<?xml version="1.0" encoding="utf-8"?>

<!DOCTYPE metadata SYSTEM "http://www.fgdc.gov/metadata/fgdc-std-001-1998.dtd">

<metadata>

<idinfo>

<citation>

<citeinfo>

<origin>Sanborn Mapping Company, Inc</origin>

<pubdate>September 2007</pubdate>

<geoform sync="TRUE" Sync="TRUE">vector digital data</geoform>

<title sync="TRUE">LCRA Lakes region</title>

<ftname sync="TRUE" Sync="TRUE">LakeTiles</ftname>

</citeinfo>

</citation>

<descript>

<abstract>Provide high density LiDAR elevation data map of LCRA Lakes region, TX. Provide Bare Earth DEM (vegetation removal) of LCRA Lakes region, TX.</abstract>

<purpose>

This LIDAR operation was designed to provide a high density set of masspoints within the defined areas. The data sets are suitable for the development of contours for use in hydraulic/hydrologic model development, and for assessing environmental impacts.Typical uses for the data set include: FEMA Flood Plain Map Modernization. DFIRM map updates. Watersheds and other hydro studies per FEMA specifications. County Mapping projects which include several uses, in addition to Flood mitigation assessment. Mapping projects that include accuracy verification, reporting and meta data.

</purpose>

<langdata sync="TRUE" Sync="TRUE">en</langdata>

</descript>

<timeperd>

<timeinfo>

<sngdate><caldate>September 2007</caldate></sngdate></timeinfo>

<current>publication date</current>

</timeperd>

<status>

<progress>

Complete

</progress>

<update>

None planned

</update>

</status>

<spdom>

<bounding>

<westbc Sync="TRUE">-98.503676</westbc><eastbc Sync="TRUE">-97.804485</eastbc><northbc Sync="TRUE">31.031795</northbc><southbc Sync="TRUE">30.310467</southbc></bounding>

<lboundng>

<leftbc sync="TRUE" Sync="TRUE">547717.742993</leftbc>

<rightbc sync="TRUE" Sync="TRUE">614102.588613</rightbc>

<bottombc sync="TRUE" Sync="TRUE">3353784.813773</bottombc>

<topbc sync="TRUE" Sync="TRUE">3433232.937582</topbc>

</lboundng>

</spdom>

<keywords>

<theme>

<themekt>Place\_Keyword: TX</themekt>

<themekey>

Theme\_Keyword: Theme\_Keyword\_Thesaurus: Keywords

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: DEM

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Digital elevation model

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Elevation

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Digital terrain model

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Surface Model

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Hydraulic

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Hydrographic

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Lidar

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: LIDAR

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Hydrologic Modeling

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Drainage Area

</themekey>

<themekey>

Theme\_Keyword: Theme\_Keyword: Hydrology

</themekey>

<themekey>Theme\_Keyword: Theme Keyword: LCRA Lakes region</themekey>

<themekey>Theme\_Keyword\_Thesaurus: Place\_Keyword: TX</themekey>

</theme>

<theme>

<themekt>Place\_Keyword: Texas</themekt>

</theme>

<theme>

<themekt>Place\_Keyword: LCRA Lakes region</themekt>

</theme>

<place>

<placekey>Theme\_Keyword\_Thesaurus: Place\_Keyword: Texas</placekey></place>

</keywords>

<accconst>

None

</accconst>

<useconst>

None

</useconst>

<ptcontac>

<cntinfo>

<cntpos>LiDAR Manager</cntpos>

<cntaddr>

<addrtype>

mailing and physical address

</addrtype>

<address>

1935 Jamboree Drive #100

</address>

<city>

Colorado Springs

</city>

<state>

Colorado

</state>

<postal>

80920

</postal>

<country>

United States

</country>

</cntaddr>

<cntvoice>719.264.5602</cntvoice>

<cnttdd>

N/A

</cnttdd>

<cntfax>719.264.5637</cntfax>

<cntemail>jyoung@sanborn.com</cntemail>

<cntorgp><cntorg>Sanborn Mapping</cntorg><cntper>Jamie Young</cntper></cntorgp></cntinfo>

</ptcontac>

<native sync="TRUE" Sync="TRUE">Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.2.2.1350</native>

<secinfo>

<secclass>

Unclassified

</secclass>

</secinfo>

<natvform>ASCII\_(XYZ)</natvform>

</idinfo>

<spdoinfo>

<direct sync="TRUE" Sync="TRUE">Vector</direct>

<ptvctinf>

<sdtsterm Name="LakeTiles">

<sdtstype sync="TRUE" Sync="TRUE">G-polygon</sdtstype>

<ptvctcnt sync="TRUE" Sync="TRUE">157</ptvctcnt>

</sdtsterm>

<esriterm Name="LakeTiles">

<efeatyp sync="TRUE" Sync="TRUE">Simple</efeatyp>

<efeageom sync="TRUE" Sync="TRUE">Polygon</efeageom>

<esritopo sync="TRUE" Sync="TRUE">FALSE</esritopo>

<efeacnt sync="TRUE" Sync="TRUE">157</efeacnt>

<spindex sync="TRUE" Sync="TRUE">FALSE</spindex>

<linrefer sync="TRUE" Sync="TRUE">FALSE</linrefer>

</esriterm>

</ptvctinf>

</spdoinfo>

<spref>

<horizsys>

<planar>

<planci>

<plance sync="TRUE" Sync="TRUE">coordinate pair</plance>

<coordrep>

<absres sync="TRUE" Sync="TRUE">0.000000</absres>

<ordres sync="TRUE" Sync="TRUE">0.000000</ordres>

</coordrep>

<plandu sync="TRUE" Sync="TRUE">meters</plandu>

</planci>

<gridsys><gridsysn Sync="TRUE">Universal Transverse Mercator</gridsysn><utm><utmzone Sync="TRUE">14</utmzone><transmer><sfctrmer Sync="TRUE">0.999600</sfctrmer><longcm Sync="TRUE">-99.000000</longcm><latprjo Sync="TRUE">0.000000</latprjo><feast Sync="TRUE">500000.000000</feast><fnorth Sync="TRUE">0.000000</fnorth></transmer></utm></gridsys></planar>

<geodetic>

<horizdn sync="TRUE">North American Datum of 1983</horizdn>

<ellips sync="TRUE">Geodetic Reference System 80</ellips>

<semiaxis sync="TRUE" Sync="TRUE">6378137.000000</semiaxis>

<denflat sync="TRUE" Sync="TRUE">298.257222</denflat>

</geodetic>

<cordsysn>

<geogcsn sync="TRUE">GCS\_North\_American\_1983</geogcsn>

<projcsn sync="TRUE">NAD\_1983\_UTM\_Zone\_14N</projcsn>

</cordsysn>

</horizsys>

<vertdef>

<altsys>

<altdatum>North American Vertical Datum of 1988</altdatum>

<altunits>meters</altunits>

<altenc>Explicit elevation coordinate included with horizontal coordinates</altenc>

</altsys>

</vertdef>

</spref>

<eainfo>

<overview><dsoverv>ASCII Text Files - XYZ (mixed units - feet/meters)</dsoverv></overview><detailed Name="LakeTiles"><enttyp><enttypl Sync="TRUE">LakeTiles</enttypl><enttypt Sync="TRUE">Feature Class</enttypt><enttypc Sync="TRUE">157</enttypc></enttyp><attr><attrlabl Sync="TRUE">FID</attrlabl><attalias Sync="TRUE">FID</attalias><attrtype Sync="TRUE">OID</attrtype><attwidth Sync="TRUE">4</attwidth><atprecis Sync="TRUE">0</atprecis><attscale Sync="TRUE">0</attscale><attrdef Sync="TRUE">Internal feature number.</attrdef><attrdefs Sync="TRUE">ESRI</attrdefs><attrdomv><udom Sync="TRUE">Sequential unique whole numbers that are automatically generated.</udom></attrdomv></attr><attr><attrlabl Sync="TRUE">Shape</attrlabl><attalias Sync="TRUE">Shape</attalias><attrtype Sync="TRUE">Geometry</attrtype><attwidth Sync="TRUE">0</attwidth><atprecis Sync="TRUE">0</atprecis><attscale Sync="TRUE">0</attscale><attrdef Sync="TRUE">Feature geometry.</attrdef><attrdefs Sync="TRUE">ESRI</attrdefs><attrdomv><udom Sync="TRUE">Coordinates defining the features.</udom></attrdomv></attr><attr><attrlabl Sync="TRUE">FIRST\_RTRN</attrlabl><attalias Sync="TRUE">FIRST\_RTRN</attalias><attrtype Sync="TRUE">String</attrtype><attwidth Sync="TRUE">15</attwidth></attr><attr><attrlabl Sync="TRUE">LAST\_RETRN</attrlabl><attalias Sync="TRUE">LAST\_RETRN</attalias><attrtype Sync="TRUE">String</attrtype><attwidth Sync="TRUE">15</attwidth></attr><attr><attrlabl Sync="TRUE">BARE\_EARTH</attrlabl><attalias Sync="TRUE">BARE\_EARTH</attalias><attrtype Sync="TRUE">String</attrtype><attwidth Sync="TRUE">15</attwidth></attr><attr><attrlabl Sync="TRUE">INTENSITY</attrlabl><attalias Sync="TRUE">INTENSITY</attalias><attrtype Sync="TRUE">String</attrtype><attwidth Sync="TRUE">15</attwidth></attr><attr><attrlabl Sync="TRUE">TILENAME</attrlabl><attalias Sync="TRUE">TILENAME</attalias><attrtype Sync="TRUE">String</attrtype><attwidth Sync="TRUE">15</attwidth></attr><attr><attrlabl Sync="TRUE">LAS</attrlabl><attalias Sync="TRUE">LAS</attalias><attrtype Sync="TRUE">String</attrtype><attwidth Sync="TRUE">25</attwidth></attr></detailed></eainfo>

<distinfo>

<resdesc>Data are organized by tile and are available through several distribution methods.</resdesc>

<stdorder>

<digform>

<digtinfo>

<transize Sync="TRUE">0.020</transize><dssize Sync="TRUE">0.020</dssize></digtinfo>

</digform>

</stdorder>

<distrib>

<cntinfo>

<cntperp>

<cntper>Jamie Young</cntper>

<cntorg>Sanborn Mapping </cntorg>

</cntperp>

<cntpos>LiDAR Manager</cntpos>

<cntvoice>719.264.5602</cntvoice>

<cnttdd>

N/A

</cnttdd>

<cntfax>719.264.5637</cntfax>

<cntemail>jyoung@sanborn.com</cntemail>

<cntaddr><addrtype>mailing and physical address</addrtype><address>1935 Jamboree Drive #100</address><city>Colorado Springs</city><state>CO.</state><postal>80920</postal><country>United States</country></cntaddr></cntinfo>

</distrib>

<distliab>TNRIS does not warrant these data for any particular use and is not responsible for any damages resulting from the use of the data. Contact TNRIS for more details. Acknowledgement of TNRIS appreciated in products derived and used from the data. The originator asks to be credited in derived products.</distliab></distinfo>

<metainfo>

<metd sync="TRUE" Sync="TRUE">20071009</metd>

<metc>

<cntinfo>

<cntperp>

<cntper>Jamie Young</cntper>

<cntorg>Sanborn Mapping</cntorg>

</cntperp>

<cntpos>LiDAR Manager</cntpos>

<cntaddr>

<addrtype>

mailing and physical address

</addrtype>

<address>

1935 Jamboree Drive #100

</address>

<city>

Colorado Springs

</city>

<state>

Colorado

</state>

<postal>

80920

</postal>

<country>

United States

</country>

</cntaddr>

<cntvoice>719-264-5602</cntvoice>

<cnttdd>

N/A

</cnttdd>

<cntfax>719-264-5637</cntfax>

<cntemail>jyoung@sanborn.com</cntemail>

</cntinfo>

</metc>

<metstdn sync="TRUE" Sync="TRUE">FGDC Content Standards for Digital Geospatial Metadata</metstdn>

<metstdv sync="TRUE" Sync="TRUE">FGDC-STD-001-1998</metstdv>

<langmeta sync="TRUE" Sync="TRUE">en</langmeta>

<mettc sync="TRUE" Sync="TRUE">local time</mettc>

<metextns><onlink Sync="FALSE">http://www.esri.com/metadata/esriprof80.html</onlink><metprof Sync="TRUE">ESRI Metadata Profile</metprof></metextns></metainfo>

<esri>

<moddate>

20060727

</moddate>

<modtime>

09090400

</modtime>

</esri>

<mddatest sync="TRUE">

20060727

</mddatest>

<esri>

<moddate>

20060729

</moddate>

<modtime>

07433200

</modtime>

</esri>

<mddatest sync="TRUE">

20060729

</mddatest>

<esri>

<moddate>

20060810

</moddate>

<modtime>

20182900

</modtime>

</esri>

<mddatest sync="TRUE">

20060810

</mddatest>

<esri>

<moddate>

20070115

</moddate>

<modtime>

19413000

</modtime>

<metaid>

{798B605E-AEE5-441F-A798-19DB4FD1FA47}

</metaid>

<creadate>

20070109

</creadate>

<creatime>

13584900

</creatime>

<synconce>

FALSE

</synconce>

<syncdate>

20070109

</syncdate>

<synctime>

13584900

</synctime>

</esri>

<mddatest sync="TRUE">

20070115

</mddatest>

<dataqual>

<lineage>

<procstep><procdesc>Data Collection:

Using a LH Systems ALS50 Light Detection And Ranging (LiDAR) system, 101 flight lines of standard density (1.4 meter ground sample distance) data were collected over areas in LCRA Lakes region,TX (approximately 487 square miles). Multiple returns were recorded for each laser pulse along with an intensity value for each return. The data acquisition occurred in 5 missions between December 31, 2006 , and January 07, 2007. During the LIDAR campaign, the Sanborn field crew conducted a GPS field survey to establish final coordinates of the ground base stations for final processing of the base-remote GPS solutions.</procdesc><date Sync="TRUE">20070803</date><time Sync="TRUE">08251200</time><procdate>September 2007</procdate></procstep><procstep><procdesc>Airborne GPS Processing:

Airborne GPS data was differentially processed and integrated with the post processed IMU data to derive a smoothed best estimate of trajectory (SBET). The SBET was used to reduce the LiDAR slant range measurements to a raw reflective surface for each flight line. The overlap between flight lines was removed to provide a homogeneous coverage, and the coverage was classified to extract a bare earth digital elevation model (DEM).

Airborne GPS is differentially processed using the GrafNAV V7.50 software by Waypoint Consulting of Calgary, Alberta, Canada. The PDOP and distance separation is as follows:

IMU data is processed using the PosPac V4.2 software by Applanix Corporation of Richmond Hill, Ontario, Canada.

The reflective surface is derived using the ALS Post Processor software by Leica Geosystems GIS &amp; Mapping Division of Atlanta, Georgia.

The classification and quality control (QC) of LiDAR data is carried out using TerraScan software by Terrasolid Limited of Helinski, Finland.</procdesc><procdate>September 2007</procdate></procstep><procstep><procdesc>IMU data Processing:

IMU data provides information concerning roll, pitch and yaw of collection platform during collection event. IMU information allows the pulse vector to be properly placed in 3D space allowing the distance from the aircraft reference point to be properly positioned on the elevation model surface. IMU data is processed using the PosPac V4.2 software by Applanix Corporation of Richmond Hill, Ontario, Canada.</procdesc><procdate>September 2007</procdate></procstep><procstep><procdesc>Reflective Surface Generation:

The reflective surface is derived using the ALS Post Processor software by Leica Geosystems GIS &amp; Mapping Division of Atlanta, Georgia.</procdesc><procdate>September 2007</procdate></procstep><procstep><procdesc>LIDAR Point Classification

The classification and quality control (QC) of LiDAR data is carried out using TerraScan software by Terrasolid Limited of Helinski, Finland.</procdesc><procdate>September 2007</procdate></procstep><procstep><procdesc>Output LAS Files

The product output of LiDAR data is carried out using TerraScan software by Terrasolid Limited of Helinski, Finland. LAS Binary, ascii xyz, and intensity images were created.

The USGS DEM product was created by exporting ArcINFO ascii grid format from Terrascan and further processing was performed with ArcGIS.

Note: For the USGS DEM format, the DEM code has been set to "1". Originally, the code was to be set to "4", but this caused import problems.</procdesc><procdate>September 2007</procdate></procstep></lineage>

<logic>None</logic><complete>None</complete><posacc><horizpa><horizpar>FEMA LiDAR Specifications</horizpar></horizpa><vertacc><vertaccr>FEMA LiDAR Specifications; +/- 18 cm</vertaccr></vertacc></posacc></dataqual>

<dataidinfo>

<envirdesc sync="TRUE">

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.722

</envirdesc>

<datalang>

<languagecode sync="TRUE" value="en">

</languagecode>

</datalang>

<idcitation>

<restitle sync="TRUE">

XXXXX\_Boundary

</restitle>

<presform>

<presformcd sync="TRUE" value="005">

</presformcd>

</presform>

</idcitation>

<spatrptype>

<spatreptypcd sync="TRUE" value="001">

</spatreptypcd>

</spatrptype>

<dataext>

<geoele>

<geobndbox esriextenttype="native">

<westbl sync="TRUE">

360707.40384

</westbl>

<eastbl sync="TRUE">

419627.261735

</eastbl>

<northbl sync="TRUE">

3340336.930302

</northbl>

<southbl sync="TRUE">

3270843.78419

</southbl>

<extypecode sync="TRUE">

1

</extypecode>

</geobndbox>

</geoele>

</dataext>

<geobox esriextenttype="decdegrees">

<westbl sync="TRUE">

-94.446866

</westbl>

<eastbl sync="TRUE">

-93.829718

</eastbl>

<northbl sync="TRUE">

30.191834

</northbl>

<southbl sync="TRUE">

29.559549

</southbl>

<extypecode sync="TRUE">

1

</extypecode>

</geobox>

</dataidinfo>

<mdlang>

<languagecode sync="TRUE" value="en">

</languagecode>

</mdlang>

<mdstanname sync="TRUE">

ISO 19115 Geographic Information - Metadata

</mdstanname>

<mdstanver sync="TRUE">

DIS\_ESRI1.0

</mdstanver>

<mdchar>

<charsetcd sync="TRUE" value="004">

</charsetcd>

</mdchar>

<mdhrlv>

<scopecd sync="TRUE" value="005">

</scopecd>

</mdhrlv>

<mdhrlvname sync="TRUE">

dataset

</mdhrlvname>

<refsysinfo>

<refsystem>

<refsysid>

<identcode sync="TRUE">

NAD\_1983\_UTM\_Zone\_15N

</identcode>

</refsysid>

</refsystem>

</refsysinfo>

<spatrepinfo>

<vectspatrep>

<toplvl>

<topolevcd sync="TRUE" value="001">

</topolevcd>

</toplvl>

<geometobjs name="XXXXX\_Boundary">

<geoobjtyp>

<geoobjtypcd sync="TRUE" value="001">

</geoobjtypcd>

</geoobjtyp>

<geoobjcnt sync="TRUE">

1

</geoobjcnt>

</geometobjs>

</vectspatrep>

</spatrepinfo>

<Esri><ModDate>20071009</ModDate><ModTime>10004300</ModTime><CreaDate>20070927</CreaDate><CreaTime>15351900</CreaTime><SyncOnce>FALSE</SyncOnce><SyncDate>20070927</SyncDate><SyncTime>15335500</SyncTime><MetaID>{D471C19A-DCFF-48E9-9233-0163B2CFDE96}</MetaID></Esri><mdDateSt Sync="TRUE">20071009</mdDateSt><dataIdInfo><envirDesc Sync="TRUE">Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.2.2.1350</envirDesc><dataLang><languageCode Sync="TRUE" value="en"></languageCode></dataLang><idCitation><resTitle Sync="TRUE">LakeTiles</resTitle><presForm><PresFormCd Sync="TRUE" value="005"></PresFormCd></presForm></idCitation><spatRpType><SpatRepTypCd Sync="TRUE" value="001"></SpatRepTypCd></spatRpType><dataExt><geoEle><GeoBndBox esriExtentType="native"><westBL Sync="TRUE">547717.742993</westBL><eastBL Sync="TRUE">614102.588613</eastBL><northBL Sync="TRUE">3433232.937582</northBL><southBL Sync="TRUE">3353784.813773</southBL><exTypeCode Sync="TRUE">1</exTypeCode></GeoBndBox></geoEle></dataExt><geoBox esriExtentType="decdegrees"><westBL Sync="TRUE">-98.503676</westBL><eastBL Sync="TRUE">-97.804485</eastBL><northBL Sync="TRUE">31.031795</northBL><southBL Sync="TRUE">30.310467</southBL><exTypeCode Sync="TRUE">1</exTypeCode></geoBox></dataIdInfo><mdLang><languageCode Sync="TRUE" value="en"></languageCode></mdLang><mdStanName Sync="TRUE">ISO 19115 Geographic Information - Metadata</mdStanName><mdStanVer Sync="TRUE">DIS\_ESRI1.0</mdStanVer><mdChar><CharSetCd Sync="TRUE" value="004"></CharSetCd></mdChar><mdHrLv><ScopeCd Sync="TRUE" value="005"></ScopeCd></mdHrLv><mdHrLvName Sync="TRUE">dataset</mdHrLvName><distInfo><distributor><distorTran><onLineSrc><orDesc Sync="TRUE">002</orDesc><linkage Sync="FALSE"></linkage><protocol Sync="TRUE">Local Area Network</protocol></onLineSrc><transSize Sync="TRUE">0.020</transSize></distorTran><distorFormat><formatName Sync="TRUE">Shapefile</formatName></distorFormat></distributor></distInfo><refSysInfo><RefSystem><refSysID><identCode Sync="TRUE">NAD\_1983\_UTM\_Zone\_14N</identCode></refSysID></RefSystem></refSysInfo><spatRepInfo><VectSpatRep><topLvl><TopoLevCd Sync="TRUE" value="001"></TopoLevCd></topLvl><geometObjs Name="LakeTiles"><geoObjTyp><GeoObjTypCd Sync="TRUE" value="001"></GeoObjTypCd></geoObjTyp><geoObjCnt Sync="TRUE">157</geoObjCnt></geometObjs></VectSpatRep></spatRepInfo></metadata>