

**CAMINADA HEADLAND  
BEACH AND DUNE RESTORATION  
INCREMENT II (BA-143)**

**APPENDIX E**

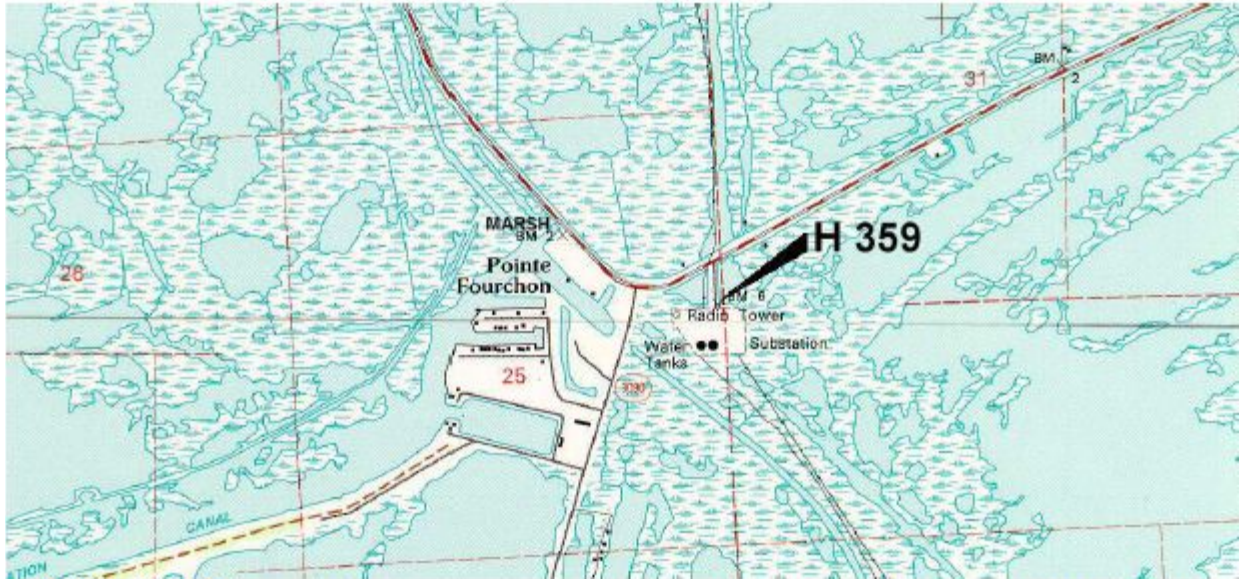
**SURVEY MONUMENTS**

**LAFOURCHE & JEFFERSON PARISHES, LOUISIANA**



**STATE OF LOUISIANA  
COASTAL PROTECTION AND RESTORATION  
AUTHORITY**

**MARCH 2014**



**VICINITY MAP** Scale: 1" = 2000'

Reproduced from USC&GS "LEEVILLE" Quadrangle

## Station Name: "H 359"

**Monument Location:** From the bridge crossing Bayou Lafourche in Leeville, Louisiana, proceed south southeasterly on State Highway 1 for approximately 7.0 miles to a road on right leading to Port Fourchon. Proceed left on Highway 1 towards Grand Isle for approximately 0.1 mile to a limestone drive leading to a radio tower and Loop Incorporated Electric Substation and station on left. The station is 53.5 north of the chain link fence, 12.1 east of the center of the drive, 2.0 north of the north face of a key card machine.

**Monument Description:** Stainless steel rod driven to refusal within a sleeve and access cover set in concrete stamped "H 359 1982".

**Re-Surveyed:** January 2008

**Monument Established By:** National Geodetic Survey

### NGS Published NAD83 Geodetic Position (NSRS2007)

Lat. 29° 09' 26.12122"N  
Long. 90° 10' 31.54669"W

### NGS Published NAVD88 (2004.65) Height (NSRS2007)

Elevation = 4.8 feet (1.45 mtrs)  
Ellipsoid Hgt: -22.465 mtrs (02/10/07)  
Geoid03 Hgt: -23.924 mtrs (2004.65)

### Held NAD83 Geodetic Position (NSRS2007)

Lat. 29° 09' 26.12122"N  
Long. 90° 10' 31.54669"W

### Held NAD83 Datum LSZ (1702) Ft (NSRS2007)

N= 240,894.82  
E= 3,650,437.29

### Adjusted NAVD88 Elevation (2006.81)

4.56 feet (1.390 mtrs)

Ellipsoid Hgt: -22.535 mtrs  
Geoid03 Hgt: -23.924 mtrs (2004.65)

### FOR REFERENCE ONLY

LCZ Adjusted NAVD88 Elevation (Geoid99)  
5.26 feet (1.603 mtrs.)



*Adjusted position determined by John Chance Land Surveys, Inc. for the Louisiana Department of Natural Resources, CED*

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.50
1      National Geodetic Survey,  Retrieval Date = DECEMBER  9, 2010
AU2042 *****
AU2042 HT_MOD      -  This is a Louisiana Height Modernization Survey Station.
AU2042 DESIGNATION -  H 359
AU2042 PID        -  AU2042
AU2042 STATE/COUNTY- LA/LAFOURCHE
AU2042 USGS QUAD   -  LEEVILLE (1994)
AU2042
AU2042                      *CURRENT SURVEY CONTROL
AU2042
AU2042* NAD 83(NSRS2007)- 29 09 26.12112(N) 090 10 31.54669(W)  ADJUSTED
AU2042* NAVD 88      -      1.39 *(meters)  4.6 *(feet)  GPS OBS(2006.18)
AU2042 **This station is located in a subsidence area (see below).
AU2042 **This station is included in the VTDP model (see below).
AU2042
AU2042 X            -      -17,067.649 (meters)                      COMP
AU2042 Y            -      -5,574,321.401 (meters)                  COMP
AU2042 Z            -      3,089,123.057 (meters)                  COMP
AU2042 LAPLACE CORR-      0.79 (seconds)                          DEFLEC99
AU2042 ELLIP HEIGHT-      -22.486 (meters)                        (03/12/08) GPS OBS
AU2042 GEOID HEIGHT-      -23.92 (meters)                          GEOID03
AU2042 DYNAMIC HT   -      1.39 (meters)  4.6 (feet)  COMP
AU2042
AU2042 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
AU2042 Type  PID  Designation                      North  East  Ellip
AU2042 -----
AU2042 NETWORK AU2042 H 359                          0.61  0.53  1.37
AU2042 -----
AU2042 LOCAL  AU2033 Q 359                          0.86  0.74  1.86
AU2042 LOCAL  AU1126 R 155                          1.10  0.98  2.80
AU2042 LOCAL  AU2014 B 358                          0.90  0.78  2.12
AU2042 LOCAL  AU1255 JESSE                          0.86  0.76  1.84
AU2042 LOCAL  AU1436 Z 221                          0.96  0.82  2.14
AU2042 LOCAL  AU1091 F 220                          0.96  0.84  2.16
AU2042 LOCAL  AU0286 CLUB                          1.65  1.41  4.72
AU2042 LOCAL  AU2028 G 358                          1.59  1.37  4.57
AU2042 LOCAL  DG5315 HOUMA CORS ARP                0.61  0.53  1.37
AU2042 LOCAL  DH3813 DOKKA                          0.96  0.80  2.18
AU2042 LOCAL  DH3815 TBM BULLY CAMP                1.98  1.86  5.70
AU2042 LOCAL  DH6859 GRAND ISLE CORS ARP           0.67  0.57  1.45
AU2042 -----
AU2042 LOCAL  AVERAGE                              1.09  0.96  2.74
AU2042
AU2042 MODELED GRAV-      979,275.9 (mgal)                      NAVD 88
AU2042
AU2042 VERT ORDER -  THIRD (See Below)
AU2042 ELLP ORDER -  THIRD CLASS I
AU2042
AU2042.The horizontal coordinates were established by GPS observations

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AU2042.and adjusted by the National Geodetic Survey in February 2007.  
AU2042  
AU2042 \*\* Due to the variability of land subsidence, the orthometric, ellipsoid,  
AU2042 \*\* and geoid heights are valid at the date of observation. These heights  
AU2042 \*\* must always be validated when used as control.  
AU2042 \*\* The orthometric height was determined with a Vertical Time-dependent  
AU2042 \*\* Positioning (VTDP) model and has been validated through GPS observations  
AU2042 \*\* for the epoch indicated (see www.ngs.noaa.gov/heightmod/VTDP).  
AU2042 \*\* The geoid height was determined by a new realization of GEOID03 for the  
AU2042 \*\* epoch indicated which incorporates improved geoid heights for the  
AU2042 \*\* Southern Louisiana Subsidence area  
AU2042 \*\* (see www.ngs.noaa.gov/PC\_PROD/GEOID03/).  
AU2042.The orthometric height was determined by GPS observations and a  
AU2042.high-resolution geoid model using precise GPS observation and  
AU2042.processing techniques. It supersedes the leveled height previously  
AU2042.determined for this station.  
AU2042.WARNING-GPS observations at this control monument resulted in a GPS  
AU2042.derived orthometric height which differed from the leveled height by  
AU2042.more than one decimeter (0.1 meter).  
AU2042.The vertical order pertains to the first NAVD 88 superseded value.  
AU2042  
AU2042.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AU2042  
AU2042.The Laplace correction was computed from DEFLEC99 derived deflections.  
AU2042  
AU2042.The ellipsoidal height was determined by GPS observations  
AU2042.and is referenced to NAD 83.  
AU2042  
AU2042.The geoid height was determined by GEOID03.  
AU2042  
AU2042.The dynamic height is computed by dividing the NAVD 88  
AU2042.geopotential number by the normal gravity value computed on the  
AU2042.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AU2042.degrees latitude (g = 980.6199 gals.).  
AU2042  
AU2042.The modeled gravity was interpolated from observed gravity values.  
AU2042  
AU2042;  

		North	East	Units	Scale	Factor	Converg.
AU2042;SPC	LA S	- 73,424.889	1,112,655.511	MT	1.00003328	+0 34	44.3
AU2042;SPC	LA S	- 240,894.82	3,650,437.29	sFT	1.00003328	+0 34	44.3
AU2042;UTM	15	- 3,228,709.713	774,754.400	MT	1.00053164	+1 22	37.3

AU2042  
AU2042!  

		Elev Factor	x	Scale Factor	=	Combined Factor
AU2042!SPC	LA S	- 1.00000353	x	1.00003328	=	1.00003681
AU2042!UTM	15	- 1.00000353	x	1.00053164	=	1.00053517

AU2042  
AU2042  

SUPERSEDED SURVEY CONTROL

AU2042  

AU2042	ELLIP H (02/10/07)	-22.465	(m)	GP(	)
AU2042	NAD 83(1992)-	29 09 26.12122(N)		090 10 31.54663(W)	AD(2004.65) B
AU2042	ELLIP H (06/22/05)	-22.472	(m)	GP(2004.65)	4 1

AU2042 NAVD 88 (02/14/94) 1.640 (m) 5.38 (f) READJUSTED 3  
 AU2042 NAVD 88 (06/15/91) 1.703 (m) 5.59 (f) UNKNOWN 1 2  
 AU2042 NGVD 29 (??/??/??) 1.643 (m) 5.39 (f) ADJUSTED 1 2

AU2042

AU2042.Superseded values are not recommended for survey control.  
 AU2042.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AU2042.See file dsdata.txt to determine how the superseded data were derived.

AU2042

AU2042\_U.S. NATIONAL GRID SPATIAL ADDRESS: 15RYN7475428710(NAD 83)  
 AU2042\_MARKER: F = FLANGE-ENCASED ROD  
 AU2042\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.)  
 AU2042\_SP\_SET: STAINLESS STEEL ROD  
 AU2042\_STAMPING: H 359 1982  
 AU2042\_MARK LOGO: NGS  
 AU2042\_PROJECTION: FLUSH  
 AU2042\_MAGNETIC: I = MARKER IS A STEEL ROD  
 AU2042\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 AU2042\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AU2042+SATELLITE: SATELLITE OBSERVATIONS - August 02, 2009  
 AU2042\_ROD/PIPE-DEPTH: 24.4 meters

AU2042

AU2042	HISTORY	- Date	Condition	Report By
AU2042	HISTORY	- 1982	MONUMENTED	NGS
AU2042	HISTORY	- 19930224	GOOD	NGS
AU2042	HISTORY	- 20040413	GOOD	NGS
AU2042	HISTORY	- 20051010	GOOD	NGS
AU2042	HISTORY	- 20060325	GOOD	NGS
AU2042	HISTORY	- 20060430	GOOD	NGS
AU2042	HISTORY	- 20090730	GOOD	AEROME
AU2042	HISTORY	- 20090802	GOOD	AEROME

AU2042

STATION DESCRIPTION

AU2042

AU2042'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982  
 AU2042'11.7 KM (7.3 MI) SSE FROM LEEVILLE.  
 AU2042'THE MARK IS ABOVE LEVEL WITH SHELL ROAD.  
 AU2042'11.7 KILOMETERS (7.3 MILES) SOUTH-SOUTHEAST ALONG STATE HIGHWAY 1 FROM  
 AU2042'THE SOUTH END OF THE HIGHWAY BRIDGE OVER LAFOURCHE BAYOU IN LEEVILLE,  
 AU2042'THENCE 0.2 KILOMETER (0.1 MILE) SOUTH ALONG A SHELL ROAD TO THE  
 AU2042'ENTRANCE OF A LARGE POWER SUBSTATION, AND THE MARK ON THE LEFT, ALSO  
 AU2042'21.3 KILOMETERS (13.25 MILES) SOUTHWEST ALONG STATE HIGHWAY 1 FROM THE  
 AU2042'POST OFFICE IN GRAND ISLE, 3.65 METERS (12.0 FEET) EAST OF THE CENTER  
 AU2042'OF THE SHELL ROAD, 16.30 METERS (53.5 FEET) NORTH OF THE EAST ENTRANCE  
 AU2042'GATE POST OF THE FENCE ENCLOSING THE SUBSTATION, 0.61 METER (2.0 FEET)  
 AU2042'NORTH OF THE NORTH FACE OF THE CONCRETE BASE OF CREDIT CARD MACHINE  
 AU2042'FOR ACCESS OF THE LOCK GATE OF THE SUBSTATION, 0.45 METER (1.5 FEET)  
 AU2042'EAST OF A 3-FOOT HIGH METAL POST PROTECTING THE CREDIT CARD MACHINE.  
 AU2042'THE MARK IS 0.30 METERS N FROM A WITNESS POST.

AU2042

STATION RECOVERY (1993)

AU2042

AU2042

AU2042'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993  
 AU2042'20.7 KM (12.85 MI) SOUTHWESTERLY ALONG STATE HIGHWAY 1 FROM THE POST  
 AU2042'OFFICE IN GRAND ISLE, THENCE 0.2 KM (0.10 MI) SOUTHERLY ALONG A ROAD  
 AU2042'LEADING TO THE LOOP INCORPORATED ELECTRIC SUB-STATION, 16.3 M (53.5  
 AU2042'FT) NORTH OF A CHAIN-LINK FENCE, 3.7 M (12.1 FT) EAST OF AND LEVEL  
 AU2042'WITH THE CENTER OF THE ROAD, 0.6 M (2.0 FT) NORTH OF THE NORTH FACE  
 AU2042'OF A KEY CARD MACHINE, AND 0.3 M (1.0 FT) NORTH OF A WITNESS POST.  
 AU2042'NOTE--ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH LOGO CAP.  
 AU2042  
 AU2042 STATION RECOVERY (2004)  
 AU2042  
 AU2042'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2004 (KLF)  
 AU2042'RECOVERED AS DESCRIBED  
 AU2042  
 AU2042 STATION RECOVERY (2005)  
 AU2042  
 AU2042'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2005 (KLF)  
 AU2042'RECOVERED AS DESCRIBED.  
 AU2042  
 AU2042 STATION RECOVERY (2006)  
 AU2042  
 AU2042'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2006 (DEB)  
 AU2042'RECOVERED IN GOOD CONDITION. NOTE--NEED ADVANCE PERMISSION TO SET ON  
 AU2042'MARK.  
 AU2042  
 AU2042 STATION RECOVERY (2006)  
 AU2042  
 AU2042'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2006 (RLT)  
 AU2042'RECOVERED AS DESCRIBED.  
 AU2042  
 AU2042 STATION RECOVERY (2009)  
 AU2042  
 AU2042'RECOVERY NOTE BY AERO METRIC INC 2009 (AER)  
 AU2042'RECOVERED IN GOOD CONDITION.  
 AU2042  
 AU2042 STATION RECOVERY (2009)  
 AU2042  
 AU2042'RECOVERY NOTE BY AERO METRIC INC 2009 (MB)  
 AU2042'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.  
 Elapsed Time = 00:00:00

-----  
 - This listing contains control for which complete digital -  
 - data sheets where not provided. The complete data sheets were -  
 - not provided for the reason listed below. The reason below is -  
 - associated with a horizontal control Nonpub code shown under -  
 - the heading 'H' and/or a vertical control Nonpub code shown under -

```

- the heading 'v'
-
- The format of the records are as follows:
-   Pid = Station Permanent Identifier)
-   Name = Station Designation
-   Lat = Approx. Latitude (Degrees, Minutes, truncated Seconds)
-   Lon = Approx. Longitude (Degrees, Minutes, truncated Seconds)
-   O   = Horizontal Order
-   o   = Vertical Order
-   H   = Horizontal Nonpub Code
-   v   = Vertical Nonpub Code
-
-   H Nonpub HORIZONTAL CONTROL NONPUB REASON
-   -----
-   X      Surface Mark Reported Destroyed
-   Y      Surface and underground mark reported destroyed
-   A      A-Order Horizontal mark not tied to an adjusted HARN
-   C      C-Nonoperational CORS Station
-   W      Weakly determined position.
-   P      Purpose of position is not for network control
-   D      No Descriptive Text available
-   R      Restricted position
-   O      Outside NGS Publication Area
-   N      No geodetic control at this mark
-
-   v Nonpub VERTICAL CONTROL NONPUB REASON
-   -----
-   X      Surface Mark Reported Destroyed
-   Y      Surface and underground mark reported destroyed
-   F      Bench Mark not yet adjusted.
-   D      No Descriptive Text available
-   Z      Presumed destroyed
-   R      Restricted elevation
-   O      Outside NGS Publication Area
-   N      No geodetic control at this mark
-   S      Mark is in a subsidence area
-
- NOTE - Stations found in this listing may still have a valid
-        datasheet produced by use of other publishable values.
-        For example, an ADJUSTED height may be non-publishable
-        but a good GPS height might be found on the datasheet.
-        This listing does not imply that values found on the datasheet
-        are restricted.  If it's on the datasheet, use it.
-
-----
Pid      Name                Lat      Lon      Elev      O o Hv
-----
>AU2042 H 359                29 09 26.1/090 10 31.5      ?   S

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.50
1      National Geodetic Survey,  Retrieval Date = DECEMBER 9, 2010
AU1291 *****
AU1291 HT_MOD      -   This is a Louisiana Height Modernization Survey Station.
AU1291 DESIGNATION -   N 221
AU1291 PID        -   AU1291
AU1291 STATE/COUNTY- LA/JEFFERSON
AU1291 USGS QUAD   -   CAMINADA PASS (1994)
AU1291
AU1291                      *CURRENT SURVEY CONTROL
AU1291
AU1291* NAD 83(NSRS2007)- 29 12 16.50777(N) 090 02 24.25855(W)  ADJUSTED
AU1291* NAVD 88      -           1.59 **(meters)  5.2 **(feet)  GPS OBS(2006.18)
AU1291 **This station is located in a subsidence area (see below).
AU1291
AU1291 X            -           -3,896.827 (meters)                      COMP
AU1291 Y            -           -5,571,788.606 (meters)                  COMP
AU1291 Z            -           3,093,703.313 (meters)                  COMP
AU1291 LAPLACE CORR-           0.83 (seconds)                          DEFLEC99
AU1291 ELLIP HEIGHT-          -22.263 (meters)                        (03/12/08) GPS OBS
AU1291 GEOID HEIGHT-          -23.91 (meters)                          GEOID03
AU1291 DYNAMIC HT  -           1.59 (meters)                          5.2 (feet) COMP
AU1291
AU1291 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
AU1291 Type  PID  Designation                      North  East  Ellip
AU1291 -----
AU1291 NETWORK AU1291 N 221                          0.49  0.41  1.25
AU1291 -----
AU1291 LOCAL  AU2033 Q 359                            0.82  0.71  1.84
AU1291 LOCAL  AU1126 R 155                            1.08  0.94  2.78
AU1291 LOCAL  AU1255 JESSE                            0.82  0.73  1.82
AU1291 LOCAL  AT0685 876 1724 TIDAL 11                0.65  0.57  1.49
AU1291 LOCAL  AU2028 G 358                            1.57  1.35  4.59
AU1291 LOCAL  AU2042 H 359                            0.73  0.63  1.67
AU1291 LOCAL  DE8091 BOOTHVILLE CORS ARP              0.49  0.41  1.25
AU1291 LOCAL  DF5771 LUMCON CORS ARP                   0.49  0.41  1.25
AU1291 LOCAL  DH3815 TBM BULLY CAMP                   1.98  1.84  5.72
AU1291 LOCAL  DH6859 GRAND ISLE CORS ARP              0.57  0.47  1.35
AU1291 -----
AU1291 LOCAL  AVERAGE                                0.92  0.81  2.38
AU1291
AU1291 MODELED GRAV-           979,289.2 (mgal)                      NAVD 88
AU1291 OBS GRAVITY -           979,288.0 (mgal)                      GRAV_OBS
AU1291
AU1291 VERT ORDER -   THIRD (See Below)
AU1291 ELLP ORDER  -   THIRD      CLASS I
AU1291
AU1291.The horizontal coordinates were established by GPS observations
AU1291.and adjusted by the National Geodetic Survey in February 2007.
AU1291

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AU1291 \*\* Due to the variability of land subsidence, the orthometric, ellipsoid,  
AU1291 \*\* and geoid heights are valid at the date of observation. These heights  
AU1291 \*\* must always be validated when used as control.  
AU1291 \*\* The orthometric height was determined by GPS observations using  
AU1291 \*\* precise GPS observation and processing techniques and a new  
AU1291 \*\* realization of GEOID03. It supersedes the leveled height previously  
AU1291 \*\* determined for this station.  
AU1291 \*\* The geoid height was determined by a new realization of GEOID03 for the  
AU1291 \*\* epoch indicated which incorporates improved geoid heights for the  
AU1291 \*\* Southern Louisiana Subsidence area.  
AU1291 \*\* (see [www.ngs.noaa.gov/PC\\_PROD/GEOID03/](http://www.ngs.noaa.gov/PC_PROD/GEOID03/)).  
AU1291.The orthometric height was determined by GPS observations and a  
AU1291.high-resolution geoid model using precise GPS observation and  
AU1291.processing techniques. It supersedes the leveled height previously  
AU1291.determined for this station.  
AU1291.WARNING-GPS observations at this control monument resulted in a GPS  
AU1291.derived orthometric height which differed from the leveled height by  
AU1291.more than one decimeter (0.1 meter).  
AU1291.The vertical order pertains to the first NAVD 88 superseded value.  
AU1291  
AU1291.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AU1291  
AU1291.The Laplace correction was computed from DEFLEC99 derived deflections.  
AU1291  
AU1291.The ellipsoidal height was determined by GPS observations  
AU1291.and is referenced to NAD 83.  
AU1291  
AU1291.The geoid height was determined by GEOID03.  
AU1291  
AU1291.The dynamic height is computed by dividing the NAVD 88  
AU1291.geopotential number by the normal gravity value computed on the  
AU1291.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AU1291.degrees latitude (g = 980.6199 gals.).  
AU1291  
AU1291.The modeled gravity was interpolated from observed gravity values.  
AU1291.The observed gravity was obtained from relative gravimeter ties  
AU1291.to the IGSN71 gravity network.  
AU1291  
AU1291;  

	North	East	Units	Scale	Factor	Converg.
AU1291;SPC LA S	- 78,811.508	1,125,765.094	MT	1.00002157	+0 38 47.9	
AU1291;SPC LA S	- 258,567.42	3,693,447.65	SFT	1.00002157	+0 38 47.9	
AU1291;UTM 15	- 3,234,281.516	787,794.818	MT	1.00062218	+1 26 42.8	
AU1291;UTM 16	- 3,234,480.878	204,408.982	MT	1.00067832	-1 29 03.9	

AU1291  
AU1291!  

	Elev Factor	x	Scale Factor	=	Combined Factor
AU1291!SPC LA S	- 1.00000350	x	1.00002157	=	1.00002507
AU1291!UTM 15	- 1.00000350	x	1.00062218	=	1.00062568
AU1291!UTM 16	- 1.00000350	x	1.00067832	=	1.00068182

AU1291  
AU1291  

SUPERSEDED SURVEY CONTROL

AU1291

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AU1291 ELLIP H (02/10/07) -22.242 (m) GP( )
AU1291 NAD 83(1992)- 29 12 16.50784(N) 090 02 24.25833(W) AD(2004.65) B
AU1291 ELLIP H (06/22/05) -22.246 (m) GP(2004.65) 4 1
AU1291 NAD 83(1992)- 29 12 16.50788(N) 090 02 24.25851(W) AD( ) B
AU1291 ELLIP H (12/29/04) -22.239 (m) GP( ) 4 1
AU1291 ELLIP H (09/30/02) -22.212 (m) GP( ) 4 2
AU1291 NAD 83(1992)- 29 12 16.50765(N) 090 02 24.25732(W) AD( ) 1
AU1291 ELLIP H (01/21/93) -22.206 (m) GP( ) 4 2
AU1291 NAD 83(1986)- 29 12 16.52612(N) 090 02 24.25740(W) AD( ) 1
AU1291 NAD 27 - 29 12 15.71037(N) 090 02 24.00074(W) AD( ) 1
AU1291 NAVD 88 (02/14/94) 1.881 (m) 6.17 (f) READJUSTED 3
AU1291 NAVD 88 (06/15/91) 1.950 (m) 6.40 (f) UNKNOWN 1 2
AU1291 NGVD 29 (??/??/??) 1.876 (m) 6.15 (f) ADJUSTED 1 2
AU1291

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AU1291.Superseded values are not recommended for survey control.  
AU1291.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
AU1291.See file dsdata.txt to determine how the superseded data were derived.  
AU1291

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AU1291_U.S. NATIONAL GRID SPATIAL ADDRESS: 15RYN8779534282(NAD 83)
AU1291_MARKER: DB = BENCH MARK DISK
AU1291_SETTING: 38 = SET IN THE ABUTMENT OR PIER OF A LARGE BRIDGE
AU1291_SP_SET: BRIDGE ABUTMENT
AU1291_STAMPING: N 221 1965
AU1291_MARK LOGO: CGS
AU1291_MAGNETIC: N = NO MAGNETIC MATERIAL
AU1291_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AU1291_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AU1291+SATELLITE: SATELLITE OBSERVATIONS - February 22, 2009

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AU1291
AU1291 HISTORY - Date Condition Report By
AU1291 HISTORY - 1965 MONUMENTED CGS
AU1291 HISTORY - 1982 GOOD NGS
AU1291 HISTORY - 1984 GOOD LA-051
AU1291 HISTORY - 1987 GOOD LADTD
AU1291 HISTORY - 19880920 GOOD LADTD
AU1291 HISTORY - 19890118 GOOD
AU1291 HISTORY - 19930224 GOOD NGS
AU1291 HISTORY - 20030402 GOOD 3001
AU1291 HISTORY - 20030916 GOOD USACE
AU1291 HISTORY - 20040413 GOOD NGS
AU1291 HISTORY - 20051010 GOOD NGS
AU1291 HISTORY - 20060411 GOOD NGS
AU1291 HISTORY - 20090222 GOOD WOOLPT

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AU1291

AU1291 STATION DESCRIPTION

AU1291

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AU1291'DESCRIBED BY COAST AND GEODETIC SURVEY 1965
AU1291'3.75 MI SW FROM GRAND ISLE.
AU1291'3.75 MILES SOUTHWEST ALONG STATE HIGHWAY 1 FROM THE POST OFFICE AT
AU1291'GRAND ISLE, SET IN THE TOP OF THE SOUTHWEST END OF THE SOUTHEAST
AU1291'CONCRETE ABUTMENT OF A CONCRETE BRIDGE OVER THE CAMINADA PASS, 18 FEET

```

AU1291'SOUTHWEST OF THE SOUTHWEST CONCRETE WINGWALL, ABOUT LEVEL WITH THE  
AU1291'HIGHWAY.

AU1291

AU1291 STATION RECOVERY (1982)

AU1291

AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1982

AU1291'RECOVERED IN GOOD CONDITION.

AU1291

AU1291 STATION RECOVERY (1984)

AU1291

AU1291'RECOVERY NOTE BY JEFFERSON PARISH LOUISIANA 1984

AU1291'RECOVERED IN GOOD CONDITION.

AU1291

AU1291 STATION RECOVERY (1987)

AU1291

AU1291'RECOVERY NOTE BY LA TRANSP AND DEV 1987 (TLH)

AU1291'THE DESIGNATED MARK WAS RECOVERED AS PREVIOUSLY DESCRIBED.

AU1291'THE PRESENT LOCATION AND OWNERSHIP ARE ADEQUATE. A NEW TO REACH

AU1291'AND STATION MARK DESCRIPTION WERE TAKEN THIS DATE.

AU1291'

AU1291'TO REACH THE STATION FROM THE SOUTHWEST END OF GRAND ISLE, GO TO

AU1291'THE CAMINADA PASS HIGHWAY BRIDGE AND THE STATION MARK SET IN THE

AU1291'SOUTHWEST BRIDGE ABUTMENT.

AU1291'

AU1291'THE STATION IS A STANDARD CGS DISK

AU1291'STAMPED---N 221 1965---,

AU1291'SET INTO A DRILL HOLE IN THE SOUTHWEST ABUTMENT OF THE BRIDGE.

AU1291'5.5 METERS (18 FT) SOUTHWEST FROM THE CENTER OF THE HIGHWAY,

AU1291'0.5 METERS (1.6 FT) NORTHWEST FROM THE SOUTHWEST END OF THE

AU1291'BANNISTER, AND

AU1291'0.3 METERS (1 FT) NORTHEAST FROM THE SOUTHWEST END OF THE BRIDGE

AU1291'ABUTMENT.

AU1291

AU1291 STATION RECOVERY (1988)

AU1291

AU1291'RECOVERY NOTE BY LA TRANSP AND DEV 1988

AU1291'THE STATION IS LOCATED AT THE WEST END CAMINADA PASS BRIDGE.

AU1291'OWNERSHIP--LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT.

AU1291'TO REACH THE STATION FROM THE SOUTHWEST END OF GRAND ISLE GO WEST ON

AU1291'STATE HIGHWAY 1 TO THE WEST END OF THE CAMINADA PASS BRIDGE AND THE

AU1291'STATION ON THE LEFT SET IN A DRILL HOLE IN THE SOUTHWEST ABUTMENT OF

AU1291'THE BRIDGE.

AU1291'THE STATION IS 5.5 M (18.0 FT) SOUTHWEST FROM THE CENTER OF THE

AU1291'HIGHWAY, 0.5 M (1.6 FT) NORTHWEST FROM THE SOUTHWEST END OF THE

AU1291'BANISTER AND 0.3 M (1.0 FT) NORTHEAST FROM THE SOUTHWEST END OF THE

AU1291'BRIDGE ABUTMENT.

AU1291

AU1291 STATION RECOVERY (1989)

AU1291

AU1291'RECOVERED 1989

AU1291'RECOVERED IN GOOD CONDITION.

AU1291  
AU1291 STATION RECOVERY (1993)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993  
AU1291'5.7 KM (3.55 MI) SOUTHWESTERLY ALONG STATE HIGHWAY 1 FROM THE POST  
AU1291'OFFICE IN GRAND ISLE, IN TOP OF AND 0.3 M (1.0 FT) NORTHEAST OF THE  
AU1291'SOUTHWEST END OF THE SOUTHEAST CONCRETE ABUTMENT OF THE HIGHWAY  
AU1291'BRIDGE SPANNING CAMINADA PASS, 5.5 M (18.0 FT) SOUTHWEST OF THE  
AU1291'CENTERLINE OF THE HIGHWAY, AND 0.3 M (1.0 FT) BELOW THE LEVEL OF THE  
AU1291'HIGHWAY.  
AU1291  
AU1291 STATION RECOVERY (2003)  
AU1291  
AU1291'RECOVERY NOTE BY 3001, INC 2003 (KD)  
AU1291'THE STATION IS LOCATED ON THE SOUTHEAST CORNER OF A BRIDGE ABUTMENT  
AU1291'CROSSING CAMINADA PASS AT THE SOUTHWEST END OF GRAND ISLE, LA.  
AU1291'  
AU1291'ONWERSHIP- LOUISIANA DEPT OF TRANSPORTATION  
AU1291'  
AU1291'TO REACH THE STATION FROM THE POST OFFICE IN GRAND ISLE, LA, PROCEED  
AU1291'SOUTHWESTERLY ALONG HWY. 1, FOR 3.55 MILES TO BRIDGE CROSSING  
AU1291'CAMINADA PASS, AND THE MARK IS ON THE LEFT.  
AU1291'  
AU1291'THE STATION IS 1.0 FT. NORTHEAST OF THE SOUTHWEST END OF THE SOUTHEAST  
AU1291'CONCRETE ABUTMENT OF THE HWY BRIDGE CROSSING CAMINADA PASS, 18 FT  
AU1291'SOUTHWEST OF THE CENTERLINE OF HWY, AND 1.0 FT. BELOW THE LEVEL OF  
AU1291'HWY.  
AU1291  
AU1291 STATION RECOVERY (2003)  
AU1291  
AU1291'RECOVERY NOTE BY US ARMY CORPS OF ENGINEERS 2003 (MWH)  
AU1291'RECOVERED AS DESCRIBED  
AU1291  
AU1291 STATION RECOVERY (2004)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2004 (KLF)  
AU1291'RECOVERED AS DESCRIBED  
AU1291  
AU1291 STATION RECOVERY (2005)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2005 (KLF)  
AU1291'RECOVERED AS DESCRIBED.  
AU1291  
AU1291 STATION RECOVERY (2006)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2006 (RLT)  
AU1291'RECOVERED AS DESCRIBED.  
AU1291  
AU1291 STATION RECOVERY (2009)  
AU1291  
AU1291'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2009 (JPD)

AU1291'RECOVERED AS DESCRIBED

\*\*\* retrieval complete.  
Elapsed Time = 00:00:00

-----

- This listing contains control for which complete digital -  
- data sheets were not provided. The complete data sheets were -  
- not provided for the reason listed below. The reason below is -  
- associated with a horizontal control Nonpub code shown under -  
- the heading 'H' and/or a vertical control Nonpub code shown under -  
- the heading 'v' -  
- -  
- The format of the records are as follows: -  
- Pid = Station Permanent Identifier) -  
- Name = Station Designation -  
- Lat = Approx. Latitude (Degrees, Minutes, truncated Seconds) -  
- Lon = Approx. Longitude (Degrees, Minutes, truncated Seconds) -  
- O = Horizontal Order -  
- o = Vertical Order -  
- H = Horizontal Nonpub Code -  
- v = Vertical Nonpub Code -  
- -  
- H Nonpub HORIZONTAL CONTROL NONPUB REASON -  
- ----- -  
- X Surface Mark Reported Destroyed -  
- Y Surface and underground mark reported destroyed -  
- A A-Order Horizontal mark not tied to an adjusted HARN -  
- C C-Nonoperational CORS Station -  
- W Weakly determined position. -  
- P Purpose of position is not for network control -  
- D No Descriptive Text available -  
- R Restricted position -  
- O Outside NGS Publication Area -  
- N No geodetic control at this mark -  
- -  
- v Nonpub VERTICAL CONTROL NONPUB REASON -  
- ----- -  
- X Surface Mark Reported Destroyed -  
- Y Surface and underground mark reported destroyed -  
- F Bench Mark not yet adjusted. -  
- D No Descriptive Text available -  
- Z Presumed destroyed -  
- R Restricted elevation -  
- O Outside NGS Publication Area -  
- N No geodetic control at this mark -  
- S Mark is in a subsidence area -  
- -  
- -

- NOTE - Stations found in this listing may still have a valid -  
- datasheet produced by use of other publishable values. -  
- For example, an ADJUSTED height may be non-publishable -  
- but a good GPS height might be found on the datasheet. -  
- This listing does not imply that values found on the datasheet -  
- are restricted. If it's on the datasheet, use it. -  
-

```
-----  
Pid      Name                               Lat      Lon      Elev      O o Hv  
-----  
>AUI291 N 221                            29 12 16.5/090 02 24.2      ?      S
```



**VICINITY MAP** Not to Scale

Image Reproduced from Google Earth Pro ©2008 Google™

**Station Name: TE23-SM-01**

**Monument Location:** This Station is located southeast of Port Fourchon, 40 feet east of the centerline of La Hwy. 3090 and 65 feet northeast of the bridge approach near Pass Fourchon, Louisiana.

**Monument Description:** NGS Style floating sleeve monument, 9/16" stainless steel rods driven 96 feet to refusal, set in a sand filled 6" PVC pipe with access cover set flush with the ground.

**Stamping:** "TE23 SM 01"

**Re-Adjusted:** May 2008

**Monument Established By:** Morris P. Hebert, Inc.

**Adjusted NAD83 Geodetic Position (NSRS2007)**

Lat. 29° 06' 42.28538"N  
 Long. 90° 11' 26.96472"W

**Adjusted NAD83 Datum LSZ (1702) Ft (NSRS2007)**

N= 224,296.40  
 E= 3,645,688.72

**Adjusted NAVD88 Height (2006.81)**

Elevation = 7.61 feet (2.321 mtrs)

Ellipsoid Hgt: -21.546 mtrs  
 Geoid03 Hgt: -23.867 mtrs (2004.65)

**FOR REFERENCE ONLY**

**LCZ Adjusted NAVD88 Height (Geoid99)**  
 Elevation = 8.21 feet (2.502 mtrs)



*Adjusted position determined by John Chance Land Surveys, Inc. for the Louisiana Department of Natural Resources, CRD*

```

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.50
1      National Geodetic Survey,  Retrieval Date = DECEMBER  9, 2010
DJ9376 *****
DJ9376 HT_MOD      -  This is a Louisiana Height Modernization Survey Station.
DJ9376 DESIGNATION -  TE23 SM 01
DJ9376 PID        -  DJ9376
DJ9376 STATE/COUNTY-  LA/LAFOURCHE
DJ9376 USGS QUAD   -  BELLE PASS (1994)
DJ9376
DJ9376                      *CURRENT SURVEY CONTROL
DJ9376
DJ9376* NAD 83(NSRS2007)-  29 06 42.28516(N) 090 11 26.96513(W)    ADJUSTED
DJ9376* NAVD 88      -      2.32 *(meters)    7.6 *(feet)  GPS OBS(2006.18)
DJ9376 **This station is located in a subsidence area (see below).
DJ9376
DJ9376 EPOCH DATE   -      2006.81
DJ9376 X           -      -18,573.517 (meters)                    COMP
DJ9376 Y           -      -5,576,773.301 (meters)                COMP
DJ9376 Z           -      3,084,717.520 (meters)                  COMP
DJ9376 LAPLACE CORR-      0.67 (seconds)                          DEFLEC99
DJ9376 ELLIP HEIGHT-      -21.496 (meters)                      (03/12/08) GPS OBS
DJ9376 GEOID HEIGHT-      -23.87 (meters)                        GEOID03
DJ9376 HORZ ORDER  -  A
DJ9376 ELLP ORDER  -  THIRD      CLASS I
DJ9376
DJ9376.The horizontal coordinates were established by GPS observations
DJ9376.and adjusted by the National Geodetic Survey in March 2008.
DJ9376.The horizontal coordinates are valid at the epoch date displayed above.
DJ9376.The epoch date for horizontal control is a decimal equivalence
DJ9376.of Year/Month/Day.
DJ9376
DJ9376 ** Due to the variability of land subsidence, the orthometric, ellipsoid,
DJ9376 ** and geoid heights are valid at the date of observation. These heights
DJ9376 ** must always be validated when used as control.
DJ9376 ** The orthometric height was determined by GPS observations using
DJ9376 ** precise GPS observation and processing techniques and a new
DJ9376 ** realization of GEOID03. It supersedes the leveled height previously
DJ9376 ** determined for this station.
DJ9376 ** The geoid height was determined by a new realization of GEOID03 for the
DJ9376 ** epoch indicated which incorporates improved geoid heights for the
DJ9376 ** Southern Louisiana Subsidence area.
DJ9376 ** (see www.ngs.noaa.gov/PC_PROD/GEOID03/).
DJ9376.The orthometric height was determined by GPS observations and a
DJ9376.high-resolution geoid model using precise GPS observation and
DJ9376.processing techniques.
DJ9376
DJ9376.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DJ9376
DJ9376.The Laplace correction was computed from DEFLEC99 derived deflections.
DJ9376

```



DJ9376.The ellipsoidal height was determined by GPS observations  
DJ9376.and is referenced to NAD 83.

DJ9376

DJ9376.The geoid height was determined by GEOID03.

DJ9376

DJ9376;		North	East	Units	Scale	Factor	Converg.
DJ9376;SPC LA S	-	68,365.673	1,111,208.132	MT	1.00004518	+0 34	16.6
DJ9376;SPC LA S	-	224,296.38	3,645,688.68	SFT	1.00004518	+0 34	16.6
DJ9376;UTM 15	-	3,223,628.372	773,376.876	MT	1.00052233	+1 22	03.2

DJ9376

DJ9376!	-	Elev Factor	x	Scale Factor	=	Combined Factor
DJ9376!SPC LA S	-	1.00000338	x	1.00004518	=	1.00004856
DJ9376!UTM 15	-	1.00000338	x	1.00052233	=	1.00052571

DJ9376

#### SUPERSEDED SURVEY CONTROL

DJ9376

DJ9376.No superseded survey control is available for this station.

DJ9376

DJ9376\_U.S. NATIONAL GRID SPATIAL ADDRESS: 15RYN7337723628(NAD 83)

DJ9376\_MARKER: F = FLANGE-ENCASED ROD

DJ9376\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

DJ9376\_STAMPING: LA DNR CRD TE 23-SM-01

DJ9376\_MARK LOGO: LADNR

DJ9376\_PROJECTION: RECESSED 5 CENTIMETERS

DJ9376\_MAGNETIC: I = MARKER IS A STEEL ROD

DJ9376\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

DJ9376\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DJ9376+SATELLITE: SATELLITE OBSERVATIONS - November 20, 2008

DJ9376\_ROD/PIPE-DEPTH: 29.3 meters

DJ9376

DJ9376	HISTORY	-	Date	Condition	Report By
DJ9376	HISTORY	-	20030910	MONUMENTED	MPHI
DJ9376	HISTORY	-	20060425	GOOD	NGS
DJ9376	HISTORY	-	20081120	GOOD	ESP

DJ9376

#### STATION DESCRIPTION

DJ9376

DJ9376'DESCRIBED BY NATIONAL GEODETIC SURVEY 2006 (RLT)

DJ9376'5.9 KM (3.7 MI) SOUTHERLY ALONG STATE HIGHWAY 3090 FROM THE JUNCTION

DJ9376'OF STATE HIGHWAY 1 IN PORT FOURCHON TO MARK ON LEFT IN THE GRASSY

DJ9376'SHOULDER.

DJ9376'

DJ9376'1.66 KM (1.0 MI) SOUTH OF THE PORT LAFOURCHON WATER TOWER.

DJ9376'

DJ9376'51.2 FT (15.6 M) NORTH-NORTHEAST OF THE NORTHEAST GATE BARRIER POST

DJ9376'FOR A BAYOU BRIDGE, 41.3 FT (12.6 M) EAST OF THE CENTERLINE OF STATE

DJ9376'HIGHWAY 3090, 24.6 FT (7.5 M) WEST OF THE CENTERLINE OF GRAVEL ROAD,

DJ9376'6.9 FT (2.1 M) BELOW THE HIGHWAY, AND 6.6 FT (2.0 M) ABOVE THE GRAVEL

DJ9376'ROAD.

DJ9376'

DJ9376'ACCESS TO MARK IS THROUGH A 5 INCH (13 CM) PVC PIPE AND LOGO CAP.

DJ9376'LADNR COASTAL RESTORATION DIVISION TERREBONNE DISTRICT PROJECT 23,  
DJ9376'SURVEY MARK 01. FULL STAMPING IS LA DNR / CRD (TE24-SM-01).

DJ9376

DJ9376 STATION RECOVERY (2008)

DJ9376

DJ9376'RECOVERY NOTE BY ENG SURV + PLANNING 2008 (BRM)

DJ9376'RECOVERED AS DESCRIBED

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.50
1 National Geodetic Survey, Retrieval Date = DECEMBER 9, 2010
AU1291 *****
AU1291 HT_MOD - This is a Louisiana Height Modernization Survey Station.
AU1291 DESIGNATION - N 221
AU1291 PID - AU1291
AU1291 STATE/COUNTY- LA/JEFFERSON
AU1291 USGS QUAD - CAMINADA PASS (1994)
AU1291
AU1291 *CURRENT SURVEY CONTROL
AU1291
AU1291* NAD 83(NSRS2007)- 29 12 16.50777(N) 090 02 24.25855(W) ADJUSTED
AU1291* NAVD 88 - 1.59 *(meters) 5.2 *(feet) GPS OBS(2006.18)
AU1291 **This station is located in a subsidence area (see below).
AU1291
AU1291 X - -3,896.827 (meters) COMP
AU1291 Y - -5,571,788.606 (meters) COMP
AU1291 Z - 3,093,703.313 (meters) COMP
AU1291 LAPLACE CORR- 0.83 (seconds) DEFLEC99
AU1291 ELLIP HEIGHT- -22.263 (meters) (03/12/08) GPS OBS
AU1291 GEOID HEIGHT- -23.91 (meters) GEOID03
AU1291 DYNAMIC HT - 1.59 (meters) 5.2 (feet) COMP
AU1291
AU1291 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
AU1291 Type PID Designation North East Ellip
AU1291 -----
AU1291 NETWORK AU1291 N 221 0.49 0.41 1.25
AU1291 -----
AU1291 LOCAL AU2033 Q 359 0.82 0.71 1.84
AU1291 LOCAL AU1126 R 155 1.08 0.94 2.78
AU1291 LOCAL AU1255 JESSE 0.82 0.73 1.82
AU1291 LOCAL AT0685 876 1724 TIDAL 11 0.65 0.57 1.49
AU1291 LOCAL AU2028 G 358 1.57 1.35 4.59
AU1291 LOCAL AU2042 H 359 0.73 0.63 1.67
AU1291 LOCAL DE8091 BOOTHVILLE CORS ARP 0.49 0.41 1.25
AU1291 LOCAL DF5771 LUMCON CORS ARP 0.49 0.41 1.25
AU1291 LOCAL DH3815 TBM BULLY CAMP 1.98 1.84 5.72
AU1291 LOCAL DH6859 GRAND ISLE CORS ARP 0.57 0.47 1.35
AU1291 -----
AU1291 LOCAL AVERAGE 0.92 0.81 2.38
AU1291
AU1291 MODELED GRAV- 979,289.2 (mgal) NAVD 88
AU1291 OBS GRAVITY - 979,288.0 (mgal) GRAV_OBS
AU1291
AU1291 VERT ORDER - THIRD (See Below)
AU1291 ELLP ORDER - THIRD CLASS I
AU1291
AU1291.The horizontal coordinates were established by GPS observations
AU1291.and adjusted by the National Geodetic Survey in February 2007.
AU1291

```

AU1291 \*\* Due to the variability of land subsidence, the orthometric, ellipsoid,  
AU1291 \*\* and geoid heights are valid at the date of observation. These heights  
AU1291 \*\* must always be validated when used as control.  
AU1291 \*\* The orthometric height was determined by GPS observations using  
AU1291 \*\* precise GPS observation and processing techniques and a new  
AU1291 \*\* realization of GEOID03. It supersedes the leveled height previously  
AU1291 \*\* determined for this station.  
AU1291 \*\* The geoid height was determined by a new realization of GEOID03 for the  
AU1291 \*\* epoch indicated which incorporates improved geoid heights for the  
AU1291 \*\* Southern Louisiana Subsidence area.  
AU1291 \*\* (see [www.ngs.noaa.gov/PC\\_PROD/GEOID03/](http://www.ngs.noaa.gov/PC_PROD/GEOID03/)).  
AU1291.The orthometric height was determined by GPS observations and a  
AU1291.high-resolution geoid model using precise GPS observation and  
AU1291.processing techniques. It supersedes the leveled height previously  
AU1291.determined for this station.  
AU1291.WARNING-GPS observations at this control monument resulted in a GPS  
AU1291.derived orthometric height which differed from the leveled height by  
AU1291.more than one decimeter (0.1 meter).  
AU1291.The vertical order pertains to the first NAVD 88 superseded value.  
AU1291  
AU1291.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AU1291  
AU1291.The Laplace correction was computed from DEFLEC99 derived deflections.  
AU1291  
AU1291.The ellipsoidal height was determined by GPS observations  
AU1291.and is referenced to NAD 83.  
AU1291  
AU1291.The geoid height was determined by GEOID03.  
AU1291  
AU1291.The dynamic height is computed by dividing the NAVD 88  
AU1291.geopotential number by the normal gravity value computed on the  
AU1291.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AU1291.degrees latitude (g = 980.6199 gals.).  
AU1291  
AU1291.The modeled gravity was interpolated from observed gravity values.  
AU1291.The observed gravity was obtained from relative gravimeter ties  
AU1291.to the IGSN71 gravity network.  
AU1291  
AU1291;  

	North	East	Units	Scale	Factor	Converg.
AU1291;SPC LA S	- 78,811.508	1,125,765.094	MT	1.00002157		+0 38 47.9
AU1291;SPC LA S	- 258,567.42	3,693,447.65	sFT	1.00002157		+0 38 47.9
AU1291;UTM 15	- 3,234,281.516	787,794.818	MT	1.00062218		+1 26 42.8
AU1291;UTM 16	- 3,234,480.878	204,408.982	MT	1.00067832		-1 29 03.9

AU1291  
AU1291!  

	Elev Factor	x	Scale Factor	=	Combined Factor
AU1291!SPC LA S	- 1.00000350	x	1.00002157	=	1.00002507
AU1291!UTM 15	- 1.00000350	x	1.00062218	=	1.00062568
AU1291!UTM 16	- 1.00000350	x	1.00067832	=	1.00068182

AU1291  
AU1291  

SUPERSEDED SURVEY CONTROL

AU1291

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AU1291 ELLIP H (02/10/07) -22.242 (m) GP( )
AU1291 NAD 83(1992)- 29 12 16.50784(N) 090 02 24.25833(W) AD(2004.65) B
AU1291 ELLIP H (06/22/05) -22.246 (m) GP(2004.65) 4 1
AU1291 NAD 83(1992)- 29 12 16.50788(N) 090 02 24.25851(W) AD( ) B
AU1291 ELLIP H (12/29/04) -22.239 (m) GP( ) 4 1
AU1291 ELLIP H (09/30/02) -22.212 (m) GP( ) 4 2
AU1291 NAD 83(1992)- 29 12 16.50765(N) 090 02 24.25732(W) AD( ) 1
AU1291 ELLIP H (01/21/93) -22.206 (m) GP( ) 4 2
AU1291 NAD 83(1986)- 29 12 16.52612(N) 090 02 24.25740(W) AD( ) 1
AU1291 NAD 27 - 29 12 15.71037(N) 090 02 24.00074(W) AD( ) 1
AU1291 NAVD 88 (02/14/94) 1.881 (m) 6.17 (f) READJUSTED 3
AU1291 NAVD 88 (06/15/91) 1.950 (m) 6.40 (f) UNKNOWN 1 2
AU1291 NGVD 29 (??/??/??) 1.876 (m) 6.15 (f) ADJUSTED 1 2
AU1291

```

AU1291.Superseded values are not recommended for survey control.  
AU1291.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
AU1291.See file dsdata.txt to determine how the superseded data were derived.  
AU1291

```

AU1291_U.S. NATIONAL GRID SPATIAL ADDRESS: 15RYN8779534282(NAD 83)
AU1291_MARKER: DB = BENCH MARK DISK
AU1291_SETTING: 38 = SET IN THE ABUTMENT OR PIER OF A LARGE BRIDGE
AU1291_SP_SET: BRIDGE ABUTMENT
AU1291_STAMPING: N 221 1965
AU1291_MARK LOGO: CGS
AU1291_MAGNETIC: N = NO MAGNETIC MATERIAL
AU1291_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AU1291_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AU1291+SATELLITE: SATELLITE OBSERVATIONS - February 22, 2009
AU1291

```

AU1291	HISTORY	- Date	Condition	Report By
AU1291	HISTORY	- 1965	MONUMENTED	CGS
AU1291	HISTORY	- 1982	GOOD	NGS
AU1291	HISTORY	- 1984	GOOD	LA-051
AU1291	HISTORY	- 1987	GOOD	LADTD
AU1291	HISTORY	- 19880920	GOOD	LADTD
AU1291	HISTORY	- 19890118	GOOD	
AU1291	HISTORY	- 19930224	GOOD	NGS
AU1291	HISTORY	- 20030402	GOOD	3001
AU1291	HISTORY	- 20030916	GOOD	USACE
AU1291	HISTORY	- 20040413	GOOD	NGS
AU1291	HISTORY	- 20051010	GOOD	NGS
AU1291	HISTORY	- 20060411	GOOD	NGS
AU1291	HISTORY	- 20090222	GOOD	WOOLPT

AU1291

AU1291 STATION DESCRIPTION

AU1291

```

AU1291'DESCRIBED BY COAST AND GEODETIC SURVEY 1965
AU1291'3.75 MI SW FROM GRAND ISLE.
AU1291'3.75 MILES SOUTHWEST ALONG STATE HIGHWAY 1 FROM THE POST OFFICE AT
AU1291'GRAND ISLE, SET IN THE TOP OF THE SOUTHWEST END OF THE SOUTHEAST
AU1291'CONCRETE ABUTMENT OF A CONCRETE BRIDGE OVER THE CAMINADA PASS, 18 FEET

```

AU1291'SOUTHWEST OF THE SOUTHWEST CONCRETE WINGWALL, ABOUT LEVEL WITH THE  
AU1291'HIGHWAY.

AU1291

AU1291 STATION RECOVERY (1982)

AU1291

AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1982

AU1291'RECOVERED IN GOOD CONDITION.

AU1291

AU1291 STATION RECOVERY (1984)

AU1291

AU1291'RECOVERY NOTE BY JEFFERSON PARISH LOUISIANA 1984

AU1291'RECOVERED IN GOOD CONDITION.

AU1291

AU1291 STATION RECOVERY (1987)

AU1291

AU1291'RECOVERY NOTE BY LA TRANSP AND DEV 1987 (TLH)

AU1291'THE DESIGNATED MARK WAS RECOVERED AS PREVIOUSLY DESCRIBED.

AU1291'THE PRESENT LOCATION AND OWNERSHIP ARE ADEQUATE. A NEW TO REACH

AU1291'AND STATION MARK DESCRIPTION WERE TAKEN THIS DATE.

AU1291'

AU1291'TO REACH THE STATION FROM THE SOUTHWEST END OF GRAND ISLE, GO TO

AU1291'THE CAMINADA PASS HIGHWAY BRIDGE AND THE STATION MARK SET IN THE

AU1291'SOUTHWEST BRIDGE ABUTMENT.

AU1291'

AU1291'THE STATION IS A STANDARD CGS DISK

AU1291'STAMPED---N 221 1965---,

AU1291'SET INTO A DRILL HOLE IN THE SOUTHWEST ABUTMENT OF THE BRIDGE.

AU1291'5.5 METERS (18 FT) SOUTHWEST FROM THE CENTER OF THE HIGHWAY,

AU1291'0.5 METERS (1.6 FT) NORTHWEST FROM THE SOUTHWEST END OF THE

AU1291'BANNISTER, AND

AU1291'0.3 METERS (1 FT) NORTHEAST FROM THE SOUTHWEST END OF THE BRIDGE

AU1291'ABUTMENT.

AU1291

AU1291 STATION RECOVERY (1988)

AU1291

AU1291'RECOVERY NOTE BY LA TRANSP AND DEV 1988

AU1291'THE STATION IS LOCATED AT THE WEST END CAMINADA PASS BRIDGE.

AU1291'OWNERSHIP--LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT.

AU1291'TO REACH THE STATION FROM THE SOUTHWEST END OF GRAND ISLE GO WEST ON

AU1291'STATE HIGHWAY 1 TO THE WEST END OF THE CAMINADA PASS BRIDGE AND THE

AU1291'STATION ON THE LEFT SET IN A DRILL HOLE IN THE SOUTHWEST ABUTMENT OF

AU1291'THE BRIDGE.

AU1291'THE STATION IS 5.5 M (18.0 FT) SOUTHWEST FROM THE CENTER OF THE

AU1291'HIGHWAY, 0.5 M (1.6 FT) NORTHWEST FROM THE SOUTHWEST END OF THE

AU1291'BANISTER AND 0.3 M (1.0 FT) NORTHEAST FROM THE SOUTHWEST END OF THE

AU1291'BRIDGE ABUTMENT.

AU1291

AU1291 STATION RECOVERY (1989)

AU1291

AU1291'RECOVERED 1989

AU1291'RECOVERED IN GOOD CONDITION.

AU1291  
AU1291 STATION RECOVERY (1993)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993  
AU1291'5.7 KM (3.55 MI) SOUTHWESTERLY ALONG STATE HIGHWAY 1 FROM THE POST  
AU1291'OFFICE IN GRAND ISLE, IN TOP OF AND 0.3 M (1.0 FT) NORTHEAST OF THE  
AU1291'SOUTHWEST END OF THE SOUTHEAST CONCRETE ABUTMENT OF THE HIGHWAY  
AU1291'BRIDGE SPANNING CAMINADA PASS, 5.5 M (18.0 FT) SOUTHWEST OF THE  
AU1291'CENTERLINE OF THE HIGHWAY, AND 0.3 M (1.0 FT) BELOW THE LEVEL OF THE  
AU1291'HIGHWAY.  
AU1291  
AU1291 STATION RECOVERY (2003)  
AU1291  
AU1291'RECOVERY NOTE BY 3001, INC 2003 (KD)  
AU1291'THE STATION IS LOCATED ON THE SOUTHEAST CORNER OF A BRIDGE ABUTMENT  
AU1291'CROSSING CAMINADA PASS AT THE SOUTHWEST END OF GRAND ISLE, LA.  
AU1291'  
AU1291'ONWERSHIP- LOUISIANA DEPT OF TRANSPORTATION  
AU1291'  
AU1291'TO REACH THE STATION FROM THE POST OFFICE IN GRAND ISLE, LA, PROCEED  
AU1291'SOUTHWESTERLY ALONG HWY. 1, FOR 3.55 MILES TO BRIDGE CROSSING  
AU1291'CAMINADA PASS, AND THE MARK IS ON THE LEFT.  
AU1291'  
AU1291'THE STATION IS 1.0 FT. NORTHEAST OF THE SOUTHWEST END OF THE SOUTHEAST  
AU1291'CONCRETE ABUTMENT OF THE HWY BRIDGE CROSSING CAMINADA PASS, 18 FT  
AU1291'SOUTHWEST OF THE CENTERLINE OF HWY, AND 1.0 FT. BELOW THE LEVEL OF  
AU1291'HWY.  
AU1291  
AU1291 STATION RECOVERY (2003)  
AU1291  
AU1291'RECOVERY NOTE BY US ARMY CORPS OF ENGINEERS 2003 (MWH)  
AU1291'RECOVERED AS DESCRIBED  
AU1291  
AU1291 STATION RECOVERY (2004)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2004 (KLF)  
AU1291'RECOVERED AS DESCRIBED  
AU1291  
AU1291 STATION RECOVERY (2005)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2005 (KLF)  
AU1291'RECOVERED AS DESCRIBED.  
AU1291  
AU1291 STATION RECOVERY (2006)  
AU1291  
AU1291'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2006 (RLT)  
AU1291'RECOVERED AS DESCRIBED.  
AU1291  
AU1291 STATION RECOVERY (2009)  
AU1291  
AU1291'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2009 (JPD)

AU1291'RECOVERED AS DESCRIBED

\*\*\* retrieval complete.  
Elapsed Time = 00:00:00

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- This listing contains control for which complete digital -  
- data sheets were not provided. The complete data sheets were -  
- not provided for the reason listed below. The reason below is -  
- associated with a horizontal control Nonpub code shown under -  
- the heading 'H' and/or a vertical control Nonpub code shown under -  
- the heading 'v' -  
- -  
- The format of the records are as follows: -  
- Pid = Station Permanent Identifier) -  
- Name = Station Designation -  
- Lat = Approx. Latitude (Degrees, Minutes, truncated Seconds) -  
- Lon = Approx. Longitude (Degrees, Minutes, truncated Seconds) -  
- O = Horizontal Order -  
- o = Vertical Order -  
- H = Horizontal Nonpub Code -  
- v = Vertical Nonpub Code -  
- -  
- H Nonpub HORIZONTAL CONTROL NONPUB REASON -  
- ----- -  
- X Surface Mark Reported Destroyed -  
- Y Surface and underground mark reported destroyed -  
- A A-Order Horizontal mark not tied to an adjusted HARN -  
- C C-Nonoperational CORS Station -  
- W Weakly determined position. -  
- P Purpose of position is not for network control -  
- D No Descriptive Text available -  
- R Restricted position -  
- O Outside NGS Publication Area -  
- N No geodetic control at this mark -  
- -  
- v Nonpub VERTICAL CONTROL NONPUB REASON -  
- ----- -  
- X Surface Mark Reported Destroyed -  
- Y Surface and underground mark reported destroyed -  
- F Bench Mark not yet adjusted. -  
- D No Descriptive Text available -  
- Z Presumed destroyed -  
- R Restricted elevation -  
- O Outside NGS Publication Area -  
- N No geodetic control at this mark -  
- S Mark is in a subsidence area -  
- -  
- -



- NOTE - Stations found in this listing may still have a valid -  
- datasheet produced by use of other publishable values. -  
- For example, an ADJUSTED height may be non-publishable -  
- but a good GPS height might be found on the datasheet. -  
- This listing does not imply that values found on the datasheet -  
- are restricted. If it's on the datasheet, use it. -  
-

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Pid      Name                      Lat      Lon      Elev      O o Hv  
-----  
>AU1291 N 221                    29 12 16.5/090 02 24.2      ?      S
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