	35,000.00
619(B)	4727	REMOVAL OF CONCRETE PAVEMENT	SY	18,000	10.00	\$	180,000.00
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	SY	2,800	3.00	\$	8,400.00
619(C)	0924	SAWING PAVEMENT	LF	250	4.00	\$	1,000.00
623	0100	(PL) GUARDRAIL CURBING	EA	4	700.00	\$	2,800.00
623(A)	0932	BEAM GUARDRAIL W-BEAM SINGLE	LF	225	25.00	\$	5,625.00
623(I)	8690	GUARDRAIL BRIDGE CONN-THRIE (31")	EA	4	2,500.00	\$	10,000.00
623(G)	8590	GUARDRAIL END TREATEMENT (31")	EA	4	2,000.00	\$	8,000.00
624(C)	4459	FENCE-STYLE SWF (5 BARBED WIRE)	LF	5,000	5.00	\$	25,000.00

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PEC Proj. No. 432-11K12-003-5780

4/30/2015

JP 24348(10)

#### **SH-123 OVER CANEY RIVER**

# CONCEPT STUDY ESTIMATE - OPTION F

ITEM	CODE	DESCRIPTION	UNIT	QUANTITY	UNIT COST	ı	EXTENSION
NO.	NO.						
02	200 BRIDG	jE					
		BRIDGE REPLACEMENT (135'-210'-135')	LSUM	1	2,425,500.00	\$	2,425,500.00
		BRIDGE REMOVAL (SH-123 OVER THE CANEY RIVER)	LSUM	1	110,000.00	\$	110,000.00
03	00 TRAFF	IC					
		TRAFFIC SIGNAL MODIFICATION	LSUM	1	150,000.00	\$	150,000.00
		TRAFFIC CONTROL	LSUM	1	120,000.00	\$	120,000.00
		MARKING AND SIGNING	LSUM	1	65,000.00	\$	65,000.00
06	00 STAKII	NG					
642(A)	0095	CONSTRUCTION STAKING LEVEL 1	LSUM	1	80,000.00	\$	80,000.00
06	40 CONST	TRUCTION					
640(A)	1426	FIELD OFFICE	EA	1	30,000.00	\$	30,000.00
641	1552	MOBILIZATION	LSUM	1	455,275.00	\$	455,275.00
220	2800	SWPPP DOCUMENTATION AND MANAGEMENT	LSUM	1	30,000.00	\$	30,000.00
U1	ILITY REI	OCATION					
		CITY OF BARTLESVILLE - SANITARY SEWER	LF	365	60.00	\$	21,900.00
		CITY OF BARTLESVILLE - SANITARY SEWER MANHOLES	EA	6	1,500.00	\$	9,000.00
		PSO - OVERHEAD POWER	LF	805	15.00	\$	12,075.00
		VERDIGRIS VALLEY ELECTRIC COOP - OVERHEAD POWER	LF	500	15.00	\$	7,500.00
RI	GHT-OF-V	VAY					
		RIGHT-OF-WAY ACQUISITION	AC	15.87	30,000.00	\$	476,100.00
PF	ROPERTY	RELOCATION					
		PROPERTY RELOCATION AND DISPLACEMENT	EA	1	300,000.00	\$	300,000.00

 Subtotal Roadway
 =
 \$ 3,309,833.00

 Subtotal Bridge
 =
 \$ 2,535,500.00

 Subtotal Traffic
 =
 \$ 335,000.00

 Subtotal Traffic
 =
 \$ 335,000.00

 Subtotal Staking
 =
 \$ 80,000.00

 Subtotal Construction
 =
 \$ 515,275.00

SUBTOTAL = \$ 6,775,608.00

20% CONTINGENCY (ROADWAY) = \$ 848,022.00 20% CONTINGENCY (BRIDGE) = \$ 507,100.00

Subtotal Utility Relocation = \$ 50,475.00

Subtotal Right-of-Way = \$ 476,100.00 Subtotal Property Relocation = \$ 300,000.00

Total Estimate of Project Cost (ODOT Portion) = \$8,957,305.00

Total Estimate of Construction Costs =

8,130,730.00



Oklahoma Department of Transportation

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PEC Proj. No. 432-11K12-003-5780

4/30/2015

#### **SH-123 OVER CANEY RIVER**

### **CONCEPT STUDY ESTIMATE - OPTION G**

JP 24348(10)

							JP 24348(10)
ITEM NO.	CODE NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	Е	XTENSION
	0 ROADW	AY					
201	0102	CLEARING AND GRUBBING	LSUM	1	10,000.00	\$	10,000.00
202(A)	0183	UNCLASSIFIED EXCAVATION	CY	10,000	10.00	\$	100,000.00
205(A)	4229	TYPE - A SALVAGED TOPSOIL	LSUM	1	25,000.00	\$	25,000.00
221(C)	2801	TEMPORARY SILT FENCE	LF	11,600	2.00	\$	23,200.00
221(D)	2803	TEMPORARY SEDIMENT FILTER	EA	60	220.00	\$	13,200.00
221(F)	0100	TEMPORARY SILT DIKE	LF	150	8.00	\$	1,200.00
230(A)	2806	SOLID SLAB SODDING	SY	35,000	2.00	\$	70,000.00
241	2832	MOWING	AC	16	65.00	\$	1,040.00
307(K)	4300	STABILIZED SUBGRADE	SY	80,255	6.00	\$	481,530.00
414(A)	0210	P.C. CONCRETE PAVEMENT (PLACEMENT)	SY	66,243	20.00	\$	1,324,860.00
414(G)	5275	P.C. CONCRETE FOR PAVEMENT	CY	16,561	90.00	\$	1,490,490.00
510(A)	6333	RETAINING WALL	SY	900	700.00	\$	630,000.00
609(A)	0300	CONCRETE CURB (6" BARRIER-INTEGRAL)	LF	22,930	15.00	\$	343,950.00
610(A)	0602	4" CONCRETE SIDEWALK	SY	3,856	55.00	\$	212,080.00
610(B)	0604	6" CONCRETE DRIVEWAY	SY	5,300	50.00	\$	265,000.00
611(G)	4012	SPECIAL INLET DRAIN	EA	35	10,000.00	\$	350,000.00
619(A)	0920	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LSUM	1	40,000.00	\$	40,000.00
619(B)	4726	REMOVAL OF CURB AND GUTTER	LF	10,430	10.00	\$	104,300.00
619(B)	4727	REMOVAL OF CONCRETE PAVEMENT	SY	33,756	10.00	\$	337,560.00
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	SY	24,917	3.00	\$	74,751.00
619(C)	0924	SAWING PAVEMENT	LF	800	4.00	\$	3,200.00
623	0100	(PL) GUARDRAIL CURBING	EA	4	700.00	\$	2,800.00
623(A)	0932	BEAM GUARDRAIL W-BEAM SINGLE	LF	675	25.00	\$	16,875.00
623(I)	8690	GUARDRAIL BRIDGE CONN-THRIE (31")	EA	8	2,500.00	\$	20,000.00
623(G)	8590	GUARDRAIL END TREATEMENT (31")	EA	10	2,000.00	\$	20,000.00

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4/30/2015

#### **SH-123 OVER CANEY RIVER**

#### **CONCEPT STUDY ESTIMATE - OPTION G**

JP 24348(10)

							JP 24348(10)
ITEM NO.	CODE NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	Е	XTENSION
02	00 BRIDG	E					
		BRIDGE REPLACEMENT RCB (UNNAMED CREEK)	LSUM	1	400,000.00	\$	400,000.00
		BRIDGE REMOVAL CULVERT PIPES (UNNAMED CREEK)	LSUM	1	30,000.00	\$	30,000.00
		BRIDGE REPLACEMENT (CANEY RIVER WB)	LSUM	1	1,365,000.00	\$	1,365,000.00
		BRIDGE REMOVAL (CANEY RIVER WB)	LSUM	1	70,000.00	\$	70,000.00
		BRIDGE REPLACEMENT (CANEY RIVER EB)	LSUM	1	1,365,000.00	\$	1,365,000.00
		BRIDGE REMOVAL (CANEY RIVER EB)	LSUM	1	70,000.00	\$	70,000.00
		BRIDGE REPLACEMENT (COON CREEK)	LSUM	1	1,600,000.00	\$	1,600,000.00
		BRIDGE REMOVAL (COON CREEK)	LSUM	1	50,000.00	\$	50,000.00
		BRIDGE REPLACEMENT RCB (SH-123 OVER UNNAMED CREEK)	LSUM	1	400,000.00	\$	400,000.00
		BRIDGE REMOVAL RCB (SH-123 OVER UNNAMED CREEK)	LSUM	1	30,000.00	\$	30,000.00
		BRIDGE REMOVAL (SH-123 OVER THE CANEY RIVER)	LSUM	1	110,000.00	\$	110,000.00
030	00 TRAFFI	C					
		TRAFFIC SIGNAL MODIFICATION	LSUM	1	150,000.00	\$	150,000.00
		TRAFFIC CONTROL	LSUM	1	100,000.00	\$	100,000.00
		MARKING AND SIGNING	LSUM	1	150,000.00	\$	150,000.00
060	00 STAKIN	IG					
642(A)	0095	CONSTRUCTION STAKING LEVEL 1	LSUM	1	100,000.00	\$	100,000.00
064	40 CONST	RUCTION					
640(A)	1426	FIELD OFFICE	EA	1	30,000.00	\$	30,000.00
641	1552	MOBILIZATION	LSUM	1	803,100.00	\$	803,100.00
220	2800	SWPPP DOCUMENTATION AND MANAGEMENT	LSUM	1	30,000.00	\$	30,000.00
UT	ILITY REL	OCATION					
		MANHOLE, METER, AND VALVE ADJUST TO GRADE	LSUM	1	18,000.00	\$	18,000.00
RIC	RIGHT-OF-WAY						
		RIGHT-OF-WAY ACQUISITION	AC	0.00	30,000.00	\$	0.00
PR	OPERTY	RELOCATION					
		PROPERTY RELOCATION AND DISPLACEMENT	EA	0	300,000.00	\$	0.00

 Subtotal Roadway
 =
 \$ 5,961,036.00

 Subtotal Bridge
 =
 \$ 5,490,000.00

 Subtotal Traffic
 =
 \$ 400,000.00

 Subtotal Staking
 =
 \$ 100,000.00

 Subtotal Construction
 =
 \$ 863,100.00

SUBTOTAL = \$ 12,814,136.00 20% CONTINGENCY (ROADWAY) = \$ 1,464,828.00 20% CONTINGENCY (BRIDGE) = \$ 1.098,000.00

Total Estimate of Construction Costs = \$ 15,376,964.00

Subtotal Utility Relocation = \$ 18,000.00 Subtotal Right-of-Way = \$ 0.00 Subtotal Property Relocation = \$ 0.00

Total Estimate of Project Cost (ODOT Portion) = \$ 15,394,964.00





		lm	pac	t Summary	/ Ma	atrix				
			(	Option A	(	Option E	(	Option F	(	Option G
		ent Description	SH-	123 on existing alignment		SH-123 will be SH-123 will be offset offset to the East to the far East			SH-123 will be along Tuxedo Blvd	
Project Costs										
		Roadway Cost	\$	1,447,881.00	\$	2,254,232.00	\$	5,088,130.00	\$	8,788,964.00
		Bridge Cost	\$	3,504,000.00	\$	3,042,600.00	\$	3,042,600.00	\$	6,588,000.00
		tility Relocation Cost (ODOT Portion)	\$	15,075.00	\$	36,075.00	\$	50,475.00	\$	18,000.00
	Utility Reloc	ation Cost (Utility Company Portion)	\$	4,875.00	\$	8,250.00	\$	65,000.00	\$	173,500.00
		Right-of-Way Acquisition Cost	\$	27,000.00	\$	147,900.00	\$	476,100.00	\$	-
	Proper	ty Relocation and Displacement Cost	\$	-	\$	-	\$	300,000.00	\$	-
		Project Cost (ODOT Portion)	\$	4,993,956.00	\$	5,480,807.00	\$	8,957,305.00	\$	15,394,964.00
	Pro	pject Cost (Utility Company Portion)	\$	4,875.00	\$	8,250.00	\$	65,000.00	\$	173,500.00
		Total Project Cost	\$	4,998,831.00	\$	5,489,057.00	\$	9,022,305.00	\$	15,568,464.00
	Utili	ty Impacts								
Utility Company	Type of Facility	Location								
City of	18" PVC	From Hensely Blvd running north along the center of Delaware Ave		No Impact		300 Feet		No Impact		No Impact
Bartlesville	Sanitary Sewer	then East along First Drive	\$	-	\$	18,000.00	\$	-	\$	-
City of	Sanitary Sewer	Crossing at approx. Sta. 37+65; Sanitary sewer lines offset approx.		No Impact		No Impact		365 Feet		No Impact
Bartlesville		300' and 340' Lft of Tuxedo Blvd	\$	-	\$	-	\$	21,900.00	\$	-
City of	Sanitary Sewer	Multiple locations along Tuxedo		2 Each		4 Each		6 Each		12 Each
Bartlesville	Manholes	Boulevard	\$	3,000.00	\$	6,000.00	\$	9,000.00	\$	18,000.00
City of	1-Phase OH	Crosses SH-123 near Sta. 8+75		325 Feet		550 Feet		No Impact		No Impact
Bartlesville	Power	G103363 311 123 11641 364. 0173	\$	4,875.00	\$	8,250.00	\$	-	\$	-
DCO	3-Phase OH	Consess CH 422 man Chr. 40.75		805 Feet		805 Feet		805 Feet		No Impact
PSO	Power	Crosses SH-123 near Sta. 18+75	\$	12,075.00	\$	12,075.00	\$	12,075.00	\$	-
Verdigris Valley	Unknown	Crosses Tuxedo Blvd near Sta. 34+60		No Impact		No Impact		500 Feet		5700 Feet
Elec. Coop	OHKHOWH	crosses ruxeuo bivu near sta. 54+00	\$	-	\$	-	\$	7,500.00	\$	85,500.00
AT&T	Fiber Optic	Along the north and south sides of Tuxedo Blvd ranging from 25'		No Impact		No Impact		1000 Feet		2000 Feet
		to 50' off of centerline	\$	-	\$	-	\$	35,000.00	\$	70,000.00
OG&E	Natural Gas Line	Along the north and south sides of Tuxedo Blvd ranging from 25'		No Impact		No Impact		600 Feet		No Impact
		to 60' off of centerline	\$	-	\$	-	\$	30,000.00	\$	-
	RO	N Impacts								
	Number of Owners			1		6		8		0
		<b>Total Potential Impact Area</b>		0.90		4.93		15.87		0.00

## **NEPA MATRIX FOR SH-123 ALIGNMENT OPTIONS**

	Option A	Option B	Opti	ion E	Opti	ion F	Opti	on G
SH-123 Alignment Descriptions	Replace on Existing	Rehabilitation of Existing NRHP Eligible Bridge (eliminate fracture critical*)	Offset Alignment to East (Ties into Tuxedo at Delaware Ave.)		New Alignment to East (Ties into Tuxedo at Comanche Ave.)		On existing Tuxedo Blvd. from SH- to US-75	
NRHP Eligible Historic Bridge Structure (Criterion A &C)  Over the Caney River on SH-123	Remove historic bridge / Possible monument within park -Close road during construction -Adverse effect -No 4(f) use if donation agreement with City	Historic bridge left in place  - Close road during construction  -No adverse effect (if rehab to SOI standards)  -No 4(f) use	Historic bridge left in place	-Possible Adverse effect (due to change in setting) -No 4(f) use	Historic bridge left in place	-No adverse effect -No 4(f) use	Remove SH-123 from State Highway System	City or County to Maintain -No adverse effect (if bridge is rehabilitated to an acceptable standard) -No 4(f) use
			Historic Bridge Removed	-Adverse effect -No 4(f) use if donation agreement with City	Historic Bridge Removed	-Adverse effect -No 4(f) use if donation agreement with City	Historic Bridge Removed	-Adverse Effect -No 4(f) use if donation agreement with City
NRHP Eligible Dam (Criterion C)	-Adverse Effect -No 4(f) use	-No Adverse Effect -No 4(f) use	Historic bridge left in place	-Possible adverse effect (due to change in setting) -No 4(f) use	Historic bridge left in place	-No adverse effect -No 4(f) use	Historic bridge left in place	-No adverse effect -No 4(f) use
			Historic Bridge Removed		Historic Bridge Removed	-Adverse effect -4(f) use	Historic Bridge Removed	-Adverse effect -4(f) use
1870's Bartles Mill	-Possible adverse effect if construction extends to site -No 4(f) use	-No effect -No 4(f) use	-Possible adverse effe extends to site -No 4(f) use	ect if construction	Avoided		Avoided	
Johnstone Park (Section 4(f) and 6(f))	Impacted 2.69 acres	Not Impacted		acted acres	Avoided		Avo	ided
Pathfinder Parkway (Section 4(f) & 6(f))	Impacted Path Crossed/Closed During Construction	Not Impacted	Impacted Impacted		Avo	ided		

Notes: \* Bridge Division indicated facture critical status had to be corrected.

Options Eliminated From 8/21/14 meeting:

Continued on next page

SH-123 over the Caney River, Washington County JP 24348(10)

4/30/2015

Exhibit D

<sup>1)</sup> The West option was eliminated from further study due to its location relative to the Park and negative impact to the existing Park.

<sup>2)</sup> The new alignment shown in green (Z) was eliminated due to the fact that it is too close to the water treatment plant and would interfere with future expansion plans for the treatment plant.

## **NEPA MATRIX FOR SH-123 ALIGNMENT OPTIONS**

	Option A	Option B	Option E	Option F	Option G
SH-123 Alignment Descriptions	Replace on Existing	Rehabilitation of Existing NRHP Eligible Bridge (eliminate fracture critical*)	Offset Alignment to East (Ties into Tuxedo at Delaware Ave.)	New Alignment to East (Ties into Tuxedo at Comanche Ave.)	On existing Tuxedo Blvd. from SH-123 to US-75
Threatened & Endangered Species Washington County ABB / Interior Least Tern Whooping Crane / Piping Plover Neosho Mucket / Not Assessed in BA Red Knot / Northern Long-Eared Bat	Biological Assess. ABB (4.06 acres) No effect finding for: Least Tern/ Plover Whooping Crane Neosho Mucket	Not Fully Assessed  No effect finding anticipated	Not Fully Assessed  Moderate Potential for Impacts	Not Fully Assessed  Increased Potential for Impacts	Not Fully Assessed
Bald Eagle	May Impact	No Impact	May Impact	May Impact	May Impact
Migratory Birds - Swallow	May Not Impact	May Not Impact	May Not Impact	May Not Impact	May Not Impact
Wetlands Impacts	Assessed as None	None	Low Potential	10.50 acres of NWI wetlands	Low Potential
LUST/Hazardous Waste Sites	None	None	None	1 Oil/Gas Well 1 UST Location Adjacent to Landfill	8 UST's Locations Adjacent to roadway
Floodplain Impacts	Yes	None	Yes	Yes	None
Right-of-way Acquisition	0.90 acres	None	4.93 acres	15.87 acres (90 acres within footprint)	New HWY designation
Adding Bridge Structures Adjacent to 2 Parks that are 4(f) Eligible					4 New Bridges Added to System. (2 Functionally Obsolete and 2 Not Deficient).
Water Treatment Plant				Adjacent to Water Treatment Plant & Overhead Utility Lines	Tuxedo Park & City of Bartlesville Price Fields
Project Cost	\$5.0 million	\$3.9 million	\$5.5 million	\$9.0 million	\$15.6 million
Cost to Remove Bridge	Included in project cost	Stays in place	Included in project cost	Included in project cost	Included in project cost
Cost to Maintain Bridge In Place	Replaced	Rehabilitation		ning and inspecting the existing bridge at ap s not rehabilitated, but simply maintained over	

Notes: \* Bridge Division indicated facture critical status had to be corrected.

Options Eliminated From 8/21/14 meeting:

SH-123 over the Caney River, Washington County JP 24348(10)

4/30/2015

Exhibit D

<sup>1)</sup> The West option was eliminated from further study due to its location relative to the Park and negative impact to the existing Park.

<sup>2)</sup> The new alignment shown in green (Z) was eliminated due to the fact that it is too close to the water treatment plant and would interfere with future expansion plans for the treatment plant.





# Oklahoma Department of Transportation

Project Management Division (405)522-7601 Fax (405) 522-7612 Room 3C9

**DATE:** July 20, 2011 TO: **Distribution List** FROM: **Project Management Division SUBJECT: Final Project Initiation** J/P Number: 24348(04) County: Washington Highway: SH-123 Division: 8 R/W Date: 2015 Let Date: Unscheduled Drive-out Date: 04/25/11 Programmed Estimate: \$800,000.00 Project Description: SH-123 over Caney River, 1.68 mi. North of SH-123/US-60 Jct. **FUNCTIONAL CLASSIFICATION** □ Suburban Area Type: □ Urban □ Rural □ Mountainous Terrain Type: □ Flat ■ Rolling Access Control: □ Full □ Partial ■ None Highway Type: □ Freeway ☐ Principal Arterial ■ Minor Arterial □ Collector ■ Non-NHS □ NHS □ STRAHNET □ Scenic Hwy **EXISTING INFORMATION** Number of Lanes: 2 Current ADT: 7800 % Trucks: Lane Width: 12 Outside Shoulder Width: Inside Shoulder Width: □ Open Section ■ Curb & Gutter □ Divided, median width: □ Other (describe): Pavement Type: AC Pavement Condition: □ Good □ Fair □ Poor □ Poor Shoulder Type: Shoulder Condition: □ Good □ Fair Storm Sewer ■ No □ Yes Storm Sewer Condition: □ Good □ Fair □ Poor Sidewalks ■ Yes Sidewalk Width: 4 □ No Bridge One Description: 210' HI Truss & 2-10 Bridge Two Description: Bridge Three Description: Bridge One Bridge Two Bridge Three Caney River Feature Intersected: NBI Number: 05521 Location Number: 7413 0165 X Sufficiency Rating: 44.3 Year Built: 1937 Bridge Width: 34 Bridge Length: 417.97 Posted Clearance: Posted: Health Index: 66.85

Steel Beam Bridge:



#### **ENVIRONMENTAL CONSIDERATIONS**

of 1	Historic Properties, list: Bridge is NRHP eligible, Historic oil well west of bridge.  Archeological Sites, list: 1870's Bartlesville Mill on both sides of highway on the North end the bridge.  Cemeteries, list:  Hazardous Waste / LUST Sites, list:  Endangered Species, list: ABB, Interior Least Tern, Whooping Crane, Neosho Mucket, Piping over  Section 4F or 6F Properties, list: Park, Bridge  Farmland    Wetlands    Scenic and Protected Aquifers    100 Year Flood Plain
	CTERNATIVE IMPACTS Other Agencies List: Turnpike Involvement Metropolitan Planning Organizations List:
De: Ma Per	RMIT INFORMATION sign Exception Anticipated: □ No □ As required by design □ Yes, type: sintenance Agreements (Lighting, Signals, etc.): □ No □ Yes, type: smits required: ■ FAA ■ USACE ■ OWRB □ Railroad □ Other, type: ditional:
Pro	COPOSED IMPROVEMENT  oject Intent:  place structurally deficient bridge.
Exi	ecial Considerations: isting concrete spillway underneath bridge. NRHP property. 4f resources on both ends of dge.
	scription of Proposed Improvements: place bridge with 470'- 130'-210'-130'spans on existing alignment.
De	sign Speed: mph
Pot	tential to transfer steel bridge beams to County (Oklahoma Statute Title 69 subsection 1001)
Ye	



#### Project Termini

Beginning of Project: Approx. 1000' South of existing bridge.

End of Project: Approx. 1000' North of existing bridge.

Limits of Survey: From 100' N. of Hensley Blvd. in Bartlesville, (Approx. 400' SW of the existing bridge, Northeasterly along the existing SH123, to the P.T. of the curve, approx. 600' nE of the existing bridge. Survey width will be 150' right and left, widened to include river location to 500' right and left. The concrete low-water dam beneath the existing bridge will be shown in the survey.

Limits of NEPA Survey Area: 150' left and right. Same length as survey.

•		Ü		,
Typical Section  □ Open Section  □ Other (describe):  Number of Lanes: 2  Outside Shoulder Width: 8'  Storm Sewer ■ No  Overlay ■ No  Coldmill ■ No  Add Shoulders □ No  Bridge Width '	☐ Yes Sidew: ☐ Yes ☐ Yes	12' er Width: '	□ Divided, n	nedian width:  ■ Yes, width: 5'
Alignment ■ Existing □ New, located □ Parallel Lanes, located □ Spot Improvements □ Horizontal, Description: □ Vertical, Description:	□ North or □ North or	□ South or □ South or	□ East or □ East or	□ West of existing □ West of existing
Detour  ☐ Shoo-fly, located ☐ Widening, located ☐ Crossovers ☐ Close Road ☐ Signed Detour, Route Des 123	□ North or □ North or cription: 11 mi	□ South or □ South or le detour, possi	□ East or □ East or ible utilizing U	☐ West of existing☐ West of existing☐  US-60, US-75, and SH-
☐ Phased Construction, Desc	cription:			
Traffic Items Traffic Management Plan Median Barrier	□ No □ No	□ Yes □ Yes		

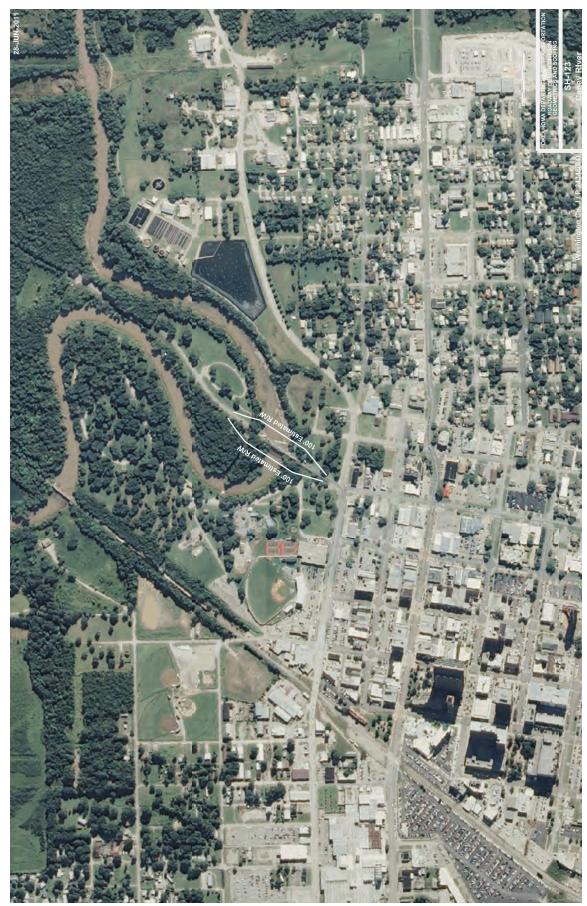


					PROFESSIONAL ENGINEER	AIM
New Guardrail	■ No	□ Ye				
End Treatment Highway Lighting	□ No □ No	□ Ty □ Oı	rpe: itside or	□ Me	edian	
Traffic Signals	□ No		ocation(s):			
Ü			<b>、</b>			
Right-of-Way Additional RW Requ	ired □ No	■ V <sub>4</sub>	es, describe:			
Utility Conflicts	□ No		es, describe:			
Miscellaneous						
Channel Re-Alignme	nt ■ No	□ Y€	es, describe:			
INITIATION ESTI						
Roadway: Bridge:	\$ 212,000.00 \$ 2,770,000.00		Total Constru	iction:	\$ 3,409,739.00	
Traffic Control:	\$ 15,000.00		Right-of-Way	<i>/</i> :	\$ TBD	
Signing and Striping: Highway Lighting:	\$ 15,000.00 \$		Utility:		\$ TBD	
Traffic Signals:	\$		Total Estimat	e:	\$ 3,409,739.00	
Mobilization: Staking:	\$ 174,850.00 \$ 47,578.00					
E & C:	\$ 190,311.00					
PROGRAM REVIS Estimate: \$	IONS Letting Da	to:	Project	nt I anat	th.	
Work Type:	Letting Da	ile.	riojec	et Lengt	u1.	
Description:						
Attachments (Aerial	with Preliminary R	W & Cou	nty Map)			
Distribution List:						
Director of Er	ngmeering opital Projects and I	nformatio	on Management		lanning Division raffic Engineerin	σ
Bridge Division	on			1	Turrie Engmeenn	D
Environmenta FHWA	l Programs Divisio	n				
Field Division						
Project Manaş Right-of-Way	gement Division  Division					
Roadway Des						

**Exhibit E: Project Initiation Report** 

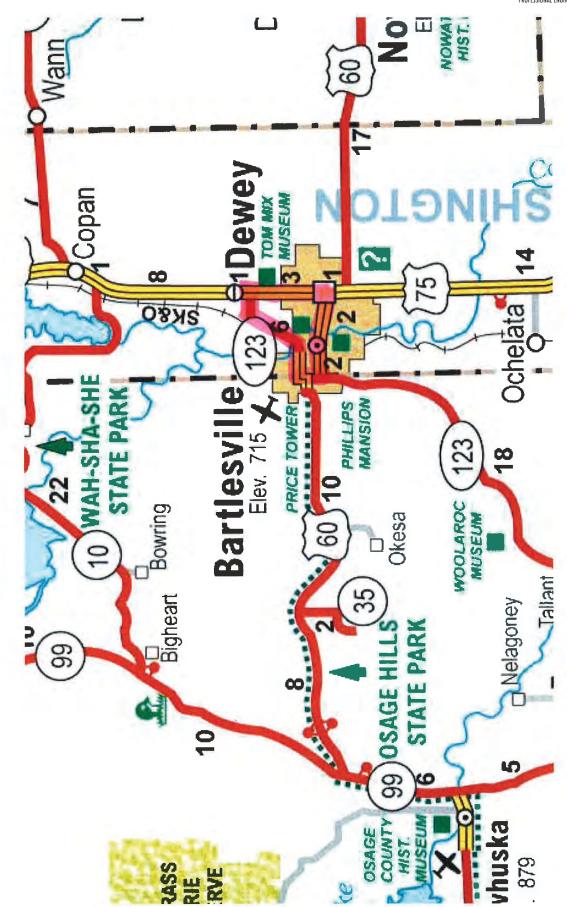
Survey Division





**Exhibit E: Project Initiation Report** 





**Exhibit E: Project Initiation Report** 



OKLAHOMA DEPARTME	NT OF TRANSF	PORTA	TION			Inspection	_
NBI No.: <b>05521</b> Structure No.: 7413 (	0165 X Local I	ID:-1		Suff. R Structura			Health Index: 67.0
IDENTIFICATION	, 100 II Eocui	ID. 1		Structuru		CTION	
Description: IDENTIFICATION 210' HI TRUSS & 2-100' PONY TRUSS SPANS (RIVITS)	W/2-4' SIDEWALKS	Type	Insp Req.	Insp Done	Freq:	Insp. Date:	Next Insp.:
1. State:Oklahoma 2. SHD District: D		NBI:		Y	24	4/5/2013	4/5/2015
3. County Code: WASHINGTON 4. Place Code: BAH		FC Freq.:	Y	Y	24	4/5/2013	4/5/2015
Admin. Area: Unknown		UW Freq.:	N	N	NA	NA	NA
5. Inventory Route (Route On Structure): 1 - 3 - 1 - 00	0123 - 0	OS Freq.:	Y	N	24	1/1/1901	4/5/2014
6. Feature Intersected: CANEY RIVER				(	CLASSIF	FICATION	
7. Facility Carried: S.H. 123 S.H. 123 9. Location: .2MI NJCT US 60 (CITY ST) 11. M	Mile Post: 1.650 mi	12. Base Hy	wy Network	: Not on Base N	letwork	20. Toll Facility: 3 On f	ree road
13. LRS Inv. Route./ Subroute.: -1	THE 1 03t. 1.050 HI	1		Highway Agency		<ol><li>Owner: 01 State High</li></ol>	iway Agency
I .	ongitude: 095 58 19.31	I		16 Urban Minor		37. Historical Sig.: 4 His	
98. Border Br. Code: Jnknown (P) % Resp.: 0 99. Bo	order Br. #: Unknown	100. Defens				<ol> <li>Parallel Structure: 1</li> <li>Temp. Structure: No</li> </ol>	
STRUCTURE TYPE AND MATI	ERIALS	1		0 Not on NHS		105. Fed. Land Hwy 0 N	
43. Main Span Material and Design Type		_				112. NBIS Length: Long	
Steel Truss-Thru 44. Approach Span Material and Design Type							
Steel Truss-Thru		50 D	5 F :	50.		<u>DITION</u>	1 5 F :
45. No. of Spans Main Unit: 1 46. No. of Approach	ch Spans: 2	58. Deck:			Super.: 4		ıb.: 5 Fair
107. Deck Type: 1 Concrete-Cast-in-Place		Flowline 1	rt: N N/A (î Notes:	ונטי) 61. (	_nannel/	Channel Protection: 7 M	шог Башаде
108A. Wearing Surface: 1 Monolithic Concrete 108B. Membrane: 8 Unknown				on spillway unde	er the bri	dge * 5/13/2009 - Unab	le to measure due to
108C. Deck Protection: 8 Unknown		swift water		. , ,		-	
AGE AND SERVICE							
	constructed: Unbrasses					AND POSTING	
27. Year Built: 1937 106. Year Re 28A. Lanes on: 2 28B. Lanes Under: 0	constructed: Unknown  19. Detour Length: 3.1 mi	_		13.5 (H 15)		41. Posting status: A Op	
29. ADT: 4600 30. Year of ADT: 2011	109. Truck ADT %: 5	_	-	1: 1 LF Load Fac H / HS / 3-3 ):	ctor-1on	Alt. Op. Rating Meth.: 1 24.4 36.4	66.1
42A. Type of Service on: 5 Highway-pedestrian	10). Huck AD1 /0. 5	_	-	H/HS/3-3):		14.5 21.9	39.6
42B. Type of Service under: 5 Waterway		I			ctor-Ton	Alt. Inv. Rating Meth.: 1	
				ve Legal Loads		Date Rated: 1/23/2004	
GEOMETRIC DATA				PROPO	OSED IN	IPROVEMENTS	
10. Inv. Rte. Min. Vert. Clr.: 15.7 ft		94. Bridge	e Cost: \$	3,240,107	JULD 111	75. Type of Work: 31	Repl-Load Capacit
32. Approach Roadway Width (W/ Shoulders): 24.0 ft	0 N di	_	way Cost: \$			76. Lgth. of Improvm	
Deck Area: 14,211. sq. ft 33. Median: 34. Skew: 0 35. Structure F	lared: 0 No flare	96. Total		88,178,226		114. Future ADT: 736	
47. Inv. Rte. Total Horiz. Clr.: 24.0 ft	iaieu. O No iiaie	97. Year o	of Cost Est.:			115. Year of Future AD	T: 2031
48. Length Maximum Span: 210.0 ft 49. Structure	Length: 418.0 ft					ΓΙΟΝ DATA	
	ewalk Width R: 4.0 ft		gation Cont cal Clearand	rol: Permit Not	Required	40. Horizontal Cleara	200: 0.0 ft
51. Width Curb to Curb: 24.0 ft 52. Width On	it to Out: 34.0 ft	1		1 Not Required		116. Lift Bridge Vert. C	
53. Minimum Vertical Clearance Over Bridge: 15.6 ft					APPR	AISAL	
54A/54B. Min. Vert. Underclearance: N Feature not hwy o	r RR 0.0 ft	36A. Brid	ge Rail: 1 N	Meets Standards		6C. Approach Rail:	0 Substandard
<u>N/E</u> <u>S/W</u>		I	sition: 0 S			6D. Approach Rail Ends	0 Substandard
Meas.   N1508   -1   -1   S1508   Post.   DO NOT U   DO NOT U	-l -l	1		4 Minimum Tole		68. Deck Geometry: 2 l	ntolerable - Replace
		1				N Not applicable (NBI)	
55A/55B. Minimum Lateral Undrelearance R: N Feature no	t hwy or RR 327.8 ft	1	-	acy: 5 Above T nent: 8 Equal De		Prit .	
56. Minimum Lateral Undrclearance L: 327.8 ft			_	7 Countermeasur		JIII.	
200c. Temperature: 65	214a. Posted Weight Limit:	NR				. Girder Spacing/Number	10/1
200c. Temperature: 65 200d. Weather: CLEAR	b. Posted Speed Limit :	-1				. Girder Spacing/Number . Span Lengths :	: -1.0 / -1
201. Structural Steel ASTM Desig.: -1 -1	c. Narrow/One Lane Bridge	sign: -1			-	1 -1	-1
202. Waterproof Membrane :-1	d. Vertical Clearance Sign:	YES			-		-1
Date Installed: 1/1/1901	Advanced Warning Sign			157	245	1 -1 . Girder Depth : -1.000	
203. Type Exp. Dev. : Sealed Expansion Joint	Exisiting/Recommended Min./ Max Vert. Clearance		)	156 158		. Type of Overlay: 6	
Pourable	e. Navigation Lights :	NO		130	- 1	Overlay Thickness: 2.	)
204. Type of Handrail: Steel Post and Rail 205. Material and Quantity: 2650.0	Working/Not Working :	NO			246	Overlay Date : 1/	1/1901
208. Type of Abutment: Pedestal	215. Overpass: B - State Highy	way				Overlay Depth Changed	
Type of Foundation : Natural Foundation Matl.	221. Substructure Cond. (U/W)					. Protective Systems : 1:	
209. Type of Pier / Found.: 2 Piers No	222. Fill over RCB:	-1 D			2: 4:		
No Piling or Drilled Shaft	<ul><li>223. Appr. Slab/Rdwy Cond.:</li><li>224. Critical Feature Type:</li></ul>	Poor 1				No. of Field Splices w/	
210. Foundation Elev. 6435.0 6355.0	224. Critical Feature Type: 225. Paint Type :		ead Ready			Scour Crit. POA exists?	
-1.0 6436.0 -1.0	Overcoat :	0	/		- 1	Culvert Headwall Dist.:	
211. Wear. Surf. Prot. System : None	226. Date Painted:	-1				. Thru Truss Type : Ov . Chan. Profile Up/Down	*
Date Installed: 1/1/1901 213. Utilities Attached: -1	<ul><li>227. Paint Coloring:</li><li>233. Deck Forming: Convention</li></ul>	Silver				a. OkiePROS Auto. Truc	
-1 -1 -1 -1	236. Deck Cleaning: Convention 236. Deck Cleaning: -1	onai i oi iiiing			- 1	Plans w/ found. are in fi	
-1 -1 -1	238. School Bus Rte: Current I		2112		- 1	Scour Eval. is in file at	
	240. Appr. Roadway Type: Asp	man/Bitumin	ous			. Interchange at Intersect . Interstate Milepoint	on N -1.00
						. microtate ivinepoint	-1.00



#### **Bridge Inspection Report** OKLAHOMA DEPARTMENT OF TRANSPORTATION -Suff. Rating: 33.6 Health Index: NBI No.:**05521** Structure No.: 7413 0165 X Local ID:-1 Structurally Deficient 67.0 Inspection Date: 4/5/2013 WKELLOGG Reported By: Invoice No.: Inspected With: Dan Knickmeyer -1 Agency:

Structure / Inspection Notes

NOTE:REPAIRS WERE MADE TO FLBMS.& GUSSET PLATES.BMS.5,STR.5,FL.BMS.5,FL.BRACING 5,TRUSS UPPER 6,TRUSS LOWER 5,TRUSS WEB MEM.6,TRUSS END POSTS 6,TRUSS BRACING 6,MEM.ALIGN.6,PAINT 4,LOAD DEFL.6,ABUTS.5,PIERS 6,BRNGS.6,CHANNEL SCOUR 7,EMBANK.ERO.7,DEBRIS 5,VEG.7,APPR.RDWY.CON.7,APPR.RDWY.SETT.7

			previous	

Elm.	Env	. Description	Un.	Qty.	Qty.St. 1	% 1	Qty.St. 2	% 2	Qty.St. 3	% 3	Qty.St. 4	% 4	Qty.St. 5	<b>%</b> 5
12	4	Reinforced Concrete Deck	(SF)	10,032	0	0 %	10,032	100 %	0	0 %	0	0 %	0	0 %
113	4	Steel Stringer/Floorbeam	(LF)	1,079	0	0 %	971	90 %	108	10 %	0	0 %	0	0 %
120	4	Steel Truss (Pony)	(LF)	400	0	0 %	366	91 %	34	9 %	0	0 %	0	0 %
152	4	Steel Floor Beam	(LF)	574	2	0 %	464	81 %	108	19 %	0	0 %	0	0 %
162	4	Steel Gusset Plate	(EA)	92	0	0 %	89	97 %	3	3 %	0	0 %	0	0 %
205	4	Reinforced Conc Column or Pile Extension	(EA)	4	0	0 %	4	100 %	0	0 %	0	0 %	0	0 %
210	4	Reinforced Conc Pier Wall	(LF)	50	0	0 %	45	90 %	5	10 %	0	0 %	0	0 %
215	4	Reinforced Conc Abutment	(LF)	82	0	0 %	76	93 %	6	7 %	0	0 %	0	0 %
311	4	Moveable Bearing (roller, sliding, etc.)	(EA)	6	0	0 %	6	100 %	0	0 %	0	0 %	0	0 %
313	4	Fixed Bearing	(EA)	6	0	0 %	5	83 %	0	0 %	1	17 %	0	0 %
330	4	Metal Bridge Railing	(LF)	837	0	0 %	837	100 %	0	0 %	0	0 %	0	0 %
357	4	Pack Rust	(EA)	1	0	0 %	0	0 %	1	100 %	0	0 %	0	0 %
358	4	Concrete Cracking	(EA)	1	0	0 %	1	100 %	0	0 %	0	0 %	0	0 %
363	4	Steel Section Loss	(EA)	1	0	0 %	1	100 %	0	0 %	0	0 %	0	0 %
510	4	Wearing Surfaces	(SF)	10,032	0	0 %	9,029	90 %	1,003	10 %	0	0 %	0	0 %
515	4	Steel (Superstructure) Protective Coating	(LF)	1,079	0	0 %	1,079	50 %	0	0 %	0	0 %	0	0 %
659	4	Soffit of Concrete Decks and Slabs	(SF)	10,032	0	0 %	10,032	100 %	0	0 %	0	0 %	0	0 %
721	4	Steel Truss (Overhead)	(LF)	420	0	0 %	384	92 %	36	9 %	0	0 %	0	0 %
777	4	Steel Stringer End (5 Ft.)	(LF)	1,201	50	0 %	1,051	92 %	100	8 %	0	0 %	0	0 %
906	4	Sealed Expansion Joint (SEJ-3)	(LF)	49	0	0 %	0	0 %	0	0 %	49	100 %	0	0 %
909	4	Pourable Fixed Joint Seal	(LF)	427	0	0 %	0	0 %	0	0 %	427	100 %	0	0 %
917	4	Steel (Bearing) Protective Coating	(EA)	12	0	0 %	0	0 %	0	0 %	12	100 %	0	0 %

Additional Elements

Elem.	Element Notes (Include Size and Location of Deterioration
12	FX:CRACKING,PATCHES & MINOR SPALLS.MORE THAN 10%.
113	FX:EX.BMS.ARE THE WORSE.SOME SURFACE CORR.HAS FORMED.
120	NOTE:FL.BMS, & GUSSET PLATES HAVE BEEN ARRESTED W/ANGLE & PLATE. CORROSION HOLES IN TOP PLATE OF L0 AT PIER 1, EAST TRUSS ABUTMENT 2, EAST TRUSS.
152	PX:1.5" CORROSION HOLE IN FB 10, SPAN 2, NEAR STRINGER 1. 4"X2" HOLE IN FB 0, SPAN 1, NEAR STRINGER 6.
162	NOTE: GUSSET PLATES WERE ARRESTED WITH PLATES. GUSSET PLATES HAVE MINOR SECTION LOSSES AT GUSSET PLATE/MEMBER INTERFACE
205	FX: MINOR CRACKING/SPALLING WITH EXPOSED REBAR.
210	FX:MOD.SPALLS W/EXPOSED REBAR @ P.#2.
215	FX:MOD.CRACKING,SPALLS W/EXPOSED REBAR @ N.ABUT. CRACKING W/EFFORESSENCE AT ABUTMENT 1.
311	PX:CLEAN,PAINT & REMOVE DEBRIS.
313	PX:CLEAN & PAINT & REMOVE DEBRIS.MOD.CORR. AT BOTH PIERS.
330	FX:SOME FRECKLE RUST THROUGHOUT.
357	FX:MOD/SEV.PACK RUST HAS FORMED @ LOWER LAT.BRACING GUSSET PLATES.MOD/SEV.DIST.(SEE PHOTOS)
358	FX:DECK HAS CRACKING THROUGHOUT.MID.SPAN ARE TRANSVERSE CRACKS.
363	NOTE:SECT/LOSS TO FL.BMS.& GUSSET PLATES HAS BEEN ARRESTED.
510	FX: CRACKING, PATCHING & MINOR SPALLS.MORE THAN 10% OF CONCRETE OVERLAY.
515	PX: COATING HAS FAILED ON FLOOR SYSTEM. COATING IS CHALKING WITH ISOLATED LOCATIONS OF FAILURE ON TRUSSES.
659	FX:CRACKS,SPALLS @ JOINTS W/FALSE WORK @ PIERS ARE SLIGHTLY OVER 10%.

4/9/2013 Page 2 of 3



$\int O$	KLAHOM	A DEPA	ARTA	MEN	T OF	TRA	NSP	ORTA	TION		<b>Bridg</b> f. Rating		pectio		port
NB	I No.: <b>05521</b>	Structure	No.:7	413 016	65 X	Ι	Local ID	):-1			turally D			Hear	67.0
Elem.				El	ement No	tes (Incl	ude Size a	and Locat	tion of De	terioratio	n				
721															
777	FX:EX.BMS.ARE TH	E WORST @ J	OINTS.M	MAINLY J	UST SURI	FACE COF	RR.								
906	PX:JOINTS HAVE FA	ILED													
909	PX: JOINTS LEAK.														
917	PX: COATING HAS I	AILED ON B	EARINGS	S											
						(	Channel P	rofile							
	Baseline 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Distan	11	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Profile		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Event	Flowline	-	_	-	_	-	_	_	_	-	II –	-	_	_	_

4/9/2013 Page 3 of 3



OKLAHOMA DEPARTMEN	T OF TRANSF	PORTA	ATION		ridge Rating: 9	Inspection 95 9	Report Health Index:
NBI No.: <b>10508</b> Structure No.: 7413 02	292 X Local I	ID:-1		Suii. 1	ND ND		61.2
Description: IDENTIFICATION (12'-14'-12')X 9'X 38' RC BOX WITH HANDRAILS  1. State:Oklahoma 2. SHD District: Div 3. County Code: WASHINGTON 4. Place Code: Unknown Admin. Area: Unknown	own	Type  NBI: FC Freq.: UW Freq.		Y N N	INSPEC Freq: 24 NA NA	Insp. Date: 10/25/2013 NA NA	Next Insp.: 10/25/2015 NA NA
5. Inventory Route (Route On Structure): 1 - 3 - 1 - 001 6. Feature Intersected: CREEK	23 - 0	OS Freq.:	N	N	NA	NA	NA
13. LRS Inv. Route./ Subroute.: 7413HP0000 01 16. Latitude: 36 46 07.14 17. Lot 98. Border Br. Code: Jnknown (P) % Resp.: 0 99. Bor  STRUCTURE TYPE AND MATER 43. Main Span Material and Design Type Concrete Culvert	ile Post: 2.919 mi ngitude: 095 57 32.47 der Br. #: Unknown	21. Custod 26. Functi 100. Defer 102. Dir. o 104. High	ian: 01State onal Class: ( ise Highway: f Traffic:2 2- vay System:	way traffic 0 Not on NHS	ey 2 Arteri 3 HNET h 1	(CATION) 20. Toll Facility: 3 Or 12. Owner: 01 State H: 17. Historical Sig.: 5 N 01. Parallel Structure 03. Temp. Structure: 1 05. Fed. Land Hwy ( 12. NBIS Length: Lo	ghway Agency Not eligible for NRHF No    bridge exists Not Applicable (P) N/A (NBI)
44. Approach Span Material and Design Type Unknown (NBI) Unknown (P)					COND		
45. No. of Spans Main Unit: 3 46. No. of Approach 107. Deck Type: N N/A (NBI) 108A. Wearing Surface: N N/A (no deck (NBI)) 108B. Membrane: N N/A (no deck (NBI))	Spans: 0	62. Culve Flowline		oration 61.		N/A (NBI) 60. Channel Protection: 6 GRADING FLOWLI	
108C. Deck Protection: N N/A (no deck (NBI))							
27. Year Built: 1946 106. Year Reco 28A. Lanes on: 2 28B. Lanes Under: 0 29. ADT: 4500 30. Year of ADT: 2011 42A. Type of Service on: 1 Highway 42B. Type of Service under: 5 Waterway	onstructed: Unknown 19. Detour Length: 3.1 mi 109. Truck ADT %: 15	63. Op. R 64. Opera 66. Inven 65. Inv. R	ting Rating ( tory Rating ( ating Method	18 (H 20) d: 2 AS Allow. H / HS / 3-3 ): H / HS / 3-3 ):	Stress-To A	AND POSTING 41. Posting status: A Alt. Op. Rating Meth. 33.0 49.0 19.9 36.0 Alt. Inv. Rating Meth. Date Rated: 1/1/190	2 AS Allow. Stress- -1.1 -1.1 : 2 AS Allow. Stress-T
GEOMETRIC DATA		70.100111	<u> </u>			PROVEMENTS	
10. Inv. Rte. Min. Vert. Clr.: 328.1 ft         32. Approach Roadway Width (W/ Shoulders): Deck Area:       33. Median: 0         34. Skew: 0       35. Structure Fla		96. Total	lway Cost: \$	230,000 379,500 6644,000	OSED IVI		200
47. Inv. Rte. Total Horiz. Clr.: 24.0 ft 48. Length Maximum Span: 14.1 ft 49. Structure I	Length: 42.0 ft				NAVIGAT	ION DATA	
	walk Width R: 0.0 ft	39. Ver	ical Clearanc	rol: Permit Note: 0.0 ft  1 Not Required	•	40. Horizontal Clea 116. Lift Bridge Vert	
54A/54B. Min. Vert. Underclearance : N Feature not hwy or $\frac{N/E}{N}$ S/W Meas1 -1 -1 -1 -1	-1 -1 FU DO NOT U DO NOT U	36B. Tra 67. Str. 69. Und 71. Wat 72. App	lerclearance, erway Adequ roach Alignr	ubstandard 6 Equal Min C	36 riteria orizontal: M Minimum Desirable C	5C. Approach Rail: 5D. Approach Rail En 68. Deck Geometry: N Not applicable (NB)	N Not applicable (NB
200c. Temperature: 55 200d. Weather: CLEAR	214a. Posted Weight Limit: b. Posted Speed Limit:	NR -1				Girder Spacing/Numb	per: -1.0 / -1
Type of Foundation : Natural Foundation Matl.  209. Type of Pier / Found.:  210. Foundation Elev1.0 -1.0  -1.0 -1.0 -1.0  211. Wear. Surf. Prot. System : None	c. Narrow/One Lane Bridge d. Vertical Clearance Sign: Advanced Warning Sign Exisiting/Recommended Min/ Max Vert. Clearance e. Navigation Lights: Working/Not Working: 2115. Overpass: B - State Highw 2221. Substructure Cond. (U/W) 2222. Fill over RCB: 2233. Appr. Slab/Rdwy Cond.: 2244. Critical Feature Type: Overcoat: 2255. Paint Type: Overcoat: 2266. Date Painted: 2277. Paint Coloring:	Posting: -1 -Posting: -1	îactory	-1 -1	246. 246. 246. 247. 2: _ 4: _ 248. 249. 250. 254.	4 -1 2 -1 Girder Depth: -1.000 Type of Overlay: Overlay Thickness: Overlay Date: Overlay Depth Chang Protective Systems:	
213. Utilities Attached: -1 -1 -1 -1	227. Paint Coloring: 233. Deck Forming: - 236. Deck Cleaning: -l 238. School Bus Rte: Current a 240. Appr. Roadway Type: Asp				257a. 258. 259. 263.	Chan. Profile Up/Dov . OkiePROS Auto. Tri Plans w/ found. are in Scour Eval. is in file a Interchange at Interse Interstate Milepoint	ick Routing Culv file at ODOT at ODOT



NBI No.: <b>10508</b> S  Inspection Date: 10/25/20  Invoice No.: -1	tructure No.: 7413 0292		LOC	al ID:	-1		~ *****	ND	g: 95.9		пеа	lth Index 61.2
	13 Reported By	7: UFD	8003		-			1112	0	Digitally	signed by Lo	
invoice No.: -1	Inspected W Agency :						oyd	Biv	vins	DN: cn=l helper, e	oyd Bivins, o. mail=lbivins@ 13.11.05 13:3	, ou=with OD@ @odot.org, c=l
			Structure	e / Inspec	ction Notes							
Note:Maintenance Repairs Compl	ete 8-2012.											
Elm. Env. Desc	cription Un.	Qty.	Qty.St. 1	% 1	Qty.St. 2	% 2	Qty.St. 3	% 3	Qty.St. 4	% 4	Qty.St. 5	% 5
241 4 Reinforced Concrete C	ulvert (LF)	121	100	83 %	21	17 %	0	0 %	(	0 %	(	0 %
Additional Elements												
Elem.		nent Not	es (Include	Size ar	nd Location	of De	eterioration					
241 FX:MOD.CRACKS S.W.O	COR.											

11/5/2013 Page 2 of 2





TranSystems
2400 Pershing Road
Suite 400
Kansas City, MO 64108
Tel 816 329 8600
Fax 816 329 8602
www.transystems.com

February 25, 2013

Terry Lauritsen, P.E. City of Bartlesville 401 S. Johnstone Bartlesville, OK 74003

Re: Final Report of the Routine Bridge Inspection of Bridge No. 74E0180N39500S6, NBI No.:21121, Local ID 6, FAU 6112 (Tuxedo) over Caney River, Washington County, Oklahoma

Dear Mr. Lauritsen,

We have completed our NBI inspection, Element inspection and inspection report for above referenced bridge.

The bridge is in Satisfactory Condition (6-NBIS) due to the exposed piles at the abutment and the condition of the strip seal expansion joints.

PX - replace damaged strip seal glands.

FX - Backfill exposed piles at the north abutment.

If you have any questions about these inspections or inspection report, please don't hesitate to call me at 816-329-8735.

Sincerely,

TranSystems Corporation

gar C. hu

James P. Hyland, P.E. Senior Bridge Engineer JAMES P.
HYLAND

23189

OKLAHOMA

Oklahoma PE Seal Date: 2-21-213



NBI No.: 21121 Structure No.: 74E01	80N39500S6 Local	ID:6			Rating: 53. nally Obsol		Health Index 98.1	
Description: IDENTIFICATION 51'-80'-100'-80' PREST CONC BM SPANS W/CONC. RAI 1. State:Oklahoma 2. SHD District: D 3. County Code: WASHINGTON 4. Place Code: BAK Admin. Area: Unknown	ivision 8 ILESVILLE	NBI: FC Freq.: UW Freq.:	Insp Req.	Y N N	INSPECTI Freq: 24 NA NA	Insp. Date: 1/16/2013 NA NA	Next Insp.: 1/16/2015 NA NA	
<ol> <li>Inventory Route (Route On Structure): 1 - 5 - 1 - 06</li> <li>Feature Intersected: CANEY RIVER</li> </ol>	112 - 0	OS Freq.:	N	N	NA	NA .	NA	
13. LRS Inv. Route./ Subroute.: -1 -1 16. Latitude: 36 45 23.68 17. Lc 98. Border Br. Code: Juknown (P) % Resp. : 0 99. Bo  STRUCTURE TYPE AND MATE 43. Main Span Material and Design Type	file Post; 0.900 mi ongitude: 095 57 23.66 rder Br. #. Unknown	21. Custodia 26. Function 100. Defense 102. Dir. of 104. Highwa	nn: 0 <sup>2</sup> City/! nal Class: 1 e Highway: Traffic 1 1- ay System:	Municipal Hwy 6 Urban Minor 0 Not a STRA way traffic 0 Not on NHS	Agenc 22. ( Arter 37. I HNET h 101. 103. 105.	TION  Foll Facility: 3 On fr Owner: 04City/Muni Historical Sig.: 5 Not Parallel Structure: R Temp. Structure: No Fed. Land Hwy 0 N NBIS Length: Long	cipal Hwy Agenc cligible for NRH .ight of∥bridge : Applicable (P) /A (NBI)	
Prestressed Concrete Stringer/Girde  44. Approach Span Material and Design Type Unknown (NBI) Unknown (P)  45. No. of Spans Main Unit: 4 46. No. of Approach  107. Deck Type: 1 Concrete-Cast-in-Place  108A. Wearing Surface: 1 Monolithic Concrete  108B. Membrane: 0 None  108C. Deck Protection: None		58. Deck: 62. Culvert Flowline N FLOWLINE 2011.	t: N N/A (N lotes:	VBI) 61.		**************************************		
AGE AND SERVICE  27. Year Built: 1985 106. Year Rec. 28A. Lanes on: 2 28B. Lanes Under: 0 29. ADT: 5000 30. Year of ADT: 2010 42A. Type of Service on: 1 Highway 42B. Type of Service under: 5 Waterway	onstructed; Unknown 19. Detour Length; 0.1 mi 109. Truck ADT %; 5	63. Op. Rat 64. Operation 66. Inventor 65. Inv. Rat	ing Method ng Rating (l ry Rating ( ting Method	3 18 (HS 20) : 1 LF Load Fa H / HS / 3-3 ): H / HS / 3-3 ) :	58.0 18.4 actor-Tor Alt.	Posting status: A Op Op. Rating Meth.: 1 ) 63.7	LF Load Factor-7 -1.1 -1.1	
10. Inv. Rte. Min. Vert. Chr.: 328.1 ft     32. Approach Roadway Width (W/ Shoulders): 30.0 ft     Deck Area: 10,258. sq. ft   33. Median: 1     34. Skew: 0   35. Structure Fl.:		PROPOSED IMPROVEMENTS           94. Bridge Cost:         \$580,000         75. Type of Work: 31 Repl-Load Capa           95. Roadway Cost:         \$319,000         76. Lgth. of Improvment: 372.9 ft           96. Total Cost:         \$909,000         114. Future ADT: 5600           97. Year of Cost Est.:         2007         115. Year of Future ADT: 2030						
51. Width Curb to Curb: 28.0 ft 52. Width Out	valk Width R: 0.0 ft	39. Vertic	al Clearanc	ol: Permit Not	40.	N DATA  Horizontal Clearan  Lift Bridge Vert. C		
53. Minimum Vertical Clearance Over Bridge: 328.1 ft 54A/54B. Min. Vert. Underclearance: N Feature not hwy or N/E  Meas1 -1 -1 -1  Post. DO NOT I  55A/55B. Minimum Lateral Undrelearance R: N Feature not I  66. Minimum Lateral Undrelearance L: 0.0 ft	-1 -1 FU DO NOT U DO NOT U	36B. Trans 67. Str. Ev 69. Under 71. Water 72. Appro	ition: 1 M valuation: 3 clearance, V way Adequ ach Alignm		36D. A olerable 68. rizontal: N No olerable Ain Criteria	AL Approach Rail: Approach Rail Ends: Deck Geometry: 3 Inot applicable (NBI)		
200d. Weather: PARTLY CLOUDY 201. Structural Steel ASTM Desig.: -1 -1 202. Waterproof Membrane :-1 Date Installed: 1/1/1901 203. Type Exp. Dev.: Armored Joint 204. Type of Handrail: Sloped Faced Parapet 205. Material and Quantity: -1.0 208. Type of Abutment: Skeleton	214a. Posted Weight Limit: b. Posted Speed Limit: c. Narrow/One Lane Bridge: d. Vertical Clearance Sign: Advanced Warning Sign: Exisiting/Recommended I Min./ Max Vert. Clearance e. Navigation Lights: Working/Not Working: 215. Overpass: N - Small Cities 221. Substructure Cond. (U/W)	NO - Posting: -1 :: -1 NO		1	244. Spar 51 80 100 245. Gird 246. Type 246. Over 246. Over 246. Over 247. Prot	ler Spacing/Number: n Lengths: 80 -1 -1 ler Depth: -1.000 e of Overlay: rlay Thickness: 0 rlay Date: 1/1/ rlay Depth Changed ective Systems: 1:	-1 -1 1901	
09. Type of Pier / Found.: 6 Drilled Shaft - No Footings 10. Foundation Elev1.0 -1.0 -1.0 -1.0 -1.0  11. Wear. Surf. Prot. System :- Date Installed: 1/1/1901	222. Fill over RCB: 223. Appr. Slab/Rdwy Cond.: 224. Critical Feature Type: 225. Paint Type: Overcoat: 226. Date Painted: 227. Paint Coloring:	-1 7 -1 Not App 0 -1 -1	blicable		249. Scou 250. Culv 254. Thru 256. Char	3: _ 5: _ of Field Splices w/ Co or Crit. POA exists?: ert Headwall Dist.: - Truss Type : Profile Up/Down S	orrosion: -I Yes 1.0 tream?:	
-1 -1 -1 2	<ul> <li>33. Deck Forming: Convention</li> <li>36. Deck Cleaning: -1</li> <li>38. School Bus Rte: Current B</li> <li>40. Appr. Roadway Type: Cond</li> </ul>	us Route			259. Scou 263. Inter	s w/ found. are in file or Eval. is in file at Ol change at Intersection state Milepoint	TOOT	



#### OKLAHOMA DEPARTMENT OF TRANSPORTATION -**Bridge Inspection Report** Suff. Rating: 53.3 Health Index: Structure No.: 74E0180N39500S6 Local ID:6 **Functionally Obsolete** 98.1 NBI No.: 21121 1/16/2013 Reported By: CHAMBLIN Inspection Date: Inspected With: -1 INV-2 Invoice No.: Agency: Structure / Inspection Notes FX - Backfill pile at the North Abutment. Qty.St. 2 % 2 Qty.St. 3 % 3 Qty.St. 4 % 4 Qty.St. 5 % 5 Un. Qty. Qty.St. 1 % 1 Elm. Env. Description 0% 10,263 100 % 0% 4 Reinforced Concrete Deck (SF) 10,263 4 P/S Conc Open Girder/Beam 1,200 1,200 100 % 0% 0% 0% 0 0% 109 (LF) 0% 0 205 4 Reinforced Conc Column or Pile Extension (EA) 83 % 17% 0% 0% 0% 0% 0% 66 100 % 0% Reinforced Conc Abutment (LF) 66 0% 0% 0% 4 Reinforced Conc Cap (LF) 98 98 100 % 90 % 0 0% 0% 13 10% 300 4 Strip Scal Expansion Joint (LF) 131 50 % 0% 0 0% 0 0% 20 50 % 20 40 310 4 Elastomeric Bearing (EA) 0% 0 0% 1 Reinforced Conc Approach Slab w/ or w/o AC O (EA) 0% 100 % 0% 0 321 0 0% 0% 623 622 100 % 1 0 % 0% 0 331 4 Reinforced Conc Bridge Railing (LF) 0% 0% 0% 0% 1 100 % 361 4 Scour (EA) 100 % 0% 0% 0% 0 0% 10,263 659 4 Soffit of Concrete Decks and Slabs (SF) 10,263 0% 0% 0% 0 0% 0 4 P/S Concrete Open Girder/Beam End (5 Ft.) 200 200 100 % (LF) 0% 0 0 % 33 100 % 0% 0 0% 4 Pourable Fixed Joint Scal 33 909 (LF) 0% 0 0% 0% 10 25 % 916 1 Steel Bearing Assembly (EA) 40 30 75 % 0% 100 % 0% 0 0 0% 965 1 Debris (EA) 0% 0 0% 0% 1 100 % 966 1 Exposed Abutment Piling (EA) 1 100 % 0 0% 0 0% 0% 1 Erosion 968 (EA) Additional Elements Element Notes (Include Size and Location of Deterioration Elem. < none > 12 109 < none > 205 Pier #2 North Column has spalling with exposed reinforcing. 215 < none > 234 < none > 300 PX replace glands. Glands are damaged and full of debris. 310 Minor cracking and bulging of the pads. 321 Longitudinal cracking in the east and west approaches 331 Minor spalling in the south rail. 361 Moderate scour at Pier #2 and #3, the drilled shafts are exposed 5'-10' from top of shaft. 659 Minor hairline cracking with efflorescence. 719 < none > 909 Open joints at the abutments deposit debris on the bearing seats. 916 Surface rusting at the abutments 965 Drift and debris upstream from the structure 966 Animal burrows under the abutments have exposed some pile 968 Erosion of the cast and west banks **Channel Profile** 15 10 11 12 13 14 Baseline 2 7 8 -1.0 -1.0 -1.0 131.0 310.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 Distance 311.0 1.0 51.0 231.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 Profile 22.6 26.8 47.0 11.0 -1.0 -1.0 10.9 Event Abutment Pier Abutment Pier



		Inen	ection Report Photos		
Washington	21121	8	74E0180N39500S6	1-16-13	
County	NBI No.	Division	8 - Structure No.	90 - Inspection Date	



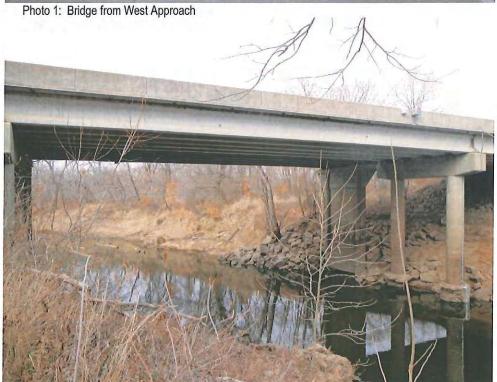


Photo 2: South Elevation





2400 Pershing Road Suite 400 Kansas City, MO 64108

Tel 816 329 8600 Fax 816 329 8602

**TranSystems** 

www.transystems.com

February 25, 2013

Terry Lauritsen, P.E. City of Bartlesville 401 S. Johnstone Bartlesville, OK 74003

Re:

Final Report of the Routine Bridge Inspection of Bridge No. 74E0181N3950007, NBI No.:20708, Local ID

19, FAU 6112 (Tuxedo) over unnamed creek, Washington County, Oklahoma

Dear Mr. Lauritsen,

We have completed our NBI inspection, Element inspection and inspection report for above referenced bridge.

The bridge is in Good Condition (7-NBIS) due to the condition of the box culvert.

FX – Remove silt and vegetation from the south end of the structure.

If you have any questions about these inspections or inspection report, please don't hesitate to call me at 816-329-8735.

Sincerely,

TranSystems Corporation

Que C. your

James P. Hyland, P.E.

Senior Bridge Engineer

JAMES P. HYLAND 23189

Oklahoma PE Seal

Date: 2 25 - 2011



OKLAHOMA DEPARTM  NBI No.: 20708 Structure No.: 74E			Suff. I	Rating: 78. Deficient	nspection 1 9 H	Icalth Index 100.0
In manual and a	Local Local	1	1401	INSPECTI	ON	100.0
Description: IDENTIFICATION 4-8.5' Ø C.G.M.P. W/CONC. SLOPED WALLS AND I	TI EX REAM RAILS	Type Insp Rec	. Insp Done	Freq:	Insp. Date:	Next Insp.:
1. State: Oklahoma 2. SHD District;		NBI:	Y	24	1/16/2013	1/16/2015
3. County Code: WASHINGTON 4. Place Code: E		FC Freq.: N	N	NA	NA.	NA
Admin. Area: Unknown		UW Freq.: N	N	NA	NA.	NA
5. Inventory Route (Route On Structure): 1 - 5 - 1 -	06112 - 0	OS Freq.: N	N	NA	NA.	NA
6. Feature Intersected: CREEK	200000000000000000000000000000000000000	Oblited. 14	.,		200	i)A
7. Facility Carried: FAU 6112 (TUXEDO F FAU 6	12 (TUXEDO B Mile Post: 0.700 mi	12. Base Hwy Netwo			Toll Facility: 3 On fr	
13. LRS Inv. Route./ Subroute.: -1 -1		21. Custodian: 04 City		CONTRACTOR CONTRACTOR	ACCOUNT OF THE PARTY OF THE PAR	
16. Latitude: 36 45 18.30 17.	Longitude: 095 57 38.70	26. Functional Class:			Historical Sig.: 5 Not	
98. Border Br. Code: Jnknown (P) % Resp.: 0 99.	Border Br. #: Unknown	100. Defense Highwa	And the second second second second second			The state of the s
STRUCTURE TYPE AND MA	ATERIALS	102. Dir. of Traffic 2: 104. Highway System	A STATE OF THE PARTY OF THE PAR		Fed. Land Hwy 0 No	
43. Main Span Material and Design Type		A CONTRACT OF THE PARTY OF THE			A CONTRACTOR OF THE PROPERTY O	
Steel Culvert		110. National Truck 1	Network: U Not p	art of na 112.	NB15 Length; Long	Enough
44. Approach Span Material and Design Type		/		CONDITION	ON	
Unknown (NBI) Unknown 45. No. of Spans Main Unit: 4 46. No. of Appr		58. Deck: N N/A (N	BI) 59.	Super.: N N/A	(NBI) 60. Sul	o.: N N/A (NBI)
107. Dcck Type: 1 Concrete-Cast-in-Place	oach Spans: 0	The property of the property o			nnel Protection: 7 Min	Account to the second
108A. Wearing Surface: 1 Monolithic Concrete		Flowline Notes:	and and the state of the	Walter Land Str.	St. Mark St. Co.	
108B. Membrane: 0 None		No flow at inspection				
108C. Deck Protection: None		1000				
	5					
AGE AND SERVIC		Talla Kallalus	LOAD	RATING AN	and the second s	The Solder
	Reconstructed: Unknown	31. Design Load: 4 N			Posting status: A Ope	
28A. Lanes on: 4 28B. Lanes Under: 0	19. Detour Length: 3.1 mi	63. Op. Rating Metho	od: 1 LF Load Fa	ctor-Tor Alt.	Op. Rating Meth.: 1	LF Load Factor-
29. ADT: 7005 30. Year of ADT: 2010	109. Truck ADT %: 7	64. Operating Rating	(H/HS/3-3):	35.4	63.8	-1.1
42A. Type of Service on: 5 Highway-pedestrian		66. Inventory Rating	(H/HS/3-3):	21.3	38.2	-1,1
42B. Type of Service under: 5 Waterway		65. Inv. Rating Meth	od: I LF Load Fa	actor-Tor Alt.	Inv. Rating Meth.:11	F Load Factor-
TATE OF THE PARTY		70. Posting: 5 At/Ab	ove Legal Loads	Date	c Rated: 3/23/2011	
GEOMETRIC DATA	Δ		PROP	OSED IMPRO	VEMENTS	
10. Inv. Rte. Min. Vert. Clr.: 328.1 ft		94. Bridge Cost:	\$100,000		Type of Work: 31 l	Renl-Load Canac
32. Approach Roadway Width (W/ Shoulders): 49.0 ft		95. Roadway Cost:			Lgth, of Improvmen	And the second second second
Deck Area: 2,755.6 sq. ft 33. Media	n: 0 No median	The second of th	\$225,000		4. Future ADT: 1120	
34. Skew: 0 35. Structure	Flared: 0 No flare	97. Year of Cost Est	No. of the last of		S. Year of Future AD	
47. Inv. Rte, Total Horiz, Clr.: 53.5 ft			1	NAVIGATION	IDATA	
48. Length Maximum Span: 9.0 ft 49. Struct	A STATE OF THE PARTY OF THE PAR	38. Navigation Cor			DATA	
50A. Curb/Sdwlk Wdth L; 0.0 ft 50B. Curb/S	idewalk Width R: 4.0 ft	39. Vertical Cleara			Horizontal Clearand	e: 0.0 ft
51. Width Curb to Curb: 53.5 ft 52. Width	Out to Out: 64.0 ft	111. Pier Protection:			i. Lift Bridge Vert. Cl	
53. Minimum Vertical Clearance Over Bridge: 328.1 ft	100			APPRAIS	AT.	
54A/54B, Min. Vert. Underclearance: N Feature not hwy	or RR 0.0 ft	36A. Bridge Rail: 0	Substandard	Contract of the Contract of th	Control of the Contro	1 Meets Standard
N/E S/W		36B. Transition: 0			Approach Rail Ends:	
Meas1 -1 -1 -1	-1 -1	67. Str. Evaluation:			Deck Geometry: 4 To	
Post. DO NOT L DO NOT L DO NOT L DO N	OTI DO NOTI DO NOTI	69. Underclearance				
55A/55B. Minimum Lateral Undrelearance R: N Feature	not hwy or RR 0.0 ft	71. Waterway Adec				
6. Minimum Lateral Undrelearance L: 0.0 ft		72. Approach Align				
		113. Scour Critical:				
00c. Temperature: 46	, 214a. Posted Weight Limit:	NR		1 243 Gire	ler Spacing/Number :	-1.0 / -
200d. Weather: CLEAR	b. Posted Speed Limit:	NR			n Lengths ;	-1.0 / -
201. Structural Steel ASTM Desig,: -1	c. Narrow/One Lane Bridge			9	9	-1
02. Waterproof Membrane :-1	d. Vertical Clearance Sign:	NO		9	-1	-1
Date Installed: 1/1/1901	Advanced Warning Sign :			9	-1	
03. Type Exp. Dev. : Open Joint - No Device	Exisiting/Recommended I	ALL CAPACITY OF THE PARTY OF TH	-1	The state of the s	ler Depth: -1.000	
min residence (see a consequence configuration) (see a configurati	Min./ Max Vert. Clearance	A CONTRACTOR OF THE PARTY OF TH	el	246. Typ	e of Overlay: AC	Over
04. Type of Handrail: Steel Post and Rail	c. Navigation Lights :	NO			rlay Thickness: 6.0	
05. Material and Quantity; -1.0	Working/Not Working:	8			rlay Date: 1/1/	
08. Type of Abutment ; Other	215. Overpass: N - Small Cities			The state of the s	rlay Depth Changed	> 1"? -
Type of Foundation : Natural Foundation Matl.	221. Substructure Cond. (U/W)				ective Systems : I:	
09. Type of Pier / Found.:	222. Fill over RCB;	2		2: _	3: _	
*	223. Appr. Slab/Rdwy Cond.:	8		4: =	5:_	
10. Foundation Elev1.0 -1.0	224. Critical Feature Type:	-1			of Field Splices w/ Co	orrosion: -1
-1.0 -1.0 -1.0	225. Paint Type :	*			r Crit. POA exists?:	
	Overcoat:	0			ert Headwall Dist.: -	1.0
11. Wear. Surf. Prot. System :-	226. Date Painted:	-1			Truss Type : n. Profile Up/Down S	ream?
Date Installed: 1/1/1901	227, Paint Coloring:	-1			s w/ found, are in file	
13. Utilities Attached: -1	233. Deck Forming: -				r Eval, is in file at OI	
A STATE OF THE STA				1	THE RESERVE OF THE PARTY OF THE	
-1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	236. Deck Cleaning: -1 238. School Bus Rte: Current B	us Route		263, Inter	change at Intersection	E .



NE	31	No.: <b>20708</b> Structure No.: 74	E0181N	39500	007 Lo	cal ID	:19			ot Defi	g: 78.9 cient			th Index 100.0
Inspe	ecti	ion Date: 1/16/2013 Rep	orted By	: CHA	AMBLIN									
Invo	ice	No.: INV-2 Ins	ected W	ith: -1										
		Age	ency:	40.00										
					Structur	e / Insp	ection Notes							
TX - R	em	ove silt and vegetation from the south end of th	e structure											
Elm. I	Cnv	Description	Un.	Qty.	Qty.St. 1	%1	Qty.St. 2	% 2	Qty.St. 3	%3	Qty.St. 4	% 4	Qty.St. 5	% 5
240	4	Steel Culvert	(LF)	269	269	100 %	0	0 %	0	0 %	0	0 %	0	0 %
358	1	Concrete Cracking	(EA)	1	1	100 %	0	0 %	0	0 %	0	0 %	0	0 %
359	1	Concrete Efflorescence	(EA)	1	1	100 %	0	0 %	0	0 %	0	0 %	0	0 %
920	1	Steel (Culvert) Protective Coating	(LF)	269	0	0 %	269	100 %	0	0 %	0	0 %	0	0 %
Addit	ion	201												
Elem			~											
600000000000000000000000000000000000000														
Elem.							nd Location							
240	Fre	eckled rust in the flowlines of all pipes. The so	uth seam o	f the cast	pipe was not	properl	y installed wi	th a 16"	gap between	the ends	of the pipes.			
358	Но	orizontal concrete cracking in the North headwa	11.									8		
359	Efi	florescence from the cracking in the north head	wall.											
920	Fre	eckled rust in the flowlines of all pipes.												



		Inen	ection Report Photos		
Washington	20708	8	74E018N3950007	1-16-13	
County	NBI No.	Division	8 - Structure No.	90 - Inspection Date	



Photo 1: Bridge from West Approach



Photo 2: North Elevation





**TranSystems** 

2400 Pershing Road Suite 400 Kansas City, MO 64108 Tel 816 329 8600 Fax 816 329 8602

www.transystems.com

February 25, 2013

Terry Lauritsen, P.E. City of Bartlesville 401 S. Johnstone Bartlesville, OK 74003

Re:

Final Report of the Routine Bridge Inspection of Bridge No. 74E01480N3950008, NBI No.:21083, Local ID 9, FAU 6112 (Tuxedo) over Coon Creek, Washington County, Oklahoma

Dear Mr. Lauritsen,

We have completed our NBI inspection, Element inspection and inspection report for above referenced bridge.

The bridge is in Satisfactory Condition (6-NBIS) due to the exposed piles at the abutments.

FX - Backfill exposed piles at the east and west abutments.

If you have any questions about these inspections or inspection report, please don't hesitate to call me at 816-329-8735.

Sincerely,

TranSystems Corporation

J. City

James P. Hyland, P.E. Senior Bridge Engineer JAMES P.
HYLAND
23189

OKLAHOMA



NBI No.: 21083 Structure No.: 74E0180N3950008	Suff. Rating: 68.6 Health Index ocal ID:9 Not Deficient 96.8
Description: IDENTIFICATION 3-50' I-BM SPANS W/CONC, DECK. 1. State:Oklahoma 2. SHD District: Division 8 3. County Code: WASHINGTON 4. Place Code: BARTLESVILLE Admin. Area; Unknown	NSPECTION   Type   Insp Req.   Insp Done   Freq:   Insp. Date:   Next Insp.:
5. Inventory Route (Route On Structure): 1 - 5 - 1 - 06112 - 0  6. Feature Intersected: COON CREEK  7. Facility Carried: FAU 6112 (TUXEDO F  9. Location: 1,1 MI E SH 123  11. Mile Post: 1,100 n  13. LRS Inv. Route./ Subroute.: -1  16. Latitude: 36 45 25.69  17. Longitude: 095 57 16.6  98. Border Br. Code: Jnknown (P) % Resp.: 0  99. Border Br. #: Unknown	OS Freq.: N N NA NA NA  CLASSIFICATION  12. Base Hwy Network : Not on Base Network 21. Custodian: 0 <sup>4</sup> City/Municipal Hwy Agene 26. Functional Class: 16 Urban Minor Arter 100. Defense Highway: 0 Not a STRAHNET h 101. Parallel Structure; No    bridge exists
STRUCTURE TYPE AND MATERIALS  43. Main Span Material and Design Type Steel Stringer/Girder	102. Dir. of Traffic 2 2-way traffic 103. Temp. Structure; Not Applicable (P) 104. Highway System: 0 Not on NHS 105. Fed. Land Hwy 0 N/A (NBI) 110. National Truck Network: 0 Not part of na 112. NBIS Length: Long Enough
44. Approach Span Material and Design Type Unknown (NBI) Unknown (P) 45. No. of Spans Main Unit: 3 46. No. of Approach Spans: 0 107. Deck Type: 1 Concrete-Cast-in-Place 108A. Wearing Surface: 1 Monolithic Concrete 108B. Membrane: 0 None 108C. Deck Protection: None	CONDITION  58. Deck: 6 Satisfactory 59. Super.: 7 Good 60. Sub.: 5 Fair  62. Culvert: N N/A (NBI) 61. Channel/Channel Protection: 6 Bank Slumping Flowline Notes:  2009 - FL TAKEN AT SOUTH SIDE FROM EAST TO WEST 1-8-09, 2011.
AGE AND SERVICE  27. Year Built: 1985 106, Year Reconstructed: Unknow 28A. Lanes on: 4 28B, Lanes Under: 0 19. Detour Length: 29. ADT: 7000 30, Year of ADT: 2010 109. Truck ADT %: 42A. Type of Service on: 1 Highway 42B. Type of Service under: 5 Waterway	LOAD RATING AND POSTING  31. Design Load: 4 M 18 (H 20)  41. Posting status: A Open, no restriction  63. Op. Rating Method: 1 LF Load Factor-Tor  64. Operating Rating (H / HS / 3-3):  66. Inventory Rating (H / HS / 3-3):  65. Inv, Rating Method: 1 LF Load Factor-Tor  70. Posting: 5 At/Above Legal Loads  Date Rated: 7/20/2004
GEOMETRIC DATA	PROPOSED IMPROVEMENTS
47. Inv. Rte. Total Horiz. Clr.: 58.0 ft         48. Length Maximum Span:49.9 ft       49. Structure Length: 149.9         50A. Curb/Sdwlk Wdth L: 0.0 ft       50B. Curb/Sidewalk Width R: 0.0 ft         51. Width Curb to Curb: 58.0 ft       52. Width Out to Out: 600.0 ft         53. Minimum Vertical Clearance Over Bridge: 328.1 ft	NAVIGATION DATA  38. Navigation Control: Permit Not Required  39. Vertical Clearance: 0.0 ft 40. Horizontal Clearance: 0.0 ft 111. Pier Protection: 1 Not Required 116. Lift Bridge Vert. Clear.:0.0 ft
54A/54B. Min. Vert. Underclearance : N Feature not hwy or RR       0.0 ft         N/E       S/W         Meas.       -1       -1       -1       -1       -1       -1	APPRAISAL  36A. Bridge Rail: 1 Meets Standards 36C. Approach Rail: 1 Meets Standards 36B. Transition: 1 Meets Standards 36D. Approach Rail Ends; 1 Meets Standards 67. Str. Evaluation: 4 Minimum Tolerable 68. Deck Geometry: 5 Above Tolerable 69. Underclearance, Vertical and Horizontal: N Not applicable (NBI) 71. Waterway Adequacy: 7 Above Minimum 72. Approach Alignment: 8 Equal Desirable Crit 113. Scour Critical: 5 Stable w/in footing
Min./ Max Vert.	: NR  ridge sign : N  Sign: NO  Sign: NO  mided Posting: -1  arance: -1  NO  ing: -  1 Cities  U/W): -  -1  nd.: 8  : -1  Not Applicable  0  -1  -1  Not Applicable  0  -1  -1  -1  -1  -1  -1  -1  -1  -1
233. Deck Forming:   236. Deck Cleaning:   236. Deck Cleaning:   236. Deck Cleaning:   238. School Bus Rte:   240. Appr. Roadway T	259. Scour Eval. is in file at ODOT 263. Interchange at Intersection



#### **Bridge Inspection Report** OKLAHOMA DEPARTMENT OF TRANSPORTATION -Suff. Rating: 68.6 Health Index: Local ID:9 Not Deficient 96.8 Structure No.: 74E0180N3950008 NBI No.: 21083 Inspection Date: 1/16/2013 Reported By: CHAMBLIN Invoice No.: INV-2 Inspected With: -1 Agency: Structure / Inspection Notes (359) HAIRLINE CRACKS & SPALLED CONCRETE WITH EXPOSED REBARS AT E. SPAN. FX - Backfill pile at the east and west Abutment. %4 Qty.St. 5 % 5 %3 Qty.St. 4 Qty.St. 2 % 2 Qty.St. 3 Description Un. Qty. Qty.St. 1 % 1 0 0% 4 Reinforced Concrete Deck (SF) 8.999 8,099 90 % 900 10 % 0% 0% 0% 0% 0% 1,079 100 % 0% 107 4 Steel Open Girder Beam (LF) 1,079 0 % 0% 100 % 0% 0% 4 Steel Column or Pile Extension (EA) 18 0% 0% 0% 0% 215 4 Reinforced Conc Abutment 121 121 100 % (LF) 0% 121 100 % 0% 0% 0% 234 4 Reinforced Conc Cap 121 (LF) 0% 0% 121 121 100 % 0% 0% 4 Strip Seal Expansion Joint (LF) 0% 36 100 % 0% 0 % 0% 0 310 4 Elastomeric Bearing (EA) 36 0% 0 0% 2 100 % 0% 0% 321 1 Reinforced Conc Approach Slab w/ or w/o AC O (EA) 0% 0% 0 0% 0 0% 4 Reinforced Conc Bridge Railing 299 100 % 299 331 (LF) 0 0% 363 1 Steel Section Loss 0% 100 % 0% 09 (EA) 0% 100 % 0% 0% Steel (Superstructure) Protective Coating 1,349 0% 1,349 515 (LF) 0% 0% 0% 8,999 100 % 0% 659 4 Soffit of Concrete Decks and Slabs (SF) 8,999 0% 0 0% 0% 270 100 % 4 Steel Open Girder/Beam End (5 Ft.) 270 765 (LF) 92 % 8 % 0% 0% 0 0% 121 10 909 4 Pourable Fixed Joint Seal (LF) 0% 0 0% 36 100 % 0% 0% 916 1 Steel Bearing Assembly 36 (EA) 0% 0 0% 36 0 0% 36 100 % 0% 1 Steel (Bearing) Protective Coating (EA) 0% 100 % 0% 0% 918 60 0% 120 4 Steel (Substructure) Protective Coating (LF) 180 0% 0% 0 0% 100 % 0% 966 1 Exposed Abutment Piling (EA) 0% 0 0% 100 % 0% 0% 0 968 1 Erosion (EA) Additional Elements Element Notes (Include Size and Location of Deterioration Elem. 12 Cracking and spalling at end of deck. 107 The paint system is failing. Rusting with section loss of Beam #7 near the East abutment 202 3'-4' of moderate corrosion at or below the normal waterline. Deep pitting of the pile and secondary members up to 25% section loss. 215 Minor staining and cracking of the back wall. 234 Pier #1 has staining of the east face 300 Filled with debris and dirt. 310 Pads have minor bulging, at edges. 321 Minor settlement of the Approach slab some spalling of the joint at the east abutment. 331 Good Condition 363 Moderate rusting and pitting of the pile at Bents #1 and #2. 515 Flaking paint with minor surface rust throughout. 659 Minor spalling with exposed reinforcing at Beam #7 and East abutment 765 The paint system has failed. Minor rust on several beams. 909 East joint is spalling 916 Minor surface rust 917 Minor surface rust 918 3'-4' of moderate corrosion at or below the normal waterline. Deep pitting of the pile and secondary members up to 25% section loss. 966 8 pile are exposed and rusting at the East abutment. (Min 6" Max 24"), 5 pile are exposed and rusting at the West abutment. (Min 6" Max 18")

968 Erosion of the abutments has exposed the piling.



	KLAH No.: 210					V <b>T OF</b> 0N39500	t.c	NSP (		TION	Suff	Bridg Rating ot Defici		pectio	Healt	port h Index 96.8
				1	70.		C	hannel Pr	ofile					m.		
	Baseline	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
istance	150.0	1.0	50.0	75.0	100.0	149.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
rofile		10.3	21.5	22.0	20.8	10.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
ent		Abulment	Pier	Flowline	Pier	Abutment	-		-	-	-		1 2	-		_



County	NBI No.	Division	8 - Structure No.	90 - Inspection Date
Washington	21083	8	74E0180N3950008	1-16-13
		Inch	action Papart Photos	The state of the s

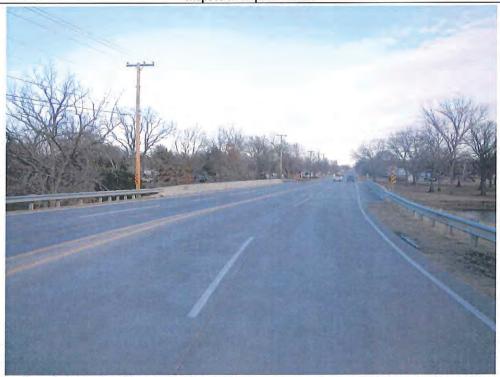


Photo 1: Bridge from West Approach



Photo 2: South Elevation





**TranSystems** 

2400 Pershing Road Suite 400 Kansas City, MO 64108 Tel 816 329 8600 Fax 816 329 8602

www.transystems.com

February 25, 2013

Terry Lauritsen, P.E. City of Bartlesville 401 S. Johnstone Bartlesville, OK 74003

Re:

Final Report of the Routine Bridge Inspection of Bridge No. 74E0179N39500N6, NBI No.:14187, Local ID 5,

FAU 6112 (Tuxedo) over Caney River, Washington County, Oklahoma

Dear Mr. Lauritsen,

We have completed our NBI inspection, Element inspection and inspection report for above referenced bridge.

The bridge is in Fair Condition (5-NBIS) due to the condition of the substructure.

FX - West compression joint seal has failed, replace.

If you have any questions about these inspections or inspection report, please don't hesitate to call me at 816-329-8735

Sincerely,

TranSystems Corporation

James P. Hyland, P.E. Senior Bridge Engineer JAMES P.
HYLAND
23189

OKLAHOMA

Oklahoma PE Seal

Date: 2 - 2 - 2 - 13



OKLAHOMA DEPARTMENT OF TRAN  NBI No.: 14187 Structure No.: 74E0179N39500N6 Lo	SPORTATION - Bridge Inspection Report Suff. Rating: 51.8 Health Index Functionally Obsolete 94.5
Description: IDENTIFICATION  51'-80'-100'-80 I-BM SPANS W/CONC. DECK  1. State:Oklahoma 2. SHD District: Division 8  3. County Code: WASHINGTON 4. Place Code: BARTLESVILLE  Admin. Area: Unknown  5. Inventory Route (Route On Structure): 1 - 5 - 1 - 06112 - 0	NSPECTION   Next Insp. Date:   Next Insp. Date:
6. Feature Intersected: CANEY RIVER 7. Facility Carried: FAU 6112 (TUXEDO E   FAU 6112 (TUXEDO B WB   9. Location: 0.9 MI EAST OF SH 123   11. Mile Post: 0.900 mi 13. LRS Inv. Route./ Subroute.: -1   -1 16. Latitude: 36 45 24.93   17. Longitude: 095 57 23.91 98. Border Br. Code: Jnknown (P) % Resp.: 0   99. Border Br. #: Unknown  STRUCTURE TYPE AND MATERIALS	CLASSIFICATION  12. Base Hwy Network: Not on Base Network 21. Custodian: 04 City/Municipal Hwy Agenc 26. Functional Class: 17 Urban Collector 100. Defense Highway: 0 Not a STRAHNET h 101. Parallel Structure: Left of    bridge 102. Dir, of Traffic I I-way traffic 104. Highway System: 0 Not on NHS 105. Fed. Land Hwy 0 N/A (NBI)
43. Main Span Material and Design Type Steel Continuous Stringer/Girder  44. Approach Span Material and Design Type Unknown (NBI) Unknown (P)  45. No. of Spans Main Unit: 4 46. No. of Approach Spans: 0  107. Deck Type: 1 Concrete-Cast-in-Place 108A. Wearing Surface: 1 Monolithic Concrete 108B. Membrane: 0 None 108C. Deck Protection: None	110. National Truck Network: 0 Not part of na 112. NBIS Length: Long Enough  CONDITION  58. Deck: 6 Satisfactory 59. Super.: 7 Good 60. Sub.: 5 Fair 62. Culvert: N N/A (NBI) 61. Channel/Channel Protection: 5 Bank Prot Eroded Flowline Notes: 2009 - FL TAKEN AT NORTH SIDE FROM WEST TO EAST TOP OF CURB 1-8-09. E-1 TOR N SIDE 2011.
AGE AND SERVICE  27. Year Built: 1958 106. Year Reconstructed: Unknown  28A. Lanes on: 2 28B. Lanes Under: 0 19. Detour Length: 0.1 r  29. ADT: 5000 30. Year of ADT: 2010 109. Truck ADT %: 5  42A. Type of Service on: 1 Highway  42B. Type of Service under: 5 Waterway	LOAD RATING AND POSTING  31. Design Load: 4 M 18 (H 20)  41. Posting status: A Open, no restriction  63. Op. Rating Method: 1 LF Load Factor-Tor Alt. Op. Rating Meth.: 1 LF Load Factor-To-  64. Operating Rating (H / HS / 3-3):  65. Inventory Rating (H / HS / 3-3):  14.0  20.8  -1.1  65. Inv. Rating Method: 1 LF Load Factor-Tor Alt. Inv. Rating Meth.: 1 LF Load Factor-To-  70. Posting: 5 At/Above Legal Loads  Date Rated: 7/20/2004
10. Inv. Rtc. Min. Vert. Clr.: 328.1 ft  32. Approach Roadway Width (W/ Shoulders): 34.0 ft  Deck Area: 10,258. sq. ft 33. Median: 1 Open median  34. Skew: 0 35. Structure Flared: 0 No flare	PROPOSED IMPROVEMENTS  94. Bridge Cost: \$580,000 75. Type of Work: 31 Repl-Load Capac  95. Roadway Cost: \$319,000 76. Lgth. of Improvment: 372.9 ft  96. Total Cost: \$909,000 114. Future ADT: 280  97. Year of Cost Est.: 2007 115. Year of Future ADT: 2030
47. Inv. Rte. Total Horiz. Clr.: 28.0 ft 48. Length Maximum Span: 100.1 ft 49. Structure Length: 311.0 ft 50A. Curb/Sdwlk Wdth L: 1.6 ft 51. Width Curb to Curb: 28.0 ft 52. Width Out to Out: 33.0 ft 53. Minimum Vertical Clearance Over Bridge: 328.1 ft 54A/54B. Min. Vert. Underelearance: N Feature not hwy or RR  N/E  Meas1 -1 -1 -1 -1 -1 -1	NAVIGATION DATA  38. Navigation Control: Permit Not Required  39. Vertical Clearance: 0.0 ft 40. Horizontal Clearance: 0.0 ft 111. Pier Protection: 1 Not Required 116. Lift Bridge Vert. Clear.:0.0 ft  APPRAISAL  36A. Bridge Rail: 1 Meets Standards 36C. Approach Rail: 1 Meets Standards 36B. Transition: 1 Meets Standards 36D. Approach Rail Ends: 1 Meets Standard 67. Str. Evaluation: 5 Above Min Tolerable 68. Deck Geometry: 3 Intolerable - Correct
Post. DO NOT I DO NO 55A/55B. Minimum Lateral Undrelearance R: N Feature not hwy or RR 0.0 ft 66. Minimum Lateral Undrelearance L: 0.0 ft	69. Underclearance, Vertical and Horizontal: N Not applicable (NBI) 71. Waterway Adequacy: 8 Equal Desirable 72. Approach Alignment: 4 Minimum Tolerable 113. Scour Critical: 5 Stable w/in footing
200c. Temperature: 52   214a. Posted Weight Limit:	n: NO gn: _



## OKLAHOMA DEPARTMENT OF TRANSPORTATION - Bridge Inspection Report

NBI No.: 14187 Structure No.: 74E0179N39500N6 Local ID:5

Suff. Rating: 51.8 Functionally Obsolete

Health Index: 94.5

Inspection Date: 1/16/2013 Reported By: CHAMBLIN
Invoice No.: INV-2 Inspected With: -1
Agency;

Ctructure	/ Inspection	Note

Elm.	Env	Description	Un.	Qty.	Qty.St. 1	%1	Qty.St. 2	% 2	Qty.St. 3	%3	Qty.St. 4	% 4	Qty.St. 5	%5
12	4	Reinforced Concrete Deck	(SF)	10,301	0	0%	10,301	100 %	0	0%	0	0 %	0	0 %
107	4	Steel Open Girder Beam	(LF)	1,506	0	0%	1,506	100 %	0	0 %	0	0 %	0	0%
205	4	Reinforced Conc Column or Pile Extension	(EA)	11	11	100 %	0	0 %	0	0%	0	0 %	0	09
210	4	Reinforced Conc Pier Wall	(LF)	39	39	100 %	0	0%	0	0 %	0	0 %	0	09
215	4	Reinforced Cone Abutment	(LF)	66	66	100 %	0	0%	0	0 %	0	0 %	0	0%
234	4	Reinforced Cone Cap	(LF)	98	93	95 %	5	5 %	0	0 %	0	0 %	0	09
302	4	Compression Joint Scal	(LF)	66	46	70 %	0	0%	0	0 %	20	30 %	0	0 %
311	4	Moveable Bearing (roller, sliding, etc.)	(EA)	20	14	70 %	5	25 %	0	0 %	1	5 %	0	0%
313	4	Fixed Bearing	(EA)	20	18	0%	1	5 %	0	0%	1	100 %	0	0 %
321	I	Reinforced Conc Approach Slab w/ or w/o AC O	(EA)	1	1	100 %	0	0%	0	0 %	0	0%	0	0 %
331	4	Reinforced Conc Bridge Railing	(LF)	623	613	98 %	0	0%	10	2 %	0	0 %	0	0 %
361	4	Scour	(EA)	1	1	100 %	0	0%	0	0%	0	0 %	0	0 %
363	1	Steel Section Loss	(EA)	1	1	100 %	0	0%	0	0%	0	0 %	0	0 %
515	4	Steel (Superstructure) Protective Coating	(LF)	1,506	0	0%	1,506	100 %	0	0 %	0	0 %	0	0 %
659	4	Soffit of Concrete Decks and Slabs	(SF)	10,301	0	0%	10,301	100 %	0	0%	0	0 %	0	0 %
765	4	Steel Open Girder/Beam End (5 Ft.)	(LF)	100	0	0%	97	97 %	3	3 %	0	0 %	0	09
965	1	Debris	(EA)	1	0	0%		100 %	0	0 %	0	0 %	0	0%
966	1	Exposed Abutment Piling	(EA)	1	0	0%	- 4	100 %	0	0%	0	0 %	0	09
968	1	Erosion	(EA)	1	0	0%	1	100 %	0	0%	0	0 %	0	0%

Additional

Elements

lem.	Element Notes (Include Size and Location of Deterioration
	6 Transverse cracks across the deck, I longitudinal crack in span 2. Moderate spalling around the joint at the east abutment. (Full width)
107	<none></none>
205	Minor spalling at the base of the west column west face.
210	<none></none>
215	Cracking and staining on the back wall at both abutments
234	The cap at Pier#1 have moderate spalling and delamination's over 50% of the surface.
302	FX - the west seal has failed. Replace joint seal
311	(Roller Bearings) moderate rusting of Bearings with minor to moderate section loss.
313	Moderate pack rust at the west abutment with section loss to the bearings.
321	Longitudinal crack in the center of the east slab. Longitudinal crack in the center of the west slab.
331	10ft, east end south side is spalled.
361	West pier drilled, shafts exposed approximately 12'.
363	Section loss at East abulment 2 beam ends 2' total. Section loss and pack rust at 3 roller bearings on east abulment.
515	Portions of Paint system appears to have been redone recently, no date could be found to verify.
559	Spalling with exposed reinforcing was observed near the joints above the pier caps.
765	2' of section loss at the east abutment
965	Trash up stream.
966	Slight crosion of the east abutment south end.
968	Erosion of the east abutment.



NBI	No.: 14	187	Structi	ure No.: 7	4E0179	N3950	0N6 Lo	ocal ID	:5			Rating	g: 51.8 Obsolete			h Index 94.5
							Ch	iannel Pr	ofile							
	Baseline	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Distance	310.0	1.0	50.0	100.0	130.0	230,0	309.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Profile		9.7	42.3	48.0	43.8	21.8	8.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1,0	-1.0
Event		Abutment	Pier	Flowline	Pier	Pier	Abutment							100		13.7



County Washington	NBI No. 14187	Division	8 - Structure No. 74E0179N39500N6	90 - Inspection Date 1-16-13	
wasnington	14107	0	14601731133300110	1-10-13	



Photo 1: Bridge from East Approach



Photo 2: North Elevation

Oklahoma

GEOMETRIC DESIGN TABLES

July 1992

12 (21)

		Manua	1 2-Lane	16	Mul	Multilane
Design	Design Element	Section	With Curb	Without Curb	With Curb	Without Curb
Standard Designation		1	UOA-1	UOA-2	UOA-3	UOA-4
Design Year (Geometrics)		5.3	20 years	IIS	20,3	20 years
Design Speed (mph) (1)		5.2	30-50	0	30	30-50
Access Control		5.4	Control by Regulation	egulation	Control by	Control by Regulation
Level of Service		5.3	Desirable: C	Minimum: D	Desirable: C	Minimum: D
Lane Width (2)		8.1	Desirable: 12'	Minimum: 11'	Desirable: 12'	Minimum: 11'
Shoulder/Curb Offset	Type	8.1	Paved	Decree Miss M	Pa Picter 21   Left. 21 (2)	Paved Disher 6/23 1 aft: 2
	Width	0.1	2 Min. (3)	0	Agus a Lett. 2 (2)	
Cross Slope	Shoulder/Curb Offset		Same as adjacent T.L.	2%-4% Typical	Same as adjacent T.L.	2%-4% Typical
Auditor Person	Lane Width		Desirable: Same as Travel Lane; Minimum:	Lane; Minimum: 11'	Desirable: Same as Travel Lane; Minimum:	avel Lane; Minimum: 11
Auxiliary Lanes	Shoulder/Curb Offset		2" Min. (5)	4' Min.	2' Min. (5)	4' Min.
TWLT Lane Width		9.4	AN		14'	-
Parking Lane Width (7)		17.1	Desirable: 12'	Minimum: 10'	Desirable: 12'	Minimum: 10'
Median Width		8.2	NA			(8)
Right-of-Way Width		9.8	(6)	Charles and the second		(6)
Clear Zone		11.2	1.5' (10)	See Section 11.2	15' (10)	See Section 11.2
	Fore Slope		NA	4:1	NA	4:1
	(11) Ditch Wid	th	NA	.80	NA	.80
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Back Slope	10	3:1	3:1	3:1	3:1
Side Slopes		ght 8.3	3:1	3:1	3:1	3:1
	Fill 4'-10' Height	g.	3:1	3:1	3:1	3:1
			3:1	3:1	3:1	3:1
			30 mph	40 mph	45 mph	S0 mph
Minimum Stopping Sight Distance (13)	Distance (13)	5.7	200,			400,
Intersection Sight Distance		9.2		See Se	See Section 9.2	
Decision Sight Distance		5.7		See Se	See Section 5.7	
Maximum Degree of	emax=0.04	6.1	24°45'	11°30′	8°30′	NA
Curvature	emax=0.06	6.1	26°45'	12°45'	9°15'	6.45'
Superelevation Rate		6.2		See Se	See Section 6.2	
Vertical Curvature for	Crest	7.2	K=30	K=60	K=80	K=110
Minimum SSD	Sag	7.2	K=40	K=60	K=70	K=90
	level	7.1	8%	7%	65%	969
Maximum Grade	Rolling	7.1	266	8%	75%	7%
	Mountainous	7.1	11%	10%	95%	0%6
Minimum Grade		7.1			Minimum: Curbed: 0.4%; Uncurbed: 0%	
New/Decoastructed	Structural Canacity	(14)		HS-20/C		
Bridges	Width			Full Approach	Full Approach Roadway Width	
Hvieting Bridges to	Structural Capacit	^		HS-20 (Inve	HS-20 (Inventory Rating)	
Remain in Place	Width (15)	8.4	Uncurbed	Uncurbed Section: Travelway + 4'	Curbed Section: Site Specific	te Specific
400	New/Replaced Brid	ges			.6-	
Vertical Cearance (16)						

**Exhibit G: Design Criteria** 



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# GEOMETRIC DESIGN CRITERIA FOR URBAN OTHER ARTERIALS

(New Construction/Reconstruction)

#### Footnotes to Table 12-9

- 1. Design Speed. The design speed should equal or exceed the anticipated posted or regulatory speed limit after construction.
- Lane Widths. For highways on the National Network or on reasonable access routes, the minimum lane width is 12'. Where truck volume ≥10%, lane widths should be 12'.
- Shoulder/Curb Offset. Where the design speed is 45 mph or less on facilities with curbs, the curb offset (for both left and right)
  may be 1' minimum for barrier curbs and may be zero for mountable curbs.
- Travel Lane Cross Slope (Multilane). On curbed multilane facilities, the typical cross slope is 3% for any travel lanes adjacent to the curb.
- Auxiliary Lane Shoulder/Curb Offset. Widths adjacent to auxiliary lanes will typically be 4' or equal to the width adjacent to the travel lane, whichever is less. For left-turn lanes in flush medians, the shoulder width adjacent to the turn lane may be zero.
- 6. TWLT Lane Width. In industrial areas with large trucks turning frequently, the desirable TWLT lane width is 16'.
- 7. Parking Lanes. Where the parking lane will be used as a travel lane during peak hours or may be converted to a travel lane in the future, the width should be 12' plus a 1' offset to the curb (if present). The cross slope of the parking lane will be the same as that of the adjacent travel lane.
- 8. Median Width. The median width will depend upon many factors. These include the type of median (depressed, flush or raised), the required depth of ditch, the acceptable median slopes, the available right-of-way, the anticipated ultimate development of the facility (i.e., planned addition of travel lanes) and field conditions. In addition, the following will apply where a median barrier is warranted:
  - a. Where light poles, glare screens, etc., will be mounted on a median barrier, the desirable median width is 22' 26'.
  - b. Additional median width may be necessary to meet horizontal sight distance criteria on horizontal curves. See Section 6.5.
- 9. Right-of-Way Width. The minimum ROW width will be the sum of the travel lane width plus the outside shoulder widths plus the median width plus the necessary width for fill and cut slopes and clear zones. Desirably, the ROW width will accommodate the anticipated ultimate development of the facility plus utility requirements.
- 10. Clear Zone (Curbed Facilities). Desirably, the clear zone will be 10' from the edge of travel lane, if this yields a greater clear distance than the 1.5' from the gutter line. The 1.5' minimum is measured from the gutter line and applies regardless of the shoulder or curb offset width.
- 11. <u>Cut Slopes.</u> Typical values in table apply to earth cuts. See Section 8.3 for rock cuts. On facilities with curbs, it is desirable to provide a 6' sodded "shelf" between the curb and the toe of the back slope or an 8' shelf where a sidewalk is present. See Section 8.3.
- Fill Slopes. On facilities with curbs, it is desirable to provide a 6' sodded "shelf" between the curb and the break in the fill slope or an 8' shelf where a sidewalk is present. See Section 8.3.
- Minimum Stopping Sight Distance. Values in table are minimum SSD criteria for passenger cars on level grades. See Section 6.5
  for the application of the SSD to horizontal curves.
- 14. Structural Capacity (New/Reconstructed Bridges). The Oklahoma Overload Truck applies only to State highways.
- 15. Width (Existing Bridges to Remain in Place). On State highways, the minimum width is 28' for uncurbed sections. On all facilities, for bridge widths wider than the widths in the table, the bridge should be evaluated for widening to full approach roadway width only if one of the condition codes from the NBIS inspection report is less than 5 (deck, superstructure or substructure) or the approach roadway width is widened.



Oklahoma

#### GEOMETRIC DESIGN TABLES

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- 16. Minimum Vertical Clearance. The vertical clearances apply to the arterial passing under a bridge. The following also apply:
  - a. <u>Sign Truss/Pedestrian Bridge</u>. The minimum clearance is 17'-9" for an arterial passing beneath a new sign truss or pedestrian bridge and 17'-0" for an arterial passing beneath an existing pedestrian bridge.
  - b. <u>Railroads</u>. The Planning Division (Rail Planning Branch) will determine the vertical clearance for railroads passing beneath an arterial. The typical clearance will be 23'-0". An allowance should also be made for future ballasting.



County Washington 8/28/12 PDF (for Hydraulic Conf.) Project No. Not Yet Assigned 11/1/12 PDF (Revision 1) 11/2/12 PDF (Revision 2) JP# 24348(10) 11/13/12 PDF (Revision 3) SH-123 over Caney River NBIS# 05521 Hydraulic Summary Total Drainage Area = 1371.00 sq. mi Controlled Drainage Area = 451.00 sq. mi Effective Drainage Area = 920.00 sq. mi 417.42 679.70 ft Low Bm Elev = 3-Span 100'-210'-100' Truss **Existing Structure:** Bridge  $Q_{\text{OT}} \approx Q$ 10 Yr. Rdwy<sub>OT</sub> Elev = 671.05 Sta. 106+29.77 C/L Station Rdwy<sub>OT</sub> Sta = 119+08 3-Span 135'-210'-135' Steel **Proposed Structure:** PL Girder, Continuous L =482.50 ft Low Bm Elev = 679.14 Rdwy<sub>OT</sub> Elev = C/L Station Sta. 106+45.00  $Q_{OT} \approx Q$ 10 Yr. 671.05 00.00 ft. offset Rdwy<sub>OT</sub> Sta = 119+08 N/A **Detour Structure:** Slope = N/A ft/ft Inlet Elev = N/A C/L Station N/A  $Q_{OT} \approx Q$ N/A Detouror Elev = N/A N/A Detouror Sta = N/A

Freq.	Q (cfs)	CHW (ft)	V (fps)	Contraction Scour (ft)	Pier Scour (ft)	Total Scour (ft)
2	6000	662.72	2.00			
5	11500	669.13	2.35			
10	15520	671.33	2.18			
25	20000	673.08	2.16			
50	25860	674.71	2.12			
100	38440	675.89	2.63	0.00	4.00	4.00
Rdwy or= 10	15000	671.05	2.55	3.00	4.00	7.00
Detour or = 2	N/A	N/A	N/A			

#### Notes:

- 1. Bridge Header Riprap not to go below Top of Bank Elev ≈ 668 (Abut. #1) 668 (Abut. #2).
- 2. Water Surface Elev. Q2 = 662.7 based on Natural Conditions HEC-RAS at Bridge Location.

Hydraulic Design is in compliance with "Federal-Aid Policy Guide 23 CFR 650, Subpart A"