OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				

REVISIONS	
DESCRIPTION	DATE

Historical Letter & Written Report

1. GENERAL:
   Survey Began: March 25, 2014
   Survey Completed: October 10, 2014

   Personnel on this survey:

Edward R. Seaton	Licensed Land Surveyor
Ron Huffman	Licensed Land Surveyor
Tony Robison	Licensed Land Surveyor
Brandon Kaufman	Licensed Land Surveyor
Ryan Thomson	Party Chief
Jason Appleton	Instrument Operator
Ray Gipson	Instrument Operator
Susan Mobley	Certified Photogrammetrist

2. ASSIGNMENT:

   This Survey was assigned to me by Mr. Larry Reser, Chief of Surveys, Oklahoma Department Of Transportation, via email dated March 25, 2014. Heartland Surveying and Mapping, PLLC, under the direct supervision of Mr. Edward R. Seaton, began work on the project on April 2, 2014.

3. PURPOSE:

   The purpose of this survey is to furnish sufficient data to develop plans to construct a new bridge over Salt Fork of the Red River north of Hollis. The survey will include the Alignment, Topographic/Planimetric data, Surface Features/DTM data, Land Ties, Utilities, Drainage and all other pertinent information needed to aid in the design.

4. LIMITS:

   This survey will begin at EW-150.5 ¼ Section Line, as established under SWO 264 survey, and will extend north to EW-149 Section Line, as established under SWO 673 survey (approximate centerline length = 1.59 miles).

5. ALIGNMENT:

   The Centerline of Survey for this project will be along and identical to the centerline of present S.H. 30 as established under SWO 264 survey and SWO 673 survey and shown on SAP No. 673-B plans.

6. STATIONING:

   Stationing for this survey will be taken from SWO 673 survey at **P.O.T Sta. 574+46.2** (EW-150 Section Line). Stationing will decrease south to the BEGINNING OF SURVEY and increase north to the END OF SURVEY from this point, field measured distance, without equation, except with existing surveys and plans.

7. HORIZONTAL CONTROL:

   Horizontal control for this survey is NGS Oklahoma State Plane Coordinate System, NAD83(2011), Lambert Projection, South Zone, derived by Static GPS methods utilizing NGS HARN monument MADGE,and NGS First Order monuments LEBOS and GOULD.

7001	5/8"X18" rebar with Plastic Cap (Aerial Target)
7003	5/8"X18" rebar with Plastic Cap (Aerial Target)
7004	5/8"X18" rebar with Plastic Cap (Aerial Target)
7005	5/8"X18" rebar with Plastic Cap (Aerial Target)
7006	5/8"X18" rebar with Plastic Cap (Aerial Target)
7007	5/8"X18" rebar with Plastic Cap (Aerial Target)
7008	5/8"X18" rebar with Plastic Cap (Aerial Target)
7009	5/8"X18" rebar with Plastic Cap (Aerial Target)
7010	5/8"X18" rebar with Plastic Cap (Aerial Target)
7011	5/8"X18" rebar with Plastic Cap (Aerial Target)
7012	5/8"X18" rebar with Plastic Cap (Aerial Target)
7013	5/8"X18" rebar with Plastic Cap (Aerial Target)
7014	5/8"X18" rebar with Plastic Cap (Aerial Target)
7016	5/8"X18" rebar with Plastic Cap (Aerial Target)
7401	5/8"X36" rebar with 3" Aluminum Cap (ODOT No. H-29-126)
7402	5/8"X36" rebar with 3" Aluminum Cap (ODOT No. H-29-127)

   a.) Static GPS methods were used to establish the following Secondary Control Points:

   b.) Static GPS observations were made between 7401 and 7402 to verify control points.

8. VERTICAL CONTROL:

   a.) Vertical Control for this survey is NAVD88, derived from NGS HARN monuments.

   b.) Vertical Control Points:
   NGS Benchmarks MADGE, E 96 and GOULD.

   c.) Differential Leveling method was utilized throughout the project.

   d.) All leveling was conducted with a Sokkia SDL30 digital level. Elevations were established by double loop leveling between benchmarks. The NAVD 88 elevation was derived by using the elevation of 1852.1940 on Control Pt. 7401(H-29-126) and ending on GPS Control Pt. 7402 (H-29-127) with an elevation of 1828.7270.

   A Benchmark list depicting all established benchmarks, as well as results of the control leveling has been placed in the archived Microstation Design File. (See SUBMITTED DATA below).

9. MEASUREMENT UNITS:

   The distances, coordinates, and elevations shown on this survey are in US SURVEY FEET. All angles and bearings shown are in degrees, minutes, and seconds.

10. PHOTO CONTROLS:
    Sixteen aerial targets were placed prior to acquisition of aerial photography and LiDAR.
    Coordinates and Elevations are:

Pt. No.	Northing	Easting	Elevation
7001	551180.0280	1394076.2200	1828.9410
7003	551207.7750	1395150.1750	1839.7015
7004	552367.4790	1394654.1970	1826.3211
7005	553519.3400	1394172.3120	1767.1533
7006	553388.4470	1395092.8340	1797.7458
7007	554448.1160	1394733.0000	1754.6218
7008	555696.3410	1394304.7990	1722.4400
7009	555534.5840	1395191.9520	1716.2480
7010	556849.3510	1394807.8240	1726.6132
7011	558193.7410	1394346.7830	1755.9575
7012	558124.3790	1395371.7480	1751.6730
7013	559499.5490	1394793.3500	1794.3757
7014	560652.4680	1394379.4060	1822.7560
7016	560581.0800	1395365.1750	1806.5890
7401	551262.0240	1394578.1560	1852.1940
7402	560582.3430	1394906.8200	1828.7270

11. TOPOGRAPHY:

    All topography information was obtained during the course of this survey by field conventional and RTK GPS methods along the present Right of Way of S.H. 30. LiDAR technology was utilized for the DTM along with Aerial Photogrammetry for acquisition of planimetric features.

    Mapping limits are as follows:
    - 150 feet right and 250 feet left of Centerline of Survey from the Beginning of Survey to Sta. 580+00; thence,
    - 500 feet right and left of Centerline of Survey from Sta. 580+00 to Sta. 610+00; thence,
    - 150 feet right and 250 feet left of Centerline of Survey from Sta. 610+00 to the End of Survey.

12. CROSS SECTION/DTM:

    All surface feature information was obtained during the course of this survey by field conventional, LiDAR and RTK GPS methods. A DTM file was created and archived. (See: SUBMITTED DATA below).

13. ENVIRONMENTAL CONCERNS:

    No evidence was found of Hazardous waste sites during this survey.
    No evidence was found of underground storage tanks during this survey.
    No evidence was found of Cemeteries during this survey.

14. UTILITIES:

    All utility companies servicing the project extents were contacted, after first contacting OKIE. The locate was requested on 6-6-2014, Ticket No. 140606142917 27. Underground utilities were marked and tied to the survey. Depths of the utility lines were requested and approximate Depths and depths as provided are shown on topography. Not all companies furnished depths of utilities and some are approximate and some are unknown.
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15. LAND TIES:

    Complete Land Ties for this survey consisted of the following sections:

    Sections 2, 3, 10 and 11, Township 4 North, Range 26 West, I.M., Harmon County, State of Oklahoma. A search was made at all corner locations for any trace of the original monuments and/or Accessories. The Original Government Survey was performed in stages, as listed below:

Surveyor:	Description:	Date:	Organization:
Turner & Smith	Original Survey	1875	U.S. Geological Survey

    Original Survey notes and Plats were obtained from the Bureau of Land Management website for the Sections being surveyed and adjoining sections. Records were obtained of current filed Section and Quarter Section corners from Hub Tack. The following is our findings and actions at each Section and Quarter Section corner:

    Northwest Corner of Section 3, Township 4 North, Range 26 West, IBM: (H-29-128)
    Found and accepted 1" Iron Pipe set by unknown party. Referenced and filed corner.

SDS 2 OF 12

PLS	ERS	
DRAWN	BDK	
CHECKED	ERS	
APPROVED	ERS	
CREW		

OKLAHOMA DEPARTMENT OF TRANSPORTATION
SURVEY DIVISION

SURVEY DATA SHEET

SWO 5007(1) STATE JOB NO. 28768(04) SHEET NO. S2

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